

Final

Programmatic Environmental Impact Statement of Activities and Operations

Yuma Proving Ground, Arizona





Prepared for

U.S. Army Yuma Proving Ground

Prepared by

U.S. Army Corps of Engineers

US Army Corps of Engineers®
Mobile District

CH2MHILL®

April 2015

Final

Programmatic Environmental Impact Statement for Activities and Operations at Yuma Proving Ground, Arizona

Prepared For

U.S. Army Yuma Proving Ground

Prepared by

U.S. Army Corps of Engineers, Mobile District

April 2015

This page intentionally left blank.

Abstract

The Final Programmatic Environmental Impact Statement (FPEIS) analyzes construction, testing, and training activities and operations at Yuma Proving Ground in Arizona. The FPEIS identifies minor to moderate impacts for air quality, cultural resources, wildfire, hazardous materials, noise, recreational hunting, soils, threatened or endangered species, short-term traffic, vegetation, and water quality. The FPEIS identifies mitigation to reduce or eliminate adverse impacts.

This page intentionally left blank.

How to Read This Final Programmatic Environmental Impact Statement

This Final Programmatic Environmental Impact Statement (FPEIS) for Activities and Operations at Yuma Proving Ground contains both programmatic analyses and detailed analyses of specific actions. Yuma Proving Ground (YPG) has identified a Proposed Action that includes (1) well-defined short-term projects that could be implemented upon completion of this National Environmental Policy Act (NEPA) analysis that are analyzed in detail, (2) short-term projects that are not well-defined or that have unspecified locations for which programmatic analysis is appropriate, and (3) long-term, less well-defined activities for which programmatic analysis is appropriate. As the projects become better defined, tiered NEPA documents (Record of Environmental Consideration for Categorical Exclusions, Environmental Assessments, or Environmental Impact Statements) can be completed for these projects. This document identifies which Proposed Action activities were analyzed in detail and which were analyzed programmatically in Tables 2-1 through 2-6. Initially, this PEIS was developed from projects identified for development of a draft Real Property Master Plan (RPMP). That draft RPMP was not fully developed and additional projects have been identified that YPG proposes to implement. Therefore, this FPEIS addresses planned activities and operations at YPG and will be suitable to support future development of a RPMP at YPG.

Multiple areas on YPG are commonly known on the installation as "impact areas" because explosive and inert munitions are fired there. To avoid confusion over use of the word "impact," which is used in this document in a NEPA sense, munitions firing areas, such as small arms ranges, are referred to herein as "munitions impact areas" to distinguish them from areas where impacts from the Proposed Action could occur, which could be anywhere on the installation.

This FPEIS is organized into the following sections and appendices:

- Executive Summary—Includes information about the purpose and need for the Proposed Action, the project location, a description of the alternatives considered in the FPEIS, a description of the public outreach process, a summary of the environmental consequences of each alternative, and a description of proposed mitigation measures.
- Section 1—Purpose and Need: Presents the purpose of the Proposed Action and outlines Army requirements that drive and influence the need to modify testing and training activities at YPG. This section also describes the scope of the FPEIS, the decision to be made by the Army, and public and agency coordination that influenced development of the scope of the FPEIS and the analysis.
- Section 2—Description of the Proposed Action and Alternatives: Describes the relevant study area, describes the Proposed Action, explains the criteria used to develop reasonable alternatives to the Proposed Action, identifies alternatives that were considered but not analyzed in the FPEIS, and presents the alternatives considered in the FPEIS with a summary of their consequences. This section also discusses the Army's Preferred Alternative.
- Section 3—Affected Environment and Environmental Consequences: Describes the priorities for environmental analysis based on the resources that could be affected by the

Proposed Action. The baseline or existing condition for each resource area is provided, regardless of the potential for impact. Following the description of existing conditions, impacts are discussed. For each resource area, significance criteria for impacts are identified and the potential direct, indirect, and cumulative impacts of implementing the alternatives are analyzed. Impacts resulting from the testing and training activities and construction and demolition of facilities are presented for each alternative, as appropriate.

- Section 4—List of Preparers: Identifies the primary individuals responsible for preparation of the FPEIS and their qualifications, and indicates the sections of the FPEIS to which they contributed.
- Section 5—Distribution List: Presents the distribution list for the FPEIS.
- Section 6—References: Lists the sources referenced in the FPEIS.
- Section 7—Agencies and Persons Contacted: Lists the relevant entities contacted during preparation of the FPEIS.
- Section 8—Public, Agency, and Tribal Comments and Responses: Presents all correspondence relevant to the FPEIS and the Army responses to comments received.
- Section 9—Index: Presents a page number index to the key issues and topics addressed in this FPEIS.
- Appendix A—Public Outreach
- Appendix B—Activities Conducted Under the No Action Alternative
- Appendix C—Detailed Project-specific Impacts Analysis
- Appendix D—Quick Look Answers
- Appendix E—Air Emissions Calculations
- Appendix F—Programmatic Agreement
- Appendix G—Interior Bureau of Land Management Lower Colorado River District, Yuma Office, and U.S. Department of the Army Yuma Proving Ground
- Appendix H—Noise Contour Figures from the Installation Operational Noise Management Plan
- Appendix I—Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat
- Appendix J—Sensitive Species Tracked by State of Arizona with Potential to Occur in Yuma and La Paz Counties

Executive Summary

United States Army Yuma Proving Ground (YPG) and the U.S. Army Corps of Engineers, Mobile District have prepared this Final Programmatic Environmental Impact Statement (FPEIS) to assess the potential impacts associated with activities and operations at YPG. This FPEIS analyzes construction, testing, and training activities and assesses the direct, indirect, and cumulative effects of the Proposed Action. The Proposed Action would maintain YPG's activities as a multi-purpose installation, but also would create new infrastructure and implement new programs, including cross-functional training allowed by the Department of Defense. The FPEIS will support development of a future Real Property Master Plan (RPMP) at YPG. The analysis in the FPEIS also will support the alternatives analysis for the RPMP.

Activities anticipated on YPG include (1) construction and demolition of facilities and infrastructure and (2) changes to accommodate additional types of operational training and the capacity to support fluctuating demands on levels of testing and training adequately. The FPEIS addresses the following types of activities:

- Short-term, well-defined activities at known locations that could be implemented without additional National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) 4321-4347] analysis once a decision is made
- Short-term, less well-defined activities for which locations are not known or for which additional information regarding site-specific implementation must be developed, that would receive additional site-specific NEPA analysis prior to project implementation
- Long-term, less well-defined activities that would occur later in time and would receive additional site-specific NEPA analysis prior to project implementation

This document examines the sum of the activities that will occur or are likely to occur on YPG for the next several years. It is not always possible to predict accurately specific projects in specific years, but the Army is confident about the types of activities that will occur and the general technology trends that will establish the testing and training workloads in coming years; therefore, the Army is adopting a programmatic approach to this analysis to comply with NEPA and set the framework for future tiered documents if required. The analysis focuses on the anticipated impacts of categories of actions on the natural and human environment. Accordingly, the analysis examines military testing activities, military training activities, construction, and demolition, as appropriate for each activity.

This document identifies which activities were analyzed in detail and which were analyzed programmatically. The analysis evaluates all projects proposed for the foreseeable future. It is likely that not all evaluated activities would be implemented and the decision could indicate that only a portion of the activities analyzed will be selected. The alternatives for specific activities considered include testing, training, and construction/demolition options to meet the evolving mission requirements of YPG.

ES.1 Project Setting

YPG is a U-shaped Army facility located in southwestern Arizona (refer to Figure 2-1 in the FPEIS). The land between the arms of the "U" is managed by the U.S. Fish and Wildlife Service (USFWS) as the Kofa National Wildlife Refuge (NWR). YPG is subdivided into five functional units, with each unit performing a different function in relation to the mission:

- Laguna Region
- Cibola Region
- Kofa Region, including Kofa Firing Range (KFR) and East Arm
- Airspace
- Off-post Locations

Off-post locations are not addressed in this FPEIS since no changes are proposed for use of offsite areas.

YPG has restricted military airspace over most of YPG and over most of the Kofa NWR (refer to Figure 2-3 in the FPEIS). Restricted airspace places priority on military operations, but can be used by private or commercial flights with advance clearance during periods when not in military use. YPG allows use of its airspace by other military services for training activities when not in use by the installation.

ES.2 Alternatives

Three alternatives are carried forward for evaluation in this FPEIS:

1. The No Action Alternative is the continuation of existing operations on YPG. Under the No Action Alternative, testing and training would continue at the current levels and utilize existing facilities and infrastructure with no new construction. Ongoing testing and training occur in specific areas within YPG, and the locations of current activities are depicted on Figures 2-4 through 2-12 in the FPEIS. Tables identifying the testing and training activities included under the No Action Alternative are provided in Appendix B, as Tables B-1 through B-3, which are presented by region (Laguna, Cibola, and Kofa Regions). No test areas, munitions impact areas, or drop zones (DZs) would be expanded under the No Action Alternative. No construction or demolition would occur under the No Action Alternative.
2. The Proposed Action includes the activities identified under the No Action Alternative and the short-term and long-term projects identified by YPG that would be necessary to meet anticipated future needs, including new construction and associated demolition, testing, and training activities that would occur on YPG, and new testing and training proposed by supported components to meet anticipated testing or training needs.
3. The Preferred Alternative was developed by the U.S. Army after consideration of input from government agencies and tribal organizations. The Preferred Alternative is to a subset of the Proposed Action and includes reduced areas for two proposed activities (K003 and K026), the smaller of considered alternatives for two activities (L030-a, C034-a), specifies which of the considered alternatives would be implemented for other activities with reasonable alternatives (L031, L034, K024), implements the remainder of the Proposed Action, as proposed.

The locations of components of the Proposed Action planned to occur in the Laguna Region are shown on Figure 2-13 of the FPEIS. Fifty-six proposed activities have been identified for this region of YPG. This includes 14 long-term activities. Identifiers for the activities are located in Tables 2-1 and 2-2 in the FPEIS. These activities include infrastructure construction, expansion of test areas to accommodate additional testing, and planned changes in testing and training activities.

The construction, testing, and training activities planned to occur in the Cibola Region are identified in Tables 2-3 and 2-4 in the FPEIS and the locations are shown on Figure 2-14. The identifiers for each project in Tables 2-3 and 2-4 correspond to the identifiers on Figure 2-14. These activities include infrastructure construction, expansion of test areas to accommodate additional testing, planned changes in testing and training activities, and provision of appropriate supporting infrastructure for continued testing and training activities, such as appropriate petroleum, oil, and lubricants (POL) storage at remote testing locations.

Construction, testing, and training activities planned for the Kofa Region are listed in Section 2 of the FPEIS in Tables 2-5 and 2-6, with the locations shown on Figure 2-15. The identifiers for each project in Tables 2-5 and 2-6 correspond to the identifiers on Figure 2-15. These activities include infrastructure construction, expansion of test areas to accommodate additional testing, and planned changes in testing and training activities.

In addition to specific short-term projects analyzed in detail, the Proposed Action includes programmatic analysis of less well-defined short-term projects and long-term projects that are likely to be implemented following further design and analysis or implemented on an as-needed basis for specific testing needs.

The Preferred Alternative is depicted on Figures 2-16, 2-17, and 2-18.

One project under consideration is a solar renewable energy project. YPG is investigating the possibility of developing an enhanced use lease (EUL) with a private company to develop a commercial-scale solar-powered renewable electrical generation facility on the installation. A separate analysis under NEPA would be prepared for this project and an EUL for solar power generation is not a component of the Proposed Action. The possibility of the future development of a solar facility was considered in the assessment of potential cumulative impacts, based on proposed specifications at the time this document was prepared. Construction, operation, and maintenance of a solar electric generation facility could contribute to cumulative impacts to air quality, cultural resources, energy and utilities, hazardous materials, land use, recreation, socioeconomics, soils, threatened and endangered species, traffic/transportation, vegetation, visual resources, surface water and groundwater resources, and wildlife.

ES.3 Alternatives for Activities in the Proposed Action

Reasonable alternatives for individual projects included in the Proposed Action were evaluated. Potential alternatives for specific proposed projects included in the Proposed Action subjected to detailed analysis in this document are provided in Section 2.5. This section identifies those proposed activities where reasonable alternatives exist and provides a description of alternatives considered. Proposed projects for which no feasible alternatives exist also are identified and the justification for not considering other alternatives is provided.

No alternatives, other than the Proposed Action, were carried forward for analysis for projects subjected to programmatic analysis. The programmatic analysis was based on analysis of the likely maximum potential impacts of the considered activities on a broad scale. Because detailed analysis was not possible, due to the generally undefined nature of these activities, they would be subjected to site-specific NEPA analysis prior to implementation.

While the analysis in this FPEIS addresses all the proposed component projects, the final decision may be to implement only a subset of the Proposed Action components. The U.S. Army has the option of selecting only certain of the proposed construction, testing, and training activities for implementation, and to re-evaluate options at a future time. It also is possible and likely that some selected projects would not be implemented due to changes in needs or technology

ES.4 Comparison of Environmental Consequences of the Proposed Action and Alternatives and Summary of Mitigation Measures

A summary of potential impacts from implementation of the Proposed Action and No Action Alternative is presented in Table ES-1 along with a brief summary of measures that would be implemented to minimize or mitigate potential negative effects.

ES.5 Preferred Alternative

The U.S. Army has given consideration to input from government agencies and tribal organizations and has determined that the Preferred Alternative is to implement a subset of the Proposed Action as shown on Figures 2-16, 2-17, and 2-18 and the Preferred Alternative includes:

- Implement proposed activity L030b, the smaller of the two considered Light Maneuver Training Areas (LTAs), rather than proposed activity L030-a. This option was selected to minimize potential impacts after discussions with agencies and tribal organizations.
- Implement Option 1 for proposed activity L031. While there is no meaningful difference in the potential impacts of the considered alternative, this option was selected based on mission-related input.
- Implement Option 1 for proposed activity L034. While there is no meaningful difference in the potential impacts of the considered alternative, this option was selected based on mission-related input.
- Implement a reduced area for proposed activity C034-a, reducing the area of the expanded Graze Range munitions impact area and avoiding potential impacts to a known resource. This option was selected to minimize potential impacts after discussions with agencies and tribal organizations.
- Implement a reduced area for proposed activity K003, establishing the northern boundary of the expanded munitions impact area even with the northern boundary of the Ramsdell Ranch Advanced Munitions Range (1,000 meters [m] south of the boundary of Kofa NWR) and setting the western boundary of the expanded munitions

impact area parallel to and 500 m east of the boundary of Kofa NWR. This option was selected to minimize potential impacts after discussions with agencies and tribal organizations.

- Implement proposed activity K024 rather than proposed activity C066. K024 would have less environmental impacts compared with C066 and this option is preferred based on mission-related input.
- Implement a reduced area for proposed activity K026 (1,826 acres less than originally proposed), establishing the northern boundary of the LTA even with the northern boundary of the Ramsdell Ranch Advanced Munitions Range (1,000 m south of the boundary of Kofa NWR). This option was selected to minimize potential impacts after discussions with agencies and tribal organizations.
- Implement the remainder of the Proposed Action, as proposed.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
Air Quality	No change from existing conditions. Benefits from reduced use of portable generators would not occur.	Minor impacts from increased emissions due to operation of minor permanent sources of air emissions, operation of new facilities, vehicle operation to travel to new facilities, and testing and training activities in new locations. Temporary negative impacts due to fugitive dust from construction. Minor short-term impacts to local air quality as a result of emissions from construction equipment. Minor to moderate impacts from increased UAS testing. As noted under Energy/Utilities, there would be a reduction in portable generator use on ranges after the installation of hard power and telecommunications, which would produce minor benefits to air quality from reduced generator emissions following. Title V permit modification for the expansion of the sandblasting area will be required under Arizona Department of Environmental Quality regulations and Title V monitoring, recordkeeping, and reporting will be required. Monitoring, recordkeeping, and reporting will be required by the Title V permit for POL storage facilities and for construction activities.	Construction best management practices (BMPs) would minimize fugitive dust emissions. BMPs that could be implemented include the following: • *Application of Dust Suppressants.* Where appropriate, dust suppressants or liquid surfactants would be applied to areas where dust could be disturbed by construction or traffic. • *Sprinkling/Irrigation*. Sprinkling the ground surface with water until it is moist can be used to control dust on haul roads and other traffic routes. This practice can be applied to almost any site. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways, which ultimately could increase the dust problem. Mechanical removal of mud from tires would be implemented if necessary. • *Vegetative Cover*. In areas not expected to accommodate vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetation provides coverage to surface soils and decreases wind velocity at the ground surface, thus reducing the potential for dust to become airborne. • *Mulch*. Mulching can be a quick and effective means of dust control for recently disturbed areas.
Airspace	No change from existing conditions.	No change from existing conditions.	YPG will continue coordination with Marine Corps Air Station (MCAS) Yuma and private/commercial

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
Management			air traffic controllers.
Cultural Resources	Potential impact from inadvertent discovery of cultural resources during testing or training activities at current approved locations and levels will be addressed through the inadvertent discovery process specified in the ICRMP. Potential for damage to cultural resources from vandalism. As appropriate, surveys, State Historic Preservation Office (SHPO) consultation under the National Historic Preservation Act (NHPA), and mitigation would be implemented. Any ground-disturbing activity would stop until completion of the inadvertent discovery process	Potential impact from inadvertent discovery of cultural resources during ongoing activities. Potential impacts to cultural resources in areas not previously surveyed. As appropriate, surveys, SHPO consultation under the NHPA, and mitigation would be implemented. Potential for minor to moderate impacts from construction and training activities and from increased potential for inadvertent discovery due to increase in area where activities would be implemented. Implement inadvertent discovery process as appropriate for all YPG regions. Potential for damage to cultural resources from vandalism.	Implement the inadvertent discovery process specified in the Integrated Cultural Resources Management Plan (ICRMP) as appropriate. Avoidance of areas with known significant sites or areas with paleobotanical resources, especially petrified wood. Protect sites and monitor protection measures by modifying project designs if necessary. For areas proposed for activities where previous cultural resource surveys have not been conducted, YPG may implement measures, including surveys, tribal consultation, compliance with stipulations in the Section 106 programmatic agreement (PA), and activity-specific NEPA analysis. Implement Environmental Awareness Training for persons working in areas where paleobotanical resources may occur. Implement data recovery in case of unavoidable impacts to paleobotanical resources.
Energy/Utilities	Portable generators would continue to be used at current levels and locations. Continued use of utilities at current levels. Continued use of bottled water and individual reverse osmosis systems outside of the Main Administrative Area (MAA). Satellite uplinks powered by portable generators would continue to be	**Energy/Electricity** Beneficial impacts from construction of more energy-efficient buildings. Energy demand would fluctuate depending on annual testing and training needs, with potential for minor to moderate impacts to energy use in the region in years of high levels of testing and training. Minor beneficial impacts from use of solar-powered lights. Moderate long-term beneficial impacts to regional energy consumption	Incorporate energy efficient design into new buildings. Use solar lights where practicable. Install hard power to additional locations to reduce reliance on diesel-powered generators at testing and training locations. Recycle and reuse to the extent practicable.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
	used for telecommunications. Benefits from reduced use of portable generators would not occur. No change from existing conditions for solid waste. No significant increase in non-hazardous waste is anticipated to occur. No significant impacts to the non-hazardous waste landfill capacity would be anticipated. Potential for conflicts in scheduling multiple users with needs to conduct testing in areas free of electromagnetic interference from cellular/radio towers.	following installation of hard power and telecommunications lines with associated reduction in the use of portable generators. Minor beneficial impacts to air quality from reduced emissions and to hazardous materials management from reduced transport and handling of fuels following installation of hard power to testing and training locations with associated reduction in generator use. **Water** Minor indirect impacts to surface water from construction stormwater runoff; no impacts to groundwater. **Wastewater** New evaporative lagoon at Castle Dome Heliport and new sewage lagoon at Kofa cantonment area would have minor beneficial impacts on wastewater utilities. **Telecommunications** Minor beneficial impacts to air quality from reduced emissions and to hazardous materials management from reduced transport and handling of fuels following installation of hard power to testing and training locations with associated reduction in use of generators and satellite uplinks. Greater flexibility in scheduling users needing test areas free of electromagnetic interference. **Solid Waste** No significant increase in non-hazardous waste is anticipated to occur. No significant impacts to the non-hazardous waste landfill capacity or regional construction and demolition landfills are anticipated.	

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
Environmental Justice and Protection of Children	No change from existing conditions.	No changes from existing conditions and no impacts.	No mitigation measures are proposed for this resource area.
Fire Management	No change from existing conditions. The potential for wildfires would continue and fire management activities would continue. Fire management from new EOC in the Laguna Region would not occur. YPG will implement the Terms and Conditions specified in the September 9, 2014 Biological Opinion (BO) from USFWS that pertain to fire management in the Kofa Region.	Minor increase in potential for wildfires due to increased testing and training locations. Minor to moderate potential for increased fuel load from growth of exotic invasive plant species. New EOC in the Laguna Region would benefit fire management. YPG will implement the Terms and Conditions specified in the September 9, 2014 BO from USFWS that pertain to fire management in the Kofa Region. To the extent practicable, testing and training would occur away from areas with high fire risk.	Develop and implement program to monitor invasive plants. Continue implementation of Integrated Training Area Management (ITAM). Coordinate with Bureau of Land Management (BLM), Kofa NWR, and U.S. Forest Service on fire management strategies. Develop and interpret wildfire data with other agencies. Use Geographic Information System (GIS) fire risk model to identify areas of high fire risk and incorporate into range operations as practicable. The following Terms and Conditions from the USFWS BO of September 9, 2014 will be implemented: 1a. YPG shall monitor environmental conditions on the Kofa Range, including weather patterns and status of fuels Including distribution and density of annual vegetation and additional fire-causing vegetation. 2a. YPG shall, subject to availability of funds and where compatible with the military mission, continue to maintain a fire department with wildland firefighting capabilities. Additionally, YPG shall, subject to availability of funds and where compatible with the military mission, continue to maintain a fire station on the KFR. 2b. Should YPG detect exceptional fuel conditions that are conducive to carrying fire,

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
			then YPG shall do the following to increase fire readiness: (1) provide additional fire briefings to test officers, and (2) maintain fire break infrastructure where such infrastructure is compatible with the military mission and pronghorn conservation that is anticipated to reduce the risk of fire spreading to Kofa NWR. 3a. YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to USFWS-AESO and Kofa NWR as soon as possible. The report (can be in the form of an email) will, at a minimum, include the date(s), acreage, and location(s) of the fire(s), as well as the number of pronghorn in the vicinity of the fire, if known. YPG shall also immediately notify Kofa NWR once aware that a fire has encroached or may encroach onto the refuge.
Geological Resources	No change from existing conditions.	No change from existing conditions and no impacts.	No mitigation measures are proposed for this resource area.
Hazardous Materials/ Hazardous Waste	No change from existing conditions. No changes in volumes of hazardous materials used or hazardous wastes generated. Potential for leaks from on-road and off-road vehicle use and maintenance, POL spills, and chemical decomposition of munitions constituents of concern (MCOCs) would remain. YPG will continue to conduct regular range assessments to determine the potential for migration of MCOCs. YPG would implement appropriate measures should off-range migration	Impacts and sampling, as described for the No Action Alternative, would occur, plus additional potential for minor impacts from leaks associated with vehicle use and maintenance, POL spills, and chemical decomposition of MCOCs in new and expanded testing and training areas. Minor short-term increase in hazardous waste generation due to demolition of buildings containing asbestos-containing materials (ACMs). Potential for minor impacts from use and disposal of certain hazardous materials during	Continue management of handling and disposal of hazardous materials using existing programs and guidance. Activities would comply with the BMPs identified in the Spill Prevention, Control, and Countermeasures Plan (SPCCP) and Installation Spill Contingency Plan (ISCP). YPG will continue to conduct regular range assessments to determine the potential for migration of MCOCs. YPG would implement appropriate measures should off-range migration that could affect human health or the environment be indicated. Appropriate protective measures would be taken if

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
	that could affect human health or the environment be indicated.	testing and training activities in new areas. Potential for impacts from installation of air conditioning components. Minor beneficial effects from construction of appropriate down-range facilities to store and contain POLs and reduce the potential for spills. Minor beneficial effects from installation of hard power and telecommunications to testing and training sites that would reduce use of portable generators and would reduce the transport of fuel.	construction were to occur in a previously contaminated area. Any contaminated soils encountered during construction would be removed and properly disposed of in accordance with appropriate regulations. Appropriate protective procedures would be implemented to reduce potential exposure to ACM and to dispose of ACM. The YPG SPCCP and ISCP would be implemented to minimize potential for impacts from accidental spills. If an inadvertent discovery of unexploded ordnance (UXO) occurs, a qualified individual would assess the situation and implement appropriate disposition. 1996 Federal Regulations require Class I or II refrigerants for new air conditioning equipment. YPG will procure non-ozone depleting chemicals refrigerants for new air conditioning components.
Land Use	No change from existing conditions.	Minor changes from conversion of open space to other uses, but consistent with military land uses. The slight changes in the noise zones that may result from large artillery testing would not require any changes to the land uses designated in the Yuma County 2020 Comprehensive Plan.	Continue to coordinate and participate with local plans to avoid incompatibilities with adjacent lands.
Noise	No change from existing conditions. Continued sporadic impacts to wildlife from noise during testing and training activities. Continued potential for complaints	The slight changes in the noise zones that may result from large artillery testing would not affect use of surrounding lands outside the installation boundary. Minor long-term impact on wildlife from	Use of appropriate hearing protection by construction and YPG workers when working with or around machinery and equipment. Maintain aircraft operations in compliance with established Air Installation Compatible Use Zone.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
	from the Martinez Lake area.	disturbance from sporadic noise from activities in new or expanded testing and training areas. Minor temporary impact to wildlife from noise due to construction activities. Potential for minor disturbance of outdoor conversations due to construction noise. No permanent sensitive human receptors in proximity to construction areas.	Locate noise-generating activities away from sensitive receptors and use natural barriers to the extent practicable. Enclose small caliber ranges with berms or walls to reduce noise propagation. Conduct noise-intensive activities during favorable weather conditions where feasible. Implement fly-neighborly programs. Adjust timing of potentially disruptive activities. Inform the public of unusual increases in intensity of testing and training. Establish safety zones and hazardous noise areas, as needed, and use noise level meters and warning signs to reduce human exposure. Continue the noise complaint management procedure.
Recreation	No change from existing conditions. No new recreation facilities would be constructed.	No impacts to off-post recreation. Potential for minor to moderate impacts to recreational hunting in the Cibola Hunting Area, Martinez Hunting Area, and the East Arm Hunting Area due to expanded testing and training areas. Beneficial impacts to other on-post recreation from construction of new park, youth center addition, and improvements to other passive recreational opportunities. Loss of greenspace in MAA that is used by residents for passive recreation from Cox Field improvements. Potential disruption of some on-post recreation during construction.	No mitigation is proposed for this resource area.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
Safety	No change from existing conditions. Safety benefits that would result from the Proposed Action would not occur. Potential for recreational users in southern portion of Kofa NWR in YPG Airspace R-2307 to be within safety fans (the area established around the impact point with a probability of a round landing outside the safety fan being one in one-million) for operations and at risk.	Potential for minor increase in safety incidents due to implementing activities in the new or expanded testing and training areas, but the rate of incidents (expressed per worker hour) would not be expected to change. Minor potential increase in frequency of wildfire ignition due to implementing activities in new or expanded testing and training areas. Potential for minor short-term impacts to construction worker safety. Potential minor temporary impacts to traffic safety due to construction-related traffic. Moderate benefits to operational safety due to AT/FP improvements, MEDEVAC helicopter pads, flood upgrades on Aberdeen Road, pedestrian safety from D Street conversion to walkway, and installation of shading at multiple locations. Minor benefit to personnel safety from installation of hard power and telecommunications in the Cibola and Kofa Regions due to decreased transportation of fuel and portable generators. Minor benefit to personnel safety due to reduced heat stress following installation of new shade structures. Minor benefit to safety from placing overhead wires underground. Moderate benefit from relocating safe haven away from YPG personnel. Potential for recreational users in southern portion of Kofa NWR in YPG Airspace R-2307	Workers involved with construction would use appropriate protection measures and adhere to Occupational Safety and Health Administration (OSHA) requirements and guidelines to minimize and reduce safety incidents. YPG and military personnel would implement the YPG safety program to minimize risk and potential for safety incidents. Each testing and training activity would have specific safety protocols that would be adhered to. Use GIS fire risk model to identify areas of high fire risk and incorporate into range operations as practicable. YPG will verify there are no people in the portion of a Safety Danger Zone (SDZ) extending into the Kofa NWR, primarily by visual or electronic means. Helicopters will be used to locate people only where large portions of an SDZ overlap Kofa NWR, primarily in R-2307.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
		to be within safety fans for operations and at risk.	
Socioeconomics	No change from existing conditions. Short-term benefits to local economy from construction would not occur.	Minor short-term beneficial impacts to local economy from purchase of building materials, short-term construction jobs, and secondary spending by construction workers. Potential for negligible to minor impacts on local fuel and water retailers from reduction in demand for these services on YPG.	No mitigation measures are proposed for this resource area.
Soils	No change from existing conditions. Continued impacts to soils from testing and training activities at authorized locations and levels.	Impacts described for the No Action Alternative would continue, but with increased potential for impacts due to implementation of activities in new or expanded testing and training areas. Increase in disturbed area and disturbance to soils used for dismounted maneuver training, munitions impact areas, DZs, and unmanned aircraft system (UAS) launch/recovery areas resulting in moderate impacts to highly erodible soils that are disturbed and negligible to minor impacts to disturbed soils that are classified as not highly erodible to moderately erodible. Minor impact from establishment of transient gun positions (TGPs) in the Cibola Region. Long-term indirect impact from degradation of munitions into soils in munitions impact areas. Disturbance due to construction resulting in moderate impacts to highly erodible soils in construction areas and negligible to minor impacts to construction area soils that are classified as not highly erodible to moderately	Planning, site selection, and site design would include criteria to avoid the disturbance of highly erodible soils. Implement construction BMPs to minimize the potential for onsite erosion. Implement post-construction stormwater controls to reduce the long-term potential of erosion and sedimentation from proposed construction sites. Continue implementation of ITAM and the Integrated Natural Resource Management Plan (INRMP) to reduce potential to impact soils through proper land management. Continued implementation of ITAM and the Integrated Natural INRMP would reduce potential for incremental interaction among multiple projects on YPG.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
		erodible. Minor impacts from disturbance to soils during installation of utilities.	
Threatened and Endangered Species and Species of Concern	No change from existing conditions. Potential for minor impacts to threatened, endangered, or sensitive (TES) species, including potential for injury or mortality to Sonoran Pronghorn on Kofa NWR from firing, as testing and training activities continue at existing locations and levels. YPG implements those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with the military mission and will consult with USFWS on projects that may affect desert tortoise should the species be listed. YPG will consult with USFWS on any proposed activities that may affect the Sonoran pronghorn on the Kofa NWR. Continued coordination with AZGFD for necessary rehabilitation of injured animals, including TES species.	Disturbed soils may increase encroachment of invasive plant species, which could lead to less water for TES species **Transient or Incidental Species** Negligible to minor impacts likely from displacement during construction, testing, or training activities. **Sonoran Desert Tortoise** Long-term moderate impacts from loss of habitat and potential for incidental mortality. **Sonoran Pronghorn** Minor long-term impacts from visual and auditory disturbance to the experimental population due to testing and training activities. Potential threat to individual pronghorn from munitions testing or UXO. Potential alteration of foraging habitat in the event of wildfire. YPG will consult or conference, as appropriate, with USFWS for impacts that may affect Sonoran pronghorn **Banded Gila Monster** Minor long-term impacts from loss of habitat and disturbance from construction, testing, and training activities. **TES Bat Species** Negligible to minor long-term impacts due to loss of foraging habitat. **Loggerhead Shrike** Moderate long-term impacts from loss of	To the extent practicable, avoid known sensitive habitats, water sources, and areas where sensitive species occur during project siting. Schedule construction projects to avoid or minimize conflicts with reproduction. Schedule construction outside the nesting and denning period, when practicable. Relocate TES species if proposed activity could not be relocated If possible, delay disturbance until after young of mobile species have fledged or departed the area. YPG implements those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with its mission and will consult with USFWS on projects that may affect desert tortoise should the species be listed. If an activity is planned that would harm desert tortoise or threaten an active tortoise burrow, YPG would handle or relocate the tortoise according to the Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects. Relocate or deter species to minimize impacts if necessary; implement INRMP procedures. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible. Should the Sonoran desert tortoise be listed under the Endangered Species Act (ESA), then activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
		habitat and disturbance caused by construction, testing, and training activities. **Western Burrowing Owl** Moderate long-term impacts due to loss of habitat and disturbance from construction, testing, and training activities. **Parish's Onion** Negligible to minor long-term impacts from incidental mortality and due to the slow growth rate of these species. **Other TES Plants** Minor long-term impacts from clearing of vegetation for construction, testing, and training purposes. **Wild Horses and Burros** Minor temporary impacts due to construction activities. Minor long-term impacts due to displacement and loss of habitat from establishment of new or expanded testing and training areas. No impacts to other species.	impacts and appropriate consultation with the USFWS would be conducted prior to any land-disturbing activities. YPG will comply with the Reasonable and Prudent Measures with implementing Terms and Conditions of the USFWS BO regarding activities that may affect the Sonoran pronghorn on Kofa NWR: 1a. YPG shall monitor environmental conditions on the Kofa Range, including weather patterns, distribution and density of annual vegetation and additional fire-causing vegetation. 2a. YPG shall, subject to availability of funds and where compatible with the military mission, continue to maintain a fire department. Additionally, YPG shall, subject to availability of funds and where compatible with the military mission, continue to maintain a fire station on the KFR to provide rapid response on the Kofa Range in the event of fire. 2b. Should YPG detect exceptional fuel conditions that are conducive to carrying fire, then YPG shall increase fire readiness by (1) providing additional fire briefings to test officers, and (2) subject to availability of funds, maintaining fire break infrastructure where such infrastructure is compatible with the military mission and pronghorn conservation and is anticipated to reduce the risk of fire spreading to Kofa NWR. 3a. YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to USFWS-AESO and Kofa NWR as soon as possible. YPG shall also immediately notify

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
			Kofa NWR once aware that a fire has encroached or may encroach onto the refuge. Conservation measures that are included in the Proposed Action that would be implemented by YPG include: • Implement the 2014 Final Incident Response Protocol for Sonoran Pronghorn. • Avoid placing activities in proximity to artificial water sources (suitable for Sonoran pronghorn) to the extent that such action is consistent with the military mission. • YPG will adhere to the terms of the Memorandum of Understanding between the Kofa NWR, Imperial NWR, BLM, and YPG, which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands.
Traffic/ Transportation	No change from existing conditions. No new impacts would occur.	Potential increase in temporary road closures and construction-related traffic. Minor short-term impact. Long-term beneficial impacts from improved traffic safety due to flood upgrades, intersection improvements, and range road improvements. Long-term benefits to mission from increased efficiency of military air activities due to new infrastructure.	Use of appropriate traffic control procedures, which may include detours, timing of construction to avoid peak traffic volume times, and use of flaggers would minimize disruption of traffic flow.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
Vegetation	No change from existing conditions. Continued impacts to vegetation from testing and training activities at current locations and levels.	Minor to moderate impacts due to removal of vegetation for construction, creation of new or expanded testing and training areas, and use of new munitions impact areas.	Implement appropriate construction and post-construction stormwater controls to reduce scour from increased stormwater volume and flow rate. Use appropriate construction BMPs to stabilize soils and prevent erosion. Continued implementation of the INRMP and ITAM program to maintain vegetation and reduce spread of invasive plants in training area. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible.
Visual Resources	No change from existing conditions. Current testing and training activities would continue to have negligible to minor impacts to visual resources.	Temporary minor impacts from construction-related airborne dust. Recurring temporary minor impacts from dust and other obscurants caused by testing and training. Potential long-term minor impacts from increased use of lighter-than-air UASs. Potential minor long-term impacts from appearance of new buildings.	Dust suppression and other construction BMPs to minimize airborne dust and other visual obscurants during construction. Design new buildings to blend with the existing visual landscape. Continue to implement Environmental Awareness program to minimize potential impacts to areas of aesthetic and visual value during ground-based testing and training activities.
Water Resources	Continued impacts from contaminants and water consumption due to testing and training activities at current locations and levels.	Potential temporary minor adverse impacts to water quality resulting from sediment runoff during construction and an increase in impervious surfaces following construction Minor to moderate increased potential for impacts to groundwater from degradation of munitions. Minor potential for offsite impacts due to transport of contaminants and sediments generated from stormwater runoff on new or expanded testing and training areas. Potential negligible reduction in groundwater	Implement construction and post-construction stormwater controls to reduce runoff, facilitate infiltration, and reduce potential for scour. Develop and implement Construction Stormwater Pollution Prevention Plans to reduce potential for environmental exposure to pollutants in stormwater. Implement mitigation and protective measures associated with any Clean Water Act Section 404 permit/Section 401 Water Quality certification prior to construction in jurisdictional waters.

TABLE ES-1
Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed
Yuma Proving Ground

Resource Area	No Action	Proposed Action/ Preferred Alternative	Mitigation [a]
		recharge rates due to new impervious area.	Continue implementation of the INRMP.
Wildlife and Fisheries	No change from existing conditions. Minor impacts to wildlife would continue under current levels of testing and training activities at current locations.	Minor short-term impact from incidental mortality, displacement, and disturbance due to construction. Potential for minor to moderate long-term impacts from incidental mortality, displacement, and disturbance due to creation and use of new or expanded testing and training areas. Minor to moderate long-term indirect impacts from loss of habitat due to construction, UAS launch/recovery areas, utilities, and TGPs. Minor impacts from disturbance of habitat due to use of DZs.	Avoid wildlife concentration areas and sensitive habitats when selecting locations for activities where possible. Schedule construction outside the nesting and denning period, when practicable. Continue to implement the INRMP to maintain wildlife habitat needs and wildlife movement corridors. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible.

[a] Mitigation includes avoidance and minimization measures, including BMPs, in addition to rehabilitation/restoration, preservation/maintenance, and compensatory/substitution activities.

Contents

Section **Page**

Executive Summary **1**
ES.1 Project Setting 2
ES.2 Alternatives 2
ES.3 Alternatives for Activities in the Proposed Action 3
ES.4 Comparison of Environmental Consequences of the Proposed Action and Alternatives and Summary of Mitigation Measures 4
ES.5 Preferred Alternative 4

Acronyms and Abbreviations ..... **ix**

Purpose and Need for the Proposed Action **1-1**
1.1 Introduction 1-1
1.2 Purpose and Need 1-2
1.2.1 Purpose of the Proposed Action 1-2
1.2.2 Need for the Proposed Action 1-3
1.3 Scope and Content of the Programmatic Environmental Impact Statement 1-4
1.3.1 Approach to Proposed Action Description 1-5
1.3.2 Approach to Environmental Analysis 1-6
1.3.3 Categories and Relative Ranking of Valued Environmental Components 1-6
1.4 Decision to Be Made 1-7
1.5 Public Participation 1-7

Description of Proposed Action and Alternatives **2-1**
2.1 Yuma Proving Ground 2-1
2.1.1 Functional Units 2-1
2.1.2 Military Mission and Support Directorates 2-4
2.2 Approach to Alternative Development 2-8
2.3 No Action Alternative 2-8
2.3.1 Description of the No Action Alternative 2-8
2.3.2 Previous Analyses of the No Action Alternative 2-9
2.3.3 Existing Activities 2-10
2.3.4 Status of the Analysis of the No Action Alternative 2-18
2.4 Proposed Action 2-18
2.5 Alternatives for Activities of the Proposed Action 2-42
2.6 Alternative to Implement a Subset of the Proposed Action 2-66
2.7 Alternatives Eliminated from Further Consideration 2-66
2.7.1 Discontinue Use of Yuma Proving Ground as a Military Proving Ground 2-66
2.7.2 Expand the Size of Yuma Proving Ground 2-66
2.7.3 Increase the Military Testing Mission to Encompass Nuclear, Biological, and Chemical Activities 2-66

2.7.4 Proceed with New Construction with No Increase in Testing and Training Capabilities 2-66
2.7.5 Proceed with Increased Testing and Training Capabilities with No New Construction or Demolition 2-67
2.7.6 Relocate Certain Activities to Other Installations 2-67
2.8 Comparison of Environmental Consequences of the Proposed Action and Alternatives 2-68
2.9 Mitigation Measures and Monitoring Procedures 2-74
2.10 Preferred Alternative 2-78

Affected Environment and Environmental Consequences 3-1
3.1 Introduction 3-1
3.1.1 Presentation of VECs 3-1
3.1.2 Framework for Impact Analysis 3-2
3.1.3 Cumulative Effects Analysis 3-4
3.1.4 Irreversible or Irretrievable Commitment of Resources 3-6
3.1.5 Short-term Uses of the Environment and Maintenance and Enhancement of Long-term Productivity 3-7
3.2 Air Quality 3-8
3.2.1 Existing Conditions 3-8
3.2.2 Environmental Consequences 3-12
3.3 Airspace Management 3-18
3.3.1 Existing Conditions 3-18
3.3.2 Environmental Consequences 3-19
3.4 Cultural Resources 3-19
3.4.1 Regulatory Setting 3-19
3.4.2 NHPA Section 106 Consultation 3-21
3.4.3 Existing Conditions 3-22
3.4.4 Environmental Consequences 3-25
3.5 Energy/Utilities 3-31
3.5.1 Existing Conditions 3-31
3.5.2 Environmental Consequences 3-35
3.6 Environmental Justice and Protection of Children 3-41
3.6.1 Existing Conditions 3-41
3.6.2 Environmental Consequences 3-43
3.7 Fire Management 3-44
3.7.1 Existing Conditions 3-44
3.7.2 Environmental Consequences 3-45
3.8 Geological Resources 3-51
3.8.1 Existing Conditions 3-51
3.8.2 Environmental Consequences 3-52
3.9 Hazardous Materials/Hazardous Waste 3-52
3.9.1 Existing Conditions 3-52
3.9.2 Environmental Consequences 3-60
3.10 Land Use 3-67
3.10.1 Existing Conditions 3-67
3.10.2 Environmental Consequences 3-70

3.11 Noise....3-73
3.11.1 Existing Conditions....3-73
3.11.2 Environmental Consequences....3-77
3.12 Recreation....3-83
3.12.1 Existing Conditions....3-83
3.12.2 Environmental Consequences....3-85
3.13 Safety....3-89
3.13.1 Existing Conditions....3-89
3.13.2 Environmental Consequences....3-91
3.14 Socioeconomics....3-95
3.14.1 Existing Conditions....3-95
3.14.2 Environmental Consequences....3-96
3.15 Soils....3-98
3.15.1 Existing Conditions....3-98
3.15.2 Environmental Consequences....3-100
3.16 Threatened or Endangered Species and Species of Concern....3-114
3.16.1 Existing Conditions....3-114
3.16.2 Environmental Consequences....3-122
3.17 Traffic/Transportation....3-139
3.17.1 Existing Conditions....3-139
3.17.2 Environmental Consequences....3-142
3.18 Vegetation....3-147
3.18.1 Existing Conditions....3-147
3.18.2 Environmental Consequences....3-149
3.19 Visual Resources....3-162
3.19.1 Existing Conditions....3-162
3.19.2 Environmental Consequences....3-163
3.20 Water Resources....3-166
3.20.1 Existing Conditions....3-166
3.20.2 Environmental Consequences....3-172
3.21 Wildlife and Fisheries....3-187
3.21.1 Existing Conditions....3-187
3.21.2 Environmental Consequences....3-190
3.22 Summary of Impacts and Mitigation....3-200
3.22.1 Cumulative Effects Summary....3-207
3.22.2 Mitigation Summary....3-220

List of Preparers....4-1

Distribution List....5-1

References....6-1

Public Involvement and Persons Contacted....7-1
7.1 lntroduction....7-1
7.2 Notice of Intent....7-1
7.3 Coordination....7-1
7.4 Scoping and Information Meetings....7-4
7.5 Distribution of the FPEIS....7-5

7.6 Point of Contact 7-5

Public, Agency, and Tribal Comments and Responses 8-1

Index 9-1

Tables

ES-1 Comparison of Environmental Impacts of Alternatives and Mitigation Measures Proposed ES-6
2-1 Proposed Action Activities Analyzed in Detail—Laguna Region 2-19
2-2 Proposed Action Activities Analyzed Programmatically– Laguna Region 2-24
2-3 Proposed Action Activities Analyzed in Detail—Cibola Region [a] 2-26
2-4 Proposed Action Activities Analyzed Programmatically—Cibola Region [a] 2-34
2-5 Proposed Action Activities Analyzed in Detail—Kofa Region 2-38
2-6 Proposed Action Activities Analyzed Programmatically—Kofa Region 2-40
2-7 Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region . 2-42
2-8 Alternatives for Short-term Proposed Action Activities—Cibola Region 2-49
2-9 Alternatives for Short-term Proposed Action Activities—Kofa Region 2-61
2-10 Impacts by Resource Area 2-68
2-11 Summary of Potential Mitigation Measures for Each Resource Area 2-74
3-1 Characterization of Valued Environmental Components 3-1
3-2 NAAQS for Criteria Pollutants 3-8
3-3 Comparison of Yuma Proving Ground Air Emissions to Yuma County Air Emissions [a] 3-10
3-4 Proposed Activities in the Yuma County PM10 Non-attainment Area 3-13
3-5 Restricted Airspace 3-18
3-6 Activities that Could Impact Paleobotanical Resources 3-28
3-7 Proposed Activities that Would Result in Utility Improvements 3-37
3-8 2010 Census Racial Data by Area 3-41
3-9 2010 Census Percentage of Children and Individuals Living Below Poverty Level 3-42
3-10 YPG Installation Compatible Use Zones 3-74
3-11 Anticipated Risk of Noise Complaints from Predicted Peak Sound Levels 3-75
3-12 Percentage of Public Likely to be Highly Annoyed by Aircraft Noise 3-75
3-13 Firing Conditions Related to Noise Propagation 3-82
3-14 Reported Cases of Valley Fever in Arizona and in Yuma and La Paz Counties, 2007—2012 3-91
3-15 Population Data for Local Cities and Counties, the State of Arizona, and the United States 3-95
3-16 Soil Complexes on YPG 3-99
3-17 Federally Protected Species Known to Occur in Yuma and La Paz Counties, Arizona 3-114
3-18 Proposed LTAs in Cibola 3-181
3-19 Impacts by Resource Area 3-200

3-20 Summary of Cumulative Effects 3-209
3-21 Summary of Potential Mitigation Measures for Each Resource Area 3-220
7-1 Native American Coordination 7-2
7-2 State and Federal Agency Coordination 7-3
7-3 Public Stakeholder Coordination 7-3
7-4 Political Representatives 7-4

Figures

2-1 Project Location Map
2-2 Designated Areas on Yuma Proving Ground
2-3 Yuma Proving Ground Restricted Airspace
2-4 No Action Alternative—Impact Areas—Laguna Region
2-5 No Action Alternative—Buildings, Training Courses, and Airfields—Laguna Region
2-6 No Action Alternative—Points of Interest: Towers, Stations, Instrumentation, and Helipad Sites—Laguna Region
2-7 No Action Alternative—Impact Areas—Cibola Region
2-8 No Action Alternative—Buildings, Training Courses, and Airfields—Cibola Region
2-9 No Action Alternative—Points of Interest: Towers, Stations, Instrumentation, and Helipad Sites—Cibola Region
2-10 No Action Alternative—Impact Areas—Kofa Region
2-11 No Action Alternative—Buildings, Training Courses, and Airfields—Kofa Region
2-12 No Action Alternative—Points of Interest: Towers, Stations, Instrumentation, and Helipad Sites—Kofa Region
2-13 Proposed Action Activities—Laguna Region
2-14 Proposed Action Activities—Cibola Region
2-15 Proposed Action Activities—Kofa Region
2-16 Preferred Alternative Activities in Laguna Region
2-17 Preferred Alternative Activities in Cibola Region
2-18 Preferred Alternative Activities in Kofa Region

3-1 Portion of Yuma Proving Ground Classified as Non-attainment for PM10
3-2 Wildfire Risk Model Output
3-3 IRP Sites on Yuma Proving Ground
3-4 Soils on Yuma Proving Ground
3-5 Desert Tortoise Habitat and Occurrences in Laguna Region
3-6 Desert Tortoise Habitat and Occurrences in Cibola Region
3-7 Desert Tortoise Habitat and Occurrences in Kofa Region
3-8 Pronghorn Use of Yuma Proving Ground
3-9 Desert Bighorn Sheep Habitat in Laguna Region
3-10 Desert Bighorn Sheep Habitat in Cibola Region
3-11 Desert Bighorn Sheep Habitat in Kofa Region

Appendices

A Public Outreach

B Activities Conducted Under the No Action Alternative

C Detailed Project-specific Impacts Analysis

D Quick Look Answers

E Air Emissions Calculations

F Programmatic Agreement

G Memorandum Of Understanding between U.S. Department of Interior Fish and Wildlife Service Kofa, Cibola and Imperial Wildlife Refuges, U.S. Department of Interior Bureau of Land Management Lower Colorado River District, Yuma Office and U.S. Department of the Army Yuma Proving Ground

H Noise Contour Figures from the Installation Operational Noise Management Plan

I Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat

J Sensitive Species Tracked by State of Arizona with Potential to Occur in Yuma and La Paz Counties

Acronyms and Abbreviations

AAC	Arizona Administrative Code
ABC	aggregate base coat
ac	acre
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ACP	access control point
ADNL	A-weighted day-night average noise level
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AERC	Arizona Emergency Response Commission
AES	Arizona Ecological Services
AESO	Arizona Ecological Services Office
AGL	above ground level
AMC	Army Materiel Command
AMC-R	Army Materiel Command Regulation
AR	Army Regulation
Army	United States Army
ASET	Aviation Systems and Electronic Test
AST	aboveground storage tank
AT/FP	antiterrorism/force protection
AZ	Arizona
AZGFD	Arizona Game and Fish Department
AZPDES	Arizona Pollutant Discharge Elimination System
B&V	Black and Veatch Corporation
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BO	biological opinion

BSA	Boy Scouts of America
C5ISR	command, control, communications, computers, combat systems, intelligence, surveillance, and reconnaissance
CA	California
CAA	Clean Air Act
CACTIS	Compact Automatic Centroid Tracking Instrumentation System
CALA	Combat Aircraft Loading Area
CASQA	California Stormwater Quality Association
C&D	construction and demolition
CDA	Castle Dome Annex
CDC	Centers for Disease Control and Prevention
CDH	Castle Dome Heliport
CDNL	C-weighted average day-night noise level
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CALFEX	Combined Arms Live Fire Exercise
CM	camera mount
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalents
Colorado Desert	Lower Colorado River Valley Subregion of the Sonoran Desert
CRAM	Counter-Rocket Artillery and Mortar
CSW	Crew Served Weapon
CWA	Clean Water Act
CREW	Counter-Radio Controlled Improvised Explosive Device Electronic Warfare
D.A.R.E.	Drug Abuse Resistance Education
dB	decibel
dBA	A-weighted decibel
dBC	C-weighted decibel
DET/REC	Detection and Recognition Target Array

DFAC	Dining Facility
FPEIS	Draft Final Programmatic Environmental Impact Statement
Dish Stirling	dish-engine system based on the Stirling thermodynamic cycle
DoD	Department of Defense
DoDI	Department of Defense Instruction
DPW	Directorate of Public Works
DU	depleted uranium
DZ	drop zone
EA	Environmental Assessment
ECMD	Electromagnetic Counter Measure Device
ECUT	Engineering Common Use Test
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act of 2007
EM	electromagnetic
EO	Executive Order
EOC	Emergency Operations Center
EPCRA	Emergency Planning and Community Right-to-Know Act
EQSD	explosive quantity safety distance
ESA	Endangered Species Act
EUL	enhanced use lease
EW	electronic warfare
FARP	Forward Area Arming and Refuel Point
FCS	Future Combat Systems
FOB	Forward Operating Base
FPEIS	Final Programmatic Environmental Impact Statement
ft	foot
ft^2	square feet
GCS	ground control station
GHG	greenhouse gas
GIS	Geographic Information System
GMU	Game Management Unit
GOV	government-owned vehicle
GP	gun position

gpd	gallons per day
H_2O	water
HAPs	hazardous air pollutants
HAZMART	Hazardous Material Control Center
HE	high explosive
HFCs	hydrofluorocarbons
HMTA	Hazardous Material Transportation Act
HSMS	Hazardous Substances Management System
HWSF	Hazardous Waste Storage Facility
HWTS	hazardous waste tracking system
I-8	Interstate Highway 8
I-10	Interstate Highway 10
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
IED	improvised explosive device
IMCOM	U.S. Army Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IONMP	Installation Operational Noise Management Plan
IR	infrared
IRCC	Inverted Range Control Center
IRP	Installation Restoration Program
ISCP	Installation Spill Contingency Plan
ISR	intelligence, surveillance, and reconnaissance
ISR/EO	intelligence, surveillance, and reconnaissance/electro-optical
ITAM	Integrated Training Area Management
IVTS	Improved Vehicle Tracking System
JERC	Joint Experimentation Range Complex
JPADS	Joint Precision Airdrop System
JPMO	Joint Program Management Office
JTTR	Joint Test Tunnels Range
KADS	Kofa Deflagration Site
KFR	Kofa Firing Range
kV	kilovolts

LAAF	Laguna Army Airfield
LAW	light antitank weapon
lb	pound
LBP	lead-based paint
LCPA	Lower Colorado Planning Area
lf	linear feet
LID	low-impact development
LPWS	Land-Based Phalanx Weapon System
LRA	Long Range Artillery
LTA	Light Maneuver Training Area
LWC	low water crossing
MAA	Main Administrative Area
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MCD	Mine Countermine and Demolitions
MCOC	munitions constituent of concern
MEDEVAC	medical evacuation
MFFS	Military Freefall School
µg/m^3	micrograms per cubic meter
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
mm	millimeters
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MOUT	military operations in urban terrain
mph	miles per hour
MPRC	Multi-Purpose Range Complex
MRAP	Mine Resistant Ambush Protected
MSDS	Material Safety Data Sheet
msl	mean sea level
MTI	Moving Target Indicator
MW	megawatt
MWD	military working dog

MW-h	megawatt-hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
N_2O	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRCS	Natural Resources Conservation Service
NRCD	Natural Resource Conservation District
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
NZ	Noise Zone
O_3	ozone
OB/OD	open burn/open detonation
ODCs	ozone-depleting chemicals
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PAO	Public Affairs Office
PCB	polychlorinated biphenyl
PEIS	Programmatic Environmental Impact Statement
PEPs	propellants, explosives, and pyrotechnics
PFCs	perfluorocarbons
PK	peak or maximum, single event sound level measurement without weighting
PK15 (met)	peak sound level, using statistical variations caused by weather that is likely to be exceeded only 15 percent of the time
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
POL	petroleum, oil, and lubricants
POV	privately owned vehicle

ppb	parts per billion
ppm	parts per million
PSS	Persistent Surveillance Systems
PTDS	Persistent Threat Detection System
PV	photovoltaic
PVC	polyvinyl chloride
RACM	Reasonably Available Control Measure
RCIED	radio controlled improvised explosive device
RCRA	Resource Conservation and Recovery Act
RDTE	Research, Development, Test, and Evaluation
RO	reverse osmosis
ROD	Record of Decision
RPG	rocket-propelled grenade
RPMP	Real Property Master Plan
RSTA	reconnaissance, surveillance, and target acquisition
RV	recreational vehicle
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SDS	Sonoran Deflagration Site
SDZ	Safety Danger Zone
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SOP	Standard Operating Procedure
SOTACC	Special Operations Terminal Attack Controller Course
SO_2	sulfur dioxide
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SWPPP	Stormwater Pollution Prevention Plan
SR	State Route
SVOCs	semivolatile organic compounds
SWMU	solid waste management unit
SWTR	Smart Weapons Test Range
TEMO	Training Exercise Management Office
TES	threatened, endangered, or sensitive

TCP	Traditional Cultural Property
TGP	transient gun position
TM	telemetry
TOW	Tube-launched, Optically Tracked, Wire Command
tpy	tons per year
TSCA	Toxic Substances Control Act
UAS	unmanned aircraft system
UAV	unmanned aerial vehicle
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Command
US 95	U.S. Highway 95
USACHPPM	U.S. Army Center for Health Promotion and Preventative Medicine
U.S. Army	United States Army
USASOC	U.S. Army Special Operations Command
USCB	U.S. Census Bureau
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UV	ultraviolet
UXO	unexploded ordnance
VEC	valued environmental component
VOCs	volatile organic compounds
WAPA	Western Area Power Administration
WP	white phosphorus
WSC	Wildlife of Special Concern in Arizona
WTI	Weapons Tactics Instructors
WTP	water treatment plant
YDNL	yearly day-night average noise level
YMPO	Yuma Metropolitan Planning Organization
YPG	Yuma Proving Ground

YPG HP	Yuma Proving Ground Hunting Program
YPGR	Yuma Proving Ground Regulation
YTC	Yuma Test Center

This page intentionally left blank.

SECTION 1

Purpose and Need for the Proposed Action

1.1 Introduction

This Draft Final Programmatic Environmental Impact Statement (FPEIS) analyzes the direct, indirect, and cumulative effects of current and planned activities and operations at United States (U.S.) Army Yuma Proving Ground (YPG). This FPEIS analyzes construction, testing, and training activities and presents the direct, indirect, and cumulative effects of the Proposed Action to continue ongoing activities and to implement new facilities, infrastructure, and programs to meet anticipated future needs and maintain YPG as a multi-purpose installation that serves a broad customer base. The Proposed Action would also support cross-functional training allowed by the Department of Defense (DoD). The FPEIS will support development of a future Real Property Master Plan (RPMP) at YPG by providing a basis for the Visioning Plan and by providing a programmatic framework for the Capital Investment Strategy and the Area Development Plans. The analysis in the EIS also will support the alternatives analysis for the RPMP. This action would meet the changing needs of the U.S. military and would maintain YPG as a multi-purpose installation that performs a wide variety of missions.

Activities anticipated on YPG include construction and demolition of facilities and infrastructure, and changes to current types and levels of testing and training. This FPEIS addresses the following types of activities:

- Short-term, well-defined activities at known locations that could be implemented without additional National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) 4321-4347] analysis once a decision is made. These activities are identified in the description of the Proposed Action in Tables 2-1, 2-3, and 2-5.
- Short-term, less well-defined activities for which locations are not known or for which additional information regarding site-specific implementation must be developed that would receive additional site-specific NEPA analysis prior to project implementation. These projects are identified in Tables 2-2, 2-4, and 2-6, with identifier numbers below 100.
- Long-term, less well-defined activities that would occur later in time and would receive additional site-specific NEPA analysis prior to project implementation. These projects are identified in Table 2-2, with identifier numbers of 100 and greater.

This document provides thorough analysis under NEPA for the short-term well-defined projects and allows other projects to be implemented following a focused, site-specific NEPA analysis that would tier from this analysis. This document will serve as a Programmatic Environmental Impact Statement (PEIS) for the longer-term projects per Title 40, Code of Federal Regulations 1502.20 (40 CFR 1502.20) and 32 CFR 651.14(c).

While many analyzed activities are assumed to occur at a specified location, future mission needs may require that one or more such activities be conducted in a different location or at

multiple locations. This programmatic analysis will provide a preliminary basis for subsequent focused NEPA analysis to allow YPG to conduct activities in areas that have not previously been specified for those activities. It is possible that activities analyzed in detail in this document may be changed prior to implementation. Should this occur, any activities that change prior to implementation will be subjected to additional NEPA analysis tiered from the analysis provided herein.

This document examines the activities that will occur or are likely to occur on YPG for the next several years. It is not always possible to predict accurately specific projects in specific years, but the U.S. Army is confident about the types of activities that will occur and the general technology trends that will establish the testing and training workloads in coming years; therefore, the Army is adopting a programmatic approach to this analysis to comply with NEPA and set the framework for future tiered documents if required. The analysis focuses on the anticipated impacts of categories of actions on the natural and human environment. Accordingly, the analysis examines military testing activities, military training activities, construction, and demolition, as appropriate for each activity.

The information and analysis in this FPEIS are presented in accordance with NEPA, the President's Council on Environmental Quality (CEQ) regulations for implementing NEPA [40 CFR 1500 et seq.], U.S. Army Installation Management Command guidance (IMCOM Circular 200-10-1), and regulations issued by the DoD and the U.S. Army to implement CEQ regulations. 32 CFR Part 651 requires the integration of environmental considerations into U.S. Army planning and decision making (32 CFR §651.29).

Any activities and projects selected for implementation following analysis in this FPEIS will require additional evaluation and processing prior to implementation. Prior to implementation, specific project proponents must submit a work order (DA 4283) or service order and other required documents, such as a dig permit, for approval by YPG Environmental Services Division for the proposed project. Further, a specific proposed project may require Real Property Planning Board approval, additional NEPA review (as determined by this analysis), National Historic Preservation Act (NHPA) Section 106 consultation, or environmental permit applications, and state or federal regulatory agency approvals prior to implementation.

The Proposed Action, including alternatives for specific activities, is presented in detail in this document. Alternatives eliminated from consideration are summarized. If additional U.S. Army initiatives result in programs proposed for YPG that are not covered by this FPEIS, additional NEPA documentation would be prepared, as appropriate, in advance of implementing any such actions.

1.2 Purpose and Need

1.2.1 Purpose of the Proposed Action

The last EIS that addressed mission components on YPG was completed in 2001. New technologies and equipment and more powerful weapons and munitions are being developed for use by the U.S. military. Prior to use in combat, these technologies and items must be tested under realistic conditions comparable to what would be experienced in combat so that the Soldier can rely upon them. YPG is the premier hot, arid-environment year-round test center for the U.S. military and is responsible for determining the

performance and reliability of military vehicles, equipment, weapons, and munitions in these climatic conditions under test and operational scenarios.

The purpose of the Proposed Action is to enable YPG to continue to provide adequate facilities for military testing and training activities and for private industry partnerships that are capable of accommodating current and foreseeable technological advances. Testing activities include military ground and aerial vehicle systems, weapons, ammunitions, sensors, and guidance systems. YPG must provide realistic training for units, including but not limited to forward observer training, ground combat training, and operational training to provide real-world testing scenarios. The Army participates in private industry partnerships that are compatible with the military mission, such as the General Motors Test track where private vehicles and military vehicles both are tested for performance capabilities.

1.2.2 Need for the Proposed Action

Current testing and training facilities on YPG are inadequate to test emerging technologies, equipment, weapons, and munitions under appropriate conditions to meet military needs. Some facilities on YPG are outdated and the cost to rehabilitate or upgrade these facilities to meet current technology needs exceeds the cost of new construction. Constraints have been identified with the existing ranges, such as the testing of emerging weapons systems that require longer firing distances than current range configurations allow and scheduling conflicts over use of ranges and facilities due to high demand. Furthermore, during the decade following September 11, 2001, YPG experienced increased testing and training levels to support military activities in Afghanistan and Iraq in addition to normal testing and training activities and private industry partnerships. Analysis of range and airspace use during this period indicates that manned air sorties increased by 70 percent over baseline levels, while unmanned aircraft system (UAS) flights increased by 62 percent over baseline. Cargo airdrops increased by 93 percent and personnel airdrops increased by 120 percent over baseline. Ground combat training increased by 83 percent over baseline and the number of rounds fired increased by 90 percent. Vehicle and equipment testing on established tracks increased by 51 percent over baseline. Testing activities on the Cibola Range increased by 31 percent and testing on the Kofa Range increased by 15 percent. Operation at these levels resulted in over-utilization of existing facilities and ranges and even greater scheduling conflicts. Over-utilization of ranges and test facilities has reduced the efficiency of, or otherwise constrained, testing and training activities. The Proposed Action would allow YPG to develop appropriate facilities to meet the foreseeable fluctuations in future needs for year-round military testing and training. The overall need for the Proposed Action is to ensure the readiness of U.S. forces and materiel to meet the demands of theaters around the world, especially those in hot, arid environments. Construction of new buildings and infrastructure and modified or increased testing and training facilities would enable YPG to meet future military needs in response to changing conditions and technologies in the theater of combat. New buildings are needed to upgrade facilities that are unsuitable for modification to accommodate emerging military technologies, alleviate space limitations that can cause testing delays or inefficiencies, and allow more efficient alignment of personnel on YPG.

Electronic technology to aid the Soldier, including sensors, detection systems, rangefinders, and guidance systems, are continually being improved with regard to range, sensitivity, and

ability to overcome detection/intercept systems. In addition, technology to disrupt or disable an adversary's sensors and detection systems is being improved. The range and power of weapons tend to increase as systems are improved, resulting in a need for larger areas for testing and training. Combat vehicles and internal vehicle systems are being improved and enhanced. Some of these improvements are driven by internal technological advances derived from basic research, while others are driven as a response to new weapons or systems encountered on the field of battle. YPG must be able to adapt testing and training to address these technological changes as they arise to fulfill its mission.

Army Regulation (AR) 210-20 [*Real Property Master Planning for Army Installations]*, requires installations to develop an RPMP as part of the Army master planning process. AR 420-1 integrates environmental considerations into the planning process. Many of the long-term projects analyzed programmatically in this FPEIS would likely be components of an RPMP that would be developed and adopted by the U.S. Army subsequent to completion of this analysis. The Final EIS would be used as a basis for future tiered analyses to support the adoption and implementation of an RPMP at YPG.

1.3 Scope and Content of the Programmatic Environmental Impact Statement

The U.S. Army has determined that carrying out the mission of YPG, as it evolves to meet the demands of new technologies and emerging in-theater needs, and implementation of construction projects proposed, has the potential to result in significant environmental impacts. Consequently, the U.S. Army has prepared this FPEIS to assess the impacts of those actions. This section presents the scope of the FPEIS, including the general approach to the evaluation of alternatives for implementing the Proposed Action.

YPG uses areas outside its boundaries to conduct specific military testing under conditions not found on YPG. These off-post locations used to conduct mission-related activities include:

- Senator Wash Reservoir (Imperial County, California [CA])
- Blaisdell Railroad Siding (Yuma County, Arizona [AZ])
- Marine Corps Air Station (MCAS) Yuma (Yuma County, AZ)
- Imperial Sand Dunes (Imperial County, CA)
- Death Valley (Inyo County, CA)
- Oatman Hill (Mohave County, AZ)
- Camp Navajo (Coconino County, AZ)
- Prescott Airport (Yavapai County, AZ)

Off-post locations are not addressed in this FPEIS since no changes are proposed for use of offsite areas. Impacts of off-post testing and training were evaluated in the Range Wide EIS (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001) and are confined to the specific test areas. Because off-post locations do not provide the same ecoclimatic conditions as YPG, these locations are not suitable for the testing and training proposed for YPG. As a result, the off-post areas used by the U.S. Army in conjunction with YPG are not included in the development of alternatives for this FPEIS.

The YPG mission continues to evolve and cannot be frozen while this EIS is prepared. YPG is considering the potential development of a solar renewable energy resource on the installation to increase YPG's energy security and meet federal mandates and legislative requirements to increase production and consumption of renewable energy resources. This development would be through an enhanced use lease (EUL) with a private company. Solar technologies under consideration by the Army include solar photovoltaic (PV), a dish-engine system based on the Stirling thermodynamic cycle (Dish Stirling), and dry-cooled concentrating solar thermal technologies. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined and the sites under consideration range from several hundred acres to several thousand acres (Black and Veatch Corporation [B&V], 2011; U.S. Army Environmental Command [USAEC], 2012). An EUL for solar power generation is not a component of the Proposed Action and a separate, specific NEPA analysis would be conducted for any such project that would be developed. The potential for cumulative impacts from development and operation of such a facility was considered in the assessment of potential cumulative impacts in this analysis, based on what was known at the time this document was prepared. Should design specifications become better defined prior to the decision on this action being made and if those design changes would result in changes to the analysis of cumulative impacts provided herein, this document will be revised prior to the decision document being signed.

The Quartzsite Solar Energy Project is proposed approximately 10 miles north of Quartzsite, Arizona in La Paz County. This project, which is scheduled to be in operation in 2015, would construct, operate, maintain, and decommission a 100-megawatt (MW) solar thermal generation power plant using dry-cooling technology with a 1.5-mile generator tie-line, switchyard, and access road. An EIS was prepared and a Record of Decision (ROD) for this project was signed in May 2013 (U.S. Department of Energy and Bureau of Land Management [BLM], 2013). This solar energy project is not a component of the Proposed Action, but the potential for cumulative impacts from development of this project was considered in the assessment of potential cumulative impacts in this analysis.

There are five proposed or recently operational solar projects within approximately 10 miles of YPG that would be implemented on BLM lands. The Paloma project and the Aqua-Caliente solar project are adjacent projects that have been recently constructed and are operational to the east of YPG. The LaPosa Solar Terminal is proposed as a 2,000-MW concentrated solar power trough that would be along U.S. Highway 95 (US 95) between the Cibola Region and the Kofa National Wildlife Refuge (NWR) in the vicinity of Stone Cabin. The Nextlight Quartzsite project would be a 500-MW concentrated solar power trough located south of Quartzsite. The Wildcat Quartzsite project is proposed as an 800-MW concentrated solar power tower facility that would be along US 95 between the Cibola Region and the Kofa NWR. These solar projects are not components of the Proposed Action, but the potential for cumulative impacts from development of these projects was considered in the assessment of potential cumulative impacts in this analysis.

1.3.1 Approach to Proposed Action Description

This document identifies which Proposed Action activities were analyzed in detail and which were analyzed programmatically. The analysis evaluates projects proposed for the foreseeable future. It is likely that not all evaluated activities would be implemented and the

decision could indicate that only a portion of the activities analyzed will be selected. The alternatives for specific activities considered include testing, training, and construction/demolition options to implement the Proposed Action.

This FPEIS also evaluates a No Action Alternative as required under CEQ regulations and NEPA.

1.3.2 Approach to Environmental Analysis

This subsection summarizes the approach applied in this FPEIS for identifying the resources that could be affected by the Army's Proposed Action.

This FPEIS considers relevant resource areas in the context of valued environmental components (VECs), which are the resources and human communities of concern that could be affected by the Proposed Action. Initially, YPG considered the following comprehensive list of VECs (sorted alphabetically):

- Air Quality
- Airspace Management
- Cultural Resources
- Energy/Utilities
- Environmental Justice
- Fire Management
- Geological Resources
- Hazardous Materials/Hazardous Waste
- Land Use
- Noise
- Recreation
- Safety
- Socioeconomics
- Soils
- Threatened or Endangered Species and Species of Concern
- Traffic/Transportation Systems
- Vegetation
- Visual Resources
- Water Resources (Surface Water and Groundwater, including wetlands)
- Wildlife and Fisheries

The VECs were screened and ranked based on their relative potential to be affected by the Proposed Action. An assessment of potential cumulative effects to VECs from implementation of the alternatives also is included. The results of this analysis are presented in the next section.

1.3.3 Categories and Relative Ranking of Valued Environmental Components

Following the public scoping process (Section 1.5), the Army developed and applied a deliberative process to rank the VECs according to their potential to be affected by the Proposed Action. This approach concentrates the environmental analysis on VECs that could be significantly affected by the Proposed Action (primary VECs) and also provides consideration of other less affected (or not affected) VECs at an appropriate level of detail, in compliance with CEQ and Army guidance. The categories of VECs and the associated level

of analysis necessary are based on the potential for impacts to occur. For this FPEIS, VECs are grouped into primary, secondary, and low potential for impact categories based on the significance of impacts that may be expected to occur (see Section 3). These VECs are grouped as follows:

- Primary VECs (high potential for impacts):
  - Cultural Resources
  - Energy/Utilities
  - Hazardous Materials/Hazardous Waste
  - Land Use
  - Noise
  - Safety
  - Soils
  - Threatened or Endangered Species and Species of Concern
  - Vegetation
  - Visual Resources
  - Wildlife and Fisheries
- Secondary VECs (moderate potential for impacts):
  - Air Quality
  - Recreation
  - Socioeconomics
  - Water Resources
- Low VECs (low to very low potential for impacts):
  - Airspace Management
  - Environmental Justice
  - Fire Management
  - Geological Resources
  - Traffic/Transportation

Primary and secondary VECs, those considered to have moderate to high potential for impacts, are subjected to detailed impact assessment, while the VECs considered to have low to very low potential for impacts were considered but not analyzed in detail. Section 3 presents the existing conditions and impacts analysis for each VEC with regard to direct, indirect, and cumulative impacts.

1.4 Decision to Be Made

The decision to be made is whether to adopt the list of projects, as presented, to adopt a subset of the proposed activities, or to take no action and continue operations on YPG at current testing and training levels using existing infrastructure.

1.5 Public Participation

Consideration of the comments of all interested persons promotes open communication and enables better decision-making. All agencies, tribal entities, organizations, and members of the public with a potential interest in the Proposed Action, including minority, low-income,

disadvantaged, and tribal groups, were provided the opportunity to participate in the decision-making process.

The scoping process officially began with the publication of a Notice of Intent (NOI) to prepare an EIS in the Federal Register on May 25, 2011. Two public scoping meetings were held following publication of the NOI. The NOI and the announcement of the public scoping meetings are provided in Appendix A. Open house public scoping meetings were conducted on Tuesday, June 14, 2011 from 5:00 PM to 7:00 PM at the Building 6, the Desert Breeze Travel Camp Community Center, and on Wednesday, June 15, 2011 from 5:00 PM to 7:00 PM at the Yuma Library located at 2951 South 21st Drive, Yuma, AZ 85364. All interested parties were invited to attend the public meetings and to submit comments throughout the NEPA process. Public scoping comments were solicited through June 30, 2011, which was 15 days following the last scoping meeting and 35 days following publication of the NOI.

YPG has been engaging and consulting with federally recognized Native American tribes regarding the PEIS. An initial tribal meeting was held in June 2011, with additional tribal meetings occurring in August 2012 and April 2013.

A Notice of Availability was published in the Federal Register on August 16, 2013, announcing the availability of the draft FPEIS for review and comment. The document was initially to be available for review for 45 days by agencies, governments, and the public. Due to the shutdown of the U.S. Government, an additional 20 days were added to the agency review period. A government and agency meeting was held at YPG on the afternoon of September 24, 2013. Public meetings were held at YPG on the evening of September 24, 2013, and at the Yuma Public Library Main Branch on the evening of September 25, 2013. Persons, agencies, or governments could comment at the meetings or could submit comments or questions by mail or e-mail to Sergio Obregon, National Environmental Policy Act Coordinator, U.S. Army Garrison YPG, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, ypgnepa@conus.army.mil. Comments received from the public, government agencies, and tribal organizations and the Army responses to these comments are provided in Section 8. Comments received were considered before the decision regarding implementing the Proposed Action on YPG was made. The public will be invited to review and comment on the FPEIS.

SECTION 2

Description of Proposed Action and Alternatives

This section provides a description of YPG and presents the alternatives considered in this FPEIS. The No Action Alternative is described first to identify clearly the existing activities conducted under the ongoing mission that would continue absent implementation of any action alternative. The Proposed Action includes the activities identified under the No Action Alternative, as well new construction, testing, and training proposed for implementation. After the description of the Proposed Action, there is a description of additional action alternatives that were considered.

2.1 Yuma Proving Ground

2.1.1 Functional Units

YPG is a U-shaped Army facility located in southwestern Arizona (Figure 2-1). The land between the arms of the "U" is managed by the U.S. Fish and Wildlife Service (USFWS) as the Kofa NWR. YPG is subdivided into five functional units, with each unit performing a different function in relation to the mission:

- Laguna Region
- Cibola Region
- Kofa Region, including Kofa Firing Range (KFR) and East Arm
- Airspace
- Off-post Locations

Laguna, Cibola, and Kofa Regions are shown on Figure 2-2. The Range Wide EIS (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001) and the Yuma Proving Ground Environmental Assessment (Mittlehauser Corporation, 1994) provide descriptions of YPG operations and that information is summarized in the following sections.

Throughout the YPG Ranges, there are numerous fixed sites that are used for a variety of purposes. Some were originally designed to support radar or optical instrumentation, camera sites, pads for equipment emplacement, landing pads, observation posts for visual observers, firing points, and impact areas. There are 523 established gun positions (GPs) on YPG (see Appendix B, Attachment 1), including improved and unimproved GPs. These sites also are used, as needed, to support UAS testing, to include temporary installation and employment of UAS launch/recovery systems, ground control station (GCSs), command and control infrastructure, and refueling operations. UAS testing may include optical tracking (ground or aerial), laser rangefinder, and laser designator operations. Tests are conducted at these areas on ground- or tower-mounted sensors, balloon- or aerostat (blimp)-mounted sensors, electro-optical sensors, infrared sensors, radar sensors, and unattended ground sensors, as well as wireless communications. These areas are also used for establishment of temporary firing positions to conduct ground weapons firing into approved impact areas or into catchboxes. Such temporary firing positions may be used to

fire small arms, shoulder-fired arms, guided munitions, artillery and mortars, rockets, rocket-propelled grenades (RPGs), AT-4 light antitank weapons (LAWs), and other direct fire weapons.

2.1.1.1 Laguna Region

The Laguna Region includes the three main cantonment areas within YPG: the Main Administrative Area (MAA), Yuma Test Center (YTC), and the Kofa cantonment. The cantonments within the Laguna Region are generally level, interspersed with low hills and washes. Mobility courses, which are tracks to test performance and reliability of automotive components, are located in more mountainous areas within the Laguna Region. The Laguna Region is bordered on the west and south by BLM and privately owned lands. Laguna covers approximately 68,720 acres (ac) and includes the MAA, the Yuma Test Area, Laguna Army Airfield (LAAF), Castle Dome Heliport (CDH), and the Air Cargo Complex. The eastern edge of Laguna is Firing Front Road, which abuts the Kofa Firing Front. Most of the existing mobility courses are in the Laguna Region.

2.1.1.2 Cibola Region

The Cibola Region encompasses approximately 438,195 ac and is the largest functional unit on YPG. The Cibola Region is mostly west of US 95. The boundaries include the western border of YPG and the inner eastern border (the eastern boundary of the western arm of the "U") adjacent to BLM and privately owned lands. This terrain comprises large plains surrounded by mountainous areas. The Cibola Region is primarily used by the Air Combat Systems Directorate for the following:

- Air cargo delivery testing
- Precision guided and non-precision guided personnel parachute systems testing
- Precision guided and non-precision guided cargo parachute systems testing
- Airdrop certification of equipment and ammunition
- Certification of aircraft for airdrop operations
- External transportability testing
- General Soldier systems testing
- UAS testing
- Moored aerostat testing
- Sensor systems and laser testing
- Aircraft armament and weapons testing
- Counter-improvised explosive device (IED) technology testing
- Electronic warfare (EW) systems testing
- Training activities

The Cibola Region also supports the Military Freefall School (MFFS) parachute training courses, the Special Operations Terminal Attack Controller Course (SOTACC), various activities conducted by the Training Exercise Management Office (TEMO), and a variety of testing for the Ground Combat Directorate, including guided and unguided long-range artillery and mortar testing and tactical vehicle testing.

Isolated mountainous areas are used for air-to-ground testing and training. There are 32 munitions impact areas in the Cibola Region, which occupy approximately 33,000 ac (approximately 7.5 percent of the area). Prospect Square is the largest munitions impact area in the Cibola Region (approximately 22,250 ac), and the others range in size from less than 1

ac to approximately 3,750 ac. All munitions impact areas in the Cibola Region are capable of receiving explosive rounds. Portions of the Cibola Region are used extensively by non-military components, including industrial/private partnerships, military contractors, and the U.S. Department of Homeland Security. The U.S. Department of Homeland Security aerostat is a tethered UAS mounted with sensors to provide surveillance to detect low-altitude aircraft crossing the border.

2.1.1.3 Kofa Region

The Kofa Region is the largest instrumented firing range in the United States, encompassing approximately 331,259 ac, and includes the Kofa Region Administrative Area and Ammunition Storage Area. These lands primarily consist of a flat basin surrounded by mountains, providing ideal conditions for testing, training, and evaluating direct and indirect fire weapon systems and their associated ammunition. The Kofa Region also supports the testing and evaluation of various types of sensor systems, including, but not limited to, sensor systems mounted on towers or on the ground, on moored aerostats, and on vehicles, aircraft, or UAS. Types of systems can include electro-optical, infrared, radar, acoustic, and unattended ground sensors, as well as wireless communication. Kofa also supports UAS and manned aviation flight test, both in support of Kofa munitions firing programs and for developmental test and evaluation of UAS and aviation systems (Franklin, 2013a, personal communication). The East Arm of YPG is in the Kofa Region. The eastern and southern outer boundaries of the Kofa Region border BLM, State, and privately owned lands. The Kofa Firing Front is immediately east of Firing Front Road and forms the western boundary of the Kofa Region; it contains GPs that fire onto KFR. A Nuclear Regulatory Commission (NRC)-licensed depleted uranium (DU) firing area is located within KFR, along with other munitions impact areas. There are 23 munitions impact areas in the Kofa Region, which occupy approximately 110,000 ac (approximately 33 percent of the area). There are 23 munitions impact fields located within munitions impact areas Alpha, Bravo, Delta, Echo, Foxtrot, Ramsdell, and East. Delta and Echo, each approximately 32,000 ac, are the largest munitions impact areas in the Kofa Region and the others range in size from less than 1 ac to approximately 17,000 ac. Two Kofa Region munitions impact areas, Red Bluff and the Combat Systems Test Complex Direct Firing Range, are for inert fire only. The others are capable of receiving explosive rounds.

2.1.1.4 Airspace

YPG has restricted military airspace over most of YPG and over most of the Kofa NWR (Figure 2-3). Restricted airspace places priority on military operations, but can be used by private or commercial flights during periods of non-use by YPG or other military users provided proper clearance is obtained in advance. YPG allows use of its airspace by other military services for training activities when not in use by the installation.

2.1.1.5 Off-Post Locations

YPG uses areas outside its boundaries to conduct or support a variety of military testing and training missions under conditions not found on YPG. Activities conducted at off-post locations are independent of testing and training activities on YPG. Off-post locations used to conduct mission-related activities were identified in Section 1.3. Camp Navajo is used for testing automotive and combat systems at 7,000-foot (ft) elevation. The Prescott Airport is used for similar tests at 5,000-ft elevation. Senator Wash Reservoir was under an agreement with the U.S. Bureau of Reclamation to test and evaluate amphibious vehicles and also as a drop zone (DZ) for training and evaluating personnel in airdrop skills and procedures. The

Blaisdell Railroad Siding area (BLM right-of-way 30293) is used for railroad shipping and receiving and to evaluate equipment loads under various railway transport conditions. Imperial Sand Dunes is part of the California Desert Conservation Area managed by the BLM and is occasionally used to conduct vehicle and equipment testing projects and some troop training activities. Death Valley is used periodically for automotive testing because of features such as extended mountain grades and high temperatures. Oatman Hill is used under a special permit to conduct performance tests on trucks exceeding the maximum size and weight limits for public roads. YPG has a Memorandum of Agreement (MOA) with MCAS Yuma to test counter-battery radar systems by placing them in the vicinity of commercial and military air traffic on MCAS Yuma and the surrounding area.

The command at YPG also oversees two test centers located outside of the southwestern U.S. These off-post locations are not addressed in this FPEIS. No changes are proposed for use of offsite areas. The Cold Regions Test Center is located in Alaska and the Tropic Region Test Center is located in Panama and several other countries. These centers are used to conduct tests under cold weather and tropical conditions.

2.1.2 Military Mission and Support Directorates

YPG supports both military and non-military testing and training, as well as foreign militaries. Activities are conducted by a variety of organizations, as discussed below.

Munitions and Weapons Division—tests and evaluates military weapons, detection and neutralization equipment, ammunition, and related systems and equipment throughout the item's lifecycle from concept demonstrations, to development, type classification operational evaluations, production acceptance, product improvements, and malfunction investigations. Munitions and Weapons Division directs the planning and execution of tests for:

- Mortar weapons, mortar ammunition, mortar systems and components
- Artillery weapons, artillery ammunition, artillery systems and components
- Mines, mine components, and mine clearing systems
- Tank weapons, munitions, associated ordnance material
- Weapons-related general combat equipment
- Counter-mine systems and components
- Demolition materiel
- Counter-fire systems and components
- Counter-fire sensors
- Radars

Munitions and Weapons Division also tests other materials under development and under a product improvement initiative. This division also conducts acceptance testing of the items listed above, which involves sampling each lot. The samples are tested to ensure they meet government performance, reliability, and safety standards.

Aviation Systems and Electronic Test (ASET) Division —conducts most airborne activities and some ground-related activities. ASET Division is the primary location for Army developmental air transport and airdrop tests, which focus on development of new or improved methods for transport and delivery of personnel, equipment, and munitions. This division develops, tests, and analyzes parachute systems, aerial retardation systems, aircraft systems, aircraft airdrop systems, aircraft escape systems, internal and external air transportability of equipment and materials, descending and retrieval systems, vertically

controlled impacts, and the effects of the desert environment on aviation and airdrop material. ASET Division also tests aircraft armament systems, aircraft weapons and fire control systems, precision navigation systems, airborne and ground target acquisition systems, ground and aerial rockets and rocket systems, general support equipment, Soldier equipment, and chemical-biological defense equipment. UAS operations testing includes UAS launch/recovery, command and control, as well as administration of UAS tests. Additionally, ASET Division conducts sensor testing of systems mounted to towers or on the ground, on moored aerostats, and on vehicles, aircraft, or UAS. Types of systems can include electro-optical, infrared, radar, acoustic, and unattended ground sensors, and wireless communication.

Testing of EW is conducted by the ASET Electronic Warfare Branch and involves but is not limited to, Counter-Radio Controlled IED (RCIED) Electronic Warfare (CREW) jamming systems, several systems designed to detect threats prior to detonation, and systems to identify, locate, and track enemy personnel for emplacing the threats. Testing includes performance, interoperability, and communications for potential, pending, and currently fielded counter-IED and counter-terrorism technologies, as well as EW systems.

Combat and Automotive Systems Division—tests and evaluates tracked and wheeled vehicles, weapons systems, including tank weapons and other vehicle-mounted weapons and ammunition, other mobile equipment, fuel and water transfer systems, unmanned/robotic systems for both government and private industry, as well as human factors in combat scenarios. Testing involves vehicle systems performance and reliability under desert conditions. The division also assists private industry by providing services and use of test facilities. The division also provides Human Factors Engineering support to other test areas. Vehicle testing is governed by *Standard Operating Procedure (SOP) for Conducting Automotive Testing* (YP-YTC-P-5001) and weapons testing is governed by *SOP for Conducting Combat Vehicle Weapons Systems and Ammunition* (YP-YTC-P-5100). These SOPs are updated as necessary to reflect vehicle, technology, and testing changes.

Persistent Surveillance Systems (PSS)—conducted by the ASET Sensors Branch to test and evaluate computers, combat systems, intelligence, surveillance, and reconnaissance (C5ISR) systems on aerostat platforms moored as high as 15,000 ft above the ground. Testing includes the use of various military and civilian vehicles and simulated insurgents with live fire from firearms, small artillery, and explosives.

Unmanned Aircraft Systems (UAS)—testing of UAS conducted by the ASET Aviation Systems Branch and involves all aspects of UAS, including sensors, communications, weapons firing, and aircraft operation on UAS platforms ranging from 1 pound (lb) to more than 15,000 lb. Testing occurs during all stages of the development cycle and includes test firing of weapons systems.

Training Exercise Management Office (TEMO)—responsible for visiting unit coordination and management of training activities on YPG. TEMO also conducts training activities and provides support services to its test divisions and supported components. YPG is used for a variety of training objectives by the Army as well as the U.S. Marines, U.S. Air Force, and U.S. Army Reserve units. Training activities include:

- Physical fitness and endurance events
- Live fire of assigned weapons systems (small arms to large caliber)
- Dismounted maneuvers

- Bivouac
- Forward operations base and logistics support site training
- Airfield operations
- Military operations in urban terrain
- Demolition training
- Counter-mobility training
- Military theater of operation construction
- Land navigation
- Aircraft and vehicle gunnery
- Vehicle fording operations
- Night maneuvers training
- Driver/convoy training
- Air to ground aircraft gunnery
- Unmanned aerial vehicle (UAV)/UAS training
- Aerostat training
- Land navigation
- Airmobile tactical training
- Military working dog (MWD) training
- MFFS
- Periodic Golden Knights parachute training
- Visiting units training
- Non-military law enforcement units

Training activities prepare units for the terrain and unique physical characteristics of the desert environment. Some training activities on YPG are combined with testing to determine the performance of weapons and equipment under field conditions rather than test conditions. This operational testing is conducted to support other testing activities, such as when live fire is needed to provide appropriate test conditions. Field exercise training may include mounted or dismounted maneuvers, live-fire activities, and bivouacs for extended activities. Training occurs in designated areas in all three regions of YPG.

MWD courses address all aspects of combat application and pre-deployment preparation of MWD teams. Training involves all U.S. services, and allied forces' MWD teams also may participate. Training events vary in duration and troop count. MWD training courses at YPG typically last for 2 to 4 weeks, but advanced training may have an extended duration of 9 months. The number of military personnel participating in training events varies from as few as 6 up to 30. Most MWD teams are composed of one handler and one MWD, but on occasion, a handler may have two MWDs. Additional personnel, who are not MWD handlers, also participate in training courses.

Visiting unit training occurs throughout YPG and may be conducted at any time during the year, but with no established times. YPG provides facilities and ranges to fill training gaps that cannot be met at a unit's home station due to capability limitations or a lack of availability during the required dates. YPG also provides opportunities to maximize efficiency by offering training while a unit is in southwest Arizona in support of other initiatives or exercises. Durations of visiting unit training events range from a single day up to approximately 2 weeks. The number of personnel varies among units, ranging from

about 20 to as many as 300. Visiting unit training may include the types of training identified above.

The Weapons Tactics Instructors (WTI) course is a biannual exercise that is scheduled during spring and fall. This course is a capstone U.S. Marine Corps exercise that involves all available assets to support the U.S. Marine Corps Air-Ground campaign (fighter aircraft, reconnaissance aircraft, command and control aircraft, air tankers, tilt rotor aircraft, helicopters, and UAVs). This aviation-centric exercise is supported by combined ground combat, combat support, and service support forces from the U.S. Marine Corps, the Army, U.S. Air Force, and allied forces. The exercise is centered on MCAS Yuma, hosting approximately 350 aircraft and 5,000 military personnel during each 6-week WTI exercise. YPG provides support for WTI exercises. The primary ground combat force, a USMC Infantry battalion, quarters at the YPG FOB Site at LAAF and conducts multi-echelon training on YPG that includes live fire with all organic weapons systems. UAV units may operate from YPG UAS sites. LAAF supports air traffic control, aircraft refueling and rearming, and airfield air and ground defense units and operations. Culminating exercises amass collective capabilities built throughout the exercises for simulated airmobile assaults involving all components of the air-ground campaign that may include activities on YPG.

Federal, state, county, and city law enforcement agencies use YPG ranges and training areas to support their training and qualification requirements. Law enforcement training includes live fire and non-live fire scenarios. Group size varies from 12 to 50 participants. Law enforcement training exercises last between 1 day and 3 weeks, depending on the type of training, and occur on average once every other month.

Military Freefall School (MFFS)—The MFFS, part of the U.S. Army John F. Kennedy Special Warfare Center and School, is a joint forces training school covering all aspects of military freefall parachuting. Students are taught to use high altitude-low opening and high altitude-high opening parachuting techniques. Training includes platform, hands-on, and actual parachute operations. Students come from all military services and typically originate in elite organizations within their service. The MFFS trains selected special-operations forces, other DoD forces, and foreign personnel. The MFFS typically uses DZs in the Cibola Region for training activities, although other YPG airspace may be used. In addition, to approach DZs, aircraft used by MFFS may fly over the Imperial NWR.

Military-support Contractors—military contractors allowed to use YPG to test new technologies or equipment being developed for one or more branches of the military under desert conditions. Military-support Contractors have identified future needs on YPG, and these activities are included in the Proposed Action.

Private Partnerships/Industrial Operations—non-military components allowed to develop and use facilities on the installation. Private partnerships must comply with all Federal, State, and Army regulations and requirements. No new private partnership actions are proposed and such actions are not evaluated in this FPEIS. Future private partnership projects will be assessed on a project and site-specific basis. Private project proponents will be responsible for implementing NEPA, if required, and any mitigation of impacts required as a result of site-specific analysis. Some industries may use existing military facilities.

The activities currently conducted by the four test divisions, TEMO, and military-support contractors are described in Section 2.1.2 and Appendix B. There are no proposed changes in activities conducted by industrial operations and these entities are not further considered.

In addition to these supported components, YPG also allows use of portions of the installation by the Boy Scouts of America (BSA) and by Drug Abuse Resistance Education (D.A.R.E.) for camps and group activities.

Support organizations provide all structures and facilities for mission, logistical, and personnel support. Mission and logistical support encompasses communication networks, data control, ammunition storage, physical security, meteorology, vehicle maintenance, safety, environmental support, and fabrication facilities. Personnel and general support includes housing, food services, recreation, administrative and medical services, and facility maintenance.

2.2 Approach to Alternative Development

The No Action Alternative is described in Section 2.3, as supported by Appendix B. The Proposed Action is described in Section 2.4.

Potential alternatives for specific proposed projects included in the Proposed Action subjected to detailed analysis in this document are provided in Section 2.5. This section identifies those proposed activities where reasonable alternatives exist and provides a description of alternatives considered. Proposed projects for which no feasible alternatives exist also are identified and the justification for not considering other alternatives is provided. It also is possible that the decision-maker would select a subset of the activities included within the Proposed Action and other activities from Section 2.5.

For proposed projects subjected to programmatic analysis, no alternatives were considered. Rather, to the extent practical the maximum potential impacts of the project activities were analyzed on a broad scale. These activities would be subjected to site-specific NEPA analysis prior to implementation that could include analysis of other reasonable alternatives to the identified action.

The U.S. Army considered of input from government agencies and tribal organizations and input from Support Directorates to identify a Preferred Alternative. The Preferred Alternative selected reduced areas for two proposed activities (K003 and K026) to avoid or minimize potential impacts to an identified resource. Similarly, the Preferred Alternative selects the smaller of considered alternatives for two activities (L030-a, C034-a) to minimize the potential for impacts to resources. Where there was no meaningful difference in the potential impacts of activities with multiple alternatives, The Preferred Action selected the alternative that aligned best with mission requirements.

Alternatives to the Proposed Action that were considered but eliminated from further consideration are described in Section 2.7.

2.3 No Action Alternative

2.3.1 Description of the No Action Alternative

The No Action Alternative is the continuation of existing operations on YPG. Under the No Action Alternative, testing and training would continue at the current levels and utilize existing facilities and infrastructure with no new construction. Ongoing testing and training occur in specific areas within YPG, and the locations of current activities are depicted on Figures 2-4 through 2-12. Tables identifying the testing and training activities included under

the No Action Alternative are provided in Appendix B, as Tables B-1 through B-3, which are separated according to the three regions (Laguna, Cibola, and Kofa Regions). No test areas, munitions impact areas, or DZs would be expanded under the No Action Alternative. No construction or demolition would occur.

2.3.2 Previous Analyses of the Activities in the No Action Alternative

The testing and training activities of the No Action Alternative have been evaluated previously through multiple NEPA documents:

- Environmental Assessment, Yuma Proving Ground United States Army. U.S. Army Corps of Engineers and Michael Brandman Associates, Inc., revised by Mittlehauser Corporation. Original Document 1987, revised 1994. (Mittlehauser Corporation, 1994)
- Environmental Assessment for the Combat Systems Test Complex, May 30, 2000. Command Technology Directorate CSTE-DTC-YP-CD. Jason Associates Corporation. May 2000. (Jason Associates Corporation, 2000)
- Final Range Wide Environmental Impact Statement, U.S. Army Yuma Proving Ground, Yuma and La Paz Counties, Arizona. Command Technology Directorate CSTE-DTC-YP-CD-ES; Gutierrez-Palmenberg, Inc. and Jason Associates Corporation. July 2001. (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001)
- Environmental Assessment for Mohave Drop Zone. Prepared for U.S. Army Proving Ground Command Technology Directorate. September, 2001. (Jason Associates Corporation, 2001)
- Environmental Assessment for the Joint Experimental Range Complex. U.S. Army Garrison Yuma, Environmental Sciences Directorate. March 2, 2004. (YPG, 2004)
- Environmental Assessment for the Joint Experimentation Range Complex II. U.S. Army Garrison Yuma, Environmental Sciences Directorate. August 2006. (YPG, 2006)
- Environmental Assessment for the Joint Experimentation Range Complex (JERC) III, Operational Road Course and Service/Access Road. Jason Associates Corporation. December 2007. (Jason Associates Corporation, 2007)
- Final Environmental Assessment for the Unmanned Aircraft Systems Test Center. Jason Associates Corporation. January 2008. (Jason Associates Corporation, 2008a)
- Final Environmental Assessment for the Proposed Cobra Flats, Comanche Flats, and Site 2 Military Training Areas. Jason Associates Corporation. January 2008. (Jason Associates Corporation, 2008b)
- Final Environmental Assessment for the Army Test Tracks. Prepared for U.S. Army Garrison Yuma Proving Ground. Jason Associates Corporation. March 2008 (Jason Associates Corporation, 2008c)
- Environmental Assessment for Improvised Explosive Devices (IED) Test Environment. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground (YPG Directorate of Public Works [DPW]). January 2010. (YPG DPW, 2010a)

- Environmental Assessment for Impact Areas Expansion. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. March 2010. (YPG DPW, 2010b)
- Environmental Assessment for Cibola Impact Areas. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. April 2011. (Gutierrez Canales Engineering, P.C., 2011)
- Environmental Assessment for Fuel Facilities Optimization. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. November 2011. (YPG DPW, 2011a)
- Environmental Assessment for Persistent Surveillance Systems Program. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. December 2011. (YPG DPW, 2011b)
- Environmental Assessment for Long Range Munitions. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. April 2013. (YPG DPW, 2013a)
- Environmental Assessment for Military Training Area Expansion, Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. May 2013. (YPG DPW, 2013b)

The evaluations and analyses presented in these previous NEPA documents provide the baseline for comparison of potential impacts considered in this FPEIS. The descriptions and analyses presented in the NEPA documents listed above are incorporated into this FPEIS by reference.

2.3.3 Existing Activities

The following sections describe the types of activities conducted by the various testing and training entities on YPG. Common to all testing and training is the use of electromagnetic (EM) radiation, including communication systems and lasers, as system components for communication, range finding, target acquisition, and other purposes. An EM gun is tested at the EM GP in the Kofa Region.

Sources of EM radiation are used and tested on YPG for a wide number of tasks. EM radiation may be used from both ground and aviation platforms. EM radiation systems operate at all frequencies and at a variety of power levels ranging from microwatts to megawatts.

Lasers of all classes are used and tested on YPG, primarily for target acquisition, training, fire control, and directed energy applications. Lasing may be used from ground or aviation platforms and may terminate on either ground or air targets.

There would be continued use of lasers and EM radiation under the No Action Alternative.

Throughout the YPG Ranges, there are numerous fixed sites that are used for a variety of purposes. Some were originally designed to support radar or optical instrumentation, camera sites, pads for equipment emplacement, landing pads, observation posts for visual observers, firing points, GPs, and impact areas. All of these sites also are used, as needed, to support UAS testing, to include temporary installation and employment of UAS launch/recovery systems, GCSs, command and control infrastructure, and refueling

operations. UAS testing may include optical tracking (ground or aerial), laser rangefinder, and laser designator operations. Tests are conducted at these areas on ground- or tower-mounted sensors, balloon- or aerostat-mounted sensors, electro-optical sensors, infrared sensors, radar sensors, and unattended ground sensors, as well as wireless communications. These areas are also used for establishment of temporary firing positions to conduct ground weapons firing into approved impact areas, including small arms, shoulder-fired arms, guided munitions, artillery and mortars, rockets, RPGs, AT-4 LAWs, and other direct fire weapons. YPG would continue to conduct these types of activities at these locations under the No Action Alternative.

YPG utilizes a mobile dust generator to simulate windblown dust for specific test requirements. Dust simulation may be used for equipment, munitions, sensor, vehicle, or other tests depending on specific testing requirements. This dust generator may be used in any established testing area on YPG, as required for specific tests. YPG will continue to use the dust generator under the No Action Alternative, as needed.

Within munitions impact areas, YPG routinely establishes temporary firing positions to meet specific testing needs. Temporary firing positions may be established anywhere within a designated munitions impact area. YPG will continue to use temporary firing positions, as needed to meet testing objectives, within designated munitions impact areas under the No Action Alternative.

2.3.3.1 Munitions and Weapons

These activities include the testing and evaluation of weapons, ammunition, explosive ordnance, and related items. The primary test site for these operations is KFR, with both conventional and specialized facilities and instrumentation sites. Electro Thermal/EM weapons tests are conducted in a dedicated facility in KFR.

YPG tests airborne weapons systems, combat vehicle weapons and related munitions, direct and indirect fire programs, vertical firings, illumination programs, and inert items. Munitions, weapons, mines, and other materiel tested on YPG include experimental tube artillery and gun systems and associated ammunition from 120 millimeter (mm) to 16-inch, mines, counter-mine systems, counter-fire systems, related ordnance material, related general equipment items designed for combat use, mortars, field artillery weapons, machine guns, and materiel. More than 10,000 rounds per year typically are fired for this testing. The primary test site for artillery and mortar weapons and munitions testing is KFR, which contains a 40-mile overland artillery range including fixed and temporary firing positions with conventional and specialized facilities and instrumentation. Most testing is from stationary guns at established GPs and firing points.

Over 400 established firing points are maintained on the KFR that are used for testing artillery, tank, and mortar direct and indirect fire capabilities. When in use, GPs include the weapon to be tested and supporting utilities and facilities. There are 13 fixed GPs that are fully improved sites with permanent structures, including blast shields, and electricity/telecommunications support. There also are seven semi-permanent GPs with permanent buildings that have electricity/telecommunications support. The remaining GPs are transient gun positions (TGPs), which are multiple use areas that may be used for firing, sensor or camera placement, or for observation of testing activities. TGPs are cleared areas (up to a 175-ft radius area [2.2 ac]) that may have telecommunications support. Electrical service may be provided or generators may be used to supply electricity during tests.

Trailers and other support facilities or equipment are placed on the TGP for the duration of a test and then removed. Instrumentation at a TGP used to collect and analyze data from weapon systems and/or munitions during tests includes, but is not limited to, cameras, radars, microphones, lights, optical sensors, and pressure transducers. Other equipment that is typically brought in to support a firing test includes, but is not limited to: ¾-ton pick-up trucks, 2 ½-ton flatbed truck, 5-ton cargo truck (tactical or commercial), grader, crane, low-boy trailer, all-terrain fork lift, front-end loader, backhoe, bulldozer, dump truck, instrumentation van, and bomb-proof blast shields.

YPG is licensed through the NRC to conduct firing programs involving munitions that contain DU. No additional use of DU materials would occur under the Proposed Action. The NRC-licensed DU impact area is in the northwestern part of the Kofa Region and is regularly monitored to confirm that no adverse environmental impacts occur. After firing, the impact areas are searched by Ammunition Recovery personnel to recover spent DU rounds. Collected spent DU rounds are stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. The NRC-licensed DU impact area has a DU Catchment Structure and spent DU rounds are collected by Ammunition Recovery personnel and stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. There is an evaporative lagoon (catchment basin) that collects runoff from the DU Catchment Structure to minimize the potential for stormwater transport of DU off-post or to other areas on-post.

Range instrumentation that supports testing includes, but is not limited to, fuze chronographs, burst height monitors, muzzle velocity radars, tracking radars, high-speed cameras, video monitors, Kineto tracking mounts, telemetry antennas, optical theodolites, wireless communication equipment, and versatile tracking mounts. Temperature conditioning boxes and environmental simulators, including rough handling, transportation vibration, drop towers, temperature/altitude, humidity, enveloping flame, and dust and salt fog chambers, are used to conduct munitions and weapons tests.

Support facilities in the Kofa Region prepare weapons and munitions that are tested, including assembly and storage of propellants, fuzes, and other sensitive explosives. Support facilities perform all maintenance for weapons assigned to YPG, including towed and self-propelled artillery and fire control systems. YPG also has dedicated mine and counter-mine facilities.

There are numerous radar sites throughout KFR that are primarily used to host and support deployment and operation of counter-battery radar systems and other sensors during testing. These sites are known as radar sites 1, 2, and 3, the Firefinder Compound, the Counter-fire Compound, and the Counter-Rocket Artillery and Mortar (CRAM) area (including Site 15, Tower 48, and the Land-Based Phalanx Weapon System [LPWS] GPs). These sites are established and improved areas with hard power, telecom infrastructure, vehicle parking areas, equipment storage containers, and personnel shelters that serve as the command center for test support personnel and test equipment during test operations. These sites are used to conduct tests involving geographically separated but networked sensors and weapon systems. These systems support testing by multiple testing groups and are not limited to munitions and weapons testing.

2.3.3.2 Air Delivery Systems and Air Movable Equipment

This work includes air cargo delivery, testing of precision guided and non-precision guided cargo and personnel parachute systems, airdrop certification of equipment and ammunition, certification of aircraft for airdrop operations, external transportability testing, and general Soldier systems testing. Testing is conducted using DZs and fixed facilities. Restricted airspace over the DZs is controlled by YPG. Testing consists of airdrops of personnel, equipment, and ammunition. Most airdrop testing and training is done during the day, with occasional night operations.

Airdrop operations use designated DZs for personnel drops and to test material and munitions transport reliability under parachute drop delivery. DZs also must be capable of supporting instrumentation to track dropped loads from the aircraft to the ground. Because cargo drops frequently are from high altitude airplanes, there is potential for loads to miss the target or even the DZ and the surrounding area must be capable of tolerating such errant drops. DZs also must be accessible to heavy equipment for retrieval of dropped loads. Unless designated for personnel only or otherwise restricted for specific uses, any DZ may be used to test any material or munitions. This may result in the need for detonation-in-place of unexploded rounds that cannot be safely removed following a test. Detonation-in-place is accomplished through the use of donor explosives by trained and authorized specialists who use the minimum amount of donor explosive required to safely accomplish the detonation. The use of detonation-in-place to remove hazards from DZs would continue under the No Action Alternative, as needed.

Static drop testing determines the capability of military materiel to withstand ground impact forces resulting from accidental drop during transport. A crane is used to lift and drop loads to provide specific impact velocities. Fit checks and roll-on/roll-off testing are done using a C-130 fuselage.

The building, assembly, and rigging of loads for testing and training are done at YPG facilities. Parachute fabrication and maintenance activities include fabrication, inspection, repair, and modification of parachute assemblies and components required to support test programs. Parachutes are packed on YPG at facilities under controlled conditions. A shake-out/drying tower is used for large cargo parachutes prior to packing. Other support activities include load preparation, aircraft loading, recovery of airdrop and air transported equipment, and installation of data acquisition instrumentation systems for airdrop tests.

2.3.3.3 Aircraft Armament Systems

This testing includes development and performance testing of aircraft armament components and systems. Emphasis is on internal and external armament and fire control systems on rotary wing aircraft (helicopters), although fixed wing aircraft also are used. Developmental testing of Army aircraft armament components includes air-to-ground and air-to-air testing in various designated munitions impact areas with an emphasis on rotary wing aircraft. Aircraft use designated field sites located throughout YPG to take off and land and for re-arming and refueling operations. All components of aircraft armament systems are tested, including turreted guns, rockets, countermeasures, dispensers and launchers, guided missiles, laser systems and rangefinders, fire control systems, night vision devices, and aircraft integrations. Aircraft armament testing directly involves tests conducted on aircraft, and also includes firing ground-to-ground from specially constructed mounts and fixtures. Ground-to-ground firing of aircraft armament components and systems uses some

of the same types of support facilities and instrumentation as artillery and combat vehicle weapons testing.

Testing of aircraft armament systems may include both ground and aerial firing. Munitions used may include small arms, ranging in sizes from 5.56mm to 203mm and consist of ball ammunition, incendiary, tracers, and other types of military rounds. They may also include ballistic rockets ranging in size from 57mm up to 240mm, guided missiles ranging in size from 70mm with warheads weighing less than 10 lb, to warheads weighing in excess of 60 lb. Specialized munitions such as flares, illumination, chaff, Tube-launched, Optically Tracked, Wire Command (TOW) missiles, AT-4 LAW, and all series of RPGs may also be fired or dispensed. Bombs (projectiles that require the acceleration due to gravity for propulsion) may be utilized for testing and could weigh up to 1,000 lb. Target, instrumentation, and range facilities are in designated areas that can accommodate the safety fan (the area established around the impact point with a probability of a round landing outside the safety fan being one in one-million) of weapons being tested. Both passive and active targeting systems are tested using sensors in a number of regions of the EM spectrum, including infrared (IR), ultra-violet (UV), and visible lasers, millimeter wave radar, and magnetic signature detectors. Tests for these systems may include large, real threat target arrays moving in tactical scenarios. Both ground and aerial targets are used.

Rangefinders, lasers, and radar systems are used for tracking and recording data, for sighting and alignment, and for testing tracking and guidance systems. Laser systems tested on YPG include ground-mounted, vehicle-mounted, and airborne systems. Laser systems may have eye-hazard distances of several miles and include both continuous wave and pulsed lasers with output energies ranging from microwatts to megawatts. Turreted lasers require test areas large enough to transmit in azimuth sweeps of 240 degrees or more. Testing of these laser systems and rangefinders in conjunction with armament systems requires ranges and restricted airspace capable of accommodating sweeps of 240 degrees and at least an 18-mile radius. YPG has ranges and restricted airspace to accommodate these tests.

2.3.3.4 C5ISR Systems

C5ISR systems are integrated intelligence networks designed to collect and share data from multiple sources across the battlefield. Typical C5ISR systems comprise transport systems (personnel, aircraft, vehicles, etc.), computers, software, communications (wireless and wired), networks (classified and unclassified), data (archive, dissemination, and exploitation), sensors (radar, electro-optical, infrared, laser, seismic, acoustic, biometrics, hyperspectral, signal detection, etc.), and sensor platforms (aerostats, airships, aircraft, vehicles, towers, etc.). The emphasis of C5ISR testing is on component level, system level, and "systems of systems" interoperability. C5ISR systems are used for Force Protection, ISR (intelligence, surveillance, and reconnaissance), RSTA (reconnaissance, surveillance, and target acquisition), and border security missions.

2.3.3.5 UAS

UASs include the GCS, UAV, launch/recovery systems, and other ancillary equipment. UAS testing includes rotary wing, fixed wing, high altitude long endurance, medium altitude long endurance, high speed jet, and transitional vertical take-off and landing airships. Testing addresses both ground-launched and air-launched systems. The size of

UAS aircraft tested varies from under 1 lb to 15,000 lb. Energy sources include batteries, solar cells, heavy fuel, aviation gasoline, and combination systems.

UASs typically are tested for persistent surveillance, ISR, RSTA, sling load, over the hill resupply, communications relay, cargo transport, battle damage assessment, manned-unmanned teaming, change detection, and shipboard and ground operations. UASs typically carry a variety of sensors, including laser systems, and may include weapons. UAS weapons testing is conducted at designated munitions impact areas.

2.3.3.6 Combat and Automotive Systems

This includes the testing and evaluation of wheeled and tracked vehicles, direct fire programs, combat vehicle weapons systems and related munitions, target acquisition systems, vehicle components, communication systems, and related items including fire control systems, fuels, lubricants, and other automotive chemical products. Munitions, weapons, and other materiel tested on YPG include tank gun systems and associated ammunition from 5.56mm to 120mm and small arms. The demand for automotive testing is projected to increase into the future as new generation military vehicles and commercial vehicles are developed. Multiple tests are conducted in parallel, many of which are within a competitive bid process with multiple vendors, with the potential for several vehicles operating on multiple performance test facilities while other combat vehicle weapons system firing tests are conducted. Typically, automotive testing involves several hundred vehicles per year that, in total, are driven in excess of 2.5 million miles to evaluate performance, maintainability, and reliability. Automotive-type equipment tested on YPG includes combat vehicle weapons systems, tactical, special and general purpose vehicles, construction equipment, industrial and power generation equipment, missile ground support and fuel/water distribution system equipment, robotic (autonomous/unmanned) systems, automotive components and materials, and military fuels and lubricants. Typical automotive performance tests include tractive effort, full-load cooling, road load cooling, fuel consumption, speed, acceleration, braking, handling, field of vision/fire, transportability, towing, ride quality, toxic fumes, and fording/swimming capability. Fording capability is tested at the fording basin in the Laguna Region. Environmental tests evaluate starting ability at extreme high and low temperatures, effects of rain and humidity, operation at high altitudes, vapor lock tendencies, and the ability of air cleaners and other subsystems to function in severe sand and dust conditions. Additionally, transportation of military vehicles by rail and air is addressed by YTC.

The performance of military personnel who operate and maintain test vehicles and equipment under field conditions also is within the mission of automotive testing. Testing may use fixed or moving targets and may be done from stationary or moving vehicles. YPG is the DoD center for tire testing and has established dedicated tire test courses.

Most vehicle test courses are within the YTC of the Laguna Region. Established vehicle test courses provide over 250 miles of courses that vary with respect to road, grade, and soil conditions. The valley, wash, and mountainous areas on YPG provide differing degrees of severity for endurance and reliability testing, as well as general desert environment testing. Firing facilities with moving targets, zigzag courses, bumps, and firing pads allow testing of weapons and fire control systems, which may be stationary or moving.

Automotive has a laboratory for analysis of carbon monoxide (CO), oxides of nitrogen (NO_x), ammonia, and sulfur dioxide (SO_2) that may be generated from aircraft and ground

vehicle weapon firings or engine operations in a stationary mode and can accumulate in cockpit/crew compartments. Non-routine analyses of other gases and fumes from weapon debris, explosives, and propellants also are conducted. Environmental chambers are used to expose vehicles and equipment to extreme temperatures and varying levels of humidity. Vehicle-mounted weapons up to 40mm can be fired from these chambers. Mobility absorption dynamometers support operations and are used for drawbar pull, fuel consumption, full-load cooling, and tractive resistance tests.

Automotive also conducts maintenance on all test vehicles as part of its mission. These activities are done in facilities in the Kofa cantonment in the eastern part of the Laguna Region. Buildings used for these activities are designed to contain any spills of petroleum, oils, and lubricants (POLs) that may occur during maintenance of test vehicles.

YPG is licensed through the NRC to conduct firing programs involving munitions that contain DU. No additional use of DU materials would occur under the Proposed Action. The NRC-licensed DU impact area is in the northwestern part of the Kofa Region and is regularly monitored to confirm that no adverse environmental impacts occur. After firing, the impact areas are searched by Ammunition Recovery personnel to recover spent DU rounds. Collected spent DU rounds are stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. The NRC-licensed DU impact area has a DU Catchment Structure and spent DU rounds are collected by Ammunition Recovery personnel and stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. There is an evaporative lagoon (catchment basin) that collects runoff from the DU Catchment Structure to minimize the potential for stormwater transport of DU off-post or to other areas on-post.

2.3.3.7 Counter-IED Activities

The EW Branch of the ASET Division tests counter-IED electronic systems primarily at the JERC sites in the northern Cibola Region, but also at other designated EW ranges on Cibola and Kofa. Counter-IED facilities include large complexes of buildings, roads, bridges and overpasses, and other infrastructure that replicate typical urban settings and overseas combat areas. The facilities include re-creation of the EM environment in those overseas areas. These facilities and the tests continually evolve to reflect changes in in-theater conditions. Counter-IED testing platforms include equipment varying in size from tiny sensors to tethered surveillance aerostats. Simulated IEDs include both inert and explosive devices and weapons.

EW test ranges support multiple test functions, including detection and defeat of IEDs, force protection, performance capabilities and limitations, theater support, interoperability/EM compatibility, Electromagnetic Counter Measure Device (ECMD) devices, blue force communications compatibility, platform integration, radio frequency safety measurements and system safety assessment test efforts, firing events, laser events, and blended test and training events. Blended test and training events include activities such as acceptance testing of the Mine Resistant Ambush Protected (MRAP) all-terrain vehicle.

EW ranges have an interconnected fiber communications system that extends throughout each EW range. These interconnected systems allow testing to occur in multiple locations simultaneously across test sites in support of a single test effort.

2.3.3.8 Training

YPG provides training and operational testing where military personnel use various weapons, munitions, vehicles, aircraft, and systems under tactical conditions and includes both vehicle-mounted training and dismounted training. In addition to the Army, other military units such as SOTACC, and visiting units also conduct training exercises on YPG. Visiting units include:

- Special Operations Command
- U.S. Marine Corps (includes support squads that train on water purification systems)
- U.S. Navy
- U.S. Air Force
- U.S. Customs and Border Protection (personnel and K-9 Units)
- U.S. Coast Guard
- U.S. Army Reserve
- Arizona National Guard
- Arizona Local Law Enforcement Agencies
- California Local Law Enforcement Agencies
- Other Federal and DoD Entities
- Foreign Nation Forces
- DoD Contractor Support

Training may include classroom or controlled environment exercises and field exercises. Additional operator training is conducted by DoD contractors.

Unless expressly designated for vehicle maneuvers, Light Maneuver Training Areas (LTAs) are for dismounted training with vehicle use restricted to existing improved roads and both maintained and unmaintained unimproved roads. Only incidental off-road vehicle operation related to troop/equipment drop-off or pick-up occurs. Training is conducted in designated areas in all three regions of YPG. In most areas, training is limited to company-level (approximately 120 military personnel) or smaller units. The Laguna Region Forward Operating Base (FOB) by LAAF, the Castle Dome FOB, and the Combat Systems Test Complex in the Kofa Region are capable of accommodating larger numbers of military personnel. Facilities, such as mock desert villages and simulated target areas, roadways, and trails provide military personnel with conditions similar to those encountered in the Middle East. Training activities in LTAs may include bivouacs, which would be located near roads to provide ease of access for military personnel and portable toilets. No digging or other ground intrusive activities occur during bivouacs and previously disturbed areas typically are selected. Trailer-mounted 60-kilowatt generators may be used during training. These are operated within secondary containment to prevent fuel spills and generators are operated only near roads due to access requirements.

The training mission also includes military working dog training, combat skills, paratrooper training, night training, air operations, troop/equipment movement, land navigation, logistics exercises, intelligence training, field repair training, establishment of bivouacs and base camps, communications, military operations in urban terrain (MOUT), and military operations in open desert conditions. Field training is conducted with various weapons and combat systems, including small arms, shoulder-fired guided missiles, aircraft weapon systems, vehicles, artillery, and tanks. Training activities may use live ammunition or may

include blank rounds, simulated munitions, smoke, pyrotechnics, and riot control agents as identified by unit authorization or operational test plan.

Force on force training does not involve live fire. An eye-safe multiple integrated laser engagement system is used to determine weapons hits and casualties. Force on force training does use blanks, pyrotechnics, smoke, illumination, and grenade and IED simulators.

Training exercises may occur outside of designated LTAs and FOBs. When training is conducted outside of these designated areas, military personnel and equipment are limited to existing roads and trails and no off-road movement is allowed.

2.3.3.9 Base Support Operations

Many facilities are operated or maintained to support the activities of the six main functions listed above. These facilities include instrumentation, such as radar tracking and vectoring, real-time meteorological data, target arrays, telemetry capabilities, and video scoring. Other support operations include several vehicle and munitions maintenance facilities, ranges, heliports and airfields, various test facilities and laboratories, data collection and processing facilities, pest management, solid waste disposal, wastewater disposal, water distribution, storage facilities, and road and target maintenance. Support services are also provided for base personnel in the areas of administration, recreation, utilities, housing, health, education, and retail stores.

2.3.4 Status of the Analysis of the No Action Alternative

The No Action Alternative would not meet the purpose and need for the project. The No Action Alternative would result in YPG continuing to operate with facilities and infrastructure in need of improvement or modification to meet future mission needs. The No Action Alternative, however, provides the baseline against which the potential impacts of the other considered alternatives can be evaluated. The No Action Alternative is carried forward for detailed analysis in this FPEIS.

2.4 Proposed Action

The Proposed Action includes all components identified in this FPEIS, including new construction and associated demolition, testing and training activities occurring on YPG, and new testing and training proposed to meet anticipated testing or training needs. The Preferred Alternative, which is described in detail in Section 2.10, is a subset of the Proposed Action. Tables 2-1 through 2-6 indicate where the original Proposed Action has been modified under the Preferred Alternative.

Under the Proposed Action, there would be no increase in the number of military and civilian personnel assigned to YPG and these activities would not induce growth in the region. There could be an increase in transient personnel with increased testing and training capacity, but these personnel would be onsite only for short periods. Potential increases in operational testing to provide realistic in-theater conditions to support testing would not result in personnel increases.

Current testing and training activities, which were discussed previously as part of the No Action Alternative, are identified in Appendix B and locations for these activities are shown on Figures 2-4 through 2-12. No additional use of DU materials would occur under the Proposed Action.

The construction, testing, and training activities planned to occur in the Laguna Region under the Proposed Action that are analyzed in detail are identified in Table 2-1, with the locations shown on Figure 2-13. The construction, testing, and training activities planned to occur in the Laguna Region under the Proposed Action that are analyzed programmatically are identified in Table 2-2, with the locations shown on Figure 2-13. The identifiers for each project in Tables 2-1 and 2-2 correspond to the identifiers on Figure 2-13. These activities include infrastructure construction, expansion of test areas to accommodate fluctuations in testing and training, and planned changes in testing and training activities, including increases in testing of conventional and lighter-than-air UAS systems.

The construction, testing, and training activities planned to occur in the Cibola Region under the Proposed Action that are analyzed in detail are identified in Table 2-3, with the locations shown in Figure 2-14. The construction, testing, and training activities planned to occur in the Cibola Region under the Proposed Action that are analyzed programmatically are identified in Table 2-4, with the locations shown in Figure 2-14. The identifiers for each project in Tables 2-3 and 2-4 correspond to the identifiers on Figure 2-14. These activities include infrastructure construction, expansion of test areas (1) to accommodate fluctuations in testing and training and planned changes in testing and training activities, and (2) to provide appropriate supporting infrastructure for continued testing and training activities, such as appropriate POL storage at remote testing locations.

The construction, testing, and training activities planned to occur in the Kofa Region under the Proposed Action that are analyzed in detail are identified in Table 2-5, with the locations shown in Figure 2-15. The construction, testing, and training activities planned to occur in the Kofa Region under the Proposed Action that are analyzed programmatically are identified in Table 2-5, with the locations shown in Figure 2-15. The identifiers for each project in Tables 2-5 and 2-6 correspond to the identifiers on Figure 2-15. These activities include infrastructure construction, expansion of test areas to accommodate fluctuations in testing and training, and planned changes in testing and training activities.

Tables 2-1, 2-3, and 2-5 provide project-specific impacts of the activities that are analyzed in detail and these impacts are discussed in greater detail in Appendix C. The text discussion in Section 3 provides a general discussion of impacts that is more programmatic in nature.

TABLE 2-1
Proposed Action Activities Analyzed in Detail—Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L001-a	Construct building, concrete pad, shade structure, and solar lights at K-9 Village.	Minor construction-related soil and vegetation disturbance at K-9 Village (building 900 square feet [ft^2], concrete pad 40,000 ft^2, shade structure 400 ft^2). Minor construction-related air emissions. Potential for increased stormwater runoff from increased impervious area. Work within existing urban combat training area would have temporary displacement of nearby wildlife with no population-level impacts. Safety benefit from shade to reduce heat stress.

TABLE 2-1
Proposed Action Activities Analyzed in Detail—Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L002-a	Construct Runway 18/36 extension, and realign Barranca Road at LAAF.	Construction-related soil and vegetation disturbance (2,000-ft runway extension 2.75 ac, realignment of Barranca Road 3.37 ac). Minor construction-related air emissions. Temporary disruption of on-post traffic. Potential for increased stormwater runoff from increased impervious area. Work within this high human activity area would have temporary displacement of nearby wildlife with no population-level impacts.
L003	Construct outdoor eating area at the Roadrunner Café.	Minor construction-related soil and vegetation disturbance (840 ft^2). Minor construction-related air emissions. Potential for increased stormwater runoff from increased impervious area.
L004	Construct office building next to Building 2968.	Construction-related soil disturbance in previously disturbed area (office building 4,000 ft^2). Construction-related emissions. Potential for increased stormwater runoff from increased impervious area. Cantonment area work would not have detectable impacts on wildlife.
L005	L005-a: Construct medium and large storage buildings. L005-b: Construct 2 office buildings. L005-c: Construct Air Delivery Guided Test Facility next to Building 2970.	Construction-related soil disturbance in previously disturbed area (medium storage building 7,200 ft^2, large storage building 9,600 ft^2, 2 office buildings totaling 4,000 ft^2, and Air Delivery Guided Test Facility 35,900 ft^2). Construction-related emissions. Increased impervious area.
L006	L006-a: Construct Flight Detachment Maintenance Building. L006-b: Construct Wild Horse Café. L006-c: Construct antiterrorism/force protection (AT/FP) parking improvements.	Construction-related soil disturbance in previously disturbed area (Flight Detachment Maintenance Building 18,000 ft^2, Wild Horse Café 3,200 ft^2, and parking improvements 101,560 ft^2 in previously disturbed area). Construction-related emissions. Increased impervious area.
L007	L007-a: Construct helicopter parking at CDH. L007-b: Construct UAS parking, UAS storage facility, and UAS maintenance hangar at CDH. L007-c: Construct privately owned vehicle (POV) parking at CDH. L007-d: Relocate C-130 Combat Aircraft Loading Area CALA) to CDH.	Construction-related soil and vegetation disturbance (helicopter and UAS parking 61,000 ft^2, POV parking 77,000 ft^2, UAS storage facility 14,400 ft^2, UAS maintenance hangar 43,500 ft^2, C-130 CALA relocation 240,200 ft^2). Construction-related emissions. Increased impervious area.
L008-a	Construct access control point (ACP) at CDH.	Construction-related soil and vegetation disturbance (improved ACP 19,500 ft^2. Construction-related emissions.
L009	Construct warehouse at YTC.	Construction-related soil and vegetation disturbance (warehouse 7,750 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-1
Proposed Action Activities Analyzed in Detail—Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L010	Construct Instrumentation Development Facility at YTC.	Construction-related soil and vegetation disturbance (Instrumentation Development Facility 32,500 ft^2). Construction-related emissions. Increased impervious area.
L011	L011-a: Construct tracked vehicle trail at YTC. L011-b: Construct office at YTC.	Construction-related soil and vegetation disturbance (tracked vehicle trail 45,000 ft^2, office 400 ft^2). Construction-related emissions. Increased impervious area.
L012	L012-a: Construct hotel at the MAA. L012-b: Construct Emergency Operations Center (EOC) at MAA. L012-c: Construct addition to youth services center at MAA. L012-d: Construct ACP improvements at MAA. L012-e: Construct child development center for school-aged services at MAA. L012-f: Construct outdoor eating area at Coyote Lanes bowling alley.	Construction-related soil and vegetation disturbance (hotel 15,000 ft^2, EOC 6,600 ft^2, youth services center 16,150 ft^2, and ACP improvements 19,500 ft^2, child development center 59,261 ft^2, outdoor eating area 3,169 ft^2). Construction-related emissions. Increased impervious area.
L013-a	L013-a: Construct additional fencing and support facilities at the Threat Systems and Target Simulations Buildings 3572 and 3574.	Construction-related soil and vegetation disturbance (fencing 1,420 ft^2, support facilities 50,000 ft^2).
L014	L014-a: Construct aircraft shelter, command and control building, and clear a UAS launch/recovery area at Comanche Flats. L014-b: Construct multiple buildings, concrete pad, water tank, POL storage area, and graded parking area at Comanche Flats.	Construction-related soil and vegetation disturbance (aircraft shelter 52,500 ft^2, command and control building 2,000 ft^2, UAS launch/recovery area—clearing vegetation 162 ac and adding 282,600 ft^2 of aggregate base coat (ABC) in center of area, office building 600 ft^2, maintenance building 900 ft^2, pad 1,000 ft^2, water tank 30,000 gallons 1,000 ft^2, POL storage 900 ft^2, graded parking 7,500 ft^2). Construction-related emissions. Increased impervious area.
L015-a	Repair landing pad and construct building at K-9 Village.	Construction-related soil and vegetation disturbance (repair landing pad 90,000 ft^2, building 2,500 ft^2). Construction-related emissions. Increased impervious area.
L016-a	Construct building, concrete or asphalt pad, shade structure, and install solar lights at Site 2.	Construction-related soil and vegetation disturbance at site (building 900 ft^2, pad 40,000 ft^2, shade structure 400 ft^2). Construction-related emissions. Increased impervious area.
L017	Construct GCSs for UAS operations at Telemetry (TM) Site 4.	Construction-related soil and vegetation disturbance (GCSs 2,500 ft^2).
L018	Construct concrete or asphalt pad and sensor tower east of existing sensor test building at Sidewinder Sensor Site.	Construction-related soil and vegetation disturbance (pad 900 ft^2 and 65-ft to 130-ft sensor tower 100 ft^2). Increased impervious area.
L019	Expand and combine West LA LTA, K-9 Village LTA, Site 2 LTA, and Site 4 LTA.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (6,521 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers.

TABLE 2-1
Proposed Action Activities Analyzed in Detail—Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L020	Upgrade equipment at Tire X-Ray Facility (Building 2310).	None, impacts confined to interior of existing facility.
L021	Construct solar chamber at Climatic Simulation Facilities (Building 3527).	Construction-related soil disturbance in previously disturbed area (solar chamber 15,000 ft^2). Construction-related emissions. Increased impervious area.
L022	Relocate dust chamber from Building 3352 to near Buildings 3357 and 3494 (Rough Handling).	Construction-related soil disturbance in previously disturbed area (dust chamber 15,000 ft^2). Construction-related emissions. Increased impervious area.
L023	L023-a: Improve ACP at the Kofa cantonment. L023-b: Construct joint wash rack for tracked and government owned vehicles (GOVs) at the Kofa cantonment. L023-c: Construct electric substation protection and electronics expansion at the Kofa cantonment. L023-d: Construct Howitzer Support\Acceptance Facility at the Kofa cantonment. L023-e: Construct open storage facility at the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (ACP improvements 19,500 ft^2, joint wash rack 900 ft^2, electronics expansion 10,500 ft^2, Howitzer Support\Acceptance Facility 22,500 ft^2, storage facility 70,000 ft^2). Construction-related emissions. Increased impervious area.
L024	Relocate Semi-trailer Delivery Safe Haven.	Construction-related soil disturbance in previously disturbed area (11,000 ft^2). Construction-related emissions. Increased impervious area.
L025	L025-a: Construct Aberdeen Road flood upgrades. L025-b: Construct range road improvements.	Construction-related soil disturbance in previously disturbed area (Aberdeen Road flood upgrades 0.5 mile, range road improvements 31.5 miles). Construction-related emissions. Increased impervious area. Improved traffic flow. Improved safety.
L026	Construct munitions treatment facility.	Construction-related soil disturbance in previously disturbed area (60,000 ft^2). Construction-related emissions. Increased impervious area.
L027	Construct gun storage facility at the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (22,000 ft^2). Construction-related emissions. Increased impervious area.
L028	Construct five ammunition magazines near the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (4,000 ft^2 each totaling approximately 22,000 ft^2). Construction-related emissions. Increased impervious area.
L029	Construct optical maintenance facility, graded parking area with power pole farm, and perimeter fencing.	Construction-related soil and vegetation disturbance (building 7,500 ft^2, parking area 90,342 ft^2, fencing 2,400 ft^2). Construction-related emissions. Increased impervious area.
L030	L030: Expand LTA to support operationa	Vegetation and soil disturbance from dismounted

TABLE 2-1
Proposed Action Activities Analyzed in Detail—Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
	testing and dismounted maneuvers at Muggins/Middle East (only one alternativ would be selected): L030-a: 16,640 ac L030-b: 6,331 ac	maneuvers and bivouacs (up to 16,640 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers. The Preferred Alternative is to implement the smaller expanded LTA, which would impact only 6,331 ac.
L031	L031: Construct MFFS Dining Facility (DFAC) (only one option to be selected): L031-a: at Location Option 1 L031-b: at Location Option 2 L031-c: at Location Option 3	Construction-related soil and vegetation disturbance (building 48,979 ft^2). Construction-related emissions. Increased impervious area. The Preferred Alternative is to implement Option 1.
L032	Expand Bravo LTA.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (828 ac).
L033	Expand Hill 630 LTA.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (1,141 ac).
L034	L034: Construct MFFS Ready Room (only one option to be selected): L034-a: at Location Option 1 L034-b: at Location Option 2 L034-c: at Location Option 3	Construction-related soil and vegetation disturbance (48,979 ft^2). Construction-related emissions. Increased impervious area. The Preferred Alternative is to implement Option 1.
L035	Construct Armament Test Operations and Analysis Facility.	Construction-related soil and vegetation disturbance (60,000 ft^2). Construction-related emissions. Increased impervious area.
L036	Construct Shower Facility at LAAF FOB area.	Construction-related soil and vegetation disturbance. Construction-related emissions. Increased impervious area.
L040	Construct DZ near LAAF (984 ft x 1,969 ft).	Construction-related soil and vegetation disturbance (44.5 ac). Construction-related emissions.
L041	Construct air delivery storage and laboratory facility behind Building 2970.	Construction-related soil and vegetation disturbance (up to 14,851 ft^2). Construction-related emissions. Increased impervious area.
L042	Upgrade facility to an office and hangar in Building 3025.	None, all work confined to interior remodeling of existing facilities.

[a] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.
[b] Measurements are approximate.
[c] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-2
Proposed Action Activities Analyzed Programmatically– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Principal Impacts [b, c]
L001-b	Install hard power/fiber, communication service at K-9 Village southern area.	Construction-related soil and vegetation disturbance along utility lines (4,395 ft^2). Construction-related emissions. Increased impervious area. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L002-b	Install hard power at LAAF.	Construction-related soil and vegetation disturbance along utility lines 12,500 ft^2). Construction-related emissions. Temporary disruption of on-post traffic. Increased impervious area.
L008-b	Construct roadway drainage improvements at CDH.	Construction-related soil and vegetation disturbance from roadway drainage improvements 370,000 ft^2). Construction-related emissions.
L013-b	Install hard power, fiber, and telephone service to the Threat Systems and Target Simulations Buildings 3572 and 3574.	Construction-related soil and vegetation disturbance along utility lines 100 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L014-c	Install hard power/fiber and communication service at Comanche Flats.	Construction-related soil and vegetation disturbance along utility lines (7,560 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L015-b	Install hard power, fiber, and communication service at K-9 Village northern area.	Construction-related soil and vegetation disturbance along utility lines (2,962 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L016-b	Install hard power, fiber, and communication service at Site 2.	Construction-related soil and vegetation disturbance along utility lines (250 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L037	Construct vehicle test course and establish LTA.	Construction-related soil and vegetation disturbance (up to 5,171 ac). Construction-related emissions.
L038	Construct vehicle test course and establish LTA.	Construction-related soil and vegetation disturbance (up to 1,550 ac). Construction-related emissions.
L039	Construct vehicle test course and establish LTA.	Construction-related soil and vegetation disturbance (up to 2,318 ac). Construction-related emissions.
L100	L100-a: Construct addition to Building 3021. L100-b: Construct Future Combat Systems (FCS) Rotary Class IV hangars, and FCS. Large Class IV hangar to the west of LAAF L100-c: Construct large transient UAS hangar with pad access west of LAAF. L100-d: Construct aviation growth hangar at LAAF. L100-e: Construct administrative support building to the west of LAAF.	Construction-related soil disturbance in previously disturbed area (addition to Building 3021 5,972 ft^2, FCS Rotary Class IV hangars totaling 17,600 ft^2; FCS large Class IV hangar 5,972 ft^2; UAS hangar 6,200 ft^2, aviation growth hangar 20,250 ft^2, administrative support building 38,500 ft^2, USASOC Tactical Hangar 67,774 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-2
Proposed Action Activities Analyzed Programmatically– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Principal Impacts [b, c]
	L100-f: Construct U.S. Army Special Operations Command (USASOC) Tactical Hangar at LAAF.	
L101	L101-a: Construct motor pool to the north of LAAF. L101-b: Construct addition to ammunition building rigging bay to the north of LAAF. L101-c: Construct access from Ocotillo Road and ammunition building access road improvements to the north of LAAF. L101-d: Construct storage yard improvements to the north of LAAF.	Construction-related soil disturbance in previously disturbed area (motor pool 26,300 ft^2, addition to rigging bay 10,200 ft^2, access from Ocotillo Road 5,600 ft in length [180,000 ft^2], access road improvements 700 ft in length), storage yard improvements 60,500 ft^2. Construction-related emissions. Increased impervious area.
L102	L102-a: Construct new MFFS Terminal at LAAF/MAA. L102-b: Construct consolidated rigger facility at LAAF/MAA. L102-c: Construct UAS airfield, hangars, taxiways, and UAS flight test area and other supporting infrastructure at LAAF/MAA. L102-d: Construct CASA Transport Aircraft Hangar at LAAF/MAA.	Construction-related soil disturbance in previously disturbed area (MFFS Terminal 28,000 ft^2, consolidated rigger facility 15,500 ft^2, UAS taxiways 2,000 ft in length [120,000 ft^2], UAV airfield and hangars 403,250 ft^2, UAV flight test area and other supporting infrastructure 76,000 ft^2), CASA Transport Aircraft Hangar 153,858 ft^2. Construction-related emissions. Increased impervious area.
L103	L103-a: Construct fire station at CDH. L103-b: Construct fuel point at CDH. L103-c: Construct C-130 parking at CDH. L103-d: Construct hot cargo refueling area at CDH. L103-e: Construct dining facility at CDH. L103-f: Construct airship hangar at CDH.	Construction-related soil disturbance in previously disturbed area (Fire station, fuel point, and C-130 parking, totaling 410,000 ft^2, hot cargo refueling area 240,200 ft^2, dining facility 4,800 ft^2, and airship hangar 1,683,500 ft^2). Construction-related emissions. Increased impervious area. Improved safety.
L104	Construct water treatment facility and a wastewater evaporative pond at CDH.	Construction-related soil and vegetation disturbance (77,100 ft^2). Construction-related emissions. Increased impervious area.
L105	Construct crosswind runway at CDH.	Construction-related soil disturbance in previously disturbed area (6,000 ft in length [300,000 ft^2]). Construction-related emissions. Increased impervious area.
L106	L106-a: Construct 4 administrative support buildings. L106-b: Construct Installation Logistics Complex.	Construction-related soil disturbance in previously disturbed area (4 administrative support buildings totaling 44,465 ft^2, Installation Logistics Complex 76,833 ft^2). Construction-related emissions. Increased impervious area.
L107	Construct improvements to Cox Field, AT/FP, and Garrison headquarters, and convert Street D to pedestrian walkway.	Construction-related soil disturbance in previously disturbed area (Cox Field 343,500 ft^2, AT/FP 12,000 ft^2, Garrison headquarters 17,200 ft^2, Street D 6,900 ft^2). Short-term on-post traffic disruption. Construction-related emissions. Increased impervious area.
L108	All activities in Kofa cantonment. L108-a: Improve truck ACP. L108-b: Expand range communication.	Construction-related soil and vegetation disturbance (truck ACP 12,000 ft^2, range communication 20,000 ft^2, sand blasting 44,000 ft^2, optics 370,000 ft^2, second

TABLE 2-2
Proposed Action Activities Analyzed Programmatically– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Principal Impacts [b, c]
	L108-c: Expand sand blasting facility. L108-d: Consolidate optics. L108-e: Construct second GOV and tracked vehicle maintenance facility.	maintenance facility 122,230 ft^2). Construction-related emissions. Increased impervious area.
L109	Construct wax plant expansion at the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (40,500 ft^2). Increased impervious area.
L110	Construct additional ammunition plant similar to Building 3482 and air-conditioned chamber near the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (ammunition plant 150,000 ft^2 and air-conditioned chamber 40,000 ft^2). Construction-related emissions. Increased impervious area.
L111	Upgrade equipment and electrical supply at Physical Test Facility (Buildings 3490 and 3130).	None, all work confined to interior remodeling of existing facilities.
L112	Upgrade equipment in vibration test facilities (Buildings 3496, 3495, 3594).	None, all work confined to interior remodeling of existing facilities.
L113	Upgrade equipment at radiography facility (Building 3493).	None, all work confined to interior remodeling of existing facilities.

[a] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.
[b] Measurements are approximate.
[c] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C002	Construct new DZs: C002-a—South Urban DZ (1,640-ft radius) south of Urban DZ. C002-b—Tomahawk Circular DZ 769 (2,297-ft radius). C002-c—Tombstone DZ (984-ft radius). C002-d—Village Circular DZ (984-ft radius). C002-e—Abken DZ (1,640-ft radius). C002-f—Urban Circular Joint Precision Airdrop System (JPADS) DZ (984-ft radius).	Activity-related soil and vegetation disturbance (South Urban DZ 194 ac, Tomahawk Circular DZ 380 ac, Tombstone DZ 70 ac, Village Circular DZ 70 ac, Abken DZ 194 ac, and Urban Circular JPADS DZ 70 ac). Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C003	C003-a—Establish small arms impact areas for inert munitions at JERC I. C003-b—Establish small arms impact areas for inert munitions at JERC II. C003-c—Establish small arms impact areas for inert munitions at JERC III.	Inert fire weapons use at JERC I: impact areas 62 ac, 62 ac, and 15 ac; JERC II 62 ac; and JERC III 50 ac. These small arms impact areas would use collection boxes for fired ammunition and would be cleaned between tests. Potential air emissions from obscurants. Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded training and training activities. Disturbance would be episodic and may be separated widely in space or time.
C004-a	Construct facilities at Gauna Peak.	Construction-related soil and vegetation disturbance at site (facilities 2,500 ft^2). Construction-related emissions. Increased impervious area. Long-term minor impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities.
C005-a	Construct building at Site 18.	Construction-related soil and vegetation disturbance at site (building 1,600 ft^2). Construction-related emissions. Increased impervious area. Long-term minor impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities.
C006	Establish Phoenix West Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (262 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants.
C007-a	Construct runway extension, aircraft shelter, and POL storage at Phoenix UAS site.	Construction-related soil and vegetation disturbance (runway extension 75,000 ft^2, aircraft shelter 8,000 ft^2, POL storage 900 ft^2. Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C008-a	Construct building at Site 16.	Construction-related soil and vegetation disturbance at site (building 1,600 ft^2). Construction-related emissions. Increased impervious area. Long-term minor impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities.
C009	Establish North UAS Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (275 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants. Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas. Disturbance would be episodic and may be separated widely in space or time.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C010	Construct aircraft shelter, POL storage, and graded parking lot at North UAV Complex.	Construction-related soil and vegetation disturbance (aircraft shelter 43,500 ft^2, POL storage 900 ft^2, and parking lot 7,500 ft^2). Construction-related emissions. Increased impervious area. Reduced potential for POL spills. Long-term minor impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities.
C011	Establish La Posa West Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (395 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants. Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas. Disturbance would be episodic and may be separated widely in space or time.
C012-a	Construct building and concrete pad at PSS Test Area (west of La Posa DZ).	Construction-related soil and vegetation disturbance at site (building 2,500 ft^2, pad 5,000 ft^2).
C014	C014-a: Install shade structure at Stinger Pole Target Area.	Minimal soil and vegetation disturbance to place support poles (shade structure 400 ft^2).
C015	Construct Intelligence, Surveillance, and Reconnaissance/Electro-optical (ISR/EO) Ground Truth Reference Sites at: C015-a: Yuma Wash (33.156, -114.485) C015-b: Middle Mountain Road (33.063, -114.358) C015-c: Mule Wash (33.432, -114.503) C015-d: (33.446, -114.471) C015-e: (33.477, -114.286) C015-f: (33.444, -114.325) C015-g: (33.448, -114.275) C015-h: (33.421, -114.279) C015-i: (33.408, -225.360) C015-j: (33.389, -114.303) C015-k: (33.387, -114.366) C015-l: (33.347, -114.286) C015-m: (33.297, -114.395) C015-n: (33.165, -114.480) C015-o: (33.122, -114.299) C015-p: (33.090, -114.447) C015-q: (33.081, -114.353) C015-r: (33.967, -114.422)	Construction-related soil and vegetation disturbance (each site—2,000 ft^2).
C016	Rebuild target for long-range missile firing at Maverick Target.	None—existing target to be rebuilt.
C017-a	Construct building, bomb-proof shelter, shade structure, concrete or asphalt pad, and sensor tower at camera mount (CM) 4.	Construction-related soil and vegetation disturbance at site (building 1,500 ft^2, bomb-proof shelter 2,000 ft^2, shade structure 400 ft^2, pad 40,000 ft^2, and 65-ft to 130-ft sensor tower 100 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C018	Construct landing pad at CM 1.	Construction-related soil and vegetation disturbance (pad 90,000 ft^2). Increased impervious area.
C019	Construct building and concrete pad at Z-12.	Construction-related soil and vegetation disturbance (building 2,000 ft^2 and pad 90,000 ft^2). Construction-related emissions. Increased impervious area.
C020-a	Construct sensor tower, buildings, air-conditioning, and concrete pad at Site 9.	Construction-related soil and vegetation disturbance at site (sensor tower 65-ft to 130-ft tall 100 ft^2, buildings 2,000 ft^2, air-conditioned facility 1,000 ft^2, pad 40,000 ft^2). Increased impervious area.
C021 (activities centered at -114.356, 33.077)	C021-a: Construct secure building with reinforced concrete floors and ramp to building. C021-b: Construct multiple buildings, water tank, POL storage area, and graded parking. C021-c: Construct aircraft shelter. C021-d: Clear launch/recovery area.	Construction-related soil and vegetation disturbance (total area for C021-a through C021-d: 193,284 ft^2). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C022 (activities centered at -114.36, 33.074)	C022-a: Construct building, concrete slab, walkways, and fencing. C022-b: Construct aircraft shelter. C022-c: Construct POL storage. C022-d: Relocate meteorological tower. C022-e: Construct runway expansion and taxiway.	Construction-related soil and vegetation disturbance at site (command and control room 2,000 ft^2, walkways 1,800 ft^2, 10,000 ft^2 concrete slab, aircraft shelter 12,000 ft^2, POL storage area 900 ft^2, meteorological tower 100 ft^2, runway expansion 725,000 ft^2, and taxiway 400,000 ft^2). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C023 (activities centered at -114.363, 33.051)	C023-a: Construct multiple buildings, water tank, POL storage area, and graded parking. C023-b: Construct aircraft shelter. C023-c: Clear a launch/recovery area.	Construction-related soil and vegetation disturbance (multiple buildings 2,500 ft^2 each, 30,000 gal water tank 1,000 ft^2, POL storage area 900 ft^2, graded parking area 7,500 ft^2, aircraft shelter 43,500 ft^2, and launch/recovery area 22.8 ac). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C024	C024-a: construct aircraft shelter, concrete pad, graded parking area near Inverted Range Control Center (IRCC) Tank Maintenance and Storage Ramada. C024-b: fence and install solar lights, around IRCC Tank Maintenance and Storage Ramada.	Construction-related soil and vegetation disturbance (shelter 1,600 ft^2, pad 90,000 ft^2, graded parking area 250,000 ft^2, and fence 4,000 ft^2). Construction-related emissions. Increased impervious area. Reduced long-term use of fossil fuels by using solar lights.
C025-a	Construct runway, taxiway, aircraft shelter, and building at IRCC.	Construction-related soil and vegetation disturbance at site (runway 27.5 ac, taxiway 14 ac, aircraft shelter 12,000 ft^2, and building 2,000 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C026	C026-a: Construct ramp to existing building, and rollup door to existing building, and install solar lights at Site 10 Missile Test Facility. C026-b: Construct concrete landing pad.	Construction-related soil and vegetation disturbance at site (ramp 500 ft^2 and landing pad 90,000 ft^2). Increased impervious area. Reduced long-term use of fossil fuels by using solar lights.
C027	C027-a: Expand flat area on top of hill, and construct facility, concrete pad, and sensor tower at Site 12. C027-b: Construct road leading from the sensor building on the top of the hill at Site 12A down to the Persistent Threat Detection System (PTDS) Site.	Construction-related soil and vegetation disturbance (total area for C027-a: 10.2 ac and for road 34,850 ft^2). Increased impervious area.
C029-a	Construct buildings and concrete pad at Aerostat Mooring Site.	Construction-related soil and vegetation disturbance at site (buildings 2,000 ft^2, pad 10,000 ft^2). Construction-related emissions. Increased impervious area.
C030-a	Construct aircraft shelter, multiple buildings, water tank, POL storage area, and graded parking area, and clear a launch/recovery area east of Rocket Alley.	Construction-related soil and vegetation disturbance at site (aircraft shelter 52,500 ft, command and control building 2,000 ft^2, office building 600 ft^2, maintenance building 900 ft^2, water tank 30,000 gallons 1,000 ft^2, POL storage area 900 ft^2, graded parking area 7,500 ft^2, and UAS launch/recovery area clearing vegetation of 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C031	Utilize Site 6 as a meteorological station.	None, existing disturbed area.
C032	Renovate Large Multi-Purpose Environmental Chamber (Building 6015).	None, action limited to renovation within existing building footprint.
C033-a	Construct aircraft shelter, multiple buildings, concrete pad, water tank, POL storage area, and graded parking area, and clear a launch/recovery area at C-17.	Construction-related soil and vegetation disturbance at site (aircraft shelter 52,500 ft^2, command and control building 2,000 ft^2, office building 600 ft^2, maintenance building 900 ft^2, pad 5,000 ft^2, 30,000-gallon water tank 1,000 ft^2, POL storage 900 ft^2, graded parking area 7,500 ft^2, and UAS launch/recovery area clearing vegetation of 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area. Reduced potential for POL spills. Long-term minor impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities.
C034-a	Expand size of Graze Range Impact Areas by consolidating 7 individual impact areas into a single larger area.	Long-term soil and vegetation disturbance from testing and training activities (626 ac under the Preferred Alternative, 15 ac less than originally proposed). Inert and explosive fire weapons use. Potential air emissions from obscurants.
C035	Expand Combined Live Fire Exercise Range at OP-9 by consolidating 2 designated impact areas and Prospect Square.	Long-term soil and vegetation disturbance from testing and training activities (200 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C036	Increase use of Prospect Square for bombing or aircraft gunnery.	None, inert and explosive fire weapons use is authorized for this area.
C038	Construct medical evacuation (MEDEVAC) pad.	Construction-related soil and vegetation disturbance at site (MEDEVAC pad 1,000 ft^2). Increased impervious area.
C039	Construct air-conditioned storage facility at Castle Dome Annex (CDA).	Construction-related soil and vegetation disturbance at site (8,000 ft^2). Construction-related emissions. Increased impervious area.
C041	Expand LTA to support operational testing and dismounted maneuver training at Middle Mountain.	Long-term soils disturbance from dismounted maneuver activities (11,230 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers,
C043	Temporarily bury simulated missiles, explosives, etc. off roads for sensor testing. Locations for temporary burials would vary and be determined by specific testing requirements. Locations include: C043-a—All JERC I roads. C043-b—All JERC II roads. C043-c—All JERC III roads.	Long-term soil and vegetation disturbance from recurring testing activities. Disturbance would be episodic and may be separated widely in space or time.
C044	C044-a -Clear MEDEVAC helicopter landing pad at JERC I for evacuations. C044-b -Clear MEDEVAC helicopter landing pad at JERC II for evacuations. C044-c -Clear MEDEVAC helicopter landing pad at JERC III for evacuations.	Construction-related soil and vegetation disturbance (2,500 ft^2 each).
C046	Expand North UAV Compound C046-a: Construct concrete pad. C046-b: Grade project area and install fencing. C046-c: Construct asphalt taxiway.	Construction-related soil and vegetation disturbance for pad (23,808 ft^2), project area and fencing (25,704 ft^2), and taxiway (62,500 ft^2). Increased impervious area. Long-term minor impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities.
C047	Create 23 TGPs at: C047-a: Rocket Alley C047-b: CM 9 East C047-c: Cibola Target Boundary GP C047-d: Site 16 C047-e: CM 9 West C047-f: C17 (North and South) C047-g: Mound C Archer GP C047-h: Mound C GP C047-i: CM 1 West C047-j: La Posa DZ C047-k: Site 8 GP C047-l: West Target Road GP C047-m: BM1072 C047-n: Excalibur SW GP C047-o: LADZ GP C047-p: Site 18 GP	Soil and vegetation disturbance (up to 2.2 ac at each site). Any weapons fire would be directed into existing authorized impact areas.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
	C047-q: 2.75 Rocket GP C047-r: Ehrenberg GP C047-s: DFR GP C047-t: La Posa South DZ C047-u: Water Tank GP C047-v: LA DZ East C047-w: C17 North M777LWH GP.	
C049	Install acoustic and seismic sensor at Horizontal Impact Area.	Very minor construction-related soil and vegetation disturbance.
C050-a	C050-a: Construct building and UAS launch/recovery site at Simulated Minefield Site to support UAS operations.	Construction-related soil and vegetation disturbance at site (building 1,600 ft^2 and UAS launch/recovery site—vegetation clearing 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area.
C051	Install shade structure at Lightweight Shock Facility.	Construction-related soil and vegetation disturbance (400 ft^2).
C052	Establish CM 7 Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (1,270 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C053	Establish CM 4 North Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (1,510 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C054	Construct Yuma Wash Engineering Common Use Test (ECUT) expansion.	Construction-related soil and vegetation disturbance (78,400 ft^2).
C055	Establish Multi-Purpose North Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (567 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C056	Establish Multi-Purpose South Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (3,823 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C057	Expand Rocket Alley Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (2,127 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C058	Establish Aerial Weapons Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (2,452 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C059	Establish East Target Road Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (2,531 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C061	Create LTA to support operational testing and dismounted maneuver training at	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (8,437 ac). Note, additional NEPA analysis would be required for any bivouac

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
	JERC I/ Saderville.	areas. The detailed analysis only addresses dismounted maneuvers. Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas. Disturbance would be episodic and may be separated widely in space or time.
C062	Create LTA to support operational testing and dismounted maneuver training at JERC II.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (3,503 ac). Note, additional NEPA analysis would be required for any bivouac areas. The detailed analysis only addresses dismounted maneuvers. Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas. Disturbance would be episodic and may be separated widely in space or time.
C063	Create LTA to support operational testing and dismounted maneuver training at JERC III.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (4,312 ac). Note, additional NEPA analysis would be required for any bivouac areas. The detailed analysis only addresses dismounted maneuvers. Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas. Disturbance would be episodic and may be separated widely in space or time.
C065	C065: Create LRA Impact Areas: C065-a: LRA Impact Area 1 C065-b: LRA Impact Area 2 C065-c: LRA Impact Area 3 C065-d: LRA Impact Area 4	Long-term soil and vegetation disturbance from testing and training activities (9.9 ac for each site). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C066	C066-a: Construct aerial cable drop site for drop testing in mountains north of Prospect Square. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, 328-ft target area.	Construction-related soil and vegetation disturbance for 2 cable sites (each 11,065 ft^2) and target area (87,855 ft^2). This location has airspace conflicts with Aviation and Air Delivery test missions and would have long-term impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities. This project would not be implemented under the Preferred Alternative.
	C066-b: Construct an approximately 2.5-mile access trail to the target area in mountains north of Prospect Square.	Construction-related soil and vegetation disturbance for access trail [3 ac]). Terrain at this location would require cost-prohibitive road work to create a passable access path and there would be long-term impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities. This project would be implemented only if C066-a is implemented.

[a] The project originally proposed as C028 has been removed from direct analysis in this document. Due to a time critical need for implementation, this activity was analyzed through a separate and specific NEPA document. This activity is considered in the analysis of cumulative impacts in this document.

[b] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.

[c] Measurements are approximate.

[d] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

TABLE 2-3
Proposed Action Activities Analyzed in Detail—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-4
Proposed Action Activities Analyzed Programmatically—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]
C001	Construct vehicle test course.	Construction-related soil and vegetation disturbance (up to 4,644 ac). Construction-related emissions.
C004-b	Install hard power/fiber and communication service at Gauna Peak.	Construction-related soil and vegetation disturbance along utility lines (5,848 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Temporary, minor impacts to Sonoran desert tortoise habitat from vegetation disturbance; however, habitat would likely gradually recover.
C005-b	Install hard power, water, sewer, and communication service at Site 18.	Construction-related soil and vegetation disturbance along utility lines (87,990 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Temporary, minor impacts to Sonoran desert tortoise habitat from vegetation disturbance; however, habitat would likely gradually recover.
C007-b	Install hard power/fiber and communication service at Phoenix UAS site.	Construction-related soil and vegetation disturbance along utility lines (26,870 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Temporary, minor impacts to Sonoran desert tortoise habitat from vegetation disturbance; however, habitat would likely gradually recover.
C008-b	Install hard power, water, sewer, and communication service at Site 16.	Construction-related soil and vegetation disturbance along utility lines (1,050 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C012-b	Install hard power/fiber at PSS Test Area (west of La Posa DZ).	Construction-related soil and vegetation disturbance along utility lines (31,090 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Temporary, minor impacts to Sonoran desert tortoise habitat from vegetation disturbance; however, habitat would likely gradually recover.

TABLE 2-4
Proposed Action Activities Analyzed Programmatically—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]
C013	Install hard power/fiber and communication service at ECUT area.	Construction-related soil and vegetation disturbance along utility lines (47,970 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Temporary, minor impacts to Sonoran desert tortoise habitat from vegetation disturbance; however, habitat would likely gradually recover.
C014-b	Install hard power to Stinger Pole Target Area.	Minimal soil and vegetation disturbance along utility lines (2.68 ac). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C017-b	Install telephone service at CM 4.	Construction-related soil and vegetation disturbance along utility lines (9,575 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C020-b	Install hard power and communication service at Site 9.	Construction-related soil and vegetation disturbance along utility lines (7,880 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C021-e	Install hard power/fiber and communication service centered at (-114.356, 33.077).	Construction-related soil and vegetation disturbance along utility lines (1,810 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C023-d	Install hard power/fiber and communication service centered at (-114.363, 33.051).	Construction-related soil and vegetation disturbance along utility lines (216 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C025-b	Install hard power/fiber adjacent to existing helicopter pad at IRCC.	Construction-related soil and vegetation disturbance along utility lines (1,245 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C026-c	Install hard power/fiber at Site 10 Missile Test Facility. C026-d: Relocate wires in vicinity of Site 10 from overhead to underground.	Construction-related soil and vegetation disturbance along utility lines (1,670 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C029-b	Install generators and hard power/fiber at Aerostat Mooring Site.	Construction-related soil and vegetation disturbance along utility lines (12,220 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C030-b	Install hard power/fiber and communication service east of Rocket Alley.	Construction-related soil and vegetation disturbance along utility lines (13,500 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.

TABLE 2-4
Proposed Action Activities Analyzed Programmatically—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]
C033-b	Install hard power/fiber and communication service at C-17.	Construction-related soil and vegetation disturbance along utility lines (1,418 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Temporary, minor impacts to Sonoran desert tortoise habitat from vegetation disturbance; however, habitat would likely gradually recover.
C034-b	Install hard power to Graze Range.	Construction-related soil and vegetation disturbance along utility lines (10,123 ft^2). Construction related air emissions Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C037	Install hard power to 40-ft drop tower.	Construction-related soil and vegetation disturbance along utility lines (3,444 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C040	Install hard power to the Cibola Region North Range.	Construction-related soil and vegetation disturbance along utility lines (3.59 ac). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Temporary, minor impacts to Sonoran desert tortoise habitat from vegetation disturbance; however, habitat would likely gradually recover.
C042-a	Install relocatable instrumentation sites along all JERC I roads. Instrumentation sites would be moved to accommodate specific testing requirements.	Each 20-ft instrumentation trailer requires a staging area with a 20-ft radius. Soil and vegetation disturbance (less than 0.5 ac per site).
C042-b	Install relocatable instrumentation sites along all JERC II roads. Instrumentation sites would be moved to accommodate specific testing requirements.	Each 20-ft instrumentation trailer requires a staging area with a 20-ft radius. Soil and vegetation disturbance (less than 0.5 ac per site).
C042-c	Install relocatable instrumentation sites along all JERC III roads. Instrumentation sites would be moved to accommodate specific testing requirements.	Each 20-ft instrumentation trailer requires a staging area with a 20-ft radius. Soil and vegetation disturbance (less than 0.5 ac per site).
C045	Construct MFFS Forward Staging Area.	Construction-related soil and vegetation disturbance (50 ac). Increased impervious area.
C048	Install hard power to Detection and Recognition Target Array (DET/REC) target in the Cibola Range.	Construction-related soil and vegetation disturbance along utility lines (163,310 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C050-b	Install hard power, water, sewer, and communication service at Simulated Minefield Site.	Construction-related soil and vegetation disturbance along utility lines (5,619 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C060	Create LTA to support operational testing and dismounted maneuver training at TOW Town.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (29,010 ac).

TABLE 2-4
Proposed Action Activities Analyzed Programmatically—Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]
C064	Create LTA to support operational testing and dismounted maneuver training at Yuma Wash.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (9,907 ac).

[a] The project originally proposed as C028 has been removed from direct analysis in this document. Due to a time critical need for implementation, this activity was analyzed through a separate and specific NEPA document. This activity is considered in the analysis of cumulative impacts in this document.
[b] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.
[c] Measurements are approximate.
[d] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-5
Proposed Action Activities Analyzed in Detail—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Impacts [a, b]
K001	Construct a 1,640-ft radius DZ for personnel and cargo drops in southern portion of East Arm.	Activity-related soil and vegetation disturbance at site (194 ac). Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas. Disturbance would be episodic and may be separated widely in space or time.
K002	Construct 1,250-ft radius DZ for personnel and cargo drops northeast of East Smart Weapons Test Range (SWTR) Impact Area.	Activity-related soil and vegetation disturbance at site (113 ac) and associated utility lines (0.37 ac).
K003	Expand munitions impact area from north boundary of Echo and Foxtrot to north boundary of contaminated area (Advanced Munitions Range).	Long-term soil and vegetation disturbance from inert and explosive munitions impact (up to 24,309 ac). Under the Preferred Alternative the expansion would be 21,377 ac, 2,932 ac less than originally proposed.
K004-a	Construct aircraft shelter, multiple buildings, water tank, POL storage area, and graded parking area, and clear a launch/recovery area at SWTR.	Construction-related soil and vegetation disturbance at site (aircraft shelter 52,500 ft^2, command and control building 2,000 ft^2, office building 600 ft^2, maintenance building 900 ft^2, 30,000-gallon water tank 1,000 ft^2, POL storage area 900 ft^2, graded parking area 7,500 ft^2, and UAS launch/recovery area—vegetation clearing of 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area.
K006	Install launch/recovery systems and a GCS trailer at Tower 48.	Construction-related soil and vegetation disturbance (1,200 ft^2).
K007-a	Construct runway west of S-15 Command and Control Shelter K007-b: Install hard power/fiber and communication service west of S-15 Command and Control Shelter.	Construction-related soil and vegetation disturbance at site (runway 302,800 ft^2) and along utility lines (7,658 ft^2). Construction-related emissions. Increased impervious area. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
K008	Expand munitions impact area to encompass area between Impact Areas Delta and Echo.	Long-term soil and vegetation disturbance from inert and explosive munitions impacts (4,467 ac).
K009	Install fiber and permanent Improved Vehicle Tracking System (IVTS) and telemetry relays at Windy Hill.	Construction-related soil and vegetation disturbance at site and associated utility lines (3,950 ft^2).
K010	Expand munitions impact area north of North Boundary Road between GP 21A and Impact Area Alpha (Advanced Munitions Range).	Long-term soil and vegetation disturbance (980 ac) from inert and explosive munitions impact.
K011	Renovate site and construct new control room and firing chamber at GP 5.	Construction-related soil and vegetation disturbance (1,500 ft^2). Construction-related emissions. Increased impervious area.
K012-a	Construct two permanent reinforced concrete buildings to house personnel, equipment, and ammunition, and new access road at GP 18.	Construction-related soil and vegetation disturbance (7,190 ft^2) Construction-related emissions. Increased impervious area.

TABLE 2-5
Proposed Action Activities Analyzed in Detail—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Impacts [a, b]
K013	Construct permanent reinforced concrete building and additional building to house weapons at GP 21.	Construction-related soil and vegetation disturbance (buildings 3,600 ft^2 each). Construction-related emissions. Increased impervious area.
K014	Construct ISR/EO Ground Truth Reference Sites at: K014-a: (32.846, -114.336) K014-b: (32.967, -114.239) K014-c: (32.932, -114.151) K014-d: (32.822, -114.196) K014-e: (32.990, -113.955) K014-f: (32.930, -113.926) K014-g: (32.836, -114.016) K014-h: (32.867, -113.922) K014-i: (32.841, -113.866) K014-j: (32.986, -113.812) K014-k: (32.904, -113.791) K014-l: (32.020, -113.758) K014-m: (32.957, -113.666)	Construction-related soil and vegetation disturbance (each: 2,500 ft^2).
K015	Construct permanent building at GP 21A.	Construction-related soil and vegetation disturbance at previously disturbed site (3,600 ft^2). Construction-related emissions. Increased impervious area.
K016	Construct permanent building at GP 17A.	Construction-related soil and vegetation disturbance at previously disturbed site (3,000 ft^2). Construction-related emissions. Increased impervious area.
K017	Construct permanent building at GP on Growl Road in southeast corner of Echo Munitions Impact Area.	Construction-related soil and vegetation disturbance at previously disturbed site (3,000 ft^2). Construction-related emissions. Increased impervious area.
K018	Construct permanent reinforced concrete building at GP Splinter.	Construction-related soil and vegetation disturbance (3,000 ft^2). Construction-related emissions. Increased impervious area.
K019	Construct permanent reinforced concrete building at GP 19.1.	Construction-related soil and vegetation disturbance (3,000 ft^2). Construction-related emissions. Increased impervious area.
K020	Construct permanent reinforced concrete building at GP 11.1.	Construction-related soil and vegetation disturbance. (3,000 ft^2). Construction-related emissions. Increased impervious area.
K024	K024-a: Construct aerial cable drop site for drop testing in mountains south of Pole Line Road. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, 328-ft target area. This project would be implemented under the Preferred Alternative rather than project C066.	Construction-related soil and vegetation disturbance for 2 cable sites (each 11,065 ft^2) and target area (87,855 ft^2).

TABLE 2-5
Proposed Action Activities Analyzed in Detail—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Impacts [a, b]
	K024-b: Construct an approximately 0.6-mile access trail to the target area in mountains south of Pole Line Road.	Construction-related soil and vegetation disturbance to create access trail (0.75 ac). K024-b would be implemented only if K024-a is implemented.
K026	Expand LTA to support operational testing and dismounted maneuver training at SWTR.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (up to 8,840 ac). Under the Preferred Alternative the expansion would be 7,014 ac, 1,826 ac less than originally proposed. Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers,
K030	Construct runway, taxiway, aircraft shelter, command and control room, simulator training room, classroom, maintenance area, POL storage area, graded area for parking, concrete or asphalt pad, clear area for GCSs, and clear area for UAS launch/recovery at East Arm.	Construction-related soil and vegetation disturbance at site (and taxiway 3,400,000, aircraft shelter 12,000 ft^2, command and control room 2,000 ft^2, simulator training room 1,600 ft^2, classroom 2,000 ft^2, maintenance area 2,000 ft^2, POL storage area 900 ft^2, graded area for parking 7,500 ft^2, pad 250,000 ft^2, clear area for GCSs 30,000 ft^2 and clear area for UAS launch/recovery 30,000 ft^2). Construction-related emissions. Increased impervious area. Long-term impacts to Sonoran desert tortoise habitat from vegetation clearing and construction activities.
K031	Construct lagoon for Kofa Sewage Lagoon Expansion.	Construction-related soil and vegetation disturbance at site (sewage lagoon 146,545 ft^2). Construction-related emissions.

[a] Measurements are approximate.
[b] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-6
Proposed Action Activities Analyzed Programmatically—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Principal Impacts [a, b]
K004-b	Install hard power/fiber and communication service at SWTR.	Construction-related soil and vegetation disturbance along utility lines (3,883 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
K005	Install hard power/fiber and communication service at Tower L.	Construction-related soil and vegetation disturbance along utility lines (450 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
K007-b	Install hard power/fiber and communication service west of S-15 Command and Control Shelter.	Construction-related soil and vegetation disturbance along utility lines (7,658 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard

TABLE 2-6

Proposed Action Activities Analyzed Programmatically—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Principal Impacts [a, b]
		power.
K009	Install fiber and permanent IVTS and telemetry relays at Windy Hill.	Construction-related soil and vegetation disturbance at site and associated utility lines (3,950 ft^2).
K012-b	Install hard power and communication service at GP 18.	Construction-related soil and vegetation disturbance along utility lines (530 ft^2). Construction-related emissions.
K021	Create LTA to support operational training and dismounted maneuver training at East Arm.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (28,233 ac). Minor impacts to Sonoran desert tortoise and habitat from creation and use of new or expanded testing and training areas. Disturbance would be episodic and may be separated widely in space or time. Note, additional NEPA analysis would be required prior to establishing bivouac areas.
K023	Install hard power and communication service to Hazard Classification Deflagration test area.	Construction-related soil and vegetation disturbance along utility lines 11,230 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Construction-related emissions.
K025	K025-a: Construct East Kofa Operations Center, including a small building complex, water well, septic system, perimeter fencing, vehicle maintenance area, storage areas, tactical vehicle wash rack, and 40-ton crane. K025-b: Install hard power and, communication service at East Kofa Operations Center.	Construction-related soil and vegetation disturbance (10 ac) and 1,370 ft^2 for utilities.
K027	Create LTA to support operational testing and dismounted maneuver training at Tower 71.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (3,446 ac).
K028	Create LTA to support operational testing and dismounted maneuver training at SCAM Flats.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (12,660 ac).
K029	Extend water line from Counter-mine Test and Training Range to Building 3970 and Building 3971. Install fire suppression system in Building 3971.	Construction-related soil and vegetation disturbance (33,010 ft^2).

[a] Measurements are approximate.
[b] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

For the Proposed Action, the analysis is structured to allow the Army to exercise discretion and to select a subset of the proposed activities or, for certain activities, to select from among a range of magnitude, frequency, or duration. It also is possible that only a subset of the proposed activities described in Tables 2-1 through 2-3 would be selected for

implementation. The alternatives considered for implementation of the Proposed Action are discussed in Section 2.5.

2.5 Alternatives for Activities of the Proposed Action

In addition to the Proposed Action and the No Action Alternative, other alternatives were considered. For each component project, this section identifies whether one or more reasonable alternatives exist and provides descriptions of reasonable alternatives considered. In addition, for proposed projects with no reasonable alternatives, the justification for not retaining other alternatives is provided.

Reasonable alternatives to the proposed activities included in the Proposed Action that are subjected to detailed analysis are discussed in Tables 2-7 through 2-9 by region. Alternatives are not discussed for the proposed activities analyzed programmatically. The programmatic analysis documented in later sections was based on analysis of the likely maximum potential impacts of the considered activities on a broad scale. Because detailed analysis was not possible, due to the generally undefined nature of these activities, these activities would be analyzed in detail, including reasonable alternatives, in future follow-on, site-specific NEPA analysis that would tier from this programmatic analysis.

TABLE 2-7
Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
L001	L001-a: Construct building, concrete pad, shade structure, and solar lights at K-9 Village.	There are no reasonable alternatives to the proposed activity for L001-a because expansion of the existing K-9 Village facility, which provides a simulated urban environment for troop and K-9 unit training, would have less impact than construction of a new urban simulation facility elsewhere.
L002	L002-a: Construct Runway 18/36 extension, and realign Barranca Road at LAAF.	There are no reasonable alternatives to the proposed activity for L002-a because extension of the runway must be either to the north or south, along its long axis. Martinez Lake Road is a public road that crosses YPG to the north of the runway. Barranca Road is entirely within YPG to the south of the runway. Extension of the runway would require relocation of one of these roads. While there would be no difference in environmental impacts regardless of which direction the runway is extended, extension to the south would not affect public traffic or existing perimeter AT/FP setbacks.
L003	Construct outdoor eating area at the Roadrunner Café.	There are no reasonable alternatives to the proposed activity because the location of an outside eating area is constrained by the location of the existing facility.
L004	Construct office building next to Building 2968.	There are no reasonable alternatives to the proposed activity because potential locations are constrained by existing infrastructure, proximity to available parking, and other proposed construction.
L005	L005-a: Construct medium and large storage buildings next to Building 2970.	There are no reasonable alternatives to the proposed activity for L005-a because locations are constrained by existing infrastructure, proximity to users, and other proposed construction.
	L005-b: Construct 2 office buildings next to Building 2970.	There are no reasonable alternatives to the proposed activity for L005-b because locations are constrained by existing infrastructure, proximity to available parking, and

TABLE 2-7
Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
		other proposed construction.
	L005-c: Construct Air Delivery Guided Test Facility next to Building 2970.	There are no reasonable alternatives to the proposed activity for L005-c because locations are constrained by existing infrastructure, proximity to related test facilities, and other proposed construction.
L006	L006-a: Construct Flight Detachment Maintenance Building.	There are no reasonable alternatives to the proposed activity for L006-a because the location is constrained by size requirements, existing infrastructure near the airfield, and other proposed construction.
	L006-b: Construct Wild Horse Café.	There are no reasonable alternatives to the proposed activity for L006-b because potential locations are constrained by existing infrastructure and other proposed construction.
	L006-c: Construct AT/FP parking improvements.	There are no reasonable alternatives to the proposed activity for L006-c because there are no choices for the location of the AT/FP parking improvements.
L007	L007-a: Construct helicopter parking at CDH.	There are no reasonable alternatives to the proposed activity for L007-a because locations at CDH are constrained by existing infrastructure, security setback requirements, and the proposed crosswind runway alignment.
	L007-b: Construct UAS parking, UAS storage facility, and UAS maintenance hangar at CDH.	There are no reasonable alternatives to the proposed activities for L007-b because locations at CDH are constrained by existing infrastructure, security setback requirements, and the proposed crosswind runway alignment. Impacts associated with construction of a new heliport and runway would be greater than those associated with upgrading facilities at CDH.
	L007-c: Construct privately owned vehicle (POV) parking at CDH.	There are no reasonable alternatives to the proposed activities for L007-c because locations at CDH are constrained by existing infrastructure, security setback requirements, and the proposed crosswind runway alignment. Impacts associated with construction of a new heliport and runway would be greater than those associated with upgrading facilities at CDH.
	L007-d: Relocate C-130 CALA to CDH.	There are no reasonable alternatives to the proposed activity for L007-d because locations at CDH are constrained by existing infrastructure, security setback requirements, and the proposed crosswind runway alignment.
L008	L008-a: Construct ACP at CDH.	There are no reasonable alternatives to the proposed activities for L008-a because there are no choices for the location of the security upgrades.
	L008-b: Construct roadway drainage improvements at CDH.	There are no reasonable alternatives to the proposed activity for L008-b because there are no choices for the location of the proposed improvements and because the site drainage improvements would have less environmental impact than a new access road to CDH.
L009	Construct warehouse at YTC.	There are no reasonable alternatives to the proposed activity for L009 because the location is constrained by existing infrastructure and proximity to related users.

TABLE 2-7
Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
L010	Construct Instrumentation Development Facility.	There are no reasonable alternatives to the proposed activity for L010 because the location is constrained by existing infrastructure, proximity to related test users, and other proposed construction.
L011	L011-a: Construct tracked vehicle trail at YTC.	There are no reasonable alternatives to the proposed activity for L011-a because potential routes from existing tracked vehicle trails to storage and maintenance areas are constrained by existing infrastructure and roadways and other proposed construction.
	L011-b: Construct office at YTC.	There are no reasonable alternatives to the proposed activity for L011-b because locations are constrained by existing infrastructure, other proposed construction, and proximity to existing parking.
L012	L012-a: Construct hotel at MAA.	There are no reasonable alternatives to the proposed activity for L012-a because sites within the MAA are constrained by existing infrastructure, proposed construction, and parcel size. No other available sites have sufficient size to accommodate the hotel.
	L012-b: Construct EOC at MAA.	There are no reasonable alternatives to the proposed activity for L012-b because sites within the MAA are constrained by existing infrastructure, proposed construction, and adjacency to roadways.
	L012-c: Construct addition to youth services center at MAA.	There are no reasonable alternatives to the proposed activity for L012-c because there are no choices for the location of the addition and because there would be less impact from expansion of the existing facility than from construction of a new youth services center.
	L012-d: Construct ACP improvements at MAA.	There are no reasonable alternatives to the proposed activity for L012-d because there are no choices for the location of the AT/FP improvements.
	L012-e: Construct child development center for school-aged services at MAA.	There are no reasonable alternatives to the proposed activity for L012-e because sites within the MAA are constrained by existing infrastructure, proposed construction, and adjacency to roadways.
	L012-f: Construct outdoor eating area at Coyote Lanes bowling alley.	There are no reasonable alternatives to the proposed activity because the location of an outside eating area is constrained by the location of the existing facility.
L013	L013-a: Construct additional fencing and support facilities at the Threat Systems and Target Simulations Buildings 3572 and 3574.	There are no reasonable alternatives to the proposed activity for L013-a because there are no choices for the location of security fencing and support facilities are constrained by existing infrastructure, other proposed construction, and parcel size.
L014	L014-a: Construct aircraft shelter, command and control building, and clear a UAS launch/recovery area at Comanche Flats.	There are no reasonable alternatives to the proposed activity for L014-a because the temporary construction-related impacts of expanding the testing and training capabilities at Comanche Flats would be less than those associated with establishing a new UAS testing/training area elsewhere on YPG. Relocation of the current and planned future activities from Comanche Flats to other existing UAS areas is not possible because other UAS areas are heavily utilized and cannot accommodate the additional testing and training conducted at Comanche Flats.

TABLE 2-7
Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
	L014-b: Construct multiple buildings, concrete pad, water tank, POL storage area, and graded parking area at Comanche Flats.	There are no reasonable alternatives to the proposed activity for L014-b because the temporary construction-related impacts of expanding the testing and training capabilities at Comanche Flats would be less than those associated with establishing a new UAS testing/training area elsewhere on YPG. Relocation of the current and planned future activities from Comanche Flats to other existing UAS areas is not possible because other UAS areas are heavily utilized and cannot accommodate the additional testing and training conducted at Comanche flats.
L015	L015-a: Repair landing pad and construct building at K-9 Village.	There are no reasonable alternatives to the proposed activity for L015-a because the temporary construction-related impacts of expanding the testing and training capabilities at K-9 Village would be less than those associated with establishing a new UAS testing/training area elsewhere on YPG. Relocation of the current and planned future activities from K-9 Village to other existing UAS areas is not possible because other UAS areas are heavily utilized and cannot accommodate the additional testing and training conducted at K-9 Village.
L016	L016-a: Construct building, concrete or asphalt pad, and shade structure, and install solar lights at Site 2.	There are no reasonable alternatives to the proposed activity because expansion of the existing Site 2 training area, which provides a simulated urban environment for troop and K-9 unit training, would have less impact than construction of a new urban simulation facility elsewhere.
L017	Construct GCSs for UAS operations at TM Site 4.	There are no reasonable alternatives to the proposed activity because enhancing this existing location to accommodate modified testing would have less impact than constructing a new test site at a different location. Relocation of the current and planned future activities from TM Site 4 to other existing UAS areas is not possible because other UAS areas are heavily utilized and cannot accommodate the additional testing and training conducted at TM Site 4.
L018	Construct concrete or asphalt pad and sensor tower east of existing sensor test building at Sidewinder Sensor Site.	There are no reasonable alternatives to the proposed activity because expansion of testing capabilities at the Sidewinder Sensor Site would have less impact than constructing a new sensor site elsewhere. Relocation of testing activities conducted at the Sidewinder Sensor Site is not possible because other sites lack the specific infrastructure to support testing at the Sidewinder Sensor Site and other sites are heavily used and cannot accommodate the additional testing and training conducted at the Sidewinder Sensor Site.
L019	Expand and combine West LA LTA, K-9 Village LTA, Site 2 LTA, and Site 4 LTA.	There are no reasonable alternatives to the proposed activity because this expansion would connect 4 MOUT areas (West LA, K-9 Village, Site 4, and Site 2) to allow overland navigation by military personnel to reach urban targets at different locations. No other locations on YPG are available that would allow use of existing urban simulation areas and the impacts associated with expanding these 4 existing LTAs would be less than establishing a new LTA and constructing multiple MOUT areas.

TABLE 2-7
Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
		Multiple new or expanded LTAs are proposed in addition to L019. However, because of the existing MOUT areas in proximity to L019, the other proposed expanded or new LTAs are not considered reasonable alternatives for L019 due to the type of activities that would be conducted.
L020	Upgrade equipment at Tire X-Ray Facility (Building 2310).	There are no reasonable alternatives to the proposed activity because the upgrade of equipment is technically and economically feasible and there would be no environmental impacts from the equipment upgrade.
L021	Construct solar chamber at Climatic Simulation Facilities (Building 3527).	There are no reasonable alternatives to the proposed activity because the location is constrained by the size of the parcel required, other proposed construction, and proximity to related test facilities. Other locations of sufficient size would result in increased time, cost, and energy use to conduct climatic testing.
L022	Relocate dust chamber from Building 3352 to near Buildings 3357 and 3494 (Rough Handling).	There are no reasonable alternatives to the proposed activity because the location is constrained by the size of the parcel required, other proposed construction, and proximity to related test facilities.
L023	L023-a: Improve ACP at the Kofa cantonment.	There are no reasonable alternatives to the proposed activity for L023-a because there are no choices for the location of the ACP security upgrades.
	L023-b: Construct joint wash rack for tracked and GOVs at the Kofa cantonment.	There are no reasonable alternatives to the proposed activity for L023-b because the locations are constrained by parcel sizes, other proposed construction, and proximity to related test or maintenance facilities.
	L023-c: Construct electric substation protection and electronics expansion at the Kofa cantonment.	There are no reasonable alternatives to the proposed activity for L023-c because the locations are constrained by parcel sizes, other proposed construction, and proximity to related test or maintenance facilities.
	L023-d: Construct Howitzer Support/Acceptance Facility at the Kofa cantonment.	There are no reasonable alternatives to the proposed activity because the location is constrained by the size of the parcel required, other proposed construction, and proximity to KFR. Other locations of sufficient size would result in increased time, cost, and energy use to move from storage to firing positions.
	L023-e: Construct open storage facility at the Kofa cantonment.	There are no reasonable alternatives to the proposed activity for L023-e because the locations are constrained by parcel sizes, other proposed construction, and the need to have proximity to related test or maintenance facilities.
L024	Relocate Semi-trailer Delivery Safe Haven.	There are no reasonable alternatives to the proposed activity because the location is constrained by the need for access to US 95 and by the need to meet safety/security requirements.
L025	L025-a: Construct Aberdeen Road flood upgrades.	There are no reasonable alternatives for L025-a because there are no choices for the location of the improvements. There is no way to access the Kofa cantonment without crossing Castle Dome Wash. Construction of a new road, with an associated new crossing of Castle Dome Wash, would have greater impacts than upgrading the existing crossing of the wash.
	L025-b: Construct range road	There are no reasonable alternatives to the proposed

TABLE 2-7
Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
	improvements.	activity for L025-b because construction of new roads would have greater impacts than upgrading existing roads and there are no alternate choices for locations where problems with roads occur and where upgrades would be implemented.
L026	Construct munitions treatment facility.	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirements of the YPG Resource Conservation and Recovery Act (RCRA) Part B Permit.
L027	Construct gun storage facility at the Kofa cantonment.	There are no reasonable alternatives to the proposed activity because the location is constrained by the size of the parcel required, other proposed construction, and proximity to KFR. Other locations of sufficient size would result in increased time, cost, and energy use to move from storage to firing positions.
L028	Construct 5 ammunition magazines near the Kofa cantonment.	There are no reasonable alternatives to the proposed activity because locations are constrained by the need to have proximity to delivery access points, other construction, and requirements for explosive quantity safety distance (EQSD) arcs.
L029	Construct optical maintenance facility, graded parking area, and fencing.	There are no reasonable alternatives to the proposed activity because potential locations are constrained by existing infrastructure, the need to have proximity to related test users and available parking, and other proposed construction.
L030	L030: Expand LTA to support operational testing and dismounted maneuvers at Muggins/Middle East (only one would be selected): L030-a: 16,640 ac L030-b: 6,331 ac	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, L032, L033, C041, C063, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected. Expansion of an existing LTA would have less impact than creation of a new LTA elsewhere. There are two reasonable alternatives for L030 and both were considered. L030-b is the Preferred Alternative.
L031	L031: Construct MFFS DFAC (only one option to be selected): L031-a: at Location Option 1 L031-b: at Location Option 2 L031-c: at Location Option 3	Three reasonable alternative locations for this activity are under consideration (L031-a, L031-b, L031-c) and only one would be selected if the activity is implemented. Other potential locations for the DFAC are constrained by other existing and proposed uses at YPG. The Preferred Alternative is Option 1.
L032	Expand Bravo LTA.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects, L030, L032, L033, C041, C060, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected. Expansion of an existing LTA would have less impact than creation of a new LTA elsewhere.
L033	Expand Hill 630 LTA.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, L032, L033, C041, C060, C064, K021, K026, K027,

TABLE 2-7
Alternatives for Proposed Action Activities Analyzed in Detail– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
		K028). Some, all, or none of these proposed LTAs may be selected. Expansion of an existing LTA would have less impact than creation of a new LTA elsewhere.
L034	L034: Construct MFFS Ready Room (only one option to be selected): L034-a: at Location Option 1 L034-b: at Location Option 2 L034-b: at Location Option 3	Three reasonable alternative locations for this activity are under consideration (L034-a, L034-b, L034-c) and only one would be selected if the activity is implemented. Other potential locations for the Ready Room are constrained by other existing and proposed uses. The Preferred Alternative is Option 1.
L035	Construct Armament Test Operations and Analysis Facility.	There are no reasonable alternatives to the proposed activity because potential locations for this facility are constrained by existing infrastructure, the need for proximity to related test users and available parking, and other proposed construction.
L036	Construct Shower Facility at LAAF FOB area.	There are no reasonable alternatives to the proposed activity because showers are needed to support training exercises at the LAAF FOB and because existing temporary facilities have exceeded their functional life and replacement with other temporary facilities is not cost-effective.
L037	Construct vehicle test course and establish LTA for dismounted maneuvers and blended training.	There are no reasonable alternatives to the proposed activity because other locations are constrained by existing and proposed uses and by the need to have proximity to roads for vehicle access.
L038	Construct vehicle test course and establish LTA for dismounted maneuvers and blended training.	There are no reasonable alternatives to the proposed activity because other locations are constrained by existing and proposed uses and by the need to have proximity to roads for vehicle access.
L039	Construct vehicle test course and establish LTA for dismounted maneuvers and blended training.	There are no reasonable alternatives to the proposed activity because other locations are constrained by existing and proposed uses and by the need to have proximity to roads for vehicle access.
L040	Construct DZ near LAAF (984-ft x 1,969-ft).	There are no reasonable alternatives to the proposed activities because other locations are constrained by airspace restrictions, the presence of unexploded ordnance (UXO), and the need to have road accessibility by transport/recovery vehicles.
L041	Construct air delivery storage and laboratory facility behind Building 2970.	There are no reasonable alternatives to the proposed activity because other locations are constrained by existing infrastructure, the need to have proximity to related test users and available parking, and other proposed construction.
L042	Upgrade facility to an office and hangar in Building 3025.	There are no reasonable alternatives to the proposed activity because upgrade of an existing facility is less intrusive than development of a new facility and because of the proximity to related test facilities.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-8

Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
C001	Construct vehicle test course.	There are no reasonable alternatives to the proposed activity because other locations for the vehicle test course are constrained by other existing and proposed uses and by the need to have proximity to roads for vehicle access.
C002	C002-a: Construct South Urban DZ (1,640-ft radius) south of Urban DZ.	There are no reasonable alternatives to the proposed activities because other locations are constrained by airspace restrictions, the presence of UXO, and the need to have road accessibility by transport/recovery vehicles (Jason Associates Corporation, 2001).
	C002-b: Construct Tomahawk Circular DZ 769 (2,297-ft radius).	There are no reasonable alternatives to the proposed activities because other locations are constrained by airspace restrictions, the presence of UXO, and the need to have road accessibility by transport/recovery vehicles (Jason Associates Corporation, 2001). The location for C002-b is further constrained by a requirement to be in mountainous terrain to meet testing requirements.
	C002-c: Construct Tombstone DZ (984-ft radius).	There are no reasonable alternatives to the proposed activities because other locations are constrained by airspace restrictions, the presence of UXO, and the need to have road accessibility by transport/recovery vehicles (Jason Associates Corporation, 2001).
	C002-d: Construct Village Circular DZ (984-ft radius).	There are no reasonable alternatives to the proposed activities because locations are constrained by airspace restrictions, the presence of UXO, and the need to have road accessibility by transport/recovery vehicles (Jason Associates Corporation, 2001).
	C002-e: Construct Abken DZ (1,640-ft radius).	There are no reasonable alternatives to the proposed activities because locations are constrained by airspace restrictions, the presence of UXO, and the need to have road accessibility by transport/recovery vehicles (Jason Associates Corporation, 2001).
	C002-f: Construct Urban Circular JPADS DZ (984-ft radius).	There are no reasonable alternatives to the proposed activities because locations are constrained by airspace restrictions, the presence of UXO, and the need to have road accessibility by transport/recovery vehicles (Jason Associates Corporation, 2001).
C003	C003-a: Establish small arms impact areas for inert munitions at JERC I. Small arms impact areas would use collection boxes for fired ammunition and would be cleaned between tests.	There are no reasonable alternatives C003-a because the location is constrained by the requirement to support ongoing testing at JERC I. Construction of a new facility to provide the testing conducted at JERC I at an existing small arms impact areas would have greater impacts than establishing a small arms impact area at JERC I. Relocation of testing and training activities conducted at JERC I is not possible because other sites lack the specific infrastructure to support the testing and training conducted at these sites and because other sites are heavily used and cannot accommodate the additional testing and training conducted at JERC I.

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
	C003-b: Establish small arms impact areas for inert munitions at JERC II. Small arms impact areas would use collection boxes for fired ammunition and would be cleaned between tests.	There are no reasonable alternatives C003-b because the location is constrained by the requirement to support ongoing testing at JERC II. Construction of a new facility to provide the testing conducted at JERC II at an existing small arms impact area would have greater impacts than establishing a small arms impact area at JERC II. Relocation of testing and training activities conducted at JERC II is not possible because other sites lack the specific infrastructure to support the testing and training conducted at these sites and because other sites are heavily used and cannot accommodate the additional testing and training conducted at JERC II.
	C003-c: Establish small arms impact areas for inert munitions at JERC III. Small arms impact areas would use collection boxes for fired ammunition and would be cleaned between tests.	There are no reasonable alternatives C003-c because the location is constrained by requirement to support ongoing testing at JERC III. Construction of a new facility to provide the testing conducted at JERC III at an existing small arms impact area would have greater impacts than establishing a small arms impact area at JERC III. Relocation of testing and training activities conducted at JERC III is not possible because other sites lack the specific infrastructure to support the testing and training conducted at these sites and because other sites are heavily used and cannot accommodate the additional testing and training conducted at JERC III.
C004	C004-a: Construct facilities at Gauna Peak.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support ongoing testing and training at Gauna Peak. Relocation of testing and training activities conducted at Gauna Peak is not possible because other sites are heavily used and cannot accommodate the additional testing and training conducted at Gauna Peak.
C005	C005-a: Construct building at Site 18.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support ongoing testing and training at Site 18. Relocation of testing and training activities conducted at Site 18 is not possible because other sites lack the specific infrastructure to support the testing and training conducted at Site 18 and because other sites are heavily used and cannot accommodate the additional testing and training conducted at Site 18.
C006	Establish Phoenix West Impact Area.	There are no reasonable alternatives to the proposed activity because the location is constrained by airspace restrictions, the need to have accessibility by transport/recovery vehicles, and minimum separation distance requirements from areas where strong EM signals are used.

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
C007	C007-a: Construct runway extension, aircraft shelter, and POL storage at Phoenix UAS site.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support ongoing testing and training at Phoenix UAS site. Relocation of testing and training activities conducted at the Phoenix UAS site is not possible because other sites lack the specific infrastructure to support the testing and training conducted at the Phoenix UAS site and because other sites are heavily used and cannot accommodate the additional testing and training conducted at the Phoenix UAS site.
C008	C008-a: Construct building at Site 16.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support ongoing testing and training at Site 16. Relocation of testing and training activities conducted at Site 16 is not possible because other sites lack the specific infrastructure to support the testing and training conducted at Site 16 and because other sites are heavily used and cannot accommodate the additional testing and training conducted at Site 16.
C009	Establish North UAS Impact Area.	There are no reasonable alternatives to the proposed activity because locations for impact areas associated with UAS testing are constrained by airspace restrictions, the need to have accessibility by transport/recovery vehicles, and minimum separation distances from other test areas where strong EM signals are used.
C010	Construct aircraft shelter, POL storage, and graded parking lot at North UAV Complex.	There are no reasonable alternatives to the proposed activities the location is constrained by the requirement to support testing and training at the North UAV Complex. Relocation of testing and training activities conducted at the North UAV Complex is not possible because other sites lack the specific infrastructure to support the testing and training conducted at the North UAV Complex and because other sites are heavily used and cannot accommodate the additional testing and training conducted at the North UAV Complex.
C011	Establish La Posa West Impact Area.	There are no reasonable alternatives to the proposed activity because locations for impact areas associated with UAS testing are constrained by airspace restrictions, the need to have accessibility by transport/recovery vehicles, and minimum separation distances from other test areas where strong EM signals are used.
C012	C012-a: Construct building and concrete pad at PSS Test Area (west of La Posa DZ).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at the PSS Test Area. Relocation of the testing and training conducted at the PSS Test Area is not possible due to requirements for minimal EM interference and because other sites are heavily used and cannot accommodate the additional

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
		testing and training conducted at the PSS Test Area.
C014	C014-a: Install shade structure at Stinger Pole Target Area.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at the Stinger Pole Target Area. Relocation of the testing and training conducted at the Stinger Pole Target Area is not possible because other sites lack the specific infrastructure to support the testing and training conducted at the Stinger Pole Target Area and because other sites are heavily used and cannot accommodate the additional testing and training conducted at the Stinger Pole Target Area.
C015	Construct ISR/EO Ground Truth Reference Sites at: C015-a: Yuma Wash (33.156, -114.485) C015-b: Middle Mountain Road (33.063, -114.358) C015-c: Mule Wash (33.432, -114.503) C015-d: (33.446, -114.471) C015-e: (33.477, -114.286) C015-f: (33.444, -114.325) C015-g: (33.448, -114.275) C015-h: (33.421, -114.279) C015-i: (33.408, -114.360) C015-j: (33.389, -114.303) C015-k: (33.387, -114.366) C015-l: (33.347, -114.286) C015-m: (33.297, -114.395) C015-n: (33.165, -114.480) C015-o: (33.122, -114.299) C015-p: (33.090, -114.447) C015-q: (33.081, -114.353) C015-r: (33.967, -114.422)	There are no reasonable alternatives to the proposed activity because these sites are consolidated sensor arrays deployed to optimally provide ground truth verification for aerial activities and the ability of airborne sensors to perceive the ground truth sites. These arrays are deployed in locations with other compatible land uses.
C016	Rebuild target for long-range missile firing at Maverick Target.	There are no reasonable alternatives to the proposed activity because this specific target in an existing impact area needs to be rebuilt.
C017	C017-a: Construct building, bomb-proof shelter, shade structure, concrete or asphalt pad, and sensor tower at CM 4.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at CM 4. Relocation of the testing and training conducted at CM 4 is not possible because other sites lack the specific infrastructure to support the testing and training conducted at CM 4 and because other sites are heavily used and cannot accommodate the additional testing and training conducted at CM 4.
C018	Construct landing pad at CM 1.	There are no reasonable alternatives to the proposed activities because the location for the landing pad is constrained by existing roadways, infrastructure, and site topography at CM 1.
C019	Construct building and concrete pad at Z-12.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at Z-12. The locations for the building and pad are constrained by roadways, infrastructure, and site topography.

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
C020	C020-a: Construct sensor tower, buildings, and concrete pad at Site 9.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at Site 9 and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at Site 9 is not possible because other sites lack the specific infrastructure to support the testing and training conducted at Site 9 and because other sites are heavily used and cannot accommodate the additional testing and training conducted at Site 9.
C021	C021-a: Construct secure building with reinforced concrete floors and ramp to building centered at (-114.356, 33.077).	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at this location. The location for the building is constrained by the locations of infrastructure, roadways, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C021-b: Construct multiple buildings, water tank, POL storage area and graded parking area centered at (-114.356, 33.077).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C021-c: Construct aircraft shelter centered at (-114.356, 33.077).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C021-d: Clear a launch/recovery area centered at (-114.356, 33.077).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
C022	C022-a: Construct building, concrete slab, walkways, and fencing centered at (-114.36, 33.074).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C022-b: Construct aircraft shelter centered at (-114.36, 33.074).	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C022-c: Construct POL storage centered at (-114.36, 33.074).	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C022-d: Relocate meteorological tower centered at (-114.36, 33.074).	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C022-e: Construct runway expansion and taxiway centered at (-114.36, 33.074).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
		testing and training conducted at this location.
C023	C023-a: Construct multiple buildings, water tank, POL storage area, and graded parking centered at (-114.363, 33.051).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C023-b: Construct aircraft shelter centered at (-114.363, 33.051).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
	C023-c: Clear a launch/recovery area centered at (-114.363, 33.051).	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at this location and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at this location is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at this location.
C024	C024-a: Construct aircraft shelter, concrete pad, graded parking area near IRCC Tank Maintenance and Storage Ramada.	There are no reasonable alternatives to the proposed activities for C024-a because the location is constrained by the locations of existing munitions impact areas, DZs, and infrastructure and is further constrained by proximity to roadways for access/ recovery.
	C024-b: Fence and install solar lights, around IRCC Tank Maintenance and Storage Ramada.	There are no reasonable alternatives to the proposed activities for C024-b because there are no choices for the location of these security features.
C025	C025-a: Construct runway, taxiway, aircraft shelter, and building at IRCC.	There are no reasonable alternatives to the proposed activities because the location is constrained by the location of the helipad, other infrastructure, and existing roadways.
C026	C026-a: Construct ramp to existing building and rollup door to existing building and install solar lights at Site 10 Missile Test Facility.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at the Site 10 Missile Test Facility and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at the Site 10 Missile Test Facility is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
		accommodate the additional testing and training conducted at Site 10 Missile Test Facility.
	C026-b: Construct concrete landing pad at Site 10 Missile Test Facility.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at the Site 10 Missile Test Facility and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at Site 10 Missile Test Facility is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at the Site 10 Missile Test Facility.
C027	C027-a: Expand flat area on top of hill, and construct facility, concrete pad, and sensor tower at Site 12.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at Site 12 and by the locations of existing roadways, other infrastructure, and site topography. The location for hard power is constrained by the location of existing infrastructure and roadways. Relocation of the testing and training conducted at Site 12 is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at Site 12.
	C027-b: Construct road leading from the sensor building on the top of the hill at Site 12A down to the PTDS Site.	There are no reasonable alternatives to the proposed activity because the location of the road is constrained by the location of infrastructure and site topography.
C029	C029-a; Construct buildings, concrete pad, and install generators at Aerostat Mooring Site.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support ongoing activities at the Aerostat Mooring Site and by the locations of existing roadways, other infrastructure, and site topography.
C030	C030-a: Construct aircraft shelter, multiple buildings, water tank, POL storage, graded parking, and clear launch/recovery area east of Rocket Alley.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support UAS testing and training near and adjacent to Rocket Alley and by the locations of existing roadways, other infrastructure, and site topography.
C031	Utilize Site 6 as a meteorological station.	There are no reasonable alternatives to the proposed activity because there would be no environmental impacts associated with the reuse of a previously disturbed site in this non-intrusive manner.
C032	Renovate Large Multi-Purpose Environmental Chamber (Building 6015).	There are no reasonable alternatives to the proposed activity because renovation is technically and economically feasible and no environmental impacts would be associated with this activity.

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
C033	C033-a: Construct aircraft shelter, multiple buildings, concrete pad, water tank, POL storage area, graded parking area, and clear a launch/recovery area at C-17.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at C-17 and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at C-17 is not possible because other sites lack the specific infrastructure to support the testing and training conducted at C-17 and because other sites are heavily used and cannot accommodate the additional testing and training conducted at C-17.
C034	C034-a: Expand size of Graze Range Impact Areas by consolidating 7 individual impact areas into a single larger area	There are no reasonable alternatives to the proposed activity because expansion of the Graze Range Impact Areas by consolidation of smaller individual impact areas would have less impact than establishment of a new firing range of this size in another location. There were alternatives with regard to the size of the consolidated impact area. The Preferred Alternative is to implement a 626-ac consolidation, 15 ac less than originally proposed.
C035	Expand Combined Live Fire Exercise Range at OP-9 by consolidating 2 designated impact areas and Prospect Square.	There are no reasonable alternatives to the proposed activity because expansion of the existing Live Fire Exercise Range impact areas by consolidation across the existing space between the ranges and connecting with Prospect Square would have less impact than establishment of a new firing range of this size in another location.
C036	Increase use of Prospect Square for bombing or aircraft gunnery.	There are no reasonable alternatives to the proposed activity because Prospect Square is already committed to this use and can accommodate additional bombing and gunnery activities. Additional use of this area would have less environmental impact than constructing a new bombing/aircraft gunnery area elsewhere.
C037	Install hard power and cameras to 40-ft drop tower.	There are no reasonable alternatives to the proposed activity because the location is constrained by existing infrastructure and roadways.
C038	Construct MEDEVAC pad at CDA.	There are no reasonable alternatives to the proposed activity because locations for MEDEVAC helicopter landing pads are constrained by locations of testing and training sites in remote areas, which lack roadways capable of accommodating emergency medical vehicles for rapid response and/or evacuation.
C039	Construct air-conditioned storage facility at CDA.	There are no reasonable alternatives to the proposed activity because the location is constrained by proximity to occupied buildings and existing testing/training activities.
C041	Expand LTA to support operational testing and dismounted maneuver training at Middle Mountain.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, L032, L033, C041, C060, C064, K021, K026, K0-27, K028). Some, all, or none of these

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
		proposed LTAs may be selected. Expansion of an existing LTA would have less impact than creation of a new LTA elsewhere.
C043 Locations for temporary burials would vary and be determined by specific testing requirements.	C043-a: Temporarily bury simulated missiles, explosives, etc. off JERC I roads for sensor testing.	There are no reasonable alternatives to the proposed activity because locations are constrained by the requirement to support ongoing testing at JERC I, and are further constrained by the locations of the existing road system and infrastructure in the JERC sites.
	C043-b: Temporarily bury simulated missiles, explosives, etc. off JERC II roads for sensor testing.	There are no reasonable alternatives to the proposed activity because locations are constrained by the requirement to support ongoing testing at JERC II, and are further constrained by the locations of the existing road system and infrastructure in the JERC sites.
	C043-c: Temporarily bury simulated missiles, explosives, etc. off JERC III roads for sensor testing.	There are no reasonable alternatives to the proposed activity because locations are constrained by the requirement to support ongoing testing at JERC III, and are further constrained by the locations of the existing road system and infrastructure in the JERC sites.
C044	C044-a: Clear MEDEVAC helicopter landing pads at JERC I for evacuations.	There are no reasonable alternatives to the proposed activities because locations for MEDEVAC helicopter landing pads are constrained by locations of testing and training sites in remote areas that lack roadways capable of accommodating emergency medical vehicles for rapid response and/or evacuation.
	C044-b: Clear MEDEVAC helicopter landing pads at JERC II for evacuations.	There are no reasonable alternatives to the proposed activities because locations for MEDEVAC helicopter landing pads are constrained by locations of testing and training sites in remote areas that lack roadways capable of accommodating emergency medical vehicles for rapid response and/or evacuation.
	C044-c: Clear MEDEVAC helicopter landing pads at JERC III for evacuations.	There are no reasonable alternatives to the proposed activities because locations for MEDEVAC helicopter landing pads are constrained by locations of testing and training sites in remote areas that lack roadways capable of accommodating emergency medical vehicles for rapid response and/or evacuation.
C046	North UAV Compound Expansion: C046-a: Construct concrete pad.	There are no reasonable alternatives to the proposed activity because the location is constrained by the locations of existing infrastructure, roadways, and existing training/testing activities.
	C046-b: Grade project area and install fencing.	There are no reasonable alternatives to the proposed activity because the location is constrained by the locations of existing infrastructure, roadways, and existing training/testing activities.
	C046-c: Construct asphalt taxiway.	There are no reasonable alternatives to the proposed activity because the location is constrained by the locations of existing infrastructure, roadways, and existing training/testing activities.
C047	Create 23 TGPs at: C047-a: Rocket Alley C047-b: CM 9 East C047-c: Cibola Target Boundary GP C047-d: Site 16	There are no reasonable alternatives to the proposed activities. Locations for proposed TGPs were selected based on the requirement to support testing and training activities in nearby munitions impact areas. Locations were further constrained by proximity to existing roads and existing topography that would allow firing into

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
	C047-e: CM 9 West C047-f: C17 (North and South) C047-g: Mound C Archer GP C047-h: Mound C GP C047-i: CM 1 West C047-j: La Posa DZ C047-k: Site 8 GP C047-l: West Target Road GP C047-m: BM1072 C047-n: Excalibur SW GP C047-o: LADZ GP C047-p: Site 18 GP C047-q: 2.75 Rocket GP C047-r: Ehrenberg GP C047-s: DFR GP C047-t: La Posa South DZ C047-u: Water Tank GP C047-v: LA DZ East C047-w: C17 North M777LWH GP.	existing munitions impact areas.
C049	Install acoustic and seismic sensor at the Horizontal Impact Area.	There are no reasonable alternatives to the proposed activity because the location is constrained by existing testing requirements.
C050	C050-a: Construct building and UAS launch/recovery site at the Simulated Minefield Site to support UAS operations.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support UAS testing and training at the Simulated Minefield Site and by the locations of existing roadways, other infrastructure, and site topography. Relocation of the testing and training conducted at the Simulated Minefield Site is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location and because other sites are heavily used and cannot accommodate the additional testing and training conducted at the Simulated Minefield Site.
C051	Install shade structure at Lightweight Shock Facility.	There are no reasonable alternatives to the proposed activity because the location is constrained by existing testing requirements and there would be no environmental impacts associated with this activity.
C052	Establish CM 7 Impact Area.	There are no reasonable alternatives to the proposed activity because locations for new munitions impact areas are constrained by airspace restrictions and land use by other testing activities.
C053	Establish CM 4 North Impact Area.	There are no reasonable alternatives to the proposed activity because locations for new munitions impact areas are constrained by airspace restrictions and land use by other testing activities.
C054	Construct Yuma Wash ECUT expansion.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support ECUT testing and training at the Yuma Wash ECUT Site. Relocation of the testing and training conducted at the Yuma Wash ECUT Site is not possible because other sites lack the specific infrastructure to support the testing and training conducted at this location, including ECMD testing, and because other sites are heavily used

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
		and cannot accommodate the additional testing and training conducted at the Yuma Wash ECUT Site.
C055	Establish Multi-Purpose North Impact Area.	There are no reasonable alternatives to the proposed activity because locations for new munitions impact areas are constrained by airspace restrictions and land use by other testing activities.
C056	Establish Multi-Purpose South Impact Area.	There are no reasonable alternatives to the proposed activity because locations for new munitions impact areas are constrained by airspace restrictions and land use by other testing activities.
C057	Expand Rocket Alley Impact Area.	There are no reasonable alternatives to the proposed activity because locations for new munitions impact areas are constrained by airspace restrictions and land use by other testing activities.
C058	Establish Aerial Weapons Impact Area.	There are no reasonable alternatives to the proposed activity because locations for new munitions impact areas are constrained by airspace restrictions and land use by other testing activities.
C059	Establish East Target Road Impact Area.	There are no reasonable alternatives to the proposed activity because locations for new munitions impact areas are constrained by airspace restrictions and land use by other testing activities.
C060	Create LTA to support operational testing and dismounted maneuver training at TOW Town.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, L032, L033, C041, C060, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected.
C061	Create LTA to support operational testing and dismounted maneuver training at JERC I/Saderville.	Multiple new or expanded LTAs are proposed in addition to C061. However, because of this LTA would specifically support testing conducted at JERC I/ Saderville, the other proposed expanded or new LTAs are not considered reasonable alternatives for C061.
C062	Create LTA to support operational testing and dismounted maneuver training at JERC II.	Multiple new or expanded LTAs are proposed in addition to C062. However, because of this LTA would specifically support testing conducted at JERC II, the other proposed expanded or new LTAs are not considered reasonable alternatives for C062.
C063	Create LTA to support operational testing and dismounted maneuver training at JERC III.	Multiple new or expanded LTAs are proposed in addition to C063. However, because of this LTA would specifically support testing conducted at JERC III, the other proposed expanded or new LTAs are not considered reasonable alternatives for C063.
C064	Create LTA to support operational testing and dismounted maneuver training at Yuma Wash.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, C041, C060, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected.

TABLE 2-8
Alternatives for Short-term Proposed Action Activities—Cibola Region
Yuma Proving Ground

Identifier [a]	Proposed Activities	Alternatives
C065	C065: Create LRA Impact Areas: C065-a: LRA Impact Area 1	Potential locations for LRAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. Four potential sites for new LRAs are evaluated. All, some, or none these potential sites may be selected.
	C065-b: LRA Impact Area 2	Potential locations for LRAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. Four potential sites for new LRAs are evaluated. All, some, or none of these potential sites may be selected.
	C065-c: LRA Impact Area 3	Potential locations for LRAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. Four potential sites for new LRAs are evaluated. All, some, or none of these potential sites may be selected.
	C065-d: LRA Impact Area 4	Potential locations for LRAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. Four potential sites for new LRAs are evaluated. All, some, or none of these potential sites may be selected.
C066	C066-a: Construct aerial cable drop site for drop testing in mountains north of Prospect Square. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, and 328-ft target area.	Potential locations for aerial cable drop sites are constrained by the need for topography that allows construction of a cable of sufficient height to conduct the needed tests. There is a reasonable alternative to project C066 that is considered as project K024, which is the Preferred Alternative.
	C066-b: Construct an approximately 2.5-mile access trail to the target area	The location of the road is constrained by potential locations for aerial cable drop sites and existing infrastructure and roadways. There is a reasonable alternative to project C066 that is considered as project K024, which is the Preferred Alternative.

[a] The project originally proposed as C028 has been removed from direct analysis in this document. Due to a time critical need for implementation, this activity was analyzed through a separate and specific NEPA document. This activity is considered in the analysis of cumulative impacts in this document.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-9
Alternatives for Short-term Proposed Action Activities—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
K001	Construct 1,640-ft radius DZ for personnel and cargo drops in the southern portion of East Arm.	There are no reasonable alternatives to the proposed activity because DZ locations on YPG are constrained by airspace restrictions, the presence of UXO, and road access (Jason Associates Corporation, 2001).

TABLE 2-9
Alternatives for Short-term Proposed Action Activities—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
K002	Construct a 1,250-ft radius DZ for personnel and cargo drops northeast of East SWTR Impact Area.	There are no reasonable alternatives to the proposed activity because DZ locations on YPG are constrained by airspace restrictions, the presence of UXO, and road access (Jason Associates Corporation, 2001).
K003	Expand munitions impact area from north boundary of Echo and Foxtrot to north boundary of contaminated area (Advanced Munitions Range).	There are no reasonable alternatives to the proposed location because the expansion must occur at this location. The analysis considered variations in the size of the expanded munitions impact area: a minimum area expansion alternative, a maximum area expansion alternative to include all of the available space, and an intermediate area expansion alternative. The Preferred Alternative is to expand the munitions impact area by 2,932 ac less than originally proposed.
K004	K004-a: Construct aircraft shelter, multiple buildings, water tank, POL storage area, and graded parking area, and clear a launch/recovery area at SWTR	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at SWTR and is further constrained by topography and by the locations of existing roadways and other infrastructure. Relocation of the testing and training conducted at SWTR is not possible because other sites lack the specific infrastructure to support the testing and training conducted at SWTR and because other sites are heavily used and cannot accommodate the additional testing and training conducted at SWTR.
K006	Install launch/recovery systems and a GCS trailer at Tower 48.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at Tower 48 and is further constrained by topography and by the locations of existing roadways and other infrastructure. The location for hard power is constrained by the location of existing infrastructure and roadways. Relocation of the testing and training conducted at Tower 48 is not possible because other sites lack the specific infrastructure to support the testing and training conducted at Tower 48 and because other sites are heavily used and cannot accommodate the additional testing and training conducted at Tower 48.
K007	K007-a: Construct runway west of S-15 Command and Control Shelter.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at the S-15 Command and Control Shelter, topography, the proximity to live-fire ranges, and by the locations of existing roadways and other infrastructure.
K008	Expand munitions impact area to encompass area between Impact Areas Delta and Echo.	There are no reasonable alternatives to the proposed location because the expansion must occur at this location. The analysis will consider variations in the size of the expanded munitions impact area: a minimum area expansion alternative (4,500 ac) and a maximum area expansion alternative (16,000 ac).

TABLE 2-9
Alternatives for Short-term Proposed Action Activities—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
K009	Install fiber and permanent IVTS and telemetry relays at Windy Hill.	There are no reasonable alternatives to the proposed activities because the location is constrained by topography, which necessitates placing IVTS and telemetry relays on the summit of Windy Hill. The location of fiber is constrained by the location of roadways to the top of Windy Hill.
K010	Expand munitions impact area north of North Boundary Road between GP 21A and Impact Area Alpha (Advanced Munitions Range).	There are no reasonable alternatives to the proposed location because locations for munitions impact areas are constrained by airspace restrictions and land use by other testing activities. The impacts associated with expanding this existing munitions impact area would be less than those of establishing a new munitions impact area.
K011	Renovate site and construct new control room and firing chamber at GP 5.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at GP 5, by safety requirements, and by the locations of existing roadways and other infrastructure.
K012	K012-a: Construct two permanent reinforced concrete buildings to house personnel, equipment, and ammunition, and new access road at GP 18.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at GP 18, by safety requirements, and by the locations of existing roadways and other infrastructure.
K013	Construct permanent reinforced concrete building and additional building to house weapons at GP 21.	There are no reasonable alternatives to the proposed activities because the location is constrained by the requirement to support testing and training at GP 21, by safety requirements, and by the locations of existing roadways and other infrastructure.
K014	Construct ISR/EO Ground Truth Reference Sites at: K014-a: (32.846, -114.336) K014-b: (32.967, -114.239) K014-c: (32.932, -114.151) K014-d: (32.822, -114.196) K014-e: (32.990, -113.955) K014-f: (32.930, -113.926) K014-g: (32.836, -114.016) K014-h: (32.867, -113.922) K014-i: (32.841, -113.866) K014-j: (32.986, -113.812) K014-k: (32.904, -113.791) K014-l: (32.020, -113.758) K014-m: (32.957, -113.666)	There are no reasonable alternatives to the proposed activity because these sites are consolidated sensor arrays deployed to optimally provide ground truth verification for aerial activities and the ability of airborne sensors to perceive the ground truth sites. These arrays are deployed in locations with other compatible land uses.
K015	Construct permanent building at North Boundary GP.	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at North Boundary GP, by safety requirements, and by the locations of existing roadways and other infrastructure.
K016	Construct permanent building at GP 17A.	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at GP 17A, by safety requirements, and by the locations of existing roadways and

TABLE 2-9
Alternatives for Short-term Proposed Action Activities—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
		other infrastructure.
K017	Construct permanent building at GP on Growl Road in southeast corner of Echo Munitions Impact Area.	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at GP QQ, by safety requirements, and by the locations of existing roadways and other infrastructure.
K018	Construct permanent reinforced concrete building at GP Splinter.	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at GP Splinter, by safety requirements, and by the locations of existing roadways and other infrastructure.
K019	Construct permanent reinforced concrete building at GP 19.1.	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at GP 19.1, by safety requirements, and by the locations of existing roadways and other infrastructure.
K020	Construct permanent reinforced concrete building at GP 11.1.	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support testing and training at GP 11.1, by safety requirements, and by the locations of existing roadways and other infrastructure.
K021	Create LTA to support operational testing and dismounted maneuver training at East Arm.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, C041, C060, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected.
K024	K024-a: Construct aerial cable drop site for drop testing in mountains south of Pole Line Road. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, and 328-ft target area.	Potential locations for aerial cable drop sites are constrained by topography that allows construction of a cable of sufficient height to conduct the needed tests. There is a reasonable alternative to project K024 that is considered as project C066; however, K024 is the Preferred Alternative.
	K024-b: Construct an approximately 0.6-mile access trail to the target area	The location of the road is constrained by potential locations for aerial cable drop sites and existing infrastructure and roadways. There is a reasonable alternative to project K024 that is considered as project C066; however, K024 is the Preferred Alternative.
K026	Expand LTA to support operational testing and dismounted maneuver training at SWTR.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need for proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, L032, L033, C041, C060, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected. The impacts associated with expansion of an existing LTA would be less those of creating a new LTA elsewhere. The Preferred Alternative would expand the LTA by 1,826 ac less than originally proposed.

TABLE 2-9
Alternatives for Short-term Proposed Action Activities—Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Alternatives
K027	Create LTA to support operational testing and dismounted maneuver training at Tower 71.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, L032, L033, C041, C060, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected.
K028	Create LTA to support operational testing and dismounted maneuver training at SCAM Flats.	Potential locations for LTAs are constrained by other existing and proposed uses and by the need to have proximity to roads for troop access. All potential sites for new or expanded LTAs are evaluated (includes projects L030, L032, L033, C041, C060, C064, K021, K026, K027, K028). Some, all, or none of these proposed LTAs may be selected.
K029	Extend water line from Counter-mine Test and Training Range to Building 3970 and Building 3971. Install fire suppression system in Building 3971.	There are no reasonable alternatives for the proposed activities. Extension from the Counter-mine Test and Training Range would have the minimum length of pipe and minimum disturbance.
K030	Construct runway, taxiway, aircraft shelter, command and control room, simulator training room, classroom, maintenance area, POL storage area, graded area for parking, concrete or asphalt pad, clear area for GCSs, and clear area for UAS launch/recovery at East Arm.	Potential locations for this activity are constrained by site topography requirements for establishment of the runway and UAS launch/recovery area. A location in the northern portion of the Kofa East Arm is needed to provide an area for sensor testing that is remote from potential interfering electrical/communications signal transmissions. Multiple sites or layouts within the identified area in the upper portion of the Kofa East Arm may be suitable, but the activity is not yet designed sufficiently to allow site-specific analysis. Should this activity be selected, additional NEPA analysis, including other reasonable alternatives, would be required prior to its implementation.
K031	Construct lagoon for Kofa Sewage Lagoon Expansion	There are no reasonable alternatives to the proposed activity because the location is constrained by the requirement to support expansion of sewer infrastructure at the existing sewage treatment facility.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Graphic representation on maps may be larger or smaller than the project area.

It is possible that not all of the activities subjected to detailed analysis will be selected for implementation and it is possible that some selected projects would not be implemented due to changes in mission needs or technology.

There are three cantonment-type areas on YPG: YTC, MAA, and the Kofa cantonment area in the eastern part of the Laguna Region. These areas are already largely developed and contain limited additional developable land. Concentrating new buildings and facilities in these areas, which are somewhat disturbed from previous development, would result in less environmental impact than placing new buildings and facilities on undeveloped land outside of cantonment areas. There is no appreciable difference in direct environmental impacts based on location within these cantonment areas, unless a given location would require construction of additional parking areas. The planning process maximized the use of

developable land near existing parking to minimize the need for additional land disturbance. The planning process also evaluated operational efficiency to determine where facilities and structures would be placed. By grouping like activities and placing facilities in proximity to existing supporting infrastructure (such as tracked vehicle routes or the airfield) the environmental impacts of operation would be minimized.

2.6 Alternative to Implement a Subset of the Proposed Action

The U.S. Army has the option of selecting only certain of the proposed construction, testing, and training activities for implementation, and to re-evaluate options at a future time. Should a subset of Proposed Action components be selected for implementation, the subset would be clearly identified in the ROD.

2.7 Alternatives Eliminated from Further Consideration

This section provides a brief description of other alternatives that were not carried forward for detailed analysis in this FPEIS. The rationale for each alternative being eliminated from consideration is provided.

2.7.1 Discontinue Use of Yuma Proving Ground as a Military Proving Ground

YPG has not been identified for closure under any of the Base Closure and Realignment Acts, and closure would require congressional authorization. Closure of YPG also would not meet the need for the Proposed Action. Closure of YPG was not retained as an alternative for analysis in this FPEIS; however, should closure of YPG be recommended by the Army in the future, a separate and specific NEPA analysis would be prepared prior to any such action being undertaken.

2.7.2 Expand the Size of Yuma Proving Ground

There are no plans to expand the size of YPG and this action is not considered in this FPEIS. There is room within YPG to expand existing testing and training areas to meet anticipated needs.

2.7.3 Increase the Military Testing Mission to Encompass Nuclear, Biological, and Chemical Activities

Nuclear, biological, and chemical activities testing is not within the scope of the military mission of YPG and the addition of these types of testing was not considered in this FPEIS. Missions to address these activities are conducted at other DoD facilities.

2.7.4 Proceed with New Construction with No Increase in Testing and Training Capabilities

The activities described under the No Action Alternative would continue to be implemented, as identified in Appendix B. In addition, the construction and demolition proposed in this FPEIS would be done, as described in Tables 2-1 through 2-3. Under this alternative, no increases or changes in capacity for testing and training would be implemented. Testing and training capacity would remain at current levels, the same as under the No Action Alternative.

Many existing facilities on YPG are undersized for their current uses or are being used for purposes other than those for which the structures were designed. The construction and

demolition proposed would result in more efficient operations and enable YPG better to meet its mission requirements. This alternative would not allow the current programs on YPG to evolve to meet future needs that are beyond current testing and training levels.

This alternative was eliminated from further consideration because it would not allow the Army to test new technologies, which would result in an inability to adapt to new conditions and technologies encountered in the theater of combat. This alternative also would not fulfill the purpose of the project, as YPG would be unable to test military ground and aerial vehicle systems, weapons, ammunition, sensors, and guidance systems that are developed in the future. In addition, this alternative would not meet the need for the project to ensure the readiness of U.S. forces and materiel to meet the demands of hot, arid environment theaters around the world, as new challenges could not be met.

2.7.5 Proceed with Increased Testing and Training Capabilities with No New Construction or Demolition

Under this alternative, the current activities described under the No Action Alternative would continue to be implemented, as identified in Appendix B. Testing and training capacity also would be increased as described under the Proposed Action and in Tables 2-1 through 2-6. The construction and demolition proposed in this FPEIS, as described in Tables 2-1 through 2-6, would not be conducted. All future training and testing would be done within existing facilities and munitions impact areas.

Under this alternative, YPG would be able to accommodate fluctuations in testing and training to address changing conditions and technologies, but this would require continued use of facilities and infrastructure that are undersized, that are over-utilized, or that lack appropriate support infrastructure to efficiently meet testing or training requirements.

This alternative was eliminated from further consideration because the inefficiencies that would result from increased testing and training under conditions that are already inadequate would impair the military mission. This alternative would not fulfill the purpose of the project, as YPG would be inadequate for proper testing of military ground and aerial vehicle systems, weapons, ammunition, sensors, and guidance systems. This alternative also would not meet the need for the project to ensure the readiness of U.S. forces and materiel to meet the demands of hot, arid environment theaters around the world, as new challenges could not be met.

2.7.6 Relocate Certain Activities to Other Installations

Under this alternative, some of the proposed activities would be relocated to other military installations, while others would be implemented on YPG. The current activities described under the No Action Alternative would continue to be implemented, as identified in Appendix B. Some of the proposed changes to testing and training described under the Proposed Action and in Tables 2-1 through 2-6 would be implemented at YPG, while other activities would be implemented on other installations. Under this alternative, YPG would be able to increase testing and training to address some of the changing conditions and technologies, but certain aspects of the installation mission would be relocated to other military installations.

This alternative was eliminated from further consideration because relocation of certain mission components to other installations would require a greater commitment of resources to establish new testing or training facilities at the gaining installation, or would relocate some testing and training activities to installations less suited for providing realistic hot and

arid conditions. This alternative would result in mission changes at YPG and at any receiving installations, which have not been authorized. Changing the mission of YPG to relocate certain testing and training activities would not fulfill the purpose of the project. This alternative also would not meet the need for the project to ensure the readiness of U.S. forces and materiel to meet the demands of hot, arid environment theaters around the world.

2.8 Comparison of Environmental Consequences of the Proposed Action and Alternatives

Impacts of the alternatives considered in this FPEIS are summarized in Table 2-10.

TABLE 2-10
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
Air Quality	No change from existing conditions. Benefits from reduced use of portable generators would not occur.	Minor impacts from increased emissions due to operation of minor permanent sources of air emissions created by proposed construction activities, operation of new facilities, vehicle operation to travel to new facilities, and testing and training activities in new locations. Temporary negative impacts due to fugitive dust from construction. Negligible short-term impacts to local air quality as a result of emissions from construction equipment. Minor beneficial impacts from installation of hard power and telecommunications lines with associated reduction in the use of portable generators for testing and training.
Airspace Management	No change from existing conditions.	No change from existing conditions.
Cultural Resources	Potential impact from inadvertent discovery of cultural resources during testing or training activities at current approved locations and levels. Potential for damage to cultural resources from vandalism. As appropriate, surveys, State Historic Preservation Office (SHPO) consultation under the NHPA, and mitigation would be implemented	Potential impact from inadvertent discovery of cultural resources during ongoing activities. Potential impacts to cultural resources in areas not previously surveyed. As appropriate, surveys, SHPO consultation under the NHPA, and mitigation would be implemented. Potential for minor to moderate impacts from construction and training activities and from increased potential for inadvertent discovery due to increase in area where activities would be implemented. Potential for damage to cultural resources from vandalism.
Energy/Utilities	Portable generators would continue to be used at current levels and locations. Continued use of utilities at current levels where demand fluctuates depending on annual testing and training needs. Continued use of bottled water and individual reverse osmosis (RO) systems outside of MAA.	**Energy/Electricity** Beneficial impacts from construction of more energy-efficient buildings. Energy demand would fluctuate depending on annual testing and training needs, with potential for minor to moderate impacts to energy use in the region in years of high levels of testing and training. Minor beneficial impacts from use of solar-powered lights. Moderate long-term beneficial

TABLE 2-10
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
	Satellite uplinks powered by portable generators would continue to be used for telecommunications. Benefits from reduced use of portable generators would not occur.	impacts to regional energy consumption from installing hard power to locations currently using portable generators. Minor beneficial impacts to air quality from reduced emissions and to hazardous materials management from reduced transport and handling of fuels following installation of hard power to testing and training locations with associated reduction in generator use.
	No change from existing conditions for solid waste. No significant increase in non-hazardous waste is anticipated to occur. No significant impacts to the non-hazardous waste landfill capacity would be anticipated. Potential for conflicts in scheduling multiple users with needs to conduct testing in areas free of electromagnetic interference from cellular/radio towers.	**Water** No impacts to groundwater as no change in groundwater use is projected. Minor indirect temporary impacts to surface waters during construction. **Wastewater** New evaporative lagoon at CDH and new sewage lagoon at Kofa cantonment area would have minor beneficial impacts on wastewater utilities. **Telecommunications** Minor beneficial impacts to air quality from reduced emissions and to hazardous materials management from reduced transport and handling of fuels following installation of hard power to testing and training locations with associated reduction in use of generators and satellite uplinks. Greater flexibility in scheduling users needing test areas free of electromagnetic interference. **Solid Waste** No significant increase in non-hazardous waste is anticipated to occur. No significant impacts to the non-hazardous waste landfill capacity or regional construction and demolition landfills are anticipated.
Environmental Justice and Protection of Children	No change from existing conditions.	No changes from existing conditions and no impacts.
Fire Management	No change from existing conditions. The potential for wildfires would continue and fire management activities would continue. Fire management from new EOC in the Laguna Region would not occur. YPG will implement the Terms and Conditions specified in the September 9, 2014 Biological Opinion (BO) from USFWS that pertain to fire management in the Kofa Region.	Minor increase in potential for wildfires due to increased testing and training locations. Minor to moderate potential for increased fuel load from growth of exotic invasive plant species. New EOC in the Laguna Region would benefit fire management. YPG will implement the Terms and Conditions specified in the September 9, 2014 BO from USFWS that pertain to fire management in the Kofa Region.
Geological Resources	No change from existing conditions.	No change from existing conditions and no impacts.

TABLE 2-10
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
Hazardous Materials/ Hazardous Waste	No change from existing conditions. No changes in volumes of hazardous materials used or hazardous wastes generated. Potential for leaks from on-road and off-road vehicle use and maintenance, POL spills, and chemical decomposition of munitions constituents of concern (MCOCs) would remain. YPG will continue to conduct regular range assessments to determine the potential for migration of MCOCs. YPG would implement appropriate measures should off-range migration that could affect human health or the environment be indicated.	Impacts and sampling described for the No Action Alternative would occur, plus additional potential for minor impacts from leaks associated with vehicle use and maintenance, POL spills, and chemical decomposition of MCOCs as a result of increased testing and training in new and expanded testing areas. Activities would comply with the best management practices (BMPs) identified in the Spill Prevention, Control, and Countermeasures Plan (SPCCP) and Installation Spill Contingency Plan (ISCP). Minor short-term increase in hazardous waste generation due to demolition of buildings containing asbestos-containing materials (ACMs). Potential for minor impacts from increased use and disposal of certain hazardous materials during testing and training activities in new areas. Potential for impacts from installation of air conditioning components. Minor beneficial effects from construction of appropriate down-range facilities to store and contain POLs and reduce the potential for spills. Minor beneficial effects from installation of hard power and telecommunications to testing and training sites that would reduce use of portable generators and also reduce the transport of fuel.
Land Use	No change from existing conditions.	Minor changes from conversion of open space to other uses, but consistent with military land uses. The slight changes in the noise zones that may result from large artillery testing would not require any changes to the land uses designated in the Yuma County 2020 Comprehensive Plan.
Noise	No change from existing conditions. Continued sporadic impacts to wildlife from noise during testing and training activities. Continued potential for complaints from the Martinez Lake area.	Any slight changes in the noise zones that may result from large artillery testing would not affect use of surrounding lands outside the installation boundary. Minor long-term impact on wildlife from disturbance from sporadic noise from activities in new or expanded testing and training areas. Minor temporary impact to wildlife from noise due to construction activities. Potential for minor disturbance of outdoor conversations due to construction noise. No permanent sensitive human receptors in proximity to construction areas.
Recreation	No change from existing conditions. No new recreation facilities would be constructed.	No impacts to off-post recreational opportunities. Potential for minor to moderate impacts to recreational hunting in the Cibola Hunting Area, Martinez Hunting Area, and the East Arm Hunting Area due to expanded testing and training areas. Beneficial impacts to other on-post recreation from construction of new park, youth center addition, and improvements to other passive recreational

TABLE 2-10
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
		opportunities. Loss of greenspace in MAA that is used by residents for passive recreation from Cox Field improvements. Potential disruption of some on-post recreation during construction.
Safety	No change from existing conditions. Safety benefits that would result from the Proposed Action would not occur. Potential for recreational users in southern portion of Kofa NWR in YPG Airspace R-2307 to be within safety fans for operations and at risk.	Potential for minor increase in safety incidents due to implementing activities in the new or expanded testing and training areas, but the rate of incidents (expressed per worker hour) would not be expected to change. Minor potential increase in frequency of wildfire ignition due to implementing activities in new or expanded testing and training areas. Potential for minor short-term impacts to construction worker safety. Potential minor temporary impacts to traffic safety due to construction-related traffic. Moderate benefits to operational safety due to AT/FP improvements, MEDEVAC helicopter pads, flood upgrades on Aberdeen Road, pedestrian safety from D Street conversion to walkway, and installation of shading at multiple locations. Minor benefit to personnel safety from installation of hard power and telecommunications in the Cibola and Kofa Regions due to decreased transportation of fuel and portable generators. Minor benefit to personnel safety due to reduced heat stress following installation of new shade structures. Minor benefit to safety from placing overhead wires underground. Moderate benefit from relocating safe haven away from YPG personnel. Potential for recreational users in southern portion of Kofa NWR in YPG Airspace R-2307 to be within safety fans for operations and at risk.
Socioeconomics	No change from existing conditions. Short-term benefits to local economy from construction would not occur.	Minor short-term beneficial impacts to local economy from purchase of building materials, short-term construction jobs, and secondary spending by construction workers. Potential for negligible to minor impacts on local fuel and water retailers from reduction in demand for these services on YPG.
Soils	No change from existing conditions. Continued impacts to soils from testing and training activities at authorized locations and levels.	Impacts described for the No Action Alternative would continue, but with increased potential for impacts due to new or expanded testing and training areas. Increase in disturbed area and disturbance to soils used for dismounted maneuver training, munitions impact areas, DZs, and UAS launch/recovery areas resulting in moderate impacts to highly erodible soils that are disturbed and negligible to

TABLE 2-10
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
		minor impacts to disturbed soils that are classified as not highly erodible to moderately erodible. Minor impact from establishment of TGPs in the Cibola Region. Long-term indirect impact from degradation of munitions into soils in munitions impact areas. Disturbance due to construction resulting in negligible to minor impacts to soils that are not highly erodible to moderately erodible and moderate impacts to highly erodible soils. Minor impacts from disturbance to soils during installation of utilities.
Threatened and Endangered Species and Species of Concern	No change from existing conditions. Potential for minor impacts to threatened, endangered, or sensitive (TES) species, as testing and training activities continue at existing locations and levels. YPG implements those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with the military mission and will consult with USFWS on projects in desert tortoise area should the species be listed. YPG will consult or conference with USFWS, as appropriate, for impacts that may affect Sonoran pronghorn.	**Transient or Incidental Species** Negligible to minor impacts likely from displacement during construction, testing, or training activities. **Sonoran Desert Tortoise** Long-term moderate impacts from loss of habitat and potential for incidental mortality. YPG implements those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with the military mission and will consult with USFWS on projects in desert tortoise area should the species be listed. **Sonoran Pronghorn** Long-term minor impacts from visual and auditory disturbance to the experimental population due to testing and training activities. Potential threat to individual pronghorn from munitions testing or UXO. Potential alteration of foraging habitat in the event of wildfire. YPG will consult or conference with USFWS, as appropriate, for impacts that may affect Sonoran pronghorn. **Banded Gila Monster** Minor long-term impacts from loss of habitat and disturbance from construction, testing, and training activities. **TES Bat Species** Negligible to minor long-term impacts due to loss of foraging habitat. **Loggerhead Shrike** Moderate long-term impacts from loss of habitat and disturbance caused by construction, testing, and training activities. **Western Burrowing Owl** Moderate long-term impacts due to loss of habitat and disturbance from construction, testing, and training activities. **Parish's Onion** Negligible to minor long-term impacts from incidental mortality and due to the slow growth rate of these species.

TABLE 2-10
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
		Other TES Plants Minor long-term impacts from clearing of vegetation for construction, testing, and training purposes. **Wild Horses and Burros** Minor temporary impacts due to construction activities. Minor long-term impacts due to displacement and loss of habitat from establishment and use of new or expanded testing and training areas. No impacts to other species.
Traffic/ Transportation	No change from existing conditions. No new impacts would occur.	Potential increase in temporary road closures and construction-related traffic. Minor short-term impact. Long-term beneficial impacts from improved traffic safety due to flood upgrades, intersection improvements, and range road improvements. Long-term benefits to mission from increased efficiency of military air activities due to new infrastructure.
Vegetation	No change from existing conditions. Continued impacts to vegetation from testing and training activities at current locations and levels.	Minor to moderate impacts due to removal of vegetation for construction, creation of new or expanded testing and training areas, and use of new impact areas.
Visual Resources	No change from existing conditions. Current testing and training activities would continue to have negligible to minor impacts to visual resources.	Temporary minor impacts from construction-related airborne dust. Recurring temporary minor impacts from dust and other obscurants caused by testing and training. Potential long-term minor impacts from increased use of lighter-than-air UASs. Potential minor long-term impacts from appearance of new buildings.
Water Resources	Continued impacts from contaminants and water consumption due to testing and training activities at current locations and levels.	Potential temporary minor adverse impacts to water quality resulting from sediment runoff during construction and an increase in impervious surfaces following construction, reduced with use of appropriate BMPs Minor to moderate increased potential for impacts to groundwater from degradation of munitions. Minor potential for offsite impacts due to transport of contaminants and sediments generated from stormwater runoff on new or expanded testing and training areas. Potential negligible reduction in groundwater recharge rates due to new impervious area.
Wildlife and Fisheries	No change from existing conditions. Minor impacts to wildlife would continue under current levels of testing and training activities at current locations.	Minor short-term impact from incidental mortality, displacement, and disturbance due to construction. Potential for minor to moderate long-term impacts from incidental mortality, displacement, and disturbance due to creation and use of new or expanded testing and training areas.

TABLE 2-10
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
		Minor to moderate long-term indirect impacts from loss of habitat due to construction, UAS launch/recovery areas, utilities, and TGPs and only minor impacts from disturbance of habitat due to use of DZs.

2.9 Mitigation Measures and Monitoring Procedures

Table 2-11 summarizes the proposed mitigation measures for resource areas with the potential for significant impacts from the Proposed Action. Avoidance of resources would be considered as the primary mitigation measure, but it would not be practicable to avoid all resources for all proposed activities. The table shows potential mitigation measures, including implementation of BMPs, in the event avoidance is not practicable.

TABLE 2-11
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
Air Quality	Yes, for activities in non-attainment area	Implement BMPs during construction to reduce fugitive dust emissions. Yuma would revise the Title V permit as needed to align with Arizona Department of Environmental Quality (ADEQ) regulations and Title V permit monitoring, recordkeeping, and reporting requirements.	3.2.2.4
Airspace Management	No	Continue coordination with MCAS Yuma and private/commercial air traffic controllers.	3.3.2.3
Cultural Resources	Yes	Implement Integrated Cultural Resources Management Plan (ICRMP) procedures; avoid or protect significant sites; monitor protection measures; implement data recovery; coordinate/consult with SHPO and Native American tribes, as appropriate, and implement any required mitigation from SHPO consultation. Environmental Awareness Training for persons working in areas where paleobotanical resources occur.	3.4.8
Energy/Utilities	No	Incorporate energy-efficient design into new buildings. Use solar lights where practicable. Recycle/reuse to the extent practicable. Install hard power to additional locations to reduce reliance on diesel-powered generators at testing and training locations. Recycle and reuse to the extent practicable.	3.5.2.4
Environmental Justice and Protection of Children	No	None	3.6.2.3

TABLE 2-11
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
Fire Management	Yes	Develop and implement a program to monitor invasive plants; continue to implement Integrated Training Area Management (ITAM); coordinate with BLM, Kofa NWR, and U.S. Forest Service (USFS) on fire management; develop and interpret wildfire data with other agencies. Use Geographic Information System (GIS) fire risk model to identify areas of high fire risk and incorporate into range operations as practicable. Implement Terms and Conditions 1a, 2a, 2b, and 3a from the USFWS BO of September 9, 2014.	3.7.2.4
Geological Resources	No	None	3.8.2.3
Hazardous Materials/ Hazardous Waste	Yes	Continue management of hazardous materials; consult with state and federal agencies; manage and dispose of hazardous materials and wastes in compliance with applicable laws, regulations, and guidance; follow standard protective measures and procedures. Update, as necessary and implement SPCCP and ISCP. Require non-ozone-depleting chemicals as refrigerants in new air conditioning systems. Continue to conduct regular range assessments to determine the potential for migration of MCOCs and implement appropriate measures to protect human health.	3.9.2.4
Land Use	Yes	Continue coordination with local plans to avoid incompatibilities, as appropriate.	3.10.2.4
Noise	Yes	Require construction workers to use appropriate hearing protection. Maintain aircraft operations in compliance with established Installation Compatible Use Zones (ICUZs). Locate noise-generating activities away from sensitive noise receptors and use natural barriers where practicable. Conduct noise-intensive activities during favorable weather conditions where practicable. Use lower noise products where practicable. Continue noise complaint management procedure and implement fly-neighborly programs. Adjust timing of disruptive activities and inform the public of unusual increases in intensity of testing and training.	3.11.2.4
Recreation	No	None	3.12.2.4

TABLE 2-11
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
Safety	Yes	Minimize potential risks and exposure; require contractors to follow Occupational Safety and Health Administration (OSHA) standards; comply with YPG safety program and specific safety protocols for testing and training activities. Use GIS fire risk model to identify areas of high fire risk and incorporate into range operations as practicable. Verify there are no people in the portion of Safety Danger Zones (SDZs) extending into the Kofa NWR, primarily by visual or electronic means. Helicopters will be used to locate people only where large portions of an SDZ overlap Kofa NWR, primarily in R-2307.	3.13.2.4
Socioeconomics	No	None	3.14.2.4
Soils	Yes	Avoid highly erodible soils; minimize soil disturbance to the extent practicable; implement construction BMPs and stormwater controls; continue to implement ITAM program and Integrated Natural Resources Management Plan (INRMP).	3.15.2.5
Threatened or Endangered Species and Species of Concern	Yes	Avoid known sensitive habitats during siting process. Avoid impacts to water sources; schedule construction projects to avoid or minimize conflicts with reproduction; avoid implementing activities in areas where sensitive species occur to the extent practicable; relocate or deter species to minimize impacts if necessary; implement INRMP procedures. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible. YPG implements those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with the military mission. Should the Sonoran desert tortoise be listed under the Endangered Species Act (ESA), activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted prior to any land-disturbing activities. YPG will notify USFWS and AGFD if Sonoran pronghorn are observed on YPG that are injured, sick, or dead YPG will consult or conference with USFWS, as appropriate, for impacts that may affect Sonoran pronghorn. YPG will implement the following additional conservation measures: • Implement the 2014 Final Incident Response Protocol for Sonoran Pronghorn.	3.16.2.4

TABLE 2-11
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
		• Avoid placing activities in proximity to artificial water sources (suitable for Sonoran pronghorn) to the extent that such action is consistent with the military mission. • Adhere to the terms of the Memorandum of Understanding (MOU) between the Kofa NWR, Imperial NWR, BLM, and YPG, which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands.	
Traffic/Transportation	Yes	Implement traffic control procedures as appropriate; minimize construction activities during peak traffic periods on YPG.	3.17.2.3
Vegetation	Yes	Develop and implement a program to monitor invasive plants; continue to implement ITAM and INRMP; implement appropriate construction BMPs and stormwater controls. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible.	3.18.2.4
Visual Resources	Yes	Apply appropriate dust suppression practices; design buildings to blend with existing structures; continue implementation of the Environmental Awareness program.	3.19.2.4
Water Resources	Yes	Develop and implement Construction Stormwater Pollution Prevention Plans (SWPPPs) to reduce potential for environmental exposure to pollutants in stormwater. Implement appropriate construction BMPs and stormwater controls; design to maximize use of pervious and semi-pervious surfaces; continue to implement INRMP; implement any mitigation required in Section 404 permits obtained.	3.20.2.4
Wildlife and Fisheries	Yes	Avoid wildlife concentration areas and sensitive habitats (e.g. water sources); schedule construction projects to avoid or minimize conflicts with reproduction; continue to implement INRMP. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible.	3.21.2.4

Notes: Information provided is summarized from the analysis for each resource area in Section 3.
Mitigation measures identified would be implemented, as appropriate, for each specific activity undertaken.
Only those measures appropriate for a given action would be implemented.

2.10 Preferred Alternative

The U.S. Army has given consideration to input from government agencies and tribal organizations and has determined that the Preferred Alternative is to implement the selected components of the Proposed Action. Specifically, the Preferred Alternative would include the following:

- Implement proposed activity L030b, the smaller of the two considered LTAs, rather than proposed activity L030a.
- Implement Option 1 for proposed activity L031.
- Implement Option 1 for proposed activity L034.
- Implement a reduced area for proposed activity C034-a, reducing the area of the expanded Graze Range munitions impact area and avoiding potential impacts to a known resource.
- Implement a reduced area for proposed activity K003, establishing the northern boundary of the expanded munitions impact area even with the northern boundary of the Ramsdell Ranch Advanced Munitions Range (1,000 meters [m] south of the boundary of Kofa NWR) and setting the western boundary of the expanded munitions impact area parallel to and 500 m east of the boundary of Kofa NWR.
- Implement proposed activity K024 rather than proposed activity C066.
- Implement a reduced area for proposed activity K026 (1,826 ac less than originally proposed), establishing the northern boundary of the LTA even with the northern boundary of the Ramsdell Ranch Advanced Munitions Range (1,000 m south of the boundary of Kofa NWR).
- Implement the remainder of the Proposed Action, as proposed.

The components of the Preferred Alternative that would be implemented in the Laguna Region are depicted on Figure 2-16.The components of the Preferred Alternative that would be implemented in the Cibola Region are depicted on Figure 2-17. The components of the Preferred Alternative that would be implemented in the Kofa Region are depicted on Figure 2-18.

SECTION 3

Affected Environment and Environmental Consequences

3.1 Introduction

This section provides descriptions of the affected environment for the valued environmental components (VECs) analyzed in this FPEIS and presents the environmental consequences of the actions carried forward for detailed analysis. The description of each VEC addresses its baseline, or current, condition and identifies the factors that resulted in this condition. This FPEIS identifies important past human actions and natural events that have contributed to the condition of each VEC analyzed in detail.

3.1.1 Presentation of VECs

VECs are the resources, ecosystems, and human communities of concern that could be affected by the Proposed Action. The Army reviewed the VECs and ranked them based on their relative potential to be affected by the Proposed Action (see Section 1.3.3). Based on this ranking, VECs were grouped into one of three categories:

- Primary VEC (high potential for impact)
- Secondary VEC (moderate potential for impact)
- Low VEC (low potential for impact)

Table 3-1 identifies the category to which each VEC was assigned and the EIS section where each is discussed.

TABLE 3-1
Characterization of Valued Environmental Components
Yuma Proving Ground

VEC	Described In
Primary VECs (High Potential for Impact)	
Air Quality	Section 3.2
Cultural Resources	Section 3.4
Energy/Utilities	Section 3.5
Hazardous Materials/Hazardous Waste	Section 3.9
Land Use	Section 3.10
Noise	Section 3.11
Safety	Section 3.13
Soils	Section 3.15
Threatened and Endangered Species and Species of Concern	Section 3.16
Vegetation	Section 3.18

TABLE 3-1
Characterization of Valued Environmental Components
Yuma Proving Ground

VEC	Described In
Primary VECs (High Potential for Impact)	
Visual Resources	Section 3.19
Wildlife and Fisheries	Section 3.21
Secondary VECs (Moderate Potential for Impact)	
Recreation	Section 3.12
Socioeconomics	Section 3.14
Traffic/Transportation	Section 3.17
Water Resources	Section 3.20
Low VECs (Low Potential for Impact)	
Airspace Management	Section 3.3
Environmental Justice and Protection of Children	Section 3.6
Fire Management	Section 3.7
Geological Resources	Section 3.8

Subsistence resources are not considered a VEC at YPG. No persons use YPG for subsistence resources; therefore, subsistence resources are not discussed in this FPEIS.

3.1.2 Framework for Impact Analysis

This section describes the approach to impact assessment and the determination of environmental consequences for the No Action Alternative and the Action Alternatives. As appropriate, the analysis of impacts builds on existing environmental documentation supporting testing and training activities on YPG (see Section 2.3.2).

3.1.2.1 Alternatives

For each resource area, qualitative and/or quantitative analysis of the environmental and socioeconomic consequences of implementing the No Action Alternative or the considered alternatives to the Proposed Action are presented. The alternatives analyzed in this FPEIS were described in Section 2 and are summarized below.

No Action Alternative. The testing and training activities of the No Action Alternative are current and ongoing activities on YPG. Under the No Action Alternative, testing and training would continue at the current levels. No test areas, training areas, munitions impact areas, or DZs would be created or expanded and no construction or demolition would occur. See Tables B-1 through B-3 in Appendix B for a listing of the No Action activities in each region.

Proposed Action/Preferred Alternative. The Proposed Action includes all the components of the No Action Alternative plus the new construction and associated demolition, new or expanded testing, and expanded training proposed in this FPEIS, all components occurring on YPG, and new testing and training proposed to meet anticipated testing or training

needs. Where there are feasible alternatives for activities under the Proposed Action, the impacts of each alternative are addressed. See Tables 2-1 through 2-6 in Section 2 for a listing of activities included in the Proposed Action and Tables 2-7 through 2-9 for a discussion of reasonable alternatives to activities analyzed in detail. The discussion in the following sections addresses the anticipated impacts of implementing the Proposed Action/Preferred Alternative. The discussion of impacts addresses the areas where the Preferred Alternative would include selection of a portion of the Proposed Action. Refer to Tables 2-1, 2-3, and 2-5 and to Appendix C for the project-specific impacts of projects analyzed in detail. Where there is no specific discussion of the Preferred Alternative, there is no discernable difference in the impacts that would result under either the Proposed Action or the Preferred Alternative.

3.1.2.2 Context and Intensity

Context and intensity were considered in determining the significance of potential impacts (40 CFR Section 1508.27). Context is the location of the action and the areal extent of potential impacts. For site-specific infrastructure improvement projects, the locations for routine test and training types and support activities may be more general or may be at a specific site or sites (for example, large-caliber weapons can be fired from multiple firing points throughout KFR). The areal extents of potential impacts for each resource typically vary.

The intensity of a potential impact refers to its severity and takes into account beneficial and adverse impacts; public health and safety effects; unique geographical characteristics; the level of controversy associated with impacts on the human environment; whether the action establishes a precedent for further actions with significant effects; the level of uncertainty about projected impacts; whether the action is related to other actions that are individually insignificant but cumulatively significant; effects upon scientific, cultural, or historical resources, or sites or objects listed in the National Register of Historic Places; effects upon any species listed under the Endangered Species Act; and the extent to which the action threatens to violate Federal, state, or local environmental protection laws or constrain future activities. Intensities that are classified as "none" to "moderate" are considered less than significant in this analysis. Significant adverse impacts are those categorized as "severe." Potential beneficial impacts are discussed separately from potential adverse impacts. The following categories were used to classify impacts to resources:

- None: No measurable impacts are expected to occur.
- Negligible: Barely perceptible adverse impacts are expected.
- Minor: Short-term but measurable adverse impacts are expected. Impacts may have slight impact on the resource.
- Moderate: Noticeable adverse impacts would have a measurable effect on a resource and are not short-term.
- Severe: Adverse impacts would be obvious, both short-term and long-term, and would have serious consequences on a resource. These impacts would be considered significant.
- Beneficial: Impacts would benefit the resource/issue.

3.1.2.3 Presentation of Analysis

For each resource, the significance criteria are presented, followed by a discussion of the potential direct, indirect, and cumulative impacts for the No Action Alternative and the considered alternatives for the Proposed Action/Preferred Alternative. Section 3.1.3 provides the basis for the cumulative effects analysis. Measures to avoid or minimize the potential for impacts to a resource area are identified. Section 3.22 provides a summary of impacts and mitigation.

The level of analysis for each VEC is commensurate with the potential for significant adverse impacts, with primary VECs receiving the greatest level of detail in the analysis.

Quick Look Questions prepared to support cumulative effects analysis for the VECs also were used to support the relative VEC ranking presented in Table 3-1. An explanation of how to use the Quick Look Questions is found in Section 3.1.3.2. The answers to the Quick Look Questions for each VEC are provided in Appendix D. The Army would implement procedures and management practices to avoid, minimize, and mitigate impacts to VECs, as appropriate, and these measures are discussed as they apply to each resource area.

3.1.3 Cumulative Effects Analysis

This section describes the approach used to analyze potential cumulative impacts associated with the Proposed Action/Preferred Alternative in the context of potential interactions with other past, present, and reasonably foreseeable actions in the region. The CEQ regulations implementing NEPA (40 CFR 1508.7) define a "cumulative impact" for purposes of NEPA as follows:

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative impacts would occur if incremental impacts of the Proposed Action, added to the environmental impacts of past, present, and reasonably foreseeable similar actions, would result in an adverse effect to resources in the region. Actions that have the potential to combine with incremental effects of the Proposed Action to result in cumulative impacts are those that are similar to the Proposed Action or could affect environmental resources similar to those affected by the alternatives considered, are located in geographic proximity to YPG, and have occurred, are ongoing, or are reasonably foreseeable. Reasonably foreseeable actions include those that have an application for operations pending before an agency with permit authority and would occur in the same timeframe as the Proposed Action and alternatives.

The analysis of cumulative impacts in this FPEIS follows CEQ and Army guidance (CEQ, 1997; USAEC, 2007), and provides a systematic approach for assessing cumulative impacts.

3.1.3.1 Other Past, Present, and Reasonably Foreseeable Future Actions

Because off-post testing is independent of on-post testing, creates only minor impacts of limited extent, and is spatially separated from YPG, no interaction effects with testing or training activities on YPG beyond incremental additions to regional air emissions would result. The off-post locations are not considered in the cumulative impacts except for air quality.

The potential for other past, present, and reasonably foreseeable future actions to interact with the Proposed Action/Preferred Alternative to create cumulative effects varies among the different resource areas. Considered projects are discussed for each resource area with a potential for cumulative impacts. Resource areas that would not be impacted by the Proposed Action/Preferred Alternative and would have no potential for cumulative effects are identified as such and no project list is provided for these resource areas.

YPG is considering the development of a solar renewable energy resource on the installation to increase YPG's energy security and meet federal mandates and legislative requirements to increase production and consumption of renewable energy resources. Any solar renewable energy resource project would be done through an EUL with a private company. Solar technologies under consideration by the Army include solar PV, dish-engine system based on the Dish Stirling, and dry-cooled concentrating solar thermal technologies. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). An EUL for solar power generation is not a component of the Proposed Action, and a separate, specific NEPA analysis would be conducted for any such project that would be developed. The potential for cumulative impacts from development and operation of such a facility was considered in the assessment of potential cumulative impacts in this analysis, based on what was known at the time this document was prepared. Should design specifications become better defined prior to the decision on this action being made and if those design changes would result in changes to the analysis of cumulative impacts provided herein, this document will be revised prior to the decision document being signed.

The Quartzsite Solar Energy Project is proposed approximately 10 miles north of Quartzsite, Arizona in La Paz County. Implementation of this project, which is scheduled to be in operation in 2015, would construct, operate, maintain, and decommission a 100-MW solar thermal generation power plant using dry-cooling technology with a 1.5-mile generator tie-line, switchyard, and access road. An EIS was prepared and a ROD for this project was signed in May 2013 (U.S. Department of Energy and BLM, 2013). This solar energy project is not a component of the Proposed Action, but the potential for cumulative impacts from development of this project was considered in the assessment of potential cumulative impacts in this analysis.

There are five proposed or recently operational solar projects within approximately 10 miles of YPG that would be implemented on BLM lands. The Paloma project and the Aqua-Caliente solar project are adjacent projects that have been recently constructed and are operational to the east of YPG. The LaPosa Solar Terminal is proposed as a 2,000 MW concentrated solar power trough that would be along U.S. Highway 95 (US 95) between the Cibola Region and the Kofa NWR in the vicinity of Stone Cabin. The Nextlight Quartzsite project would be a 500-MW concentrated solar power trough located south of Quartzsite. The Wildcat Quartzsite project is proposed as an 800-MW concentrated solar power tower facility that would be along US 95 between the Cibola Region and the Kofa NWR. These solar projects are not components of the Proposed Action, but the potential for cumulative impacts from development of these projects was considered in the assessment of potential cumulative impacts in this analysis.

3.1.3.2 Approach for Assessing Cumulative Effects

To determine whether specific VECs would have the potential for cumulative effects with other past, present, and reasonably foreseeable future actions and be included in the cumulative impact assessment, the FPEIS analysis followed the CEQ/Army 11-step process to assess potential cumulative effects:

- Step 1. Identify significant cumulative issues associated with the Proposed Action
- Step 2. Establish geographic scope for analysis for each VEC
- Step 3. Establish a timeframe for the analysis for each VEC
- Step 4. Identify other actions affecting VECs
- Step 5. Characterize the sensitivity of VECs
- Step 6. Characterize the stresses on the VECs
- Step 7. Define a baseline condition for the VECs
- Step 8. Identify cause-effect relationships between included activities and VECs
- Step 9. Determine magnitude and significance of cumulative effects for each VEC
- Step 10. Modify actions to minimize significant cumulative effects
- Step 11. Monitor cumulative effects during project implementation

The Army uses three levels of analysis to accomplish these steps and evaluate VECs for cumulative impacts. The foundation of this methodology is the Quick Look Questions (USAEC, 2007). Quick Look Questions, which were adapted to suit the environment of the Lower Colorado River Valley Subregion of the Sonoran Desert (Colorado Desert), were used to determine the need to address the direct and indirect effects of the Proposed Action on each VEC, as well as to assess the potential for cumulative impacts. The Quick Look Questions help screen VECs by answering resource-specific questions identified through the NEPA process related to scoping concerns raised, affected environment, and environmental consequences. Depending on the outcome of the Quick Look analysis, each VEC is assigned to one of three levels of cumulative impact analysis:

- No further analysis is needed if the answers to the Quick Look Questions show significant impacts are not likely.
- Analysis and discussion are required if the Quick Look Questions cannot be easily answered.
- Detailed analysis is required if potentially significant impacts could occur.

The Quick Look Questions and answers are provided in Appendix D.

3.1.4 Irreversible or Irretrievable Commitment of Resources

Irreversible or irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of those resources would have on future generations. These effects primarily result from the use or destruction of a specific resource (e.g. energy from hydrocarbons) that cannot be replaced within a reasonable timeframe. Irreversible or irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored after implementing a Proposed Action (e.g. extinction of a species).

Construction, demolition, paving, vegetation clearing, and use of new or expanded testing and training areas would consume electricity, hydrocarbon fuels, and water. Construction and paving would use construction materials, such as concrete and steel. Construction and paving materials

would be recycled to the extent practicable; however, some irreversible or irretrievable resource loss would result. The hydrocarbon-based energy required to conduct these activities or to procure the finished materials would be permanently lost.

Land and natural resources (e.g. flora and fauna) would be used by the Army for construction, testing, and training activities. The loss of desert vegetation and wildlife habitat from proposed activities could be reversed, but the time required would be great for some species and habitats. Mature saguaro cactus (*Carnegia gigantea*), for example, could not be replaced for three to four generations of visitors. Clearing of desert vegetation would result in an irretrievable commitment for near-term future generations, but not an irreversible or irretrievable commitment when considered from a long-term perspective. These areas could be revegetated and restored once military use of the land is no longer needed.

Creation of new or expanded munitions impact areas could result in an irretrievable commitment of these areas for use as test areas. Without the removal of potential UXO, these areas would be precluded from future use.

Loss of cultural resources would represent an irretrievable action, but any such losses that may result from implementation of the Proposed Action would be appropriately mitigated through consultation with SHPO, interested tribes, and other consulting parties.

3.1.5 Short-term Uses of the Environment and Maintenance and Enhancement of Long-term Productivity

Short-term uses associated with the Proposed Action would result in minor adverse impacts to certain resources. Increased soil erosion could result from soil disturbance from construction and paving activities. Washes and off-post waterways could experience increased scour and sedimentation from stormwater runoff. Air quality could be affected by increased dust and vehicle emissions from construction activities and use of new or expanded testing and training areas. Construction and testing/training could also generate increased noise. There would be a short-term beneficial socioeconomic impact associated with jobs and purchase of materials during the construction period. During testing and training, wildlife could be displaced on a short-term basis until the activity, such as drop testing in a DZ, is completed.

Sustainability of the YPG mission would be promoted through measures that would be incorporated into the Proposed Action:

- Implementation of design features, BMPs, and standard construction practices
- Adherence to existing management plans and programs
- Compliance with federal, State, and local regulations

With increased UAS activity, short-term uses of YPG airspace would become more frequent and intensive, but coordination with MCAS Yuma and other users would ensure that airspace remains productive for all users. The long-term productivity of YPG land and airspace would not be affected by the Proposed Action.

3.2 Air Quality

3.2.1 Existing Conditions

3.2.1.1 Ambient Air Quality

Air quality is determined by the concentration of various pollutants in the atmosphere. The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. USEPA has established NAAQS for six criteria pollutants: SO_2, nitrogen dioxide (NO_2), particulate matter (which includes inhalable particulate matter less than or equal to 10 micrometers in diameter [PM_{10}] and inhalable particulate matter less than or equal to 2.5 micrometers in diameter [$PM_{2.5}$]), CO, ozone (O_3), and lead (Pb). Primary NAAQS are intended to protect public health, while secondary NAAQS are intended to protect the environment (crops, wildlife, and buildings). Individual states may establish more stringent standards. The State of Arizona has adopted the Federal NAAQS. The Primary and Secondary NAAQS for the six criteria pollutants are presented in Table 3-2.

Areas where ambient concentrations of a given pollutant are below the levels established in the NAAQS are designated as being in attainment for that pollutant. Areas that do not comply with the NAAQS for a given pollutant are classified as a non-attainment area for that pollutant. Non-attainment areas are regulated in an effort to lower pollutant ambient concentrations to regulatory standards.

TABLE 3-2
NAAQS for Criteria Pollutants
Yuma Proving Ground

Pollutant	Primary Standards [a]	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour[b]	None
	35 ppm (40 mg/m^3)	1-hour[b]	None
Lead	0.15 µg/m^3	Rolling 3-Month Average	Same as Primary
NO_2	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Average)	Same as Primary
	100 ppb	1-hour[c]	None
PM_{10}	150 µg/m^3	24-hour[d]	Same as Primary
$PM_{2.5}$	12.0 µg/m^3	Annual [e] (Arithmetic Average)	15.0 µg/m^3
	35 µg/m^3	24-hour[f]	Same as Primary
Ozone	0.075 ppm	8-hour[g]	Same as Primary
SO_2	0.03 ppm	Annual (Arithmetic Mean)	
	0.14 ppm	24-hour[b]	
		3-hour[b]	0.5 ppm (1300 µg/m^3)
	75 ppb	1-hour	None

TABLE 3-2
NAAQS for Criteria Pollutants
Yuma Proving Ground

Pollutant	Primary Standards [a]	Averaging Times	Secondary Standards

[a] ppm = parts per million, µg/m^3 = micrograms per cubic meter, ppb = parts per billion

[b] Not to be exceeded more than once per year.

[c] 3-year average of the 98th percentile of daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb

[d] Not to be exceeded more than once per year over 3 years.

[e] 3-year average weighted annual mean $PM_{2.5}$ concentration from single or multiple community-oriented monitors must not exceed 12.0 µg/m^3 (primary), 15.0 µg/m^3 (secondary).

[f] 3-year average of the 98th percentile of 24-hour concentration at each population-oriented monitor must not exceed 35 µg/m^3.

[g] 3-year average of the fourth-highest daily maximum 8-hour average ozone concentration measured at each monitor within an area over each year must not exceed 0.075 ppm.

Source: USEPA, 2012

A portion of Yuma County is designated as non-attainment (moderate) for the 24-hour NAAQS for PM_{10}. This non-attainment area includes the southwestern corner of the Laguna Region (Figure 3-1). A request for redesignation to attainment status and a Maintenance Plan were submitted to USEPA on August 16, 2006 (ADEQ, 2006). At this time, the USEPA has not approved the ADEQ Yuma PM_{10} Maintenance Plan (Yuma Metropolitan Planning Organization [YMPO], 2013) and the area remains classified as non-attainment. Data from 2008 through 2010 show that no exceedances of the PM_{10} standard occurred that were not the result of exceptional natural events. The data from 2008 through 2010 indicate that the entire county has moved into attainment with the 24-hour PM_{10} standard (ADEQ, 2011a). The Arizona State Implementation Plan includes statewide Reasonably Available Control Measures (RACMs), as specified in Arizona Administrative Code (AAC) Title 18, Chapter 2, Sections R18-2-604 through R18-2-607 and R18-2-804. RACMs are applicable across all of YPG, not just in the non-attainment area. The RACMs specified at R18-2-804 apply to construction equipment operated at YPG.

3.2.1.2 Affected Environment

The proposed activities discussed in Section 2.4 would be implemented in Yuma County. With the exception of twelve proposed activities in the southwestern corner of the Laguna Region, all of the proposed activities would be implemented in an attainment area for all criteria pollutants. All or portions of twelve proposed activities in the southwestern corner of the Laguna Region would be within the Yuma County moderate PM_{10} non-attainment area. The area is currently in attainment for the other criteria pollutants.

Regulations for the implementation of construction permitting programs are mandated under Title I of the CAA, and regulations for the implementation of operating permit programs are mandated under Title V of the CAA. ADEQ has combined these programs and requires that a facility with emissions obtain a construction/operating permit for all existing stationary sources of air emissions and any future stationary sources of air emissions. YPG currently has a Title V permit (Permit # 43492) dated June 17, 2010. YPG is classified as a major source with potential emissions of NO_x, CO, and volatile organic compounds (VOCs), each exceeding 100 tons per year (tpy). PM_{10} emissions are

less than 100 tpy. Additionally, YPG is an area source of hazardous air pollutants (HAPs) with emissions of a single HAP and facility-wide totals less than 10 tpy and 25 tpy, respectively.

Air emissions tracked on the installation consist of criteria air pollutants, VOCs, HAPs, and ozone-depleting chemicals (ODCs) (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). YPG is required to submit an annual air emissions inventory to ADEQ. Data from the YPG 2012 air emissions inventory are provided in Table 3-3 and are compared to Yuma County's total emissions for 2008 (the most recent year for which county data are available). YPG's point source emissions account for a very small fraction of Yuma County's total emissions.

TABLE 3-3
Comparison of Yuma Proving Ground Air Emissions to Yuma County Air Emissions [a]
Yuma Proving Ground

	Yuma County [b]	Yuma Proving Ground	
Pollutant	**Total (tpy)**	**Point Source (tpy)[c]**	**% of Total**
PM_{10}	12,661	19.50	0.15
CO	34,765	5.73	0.02
VOC	8,203	17.57	0.21
NO_X	6,782	13.06	0.19
SO_2	184	0.03	0.02

[a] Data in this table are from the most recent available data (2008 and 2012).
[b] Source: USEPA, 2013. (The data are from 2008, which is the most recent data available).
[c] Source: Yuma Proving Ground 2012 Annual Air Emission Inventory. (Obregon, 2013a, personal communication)

3.2.1.3 Climate Change and Greenhouse Gases

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period of decades or longer. Climate change may result from any of the following conditions (USEPA, 2010):

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun
- Natural processes within the climate system (e.g. changes in ocean circulation)
- Human activities that change atmospheric composition (such as through burning fossil fuels [natural gas, oil products, and coal]) and that change the land surface (such as deforestation, reforestation, urbanization, and desertification)

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs). Some GHGs, such as carbon dioxide (CO_2) occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHGs (such as fluorinated gases) are derived exclusively from human activities. GHGs may contribute to accelerated climate change by altering the thermodynamic properties of the Earth's atmosphere.

Water vapor (H_2O) is the most abundant and dominant GHG. H_2O varies from 0 to 2 percent in the atmosphere with great spatial variability at any given time because it has a

short life-span. H_2O and other short-lived GHGs, such as CO, tropospheric O_3, and O_3 precursors, are not quantified for their climate change potential (USEPA, 2011a).

GHGs with long life-spans are quantified for their climate change potential, expressed as CO_2 equivalents (CO_2e). These long-lived GHGs include the following pollutants (USEPA, 2010, 2011b):

- CO_2 is a naturally occurring gas produced by natural fires, geothermal events, and aerobic respiration. CO_2 also is a by-product of fossil fuel and biomass combustion and other industrial processes. It is the principal anthropogenic GHG that affects the Earth's radiative balance. CO_2 also may be removed from the atmosphere as part of the biological carbon cycle when it is converted into plant tissue through photosynthesis.
- Methane (CH_4) is a naturally occurring gas with a climate change potential approximately 20 times that of CO_2 with regard to climatic warming. CH_4 is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.
- Nitrous oxide (N_2O) is a naturally occurring gas with a climate change potential approximately 300 times that of CO_2 with regard to climatic warming. Major sources of N_2O include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.
- Fluorinated gases (hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]) are man-made compounds containing a mix of hydrogen, fluorine, chlorine, and carbon (HFCs) or just fluorine and carbon (PFCs). HFCs were introduced as a replacement for chlorofluorocarbons, which had been identified as ODCs. The climate change potential of HFCs ranges from approximately 100 to 10,000 times that of CO_2. PFCs also are used as replacements for chlorofluorocarbons in addition to use in manufacturing facilities, where they may be emitted as by-products of processes. PFCs are powerful GHGs, with a climate change potential approximately 5,000 to 10,000 times that of CO_2. SF_6 is a colorless gas and a very powerful GHG, with a climate change potential more than 20,000 times that of CO_2. SF_6 is used primarily in electrical transmission and distribution systems, as well as in dielectrics in electronics. Fluorinated gases typically are emitted in smaller quantities than other GHGs.

The Supreme Court decision in *Massachusetts v. EPA*, 549 U.S. 497 (2007), held that the USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the CAA. Thereafter, on April 17, 2009, the USEPA issued a proposed finding that CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 contribute to air pollution that may endanger public health and welfare. On December 29, 2009, the USEPA's Greenhouse Gas Mandatory Reporting Rule, 40 CFR Part 98, became effective. Under that rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of CO_2e must submit annual reports to USEPA. YPG's GHG emissions are currently below the mandatory reporting threshold of 25,000 metric tons per year (Obregon, 2013a, personal communication).

Electricity use and transportation are the principal GHG emissions sources in AZ, accounting for nearly 80 percent of the annual gross GHG emissions through combustion of fossil fuels. The remaining use of fossil fuels in the residential, commercial, and industrial

sectors contributes 11 percent of annual GHG emissions. Agricultural activities result in CH_4 and NO_2 emissions that account for another 5 percent of annual GHG emissions, as do industrial process emissions. Industrial process emissions are increasing rapidly due to the increasing use of HFCs as substitutes for ozone-depleting chlorofluorocarbons and the use of PFCs in semiconductor manufacture, as well as from CO_2 released during cement and lime production, and CH_4 released by natural gas and coal mine production. Landfills and wastewater management facilities produce CH_4 and NO_2 emissions that account for 2 percent of annual GHG emissions. GHG emissions from landfills have declined in recent years as landfill gas is increasingly captured for energy purposes. Executive Order (EO) 2010-06, the Governor's Policy on Climate Change, recognizes the importance of reducing GHG emissions while maintaining economic growth and competitiveness in the State of Arizona. EO 2010-06 supports Arizona's continued collaboration in regional and national endeavors to advance clean energy and implement cost-effective solutions to climate change (Climate Change Advisory Group, 2006). Additionally, EO 13514 (Federal Leadership in Environmental, Energy, and Economic Performance dated 8 October 2009), established an integrated strategy toward sustainability in the Federal Government and makes reduction of GHG a priority for federal agencies. EO 13514 was revoked by EO 13693, *Planning for Federal Sustainability in the Next Decade.* The new EO requires similar sustainability planning. Each agency must appoint a Chief Sustainability Officer who will, among other things, ensure that agency policies, plans, and strategies are implemented to achieve the goals of the order. Each agency must also have an annual integrated Strategic Sustainability Performance Plan.

3.2.2 Environmental Consequences

This section discusses direct, indirect, and cumulative impacts to air quality that could result from the No Action Alternative and the Proposed Action. The types of impacts considered in this air quality impact analysis include the following:

- Fugitive dust can result from disturbed soils during construction activities and from testing and training activities, particularly driving on unpaved roads or driving off-road.
- Temporary combustion emissions result from temporary sources of air pollution and GHG emissions during construction of infrastructure improvement projects or use of portable generators to supply electrical power to test and training sites.
- Vehicle emissions are sources of air pollution from incomplete combustion of fossil fuels and also contribute GHGs to the atmosphere.
- Non-vehicle emissions include air pollution and GHGs that derive from combustion of fossil fuels for heating, power generation, or any other non-vehicle sources.
- Beneficial impacts from the Proposed Action. Proposed Action would include a decrease in fossil fuel consumption or a decrease in human-caused fugitive dust.

3.2.2.1 Significance Criteria

The significance criteria that were used to determine potential impacts to air quality were:

- Negligible (less than significant) – Activities that would result in changes to local or regional air quality that are barely perceptible.
- Minor to Moderate (less than significant) – Activities that would result in measurable changes to local or regional air quality that are below regulatory thresholds.

- Minor to Moderate (less than significant) — Activities that would result in increased fossil fuel consumption.
- Severe (significant) — Activities that would result in an exceedance of stationary source emissions greater than major permit modification thresholds for new sources or in exceedance of other regulatory thresholds.
- Beneficial — Activities that would result in a reduction of fossil fuel consumption.

3.2.2.2 Impacts of the No Action Alternative

No emissions due to construction or construction-related traffic would occur. There would be no change in emissions generated on YPG. No impacts to air quality would occur.

YPG and the surrounding area tend to develop air inversion layers overnight from cooling of still air, and these inversion layers dissipate after sunrise due to thermal mixing of the atmosphere. Because inversions can trap air pollutants close to the ground, the YPG burn permit limits open burning to daylight hours to avoid periods of atmospheric inversion. Most vehicle, equipment, and weapons testing also is conducted during daylight hours to minimize potential interactions with inversion layers.

There would be no benefit from reduction of emissions from reduced use of portable generators, as no hard power would be installed to testing and training locations.

3.2.2.3 Impacts of the Proposed Action/Preferred Alternative

The proposed activities would cause minor, short-term adverse impacts on air quality due to construction. These impacts would not be expected to occur past the construction phase. All construction emissions would likely be local, limited to the duration of the construction, and would not have a lasting impact on ambient air quality.

There would be yearly fluctuations in the frequency, intensity, or duration of training events (as discussed in Sections 2.1.2 and 2.3.3.8), but these fluctuations would be within the maximum and minimum levels observed historically. More areas on YPG would be available for training activities, but there would be no change in emissions, relative to historical activities, generated by training activities.

The potential emissions from the 12 proposed activities that would be implemented in the PM_{10} non-attainment area and other proposed activities that would be implemented near the non-attainment area were analyzed. Results indicate that the proposed activities in the non-attainment area would not exceed the conformity threshold for PM_{10} (Table 3-4, see Appendix E for the detailed analysis).

TABLE 3-4
Proposed Activities in the Yuma County PM10 Non-attainment Area
Yuma Proving Ground

Identifier	Proposed Activities
L002	Construct Runway 18/36 extension, realign Barranca Road, and install hard power at LAAF.
L009	Construct warehouse at YTC.
L010	Construct Instrumentation Development Facility at YTC.
L011	Construct tracked vehicle trail and office at YTC.

TABLE 3-4
Proposed Activities in the Yuma County PM10 Non-attainment Area
Yuma Proving Ground

Identifier	Proposed Activities
L029	Construct optical maintenance facility, graded parking area with power pole farm, and perimeter fencing centered at YTC.
L031	Construct MFFS DFAC.
L032	Expand Bravo LTA.
L034	Construct MFFS Ready Room.
L037	Construct vehicle test course and establish LTA.
L040 [a]	Construct DZ near LAAF (984-ft x 1,969-ft)
L102 [a]	Construct new MFFS Terminal, consolidated rigger facility, CASA Transport aircraft hangar, UAV airfield and hangars, taxiways, UAS flight test area, and other supporting infrastructure at LAAF/MAA.
L106	Construct 4 administrative support buildings and Installations Logistics Complex at YTC.

[a] LAAF is not within the non-attainment area; activities are included due to uncertainty regarding the specific locations.

This analysis was conservative in that (1) it assumed all proposed activities in the non-attainment area would be concurrent, although the construction would actually be implemented over a period of years, and (2) it included two proposed activities in proximity to but outside of the non-attainment area. The analysis also included annual emissions from operation following construction, which indicated that testing on the new vehicle test course (L037) would not exceed the conformity threshold. A Record of Non-Applicability has been prepared certifying that "All activities associated with the Proposed Action in the non-attainment area would be below the conformity threshold value for PM_{10}" (Appendix E).

The analysis to support the Record of Non-Applicability also was used as a surrogate to estimate impacts from other proposed land-disturbing activities as well as operational emissions. Specific analysis of other proposed projects was not done because no single project would result in emissions that would exceed regulatory limits.

During construction, air quality impacts could occur from dust carried offsite and combustion emissions from construction equipment. The primary risks from blowing dust particles are to human health and human nuisance values. Fugitive dust can contribute to respiratory health problems and create an uncomfortable work environment. Deposition on surfaces can be a nuisance to those living or working nearby. YPG would implement RACMs to minimize fugitive dust generation. Airborne dust in the Sonoran Desert can carry fungal spores that can cause valley fever. The potential for the Proposed Action to contribute to valley fever outbreaks is discussed in Section 3.13.

Many of the soils at YPG are susceptible to wind erosion and could produce fugitive dust and particulates when disturbed. Disturbance could occur during construction and testing or training activities.

The twelve proposed activities in the PM_{10} non-attainment are addressed in Appendix E. It should be noted that the proposed activities in the non-attainment area would be below the conformity threshold value for PM_{10} during both the construction and operating phases.

YPG would encourage use of BMPs during construction to reduce or eliminate fugitive dust emissions. In areas with disturbed and unstable highly erodible soils, BMPs would also be applied when practicable during military operations. BMPs that could be implemented include the following:

- *Application of Dust Suppressants.* Where appropriate, dust suppressants or liquid surfactants would be applied to areas where dust could be disturbed by construction or traffic.
- *Sprinkling/Irrigation*. Sprinkling the ground surface with water until it is moist can be used to control dust on haul roads and other traffic routes. This practice can be applied to almost any site. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways, which ultimately could increase the dust problem. Mechanical removal of mud from tires would be implemented if necessary.
- *Vegetative Cover*. In areas not expected to accommodate vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetation provides coverage to surface soils and decreases wind velocity at the ground surface, thus reducing the potential for dust to become airborne.
- *Mulch*. Mulching can be a quick and effective means of dust control for recently disturbed areas.

YPG would continue to conduct open burning during daylight hours, in compliance with the burn permit. Additionally, construction activities implemented under the Proposed Action would occur during daytime and most testing and training conducted at the facilities established under the Proposed Action would be scheduled to occur in daytime unless specific night testing or training is required for an activity. As a result, most activity on YPG would not pose a threat to interact with atmospheric inversion to create additional air quality issues.

No substantial changes to air quality from baseline conditions would be likely with implementation of the Proposed Action. Fugitive dust would increase in the immediate area during construction, but impacts would be temporary and minor. Dust abatement measures discussed above would limit the direct and secondary creation of dust.

Emissions would be generated by engine exhaust from construction workers' personal vehicles and off-road construction equipment, including earth-moving equipment, cranes, and trucks. The emissions would primarily consist of NO_X, SO_2, PM, CO, and VOCs, which are typical of the emissions commonly observed at construction sites, and would not extend past the construction period. The construction associated with the proposed activities would be spread through time and the emissions associated with each individual proposed activity would similar in magnitude to or less than those from construction of a small shopping area. Because of the separation in time and space, any short-term impacts to local air quality would be negligible. Measures such as the use of clean diesel and implementation of anti-

idling measures for construction equipment would be implemented when practicable to further reduce emissions.

Land clearing to establish new DZs and expand/create runways could increase the potential for generation of dust. As with vehicle emissions, land clearing activities would be separated in time and space and individual clearing activities would be of short duration, typically less than 1 week. Construction BMPs would be implemented to minimize the potential for dust generation and sites would be stabilized (disturbed areas typically covered with ABC).

Aircraft operations may increase under the Proposed Action in years when testing and training levels are high and there would likely be a trend to use larger UAS. Either of these could result in an increase of aircraft emissions during testing and training. UAS aircraft tested vary from under 1 lb to 15,000 lb, and include lighter-than-air UAS as well as traditional fixed-wing, rotary-wing, and vertical take-off and landing UAS. Energy sources include batteries, solar cells, heavy fuel, aviation gasoline, and combination systems. Battery and solar cell-powered UAS would not have testing emissions, and combination fuel system UAS testing would produce fewer emissions than traditional fuel UAS testing. Lighter-than-air UAS testing would produce fewer emissions than testing UAS that require powered flight. UAS testing occurs throughout the year and, with the construction of the proposed new UAS launch/recovery areas, individual tests would be spread over a wider area, resulting in reduced localized emissions. UAS testing is not conducted in the non-attainment area. Any increases in emissions related to UAS testing would be minor to moderate and would not contribute to the status of the non-attainment area or cause other regulatory exceedances.

Existing use of the sandblasting facility is authorized in the Title V permit, but increased use of the facility would require modification of the YPG Title V air permit. In addition, the Title V permit requires monitoring, recordkeeping, and reporting for the sandblast facility expansion, for the new POL storage facilities, and for construction activities.

Construction and operation of an East Kofa Operations Center (K025a and (b) would include a small building complex, perimeter fencing, vehicle maintenance area, storage areas, tactical vehicle wash rack, 40-ton crane, and utility infrastructure. Construction-related fugitive dust would be generated. During operations, engine emissions associated with personnel traveling to and from work and operation of facilities would result in minor increases in vehicle emissions across the lower portion of the Kofa Region. The amount of emissions would be small and any impacts to air quality in the Kofa Region would be negligible to minor.

Construction of Project K030 in the northern portion of the East Arm would include approximately 26 ac of disturbance. Construction-related fugitive dust would be generated. During operations, facility operation and engine emissions associated with personnel traveling to and from work would produce minor emissions in an area with no current source of exhaust emissions. The amount of emissions would be small and any impacts to air quality in the northern portion of the Kofa Region would be negligible to minor.

Minor permanent sources of air emissions would be created by the proposed activities, including building heating units and water heaters; however, these small sources would result in no more than a *de minimis* impact on air quality. If necessary, YPG would revise its

permit to include the new emission sources. Yuma would continue to procure materials and services consistent with the policies outlined in EO 13693, *Planning for Federal Sustainability in the Next Decade* [1] and EO 2010-06, the Arizona Governor's Policy on Climate Change.

GHG emissions are more than 3,000 metric tons below the annual reporting threshold and are expected to remain below this threshold under the Proposed Action.

Most air quality impacts would be minor and temporary. There would be long-term incremental additions of dust from use of new or expanded testing and training areas as a result of vehicle operation, munitions firing, and other activities. The BMPs described above would be implemented to minimize dust generation, as appropriate. There would be slight increases to the baseline levels of dust generated by testing and training activities as fluctuations in use occur, but the activities would occur over a larger area, with the development of new testing and training areas potentially resulting in reduction of dust generation at any one location. There also would be minor long-term increases in combustion engine emissions as vehicle use fluctuates, but these also would be spread over a larger area and, as noted above, would not be expected to result in exceedances of air quality standards. Any contribution to cumulative impacts would be expected to be minor.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Fugitive dust generated by construction of such a facility could interact with other projects to produce temporary, localized, negative cumulative impacts to air quality. It is likely that any such project would result in long-term beneficial impacts to air quality through reduced fossil fuel emissions associated with other electrical generation methods; however, the use of fossil fuels to produce demineralized water to wash mirrors and to transport that water to the facility would partially offset any benefits.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. The Quartzsite Solar Energy Project would remain below all major source thresholds and any contribution to cumulative impacts would be expected to be minor.

Construction, operation, and maintenance of the five BLM solar projects could contribute to cumulative impacts to air quality during construction as a result of emissions from operation of construction equipment and personal vehicles and from the generation of fugitive dust. It is expected that BLM will require that construction contractors implement appropriate BMPs and equipment maintenance procedures to minimize this potential. Once operational, these facilities could contribute to beneficial impacts to regional air quality through a reduction in use of fossil fuels to generate electricity.

3.2.2.4 Mitigation

In addition to the BMPs listed above, YPG would implement the following measures during construction to reduce or eliminate fugitive dust emissions:

[1] The EO revoked EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management and EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, both of which were referred to in the Draft EIS.*

- Cover haul trucks to prevent materials from becoming airborne.
- Sweep Paved Areas on a regular basis during construction activities.
- Implement use of clean diesel fuel when practicable
- Implementation of anti-idling measures for construction equipment used by contractors when practicable

3.3 Airspace Management

3.3.1 Existing Conditions

There is restricted military airspace over most of YPG. This restricted military airspace also extends over most of the Kofa NWR (Figure 2-3; Table 3-5). The majority of YPG restricted airspace is used for test missions; however, the U.S. Department of Homeland Security operates a Special Use Airspace (R-2309), which restricts military mission access as well as commercial use. Outside of the Department of Homeland Security Special Use Airspace, the

TABLE 3-5
Restricted Airspace
Yuma Proving Ground

Airspace Area [a]	Description
R-2306A	Covers the southern part of the Cibola Region from the surface to 80,000 ft
R-2306B	North of R-2306A in the Cibola Region, from the surface to 80,000 ft
R-2306C	West of R-2306B in the Cibola Region, from the surface to 40,000 ft
R-2306D	North of R-2306B in the Cibola Region, from the surface to 23,000 ft
R-2306E	South of R-2306A in the Cibola and Laguna Regions, from the surface to 80,000 ft
R-2307	Laguna and Kofa Regions east of US 95 and north of Pole Line Road, from the surface to unlimited. Also includes the southern portion of the Kofa NWR
R-2308A	Kofa NWR from 1,500 ft above ground level (AGL) to 80,000 ft
R-2308B	West of R-2308A in East Arm, from the surface to 80,000 ft
R-2308C	North of R-2308A in Kofa NWR from 1,500 ft AGL to 23,000 ft
R-2309	Department of Homeland Security Special Use Airspace. 1.5-mile radius from the surface to 15,000 ft, north of CDH
R-2311	Eastern Kofa Region south of Pole Line Road from the surface to 3,500 ft
R-2306-F	Proposed at Laguna Airfield from the surface to 3,500 ft

[a] Airspace areas are shown on Figure 2-3

restricted airspace on YPG is prioritized for testing and training conducted at the installation. YPG restricted airspace allows testing of UASs and weapons systems, such as mortars and rockets, without risk to non-military aircraft. Secondary priority for use of this restricted airspace is for other military users.

MCAS Yuma schedules airspace in the greater Yuma region and manages the restricted airspace over YPG at its Yuma Range, upon release of the airspace by YPG. This arrangement allows flight training opportunities for all services in Arizona, California, and

elsewhere. Private or commercial flights may use YPG restricted airspace during periods of non-use by YPG or other military users, with proper clearance.

3.3.2 Environmental Consequences

Because there would be no potential for impacts to this resource area, the discussion of impacts is abbreviated and significance criteria and proposed mitigation are not provided.

3.3.2.1 Impacts of the No Action Alternative

Under the No Action Alternative, there would be no change to airspace management, beyond those previously analyzed under NEPA. As a result, there would be no potential for direct or indirect negative impacts to airspace management. Non-military use (civilian, commercial, and other federal agencies) would be coordinated through MCAS Yuma to avoid conflicts with the priority remaining military use. No significant cumulative impacts would be expected.

3.3.2.2 Impacts of the Proposed Action/Preferred Alternative

No changes to airspace management, beyond those previously analyzed under NEPA, would occur under the Proposed Action. There would be no potential for direct or indirect impacts to airspace management. Non-military use would be coordinated through MCAS Yuma to avoid conflicts with the priority remaining military use. No significant cumulative impacts would be expected.

3.3.2.3 Mitigation

Because no impacts to airspace management would occur, no mitigation measures are proposed for this resource.

3.4 Cultural Resources

Activities that would be implemented under the Proposed Action that could impact cultural resources include construction and demolition of facilities and infrastructure, as well as changes to current types, levels, and locations of testing and training. This FPEIS addresses the following categories of activities: near-term, well-defined activities at known locations; near-term, well-defined activities at non-specific locations; and less well-defined activities that would occur later in time. Due to the large size of YPG and the possible volume of activities, the Army is adopting a programmatic approach to this analysis to comply with NEPA and Section 106 of the NHPA, and is establishing the framework for future analysis, if required.

3.4.1 Regulatory Setting

YPG manages cultural resources through its ICRMP (YPG, 2012a). The ICRMP sets forth the specific goals, policies, and procedures to identify potential historic properties, assess them for eligibility for listing in the National Register of Historic Places (NRHP), nominate them for listing in the NRHP as appropriate, and manage them. Information on the identification and evaluation of historic properties at YPG in this section comes from the ICRMP. Cultural resources on Federal property are regulated by several laws, regulations, and EOs that require consideration of cultural resources in Federal planning, decision-making, and project execution. These include:

- NHPA, as amended

- Protection of Historic Properties; 36 CFR Part 800, as amended
- NRHP; 36 CFR Part 60
- National Historic Landmarks Program; 36 CFR Part 65
- National Natural Landmarks Program; 36 CFR Part 62
- NEPA
- Historic Sites Act
- Archeological and Historic Preservation Act
- Archaeological Resources Protection Act, as amended
- Protection of Archaeological Resources; 43 CFR Part 7
- Curation of Federally Owned and Administered Archaeological Collections; 36 CFR Part 79
- Native American Graves Protection and Repatriation Act
- American Indian Religious Freedom Act
- Eagle Permits, Permits for Indian Religious Purposes; 50 CFR Part 22.22
- EO 11593, Protection and Enhancement of the Cultural Environment
- EO 13007, Indian Sacred Sites
- Memorandum for Heads of Executive Departments and Agencies, 29 April 1994: Government-to-Government Relations with Native American Tribal Governments
- Memorandum for Heads of Executive Departments and Agencies, 29 April 1994: Policy Concerning Distribution of Eagle Feathers for Native American Religious Purposes
- AR 200-1, Environmental Protection and Enhancement, 13 December 2007
- AR 210-20, Real Property Master Planning for Army Installations, 16 June 2005
- AR 405-80, Management of Title and Granting Use of Real Property, 10 October 1997
- AR 405-90, Disposal of Real Estate, 10 May 1985
- AR 415-15, Army Military Construction and Nonappropriated-Funded Construction Program Development and Execution, 12 June 2006

In addition, there are Program Comments issued by the Advisory Council on Historic Preservation (ACHP) that apply to YPG. Due to the large number of DoD buildings that are 50 years of age or will soon reach that threshold, the ACHP issued several Program Comments that address NHPA compliance for World War II and Cold War Era properties. These Program Comments address Cold War Era (1946-1974) Unaccompanied Personnel Housing, World War II and Cold War (1939-1974) Ammunition Storage Facilities, and World War II and Cold War (1939-1974) Army Ammunition Production Facilities and Plants. Actions covered by the Program Comments include ongoing operations, maintenance, and repair; rehabilitation; renovation; mothballing; cessation of maintenance, new construction or demolition; deconstruction and salvage; remediation activities; and

transfer, sale, lease, and closure of such facilities. Installations have no further requirements to identify, evaluate, treat, mitigate, or consult with the SHPO regarding these facilities, and installations may proceed with actions affecting these properties without further NHPA Section 106 compliance.

Additional ACHP Program Comments that apply to YPG are the Program Comments for all Capehart and Wherry Era (1949-62) Housing, Associated Structures, and Landscape Features. The Program Comments provide NHPA compliance for maintenance and repair; rehabilitation; layaway and mothballing; renovation; demolition; and transfer, sale, or lease from Federal ownership for all Capehart and Wherry Era housing. Installations with Capehart and Wherry Era housing, such as YPG, have to consider the Neighborhood Design Guidelines that are part of the Program Comments when conducting actions that will affect Capehart-Wherry housing and to document that consideration appropriately.

3.4.2 NHPA Section 106 Consultation

YPG consulted with the Arizona SHPO, the ACHP, and interested tribes and developed a Programmatic Agreement (PA; see Appendix F) to address cultural resource issues that arise during normal operations at YPG, as well as those from proposed projects. This PA was completed in November 2014 and defines the process for evaluating potential historic properties that could be affected by activities, including establishing areas that require no additional cultural resource surveys and methods for surveys in those areas that do require survey. The agreement provides a list of project types that have been determined to have no effects or no adverse effect to historic properties and thus require no or limited consultation to implement; and describes the consultation process necessary for those projects that may have adverse effects.

A Section 106 consultation meeting to present the PEIS concept to interested tribal governments was held on June 8, 2011. An initial scoping meeting for interested agencies and tribes was conducted on the afternoon of June 14, 2011, with initial public scoping meetings held later.

Since that time, YPG has been finalizing the projects and locations for the Proposed Action and working to identify reasonable alternatives that would meet mission requirements. Once the Proposed Action reached the draft development stage, Section 106 consultation continued. Letters were sent to the tribes, ACHP, and SHPO on April 24, 2012, to provide an update on project milestones and upcoming meetings. On June 27, 2012, letters inviting participation in the Section 106 process and notifying them of an upcoming consultation meeting were sent to the SHPO, ACHP, and tribes. The tribal letters also specifically sought input regarding their knowledge of properties of religious or cultural significance that could be impacted by implementation of the activities under the Proposed Action.

A Section 106 consultation meeting was held August 21-23, 2012. Sixteen representatives from 10 tribes attended in person, and the SHPO, ACHP, and the U.S. Army Corps of Engineers (USACE) attended via teleconference. The proposed projects and possible PA stipulations were discussed, as well as tribal interest in specific areas of YPG, overarching tribal concerns, and general timelines for the PEIS and PA. In the fall of 2012, YPG prepared the first draft of the PA, based on the previous consultation meetings and input from the ACHP, SHPO, and tribes. The first draft of the PA was distributed to ACHP, SHPO, USACE, and the tribes in early 2013, and comments were received on this draft over the next few months. The draft PA was revised to incorporate and address these comments, as appropriate.

Another consultation meeting, held on April 17, 2013, was attended by thirteen representatives from four tribes, and the ACHP and USACE attended via teleconference. The primary focus of this meeting was to review the important points of the PA, including some of the comments that had been received, and to discuss slight revisions to the proposed project list. Additional comments from the tribes were solicited on both the PA and the proposed projects. The draft PA was then revised to address additional comments received. The fourth and final draft of the PA was sent to all consulting parties on March 24, 2014, and a notice of public availability for review was published in the *Yuma Sun* newspaper on March 23, 2014. The public comment period ran from March 25 through May 12, 2014. The PA allows YPG to fulfill its mission while respecting historic properties and other cultural resources significant to the tribes. A copy of the PA, signed on November 17, 2014, is provided in Appendix F and copies of correspondence with the SHPO, ACHP, and tribal governments are provided in Appendix A.

3.4.3 Existing Conditions

3.4.3.1 Prehistoric and Historic Setting

YPG is at the edge of an archaeological and historical region known as the North American Southwest Culture Area. This region is marked by contrasting and diverse landscapes and divergent cultural adaptations. Many of the historic and prehistoric groups inhabiting the Southwest Culture Area were largely dependent on farming. The use of agriculture was not uniform across the Southwest, and was often supplemented by hunting and gathering of wild resources (YPG, 2012a).

Archaeological evidence on YPG indicates that the area has experienced occupation by native peoples for the past 12,000 years and suggests that occupation consisted mostly of small family groups. Many of the archaeological sites are trails from the nearby Colorado and Gila rivers to hunting areas in the mountains and other areas. While native peoples may have inhabited some of the lands, the scarcity of water, the harsh climate, and the rugged landscape likely prevented more intensive occupation (YPG, 2012a). The local tribes had strong relationships with the land, and archaeological sites or other areas may have traditional religious or cultural importance.

Spanish explorers and missionaries traveled through or near the area beginning in the 1500s, but settlement and occupation did not begin in the area until 1850. Mining-related activities began at that time and intensified in the 1880s. Scattered gold and silver mining took place in the highlands, and farming was concentrated in the Gila and Colorado river valleys. Remnants of abandoned mines, placers, and prospects have been identified within the Dome Rock Mountains, Trigo Peaks, Chocolate Mountains, Middle Mountains, Laguna Mountains, Muggins Mountains, and Castle Dome Mountains (YPG, 2012a).

In 1942, the Army began to use the YPG area as part of a larger Desert Training Center and in 1943, the Yuma Test Branch began to operate along the banks of the Colorado River. Initially, the Army leased buildings in Yuma and conducted test work on bridge designs, boats, and well-drilling equipment near Laguna Dam. The Yuma Test Branch was officially closed in 1950 and all of the facilities were taken over by USACE. Most of the buildings and trailers associated with the Yuma Test Branch were dismantled and sold at public auction. In 1951, the installation was reactivated as the Yuma Test Station and was used for desert environment testing. In 1963, the installation was placed under the command of the Army Materiel Command (AMC) and re-designated as YPG (YPG, 2012a).

3.4.3.2 Cultural Resources

For the purposes of NEPA, cultural resources include historic properties as defined under Section 106 of the NHPA as well as other culturally significant properties. Cultural resources on YPG include prehistoric sites, historic mining sites, and historic military sites and structures. Previous surveys conducted on YPG are summarized in the ICRMP (YPG, 2012a). Historic building evaluations were conducted in 1983, 1999, 2009, and 2011. As a result of these inventories, no buildings or structures on YPG are considered eligible for listing in the NRHP. There are historic mining sites within YPG but no known town sites or other notable historic settlements from this period are within the YPG boundary. The potential historic significance and NRHP eligibility of historical mining locations within the YPG boundary has not been assessed (YPG, 2012a).

3.4.3.3 Archaeology

There are 1,909 identified archaeological sites at YPG (McDonald, 2014, personal communication). Most identified archaeological sites occur on terraces and ridges, followed by a number of sites at water sources and within wash areas (YPG, 2012a). Archaeological sites typically contain scatters of artifacts indicating use by Native Americans, or features such as rock rings or trail segments. Approximately 174,098 ac, approximately 21 percent of YPG, have been surveyed for cultural resources (McDonald, 2014, personal communication). Areas on YPG within the Kofa, Cibola, and Laguna Regions that have been surveyed for cultural resources include:

- Kofa Region—southern portion and just below the East Arm and specific locations within the East Arm
- Cibola Region—east of the Chocolate Mountains
- Laguna Region—most of the area except portions of the southeast and southwest corners

Large areas of YPG that are not used for physically intrusive activities have not been surveyed for cultural resources. Due to the large size of YPG, a predictive model for probability of prehistoric archaeological resources was prepared (Bullard et al., 2011). This model can be used to prioritize survey efforts not associated with a specific project so that locations with a higher probability of containing cultural resources have a higher priority for being surveyed.

Based on previous cultural resource surveys, several potential historic districts and thematically related areas at YPG are eligible for listing in the NRHP. These include:

- White Tanks Management Area in the northern part of the East Arm of the Kofa Region consists of 46 archaeological sites within a 2,069-ac area. All of the sites contribute to an archaeological district that has been determined eligible for listing in the NRHP.
- Camp Laguna in the Laguna Region consists of the remains of General Patton's IV Armored camp along Imperial Dam Road west of US 95. Remains of the camp are found in 21 separate components. Although a formal determination has not been made, YPG and SHPO consider Camp Laguna to be eligible for the NRHP as a district.
- The Direct Fire Range in the Kofa Region near the Muggins Mountains contains 54 sites in five distinct locations within a 5,652-ac area. Each of the five locations is considered an

eligible historic district, although formal determinations have not been made. The five historic districts are the Red Bluff Pediment District, Red Bluff Basin District, Muggins Basin District, Upper Basin District, and Gila Watershed District.

- The Ammunition Storage, Handling, and Testing Facilities contain 20 sites in four distinct patterns within a 2,223-ac area. Each of the four locations is considered an eligible historic district, although formal determinations have not been made. The four historic districts are the Castle Dome Plain District, Castle Dome Wash District, 9-Alpha North District, and 9-Alpha East District.
- The Extended Combat Systems Maneuver Area contains 161 sites within a 9,902-ac area in the south-central portion of YPG. All 161 sites were determined eligible for the NRHP as thematically-related property types under a multiple property designation.
- The Red Bluff Range Combat Systems Maneuver Area contains 96 sites within a 5,434-ac area in the south-central portion of YPG. All 96 sites were determined eligible for the NRHP as thematically-related property types under a multiple property designation.
- The Mohave Tanks, Mohave Wash, and Yuma Wash areas, all located in the Cibola Region, may contain resources of sufficient significance and integrity to be eligible for listing in the NRHP as historic districts (YPG, 2012a), and include:
  - Mohave Tanks
  - Mohave Wash
  - Yuma Wash

Built Environment

Currently, no buildings or structures at YPG are listed in the NRHP, and none are considered nor have been determined eligible for the NRHP except for a collection of 26 military residences. These buildings were previously determined eligible for the NRHP, but are covered by the Program Comment for Capehart-Wherry Army residences. The only compliance measure required for them is consideration of the Neighborhood Design Guidelines that are part of the Program Comments when conducting actions that will affect Capehart-Wherry housing, and to document that consideration appropriately. There are no projects proposed under this PEIS that would affect these residences.

Tribal Resources

The White Tanks Management Area is considered a Traditional Cultural Property (TCP) by affiliated Native American tribes, and it is likely that other notable site complexes, such as Mohave Tanks, would be considered TCPs. Although YPG has sponsored ethnographic studies for some of the area tribes, no TCPs have been formally identified on YPG (McDonald, 2011 personal communication). Due to the long-standing, rich, and varied Native American history associated with the installation area, it is highly likely that some recorded archaeological sites would also be considered TCPs, and that other TCPs are present in the area.

The YPG ICRMP identifies Native American tribes with an interest at YPG and includes recommendations and guidelines for the treatment of TCPs and sacred and ceremonial sites, as well as a delineated approach to the consultation process with the identified tribes. YPG has developed a consultation plan for Native American tribes with interests in the installation lands (Tierra Environmental Services, 2001). YPG has previously undertaken

consultation with the local tribes and has begun the process for this PEIS in accordance with this plan (see Section 3.4.2).

Paleobotanical Resources

Paleontological remains and deposits, which include paleobotanical resources, are considered objects of antiquity and are protected by the Antiquities Act of 1906, the Archaeological Resources Protection Act of 1979, and Chapter 6 of AR 200-1, "Cultural Resources." Paleobotanical resources on YPG consist of petrified wood and occur in varying abundance in the southwest corner of the Laguna Region, which is not accessible to the general public. Petrified wood occurs as fragments typically ranging in size from 10 to 16 inches and occasionally reaching 6.5 ft (DoD, 1998). The quantity of petrified wood in this area ranges from abundant to none. Remnants of plants that grew along the Colorado River during the Pliocene were deposited on YPG when the Colorado River left alluvial deposits containing petrified wood in the Laguna Region. There are also areas where paleobotanical resources may have been lost to disturbance (YPG, 2012a). Paleobotanical resources can provide information of past climate characteristics and historical vegetation makeup of the Yuma area and also could contribute to understanding of the tectonic history of the region. Paleontological resources are managed through the YPG ICRMP. YPG directs people to not disturb petrified wood, as it is illegal to remove these resources from YPG (YPG, 2012a).

3.4.4 Environmental Consequences

Development projects have the potential to disturb soil surfaces and alter viewsheds at YPG, which has the potential to impact cultural resources.

The following were evaluated to determine the potential impacts to cultural resources from the Proposed Action:

- Construction and demolition activities that could physically diminish or destroy NRHP eligible archaeological sites, or information contained therein.
- Activities such as road grading that could damage archaeological sites.
- Activities that could impact archaeological sites by introducing human interaction to remote areas.
- Activities that could impact the viewshed of a historic property by altering the feeling, setting, or association of the property or by altering the visual landscape associated with that property.
- Activities that could impact a sacred site or TCP by physically altering or diminishing it, or by disrupting the traditional use or religious activities associated with that site, or that would hinder the access of a particular group to an associated sacred site or TCP.

The impact analysis was based on the probability of disturbance to sites considered eligible for listing in the NRHP or to sites identified but not yet evaluated for eligibility for listing in the NRHP. Sites previously evaluated that were determined to be ineligible for listing in the NRHP were not considered in the analysis.

3.4.4.1 Significance Criteria

Any impact to cultural resources is potentially irreversible and any data lost could be irretrievable. The significance criteria that were used to determine potential impacts to cultural resources were:

- Minor to Moderate (less than significant)—Activities that affect known or unknown historic, prehistoric, or other cultural resources but do not alter their eligibility for listing in the NRHP.
- Minor to Moderate (less than significant)—Pedestrian activities that occur in areas known to contain paleobotanical resources.
- Severe (significant)—Activities that result in alteration of an NRHP eligible resource such that the resource would no longer be eligible for listing. Also, the loss of any NRHP eligible resource.
- Severe (significant)—Activities that include earthmoving in areas known to contain paleobotanical resources.
- Beneficial—Activities that preserve or enhance identified cultural resources.

3.4.4.2 Impacts of the No Action Alternative

Under the No Action Alternative, no change in current practices and activities at YPG would occur. There would be no new construction activities or expansion of maneuver and munitions impact areas. YPG would continue to follow the procedures stipulated in its ICRMP, which contains specific guidance for the inventory, evaluation, and management of culturally significant properties on the installation. Continued implementation of the ICRMP will ensure that the Army is compliant with applicable federal, state, and local laws regarding cultural resources. YPG will conduct Section 106 consultation as required under the NHPA regarding current projects, testing, and training activities that have the potential to affect historic properties. The Army is committed to participating in the Section 106 process, including implementation of any resulting mitigation measures.

Buried archaeological deposits may not be detected during the cultural resource survey process and may be inadvertently discovered during ground-disturbing activities. The potential for impacts to significant cultural resources identified through inadvertent discovery from current practices and activities at YPG would remain. Any inadvertent discoveries of cultural resources would be addressed through the inadvertent discovery process specified in the ICRMP. Implementation of inadvertent discovery procedures, as appropriate, would minimize the potential for impact to previously unknown cultural resources.

The YPG inadvertent discovery process requires that, in the event of discovery of previously unknown archaeological deposits, all activity would cease and the YPG Cultural Resources Manager be notified. The Cultural Resources Manager would inspect and test the archaeological deposits and determine the course of action based on the significance of the findings. The Arizona SHPO would be notified if the Cultural Resources Manager determined that the findings were of significance. Relocation of the proposed activity would be the preferred course of action if the findings are determined to be of significance. The Cultural Resources Manager would consult with the Arizona SHPO concerning documentation and mitigation if the activity cannot be relocated. The ground-disturbing activity would not resume until the inadvertent discovery process is completed (YPG, 2012a).

Considering the size of YPG, unauthorized access to portions of the installation may occur. Vandalism by unauthorized persons has the potential to impact cultural resources,

including paleobotanical resources, and would be addressed through existing policies and procedures as situations arise.

3.4.4.3 Impacts of the Proposed Action/Preferred Alternative

Some activities would occur in areas that have been previously surveyed and determined to contain no historic properties through NHPA Section 106 consultation with SHPO and Federally Recognized Tribes that consider the YPG area to be part of their ancestral lands. These activities would not impact cultural resources and would have no potential for cumulative impacts to cultural resources. The potential would exist for inadvertent discovery of cultural resources in these areas and the YPG inadvertent discovery policy and process specified in the ICRMP would be followed should this occur. Areas containing known significant cultural resources were avoided through site selection during the planning process.

Proposed activities that would occur in areas where cultural resource surveys have not been completed or where surveys have been done but NHPA Section 106 consultation is not complete would be subject to site-specific cultural resource survey and evaluation as needed, and NHPA Section 106 consultation. The YPG Cultural Resources Manager would determine whether site-specific cultural resource studies or consultation would be required prior to implementation of proposed activities in these areas, in compliance with the PA. Any cultural resource identification and consultation requirements would be completed prior to implementation of these activities. Proposed activities with potential to impact significant cultural resources, if such resources are present, include:

- Construction of buildings, test courses, DZs, landing pads, and other facilities
- Relocation and construction of roadways
- Installation of new utility infrastructure
- Off-road vehicle and equipment testing
- Munitions testing
- Establishment of TGPs

A site-specific NEPA analysis would be tiered from this PEIS for any such projects that would have potential direct, indirect, and cumulative impacts to known significant cultural resources. For projects where no impacts to known significant cultural resources would result, the tiered NEPA analysis would likely be a Record of Environmental Consideration for a Categorical Exclusion, assuming all screening criteria of 32 CFR §651.29 are met. Should there be unavoidable impacts to known significant cultural resources, a focused environmental assessment could be required. The potential for activities to impact cultural resources is discussed by region below.

Vandalism by unauthorized persons would continue to have the potential to impact cultural resources, including paleobotanical resources, and would be addressed through existing policies and procedures as situations arise.

Laguna Region. Most new building construction under the Proposed Action would occur in the Laguna Region. Most proposed activities in the Laguna Region would occur in cantonment areas or other previously disturbed areas. Activities were sited through the planning process to avoid known cultural resources and to be within areas previously surveyed to the extent practicable. Munitions testing does not occur in the Laguna Region and no TGPs would be established in this region. No new off-road vehicle testing in the Laguna Region would occur under the Proposed Action. Inadvertent discovery of cultural resources could occur in these areas and the inadvertent

discovery process specified in the ICRMP and discussed in Section 3.4.6 would be followed should such discoveries occur.

Approximately 9,150 linear feet (lf) of electrical transmission and telecommunications lines would be installed in the Laguna Region. As long as these lines would be installed in existing previously disturbed rights-of-way, easements, distribution systems, or facilities, they would be considered to have no adverse effect in accordance with Attachment H of the PA. Should inadvertent discovery occur, the YPG inadvertent discovery process would be followed.

The primary potential for impacts to cultural resources would be from activities that would be implemented outside of previously surveyed areas. Activities sited outside of previously surveyed areas would not be implemented until after completion of the consultation process and any measures stipulated as a result of that consultation.

As most proposed activities in the Laguna Region would occur in cantonment areas or other previously disturbed areas, they would not likely impact paleobotanical resources. Proposed activities with potential to impact paleobotanical resources are identified in Table 3-6.

TABLE 3-6
Activities that Could Impact Paleobotanical Resources
Yuma Proving Ground

Proposed Action	Quantity and Potential Impact
L014	New construction would occur in areas where petrified wood occurs with frequencies ranging from uncommon to common but within a previously disturbed area (Comanche Flats), which would minimize the potential for impacts. Potential impacts could occur due to construction activities or from illegal removal by YPG or construction personnel.
L017	New construction would occur in areas where petrified wood occurs with frequencies ranging from uncommon to rare but within a previously disturbed area (TM Site 4), which would minimize the potential for impacts. Potential impacts could occur due to construction activities or from illegal removal by YPG or construction personnel.
L018	New construction would occur in areas where petrified wood is common but within a previously disturbed area (Sidewinder Sensor Site), which would minimize the potential for impacts. Potential impacts could occur due to construction activities or from illegal removal by YPG or construction personnel.
L019	Dismounted maneuver area expansion would occur in areas mostly where petrified wood has not been found and also in areas where petrified wood occurs with frequencies ranging from uncommon to rare. Potential impacts could result from illegal removal of the resource by personnel.
L101	New construction would occur in areas where petrified wood is abundant to none observed (area disturbed), but would be north of the LAAF vicinity, a previously disturbed area. Potential impacts could occur due to construction activities or from illegal removal by YPG or construction personnel.
L002, L003, L008, L102	New construction would occur in areas outside but near LAAF where petrified wood is abundant to none observed (area disturbed). Potential impacts could occur due to construction activities or from illegal removal by YPG or construction personnel.

Source: YPG, 2012a

Potential impacts to paleobotanical resources would likely be from minor to moderate with implementation of mitigation measures. Mitigation for paleobotanical resources would include Environmental Awareness Training for military personnel, other YPG personnel, and construction contractors who would work in areas where paleobotanical resources

occur. This training would provide instruction on the importance of these resources and the protection afforded petrified wood on YPG. Mitigation also would include siting ground-disturbing activities in areas where petrified wood does not occur to the extent practicable. The YPG inadvertent discovery process would apply to petrified wood.

Cibola Region. Activities including construction, aircraft armament testing, static detonation, conflagration testing, combat skills training, instrument DZs, and extraction zones would occur in the Cibola Region under the Proposed Action. Inadvertent discovery of cultural resources could occur in previously surveyed areas; the YPG inadvertent discovery process would be followed should such discoveries occur.

Two proposed activities in areas not previously surveyed for cultural resources would be unlikely to impact cultural resources:

- C031—Use Site 6 as a meteorological station. No new disturbance would occur at this previously disturbed site.
- C036—Increase use of Prospect Square for bombing or aircraft gunnery. Prospect Square is an existing impact area for inert and explosive weapons. Use would increase, but munitions impacts would be limited to land previously disturbed by these activities. Safety concerns associated with potential UXO in Prospect Square preclude additional cultural resource surveys in this area.

Effects to cultural resources from activities in the Cibola Region would be addressed through the consultation process, as stipulated in the PA.

Kofa Region. Proposed activities, including direct and indirect fire, the use of expanded range areas, and the creation of new GPs, would occur in the Kofa Region. Inadvertent discovery of cultural resources could occur in previously surveyed areas; the YPG inadvertent discovery process would be followed should such discoveries occur.

Effects to cultural resources from activities in the Kofa Region would be addressed through the consultation process, as stipulated in the PA.

Cumulative Impacts. When assessing cumulative impacts to cultural resources, regional solar energy projects were considered in addition to proposed activities on YPG. On YPG, there are areas not previously surveyed for cultural resources that would be evaluated on a project-specific basis in the future. At this time it is not known whether cumulative impacts to cultural resources would result from these activities.

The Quartzsite Solar Energy Project in La Paz County contains one cultural property that is recommended as eligible for inclusion in the NRHP that could be affected; impacts would be mitigated through avoidance and construction monitoring. Any contribution to cumulative impacts to cultural resources from the Quartzsite Solar Energy Project would be expected to be minor.

Development of this commercial-scale, renewable solar electrical energy generation facility in the southern Kofa Region could impact cultural resources, and any such impacts could interact with project activities analyzed in this FPEIS that impact cultural resources, resulting in cumulative effects. However, compliance with Section 106 of the NHPA and implementation of appropriate mitigation developed through the consultation process would likely prevent significant cumulative impacts to these resources.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to regional cultural resources. At this time, cultural resources in the project areas are unknown and the potential for cumulative impacts to this resource area cannot be assessed accurately. However, it is expected that BLM will require that these projects conduct appropriate investigations and consultation with SHPO regarding cultural resources to ensure that these resources are not negatively impacted or to develop and implement appropriate mitigation for unavoidable impacts that would Reduce impacts to less than significant and minimize the potential for cumulative impacts.

3.4.4.4 Avoidance, Minimization, and Mitigation

The YPG ICRMP recommends how YPG can mitigate impacts to historic properties through avoidance, physical protection, data recovery, or other mitigation measures (YPG, 2012a). The following are measures for the protection and mitigation of prehistoric and historic archaeological sites.

- Avoidance of areas having significant sites is the preferred and most effective way to protect NRHP eligible sites. Coordination of mission activity planning and cultural resource management can be useful in determining where significant sites exist and where to move or adjust the activities so that significant sites are avoided.
- Physical protection of individual sites by fencing, berming, or taking other protective measures to make them inaccessible during construction or project implementation may be necessary to protect archaeological sites. This can be accomplished by placing temporary fencing or berming around site boundaries or marking site boundaries with flagging or stakes, in combination with written, graphic, and verbal instructions for avoidance.
- When the protection of a cultural resource is not feasible, then data recovery may be performed to mitigate for a loss of site integrity and information potential. A data recovery plan would be structured to present a representative sample of the data that established the significance of the site. Data recovery would be in compliance with federal standards (36 CFR Part 66; 48 FR 44734-44737).

Specifically for paleobotanical resources, YPG would:

- Conduct Environmental Awareness Training for military personnel, other YPG personnel, and construction contractors who would work in areas where paleobotanical resources occur to instruct on the importance of these resources and the protection afforded petrified wood on YPG
- Site ground-disturbing activities in areas where petrified wood does not occur to the extent practicable.
- Apply the YPG inadvertent discovery process to discovery of petrified wood.

The U.S. Army YPG has determined that implementation of projects in this FPEIS would impact cultural resources at YPG. A Section 106 PA was developed, in consultation with SHPO, ACHP, and interested tribes, which establishes areas at YPG requiring no additional cultural resources survey and establishes the types of projects that have been determined to have no effects or no adverse effects on historic properties. These project types will not require mitigation. Other project types will require further analysis and consultation.

Some proposed activities would have no potential to impact cultural resources. These activities either used the planning process to avoid impacts to cultural resources or by chance were sited in areas where known cultural resources do not occur. No further mitigation, beyond avoidance of known cultural resources, would be required for these activities.

There are some proposed activities for which the potential to impact cultural resources is unknown, either because the location for the activity is not known at this time or because the proposed location is within an area where cultural resource surveys have not been conducted or where consultation with the Arizona SHPO regarding the potential eligibility of identified cultural resources has not been completed. These projects would be evaluated prior to implementation, in compliance with the PA. If necessary, cultural resource surveys of the proposed project area would be completed.

Should consultation determine that significant cultural resources occur within a proposed project area, YPG would first attempt to modify the project design to avoid or protect the identified resources. For activities where avoidance or protection of cultural resources would not be possible, YPG would consult with the SHPO, ACHP, and tribes as specified in the PA. Mitigation measures to protect paleobotanical resources on YPG would include Environmental Awareness Training for military personnel conducting dismounted maneuvers and for other persons working in areas where paleobotanical resources could occur. The site selection process would give consideration to avoiding locations of known paleobotanical resources. Where unavoidable impacts to paleobotanical resources would result from an activity, data recovery would be implemented. The inadvertent discovery process also would be applied should construction activities result in discovery of these resources.

3.5 Energy/Utilities

3.5.1 Existing Conditions

Most human activity and utility use is concentrated in cantonments, which make up approximately 0.2 percent of the YPG land area. Utility infrastructure is concentrated in those areas of heavy use. Water, electricity, telecommunications, and wastewater services are generally limited to cantonments and the immediate vicinity, although some down-range areas are equipped with water wells, electricity, and telecommunications. The majority of YPG has no utility services; water is typically trucked to remote testing and training sites, and power is provided by portable generators.

Privatization of utilities on YPG is scheduled to be completed in 2018-2020. Private firms would then be responsible for managing, controlling, and performing operations, maintenance, repairs, replacements, and upgrades for all utilities and associated infrastructure as needed.

3.5.1.1 Energy/Electricity

YPG receives electricity from four sources, with the Western Area Power Administration (WAPA) being the primary provider. WAPA provides power from hydroelectric stations on the Colorado River and from Davis and Parker Dams (Gutierrez Canales Engineering, P.C., 2011). The Wellton-Mohawk Drainage District manages the electricity supply from the WAPA (Parsons, 2008). The Wellton-Mohawk Drainage District is the secondary power

supplier. The Arizona Public Service Company also supplies power through two small delivery points (Skaggs, 2013, personal communication).

Low voltage power (480 volts and less) on YPG is provided from a variety of delivery points, but is primarily routed from the Kofa Region 161-kilovolt (kV) transmission substation to the rest of YPG through 69-kV, 34.5-kV, and 12.47-kV transmission lines and a series of substations. The low voltage system is supplied by overhead and pad-mounted distribution transformers connected to the high voltage system. Some substations may require upgrades or modifications to meet future needs, while others are underutilized and capable of supplementing areas nearing capacity or experiencing increased demand.

YPG has three operational solar arrays to augment electrical power supply. Two of the solar arrays, a 143.75kV system and a 95kV system, are in the YTC area and a 44kV system is in the northern part of Cibola. In addition, there are two other solar array systems on YPG that are not operational. A 600kV system at the MAA is off-line due to storm damage. A 131.25-kV solar field was constructed and operated historically in the Kofa Region but is no longer operational. YPG is investigating placing these systems back in operation (Skaggs, 2013, personal communication). YPG has 35 standby power generators for emergency power as needed (Brandon, 2011a, personal communication).

Many remote and down-range testing and training areas are not wired for electrical power from the existing transmission system. Non-road engine generators and stationary generators are used in these areas when power is needed to support activities.

3.5.1.2 Water

Drinking water quality at YPG conforms to the Federal criteria pursuant to the Safe Drinking Water Act (SDWA), as amended, and by State of Arizona or local regulations. The ADEQ has primacy for drinking water regulation enforcement under AAC Title 18, *Environmental Quality*, Chapter 4, *Department of Environmental Quality, Safe Drinking Water* (AAC R18-4); however, all federal regulation (40 CFR Part 141 & 142) is reviewed to ensure full compliance.

Much of the groundwater on YPG contains levels of fluoride, and arsenic above the national drinking water standards. Naturally occurring arsenic has been detected at levels averaging 18 to 29 ppb in YPG groundwater. In 2006, the USEPA lowered the maximum contaminant level for arsenic from 50 to 10 ppb, which resulted in a notice of violation issued by USEPA for three of YPG's Public Water Systems. To meet the new federal standard for public drinking water supply, YPG completed construction of two new water treatment facilities in 2011. All Public Water Systems on YPG currently meet Federal primary drinking water standards (Obregon, 2013b, personal communication).

Yuma Proving Ground currently has three Public Water Systems (as defined by 40 CFR 141.2). The three water systems on YPG are the MAA, KFR, and YTC cantonment areas. The MAA is unique in that it has a duel parallel system (potable and non-potable) and it is classified as a "community water system". The MAA is the only community water system on YPG (Obregon, 2013b, personal communication). The KFR water supply system also provides water to CDH and CDA via a pipe system.

YPG has other smaller water systems that are not regulated by the SDWA provisions because they do not qualify as Public Water Systems. Other areas on YPG, including the Dynamometer building, Sites 4 & 4E, Cobra Flats, and other down range sites that are

equipped with piped water are not supplied by the new water treatment facilities and continue to be supplied by existing wells (Obregon, 2013b, personal communication). Developed areas outside of cantonment areas typically use bottled water for potable purposes. Drinking water either bottled or in bulk amounts, is delivered to remote areas lacking water treatment capabilities or water distribution under contract with local vendors (Parsons, 2011).

Three water treatment facilities, one for public water systems, produce potable water for the main cantonment areas (Obregon, 2013b, personal communication). Each of these treatment facilities uses electrodialysis reversal treatment technology to produce potable water. The MAA water treatment facility is supplied by two primary wells that draw from the Colorado River aquifer and a and a back-up well that draws from the same aquifer, with a combined capacity of 6.61 million gallons per day and operates at 33 percent capacity on average, with peak demand during August, rising to 46 percent capacity. The water treatment plant (WTP) serving the YTC and LAAF cantonment areas can produce up to 72,000 gallons per day (gpd) and the Kofa cantonment plant, which also serves CDH and CDA, can produce up to 144,000 gpd. Potable water is distributed primarily through cast iron pipes, and the systems include a series of storage tanks to aid distribution (Parsons, 2011).

Water distribution systems are tested regularly in compliance with Arizona Drinking Water Regulations, the Safe Drinking Water Act of 1974, and corresponding National Primary Drinking Water Regulations (40 CFR 141 & 142). The classification of each water system dictates a specific set of parameters (contaminants) and frequencies at which they need to be monitored. Testing is done monthly, quarterly, semi-annual, annually, and some are done on a 3-year cycle depending on regulatory requirements (Obregon, 2013b, personal communication).

Non-potable water is mainly used for irrigation, cooling, dust suppression, and restrooms (Parsons, 2011). Non-potable water also is used for fire suppression, if excess water is available at the time of a fire.

Occasional operational training is conducted in Training Area Bravo with water purification systems. Marine support squads train using transportable RO systems in Training Area Bravo to purify water withdrawn from the Gila Gravity Main Canal under a permit issued to YPG. Brine from the purification process is released in the fording basin, where it evaporates.

YPG has complied with EOs 13423 and 13514, which targeted reduction of water use and introduction of water reuse initiatives. These EOs were revoked by EO 13693, *Planning for Federal Sustainability in the Next Decade.* This 2015 EO, however, also requires federal agencies to improve water use efficiency and management, including stormwater management by reducing agency potable water consumption; installing water meters and collecting and utilizing building and facility water balance data to improve water conservation and management; reducing agency industrial, landscaping, and agricultural water consumption; and installing appropriate green infrastructure features to help with stormwater and wastewater management. To help meet these requirements, water usage by all on-post customers is metered and is charged based on use. In support of the Army's Net Zero program, water conservation measures that have been implemented on YPG include:

- Replacement of standard plumbing fixtures with low-flow, dual-flow, and waterless fixtures
- Conversion of formerly irrigated landscaping to xeriscaping
- Requirement for use of xeriscaping in all new landscaping
- Requirement for use of untreated well water for construction and dust suppression, which also results in elimination of 5 percent of the total lost water in treatment and back-flushing processes

3.5.1.3 Telecommunications

YPG uses an information transfer system, which includes 600 miles of fiber optic cable, with four main connecting points. The bandwidth typical of this system is 1 gigabyte per second. Voice and data connectivity systems function well at YTC, the Kofa cantonment, CDH, and CDA, but service in the MAA can be unreliable (Parsons, 2011). Remote locations, such as test areas and GPs, typically are not connected to the data network and must use satellite uplinks powered by portable generators to relay data to YTC and the Kofa cantonments for analysis.

A total of 57 registered radio and cell towers are in Yuma County, mostly in the City of Yuma or along U.S. Interstate 8 (I-8) (Homefacts.com, 2011a). Nineteen towers are in La Paz County, 13 of which are found in Quartzsite, Arizona (Homefacts.com, 2011b). One cell tower is located on Hill 630 within the YPG boundary.

3.5.1.4 Wastewater

There is no centralized treatment of wastewater on YPG. Wastewater disposal systems on YPG consist of individual septic systems, chemical toilets, and localized collection systems served by evaporative lagoon systems (Parsons, 2008). There are 23 active evaporative lagoon cells, 8 lift stations, and 38 individual septic systems (Parsons, 2011). The number of wastewater disposal systems will likely change in the future but specific designs for additional wastewater disposal systems have not been developed and are not included in this analysis (Brian Hoon, 2013, personal communication). Evaporative lagoons are used at MAA, YTC, LAAF, and the Kofa cantonment.

Wastewater on YPG is managed by a no-discharge process permitted by ADEQ aquifer protection permits, with final disposal through septic system leach fields or through lagoon evaporation. Industrial stormwater discharge is authorized by the Arizona Pollutant Discharge Elimination System Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity from Non-Mining Facilities to Waters of the U.S. (AZMSGP2010-002).

Localized wastewater collection systems typically are gravity fed, with pump stations where needed. Collection systems consist of vitrified clay pipes, asbestos cement pipe, and polyvinyl chloride (PVC) pipes. Sewer systems receive domestic sewage from connected sources and minor industrial discharge such as, brine from potable WTPs, vehicle wash water after it passes through oil water separators, and water from air conditioning units. Sewage lagoon cells are inspected and operated by certified wastewater operators and typically operate below capacity. The wastewater system in the Kofa cantonment is close to capacity during peak usage periods and is approaching capacity for average use (Brian

Hoon, 2013, personal communication). Plans are in place to expand the Kofa cantonment sewer system.

Wastewater treatment at CDH consists of one un-lined evaporative lagoon with a capacity of 7,000 gpd. Wastewater data for the CDH area are not available, although no concerns have been identified for this area (Parsons, 2011). Septic systems or chemical toilets are used for domestic wastewater treatment at CDA and in other remote areas and other areas lacking evaporative lagoon systems. Septic tanks and chemical toilets are maintained regularly to assure proper functioning (YPG, 2012b).

3.5.1.5 Non-Hazardous Solid Waste

YPG has a non-hazardous solid waste landfill permitted under an Arizona Aquifer Protection permit that accepts household waste, vegetative waste, dried sewage sludge, and inert material such as brick, rock, gravel, and sand. The landfill can accept up to 20 tons per day, averaged annually and no more than 10 percent of its daily volume can be vegetative waste. Construction and demolition (C&D) waste is sent to commercial landfills. As part of the housing privatization in 2009, any municipal waste from housing is taken to an off-post landfill. The current non-hazardous waste landfill is tentatively scheduled for closure in 2020. An extension may be requested from ADEQ if the landfill has not reached capacity by 2020 (Jason Associates Corporation and North Wind Environmental, 2000).

3.5.2 Environmental Consequences

The following were evaluated to determine potential impacts to energy and utilities:

- Change in energy demand resulting from construction and operation of proposed activities, from fluctuations in testing or training, or from testing or training in new areas.
- Change in water/wastewater demand resulting from construction and operation of proposed activities, from fluctuations in testing or training, or from testing or training in new areas.
- Increased landfill demand resulting from construction and demolition activities.

3.5.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to energy and utilities include:

- Negligible (less than significant)—Activities that have barely perceptible impacts on local and regional energy, water, landfill, and sewer service demand.
- Minor to Moderate (less than significant)—Activities that would have noticeable impacts on local and regional energy, water, landfill, and sewer service demand
- Minor to Moderate (less than significant)—Activities that would result in increased groundwater consumption but that would not deplete groundwater resources.
- Severe (significant)—Groundwater is depleted to the degree that subsidence causes fissures to form.
- Severe (significant)—Activities that would create energy, water, landfill, or sewer service demand in excess of existing supply or capacity

- Beneficial—Activities that would result in a reduction of demand for energy, water, landfill, or sewer services

3.5.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, testing and training activities would continue to fluctuate between historical high and low levels and no new construction would occur. No remote locations would receive utility extensions, and use of portable generators for power and satellite uplinks for telecommunications/data transfer would continue at current levels. Consumptive water use on YPG would be expected to decrease through continued implementation of water conservation measures. Remote areas would continue to be supplied by bottled water trucked in under contract with local vendors. The wastewater system in the Kofa cantonment would continue to be undersized to meet the needs of that area until the sewer system is expanded as planned. The non-hazardous solid waste landfill would continue to be used until it is closed, which is tentatively scheduled for 2020 (Jason Associates Corporation and North Wind Environmental, 2000). Under the No Action Alternative, no significant increase in non-hazardous waste is anticipated. No significant impacts to the non-hazardous landfill capacity are anticipated.

The continued use of portable generators at current levels would be less efficient than installation of hard power to many areas. Considering the cost of transport of a generator and its fuel, portable generators are less efficient compared to large power sources that provide electricity to the power grid and also contribute greater amounts of air pollution per unit of power produced than permanent sources (U.S. Congress Office of Technology Assessment, 1993). Air emissions from use of portable generators would remain unchanged under the No Action Alternative. In addition, there would be continued emissions from vehicles used to transport fuel to the remote generators during testing events. The potential for impacts to air quality from continued use of portable generators at current levels is discussed further in Section 3.2. There would be no beneficial impacts associated with installation of hard power under the No Action Alternative.

The cell and radio towers located on or near YPG have the potential to cause interference with sensor testing and communication. Ongoing activities at YPG would continue to be sited to avoid interference from the towers. There would be potential for scheduling conflicts when multiple users need to use areas free of electromagnetic interference at the same time. No additional impacts are expected to occur.

Other beneficial impacts associated with utility improvements would not occur under the No Action Alternative.

3.5.2.3 Impacts of the Proposed Action/Preferred Alternative

The Proposed Action includes training and testing activities that would occur under the No Action Alternative, an increase in training and testing capabilities, and new construction.

There would be yearly fluctuations in the frequency, intensity, or duration of training events (as discussed in Sections 2.1.2 and 2.3.3.8), but these fluctuations would be within the maximum and minimum levels observed historically. Additional personnel would not be expected to train on YPG and there would be no increase in permanent staff assigned to YPG. There would be no change in demand for utilities as a result of the increased testing and training capabilities.

Construction of new facilities to replace existing structures would result in a net reduction in energy demand because the new buildings would be more energy-efficient than the older structures that would be replaced. Where new structures would be built to provide new services rather than replacing an existing structure, the increased energy demand of the new building would be less than the demand of a comparably sized older structure due to the efficient designs that would be required. Because much of the new construction would provide new services rather than replacement, a net increase in energy demand would be expected. Because of the efficient design requirements, the impact on regional utility use would be minor to moderate and within the capacity of the existing infrastructure.

While there would be yearly fluctuations in energy demand as a result of year-specific testing and training levels, it is expected that energy consumption in years with greater levels of testing and training would be within the historical annual fluctuations in energy consumption. Energy conservation measures that would be implemented under the Proposed Action that are discussed below, such as installation of solar-powered lights at many down-range testing and training locations, would help to minimize increased demand on energy utilities during years with higher levels of testing and training.

Increased use of lighter-than-air UASs, rather than conventional UASs, would result in reduced energy needs to operate the equipment being tested. YPG would be testing alternative fuel and hybrid vehicles/equipment in the future, and this could result in decreased energy demand for some tests. Because this type of equipment has not previously been tested on YPG, actual energy demand is not known. The increased demand is expected to be within the capacity of existing energy supplies, particularly when coupled with other energy/utility activities discussed below that would result in reduced demand for energy on YPG. The overall effect is expected to be a small net increase in demand, which would be a minor impact to energy use in the region.

TABLE 3-7
Proposed Activities that Would Result in Utility Improvements
Yuma Proving Ground

C004-b	C005-b	C007-b	C008-b
C012-b	C013-b	C014-b	C017-b
C020-b	C021-e	C023-d	C024-b
C025-b	C026-c	C029-b	C030-b
C033-b	C040	C048	C050-b
K004-b	K005	K007-b	K009
K012-b	K023	K025-b	K029
K031	L001-b	L002-b	L013-b
L014-c	L015-b	L016-b	L104

Energy/utility construction improvements would result from certain proposed activities (Table 3-7).

Installation of solar-powered lights would reduce the demand for energy derived from fossil fuels that now is provided by portable generators on an as-needed basis. This action would result in a small decrease in demand and a minor benefit to regional utilities.

Approximately 9,150 lf of electrical transmission lines would be installed in the Laguna Region. Approximately 2,050 lf of transmission line would be installed down-range in the Kofa Region. The Cibola Region would see the largest increase in access to electrical power to remote test locations, with approximately 213,000 lf of new lines. The installation of hard power to multiple locations across YPG would reduce the use of portable generators.

Because power from the grid would be produced more efficiently than power from portable generators, there would be a reduction in energy consumption during testing once these areas receive electrical power via transmission lines. There also would be a reduction in energy used to transport generators and fuel to test locations. Replacement of portable generators with grid-supplied power would reduce demand and would be a moderate benefit to energy consumption in the region. A long-term cumulative benefit to air quality (Section 3.2) would be expected from this action due to the reduction in emissions.

The installation of fiber and telecommunication service to remote locations and other areas across YPG would further reduce the use of portable generators to power satellite uplinks or data transfer and communications. The benefits to energy use would be similar to those described for installation of hard power. Any indirect cumulative benefits to air quality would be similar to those described for hard power.

Proposed activity L002 is the only proposed transportation activity that would result in impacts to utilities. It will be necessary to relocate utility lines to accommodate the extension of Runway 18/36 at LAAF and the realignment of Barranca Road. Approximately 12,500 ft^2 of existing utilities would be relocated. This would be a minor temporary impact on utilities on YPG during the relocation.

The reduction in the use of portable generators would reduce the need to transport fuel for operation of generators to the areas receiving hard power and telecommunications service. This would reduce the use of vehicles to transport fuel, with associated reductions in fuel consumption and air emissions. As a result, the elimination of transporting fuel to these sites would indirectly benefit regional energy use and provide beneficial cumulative impacts to air quality. In addition, there would be reduced potential for petroleum spills, either from transport accidents or from refueling spills. This would be an indirect beneficial impact with regard to hazardous material by reducing the potential for a release of petroleum products to the environment. See Section 3.9 for more information.

While there would be yearly fluctuations in water demand as a result of year-specific testing and training levels, consumptive water use on YPG would be expected to decrease through time as a result of continued implementation of water conservation measures.

The proposed WTP for CDH, which also would serve CDA, would not result in an increased demand for groundwater, as this area is already supplied by groundwater sources via the KFR WTP. Source water would be supplied by Well M, an existing well, and demand on this specific well would increase. However, the increased demand on Well M would be offset by a reduction in the current demands on Well H and Well J, resulting in no net change in demand from that aquifer. Any impacts to groundwater would be negligible.

See Section 3.20 for additional information. Subsidence would not be expected and no surface fissures would result.

The proposed evaporative lagoon for wastewater disposal at CDH would replace an outdated system and provide increased capacity. This evaporative lagoon would provide benefits to wastewater utilities compared to the existing system.

The proposed sewage lagoon for the Kofa Sewage Lagoon Expansion would provide increased capacity and treatment quality and would provide benefits to wastewater utilities compared to the existing system.

Sewer services are proposed for a few remote locations on YPG and would slightly reduce the use of septic or portable wastewater systems. The number of remote locations proposed for sewer connections is minimal and any change in the use of septic or portable wastewater systems in remote areas of YPG would be negligible.

Several areas remote from existing telecommunications infrastructure and associated electromagnetic interference would be established for use in testing activities. As a result of the new testing areas without electromagnetic interference, YPG would have greater flexibility to avoid conflicts when scheduling multiple users for these areas, which would benefit the mission of YPG.

Construction and operation of an East Kofa Operations Center (K025 a and (b) would include a small building complex, perimeter fencing, vehicle maintenance area, storage areas, tactical vehicle wash rack, 40-ton crane, and all utilities. No utilities are available at this site, so the facility would represent a new demand on these resources. Water would be addressed onsite through construction, operation, and maintenance of a water well. Wastewater would be addressed through an onsite treatment facility and septic system. Electrical power and telecommunications would require new infrastructure through placement of new transmission lines (1,370 ft^2 for utilities and 170 lf for electrical and telecommunication lines). The new demands would not overly burden utility services on YPG or in the surrounding area.

The proposed location of Project K030 (UAS launch/recovery system and multiple buildings) in the northern portion of the East Arm has no utility service. Electrical power would have to be provided by generators or through onsite production by solar, wind, or geothermal methods. No potable water or water treatment would be available. Water would have to be shipped in or a well system installed. Wastewater treatment would have to be provided through an onsite septic system. Construction wastes and solid wastes generated onsite during operation would have to be hauled away for appropriate disposal or incinerated onsite.

The proposed construction and demolition activities would temporarily increase the quantities of waste disposed. All C&D waste is taken off-post for disposal at one of two landfills in Yuma County that accept C&D waste. C&D waste resulting from the Proposed Action would not substantially alter the projected useful life of these landfills. It is not anticipated that implementation of the Proposed Action would impact the non-hazardous waste landfill located at YPG. The non-hazardous solid waste landfill would continue to be used until it is closed, which is tentatively scheduled for 2020 (Jason Associates Corporation and North Wind Environmental, 2000). The Proposed Action would not significantly alter or

increase the waste stream currently being accepted by this facility. No significant impacts to the non-hazardous waste landfill capacity are anticipated as a result of the Proposed Action.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Electrical power would be generated to reduce YPG's demand on electricity generated from fossil fuels and for commercial supply. Usage of renewable energy from the EUL would aid YPG in complying with the following Federal renewable energy targets:

- Energy Policy Act of 2005. Requires that Federal agencies have at least 7.5 percent of their electricity provided by renewable energy by 2013 and thereafter. The Act also allows for "double credit" for renewable energy produced onsite or on Federal lands.
- EO 13693 requires federal agencies to ensure that the percentage of the total amount of building electric energy consumed by the agency that is renewable electric energy is not less than 10 percent in fiscal years 2016 and 2017, and increasing to not less than 30 percent by fiscal year 2025.
- Energy Independence and Security Act of 2007. Sets a goal that 25 percent of electricity consumed in the U.S. should come from renewable resources by 2025.
- National Defense Authorization Act of 2007. Mandates that 25 percent of electricity consumed by the DoD be from renewable resources by 2025.

It is likely that any such project would result in beneficial cumulative impacts to energy and utilities by providing increased renewable energy sources in the region.

Several current or reasonably foreseeable energy projects are proposed in the YPG area and may result in cumulative impacts. The Quartzsite Solar Energy Project (affiliated with WAPA) would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. An EIS has been completed for that project. There are five other proposed solar projects on BLM lands within approximately 10 miles of YPG, but the sizes of these projects are unknown at this time. Arizona Public Service proposes to construct a 500-kV transmission line in 2014 that would extend from Palo Verde to Yuma and would be generally parallel and adjacent to an existing transmission line. These proposed projects would be expected to result in increased demand for water for construction, cleaning, and operation, which could cause cumulative impacts on water utilities from incremental increased consumption. In addition, these projects also would result in reduced demand for fossil fuels to generate electrical power, which would result in beneficial impacts to energy supply and usage in the region.

YPG has one reasonably foreseeable project in the Kofa Region, as plans are in place to expand the Kofa cantonment sewer system. The Secure Border Initiative has reasonably foreseeable future projects involving the construction of communication towers at various locations along the U.S. and Mexico border. The communication towers would have the potential to cause interference with sensor testing and communication at YPG that would occur in the vicinity of any new communications towers. The proposed activities at YPG would be more than 15 miles from these

towers and impacts would likely be negligible. No other energy or utility cumulative impacts are expected.

3.5.2.4 Mitigation

YPG will incorporate energy-efficient design into new buildings and use solar lights where practicable. YPG also will recycle/reuse to the extent practicable to reduce waste generation. Because no significant impact to energy or utilities would occur, no additional mitigation measures are proposed for this resource area beyond the design measures that would be incorporated to comply with the Federal renewable energy targets.

3.6 Environmental Justice and Protection of Children

3.6.1 Existing Conditions

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, is designed to ensure fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, tribal, and local programs and policies. Disproportionate impacts are defined as affecting a meaningfully greater population.

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, was issued in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children, and to ensure that federal agency policies, programs, activities, and standards address environmental risks and safety risks to children. These risks are defined as "risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest."

Yuma County and the City of Yuma exhibit similar racial profiles, with 60 percent and 55 percent of residents, respectively, indicating Hispanic or Latino heritage, which is over 25 percent higher than the State of Arizona (Table 3-8). La Paz County has a percentage of residents of Hispanic and Latino heritage similar to that of Arizona, but is 13 percent Native American, a substantially larger percentage than Yuma County or Arizona.

TABLE 3-8
2010 Census Racial Data by Area
Yuma Proving Ground

	Location (Population)				
Race	**City of Yuma, AZ (77,515)**	**Yuma County, AZ (160,026)**	**La Paz County, AZ (19,715)**	**State of Arizona (5,130,632)**	**United States (281,421,906)**
White Alone	69%	70%	70%	73%	72%
Black or African American Alone	3%	2%	1%	4%	13%
Native American Indian or Alaska Native Alone	2%	2%	13%	5%	1%

TABLE 3-8
2010 Census Racial Data by Area
Yuma Proving Ground

Race	Location (Population)				
	City of Yuma, AZ (77,515)	Yuma County, AZ (160,026)	La Paz County, AZ (19,715)	State of Arizona (5,130,632)	United States (281,421,906)
Asian Alone	2%	4%	5%	3%	0%
Native Hawaiian or Other Pacific Islander Alone	0%	0%	0%	0%	0%
Other Race Alone	20%	21%	13%	12%	6%
Two or More Races	5%	4%	4%	3%	3%
Latino [a] or Hispanic	55%	60%	24%	30%	16%

Source: U.S. Census Bureau (USCB), 2011a

[a] Hispanic: The 2010 Census included a category for Hispanic or Latino for individuals who classify themselves in one of the specific Hispanic or Latino categories such as "Mexican," "Puerto Rican," or "Cuban," as well as those who indicate that they are "other Spanish, Hispanic, or Latino." Origin can be viewed as the heritage, nationality group, lineage, or country of birth of the person or the person's parents or ancestors before arrival in the U.S. People who identify their origin as Spanish, Hispanic, or Latino may be of any race. Totals may not add up to 100%.

The percentage of individuals living in poverty in Yuma County and La Paz County are similar and approximately 6 percent and 3 percent higher than in Arizona, respectively. The City of Yuma has 3 percent fewer individuals living in poverty than Yuma County and 3 percent more than Arizona (Table 3-9).

TABLE 3-9
2010 Census Percentage of Children and Individuals Living Below Poverty Level
Yuma Proving Ground

	Yuma City, Arizona	Yuma County, Arizona	La Paz County, Arizona	Arizona	United States
Children Under 18[a]	28%	28%	18%	25%	24%
Population Living Below Poverty Level [b]	19%	22%	19%	16%	14%

Sources:
[a] USCB, 2011a;
[b] USCB, 2011b

In 2010, Yuma County had a Native American population of 3,056 and there were 2,628 Native Americans dwelling in La Paz County (USCB, 2011a). The Cocopah Indian Reservation and the Fort Yuma Indian Reservation are in the vicinity of the City of Yuma. The Colorado River Indian Reservation is approximately 32 miles north of YPG near the city of Parker (University of Arizona, 2011).

The Cocopah Indian Reservation covers 9.4 square miles adjacent to the Colorado River and has a population of 817 with 880 enrolled members (USCB, 2011a; University of Arizona,

2011). Agriculture, supported by irrigation from the Colorado River, is an important component of the Cocopah community economy (University of Arizona, 2011). Other businesses on the Cocopah Indian Reservation include a convenience store, a gas station, and a smoke shop, a museum, two golf courses, a casino, and a recreational vehicle (RV) park (Inter Tribal Council of Arizona, 2011a; Cocopah Indian Tribe, 2011).

The Fort Yuma Indian Reservation is home to the Quechan Indians and covers 68.1 square miles along the Colorado River in Arizona and California. The Fort Yuma Indian Reservation had a population of 2,197 in 2010 and currently has 2,668 enrolled tribal members in Arizona and California (USCB, 2011a; University of Arizona, 2011). The Tribe is mainly an agricultural community, but also relies on tourism and a sand and gravel operation to support its economy. To support tourism, the Fort Yuma Indian Reservation has five trailer and RV parks, a small grocery store, a bingo hall with plans for a new casino, a utility company, a fish and game department, and a museum (University of Arizona, 2011; Inter Tribal Council of Arizona, 2011b).

The Colorado River Indian Reservation covers 420 square miles in La Paz County, Arizona and San Bernardino and Riverside Counties in California, with 80 percent of the Reservation in Arizona. The Reservation has a population of 8,764, with 3,389 enrolled members (USCB, 2011a; University of Arizona, 2011). The economy of the Reservation includes agriculture, recreation, light industry, casino, and government. The Tribes have senior water rights to 717,000 acre-feet of the Colorado River and produce cotton, alfalfa, wheat, feed grains, lettuce, and melons (University of Arizona, 2011; Inter Tribal Council of Arizona, 2011c).

The percentages of children in the City of Yuma, Yuma County, and Arizona are similar. The percentage of children in La Paz County is 10 percent less than in Yuma County and 7 percent less than in Arizona as a whole. There is no disproportionate number of children in Yuma or La Paz Counties when compared to Arizona (Table 3-9).

3.6.2 Environmental Consequences

Because there would be no potential for impacts to this resource area, the discussion of impacts is abbreviated and significance criteria and proposed mitigation are not provided.

3.6.2.1 Impacts of the No Action Alternative

There would be no change to existing conditions under the No Action Alternative. As a result, there would be no potential for direct, indirect, or cumulative negative impacts to environmental justice or protection of children.

There would be no short-term beneficial impacts to the local economy as a result of construction jobs and purchase of building materials.

3.6.2.2 Impacts of the Proposed Action/Preferred Alternative

All of the activities that would be implemented under the Proposed Action would be confined within the YPG boundaries and there would be no adverse impacts to minority or low-income populations living outside the installation. There may be minor short-term beneficial impacts to these communities because the construction workforce for building and demolition projects would likely be drawn from the local community and because of indirect induced benefit to the local economy. Implementation of the Proposed Action would not disproportionately impact minority and low-income populations and there would be no environmental justice impacts.

Children are not allowed within the testing and training areas of YPG. Implementation of the Proposed Action would not create any environmental health or safety issue for children. There would be no potential for direct, indirect, or cumulative negative impacts to environmental justice or protection of children.

3.6.2.3 Mitigation

There would be no impacts to environmental justice populations and no environmental health or safety risks to children would be created. Because no impacts would occur, no mitigation is proposed for this resource area.

3.7 Fire Management

3.7.1 Existing Conditions

Fire is a potentially disruptive force on both the environment and the military mission on YPG. The installation implements fire management to minimize the potential for environmental or mission effects. YPG Regulation (YPGR) 420-1 and AR 520-90 (Fire Prevention and Protection) are implemented to provide fire safety on the installation.

Native vegetation of the Sonoran Desert is not well-adapted to wildfire. Typical presettlement wildfires in the southwestern deserts were of low intensity and confined to small areas. Post-fire recovery of vegetation in the creosote bush-bursage community typical of much of YPG is a long process and may require 100 years (Brown and Smith, 2000). With the increase in fuel load associated with invasive vegetation growth, the intensity and magnitude of desert fires have increased, potentially altering desert ecosystems at multiple levels (soil microflora, soil crusts, and vegetation) (Neary et al., 2005). The desert ecosystem can be permanently changed by frequent or intense fires. Impacts from fires on long-lived species, such as the saguaro cactus and the Sonoran desert tortoise (*Gopherus morafkai*), are generally considered catastrophic.

Wildfires on YPG result from natural causes, such as lightning, as well as military activities, with ignition a by-product of testing or training activities. The potential for major fires is a function of the short-term climate. When conditions are normal or dry for a period of years, the fuel load is low and disconnected due to sparse vegetation and plant-free gaps. Under these conditions, it is difficult for a wildfire to grow and spread. When conditions are wetter than normal, invasive Mediterranean grass (*Schismus barbatus)*, buffelgrass (*Pennisetum ciliare*), Sahara mustard (*Brassica tournefortii*), and native annual desert vegetation may fill bare areas between perennial vegetation, resulting in increased fuel loads and greater potential for wildfire to spread (Sonoran Desert Museum, 2011; YPG, 2012b). Other invasive vegetation, such as tamarisk, creates increased fuel loads along roads and other disturbed soil where water can pool, such as in borrow pits, and contributes to wildfire spread.

Wildfire risk is not uniform across YPG, but rather varies in response to localized precipitation, vegetation growth, and site-specific humidity and moisture conditions. YPG has developed a GIS model to predict fire risk and behavior based on fuel loads and short-term climatic conditions (Kaya Associates, Inc., 2012). The model uses prior year rainfall and vegetation growth to predict fuel loads and then calculates area-specific fire risk based on fuel load and short-term climatic conditions. This model is used to identify range safety risks associated with wildfire. Data used to develop the model indicate how fuel load can vary based on precipitation. Figure 3-2 shows a comparison of fuel loads in an area of YPG

following a typical normal precipitation year (1998) and following a very wet year (2005) for one area on YPG.

In 2005, the mass of annual plants increased substantially in response to above normal precipitation, resulting in elevated fuel loads over some portions of YPG. Even in above normal precipitation years, rainfall on YPG is not evenly distributed, resulting in a mosaic of elevated fuel load areas and moderate or lower fuel load areas. If a fire ignites in an area with increased fuel load, the mass of dried herbaceous vegetation can carry the fire among the more widely scattered woody vegetation, resulting in rapid spread of the wildfire. Because the fire risk is tied to dried remains of herbaceous plants, areas with elevated fuel loads that do not ignite exhibit fuel load reductions as this plant material degrades and is dispersed.

Wildfires on YPG also may spread and affect Kofa NWR. In early October 2005, following a very wet year with extensive growth of the native annual wooly plantain (*Plantago ovata*) and exotic annual species, a wildfire that originated on YPG burned more than 30,000 ac, including approximately 26,000 ac on Kofa NWR (YPG, 2012b).

Wildfires are expensive to control, detrimental to the natural desert ecosystem, and can destroy equipment and structures. Large, intense wildfires may inhibit the mission of YPG. Wildfire in munitions impact areas cannot be contained by firefighters due to the presence of UXO. YPG may clear vegetation from testing areas and impact zones to minimize the potential for wildfires to start as a result of testing or training activities (YPG, 2012b).

YPG works with the Kofa NWR to coordinate fire monitoring efforts and to interpret vegetation data from burned areas. Wildfire monitoring plots have been established across YPG and on Kofa NWR to monitor the effects of fires on vegetation and to determine the density, frequency, and diversity of vegetation that existed before the burn. The U.S. Forest Service (USFS) incorporates data from YPG to model wildfire potential as part of its LANDFIRE wildfire monitoring and mapping program (YPG, 2012b). These efforts increase the understanding of wildfires and could be used to reduce the potential for fires in the future. The BLM, along with local agencies, serves as the primary responder to wildfire emergencies in the area (YPG, 2012b).

YPG has developed a MOU with USFWS and BLM that establishes guidance for cooperation and collaboration on wildland fire issues on YPG and the surrounding Federal lands (Appendix G). The MOU recognizes a common goal among the signatories to minimize the impacts of wildland fire on the desert landscape and established fire suppression and safety protocols for cooperative efforts to suppress desert wildfires.

3.7.2 Environmental Consequences

The following were evaluated to determine potential impacts to fire management:

- Increased fire ignition potential during construction due to the presence and operation of construction equipment
- Increased fire ignition potential from activities on new increased testing and training areas that involve potential ignition sources
- Increased wildfire spread potential as an indirect result of expansion of exotic vegetation that has a higher fuel load than native Sonoran Desert vegetation

- Increased fire management measures as an indirect result of increased wildfire ignitions

3.7.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to fire management include:

- Negligible (less than significant)—Activities that have barely perceptible impacts on wildfire frequency or intensity
- Minor to Moderate (less than significant)—Activities that would increase the likelihood or potential severity of wildfire ignition
- Minor to Moderate (less than significant)—Activities that would contribute to an increase in the size of wildfires
- Minor to Moderate (less than significant)—Activities that would affect wildfire response capabilities
- Severe (significant)—Actions that are inconsistent with the goals and objectives of YPGR 420-1 and AR 520-90

3.7.2.2 Impacts of the No Action Alternative

Under the No Action Alternative there would be no change from existing conditions with regard to fire management. No new munitions impact areas would be created, no existing munitions impact areas would be expanded, and there would be no increases in testing and training capabilities and no new testing and training areas. The potential for wildfires would remain unchanged. Conditions during years with higher rainfall would typically increase the amount of exotic invasive plant species and native annuals, including wooly plantain, and increase the fuel load in areas where these species grow. The potential for more severe fires would increase under these conditions, but no change in the frequency of wildfire ignitions as a result of activities on YPG would occur.

YPG implements an INRMP (YPG, 2012b) to maintain natural conditions of the installation. Continued implementation of the INRMP includes control and eradication of exotic invasive plant species, which can create very heavy fuel loads if left unchecked. Control of these species reduces the risk of extensive and intense wildfires. In addition, the ITAM program helps maintain natural desert habitats to provide suitable training and operational testing conditions. This program also reduces the potential for extensive and intense wildfires. There would be no impact to fire management under the No Action Alternative.

Climate change is predicted to lead to hotter and drier conditions in the Sonoran Desert, with a shift in the timing of precipitation (Abatzoglou and Kolden, 2011). Under projected conditions, native vegetation would become sparser and fuel loads would be reduced in most years, resulting in a reduced risk of wildfire. However, in years following above normal winter precipitation, exotic invasive annual grasses, such as Mediterranean grass and buffelgrass, and native annuals, such as wooly plantain, would be expected to be more prolific, resulting in a greatly increased fuel load in the following summer and an increased risk of more severe fires (Abatzoglou and Kolden, 2011). Exotic invasive plant management on YPG, as directed in the INRMP, prioritizes detection and eradication of buffelgrass (see Section 3.18) and these efforts would ameliorate future fire risks under the projected climate change.

A new EOC would not be built near LAAF and there would be no benefits to fire management.

3.7.2.3 Impacts of the Proposed Action/Preferred Alternative

The fluctuations in the levels of munitions testing and training over the past decade on YPG provide baseline and maximum levels of munitions use in testing and training. Under the Proposed Action, annual firing of munitions would remain within the upper and lower bounds seen historically, but there would be new or expanded munitions impact areas which would increase the areas where munitions may be fired. Because the number of rounds fired would be within the historical range, no change in the frequency of wildfire ignition from munitions testing and training would be expected compared to the No Action Alternative.

Areas that would be disturbed but not converted to impervious surfaces, such as DZs and UAS launch/recovery areas, bivouacs, and areas where vehicle operation or live-fire testing and training occur, offer the greatest potential for increased wildfire under the Proposed Action. Bivouacs, vehicle operation, and live-fire activities provide ignition sources that can result in wildfire. Operations at TGPs also could contribute to spread of wildfire.

The development of new or expanded munitions impact areas under the Proposed Action would result in greater ability for YPG to minimize fire risk. Where mission requirements allow, testing and training that would create new fire risks would be implemented away from areas with a high fire risk. The development of additional ranges, LTAs, and other facilities under the Proposed Action would enhance this ability and should result in a long-term reduction in wildfire risk on YPG.

Vegetation clearing and other areas where the ground is disturbed provide conditions favorable to establishment of exotic invasive Mediterranean grass, buffelgrass, and Sahara mustard. The role of Mediterranean grass in the spread of wildfire is controversial. Where stands become dense after wet winters, they may provide sufficient fuel to carry fire along what otherwise would be bare ground or desert pavement. Relatively small patches of buffelgrass are established at scattered locations on YPG, including some in very remote areas. Should the population of this species expand, buffelgrass will become YPG's most dangerous vegetation in terms of fuel load to carry wildfire (Merrill, 2012, personal communication). Sahara mustard is widely established on YPG and can develop extensive stands following wet winters. Mature Sahara mustard plants dry, break off at ground level, and blow across the landscape, scattering seeds. These tumbleweed-like plants can accumulate against fences and structures, creating pockets of fuel (Merrill, 2012, personal communication). The role of invasive exotic species on vegetation and potential impacts of these species are further discussed in Section 3.18. Efforts to control the spread of exotic invasive species through continued implementation of the INRMP and the ITAM program reduce the potential for severe wildfire that would cover extensive acreage of the desert.

Because wildfires are suppressed in the Laguna Region, the potential for wildfire escape in the Laguna Region is low. Wildfire suppression would continue in the Laguna Region under the Proposed Action. The areas with the greatest potential for wildfire in the Laguna Region would be vehicle test courses and LTAs, because there would be ignition sources from the activities conducted in these areas. Any fires that start would be suppressed. Any

impacts to activities or safety from wildfire in the Laguna Region as a result of the Proposed Action would be negligible to minor.

The potential for ignition of fires and development of extensive wildfires would be greatest in the Kofa and Cibola Regions, where live fire activities occur. In the Cibola Region, approximately 760 ac of desert scrub vegetation would be cleared for activities associated with UAS launch/recovery areas, TGPs, construction, and utilities installation. An additional approximately 71,050 ac would be converted for use as a dismounted maneuver area or vehicle test course. Approximately 16,310 (16,300 ac under the Preferred Alternative) ac in the Cibola Region would be converted to new or expanded munitions impact areas. In the Kofa Region, approximately 215 ac of vegetation would be cleared for activities associated with UAS launch/recovery areas, construction, and utilities installation. An additional approximately 53,180 ac (51,354 ac under the Preferred Alternative) would be converted for use as LTAs. An additional 26,824 ac in the Kofa Region would be used for new or expanded munitions impact areas under the Preferred Alternative. Live-fire provides potential ignition sources and the potential for ignition is frequently down-range in very remote areas. Even in areas where UXO is not a concern and fire suppression can be implemented, the time required to respond creates the potential for substantial spread of a wildfire prior to the start of control efforts.

Operation of Project K030 in the northern portion of the East Arm would result in increased potential for wildfire ignition in northern Kofa due to operation of vehicles as staff report for and depart from work and from testing activities in an area not currently used for these purposes. Travel would be limited to existing established routes to minimize the potential for vehicle-related ignitions. Any impact on fire management would be minor.

TGPs would be established at 23 locations in the Cibola Region. Individual TGPs would clear up to 2.2 ac for use. During use, these areas would not provide substantial ignition sources because they would be maintained clear of potentially interfering vegetation. Because TGPs are multiple use areas, they are unlikely to be abandoned once established. Continued use of these areas and maintenance to keep these areas suitable to meet multiple testing and training uses would prevent substantial colonization by exotic species and would maintain TGPs in a condition that would not be conducive to wildfire ignition or spread. Should a TGP be abandoned, the area would be susceptible to colonization by exotic invasive plant species, which could contribute to long-term elevated risk of wildfire ignition or spread. Continued implementation of the INRMP and ITAM program would minimize this risk.

Activities at proposed new UAS launch/recovery areas would not be expected to create substantial ignition opportunities. Areas that are cleared or disturbed would be susceptible to colonization by exotic invasive plant species, which could contribute to long-term elevated risk of wildfire ignition or spread and potentially to increased wildfire severity. Continued implementation of the INRMP and ITAM program would minimize this risk.

Activities at proposed new or expanded DZs would not be expected to create substantial ignition opportunities. Areas that are cleared or disturbed would be susceptible to colonization by exotic invasive plant species, which could contribute to long-term elevated risk of wildfire ignition or spread and potentially to increased wildfire severity. Continued implementation of the INRMP and ITAM program would minimize this risk. When DZ testing or training involves munitions, explosives, or combustible materials in proximity to

metal (such as containers or drop platforms) that could spark, a wildfire could be ignited. Many new DZs would be in remote areas and the time required to respond to a fire from a dropped cargo load would result in potential for spread of a wildfire prior to the start of control efforts. YPG will use its GIS model to predict fire risk and to schedule DZ testing and training events that would create new fire risks in areas where the fire risk is not high. The development of new DZs under the Proposed Action would result in greater ability to implement certain activities that involve new fire risks in areas where the fire risk is low, which should result in a long-term reduction in wildfire risk on YPG.

The proposed new or expanded LTAs would not be cleared, but the activities conducted during training and operational testing could provide ignition sources. There would be yearly fluctuations in the frequency, intensity, or duration of training events (as discussed in Sections 2.1.2 and 2.3.3.8), but these fluctuations would be within the maximum and minimum levels observed historically. Therefore, no increase in testing and training activities in LTAs that could cause ignition of a wildfire would occur.

Activities that involve the use of pyrotechnics or live fire where the items are delivered distant from the Soldiers could start a fire that could become established before it could be suppressed by onsite personnel. Should this occur, military personnel would evacuate the area and the fire would be reported to Range Control for initiation of appropriate fire suppression efforts.

The ITAM program would restore disturbed areas in testing and training areas where feasible. A program to conduct monitoring and eradication of exotic invasive plants on YPG is in development and, when complete, will be implemented in conjunction with continued implementation of the INRMP.

Expanded and new munitions impact areas could result in a long-term increase in the extent and amount of UXO, which would continue to hamper or prevent efforts to control wildfires in down-range areas. Because the areas proposed for new or expanded munitions impact areas already contain UXO from historical activities, no new areas would become off-limits to firefighting.

A new EOC would be constructed near LAAF, which would be a benefit to fire management and would improve firefighting at LAAF and the surrounding area. This also would be a beneficial impact to fire management on YPG.

Proposed activities L025-a and L025-b would improve vehicle access to the Kofa cantonment area and the Kofa Region, which could reduce response times in the Kofa cantonment and for down-range areas where safety constraints associated with UXO do not preclude control efforts. This would benefit fire management on YPG.

Impacts to fire management and the potential for wildfire to affect the YPG mission would be expected to be minor to moderate with the mitigation measures proposed.

There would be potential for cumulative impacts relative to fuel loading and potential spread of wildfires from increased potential for establishment and growth of exotic invasive plant species in areas disturbed but not converted to impervious surface. There also would be potential for incremental increase in ignition of wildfires from live fire activities resulting from the Proposed Action. No additional projects were identified that would have potential to interact with fire management on YPG to create cumulative impacts.

3.7.2.4 Mitigation

Mitigation measures would reduce the potential for fires and improve fire management. YPG is developing a program to monitor and manage all invasive plants on YPG. YPG would continue to implement ITAM and restore disturbed areas to natural conditions when practicable to prevent the spread of exotic invasive species.

YPG would also continue to coordinate with BLM, USFWS, and the USFS to address fire issues. YPG will share information on burn data and wildfire monitoring with these other organizations to improve fire management in the future.

To the extent allowed within safety constraints associated with UXO, efforts to control and manage wildfires on YPG would be implemented in accordance with the interagency MOU (Appendix G).

YPG would use its predictive model to schedule activities that create new fire risks in areas where the fuel load is not high, to minimize the potential for ignition and spread of wildfire.

YPG would continue cooperative efforts with other agencies in the region to develop and interpret wildfire data.

YPG would implement the following Terms and Conditions from the USFWS BO of September 9, 2014:

> 1a. YPG shall monitor environmental conditions on the Kofa Range, including weather patterns (e.g., temperature, precipitation, humidity) and status of fuels (e.g., distribution and density of annual vegetation or any other vegetation that is capable of carrying fire across the landscape).
>
> 2a. YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire department with wildland firefighting capabilities. Additionally, YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire station on the KFR to provide rapid response on the Kofa Range in the event of fire. If the fire department and/or fire station are discontinued at any time in the future, YPG shall notify USFWS-Arizona Ecological Services Office (AESO) and Kofa NWR, and this Term and Condition may need to be re-evaluated.
>
> 2b. Should YPG detect exceptional fuel conditions that are conducive to carrying fire, then YPG shall increase fire readiness by (1) providing additional fire briefings to test officers to stress the importance of initial fire spotting and early notification, and (2) subject to availability of funds, maintaining fire break infrastructure where such infrastructure is compatible with the military mission (as determined by the Senior Commander) and pronghorn conservation (as determined through coordination with Kofa NWR and USFWS-AESO) and is anticipated to reduce the risk of fire spreading to Kofa NWR (as determined by local firefighting agencies).
>
> 3a. YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to USFWS-AESO and Kofa NWR as soon as possible. The report (can be in the form of an email) will, at a minimum, include the date(s), acreage, and location(s) of the fire(s), as well as the number of

pronghorn in the vicinity of the fire, if known. YPG shall also immediately notify Kofa NWR once aware that a fire has encroached or may encroach onto the refuge.

3.8 Geological Resources

3.8.1 Existing Conditions

YPG is located within the Basin and Range Geologic Province, which is characterized by numerous mountain ranges that rise abruptly from broad, plain-like basins. Altitudes of mountains range from approximately 300 ft to more than 10,000 ft above sea level. Mountain ranges and basins in the Basin and Range Geologic Province of Arizona generally trend north to northeast and range in length from a few miles to more than 60 miles and in width from 1 mile to more than 15 miles. In the Basin and Range Geologic Province of Arizona, intermountain basins typically are through-flowing and this is the condition on YPG. Due to the proximity of the Gila and Colorado Rivers, basin washes on YPG tend to flow through to the rivers (Hendricks, 1985; U.S. Geological Survey [USGS], 2004).

The mountain-basin features of YPG result from block faulting. Exposed mountain rock weathers and is deposited as sediments, forming broad flat valleys and alluvial fans (Hendricks, 1985; USGS, 2004). Typically, sediments in basins of the Basin and Range Geologic Province result from terrestrial weathering, although some sediments in the Lower Colorado River Valley, including the YPG area, may be of marine origin (Hendricks, 1985). In this province, basin sediment depths may extend to 10,000 ft below ground surface (Hendricks, 1985); on YPG the sediment depth in basins is typically much less, but still may extend to more than 1,300 ft below ground surface (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). The type of sediment and the rate of weathering of bedrock depend on the composition of the bedrock. Sediments within basins typically contain gravels, sands, silts, clays, marl, gypsum, and salt from combinations of fluvial, lacustrine, colluvial, and alluvial fan deposits (Hendricks, 1985).

The mountain ranges in and around YPG comprise mostly tertiary and quaternary volcanic materials. The mountainous areas cover approximately 25 percent of YPG, with a maximum elevation of 2,822 ft in the Chocolate Mountains (YPG, 2012b). Dome Rock, Middle Mountains, and Castle Dome Mountains are mainly sedimentary limestone from the Paleozoic and Mesozoic eras with some sandstone, siltstone, shale, and conglomerate. The Muggins Mountains are mostly Cambrian metamorphic rocks consisting of schist, granite, and gneiss. These metamorphic rocks also crop out in the Castle Dome, Chocolate, Trigo, and Dome Rock Mountains. Minor amounts of pre-Cambrian and post-Cretaceous granites occur in the Palomas, Dome Rock, Chocolate, and Trigo ranges (YPG, 2012b).

Gold was historically mined from the Kofa, Trigo, Castle Dome, and Muggins Mountains, and also from the stream beds of the Laguna Mountains. Silver deposits, sometimes associated with lead and zinc, were mined from the Muggins and Laguna Mountains. Lead was mined in the Middle Mountains. Iron and copper were mined from the Palomas Mountains. Current mining operations are primarily limited to sources of gravel and sand for construction use. Borrow sites managed by YPG are in designated locations in developed areas, with one site in the northern Cibola Region leased to the U.S. Bureau of Reclamation for supply of fill materials (YPG, 2012b).

The Lost Trigo Fault is 4 miles south of the Cibola Region, Arizona and approximately 31 miles northwest of the Laguna Region cantonment. The Sheep Mountain Fault is southwest of Wellton, Arizona and approximately 35 miles from YPG. The Salton periphery zone, including the Cargo Muchacho fault zone, is 6 miles northwest of the City of Yuma. The Algodones fault zone is in the southwest corner of Arizona. The proximity to seismically active faults in southern California puts the YPG area at risk of earthquakes, although the potential for health hazard and property damage is considered low (YPG, 2012b). The chance of an earthquake with a magnitude greater than 5.0 within 50 years ranges from less than 10 percent to 40 percent across the installation. The greatest potential for earthquakes is in the southwest portion of YPG and the lowest potential for earthquakes is in northern Cibola and eastern Kofa Regions (Parsons, 2011). The peak ground acceleration with a 2 percent chance in 50 years that would be expected from seismic activity ranges from 0.06 to 0.21 g (the acceleration due to gravity), which is considered minimal to moderate (USGS, 2008).

3.8.2 Environmental Consequences

Because there would be no potential for impacts to this resource area, the discussion of impacts is abbreviated and significance criteria and proposed mitigation are not provided.

3.8.2.1 Impacts of the No Action Alternative

There would be no change to existing conditions under the No Action Alternative. As a result, there would be no potential for direct, indirect, or cumulative negative impacts to or from geology.

3.8.2.2 Impacts of the Proposed Action/Preferred Alternative

None of the considered activities would affect the geology of the region. Geologic conditions, including seismicity, are not expected to affect implementation of any considered activity. There would be no potential for direct, indirect, or cumulative negative impacts to or from geology.

3.8.2.3 Mitigation

Because no impacts to geological resources would occur, no mitigation is proposed for this resource area.

3.9 Hazardous Materials/Hazardous Waste

3.9.1 Existing Conditions

3.9.1.1 Background

Hazardous substances are defined as any of the following: any substance designated pursuant to Section 311 (b)(2)(A) of the Clean Water Act (CWA); any element, compound, mixture, solution, or substance designated pursuant to Section 102 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); any hazardous waste having the characteristics identified under RCRA; any toxic pollutant listed under the Toxic Substances Control Act (TSCA); any HAP listed under Section 112 of the CAA; or any imminently hazardous chemical substance or mixture on which the USEPA Administrator has taken action pursuant to Subsection 7 of the TSCA. A list of hazardous substances is found in 40 CFR 302.4.

Environmental programs at YPG use management actions to minimize use of hazardous substances and reduce resulting waste streams. Chapter 3 of YPGR 385-1 addresses environmental health risks and applies to all activities on YPG. Strict spill prevention requirements add additional protection for human health and the environment. Industrial processes, routine maintenance activities, testing, and support activities are the primary operations on YPG that use hazardous substances or generate wastes (YPG DPW, 2010b). Lead, in the form of as lead-based paint (LBP), and ACMs also may be present in older structures on the installation. Renovations of residences and other buildings are gradually eliminating these materials from buildings at YPG (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). The hazardous materials that are stored on YPG include live high explosives (HEs) and white phosphorus (WP) artillery and mortar ammunition, propellants for such projectiles, various fuels, and projectiles containing DU. Waste products produced by these items are disposed of by various safe methods (Mittlehauser Corporation, 1994).

No hazardous substances or waste are permanently stored, treated, or disposed of at any of the off-post locations used by YPG. Transport of hazardous substances is in accordance with legal requirements. Periodic audits are conducted at YPG facilities where hazardous substances are used and all hazardous substance use is tracked through the Hazardous Material Control Center (HAZMART) using the Hazardous Substances Management System (HSMS). These audits serve as a tracking system for hazardous substance use. In addition to obtaining material usage amounts, storage and containment are investigated. Emphasis is placed on the prevention and control of spills.

As discussed in Section 3.20, groundwater in the vicinity of YPG contains naturally high levels of arsenic.

3.9.1.2 Hazardous Substances Management

YPG stores gasoline, diesel, and chlorine in quantities above reporting limits set by the Arizona Emergency Response Commission (AERC). These substances are reported annually in a Tier II Emergency and Hazardous Chemical Inventory submitted to the AERC and the local Emergency Planning Commission. The Tier II form provides State, tribal, and local offices and the public with specific information on hazardous substances present at YPG. Submission of the Tier II form is required by the Arizona Emergency Planning and Community Right-to-Know Act (EPCRA), which implements Title III of the Federal Superfund Amendments and Reauthorization Act (SARA) of 1986 (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). As an Army testing facility, YPG stores, utilizes, and destroys considerable quantities of propellants, explosives, and pyrotechnics (PEPs). Additionally, small quantities of oil, paint, and acetone are consumed. Industrial radiography for examination of ammunition utilizes photographic chemicals and hydraulic fluids. Historically, YPG operated several solid waste management units (SWMUs) under a RCRA permit issued by the Arizona Department of Health Services in 1980 and subsequently amended as needed, usually every 10 years, with the most recent revision in 2007 (YPG, 2007). In 1996, ADEQ and YPG agreed on a management strategy for SWMUs that involved investigation and cleanup under CERCLA. Additionally, the Army completed a remedial investigation of the installation as part of the DoD Installation Restoration Program (IRP) in 2002. Several removal actions have since been conducted at YPG, as well as interim remedial actions involving soil vapor extraction. Data indicate that other sites on

YPG warrant remedial response and ongoing studies at these sites will be used to determine an appropriate response strategy. Contaminants of concern include petroleum hydrocarbons, VOCs, semi-volatile organic compounds (SVOCs), metals, and PEPs (ADEQ, 2009).

YPG uses a Hazardous Waste Tracking System for all hazardous wastes generated through industrial activities. Hazardous wastes at YPG are managed successfully through the Hazardous Waste Storage Facility (HWSF) located in the YTC area. The HWSF consists of multiple storage pads, Buildings 2668—2677, with each storage pad numbered as a separate building. Hazardous wastes and expired hazardous substances accumulate at this location until disposal. No wastes from outside YPG are accepted at the HWSF and no treatment or permanent disposal of wastes occurs at the HWSF. Hazardous substances are stored according to Army regulations and all applicable Federal, State, and local ordinances and then disposed of properly in appropriate facilities (YPG, 2012b).

3.9.1.3 Installation Restoration Program Areas

There are approximately 1,635 ac, including 32 SWMUs and Areas of Concern, managed under the IRP areas at YPG. New facilities can be constructed within certain IRP sites depending on the level of contamination, clean-up efforts, and land use controls. Approval of new construction within IRP sites must be obtained from the YPG Environmental Division.

Historically, YPG operated several SWMUs under a RCRA permit issued by the Arizona Department of Health Services in 1980 and subsequently amended as needed, usually every 10 years, with the most recent revision in 2007. In 1996, ADEQ and YPG agreed on a management strategy for SWMUs that involved investigation and cleanup under CERCLA. Additionally, the Army completed a remedial investigation of the installation as part of the DoD IRP in 2002. Several removal actions have since been conducted at YPG, as well as interim remedial actions involving soil vapor extraction. Data indicate that other sites on YPG warrant remedial response and ongoing studies at these sites will be used to determine an appropriate response strategy. Contaminants of concern include petroleum hydrocarbons, VOCs, SVOCs, metals, and PEPs (ADEQ, 2009).

There are 32 SWMUs at YPG, primarily in the West Environmental Test Area and the Former Waste Disposal Area. Two of the sites are in the Cibola Range area. Many of these sites are concrete pads, municipal sewage septic tanks, and inactive disposal areas classified as No Further Action Required or are in the process of closure. All proposed projects are reviewed by TPG Environmental Sciences staff for potential impacts prior to implementation (Lewis, 2011, personal communication).

3.9.1.4 Ordnance

Munitions and explosive materials are stored in designated areas. Munitions and explosive storage areas are buffered by EQSD arcs, which provide a safe zone if an unexpected explosion were to occur. There are numerous storage facilities located on the KFR, including a facility for the preparation and modification of all calibers of ammunition, experimental munitions, and small rockets. This facility can store 4.5 tons of explosive items.

Most munitions testing at YPG is conducted at the KFR, which also is used for artillery and mortar testing. GPs at the Kofa Region are both fixed and temporary. The Cibola Region, the

other major range at YPG, primarily supports aircraft armament testing. Tested systems at the Cibola Region include rockets, cannons, and an array of other armaments.

The heavy use of live-fire testing areas for military weapons results in the presence of UXO throughout test areas that must be cleared by Explosive Test Operators. Special techniques are required and regular sweeps of the ranges are conducted. However, substantial quantities of UXO remain on Cibola and Kofa Regions (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

MCOCs may be present throughout YPG in areas where live-fire testing or training occurs and in areas where live munitions are tested for stability and transport. Department of Defense Instruction (DoDI) 4715.14, dated 30 November 2005 was issued to ensure the long-term viability of operational ranges while protecting human health and the environment. YPG was initially tested in 1999 to determine whether MCOCs could migrate off-range at levels that could pose an unacceptable risk to human health or the environment (U.S. Army Center for Health Promotion and Preventative Medicine [USACHPPM]). In 2005, a second range assessment was conducted in response to changes in range use to support the wars in Afghanistan and Iraq, as required by DoDI 4715.14 (USACHPPM, 2007). This study also assessed the potential for pyrotechnics to contribute to MCOCs due to the use of potassium perchlorate in many military pyrotechnics. In 2012, the YOPG ranges were assessed again (EA Engineering, Science, and Technology Inc., 2014). It has been determined that MCOCs are not common in YPG soils (2 percent detection frequency in soil samples) and that there is no evidence to indicate that MCOCs would migrate off of the range complex via runoff and erosion in desert washes (USACHPPM, 1999; USACHPPM, 2007; EA Engineering, Science, and Technology Inc., 2014). Further, leaching to groundwater is not considered a viable pathway for migration due to the extremely low precipitation and the typically great depth to groundwater on YPG. The ranges on YPG are classified as "munitions present, pathways unlikely" and sampling is required every 5 years or more frequently if there are significant changes in range operations, site conditions, or applicable statutes, regulations, or policies that affect range use or the conclusions of the determination (USACHPPM, 1999; USACHPPM, 2007; EA Engineering, Science, and Technology Inc., 2014).

Data collected from the Kofa Region indicate that no degradable explosives remain following firing events. Further, explosives residues were not detected in rodents, insects, vegetation, groundwater, or air from the Kofa Region. Data indicate that the alkaline desert soil may promote degradation of explosives compounds (YPG DPW, 2010b).

YPG is licensed through the NRC to conduct firing involving munitions that contain DU. The NRC-licensed DU impact area is in the northwestern part of the Kofa Region and is regularly monitored to ensure that no adverse environmental impacts occur. After firing, the NRC-licensed DU impact area is searched to recover spent DU rounds (YPG, 2012b). Spent DU rounds are stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. The NRC-licensed DU impact area has a DU Catchment Structure designed to capture DU penetrator rods fired in the DU impact area. An evaporative lagoon designed to collect runoff from the DU Catchment Structure is capable of accommodating a 100-year flood event. This lagoon minimizes the potential for transport of DU (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

MCOCs that result from testing include cadmium, mercury, arsenic, barium, chromium, copper, lead, and zinc. Data indicate that none of these metals migrate beyond the munitions impact areas (USACHPPM, 1999; USACHPPM, 2007; EA Engineering, Science, and Technology Inc., 2014). MCOCs may be acutely hazardous in the immediate area of explosive munitions (YPG DPW, 2010b).

Ordnance management is highly controlled. Basic requirements for care of ammunition are defined in Chapter 22 of AMC Regulation (AMC-R) 385-100. Personnel do not handle ammunition unless they are certified under AMC-R 350-4. Ammunition is stored in specially designed magazines. These facilities are located in isolated areas with controlled access.

3.9.1.5 Open Burn/Open Detonation Management Unit

Waste munitions items are treated for hazardous characteristics due to ignitability and/or reactivity by deactivation and subsequent disposal. The open burn/open detonation (OB/OD) treatment process for waste munitions is conducted in accordance with AAC R18-8-264, CFR, Title 50, and the RCRA Part B Permit for YPG. OB/OD is normally the safest method available for the effective destruction, decontamination, and treatment of explosives and explosive wastes for subsequent disposal. These munitions items pose a safety hazard to transport prior to destruction/decontamination.

The OB/OD management unit commonly operates at 100 percent of its daily capacity: 4,000 lb of propellants for open burning and 1,000 lb of explosives or open detonation (RCRA permit attachment). On an annual basis, the OB/OD management unit operates well below its yearly capacity, 191,500 lb of propellants and 36,210 lb of explosives.

The OB/OD site is a satellite accumulation area for waste ash. Waste ash is a by-product of propellant burning, and chemical analysis has detected lead in the waste ash. For this reason, the ash is treated as hazardous waste. Waste ash is accumulated in a sealed and labeled 55-gallon drum, located inside the safety bunker. When full, the drum is transported from the OB/OD site to the HWSF.

The OB/OD facility is completely surrounded by military land used for military activities, and public access is prohibited. No residential communities are located within several miles of the OB/OD facility. Locked gates and warning signs limit site access. Security police patrol the area 24 hours per day.

The Kofa Region OB/OD fenced area measures approximately 7,000 ft by 7,000 ft (approximately 1,125 ac). The OB/OD management unit is a large cleared area consisting of open trenches and two 100-ft x 80-ft open-burn, concrete pads. The open burn areas are lined with high-density polyethylene, with 4-inch refractory ceramic fiber concrete topping coat and three pans on each pad. The pads and pans are used to treat (by burning) excess propellant and ammunition-related materials. Propellant and powder are carefully loaded in burn pans and the material is ignited and left to burn completely. Lead-contaminated ash is collected from the pans and pads for disposal as hazardous waste. The OB/OD facility is operated in accordance with a RCRA Part B Interim Permit authorized by ADEQ. Lined concrete stormwater detention basins about the pads, and secondary containment is provided by reinforced earthen berms. Monitoring wells are located at each site in accordance with the RCRA permit and an Aquifer Protection Permit (YPG, 2008c).

The OB/OD management unit is a satellite accumulation area. No waste explosives (USEPA Hazardous Waste Code D003) are stored at the OB/OD treatment facility. All waste explosives are destroyed by OB/OD treatment. Waste ash (USEPA Hazardous Waste Code D008) is a by-product of burning propellants, and is accumulated in a 55-gallon drum marked with USEPA and U.S. Department of Transportation labels. The ash is temporarily held on the OB/OD treatment facility, inside the safety bunker approximately 3,000 ft from the burn pads and trenches, for later transport to the HWSF.

3.9.1.6 Fuels and Petroleum Products

Fuels at YPG are stored in aboveground storage tanks (ASTs) and underground storage tanks (USTs) for use on the installation. There are 22 ASTs at YPG with a total capacity of 139,298 gallons (Brandon, 2011b, personal communication). These ASTs primarily are used for storage of fuel oil, used oil, aviation fuel, gasoline, or diesel fuel. Many of the ASTs have secondary containment structures to prevent release to the environment in the event of a spill (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). USTs on the installation primarily contain Jet Propellant 8 (JP-8), heating oil, or gasoline. YPG currently maintains 20 active USTs with a total storage capacity of 27,569 gallons for this purpose (Brandon, 2011b, personal communication; Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Under USEPA regulations, facilities with USTs are required to replace them or to install corrosion protection and spill/overflow prevention technology. YPG conducted leak testing of regulated USTs under a POL contract between 1991 and 1995, and is in the process of removing its remaining USTs (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Most POLs, including fuels, are stored either in USTs or ASTs. There are three new fuel facilities with ASTs that are used to store and dispense fuel for government fleet vehicles, including emergency services such as ambulance and fire trucks, and vehicles being tested by Yuma Test Center (YTC), including aviation systems and assets. These three fuel facilities, contractor owned and contractor operated, are located in the Laguna Region at YTC, LAAF, and the Kofa Cantonment (YPG DPW, 2011a). In addition, small amounts of POLs are stored at individual sites and various industrial working locations around the installation for use as necessary in maintenance and repair of vehicles and equipment. In compliance with USEPA regulations, YPG has begun removal of its regulated USTs and all remaining regulated USTs are scheduled for removal and final site characterization. In the meantime, USTs are monitored monthly. Inactive USTs are monitored by vacuum testing and those with good integrity are buried in place (Brandon, 2011b, personal communication).

YPG recycles used oils, which are collected in ASTs and stored in labeled 55-gallon drums. The used oil is picked up by a private contractor for recycling. Control practices such as oil/water separators attached to vehicle wash racks minimize the potential for discharge from normal operations.

The annual volumes of the most often used POLs have not changed substantially in the past 20 years. An exception to this is gasoline. A gasoline station that had three 10,000-gallon tanks was replaced with a station with a two-compartment tank with a 15,000-gallon capacity (Brandon, 2011b, personal communication; Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.9.1.7 Solvents

Solvents are used for parts cleaning during routine maintenance of vehicles and weapons systems. The two most commonly used solvents are Safety-Kleen® solvent and PD680 (Stoddard solvent). Most maintenance activities use Safety-Kleen® solvent, while PD680 is used in aircraft and vehicle maintenance. Safety-Kleen® cold degreasing tanks are located in various buildings on YPG, and degreasing tanks are equipped with a solid stream dispensing nozzle and an interior drain rack. Safety-Kleen® solvent is reclaimed by Safety-Kleen® Corporation on a quarterly basis and pickup manifests are maintained. PD680 is maintained in a cold cleaner immersion tank with an enclosed design in aircraft maintenance areas (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.9.1.8 Pesticides and Herbicides

Pesticide and herbicide use is minimized and chemicals are mixed only in quantities needed for specific application. Annual use of pesticides and herbicides is tracked via the Pest Management Report (Form DD1532). An inventory of chemical pesticides and herbicides is maintained at YPG. Pesticides and herbicides are stored on a concrete spill containment pad within a fenced complex. Information on pesticides and herbicides used on YPG, and a copy of the inventory, are included in the YPG SPCCP and the RCRA Contingency Plan (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Material Safety Data Sheets (MSDSs) for all chemicals used on YPG are available with the chemical inventory. Pesticides and herbicides used on YPG are registered with USEPA, and containers are properly labeled in compliance with the Federal Insecticide, Fungicide, and Rodenticide Act: Part II (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.9.1.9 Asbestos, Lead, and Polychlorinated Biphenyls (PCBs)

YPG has identified buildings on the installation with ACM and has implemented a program of systematic removal from structures as they are renovated or replaced. A site-specific survey for ACM is required prior to initiation of renovation or demolition. Asbestos abatement during construction and renovation is implemented per Asbestos Hazard Emergency Response Act regulations. ACM is managed and disposed of in accordance with the YPG Asbestos Management Plan (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

Lead may occur on YPG either as LBP in older buildings or as a by-product of OB/OD activities. A lead abatement survey was completed for the general housing area and older industrial buildings. An LBP Management Plan was implemented in 1995. The plan is followed before and during renovations of housing and administrative facilities. The management of LBP continues in accordance with Department of Housing and Urban Development guidelines. LBP is disposed of according to RCRA guidelines. Lead ash from OB/OD activities is managed in accordance with RCRA requirements and pollution prevention principles (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

The only known PCBs at YPG were associated with transformer oil. As of April 1997, all transformers known to contain PCBs had been removed and replaced with non-PCB transformers (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). No PCBs are known to remain on the installation.

3.9.1.10 Hazardous Waste Management

U.S. Army regulations specify that management of hazardous wastes must comply with the most stringent Federal, State or local requirements. These regulations not only define hazardous wastes, but, in compliance with Arizona Department of Health Services specifications, also define testing and inspection procedures at the OB/OD facility.

The YPG (HAZMART) tracks all hazardous substance use on-post using the HSMS. Exceptions to the HAZMART tracking are the health clinic, veterinary clinic, and post housing (Jason Associates Corporation, 2008d). The HSMS is an automated chemical tracking system designed to provide "cradle-to-grave" tracking for hazardous substances at the chemical constituent level. The program is designed to centralize the ordering of hazardous substances. The program facility (HAZMART) is the primary collection, storage, distribution, and disposal center for all quantities of hazardous substances at YPG. The functional categories of the HAZMART are control and management, regulated distribution, material reuse and recycling, and reduction of hazardous waste.

Hazardous wastes generated at YPG are managed using the HWSF located in the YTC area. Hazardous wastes and expired hazardous substances accumulate at this location until disposal. No wastes from outside YPG are accepted at the HWSF. No treatment or waste disposal occurs at the HWSF.

YPG maintains a thorough hazardous waste tracking system (HWTS) for all hazardous wastes generated on-post. As wastes are prepared for shipment, the waste generator logs into the HWTS and produces a waste analysis sheet based upon laboratory analysis, generator knowledge, or MSDSs. This analysis is reviewed and approved by the installation environmental coordinator for submittal to the HWSF. The Hazardous Waste Manager generates a DD Form 1348-1A for submittal to the Defense Logistics Agency Disposition Services (formerly Defense Reutilization and Marketing Office) and the waste is again temporarily stored. HAZMART personnel then prepare shipping manifests. Finally, licensed disposal contractors pick up the waste. This system allows detailed tracking of hazardous waste during the entire disposal process (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001; and Jason Associates Corporation, 2008d).

The potential for fuel spills exists in all YPG regions, but the potential is highest in the Laguna Region, where the largest storage tanks are found and where most maintenance operations occur. Tank truck loading and unloading has the potential for large quantity spills. SOPs have been developed to ensure that tank car, tank truck, and vessel loading and unloading procedures meet the requirements and regulations established by the Arizona Department of Transportation and are conducted appropriately to prevent spills. POLs are necessary for maintenance activities and these materials are used in large quantities that fluctuate based on mission requirements.

Routine maintenance and industrial processes are performed in the Cibola Region, and field maintenance of test equipment and weapons occurs in both the Kofa and Cibola Regions. These activities utilize various oils and small quantities of paint, solvents, and lubricants. The Light Armored Vehicle Division at Castle Dome Annex conducts welding, maintenance, and mechanical work that consumes oils, antifreeze, sulfuric acid, paint, and acetylene gas. Conex boxes are used to store in-use hazardous substances (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). There is no long-term storage of hazardous substances

or treatment of hazardous wastes in the Cibola or Kofa Regions, except for munitions bunkers in the Kofa Region. Any wastes generated are taken to the HWSF until disposal offsite. Fuel for vehicles and generators is available from portable fuel tanks and there is potential for spills from refueling activities.

Maintenance of tracked and wheeled vehicles accounts for most of the hazardous substances used and stored in the Laguna Region. Other facilities in the Laguna Region use and store hazardous substances in small quantities.

Chlorine is stored and used in the Laguna Region and the quantities are reported to the EPCRA Reporting Center under Section 313, Title III of SARA and the Pollution Prevention Act of 1990. In years when YPG has no accidental chlorine releases, reporting information is based on storage amounts. YPG works to decrease the use of chlorinated solvents where military specifications provide flexibility. YPG has replaced chlorinated solvents with more environmentally responsible alternatives where mission requirements allow. Safety-Kleen® solvent has replaced PD680 solvent in many applications at YPG. Used Safety-Kleen® solvent is collected and recycled by Safety-Kleen® Corporation outside the installation.

3.9.1.11 Spill Containment

The installation fire department can provide emergency response in the event of a large spill. The RCRA Contingency Plan and the SPCCP provide information on the storage and handling of petroleum-based products, hazardous substances, and appropriate response actions in the event of fire, explosion, or release of hazardous substances and wastes.

3.9.1.12 Disposal

The Universal Waste Rule issued by USEPA (40 CFR 273) is designed to reduce the amount of hazardous waste items in the municipal solid waste stream, encourage recycling and proper disposal of certain common hazardous wastes, and reduce the regulatory burden on businesses that generate these wastes. The rule is intended to promote recycling of batteries, mercury-containing thermometers, and recalled pesticides by relaxing collection, handling, and transportation requirements; and to make it easier to properly treat and recycle these wastes. YPG coordinates with MCAS Yuma and other government agencies to consolidate wastes that are subject to the Universal Waste Rule to increase the cost-effectiveness of recycling and disposal of the waste.

3.9.2 Environmental Consequences

The following were evaluated to identify potential environmental consequences associated with hazardous materials/hazardous waste:

- Increased use of hazardous materials in testing and training activities
- Increased generation of hazardous wastes from operations on YPG
- Increased risk of exposure to hazardous materials or hazardous wastes through testing or training activities
- Use of explosive or incendiary materials in areas where not previously used

Observed impacts of past use and storage of hazardous materials/hazardous waste were used to identify the expected impacts of future use and storage. Potential impacts from hazardous materials/hazardous waste used in testing and training activities were analyzed

in a similar manner. Potential impacts of construction and infrastructure improvement activities were analyzed using the best available information for proposed site-specific actions.

3.9.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to hazardous materials/hazardous waste include:

- Negligible (less than significant)—Activities that result in barely perceptible increases in environmental or human exposure to hazardous materials and hazardous waste and existing management plans and procedures are sufficient to mitigate the risk without establishment of new or additional measures.
- Minor to Moderate (less than significant)—Activities that have potential to increase environmental or human exposure to hazardous materials and hazardous waste through explosion, spill, or other release and existing management plans and procedures are sufficient to mitigate the risk without establishment of new or additional measures.
- Minor to Moderate (less than significant)—Activities that increase the risk for an accidental spill of hazardous or toxic materials in or near a body of water or a desert wash and existing management plans and procedures are sufficient to mitigate the risk without establishment of new or additional measures.
- Minor to Moderate (less than significant)—Activities that have potential to increase the risk of danger to the public or environment during the storage, transport, or use of hazardous materials and existing management plans and procedures are sufficient to mitigate the risk without establishment of new or additional measures.
- Severe (significant)—Activities that have potential to increase environmental or human exposure to hazardous materials and hazardous waste through explosion, spill, or other release such that existing management plans and procedures are not sufficient to mitigate the risk and additional measures must be established.
- Severe (significant) –Activities that have potential to violate one or more applicable regulations.
- Severe (significant)—Activities that have potential to increase the risk for an accidental spill of hazardous or toxic materials in or near a body of water or a desert wash such that existing management plans and procedures are not sufficient to mitigate the risk and additional measures must be established.
- Severe (significant)—Activities that have potential to affect contaminated sites or the progress of remediation activities to a significant degree and require significant regulatory re-negotiation of selected site remedies or result in significant delays to existing remediation plans.
- Severe (significant)—Activities that have potential to increase the generation of hazardous substances to a level that existing management plans and procedures, waste handling contracts, and/or disposition alternatives must be re-evaluated.
- Severe (significant)—Activities that have potential to increase the risk of danger to the public or environment during the storage, transport, or use of hazardous materials such

that existing management plans and procedures are not sufficient to mitigate the risk and additional measures must be established.

- Beneficial—Activities that have potential to reduce the use of hazardous materials, reduce the generation of hazardous wastes, or reduce the potential for exposure to hazardous materials or hazardous wastes.

3.9.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, testing and training would continue to fluctuate between historical high and low levels and no new construction or demolition would occur. No test areas, munitions impact areas, or DZs would be expanded under the No Action Alternative. Under the No Action Alternative, use of hazardous materials would continue at current levels and the amounts of regulated and non-regulated hazardous wastes would be unchanged. Contaminated sites would continue to be managed with existing agreements with USEPA and ADEQ. Localized hazardous waste impacts could result from minor leaks associated with on-road and off-road vehicle use and maintenance, POL spills, and chemical decomposition of military constituents from live-fire activities. Activities would comply with the BMPs identified in the SPCCP and ISCP.

Range assessments to determine the potential for transport of MCOCs off-range will continue to be conducted, as directed by DoDI 4715.14, under the No Action Alternative. Should migration of MCOCs be indicated, YPG would implement appropriate measures to protect human health and the environment.

The program to close or remove all USTs would continue. Implementation and use of the HSMS would minimize the potential for release of hazardous materials. All activities would be conducted in compliance with the YPG SPCCP (Zia Engineering and Environmental Consultants, 2011).

The low annual rainfall, generally level gradient of desert pavement, and high specific gravity of DU limit the transport of DU to washes. Insufficient rainfall also limits the flow in washes, thereby limiting the probability of transporting DU off-post to the Gila or Colorado Rivers (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Additionally, spent DU rounds are collected by Ammunition Recovery personnel and spent DU rounds are stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. YPG has an evaporative lagoon to collect and contain runoff from the DU Catchment Structure that can accommodate a 100-year flood event. This lagoon minimizes the potential that migration would occur from stormwater runoff. Studies have shown (Obregon, 2013c, personal communication) that DU is contained within the DU licensed area and does not migrate. There is no reasonable potential for off-post migration of DU as the NRC-licensed DU impact area is more than 10 miles from the boundary. Climate change is predicted to lead to hotter and drier conditions in the Sonoran Desert, with a shift in the timing of precipitation (Abatzoglou and Kolden, 2011). Under projected future climate conditions, the evaporative lagoon that collects runoff from the DU Catchment Structure would be sufficient to continue to contain runoff from the 100-year design storm.

There would be no beneficial impacts associated with new POL storage areas and reductions in handling and transportation of fuel from installation of hard power under the No Action Alternative.

3.9.2.3 Impacts of the Proposed Action/Preferred Alternative

Testing and training activities included in the No Action Alternative would continue and would be conducted over a wider area under the Proposed Action. Annual levels of testing and training would be expected to fluctuate within historical maximum and minimum levels based on specific needs. The impacts from hazardous materials/hazardous waste that would occur under the No Action Alternative also would occur under the Proposed Action.

None of the activities that would be implemented under the Proposed Action would involve testing or training with DU rounds. As discussed under the No Action Alternative, no off-post impacts from DU would be expected.

All activities that would be implemented under the Proposed Action would be confined within the existing YPG boundaries and there would be no potential for off-post impacts, except as a result of stormwater transport of contaminants (e.g., MCOCs) to washes and downstream receiving waters. Activities that create increased impervious area or clear vegetation could result in increased stormwater runoff. Appropriate construction and post-construction BMPs would be implemented to minimize the potential for increased stormwater runoff during or following land-disturbing activities (see Sections 3.15 and 3.20). Potential impacts would be similar to those of the No Action Alternative. Any impacts would likely be minor.

One proposed construction activity overlaps with an IRP site, and four proposed construction activities are in proximity to IRP sites (Figure 3-3). Proposed activity K023 would construct an electrical power transmission line that would cross an inactive demolition IRP site (YPG-006). If the final design crosses the IRP site, ground disturbance would be limited to placement of support poles, and worker exposure to potential contaminants would not be expected. Proposed activity K031 would construct a new sewage lagoon approximately 75 ft from IRP Site YPG-29, which is an inactive landfill. Hazardous waste disposal did not occur at YPG-29, and no further action is required to remediate this site (Parsons, 2013). Because no additional work is needed to remediate this IRP site, it is very unlikely that construction workers would be exposed to hazardous materials during construction. Proposed activities L001a-b and L015a-b L109 would occur near IRP Site YPG-127, which was historically used as a septic building. Proposed activity L109 would occur near IRP Site YPG-122, which was historically also used as a septic building. The three projects would occur at least 300 ft from either IRP site, and associated ground disturbance during construction would not likely expose construction workers to contaminants. Operation of the proposed facilities would not expose personnel to contaminants, and no impacts from hazardous materials would be expected during operations after construction is complete.

Proposed activityL019 would expand LTAs to include IRP Site YPG-127 (Figure 3-3). Proposed activity L033 would expand the Hill 630 LTA to encompass IRP Sites YPG-002 and YPG-141 (Figure 3-3). There would be no ground disturbance associated with expanding the LTAs and the expanded LTAs would be used for dismounted maneuvers only, with no associated ground disturbance. Therefore, personnel would not likely be exposed to contaminants during operation of the expanded LTAs.

If new facilities would be located in previously contaminated sites, appropriate protective measures would be implemented to safeguard construction workers who may be exposed to

contaminants. In addition, the Army would consult with State and federal agencies. Completing this regulatory consultation would add time and cost to projects planned in such areas.

Construction and facility improvement activities would have little potential for direct impacts from hazardous materials. There could be temporary and minor indirect impacts from building renovations or demolition if the buildings have ACM. This risk would be greatest in the Laguna Region, where most renovation and demolition would occur. Appropriate protective procedures would be implemented when activities could result in exposure of construction workers to ACM. Any impacts would likely be minor. Demolition of existing buildings that may contain hazardous substances such as ACM could create an increase in hazardous waste generation. Any such waste would be managed and disposed of appropriately following established procedures. Any impacts would likely be minor.

Construction areas would have the potential for stormwater runoff to transport minor quantities of hazardous materials from spills into washes and ultimately to downstream receiving waters. Standard construction BMPs (see Sections 3.15 and 3.20 for further discussion of construction stormwater BMPs.) and procedures in the Construction SWPPP, which would be consistent with the Installation SPCCP and the ISCP, would be in place during construction to minimize the potential for accidental release of hazardous materials to impact the environment. Impacts would likely be minor to moderate.

Increased impervious area following construction and paving would have the potential for increased stormwater runoff, which could transport minor quantities of hazardous materials from spills into washes and ultimately to downstream receiving waters. Appropriate post-construction stormwater BMPs (see Sections 3.15 and 3.20 for further discussion of post-construction stormwater BMPs.) would be implemented to minimize the potential for impacts. In addition, activities would comply with the BMPs identified in the SPCCP and ISCP. Impacts would likely be minor.

The proposed increases in testing and training capabilities throughout YPG would have the potential for increased use of hazardous materials and an increase in the need for disposal of hazardous wastes. Expansion of munitions impact areas in the Kofa and Cibola Regions would increase the area into which HE and inert munitions could be fired, which could increase the potential for hazardous wastes from munitions to accumulate in soils. Materials in soil would have the potential to subsequently enter the shallow groundwater table through infiltration. The ITAM program would maintain suitable conditions for training areas and development and implementation of activity-specific SOPs for testing and would minimize the potential for impacts. Testing and training activities in new locations could impact soils and groundwater as a result of contamination from spills of POLs and use of explosives. Activities would comply with the BMPs identified in the SPCCP and ISCP to minimize the potential for contamination.

By dispersing use of munitions over a greater number of sites, the potential for accumulation of MCOCs in soils at any one site would be decreased due to less use per site. Range assessments to determine the potential for migration of MCOCs would continue as described under the No Action Alternative. Periodic studies to determine whether MCOCs have potential to migrate beyond installation boundaries will be conducted and the protocols will be modified to address new and expanded munitions impact areas. See

Sections 3.15 and 3.20 for further discussion of measures to minimize the potential for impacts to soils and water resources. Impacts would likely be minor to moderate.

Operation and maintenance of new facilities and equipment would require some use of hazardous materials and generation of hazardous waste. These materials would continue to be used only in the minimum amount needed. Any increase in use and storage would be minor. Impacts from increased use and storage would be negligible to minor. Disposal of hazardous wastes would follow the established procedures on YPG. Because quantities generated would be small, any impacts would be minor.

Air conditioning systems for buildings that would be constructed could use hazardous materials as a coolant. To comply with1996 Federal Regulations that require Class I or II refrigerants for new air conditioning equipment. YPG will procure non-ozone depleting chemicals refrigerants for new air conditioning components.

Fluctuations in the demand for live-fire training activities would require periodic increases in the transport of ordnance and hazardous substances. Existing policies and procedures for storage and transport of ordnance and hazardous substances would not need to be modified to address this increased demand. Any impacts would likely be minor to moderate. See Section 3.17 for further discussion.

Installation of hard power and telecommunications lines at training and testing sites would decrease down-range transport of fuel because the number of portable generators in use would be reduced. This would result in less transport of fuel to test locations and less handling of fuel at the test location, which would reduce the potential for spills and reduce the potential for impacts. This would be a minor to moderate benefit.

Through the continued implementation and use of the HSMS, steps would be taken to minimize the potential release of hazardous materials and all activities would be in compliance with the YPG SPCCP (Zia Engineering and Environmental Consultants, 2011).

Testing of wheeled and tracked vehicles and vehicle components would have the potential for contamination from leaks or spills of POL and other vehicle fluids on new test facilities. Activities would comply with the BMPs identified in the SPCCP and ISCP. In addition, development and implementation of activity-specific SOPs for testing would minimize the potential for impacts. Impacts likely would be minor.

The POL storage area and fuel farm planned for the Laguna Region would have the potential for impacts from spills during storage or during transport to these facilities. Secondary containment and implementation procedures outlined in the SPCCP and implementation of the ISCP would minimize the potential for release to the environment. Impacts would be negligible to moderate.

Proper handling, treatment, and disposal of munitions and munitions components at the munitions treatment facility proposed for the Laguna Region would minimize the potential for impacts at this facility. BMPs and procedures outlined in the SPCCP would be followed to further minimize the potential for releases of hazardous materials. Impacts would likely be minor.

New POL storage facilities or improvements to existing POL storage facilities would occur at multiple locations in the Cibola Region. By providing appropriate facilities for storage and containment of POLs, the potential for spills would be reduced and the potential for

release of hazardous materials to the environment would be minimized. This would be a minor to moderate benefit.

Operation of Project K030 would introduce onsite storage of small quantities of POLs in the northern portion of the East Arm. The East Kofa Operations Center (K025a) would provide appropriate facilities for storage and containment of POLs and the potential for spills or for release of hazardous materials to the environment would be minimized. Any impacts would be negligible.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). While minor amounts of hazardous materials would likely be used during construction of such a facility, no cumulative impacts to hazardous materials would be expected from construction. Should a dry-cooled concentrating solar facility be selected as the technology to be implemented, thermal cooling fluid and brine would be by-products of electrical power generation that would require disposal. The heat transfer material for a dry-cooled concentrating solar facility typically would be a Therminol compound. There are 13 Therminol heat transfer fluids marketed in North America, which encompass a range of hazardous waste classifications when disposed of, ranging from not a hazardous waste to may be a hazardous waste, to is a hazardous waste (Solutia Inc., 2012a-n). Depending on the Therminol compound used, there could be a moderate potential for cumulative impacts to hazardous materials from use and disposal of Therminol heat transfer fluids during operation of a dry-cooled concentrating solar facility.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. A variety of chemicals and hazardous substances would be stored and used during construction and operation of the Project. The storage, handling, and use of all chemicals would be conducted in accordance with applicable laws, ordinances, and regulations. Because of the appropriate measures proposed, the Quartzsite Solar Energy Project would not be expected to contribute to hazardous materials cumulative impacts.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to hazardous materials cumulative impacts. At this time, details on hazardous materials in the project areas are unknown and the potential for cumulative impacts cannot be assessed accurately. However, it is expected that BLM will require that these projects implement appropriate use, storage, and disposal measures to minimize the potential for cumulative impacts.

No other future projects with potential hazardous materials impacts are known at this time. The SPCCP and ISCP would be updated as necessary to cover future projects or actions with the potential for spills of regulated materials. Testing and training requirements are expected to continue to evolve over time. This could result in an increase in testing and training activities throughout YPG and would have the potential for cumulative impacts from increased use of hazardous materials, an increase in the need for disposal of hazardous wastes, and the potential for exposure of existing subsurface contamination.

3.9.2.4 Mitigation

Mitigation of the potential impacts from the Proposed Action includes the continued management of hazardous materials using existing environmental programs and guidance to manage the handling and disposal of hazardous materials and waste.

Range assessments would continue to be conducted to determine the potential for migration of MCOCs from ranges. YPG would implement appropriate measures should off-range migration that could affect human health or the environment be indicated.

If new facilities would be sited in previously contaminated sites, appropriate protective measures would be implemented to safeguard construction workers who may be exposed to contaminants. In addition, the Army would consult with State and federal agencies. Completing this regulatory consultation would add time and cost to projects planned in such areas. If contaminated soil is encountered during construction, it would be removed and properly disposed of in accordance with appropriate State and/or Federal regulations.

The YPG SPCCP and ISCP would be updated as necessary and would be implemented to minimize potential for impacts from accidental spills.

YPG will procure non-ozone depleting chemicals refrigerants for new air conditioning components.

Appropriate protective procedures would be implemented when renovation or demolition of existing buildings would result in potential exposure of construction workers to ACM.

In the event that munitions and explosives of concern are discovered in areas of proposed construction, they would not be disturbed until qualified personnel could properly assess and implement appropriate disposition.

3.10 Land Use

3.10.1 Existing Conditions

YPG is primarily used for military testing and evaluation. Land use on YPG is dictated by the Real Property Planning Board, which describes the long-range development of YPG and ensures that YPG meets real property mission requirements, achieves land use compatibility, incorporates holistic and sustainable planning principles, and promotes environmental stewardship. Most land on YPG is reserved for firing ranges, munitions impact areas, mobility test courses, and DZs. These activities typically require large open areas with safety and buffer zones. Test ranges are officially closed to civilian use, except for specifically designated public hunting areas. Seven land use categories are defined for YPG in the FPEIS (Parsons, 2011):

- **Airfield:** designated for flight operations, including runways and taxiways, along with airfield support facilities, including airfield operations, aviation refueling, aviation maintenance, and related test facilities.
- **Range/Open Land:** used for live-fire ranges, non live-fire ranges, and special training areas, including confidence courses, driver training, and land navigation. Land that is undeveloped or unused also is included.

- **Industrial:** includes land designated for production, maintenance, depot and other storage, activities that generate substantial heavy vehicle traffic, loud outdoor equipment operations, and similar activities.
- **Community:** provides facilities, including religious, family support, personnel services, professional services, medical, community, commercial, and recreational activities.
- **Professional and Institutional:** designated land that supports non-tactical organizations, including military schools, headquarters, major commands, and non-industrial research, development, test, and evaluation.
- **Residential:** family housing and senior unaccompanied personnel housing. Family services and other neighborhood services are also included within this category.
- **Troop:** land designated for operational facilities for units. There are no permanent troop areas designated on YPG.

3.10.1.1 Laguna Region

The Laguna Region is used mainly for vehicle and aircraft testing. The Laguna Region includes the MAA, YTC, LAAF, and the CDH. This region also includes the Hot Weather Test Complex, which is a vehicle testing area for hot weather conditions, and a variety of other vehicle testing and training courses. Mobility equipment test facilities within YTC provide courses and obstacles to evaluate vehicle endurance, performance, reliability, and maintainability. The West Environmental Test Area was used exclusively for environmental surveillance testing of nontoxic chemical agents, protection devices, and other military materiel. This area is has been closed and is no longer usable under the established land use controls.

EQSD arcs are established for three categories of facilities: Test Facilities, Explosives Storage, and Ordnance Buildings. In the Laguna Region, EQSD arcs are associated with LAAF and also along its eastern edge associated with the Kofa Firing Front (Parsons, 2011).

The MAA is a diverse area that supports community, industrial, residential, and professional land use categories. The MAA contains the main cantonment and provides community support activities, family housing, and unaccompanied personnel housing. Community support at MAA includes facilities such as medical, schools, day care centers, commissary, shoppette, and a chapel (Parsons, 2011).

YTC is classified as industrial and professional and contains the YPG Headquarters and a mix of administrative, vehicle maintenance, and other activities (Parsons, 2011).

LAAF supports airfield and industrial land uses. The LAAF includes facilities and runways to support aviation and airfield operations for the command test mission. Aircraft used here provide aerial spotting of test items and support the Airborne Test Force Branch (Parsons, 2011). Facilities for the MFFS are located in LAAF and MAA.

CDH includes airfield and industrial land use categories. CDH is used for air-ground testing of aircraft armament systems and UAS testing. It includes administrative facilities, aircraft storage and maintenance facilities, a small airfield, and a drone launch site (Parsons, 2011).

3.10.1.2 Cibola Region

The Cibola Region is used for a variety of purposes, including aircraft armament testing, static detonation, conflagration testing, combat skills training, instrument DZs, and extraction zones (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Cibola supports a diverse variety of developmental testing of UAS, aircraft systems, diversified sensor testing including, but not limited to, moored sensor systems, electro-optical, infrared, radar, acoustic, and unattended ground sensors, and wireless communication, air-to-ground, ground-to-ground, and ground-to-air munitions, flares, chaff and other countermeasures, lasers, radars, precision-guided and unguided personnel and cargo parachute systems, direct and indirect fire artillery systems, and combat and automotive systems (Franklin, 2013a, personal communication). Little development occurs within this region and is limited to CDA, multiple airfields supporting UASs and helicopters, GPs, vehicle courses, and JERC sites. JERC sites reconstruct urban-like battle zones similar to conditions encountered in the Middle East. The CDA includes various buildings and test support facilities.

The Cibola Region is dominated by large munitions impact areas and DZs, with Prospect Square being the largest munitions impact area. These areas are undeveloped and open but do contain instrumentation to monitor performance of activities. Range instrumentation may include cameras, radars, and fuse chronographs (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Munitions impact areas may be cleared of vegetation so that fired projectiles can be relocated. Munitions impact areas may contain UXO left over from historical testing of munitions. DZs typically are used to test parachutes and airdrop techniques. Parachute pack maintenance and rigging facilities support the testing of airdrops and other air-to-ground delivery methods (Parsons, 2011). Extraction zones are typically used to test low-altitude parachute extraction systems (Global Security, 2013).

3.10.1.3 Kofa Region

The Kofa Region is used primarily for direct and indirect firing of weapons and munitions, mainly artillery pieces. YPG has over 400 firing positions, most of which are in the Kofa Region with a concentration along the Kofa Firing Front (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). The Kofa Region also contains mainly industrial and range land uses, but also includes professional and community uses, most of which are at the western edge along the Kofa Firing Front. The area to the east of the Kofa Firing Front is primarily used as munitions impact areas within the KFR. These munitions impact areas have been designated for a variety of projectiles and mines, including a dedicated NRC-licensed DU impact area. The KFR is outfitted with range instrumentation to monitor performance of weapons and munitions. Supporting facilities include testing and environmental simulation facilities and are typically located along the Kofa Firing Front. The East Environmental Test Area tests materials requiring additional security.

3.10.1.4 Surrounding Land Uses

Land uses adjacent to YPG are primarily undeveloped open space and sparsely populated area where the land ownership includes BLM, USFWS, state and private entities, including agricultural interests. Federally owned land borders YPG on the west, north, and east. Neighboring refuge areas include the Kofa NWR, Cibola NWR, and Imperial NWR. Nearby wilderness areas include the Muggins, New Water, and Trigo Mountains. Refuges along the Colorado River protect wetland and waterfowl habitat and provide recreational areas, such

as the Hidden Shores RV Village (Parsons, 2011). Activities on Kofa NWR and other nearby NWRs and wilderness areas may be impacted by activities on YPG, mainly through noise intrusion and the spread of wildfires. The Arizona Desert Wilderness Act of 1990 (Public Law 101-628) established the wilderness areas and wildlife refuges and also included specific allowances for military activities (see Section 3.11).

Residential, commercial, and recreational development is present near the southwestern part of the installation near Martinez Lake and the City of Yuma. Martinez Lake is the closest community on the southwest side of YPG, while the City of Quartzsite is north of the Cibola Region. The Wellton-Mohawk Irrigation and Drainage District extends along the Gila River between the southern YPG boundary and I-8 and supports crop production (Parsons, 2011; Yuma Area Ag Council, 2011).

Rezoning requests for additional residential development on the south side of YPG are increasing, but zoning for residential development in that area is limited to 1- to 2-ac suburban ranch parcels (Parsons, 2011). Fishing camps between the Colorado River and the western YPG boundary have been converted for use as second homes. Use of these homes is increasing and some are now used as retirement homes and occupied full-time. There are numerous campgrounds, RV parks, resorts, and other lodging facilities along unfenced sections of the YPG boundary. These facilities are commonly used as seasonal residences for individuals who spend the winter in this part of Arizona. People tend to concentrate in these areas during winter months.

3.10.2 Environmental Consequences

The following were evaluated to determine potential impacts to land use:

- Conflict with existing land use on YPG
- Conflict with adjacent, offsite land uses

3.10.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to land use include:

- Minor to Moderate (less than significant) –Activities that would conflict with YPG land use designations but would not have a substantial negative effect on the YPG mission.
- Minor to Moderate (less than significant)—Activities that would conflict with local or regional planning but would not require substantial changes to local or regional development planning efforts.
- Severe (significant)—Activities that would permanently degrade land on YPG so that it could not be used for current or planned use.
- Severe (significant)—Activities that would require substantial changes to local or regional development planning efforts.

3.10.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, testing and training would continue to fluctuate between historical high and low levels and no new construction would occur. At present, there are no conflicts with local or regional planning efforts or with YPG land use designations.

All Noise Zone (NZ) II and III noise contours, as defined in Section 3.11, are within the YPG boundary, with the exception of a small area extending into a portion of the Kofa NWR north of the Kofa Range and an uninhabited area east of the Cibola Range (YPG, 2010a). No development would occur within the NWR, and the extension of the noise contours into this area does not affect land use. The Arizona Desert Wilderness Act of 1990 (Public Law 101-628) established wilderness areas, including Kofa NWR. Provisions within the Act allow continued low-level over flights by military aircraft, the designation of new units of special airspace, and the use or establishment of military training flight routes over the wilderness areas created by the Act. The Act further states that the ability to see or hear non-wilderness activities or uses from within a wilderness does not preclude such activities or uses up to the boundary of the wilderness area. The U.S. Department of the Interior has granted permission to YPG to use 171,000 ac of Kofa NWR as an artillery fire buffer zone (YPG, 2012b). More information on the potential for noise impacts to Kofa NWR is included in Section 3.11. Testing and training activities conducted under the No Action Alternative would not be expected to affect land use on Kofa NWR.

To address potential land use incompatibility issues, the State of Arizona developed the *Arizona Military Regional Compatibility Project Policy Guidebook* (Arizona Department of Commerce, 2006) as a proactive tool to prevent encroachment around military installations. The guidebook offers feasible and sustainable solutions consistent with Arizona compatibility legislation. Due to potential land use issues in the vicinity of military air bases and military air operations, state legislation requires that:

- Areas within high-noise or accident potential zones be addressed in municipal general plans and county comprehensive plans
- Land development within high-noise or accident potential zones be compatible with military airfield operations
- Jurisdictions with property in the vicinity of military airfields consider military operations in their General and Comprehensive Plans (Arizona Revised Statutes Sections 28-8480, 28-8481, and 28-8482)

The Yuma County 2020 Comprehensive Plan (Yuma County, 2013) has designated the lands abutting YPG as either open space or agricultural/rural residential, which will maintain compatibility with the military use on the adjacent YPG lands. Full-time occupied dwellings near the YPG boundary could be incompatible with noise contours and safety requirements of military flight operations. Future development south of Martinez Lake is considered unlikely to affect YPG because of the anticipated low rate of population growth and associated residential development. Additionally, YPG activities are generally compatible with adjacent land uses in this area (Parsons, 2011).

There would be no impact to land use on adjacent lands under the No Action Alternative.

3.10.2.3 Impacts of the Proposed Action/Preferred Alternative

The noise-related impacts that would occur under the No Action Alternative also would occur under the Proposed Action. Off-post zoning and development would be the same as discussed for the No Action Alternative. The slight changes in the noise zones associated with large artillery would not require any changes to the land uses designated in the Yuma

County 2020 Comprehensive Plan. Additional noise-related impacts that would result under the Proposed Action are discussed below.

New construction that would occur under the Proposed Action would be compatible with YPG land use designations and would not conflict with any off-post land uses. No effects to land use would result from new building construction under the Proposed Action.

Testing and training activities included in the No Action Alternative would continue and would be conducted over a wider area under the Proposed Action. Annual levels of testing and training would be expected to fluctuate within historical maximum and minimum levels based on specific needs. The new testing and training areas would be on land designated as Range/Open Land and would not conflict with designated land uses. All activities conducted by YPG would continue within the current boundary and airspace of YPG and would not affect adjacent land uses.

Under the Proposed Action, up to 54,560 ac of land would be converted to munitions impact areas and up to 147,879 ac would be converted to new dismounted maneuver areas. There would be approximately 1,100 ac of land dedicated to air support operations as new or expanded runways and taxiways or as new UAS launch/recovery areas. An additional approximately 1,330 ac of land would be converted to DZs. All of these areas are classified as Range/Open Land, which is compatible with proposed testing and training projects, so there would be no change in land use designation within YPG as a result of these activities, except for the Project K025 (East Kofa Operations Center) and Project K030. The East Kofa Operations Center would convert 10 ac of Range/Open Land to Institutional use and Project K030 would convert 26.1 ac of Range/Open Land to Institutional use. These changes in land use in the eastern and northern portions of the Kofa Region would be a minor impact on land use.

Conversion to munitions impact areas could preclude other future uses unless the areas are appropriately cleared of UXO and other munitions components that create safety hazards.

Land uses and development on adjacent lands would continue to be dictated by municipal and county comprehensive and general plans, the *Arizona Military Regional Compatibility Project Policy Guidebook*, and Arizona legislation. YPG would continue coordination and participation in local plans and development meetings to ensure that encroachment and land use incompatibilities are avoided. No impacts to adjacent land uses would occur as a result of the Proposed Action.

There would be potential for foreseeable future projects to interact with land use on YPG. YPG is considering development of a commercial-scale renewable solar electrical energy generation facility. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Up to several thousand acres of Range/Open Land within YPG would be converted to industrial use and would no longer be available for meeting the military mission. When combined with land use impacts from other projects on YPG, development of a renewable solar facility could result in minor cumulative impacts to land use on YPG.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County

that will be operational in 2015. Approximately 1,675 ac would be converted from open land, which would reduce available rangeland. The Quartzsite Solar Energy Project is not expected to contribute to regional land use cumulative impacts.

Construction, operation, and maintenance of the five additional BLM solar projects would cause land to be converted from open land into solar facilities, which would reduce available rangeland. At this time details on the amounts of land that would be converted and the specific land uses in the project areas are unknown. The potential for these solar projects to contribute to regional land use cumulative impacts cannot be assessed accurately, but there is a reasonable probability that implementation of these projects would contribute to regional land use impacts.

Should solar facilities be developed on BLM land around YPG, glare from such facilities could affect aircraft operations within YPG airspace, which would conflict with current designated use within YPG. No other past, present, or reasonably foreseeable projects would have the potential to interact with land uses on YPG, and YPG actions would not interact with land use outside the installation boundary. No other cumulative impacts are expected.

3.10.2.4 Mitigation

YPG would continue coordination and participation in local plans and development meetings to ensure that encroachment and land use incompatibilities are avoided.

3.11 Noise

3.11.1 Existing Conditions

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although exposure to very high noise levels can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, the perceived importance of the noise, its appropriateness in the setting, the time of day, type of activity during which the noise occurs, and the sensitivity of the individual. The Noise Control Act of 1972, as amended by the Quiet Communities Act (42 U.S.C. 4901 et seq.), provides guidelines and regulations for noise. Chapter 7 of AR 200-1 dictates guidelines and regulations to reduce noise impacts and establishes an Environmental Noise Management Program.

YPG has an Installation Operational Noise Management Plan (IONMP) to guide operations. The IONMP describes the current noise environment and predicts future noise conditions through computer modeling. Installation noise contours from the IONMP are provided in Appendix H. The IONMP provides guidelines to attain land use compatibility between noise generated by military activities on YPG and the surrounding communities (U.S. Army Public Health Command, 2011). An annual evaluation and 5-year updates of the IONMP are recommended by the U.S. Army Public Health Command.

Army environmental noise policies are based on land use compatibilities as indicated by objective noise levels. A number of noise measurements are used to assess compatibility, including the following:

- Decibel (dB): A measurement of the sound pressure level.

- dBA (A-weighted sound pressure level): Sound pressure level adjusted by an A-weighting filter that places greater emphasis on those frequencies within the sensitive range of the human ear by de-emphasizing the very low and very high frequency components. Typically, human hearing is best approximated by using a dBA scale (USEPA, 1974). For activities on YPG, noise generated by transportation sources (such as vehicles and aircraft) and from continuous sources (such as generators) is assessed using an A-weighted day-night average noise level (ADNL). The yearly day-night average noise level (YDNL) is used for aircraft noise and is calculated over 365 days.
- dBC (C-weighted sound pressure level): Sound pressure level adjusted by a C-weighting filter, which emphasizes the very low frequency components of sound. For activities on YPG, impulsive noise generated by armor, artillery, and demolition activities is assessed using a C-weighted average day-night noise level (CDNL). The CDNL is calculated over a "training year," which is typically 250 training days for active military.
- Peak (PK): The peak or maximum, single event sound level measurement without weighting. This measurement includes the effects of everything from berms, to weather, to the length of grass on the noise, but is only accurate for a specific moment under the specific conditions at that point in time.
- PK15 (met): The peak sound level, using statistical variations caused by weather that is likely to be exceeded only 15 percent of the time. The PK15 (met) accounts for 85 percent of all meteorological conditions including those favorable to sound propagation. PK15 (met) is used for land use planning with small caliber munitions and is used to supplement land use planning for large caliber munitions and other impulsive sounds.

The decibel scale is logarithmic rather than arithmetic. When sound pressure doubles, the sound pressure level, as expressed by dBA increases by 3. Psychologically, most humans do not perceive a doubling of sound until there is an increase of 10 dBA (USEPA, 1974). Sound pressure decreases with distance from the source. Typically, the amount of noise from a continuous source is halved (reduced by 3 dBA) as the distance from the source doubles (USEPA, 1974).

Using the noise measurement scales described above, ICUZs have been established for YPG based on the level of noise exposure in three types of areas, designated as NZs. NZ I has the least noise exposure and NZ III having the greatest (Table 3-10). The intent of ICUZ is to

TABLE 3-10
YPG Installation Compatible Use Zones
Yuma Proving Ground

Noise Zone	Aviation (YDNL)	Impulsive, Large Caliber, Demolitions, etc. (CDNL)	Small Caliber (PK)
Land Use Planning Zone	60-65 dBA	57-62 dBC	N/A
I	Less than 65 dBA	Less than 62 dBC	Less than 87 PK
II	65-75 dBA	62-70 dBC	87-104 PK
III	More than 75 dBA	More than 70 dBC	More than 104 PK

Source: U.S. AR 200-1, Chapter 7 Environmental Noise Management Plan

prevent land use incompatibilities as a result of placing noise- sensitive activities in high-noise exposure areas. Generally, all types of land use are suitable in NZ I. NZ II is typically limited to activities such as manufacturing, warehousing, transportation, and resource protection and is not recommended for noise-sensitive land uses. No noise-sensitive land uses are recommended in NZ III. The Land Use Planning Zone, where noise-sensitive land uses are acceptable, is defined within the upper range of noise levels in NZ I. Noise levels at LAAF do not exceed 65 dB YDNL at current operational levels (U.S. Army Public Health Command, 2011).

Physiological hearing damage to the human ear using the PK threshold occurs at approximately 140 dB, but the threshold for annoyance varies among individuals. PK levels are typically used to determine annoyance levels instead of averages to show with 85 percent certainty how loud a single event at a particular location might get. Table 3-11 shows the risk of complaints generally from small caliber noise events.

TABLE 3-11
Anticipated Risk of Noise Complaints from Predicted Peak Sound Levels
Yuma Proving Ground

Predicted Sound Level PK (dB)	Risk of Noise Complaints
less than 115	Low risk of complaints
115-130	Moderate risk of complaints
more than 130	High risk of complaints

Source: U.S. Army Public Health Command, 2011

Vibrations could become a concern to homeowners due to structural rattling and potential structural damage when the PK from an activity exceeds 120 dB; however, structural damage generally does not occur when the PK is below 150 dB (U.S. Army Public Health Command, 2011). The general public may be annoyed by noise levels from aircraft, with louder aircraft having a greater probability of causing annoyance (Table 3-12).

TABLE 3-12
Percentage of Public Likely to be Highly Annoyed by Aircraft Noise
Yuma Proving Ground

Maximum Level (dBA)	Percentage Highly Annoyed
70	5%
75	13%
80	20%
85	28%
90	35%

Source: U.S. Army Public Health Command, 2011

Ambient noise on YPG includes natural sources, such as wind, and man-made noises, such as aircraft noise, traffic on US 95 and other roads, munitions testing, military vehicle and equipment testing, and military training activities. Aircraft noise includes fixed- and rotary-wing military aircraft from YPG and MCAS Yuma, Arizona Game and Fish Department

(AZGFD) wildlife surveys, and commercial air traffic. The main noise sources on YPG are related to transportation, aviation, and firing activities. The IONMP indicates that all NZ II and NZ III contours are contained within the YPG boundary, except for (Appendix H; YPG-DPW, 2010a):

- Three small areas extending into the southern portion of the Kofa NWR from noise generated in the Kofa Range
- A small area to the east of the Cibola Range around the North UAV Complex and the Tyson DZ, that is more than 2 miles from US 95

YPG personnel use the Kofa and Cibola Regions for testing and training, and portions of these areas not used for testing and training may be used for limited recreational hunting use. Both regions are unpopulated and contain no permanent sensitive receptors.

The only noise-sensitive land uses surrounding YPG are the Martinez Lake area on the Colorado River near the western boundary of the Cibola Range and the Dome Valley agricultural/rural residential area to the south of the Laguna Region. The majority of land within NZs where a risk of complaint exists consists of open space, agricultural, recreational, un-zoned, and BLM land (U.S. Army Public Health Command, 2011).

The Kofa NWR, Trigo Mountain Wilderness Area, Imperial NWR, and the Muggins Mountain Wilderness Area are considered sensitive noise receptor areas around YPG (See Appendix H) due to their proximity to firing ranges and the use of airspace over these areas for military testing and training (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). The Arizona Desert Wilderness Act of 1990 (Public Law 101-628), established the Muggins Mountain Wilderness Area, Trigo Mountain Wilderness Area, Kofa Wilderness Area, and Imperial Refuge Wilderness Area, among other Arizona desert wilderness areas. This Act does not preclude or otherwise affect continued low-level over flights by military aircraft over NWR wilderness areas and does not preclude the designation of new units of special airspace, or the use or establishment of military flight training routes over wilderness areas. The Act also states that the ability to see or hear non-wilderness activities or uses from areas within a wilderness does not preclude such activities or uses up to the boundary of the wilderness area. A letter dated December 3, 1958, from the Secretary of the Interior granted permission to YPG to use 171,000 ac of Kofa NWR as an artillery fire buffer zone (YPG, 2012b).

YPG implements a noise complaint management procedure, which provides guidance to those responsible for handling noise complaint issues. The facility point of contact for noise complaints has the following responsibilities:

- Receive noise complaints and complete Noise Complaint Questionnaire while talking to the complainant.
- Investigate complaint-causing activities with personnel involved in activities described in the complaint. Determine if the complaint involved mission-related activities or non-routine tasks, and whether any unusual circumstances existed that may have caused the incident.
- Notify and forward copies of completed Complaint Forms to the YPG Public Affairs Office (PAO) and the YPG Environmental Department within 24 hours of completion, or on the first business day after receiving the complaint.

The YPG PAO has the following responsibilities:

- Review all reported noise complaints.
- Assist units and facility managers in responding to complaints and any required follow-up to resolve public concerns to the maximum extent practicable.
- Maintain a log of all noise complaints for future reference.

The YPG Environmental Department reviews noise complaints and coordinates responses with the YPG PAO.

YPG typically receive less than five complaints per year. YPG receives complaints about airplane over flight noise and from bombing activities at the Barry M. Goldwater Range, which is southeast of Yuma. A majority of aircraft-related noise complaints have been attributable to aircraft operating from MCAS Yuma rather than aircraft from YPG. Persons raising these issues have been informed of the situation and advised to redirect the complaint to appropriate offices at MCAS Yuma or the Barry M. Goldwater Range (Glover, 2011, personal communication; U.S. Army Public Health Command, 2011).

Noise generated by UAS operations was not included in the operational data analyzed to develop the IONMP (U.S. Army Public Health Command, 2011). YPG has received complaints regarding operation of UASs within established YPG airspace, which have been limited to UAS operations based out of CDH. UAS flight paths from CDH have been altered in response to complaints, even though noise from these operations does not exceed the established levels for the designated noise contour (Glover, 2011, personal communication).

To reduce the risk of complaints YPG implements a noise abatement program that is specified in Annex T of the LAAF Standard Operating Procedure, dated November 1, 2010. The noise abatement program identifies the following areas where over flights should be conducted a minimum of 2,000 ft AGL:

- MAA, mainly the housing and school area
- Hidden Shores RV Park
- Martinez Lake area (includes Fisher's Landing Village and the MCAS Yuma Recreation Area)
- Imperial NWR
- Kofa NWR

3.11.2 Environmental Consequences

The following were evaluated to determine potential impacts from new sources of noise:

- Amount of noise from new construction: incremental noise increases would occur from the use of heavy equipment, earthwork, and construction-related truck traffic. Sites with larger construction footprints and sites with intensive earthwork would have greater potential noise impacts.
- Proximity of new construction to sensitive noise receptors: construction sites near sensitive receptors would have greater potential noise impacts.

- Amount of noise from testing and training activities in new areas: incremental noise increases would occur from weapons and munitions testing, military vehicle testing, training exercises that use live or dummy munitions or involve vehicle/equipment operation, and operation of aircraft and UASs. The scale of specific testing or training activities would influence their potential for generating noise impacts.
- Proximity of new testing and training activities to sensitive noise receptors: actions near sensitive receptors would have a greater potential for noise impacts.

3.11.2.1 Significance Criteria

Noise impacts would be considered significant if any of the following criteria are met:

- Minor to Moderate (less than significant)—Activities that would generate noise above current levels detectable to residents and users of YPG and the surrounding areas.
- Minor to Moderate (less than significant)—Activities that would generate noise that results in temporary changes in wildlife behavior.
- Minor to Moderate (less than significant)—Activities that would generate noise of 115—130 PK15 (met) beyond the installation boundary.
- Severe (significant)—Activities that would exceed 65 ADNL beyond the installation boundary and affect sensitive receptors on and off of YPG.
- Severe (significant)—Activities that would exceed 62 CDNL beyond the installation boundary and affect sensitive receptors on and off of YPG.
- Severe (significant)—Activities that would exceed 130 PK15 (met) beyond the installation boundary and affect sensitive receptors on and off of YPG.
- Severe (significant)—Activities that would generate noise that results in property damage or adverse health effects to humans.
- Severe (significant)—Activities that would generate noise that causes long-term changes in animal behavior, results in disruption of animal reproductive cycles, or causes a reduction in survivability.

Public Law 101-628, the enabling legislation for designated wilderness areas in Arizona contains provisions authorizing military over flights over wilderness areas adjacent to military installations and also authorizing non-wilderness activities, including generation of noise, up to the boundaries of wilderness areas. Because the noise from military operations at YPG are allowed under Public Law 101-628, no significance criteria for noise related to the adjacent wilderness area were established.

3.11.2.2 Impacts of the No Action Alternative

Potential sensitive receptors would include on-post personnel and families, nearby civilians and travelers not associated with YPG, recreational hunters, and wildlife that could perceive noise caused by activities on YPG. Each of these receptors is discussed below.

YPG personnel are at risk of exposure to elevated noise during testing and training activities. Soldiers could be exposed to elevated noise from weapons and combat vehicles during training and operational testing, live-fire exercises, powered aircraft operation, and ground vehicle operation. Testers could be subject to similar exposures during performance

and reliability testing of vehicles, weapons, munitions, and equipment. On-post personnel are protected from high noise levels through safety training, use of appropriate hearing protection, and compliance with SOPs developed for specific testing and training activities. YPG has an industrial hygienist and trained safety professionals on staff to ensure that proper procedures are designed and implemented for unusual military activities and for standard industrial activities, including construction (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

The slight changes in the noise zones associated with large artillery would not affect use of nearby lands outside the installation boundary. The sparsely populated and undeveloped land surrounding YPG typically lacks potential sensitive human receptors. NZ II and NZ III noise contours are within the YPG boundary except for two locations. NZ II and NZ III extend for short distances into the Kofa NWR at three points to the north of the Kofa Range (Appendix H). These areas within Kofa NWR are uninhabited desert and mountainous areas. There are no sensitive human receptors in these areas. NZ II extends just outside the installation boundary to the east of Cibola Range in the area of Tyson DZ and the North UAV Complex. This uninhabited area is designated as open space and is more than 2 miles from US 95 (U.S. Army Public Health Command, 2011). Civilians and travelers not associated with YPG could be exposed to nuisance noise levels when travelling on US 95 or when using camping facilities/areas in the vicinity of YPG, but these noises would be intermittent and of short duration. Typically, noise from military operations along US 95 would be minimal and likely unnoticed by vehicle occupants talking or listening to radio. Most recreational camping facilities/areas are across mountains from areas where testing and training occurs. The intervening mountains act to reduce the noise from military activities and the exposure would be to nuisance noise levels.

Noise generated in the Kofa and Cibola Regions from munitions testing and live-fire or operational testing typically is contained by the surrounding mountains and does not reach potential human receptors. Any such noise extending beyond the YPG boundary would not exceed noise levels allowed in wilderness areas and would be unlikely to negatively affect wildlife (Glover, 2011, personal communication; Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

Noise from testing and training activities near the boundary of Kofa NWR and noise from aircraft over flights that use airspace over Kofa NWR are audible on the refuge, with noise levels from munitions testing typically between 57 and 62 dBA where noise enters the refuge. Natural attenuation of noise over distance results in this noise being audible for several miles within the refuge, which typically lacks other sources of noise. This noise level is comparable to the 60 dBA of a normal conversation or the inside of an office (Vanderheiden, 2004) and is not normally a noise level that would disturb receptors. Wilderness area users frequently seek solitude in wilderness areas and the frequent noticeable noise from explosions, while not loud, could disrupt the solitude experience. However, because of the location of the wilderness area in the Kofa NWR adjacent to an active military test range and because of the designation of much of that wilderness area as a buffer for military artillery testing, users of the wilderness area on Kofa NWR would not have an expectation of quiet. The noise from artillery testing would be no more than a minor impact to the recreation experience.

Military over flights of Kofa NWR occur daily within Airspaces R-2307, R-2308A, R-2308b, and R-2308C. Most military aircraft over flights of Kofa NWR are conducted between 5,000 and 32,000 ft AGL. The IONMP identifies Kofa NWR as an area where pilots should remain at least 2,000 ft AGL, and this noise recommendation is recognized in the LAAF Operations Manual. At these altitudes, the impacts of military over flights on recreational users and wildlife, including protected species, would be minor.

Should flights from MCAS Yuma or the Yuma Airport increase in the future, there would be potential for cumulative impacts to noise. Aircraft operations on YPG could incrementally add to the noise from MCAS Yuma and the airport. Because most aircraft operated on YPG are rotary wing aircraft or UAS, the incremental contribution to the noise environment would be less than that from commercial jet aircraft operating from the airport or military jet aircraft operating from MCAS Yuma. Any incremental contribution from aircraft noise from YPG operations would be expected to be minor.

Noise from testing and training activities can cause wildlife in the immediate area to relocate or alter behavior. Noise generated by ongoing testing and training activities would continue to cause temporary, but recurring, impacts to wildlife. The effects of noise on wildlife are further discussed in Section 3.21, and the effects of noise on protected species are presented in Section 3.18.

3.11.2.3 Impacts of the Proposed Action/Preferred Alternative

The impacts of noise from the Proposed Action would be similar to the impacts described in the previous section for the No Action Alternative. No expansion of the YPG boundary would occur but an increase areas used in testing and training would occur. The area encompassed by noise contours for large caliber sources outside installation boundaries would increase slightly (Appendix H).

YPG operational data from 2010 were doubled to conduct a conservative analysis of potential future noise levels. The expected increase in noise levels from implementation of the Proposed Action would be substantially less than double existing noise levels because activities would occur over more of YPG and noise sources would be less concentrated in the areas now used.

Based on computer modeling of future conditions that would exceed the expected noise levels on YPG under the Preferred Alternative, noise from large caliber munitions based on CDNL would increase outside the YPG boundary along the northern boundary of Kofa Range. Most of the increased noise would emanate from Bravo, Delta, and Echo impact areas and increased noise levels could extend approximately 2.5 miles into the Kofa NWR (Appendix H). Noise from Delta and Bravo would reach the mountains in the southwestern portion of Kofa NWR. Noise from Echo would reach King Valley. The analysis of the potential impacts of this noise on wildlife is provided in Section 3.21, and the analysis for protected species is provided in Section 3.18.

Noise levels in open space/recreational resource areas east of the Cibola Range at the North UAV Complex and the Tyson and La Posa/Robby DZs would increase when fluctuations in demand result in periods of greater levels of testing and training activities. Increased noise would extend less than 1 mile to the east of the YPG boundary in this area (U.S. Army Public Health Command, 2011; Appendix H). Two small areas would extend outside the YPG boundary south of the Laguna Region in the Muggins Mountains area, but noise levels

would be within the LUPZ (57-62 CDNL; Appendix H). Because the number of testing and training activities would be within historical levels, there would be no change in the noise environment outside installation boundaries as a result of the Proposed Action.

Should flights from MCAS Yuma or the Yuma Airport increase in the future, there would be potential for cumulative impacts to noise. Aircraft operations on YPG could incrementally add to the noise from MCAS Yuma and the airport. Because most aircraft operated on YPG are rotary wing aircraft or UAS, the incremental contribution to the noise environment would be less than that from commercial jet aircraft operating from the airport or military jet aircraft operating from MCAS Yuma. Any incremental contribution from aircraft noise from increased YPG operations under the Proposed Action would be expected to be minor.

There would be construction-related noise that would not occur under the No Action Alternative. Construction-related noise would be spread over several years as a series of separate construction projects are implemented. Construction activities also would be spread spatially across YPG rather than concentrated in a single area. Construction-related noise would not be expected to extend to off-post sensitive receptors. Construction workers would be required to wear appropriate hearing protection, and YPG employees would be instructed on proper safety procedures in and around construction sites.

Operation of Project K030 would result in a noise source in the northern portion of Kofa where there are no permanent man-made noise sources at present. The only potentially sensitive receptors to this noise, which would be typical of cantonment areas on the installation, would be the personnel working there. No impacts associated with noise would be expected from operation of Project K030.

A large portion of proposed construction would occur in previously developed areas, which does not offer the preferred habitat of most species occurring on YPG. Wildlife would be temporarily disturbed by construction noise and would likely relocate to similar habitat nearby until construction is complete. Construction noise related to the Proposed Action would be spread out in time and space and would have a temporary, but recurrent, negative minor effect on wildlife.

Expanded munitions impact areas at Echo and SWTR would be 1 kilometer (approximately 0.62 mile) from the Kofa NWR boundary in the King Valley area and 500 m (approximately 0.31 mile) from the Kofa NWR to the west of King Valley. The noise analysis assumed that these impact areas would extend up to the boundary of the refuge, and that the distance from the refuge would reduce noise levels from activities in these impact areas. Because there would be no increase in the number of HE rounds fired compared to historical levels, there would be no change in the noise environment on Kofa NWR as a result of using the proposed new munitions impact areas.

YPG has begun investigating the possibility of developing a solar renewable energy resource on the installation through an EUL with a private company to increase YPG's energy security and meet federal mandates and legislative requirements to increase production and consumption of renewable energy resources. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Potential noise impacts would be limited to the construction phase of the solar facility, as operational noise would be

minimal. Because no long-term noise source would be created and because there would be no permanent receptors in the vicinity of construction, no cumulative impacts to noise would be expected from development and operation of a solar facility on YPG.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. There could be short-term noise impacts during construction, but the Project would not contribute to cumulative noise impacts because operational noise would be minimal.

Construction of the five additional BLM solar projects could cause short-term noise impacts. Operation and maintenance of the five additional BLM solar projects would likely not contribute to cumulative noise impacts, as any noise impacts would likely be limited to the duration of construction. Operational noise from solar systems typically would not be substantial.

No cumulative noise impacts would be expected from development and operation of a commercial-scale renewable solar electrical energy generation facility on YPG. No substantial long-term noise would result from operation of the system.

3.11.2.4 Mitigation

Measures to prevent land use incompatibilities with adjacent lands, including impacts from noise, would include active participation and coordination in local and regional planning, as discussed in Section 3.10. To reduce the potential for noise impacts, YPG would implement physical and procedural mitigation objectives to the extent practicable. Physical mitigation includes placing barriers between the source and receiver or orienting the source in a position so that noise is directed away from the receiver. Physical mitigation measures include the following:

- Locating/relocating ranges relative to natural impediments such as in valleys or behind large mountain ranges.
- Constructing artificial berms or enclosing a small caliber range within walls and baffles.
- Orienting noise sources toward the interior of the installation and position activities that generate noise in remote locations away from sensitive receptors.

Certain weather conditions affect impulsive noise propagation (Table 3-13). Favorable conditions occur when noise does not propagate as far as when compared to nonfavorable conditions. Testing and range management would conduct potential noise generating tests under favorable conditions to the extent practicable.

TABLE 3-13
Firing Conditions Related to Noise Propagation
Yuma Proving Ground

Favorable Conditions for Conducting Tests	Nonfavorable Conditions for Conducting Tests
Clear skies with billowy cloud formations, especially during warm weather.	Days of steady winds 5-10 miles per hour (mph) with gusts of greater velocities (above 20 mph) in direction of nearby residences.
A rising barometer immediately following a storm.	Clear days, when layering of smoke or fog is observed.
	Days following large temperature differences (about

TABLE 3-13
Firing Conditions Related to Noise Propagation
Yuma Proving Ground

Favorable Conditions for Conducting Tests	Nonfavorable Conditions for Conducting Tests
	20ºC) between day and night. Generally high barometer readings with low temperatures.

Source: Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001

Procedural noise mitigation includes the following:

- Implementing fly-neighborly programs that adjust aircraft training times and routes to lower the impact on the community to the greatest extent possible given mission requirements.
- Adjusting the timing, when feasible, of particularly disruptive activities to avoid conflicts with local events such as church services or holidays. Keeping the community informed, when practicable, making public any unusual increases in the intensity of training or if training is to be resumed after a period of inactivity.
- Reviewing Environmental Assessments (EAs) and EISs to ensure that the noise impacts of the Proposed Action are addressed and are consistent with the IONMP.
- Monitoring the noise environment (as opposed to computer modeling) when the noise environment is controversial, when a NZ III exists in a noise-sensitive area, or when a noise is unique and cannot be modeled.
- Incorporating noise contours as a layer in the GIS so that the contours may be combined with other layers (such as land use) and referenced when siting new facilities.
- Continuing implementation of the noise complaint management procedure described in Section 3.11.1.
- Maintaining aircraft operations in compliance with established ICUZ.

  YPG personnel and construction workers would wear proper hearing protection and receive appropriate training as required by specific testing, training, or construction activities. To minimize human exposure safety zones and hazardous noise areas would be established as needed and would include the use of noise level meters and warning signs (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.12 Recreation

3.12.1 Existing Conditions

Much of the Cibola Region is within designated Game Management Unit (GMU) 43B and a portion also is within the southern portion of GMU 43A (AZGFD, 2010a and AZGFD, 2012) and much of the Kofa Region is within GMU 41 (AZGFD, 2010b).

GMU 41 has established hunting seasons for mule deer (*Odocoileus hemionus*) (November through January), desert bighorn sheep (*Ovis canadensis*) in December, Gambel's quail (*Callipepla gambelii*) from October through January, and mourning dove (*Zenaida macroura*) in

September. GMU 43A has established hunting seasons for mule deer (November and January), desert bighorn sheep in December, quail from October through February, mourning dove in September and again from November through January, and Canada geese from October through January. GMU 43B has seasons for desert bighorn sheep in December, mule deer rifle season in November and archery season from December through January, mountain lion (*Puma concolor*) from August through May, Gambel's quail from October through February, mourning dove in September and again from mid-November through early January, and waterfowl from October through February.

YPG is closed to the public and outdoor recreational opportunities are limited. Hunting is the primary recreational activity on YPG. In coordination with AZGFD, five recreational hunting areas have been established in portions of YPG where safety constraints were not an issue and where hunting would not interfere with the military mission of the installation:

- Cibola Hunting Area
- Highway 95 Hunting Area
- Arrasta Hunting Area
- Martinez Hunting Area
- East Arm Hunting Area

In–season hunting for mule deer, desert bighorn sheep, Gambel's quail, mourning dove, white-winged dove (*Zenaida asiatica*), Eurasian dove (*Streptopelia decaocto*), and African collared dove (*Streptopelia rosogrisea*) is permitted in all five designated areas. No areas suitable for waterfowl hunting occur within YPG boundaries, and mountain lion hunting has not been conducted on YPG. Hunters are required to obtain an annual YPG hunting license in addition to required state and federal licenses, permits, and tags.

Overnight camping in conjunction with hunting is permitted, but hunters are required to obtain proper advance authorization. Hunters who camp may use only downed wood for campfires and must properly dispose of their trash (Yuma Proving Ground Hunting Program [YPG HP], 2011). Since 1979, YPG has gradually increased the number of public hunting days and the available hunting acreage. While the potential for hunting on YPG is limited due to mission constraints and security concerns, YPG typically allows up to the maximum number of hunting days in accordance with state law in the designated areas (YPG, 2012b).

There is no recreational fishing on YPG. Natural waters on YPG are ephemeral and do not sustain recreational fisheries. Man-made and natural storage ponds are not feasible for recreational fishing due to constraints associated with the military mission.

An area in the southern portion of the Laguna Region is authorized for use by the BSA and D.A.R.E. During hunting season, YPG permits BSA scouting trips to designated hunting areas (YPG HP, 2011). In 2009, YPG approved an All-Terrain Vehicle Recreational Use Area adjacent to the MAA (YPG DPW, 2009). Horseback riding by YPG staff and their families is allowed on-post, and a stable within the YTC area is available for boarding privately owned horses. Horse owners are responsible for maintenance and upkeep of their animals. MCAS Yuma operates a recreational facility at Martinez Lake adjacent to the Colorado River that is open to local military personnel and their families (YPG, 2012b). The MAA has a bowling alley, fitness center, and other Morale, Welfare, and Recreation facilities that serve the YPG community (AECOM et al., 2011).

Three USFWS NWRs are located in the vicinity of YPG. As discussed in Section 2.1.1, the land between the arms of the YPG "U" is the Kofa NWR, which was established in 1939. The Kofa NWR encompasses approximately 665,400 ac of desert habitat. Kofa NWR offers a variety of recreational activities, including hiking, camping, sightseeing, photography, and nature observation. Regulated hunting for quail, desert bighorn sheep, deer, desert cottontail (*Sylvilagus auduboni*), coyote (*Canis latrans*), and gray fox (*Urocyon cinereoargenteus*) is permitted (USFWS, 2008).

The Cibola NWR, established in 1964, is located in the Lower Colorado River floodplain. The Cibola NWR encompasses both the historic Colorado River channel and the channelized portion constructed in the late 1960s. The refuge includes a nature trail and several wildlife viewing areas. Hunting is permitted in specific areas for Canada goose (*Branta canadensis*), snow goose (*Chen caerulescens*), various duck species (family Anatidae), American coot (*Fulica americana*), gallinules (family Rallidae), Gambel's quail, mourning and white-winged doves, mule deer, and desert cottontail. The refuge also offers recreational fishing opportunities (USFWS, 2011a).

The Imperial NWR is directly south of the Cibola NWR and also within the Lower Colorado River floodplain. The Imperial NWR encompasses approximately 25,768 ac and was established in 1941 as a refuge and breeding area for migratory birds and other wildlife. Similar to the other NWRs in the area, the Imperial NWR offers hiking, birding, wildlife viewing, hunting, and fishing opportunities (USFWS, 2010).

The Imperial Sand Dunes, managed by the BLM, are located in southern California approximately 15 miles west of Yuma. The dunes were formed by windblown sands from ancient Lake Cahuilla and extend for more than 40 miles. The Imperial Sand Dunes offer scenic views and opportunities for off-highway vehicle driving with appropriate permit(s) (Bureau of Land Management California, 2011). The Picacho State Recreational Area is part of the California State Park System and provides fishing, hiking, wildlife viewing, swimming, and camping opportunities (YPG, 2012b).

3.12.2 Environmental Consequences

The following were evaluated to determine potential impacts to recreation:

- Temporary impact to public access through temporary closure of areas or access roads within YPG that are used by the public.
- Permanent loss of existing recreational opportunities due to new construction or use of new areas for testing or training activities.
- Reduced recreational use due to occasional closure of an existing area used for recreation due to activities in new or expanded testing and training areas.

3.12.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to recreation include:

- Minor to Moderate (less than significant)—Activities that would affect the regional availability of recreational opportunities, access to public lands, or on-post recreational opportunities.

- Severe (significant)—Activities that would eliminate the regional availability of a particular recreational opportunity or that result in long-term closure of an important public access point.

3.12.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, recreational activities and opportunities on or near YPG would not change. Testing and training activities conducted on YPG would continue to fluctuate between historical high and low levels and areas designated for recreation and hunting would not be affected. All of Cox Field would remain in irrigated grass and would be available for passive recreation. There would be no significant impacts to recreation under the No Action Alternative.

Under the No Action Alternative, the following proposed activities that would benefit recreation would not be implemented:

- Construct addition to youth services center (L012-c).
- Construct an outdoor park (L106) at YTC.
- Convert Street D into pedestrian walkway.

3.12.2.3 Impacts of the Proposed Action/Preferred Alternative

There would be no effects to off-post recreational opportunities as a result of the Proposed Action. All impacts of the Proposed Action on recreation would be limited to within the boundaries of YPG.

Seven proposed activities could conflict with recreational hunting on YPG:

- Project C047-r (Ehrenberg TGP) would result in potential impacts with hunting in a small portion of the Cibola Hunting Area. Should testing or training events requiring use of this TGP be scheduled during hunting season, public hunting would be suspended for the duration of the testing and training activities. Any impacts on public hunting would be expected to be minor.
- Project K001 (1,640-ft radius DZ for personnel and cargo drops in southern portion of East Arm) would result in potential conflicts with recreational hunting in portions of the East Arm Hunting Area. Should testing or training events requiring use of this DZ be scheduled during hunting season, public hunting would be suspended for the duration of the testing and training activities. Any impacts on public hunting would be expected to be minor.
- Project K021 (Create an LTA in the East Arm) would result in potential conflicts with recreational hunting in portions of the East Arm Hunting Area. Should training events be scheduled in this LTA during hunting season, public hunting would be suspended for the duration of the training activities. Any impacts on public hunting would be expected to be minor.
- Project K030 (Construct runway, taxiway, aircraft shelter, command and control room, simulator training room, classroom, maintenance area, POL storage area, graded area for parking, and concrete or asphalt pad, clear area for GCSs, and clear area for UAS launch/recovery) would result in conflicts with recreational hunting in a small portion of the East Arm Hunting Area. Implementation of this activity would result in conversion of 26.1 ac of land currently available for hunting to institutional use where

hunting could not occur. In addition, there would likely be restrictions on hunting in proximity to this area to prevent risk to personnel and equipment from public hunting activities. Any impacts on public hunting would be expected to be minor.

- Project L016-a (Construct building, concrete or asphalt pad, shade structure, and install solar lights at Site 2) would result in potential hunting conflicts in the Martinez Hunting Area. If construction of this activity were to occur during hunting season, public hunting would be suspended until the construction was complete in the area of the construction activity. Some land available for hunting would be converted to buildings and pads, but the amount of converted land would be minor. Should training events be scheduled in this LTA during hunting season, public hunting would be suspended for the duration of the training activities. Any impacts on public hunting would be expected to be minor.
- Project L016-b (Install hard power, fiber, and communication service at Site 2) would result in potential hunting conflicts in the Martinez Hunting Area. If construction of this activity were to occur during hunting season, public hunting would be suspended until the construction was complete in the area. Any impacts on public hunting would be expected to be minor.
- Project L019 (Expand and combine West LA LTA, K-9 Village LTA, Site 2 LTA, and Site 4 LTA) would result in potential hunting conflicts in the Martinez Hunting Area. Should training events be scheduled in the portion of this LTA that overlaps the Martinez Hunting Area during hunting season, public hunting would be suspended for the duration of the training activities. Any impacts on public hunting would be expected to be minor.

The construction of the ISR/EO ground truth sites across Cibola and Kofa, including some areas where public hunting is allowed, would not be expected to affect public hunting due to the small size and passive nature of the ISR/EO sites.

No proposed activities would be conducted within the Arrasta and Highway 95 Hunting Areas and there would be no changes to public hunting in these areas.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a commercial-scale renewable solar electrical energy generation facility could affect recreational hunting on YPG, depending on the location selected. Development of the facility would result in conversion of up to approximately 8,900 ac of desert habitat, which would reduce recreational hunting opportunities if the site is within a designated hunting area.

The following proposed activities would have the potential to affect other on-post recreational activities:

- Construct addition to youth services center (L012-c).
- Construct an outdoor park at YTC (L106).
- Construct Cox Field improvements (L107).
- Convert Street D into pedestrian walkway (L107).

The current youth services center is not configured correctly for multiple purpose uses and lacks a high ceiling for sports such as basketball or volleyball. These activities are conducted outdoors and can be unsafe in extreme temperatures. The proposed addition to the youth services center would create additional recreational opportunities for the youth on YPG and meet the minimal requirements of a Community and Family Support Center. The addition to the youth services center would be a benefit to on-post recreation for children. Minor temporary disruptions of services at the center could occur during construction, but any impacts would be minor.

The construction of an outdoor park at YTC would create new opportunities for passive recreation in this area. There is no outdoor open space for YPG employees in the YTC cantonment. The construction of the outdoor park would add to the quality of life of employees in this area and would create additional recreational opportunities. This would be a benefit to on-post recreation in the YTC area.

Improvements at Cox Field would result in the removal of a portion of the grass turf that is used by YPG residents for passive recreation, such as picnics and casual play with children. The xeriscaped area that would replace the turf would offer different passive recreational opportunities, primarily nature observation, that would likely be less used by residents than the turf field. There would be a net minor negative impact to recreation on YPG due to reduced area available for this use.

The conversion of D Street to a pedestrian walkway would provide opportunities for increased walking within the MAA. Creating an area where regular walking could occur would be a minor benefit to passive recreational opportunities in the MAA.

There would be no impacts to off-post recreational opportunities and minor to moderate impacts to public hunting on YPG. Impacts of the Proposed Action would include beneficial improvements to recreational activities and opportunities on YPG and would have minor negative impacts to some recreational activities. Minor temporary disruption of some recreational activities could result from construction activities at facilities where recreation occurs. There would be a minor loss of green space used for casual play and picnics in the MAA. No other impacts to recreation would occur.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. Approximately 1,675 ac would be converted from open land, which could cause indirect impacts to nearby recreational uses through alteration of the visual landscape. The Quartzsite Solar Energy Project could contribute to cumulative impacts to regional recreation.

Construction, operation, and maintenance of the five additional BLM solar projects would likely result in incremental loss of recreational opportunities on BLM lands as projects are implemented. In addition, the appearance of the solar facilities could be a negative experience for recreational users in the area. The combination of loss of usable land and degradation of the recreational experience through altered visual character could contribute to cumulative impacts to regional recreation.

No other cumulative impacts to recreation would be expected beyond the minor incremental benefits to recreation from the Proposed Action.

3.12.2.4 Mitigation

No mitigation is proposed for recreation, as no significant impact to recreational opportunities would occur.

3.13 Safety

3.13.1 Existing Conditions

The main safety concerns on YPG are related to contamination, UXO, fires, and traffic and safety, which are present both in military and non-military activities. Safety also is the basis for establishment of AT/FP setbacks and use of controlled access points on the installation. The YPG safety program educates and protects people from injury and exposure to conditions that could lead to injury. The safety program applies to all persons on YPG, including military, civilian, dependent, and contractor personnel.

Safety for military personnel and contractors involved with mission-related activities is a priority and personnel are trained individually for the various testing and training activities through specific programs. AR 385-1 (*Safety and Occupational Health Program*) and YPGR 385-1 (*Yuma Proving Ground Safety and Occupational Health Program*) define the safety program on YPG. Contractor personnel are required to comply with the Occupational Safety and Health Act in addition to all YPG safety requirements. Range safety during testing and training events is governed by YPG SOP YP-MTRO-P-1000 (*Airspace and Range Operations*). Each individual operation or test is required to have a specific SOP, which must meet the requirements of SOP YP-MTRO-P-1000 at a minimum and may include greater safety controls. Medical evacuation pads for helicopter access are located throughout much of YPG. The very remote areas of YPG, such as north Cibola Region or East Arm, lack medical evacuation pads.

Range Control oversees all activities conducted on the Cibola and Kofa Regions. Military or contractor personnel must receive clearance from Range Control prior to entering these areas. Range Control tracks all activities in down-range areas, including all testing or training using live fire or explosives. In addition to obtaining clearance prior to entry into the Cibola or Kofa Regions, persons also must check in with Range Control when changing positions on the range or upon leaving these areas.

Contamination on YPG primarily occurs as a result of industrial processes, routine maintenance activities, testing, and support activities and could affect personnel if an exposure pathway exists. The environmental programs on YPG minimize the use of hazardous substances and the resulting waste streams. Spill prevention measures are implemented to further protect personnel and the environment (YPG DPW, 2010b). Chapter 3 of YPGR 385-1 addresses environmental health risks and applies to all activities on YPG. Areas where contamination could occur are restricted and non-military persons are not at risk of exposure.

Contamination from PEPs and MCOCs is present in designated munitions impact areas, and munitions containing DU have been used in the NRC-licensed DU impact area in the Kofa Region. Contamination of munitions impact areas and other contaminants on YPG, including safety measures, are discussed in Section 3.9. There is no evidence that contamination from PEPs and MCOCs have migrated from designated munitions impact areas (USACHPPM, 1999; USACHPPM, 2007; EA Engineering, Science, and Technology

Inc., 2014; YPG DPW, 2010b). Because these areas are restricted, non-military personnel are not at risk of exposure.

UXO from testing and training activities on YPG poses a safety concern for YPG personnel and fire-fighters. UXO is present in designated munitions impact areas (see Section 3.9). Safety procedures for explosives and usage of the Cibola and Kofa Regions are specified in YPG Regulation 385-1. Areas used to store explosives are buffered by EQSD arcs, which provide a safe zone if an explosion were to occur. Because the munitions impact areas are restricted, non-military persons are not at risk of exposure.

Civilians are not permitted on YPG, except as military contractors, dependents, and hunters. Appropriate speed limits and traffic controls are placed throughout the installation and provide for traffic safety for all persons on YPG. Hunters are allowed in designated areas during official hunting seasons. An annual YPG range safety briefing is required before anyone can obtain a hunting permit.

Trespassers could enter restricted areas on YPG and be at risk from UXO. In the past, campers have been found on YPG who indicated that they were unaware they were trespassing. Warning signs are posted along the boundary and roads through YPG to deter trespass.

Because non-lightning ignited wildfires occur on munitions impact areas that are in restricted and remote areas of the Cibola and Kofa Regions, fires on YPG typically do not affect the public. Fires in areas contaminated with UXO frequently cannot be fought or contained and must be allowed to burn out due to the risk to firefighting personnel (see Section 3.7).

US 95 and County Highway S24/Imperial Dam Road cross portions of YPG. Both are two-lane paved roads with typical rural road speed limits. US 95 and County Highway S24 experience the heaviest traffic volume from 5:00 to 7:00 am and from 3:30 to 5:30 pm and YPG-associated traffic is the primary component of the heavy traffic (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). AR 385-55, Prevention of Motor Vehicle Accidents, provides guidance to drivers, which includes off-duty safety, training, and other vehicle safety guidance. YPG enforces speed limits and advocates YPG personnel to obey traffic laws. YPG implements DoD requirements that vehicle operators not use cellular phones while driving. Most materials are delivered to YPG via US 95. The transportation of explosives and other hazardous substances is discussed in Section 3.17.1.5. Guidance for the proper transportation of hazardous material is provided in AR 385-55, which addresses training, storage instructions, inspections, and planned routes.

Valley fever (Coccidioidomycosis) has been identified as a health issue in Arizona. This disease results from a fungal infection after susceptible persons inhale airborne dust from desert soils that contain fungal spores of the genus *Coccidioides* (Centers for Disease Control and Prevention [CDC], 2013). In Arizona, most cases occur in the Phoenix and Tucson areas, and the YPG area (Yuma and La Paz Counties) has had relatively few cases (Table 3-14; Arizona Department of Health Services, 2012; Arizona Department of Health Services, 2013). Yuma and La Paz Counties have each averaged between 0.1 percent and 0.3 percent of total reported cases for Arizona for the period 2007—2012. While the disease can strike anyone, it is much more prevalent among older persons (60 years of age and older) and those with suppressed or compromised immune systems (CDC, 2013).

TABLE 3-14
Reported Cases of Valley Fever in Arizona and in Yuma and La Paz Counties, 2007—2012
Yuma Proving Ground

Year	Reported Cases in Arizona [a]	Reported Cases in Yuma County [a]	Percentage of Cases in Yuma County	Reported Cases in La Paz County [a]	Percentage of Cases in La Paz County
2007	4815	13	0.3 %	15	0.3 %
2008	4768	7	0.1 %	7	0.1 %
2009	10,233	12	0.1 %	21	0.2 %
2010	11,884	21	0.2 %	26	0.2 %
2011	16,473	30	0.2 %	45	0.3 %
2012	12,920	33	0.3 %	25	0.2 %

[a] Data from Arizona Department of Health Services, 2012 and Arizona Department of Health Services, 2013

The YPG safety program educates and protects people from injury and exposure to injurious effects. The safety program applies to all persons on YPG, including military, civilian, dependent, and contractor personnel.

3.13.2 Environmental Consequences

The following were evaluated to determine potential impacts to safety:

- Potential construction-related safety risks to workers
- Potential for safety risks from activities in new or expanded testing and training areas
- Potential for traffic-related safety risks from increased military traffic on US 95, Imperial Dam Road, or Martinez Lake Road as a result of activities in new or expanded testing and training areas

3.13.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to safety include:

- Minor to Moderate (less than significant)—Activities that would affect, or have potential to affect, the health and safety of persons on- and off-post.
- Severe (significant)—Activities that would violate established Federal, State, and local health and safety laws and regulations or create new safety hazards off-post.
- Beneficial—Activities that would reduce potential safety risks.

3.13.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, there would be no new construction and testing and training would continue to fluctuate between historical high and low levels. YPG personnel would continue to comply with the YPG Safety Program, including developing test-specific SOPs and coordinating activities through Range Control. No impact on safety would be expected.

The YPG Safety Office will develop an information flier on valley fever. The Safety Office also will make a safety announcement about the availability of this flier to YPG personnel and dependents.

There is potential for recreational users in the southern portion of Kofa NWR that is within YPG Airspace R-2307 to be within temporary safety fans established for firing activities on

YPG. Any recreational users in this area would be at risk during the associated YPG operations. Prior to conducting operations with a safety fan that extends into the Kofa NWR, YPG will verify there are no people in the portion of an SDZ extending into the Kofa NWR, primarily by visual or electronic means. Helicopters will be used to locate people only where large portions of an SDZ overlap Kofa NWR, primarily in R-2307.

Beneficial impacts to safety associated with construction of MEDEVAC pads, safe haven relocation, hard power, and road improvements would not occur under the No Action Alternative.

3.13.2.3 Impacts of the Proposed Action/Preferred Alternative

The Proposed Action includes creation of new testing and training capabilities and new construction. Measures that would be implemented under the No Action Alternative would be implemented under the Proposed Action. The following sections discuss the potential for safety impacts from construction activities and from YPG operations.

Construction. Construction activities would create short-term increased safety risks to workers. During construction, workers would have the potential for accidents as a result of routine job exposure to heavy equipment and construction debris. Construction workers also would be exposed to elevated noise levels from heavy equipment and construction activities. Potential safety issues related to construction noise are further discussed in Section 3.11. Workers would use appropriate protection and comply with appropriate safety standards. Any potential safety impacts from construction would be minor.

Construction-related traffic could result in a minor increase in traffic-safety risk. Construction-related traffic and appropriate mitigation measures to minimize safety risk are further discussed in Section 3.17. Any impacts would be minor.

Construction of proposed activity L002 would require that construction workers access LAAF and work in the clear zones of LAAF. Work would be coordinated with Flight Operations to minimize safety risks associated with work on and adjacent to an active airfield.

Construction of TGPs and down-range infrastructure projects in the Cibola Region would require that construction workers access restricted portions of the Cibola Region and construction of down-range infrastructure Projects K001, K025-b, K030 in the Kofa Region would require that construction workers access restricted portions of KFR. All movement to and from these sites would be coordinated through Range Control to avoid conflicts with munitions testing. Helicopters would be used to evacuate injured workers should immediate care be required. Because of the coordination with Range Control and the availability of helicopter evacuation, no adverse safety impacts would be expected from construction activities in these remote restricted areas in the Cibola and Kofa Regions.

Activity C026-d would result in minor safety benefits by relocating aboveground wires to underground conduit.

Operations. Implementation of the Proposed Action would be expected to result in net minor to moderate benefits to safety on YPG. Certain proposed activities are specifically intended to benefit safety, while many others would provide indirect safety benefits. No activities are proposed that would directly increase safety risks on YPG.

AT/FP improvements would be constructed at multiple locations in the Laguna Region. These activities would reduce the risk of external threats to security and safety on YPG. Helicopter landing pads for MEDEVAC would be constructed in the northern Cibola Region, which would result in more prompt response and treatment should serious injury or illness occur at a JERC site. Flood upgrades on Aberdeen Road at Castle Dome Wash would improve safety conditions for persons traveling between US 95 and the Kofa cantonment. In the MAA, D Street would be converted to a walkway, which would enhance pedestrian safety. Shade would be installed at multiple locations (K-9 Village, Site 2, CM 4, Lightweight Shock Facility, and Stinger Pole target) to reduce exposure to the sun and associated heat stress for persons working in these areas.

Installation of hard power and telecommunication service at multiple locations on the Cibola and Kofa Regions would reduce the use of portable generators, which would provide indirect benefits to safety. Transportation of generators and fuel to remote areas on the Cibola and Kofa Regions would be reduced, which could benefit transportation safety on range roads in these areas. Less fuel would be managed at test sites, reducing the potential for fuel-related accidents at down-range locations.

Personnel manning the East Kofa Operations Center would have to cross KFR to reach the site. All movement to and from the East Kofa Operations Center would be coordinated through Range Control to avoid conflicts with munitions testing. Because of the coordination with Range Control, no adverse safety impacts would be expected from staff travelling to the East Kofa Operations Center.

The LTAs proposed by activities C060, C064, and K026 would be in areas where UXO may be present. Dismounted maneuvers in these LTAs would be restricted to established trails and roads unless UXO clearance was completed in advance of the maneuvers. With maneuvers restricted to existing roads and trails, no safety impacts from the potential presence of UXO would result.

Personnel training in the proposed dismounted maneuver areas at SCAM Flats, Tower 71, East Arm, and SWTR would have to cross KFR to reach the site. In addition, use of SWTR would be coordinated among the following uses: personnel training at dismounted maneuver area, UAS launch/recovery, and use of SWTR as an impact area. All movement to and from the proposed dismounted maneuver areas and proposed UAS launch/recovery sites would be coordinated through Range Control to avoid conflicts with munitions testing. Because of the coordination with Range Control, no adverse safety impacts would be expected from operations.

Testing at the DZ that would be created by Project K001, operation of the testing/training complex in the northern portion of the East Arm (K030), and training activities at the East Arm LTA (K021) would result in personnel operating in very remote areas. Personnel working at these sites would coordinate with Range Control for access and any serious injuries would require use of helicopters for evacuation. Because of the coordination with Range Control and the availability of helicopter evacuation, no adverse safety impacts would be expected from operational activities in these remote areas in the Kofa Region.

The relocation of Safe Haven would reduce the risk that an overnight accident at a truck awaiting cargo delivery to YPG would affect persons in the Kofa cantonment.

Use of new or expanded testing and training areas, including increased vehicle use to access these new areas, would not be expected to change the rate of safety-related incidents on

YPG. There could be an increase in the number of safety-related incidents during a specific period because more activities could be scheduled simultaneously. However, because the YPG Safety Program would be implemented, safety issues from incidents related to increased activity would be expected to be minor.

New and expanded testing and training areas could increase the risk of wildfire on YPG through exposure of new areas to potential ignition sources. Vegetation clearing and land disturbance associated with construction, creation, and use of UAS launch/recovery areas, DZs, and TGPs may create conditions favorable to establishment of exotic invasive vegetation, which would create increased fuel loads and increase the risk of severe wildfire. TGPs would serve a variety of testing and training uses and would not likely be areas where exotic invasive species would establish unless the TGPs were abandoned. See Sections 3.7 and 3.18 for further discussion of fuel loads and wildfire. Wildfire would continue to be suppressed in the Laguna Region and any impacts to safety from increased risk of wildfire or severe wildfire would be expected to be minor.

There would be potential for foreseeable future projects to interact with safety on YPG. Should a solar-powered electrical generation facility be constructed in the Cibola Region, glare from such a facility could affect aircraft operations within YPG airspace, which could increase safety risks.

The incidence of valley fever in the YPG area is low. The proposed activities would not be expected to increase the incidence of the disease. Testing activities would not expose personnel to risk of the disease, as testers would not be exposed to dust-generating activities. Dismounted maneuver training places Soldiers at risk due to moving and bivouacking in the desert, but the disease does not typically affect young, physically fit persons with strong immune systems (CDC, 2013). YPG implements dust suppression in populated areas, which minimizes the potential for spread of dust-borne fungal spores. The YPG Safety Office will develop an information flier on valley fever. The Safety Office also will make a safety announcement about the availability of this flier to YPG personnel and dependents.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. There would be minimal health and safety risks during construction and operations of the project, and they would not contribute to regional safety cumulative impacts.

Construction, operation, and maintenance of the five additional BLM solar projects would be unlikely to contribute to cumulative impacts to regional safety. It is anticipated there would be minimal health and safety risks during construction and operations of the projects.

Proposed Arizona Department of Transportation (ADOT) improvements to US 95 would increase safety along this road for public travel and for YPG-related travel. This would be a cumulative benefit to safety in the region and also would occur under the No Action Alternative. No other past, present, or reasonably foreseeable projects would have the potential to interact with safety on YPG. No other cumulative impacts are expected.

3.13.2.4 Mitigation

YPG would implement mitigation to minimize the potential adverse impacts to safety from construction and active munitions areas. During construction, workers would follow

appropriate OSHA standards to prevent injury. On-post personnel would comply with the YPG safety program and coordinate with Range Control.

Prior to conducting operations with a safety fan that extends into the Kofa NWR, YPG will verify there are no people in the portion of an SDZ extending into the Kofa NWR, primarily by visual or electronic means. Helicopters will be used to locate people only where large portions of an SDZ overlap Kofa NWR, primarily in R-2307.

3.14 Socioeconomics

3.14.1 Existing Conditions

This section describes the socioeconomic environment in the vicinity of YPG, which includes the impact of YPG on the regional economy. YPG is relatively isolated within a large county containing few large urban areas. The potential for socioeconomic impacts would be confined primarily to YPG and the nearby urban area (the City of Yuma).

The City of Yuma is the largest population center in the region and the population has been increasing. The Yuma metropolitan area was the third fastest growing metropolitan area in the country between 1990 and 2000 (Yuma County Chamber of Commerce, 2011). Almost all YPG civilian personnel reside in Yuma or the surrounding area and only 450 people live on YPG (YPG, 2011a). From 1990 to 2010, the population of the City of Yuma grew by approximately 69 percent and the population of Yuma County grew by approximately 83 percent (Table 3-15). The climate is attractive to temporary winter residents and the winter

TABLE 3-15

Population Data for Local Cities and Counties, the State of Arizona, and the United States
Yuma Proving Ground

	1990 Census [a]	2000 Census [b] (% change from 1990)	2010 Census Estimates [c] (% change from 2000)	2020 Projections [d] (% change from 2010)
Yuma City, Arizona	54,923	77,515 (41%)	93,064 (20%)	119,464 (28%)
Ehrenberg, Arizona	1,226	1,357 (11%)	1,470 (8%)	1,486 (1%)
Quartzsite, Arizona	1,876	3,354 (79%)	3,677 (10%)	4,317 (17%)
La Paz County, Arizona	13,844	19,715 (42%)	20,489 (4%)	25,487 (24%)
Yuma County, Arizona	106,895	160,026 (50%)	195,751 (22%)	271,361 (39%)
Arizona	3,665,228	5,130,632 (40%)	6,392,017 (25%)	8,779,567 (37%)
United States	248,709,873	281,421,906 (13%)	308,745,538 (10%)	324,927,000 [e] (5%)

Sources: [a] USCB, 2011c; [b] USCB, 2011d; [c] USCB, 2011a, [d] Arizona Department of Economic Security, 2006, [e] USCB, 2000

population of Yuma County typically increases by 80,000 to 100,000 each year (Yuma County, 2011). Yuma County population projections for 2020 indicate an approximately 39 percent increase from 2010 levels, with the City of Yuma growing by approximately 28 percent in that same timeframe. YPG also extends northward into La Paz County, but

thereare no large metropolitan centers abutting YPG in this county. The cities of Quartzsite and Ehrenberg are located north of the installation in La Paz County. La Paz County grew by 48 percent from 1990 to 2010, but growth slowed greatly after 2000, with only a 4 percent increase from 2000 to 2010. Growth is projected to increase again in La Paz County, with an increase of 24 percent over the 2010 population expected by 2020 (Table 3-15).

YPG and MCAS Yuma, along with farming, cattle ranching, and tourism, are the main employers in Yuma County. Agriculture, tourism, and the military account for $900 million, $450 million, and $300 million, respectively, of the local economy (Yuma County Chamber of Commerce, 2011). The military in Arizona, indirectly and directly, accounts for $9.1 billion in economic output and 96,328 jobs (The Maguire Company, 2008).

YPG contributes over $425 million a year to the Arizona economy, most of which stays within Yuma County. YPG is the largest employer in Yuma County, with more than 3,000 military and civilian employees and also is the county's largest civilian employer. Approximately 23,000 visitors per year come to YPG and more than 100 military units, which include up to 10,000 Soldiers, Marines, and other military personnel who come to YPG each year to train under realistic hot desert conditions (YPG, 2011a). These visitors contribute to the revenue of airlines, local hotels, restaurants, and other area businesses. Among government organizations, YPG is one of Yuma County's main consumers of local goods and services. Federal impact funds are provided as payment to the local school districts to defray the cost of accommodating military children in the public school system (YPG, 2011a).

YPG implements a variety of assistance and outreach programs for personnel and families. For example, the federally funded Women, Infants, and Children Program assists participants in maintaining a nutritionally balanced diet. The Financial Readiness Program offers financial assistance and assists in resolving problems with local businesses. YPG also operates a volunteer program for activities in the local community (YPG, 2011b).

3.14.2 Environmental Consequences

The following were evaluated to determine potential impacts to socioeconomic resources:

- Wages from employment associated with new construction projects
- Spending to acquire construction materials from local or regional merchants
- Secondary spending by construction workers among local or regional merchants
- Secondary spending by non-assigned personnel and supported components who temporarily visit YPG for testing or training activities
- Reduced spending for fuel for operation of portable generators and for delivery of portable generators, fuel for portable generators, and potable water.

3.14.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to socioeconomic resources include:

- Negligible (less than significant) – Activities that would result in barely perceptible changes income, jobs, and population levels.
- Minor to Moderate (less than significant)—Activities that would affect, or have potential to affect, short-term income, jobs, and population levels.

- Severe (significant)—Activities that would affect, or have potential to affect, long-term or permanent income, jobs, and population levels.
- Severe (significant)—Activities that would result in changes in population levels (particularly declines) that appreciably exceed typical historical fluctuations and could burden community services.
- Beneficial—Activities that would contribute to the local and regional economy.

3.14.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, there would be no change in existing conditions, including the number of staff at the YPG. The existing YPG complex would continue to operate. YPG would remain the largest employer in Yuma County and would continue to contribute over $425 million a year to the AZ economy. No impacts to socioeconomics would be anticipated.

Short-term beneficial impacts to the local economy as a result of increased spending due to purchase of building materials and construction jobs would not occur under the No Action Alternative.

3.14.2.3 Impacts of the Proposed Action/Preferred Alternative

Direct Impacts. There would be short-term minor benefits to the local economy from the purchase of building materials and construction jobs as a result of the various construction projects. Construction workers would come from the general Yuma area and no new permanent jobs would be created. No new long-term jobs are anticipated at YPG as a result of new construction activities or from increased testing and training activities. These impacts are considered minor. Because there would be no permanent change in workforce and no long-term construction would occur, no cumulative impacts to socioeconomic resources would be expected.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). There could be minor cumulative beneficial impacts to socioeconomics from development and operation of a commercial-scale renewable solar electrical energy generation facility. There would be long-term creation of a few jobs, which would have a negligible beneficial impact on regional employment. Operation of this facility would reduce the demand for electricity from the grid for YPG, which could contribute to reduced rates paid for electricity and provide incremental benefits to the regional economy.

There could be minor cumulative beneficial impacts to regional socioeconomics from development and operation of the Quartzsite Solar Energy Project, approximately 10 miles north of Quartzsite, Arizona in La Paz County. There would be short-term creation of 280 jobs and long-term creation of 47 jobs, which would incrementally benefit regional employment. Operation of the facility would provide an additional source of electrical power, which could contribute to reduced rates paid for electricity and provide incremental benefits to the regional economy.

There could be minor cumulative beneficial impacts to regional socioeconomics from development and operation of the five additional BLM solar projects. There would likely be short-term and long-term job creation, which would incrementally benefit regional employment. Operation of the facilities would provide additional sources of electrical power, which could contribute to reduced rates paid for electricity and provide incremental benefits to the regional economy.

Indirect Impacts. No new employees are anticipated to relocate to the area as a result of the Proposed Action. There would not be an increased demand for housing, education, or other public services. The workers who would be employed on the construction project may have increased income, and would continue to spend money in Yuma, which is a minor indirect beneficial impact.

There could be an indirect minor negative impact on local fuel and water retailers. If hard power is installed to many test locations, fuel would no longer be required for portable generators at those locations. The effect on the local economy due to the reduction of purchased fuel or potable water would be less than significant.

3.14.2.4 Mitigation

Mitigation is not required for socioeconomic impacts because direct and indirect impacts are minor and temporary or beneficial.

3.15 Soils

3.15.1 Existing Conditions

The soils on YPG are of the aridisol and entisol soil orders. Aridisols generally are older and more developed soils and are characterized by light-colored surface layers with low amounts of organic matter and at least one diagnostic sub-horizon (Hendricks, 1985). As the aridisols soils age under arid conditions, cemented layers of salts and carbonate, commonly referred to as caliches and hardpans, may form (YPG, 2012b). Entisols typically are younger than aridisols and occur in areas subject to wind erosion or scour by surface water runoff. Entisols have little or no horizon development, but may have a thin surface layer with accumulated organic matter (Hendricks, 1985).

Nine soil complexes occur on YPG. Most soil complexes on YPG are not susceptible to water or wind erosion. Some soils become more susceptible to erosion following disturbance or under certain landscape position/slope conditions (Table 3-16).

Aridisols at YPG include the Cristobal, Chuckwalla, and Gunsight soil types. Cristobal and Chuckwalla are the soils in areas with desert hardpan or desert pavement. Gunsight soils occur on adjacent side slopes. Entisols at YPG include the Carrizo, Lithic Torriorthents, Typic Torriorthents, Rositas, Carsitas, Antho, Gilman, and Glenbar soil types. Carrizo soils are located in the dried riverbeds. Lithic and Typic Torriorthents are young shallow deposits on mountainsides. Rositas and Carsitas consist of active shifting sands. Antho, Gilman, and Glenbar soils occur in the broad valley floodplains along washes (YPG, 2012b).

Desert pavement, which consists of a surface covering of closely packed fragments of pebbles, gravel, cobble, or debris weathered from bedrock, is common in bajadas (level plains between washes) throughout much of YPG (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). A silt- and clay-rich soil horizon, designated as the Av

horizon due to its position in vesicles among the rocks, underlies the armored, tightly packed desert pavement surface layer. The Av horizon ranges from 0.01 to 3.94 inches thick and forms through an accretionary process by trapping atmospheric dusts. The eolian dusts are a combination of clay, silt, calcium carbonate, and soluble salts. The accumulation

TABLE 3-16
Soil Complexes on YPG
Yuma Proving Ground

Soil Complex Name	Landscape Position	Percent Slope	Areas of YPG	Hazard of Water Erosion	Hazard of Wind Erosion
Carsitas family-Chuckawalla family Complex	Dissected relic beach terraces; fan terraces	4-30%; 1-7%	Laguna Region; Southern boundary of Kofa Region	Slight	None
Chuckawalla family-Gunsight family Complex	Fan Terraces; summit/shoulder and sideslopes	1-7%; 3-15%	Kofa Region—East arm	Slight	None
Cristobal family-Gunsight family Complex	Fan Terraces; crest/summit and sideslopes	1-3%; 3-15%	All regions	Slight; high in disturbed areas	None; moderate in disturbed areas
Gilman family-Harqua family-Glenbar family Complex	Mixed stream alluvium; floodplains and basin floor	0-2%	Eastern Kofa Region; Northern Cibola Region	Medium to high in floodplains; slight on basin floor	Medium to high in floodplains; none on basin floor
Gunsight family-Chuckawalla family Complex	Fan Terraces; summit/shoulder and sideslopes	1-7%; 3-15%	All regions	Slight	None
Lithic Torriorthents and Typic Torriorthents	Hills and mountains	15-60%	All regions	Sight	None
Riverbend family-Carizzo family Complex	Stream Terraces and Floodplains	1-3%	All regions	Slight	None; very slight in disturbed areas
Superstition family-Rositas family Complex	Relic beach terraces and dunes	1-10%; 2-15%	Laguna Region	Slight	Very high; extremely high in disturbed areas
Tucson family-Tremant family-Antho family Complex	Alluvial fans	1-2%	Eastern Kofa Region; Northern Cibola Region	Moderate to high	Very slight; high in disturbed areas

Source: Natural Resources Conservation Service (NRCS), 1991

and vertical distribution of the dusts over time form into well-developed soil horizons. The upper horizons have a large percentage of fine-grained material and are underlain by the reddish, gravel-rich Bw horizon (Caldwell et al., 2008). These fine-grained arid soils have high porosities and pronounced secondary structure (Berli et al., 2007).

Hardpans, desert pavements, biological soil crusts, and vegetation naturally protect the soils of YPG from erosion. When these protective surfaces are disturbed, soil erosion can be

rapid, particularly in sloped areas. Winds and occasional heavy rain are the primary causes of erosion on YPG (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). The extensive porous and secondary structure of the Av horizon collapses quickly upon disturbance, resulting in high dust emissions (Caldwell et al., 2008). The Av horizon is also predominantly clay and silt materials and could be more susceptible to fluvial erosion once the desert pavement is disturbed. A recent study of desert shrubs along first-order streams found an accumulation of high silt and clay soils underlying the upper channels. This accumulation was attributed to fluvial erosion from nearby plant scars, or disturbance to desert pavement caused by plant mortality (McDonald et al., 2004). The same study also found that the infiltration rate increased and the runoff decreased once desert pavement was disturbed. This change in soil characteristics had a direct negative impact on the surrounding vegetation communities, which is further discussed in Section 3.18.

3.15.2 Environmental Consequences

This section discusses direct, indirect, and cumulative impacts to soils that may result from the No Action Alternative and the Proposed Action. The types of impacts considered in this soils impact analysis include:

- Permanent loss of native soil, which includes loss of soils due to direct impacts such as creation of impervious surface area, excavation, or placement of fill material.
- Soil compaction, which could result from use of heavy equipment during construction or from off-road testing of large military equipment. Compaction can adversely affect soil functions, including the ability to filter water, resist erosion, or support native vegetation.
- Wind erosion, which includes loss of the upper soil horizons by wind action on exposed soils or across areas where desert pavement is disturbed or removed.
- Water erosion, which includes loss of the upper soil horizons by runoff across exposed soils, erosion from areas where desert pavement is disturbed or removed, or increased runoff as a result of increased impervious area.
- Soil instability, which could result from testing and training activities that result in loss of vegetative cover or desert pavement and that would likely contribute to subsequent conditions prone to wind and/or water erosion.
- Beneficial impacts, which could result from actions that reduce or eliminate the potential for soil disturbance during testing and training activities.

Contamination of native soils from hazardous materials, including POLs and explosives, also would represent an impact to soils, but these impacts are discussed under hazardous materials (Section 3.9) rather than in this section.

Indirect impacts to other resource areas could result from soil disturbance, including air quality (Section 3.2), cultural resources (Section 3.4), vegetation (Section 3.18), and water quality (Section 3.20). Such impacts are discussed in those sections, as appropriate.

3.15.2.1 Significance Criteria

The significance criteria used to assess impacts to soils are:

- Negligible (less than significant)—Activities that have barely perceptible impacts on soils or erosion potential
- Minor to Moderate (less than significant)—Activities that could cause soil erosion but in areas where management practices are sufficient to minimize the effects
- Minor to Moderate (less than significant)—Activities that would disturb less than 25,000 ft^2 of desert pavement
- Minor to Moderate (less than significant)—Activities that would disturb and permanently unstabilize less than 25,000 ft^2 of highly erodible soils
- Severe (significant)—Activities that would result in uncontrolled and irreparable erosion (in areas where management practices are insufficient to minimize the effects)
- Severe (significant)—Activities that would result in changes to native soils that would preclude the restoration of native plant communities in a contiguous area greater than 5 ac
- Severe (significant)—Activities that would result in the disturbance or loss of a contiguous area of more than 25,000 ft^2 of desert pavement in an undeveloped area

3.15.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, continuing mission operations would result in impacts to soils, as testing and training activities would continue in currently authorized areas at currently authorized levels. Soil impacts could result from off-road vehicle and equipment activity and maneuvers, dismounted maneuvers, set-up for test operations, and live-fire exercises. Impacts of these activities have been previously evaluated under NEPA in the assessments listed in Section 2.3.2.

The evaluations and analyses presented in the NEPA documents listed in Section 2.3.2 provide an assessment of the potential impacts to soils that would result from the No Action Alternative, with testing and training continued at current levels and no new construction. The analyses presented in the NEPA documents listed above are incorporated into this FPEIS by reference.

Vehicular studies were conducted at existing YPG dust courses (Caldwell et al., 2008) and in areas of undisturbed desert pavement at YPG (Berli et al., 2007) to further evaluate the impact of disturbing desert pavement.

The objectives of the Caldwell et al. (2008) study were to characterize the current dust courses at YPG to gain a better understanding of their current fine-grained content and assess the overall sustainability of high dust potential soils needed for military testing. Dust courses are generally short ovals constructed on Cristobal-Gunsight desert pavements. The three dust courses at YPG used in the study include the active Kofa and Cibola courses and the retired Muggins Mesa course. Soil samples were collected from the test track, from adjacent undisturbed soils, and from test vehicle exteriors. The results indicated that the secondary structure of the Av horizon is easily destroyed by vehicular traffic, resulting in dust emissions necessary for military testing. However, routine testing and surface preparation have eroded and mixed the top layer with the lower B horizon, and thus decreased the dust potential of the course. As a result, desert pavement is considered non-sustainable for dust track courses. The construction of additional dust tracks is not included

in the Proposed Action. However, the study recommended that future dust tracks be constructed in active distal fan environments found on gentler- sloped alluvial environments that provide a sustainable dust supply.

The Berli et al. (2007) study aimed to model the deterioration of fine-textured desert pavement due to heavy vehicle traffic. Two models were used to predict rut formation from the eight-wheeled tactical "Stryker" vehicle on desert pavements at YPG. For model evaluation, traffic experiments at YPG were performed to measure rut depth and soil bulk density based on the number of "Stryker" vehicle passes. The study found that rut formation was a result of two processes: (1) compaction of underlying soil and (2) wear of the soil surface due to abrasion by the tire. In the first vehicle pass, compaction was probably the dominant rut forming process, while for subsequent passes abrasion of the soil surface controlled rut formation. For multiple passes, a simple linear rut depth versus vehicle pass model is most appropriate. The rut depth and erosion potential increase as the number of vehicle passes increases.

Range sustainability on YPG is managed through the ITAM program, which is implemented to maintain conditions that realistically simulate conditions in other desert regions for operational testing and training activities. Range management and rehabilitation prevent deterioration of conditions that could adversely affect operational testing and training if allowed to proceed unchecked. Part of range management is recovery of spent metal from munitions testing. Use of vehicles to retrieve scraps of metal results in minor soil disturbance, but the action removes a potential source of contamination as metal and remnant MCOCs on the metal are removed from the range.

3.15.2.3 Impacts of the Proposed Action/Preferred Alternative

The analysis of potential impacts to soils as a result of implementing the Proposed Action is based on the difference in impacts that would occur under the Proposed Action compared to those that would occur under the No Action Alternative. Potential impacts to soils could occur from the following activities:

- Building/facility construction
- Utility infrastructure installation
- Off-road vehicle and equipment testing
- Dismounted maneuver activities
- Munitions testing
- Live-fire training and operational testing
- DZ establishment
- TGP establishment

There would be yearly fluctuations in the frequency, intensity, or duration of testing and training events (as discussed in Sections 2.1.2 and 2.3.3.8), but these fluctuations would be within the maximum and minimum levels observed historically. As a result, there would be no increase in the potential impacts to soils from testing and training activities in LTAs. Because testing and training activities in LTAs would be spread over a larger area and be more dispersed, the potential for impacts to soils may be reduced under the Proposed Action.

Where soils that are susceptible to wind erosion are disturbed, increased wind erosion could occur and would have the potential to create dust and contribute to PM_{10} in the air.

Increased dust generation could contribute to air quality impacts, which are discussed in Section 3.2.

Wildfire could result in indirect impacts to soils as a result of increased erosion following removal of vegetation by fire. Exposed soils would experience greater impacts from precipitation, and root systems of plants killed by fire would no longer bind soils. The potential for wildfire to impact soils would be greatest in the Cibola and Kofa Regions, where wildfires are allowed to burn due to the risk to firefighters from UXO. Wildfires in the Laguna Region are suppressed and do not substantially alter desert vegetation, so increased erosion potential as a result of wildfires would not be expected in the Laguna Region. Use of the new or expanded munitions impact areas could result in increased potential for wildfire ignition, which could result in increased risk to vegetation and a higher potential for soil erosion impacts. Clearing for TGPs and airfield/UAS support would create areas with little or no fuel load and would likely reduce the potential for wildfire to spread through these areas, which could result in a long-term benefit to soils.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). This could incrementally add to other projects on YPG that create soils disturbance and lead to minor cumulative impacts to soils.

The following sections discuss the potential impacts to soils that could result in each of the three areas on YPG. Mitigation measures are common to all three areas of YPG and are addressed in Section 3.15.2.5.

Laguna Region. Within the Laguna Region, new building/facility construction, airfield runway/taxiway construction/improvement, roadway improvements, and ACP improvements would be the primary activities that would cause impacts to soils. Limited additions to utility infrastructure would occur in the Laguna Region and these would have minor impacts to soils. Expanded dismounted maneuver areas and new vehicle test courses are proposed for parts of the Laguna Region, and the subsequent use of these areas could impact soils. A new DZ is proposed for the Laguna Region. Figure 3-4 shows the distribution of soils types on YPG.

Most proposed new building and facility construction would occur in the Laguna Region. Site preparation for construction of buildings would disturb soils. Additional impervious areas would be created through construction, with the potential for increased stormwater runoff. Scour from erosion as a result of increased runoff could result in severe soil loss along flow paths in some areas.

Proposed new facility construction occurring in areas with Cristobal family-Gunsight family complex soils would result in the most severe soil impacts. The Cristobal family-Gunsight family has high wind and moderate water hazards in disturbed areas. In the Laguna Region, approximately 55 ac of new construction is proposed in locations containing the Cristobal family-Gunsight family soils. The Superstition family-Rositas family complex also has high wind erosion hazards, particularly when disturbed. Approximately 25 ac of new

construction is proposed in locations containing the Superstition family-Rositas family complex soils.

The proposed long-term project at CDH (L103) would result in approximately 18 ac of construction impacts on highly erodible Cristobal family-Gunsight family soils. Two additional proposed CDH projects (L007 and L008) would occur in a location containing both Cristobal family-Gunsight family and Superstition family-Rositas family soils. These projects would result in 10 ac of construction disturbance. Soils would be most susceptible to erosion during construction activities and appropriate BMPs, as discussed above, would be implemented to minimize the potential for severe impacts.

There would be potential for increased runoff from the approximately 125 ac of new impervious area. Appropriate post-construction stormwater controls would be implemented to minimize the potential for increased runoff and erosion (see Section 3.20). Without appropriate control measures, increased runoff could result in increased erosion, which could then remove native soils through scour. The potential loss of native soils through scour from erosive water flow could extend off-post and affect erodible soils on adjacent downstream properties.

Electrical transmission and telecommunications lines would be installed at seven locations in the Laguna Region. The proposed runway extension (L002) would include the installation of power lines, which would occur on Superstition family-Rositas family erodible soils. In areas with erodible soils, all transmissions lines would be installed aboveground and impacts would be minor. There would be potential for minor soils impacts to occur at each of the seven sites along the entire length of utility line installation if these lines were installed belowground. Impacts to soils from utility line installation would be minor with implementation of BMPs.

One area (L014), encompassing approximately 162 ac, would be cleared for creation of UAS launch/recovery areas. The vegetation removal would result in increased potential for soil erosion. Approximately 6 ac are proposed in a location with highly erodible Cristobal family-Gunsight family complex soils. The proposed sites are on the relatively flat basin floor where water erosion would be minimal, but wind erosion hazards are likely. This acreage would not be managed through the ITAM program because it is not associated with training activities. Impacts to soils from creation of UAS launch/recovery areas would be minor with implementation of BMPs.

Levels of dismounted maneuver testing and training would be expected to fluctuate between the historical maximum and minimum levels, and years with high levels of dismounted maneuver testing and training could occur in the Laguna Region with the creation of new or expanded LTAs through proposed activities L019, L030, L032, and L033. The LTA at West LA would be expanded by approximately 6,520 ac to connect with K-9 Village. Battalion-level dismounted maneuvers simulating deployment in open desert to achieve an urban target in either the West LA or K-9 Village MOUT areas would be conducted. The LTA at Muggins/Middle Mountain would be expanded up to approximately 6,331 ac under the Preferred Alternative (reduced from the 16,640 ac originally proposed). Additional expanded dismounted maneuver areas would be established in the Laguna Region, which would cover approximately 1,970 ac. Approximately 1,480 ac of dismounted maneuver area is proposed in locations containing the Cristobal family-Gunsight family soils. Approximately 2,943 ac of dismounted

maneuver area is proposed in locations containing the Superstition family-Rositas family complex soils.

In addition, new vehicle test courses would be established within approximately 9,040 ac in the Laguna Region (L037, L038, and L039). Discernible trails would be established, minimizing the potential for soil compaction and for exposing soils outside the boundary of the vehicle test courses. However, when active vehicle testing is not ongoing, these vehicle test courses may be used to conduct blended testing or dismounted maneuver training. Approximately 1,430 ac of the vehicle test courses is proposed in locations containing the Cristobal family-Gunsight family complex soils. Approximately 157 ac of vehicle test courses is proposed in locations containing the Superstition family-Rositas family complex soils. The nature of dismounted maneuvers, with Soldiers moving in a diffuse pattern across the landscape rather than as a cluster, would reduce the potential for soils disturbance and erosion. Impacts to soils from these training activities would be expected to be long-term and minor with continued implementation of the ITAM program.

Creation of a DZ would involve activity-related land-disturbing activities on approximately 45 ac in the Laguna Region (L040). The vegetation would not be entirely cleared in this area, but would be disturbed and likely trampled during testing and training activities. Disturbance to vegetation and soils would generally be caused by objects falling directly onto the ground by parachute and vehicles retrieving dropped payloads. The proposed DZ is in Superstition family-Rositas family complex soils. Impacts to soils from testing and training activities would be expected to be long-term and minor with use of appropriate BMPs and continued implementation of the ITAM program.

No munitions testing occurs in the Laguna Region and no TGPs would be established in this region. No new off-road vehicle testing in the Laguna Region would occur under the Proposed Action. These activities would not affect soils in the Laguna Region.

Implementation of the Proposed Action would likely result in minor impacts to disturbed soils that are not susceptible to erosion and moderate impacts to highly erodible soils. There would also be potential for interaction of activities conducted in the Laguna Region with activities proposed in other areas of YPG. Continued implementation of the YPG INRMP and the ITAM program would reduce the potential for severe soil impacts and for incremental interaction with other on-post projects and no significant cumulative impacts would be expected.

Cibola Region. The amount of proposed new building/facility construction in the Cibola Region is much less than that proposed for the Laguna Region. Most of the proposed building/facility construction for the Cibola Region is new construction rather than replacement of existing structures and there would be potential for disturbance to soils from construction activities. Numerous airfields across the Cibola Region are proposed for runway expansion and new supporting infrastructure with the potential for impacts to soils at each site. Multiple areas are proposed for use as munitions impact areas, either new areas or expansions of existing munitions impact areas with potential for long-term impacts to soils in these areas. Utility infrastructure extensions would occur throughout the Cibola Region and could have minor impacts to soils. New dismounted maneuver areas and vehicle test courses are proposed for parts of the Cibola Region and the subsequent use of these areas could impact soils. New DZs are proposed for the Cibola Region and 23 TGPs would be established to support testing activities. Both of these activities would affect soils.

Proposed new construction activities occurring in areas with Cristobal family-Gunsight family complex soils would have the greatest potential for severe soil impacts. The Cristobal family-Gunsight family complex has high wind and moderate water hazards in disturbed areas. Approximately 28 ac of proposed new construction, including the creation of the North UAV complex and access roads, is proposed in locations containing the Cristobal family-Gunsight family complex soils (28 ac) and the Gilman family-Harqua family-Glenbar family complex (<1 ac). Soils impacts from construction in this complex would be moderate with use of appropriate BMPs.

The Gilman family-Harqua family-Glenbar family complex also has moderate to high water and wind erosion hazards in floodplains. The new construction and impact areas proposed on this soil type would occur on the basin floor where erosion hazards would be negligible. Soils impacts from construction in this complex would be minor with use of appropriate BMPs.

Soils would be most susceptible to erosion during construction activities. Following construction, cleared areas converted to impervious areas would have no potential for water or wind erosion. There would be potential for localized increased runoff from the approximately 130 ac of new impervious area, which could result in increased runoff and increased erosion. Depending on the location of the new impervious area, the scour from erosive water flow could extend off-post and affect soils on adjacent downstream properties.

Expansion or creation of DZs would involve activity-related land-disturbing activities on approximately 980 ac in the Cibola Region. The vegetation would not be entirely cleared in these areas, but would be disturbed and likely trampled during testing and training activities. Disturbance to vegetation and soils would generally be caused by objects falling directly onto the ground by parachute and vehicles retrieving dropped payloads. The sites of all the existing and many of the proposed DZs (approximately 510 ac) are in areas with highly erosive Cristobal family-Gunsight family complex and Gilman family-Harqua family-Glenbar family soils. The Gilman family-Harqua family-Glenbar family complex soils are only erodible in floodplain areas. DZs would be located on the flat terrain of the basin floor where erosion impacts to this soil type would be negligible. Water erosion impacts in this area would also be negligible. Disturbed soils of the Cristobal family-Gunsight family complex would be susceptible to wind erosion. There would be no direct impacts to soils in these areas from the creation of the DZs, but indirect impacts could result from subsequent wind erosion. Impacts to soils from testing and training activities would be expected to be long-term and minor with use of appropriate BMPs and continued implementation of the ITAM program.

New or expanded impact areas would have long-term disturbance to soils from testing and training activities. Approximately 9,100 ac of the proposed 16,300 ac of additional munitions impact areas are sited on highly erodible soils in the southern and northern portions of the Cibola Region. The proposed south Cibola Region munitions impact areas would be located on Cristobal family-Gunsight family complex soils. The proposed impact areas in the north would be located on Cristobal family-Gunsight family complex, Tucson family-Tremont family-Antho family complex, and Gilman family-Harqua family-Glenbar family complex soils. The HE testing areas are proposed on the relatively flat basin floor and impacts to Gilman family-Harqua family-Glenbar family complex soils would be negligible. The Tucson family-Tremont family-Antho family complex has a moderate to high water erosion

hazard and high wind erosion hazard in disturbed areas. Water erosion would also be minimal on the basin floor. Disturbed soils would be susceptible to wind erosion. There would be no direct impacts to soils in these areas from the creation of munitions impact areas. Several existing munitions impact areas, including the Direct Fire Range, Site 10, Rocket and Gun Horizontal Impact Area (CRV-7), and Rocket Alley, are located in south Cibola Region on highly erodible Cristobal family-Gunsight family complex soils. Soils in existing munitions impact areas have not experienced severe impacts during use. Impacts to soils from testing and training activities in new or expanded munitions impact areas would be expected to be comparable to past impacts in munitions impact areas. With continued implementation of the ITAM program, any impacts to soils in new or expanded munitions impact areas would be long-term but minor.

Approximately 250 ac of new munitions impact areas at JERC I, II, and III would be used for inert fire only. There would be no direct impacts to soils in these areas from creation of the munitions impact areas. Soils in inert fire munitions impact areas would be less impacted than soils in explosive fire munitions impact areas, and direct impacts to soils by inert munitions testing would be negligible. There would be potential for long-term indirect impacts should inert munitions degrade and release metals or other constituents of concern to the soil. Impacts associated with metals in soils are discussed in Section 3.9.

Twenty-three new TGPs would be established to meet identified testing and training needs in the Cibola Region. Each TGP would cover an area of up to 2.2 ac. Woody vegetation would be cleared at ground level with minimal soil disturbance to eliminate potential interference with proposed testing and observations. Soil impacts would likely be more severe in areas with highly erodible soils. The potential for increased soil erosion from clearing for TGPs could extend to approximately 50.6 ac in the Cibola Region. Impacts to soils from establishment of TGPs would be minor with implementation of BMPs. No regional cumulative impacts to soils beyond the boundary of YPG would be expected.

Six areas, encompassing approximately 530 ac, would be cleared for creation of UAS launch/recovery areas. The vegetation removal would result in increased potential for soil erosion, as discussed for TGPs. Three of the sites, namely C022 (approximately 16 ac), C023 (approximately 23 ac), C033 (approximately 90 ac), are proposed in a location with highly erodible Cristobal family-Gunsight family complex soils. One of the sites (C033—approximately 55 ac) is proposed in a location with Gilman family-Harqua family-Glenbar family complex soils. The proposed sites are on the relatively flat basin floor where water erosion would be minimal, but wind erosion hazards are likely. This acreage would not be managed through the ITAM program because it is not associated with training activities. Impacts to soils from creation of UAS launch/recovery areas would be minor with implementation of the BMPs.

Electrical transmission and telecommunications lines would be installed at 20 locations in the Cibola Region. For analysis purposes, it is assumed that utility line extensions would be an equal mix of above-ground and below-ground infrastructure. In areas with highly erodible soils, utility infrastructure would be installed above-ground. Soil impacts from aerial lines would be limited to the footprint of the support poles and would be negligible to minor. Impacts to soils from utility line installation in other soils would be minor.

New and expanded dismounted maneuver areas would be established in the Cibola Region, which would cover approximately 66,400 ac. In addition, a new vehicle test course would be

established within an area up to 4,644 ac in the Cibola Region. Discernible trails would be established, minimizing the potential for soil compaction and for exposing soils outside the boundary of the vehicle test course. However, when active vehicle testing is not ongoing, the area may be used to perform blended testing or dismounted maneuver training at the vehicle test course. Limited off-road vehicle operation may occur in conjunction with dismounted maneuver activities and associated with initial troop deployment.

Approximately 9,170 ac of the proposed maneuver areas and vehicle test courses would be located on the Cristobal family-Gunsight family complex and approximately 3,990 ac would be located on the Gilman family-Harqua family-Glenbar family complex soils. The nature of dismounted maneuvers, with Soldiers moving in a diffuse pattern across the landscape rather than as a cluster, would reduce the potential for soils disturbance and erosion. Impacts to soils from dismounted maneuver training would be expected to be long-term and minor with continued implementation of the ITAM program.

The LTAs proposed by activities C060 and C064 would be in areas where UXO may occur. Dismounted maneuvers in these LTAs would be restricted to established trails and roads unless UXO clearance was completed in advance of the maneuvers. This would result in negligible impacts to soils from dismounted maneuvers in these two LTAs.

Implementation of the Proposed Action would likely result in minor impacts to soils that are not susceptible to erosion and moderate impacts to highly erodible soils that are disturbed. There would also be potential for interaction of activities conducted in the Cibola Region with activities proposed in other areas of YPG. Continued implementation of the YPG INRMP and ITAM program would reduce the potential for severe soil impacts and for incremental interaction with other on-post projects and no significant cumulative impacts would be expected.

Kofa Region. New building/facility construction in the Kofa Region would occur at fixed GPs, where previous clearing would limit the potential for additional impacts to soils. Additional construction would occur at new training complexes. New dismounted maneuver areas and a DZ are proposed for parts of the Kofa Region and the subsequent use of these areas could impact soils. Utility infrastructure would be extended to six new locations in the Kofa Region and could impact vegetation. Multiple areas are proposed for use as munitions impact areas, either new areas or expansions of existing munitions impact areas with potential for long-term impacts to soils in these areas.

Proposed construction activities would result in clearing of approximately 240 ac of desert habitat in the Kofa Region, with all vegetation removed from this acreage as a result. New construction, including paving, creation of a 162-ac UAS launch/recovery area near SWTR, new maneuver areas, the East Kofa Operations Center, and the training complex in the northern part of East Arm, would convert approximately 54 ac of the Kofa Region to impervious surfaces.

Approximately 220 ac of proposed new construction and paving, including the creation of a UAS launch/recovery area near SWTR and the East Kofa Operations Center, is proposed in locations containing the Cristobal family-Gunsight family complex soils (37 ac) and the Gilman family-Harqua family-Glenbar family complex (184 ac). The Cristobal family-Gunsight family soil complex has high wind and moderate water hazards in disturbed areas and would be the most susceptible to potentially severe soil impacts during construction.

Soils impacts from construction in this complex would be moderate with use of appropriate BMPs.

The Gilman family-Harqua family-Glenbar family complex also has medium to high water and wind erosion hazards in floodplains. The new construction and impact areas proposed on this soil complex would occur on basin floors where erosion hazards would be negligible. Soils impacts from construction in this complex would be negligible to minor with use of appropriate BMPs.

Soils would be most susceptible to erosion during construction activities, and appropriate BMPswould be implemented to minimize the potential for severe impacts. Following construction, cleared areas converted to impervious areas would have no potential for wind erosion. There would be potential for localized increased runoff from the approximately 16 ac of new impervious area, which could result in increased runoff and increased erosion. Depending on the location of the new impervious areas, the scour from erosive water flow could extend off-post and affect soils on adjacent downstream properties.

Expansion or creation of DZs would involve activity-related land-disturbing activities on approximately 305 ac in the Kofa Region. The vegetation would not be entirely cleared in these areas, but would be disturbed and likely trampled during testing and training activities. Disturbance to vegetation and soils would generally be caused by objects falling directly onto the ground by parachute and vehicles retrieving dropped payloads. The sites of the two proposed DZs (approximately 245 ac) are in areas with highly erosive Cristobal family-Gunsight family complex soils. DZs are located on the flat terrain of the basin floor where water erosion impacts would be negligible. Disturbed soils of the Cristobal family-Gunsight family complex would be susceptible to wind erosion. There would be no direct impacts to soils in these areas from the creation of the DZs, but indirect impacts could result from subsequent wind erosion. Impacts to soils from testing and training activities would be expected to be long-term and minor with use of appropriate BMPs and continued implementation of the ITAM program.

There are multiple locations in the Kofa Region where new munitions impact areas would be established or where existing munitions impact areas would be expanded. All of the new and expanded munitions impact areas (26,824 ac under the Preferred Alternative) in the Kofa Region would be used for inert and explosive fire. Approximately 8,311 ac of the proposed munitions impact areas would be located on the Cristobal family-Gunsight family complex and approximately 8,920 ac would be located on the Gilman family-Harqua family-Glenbar family complex soils. There would be no direct impacts to soil in these areas from the creation of the munitions impact areas. After the munitions impact areas are established, there would be the potential for episodic disturbance to soils from munitions testing and operational testing or training activities that would fire into these areas. Soils in existing munitions impact areas have not experienced severe impact during use. Impacts to soils from testing and training activities in new or expanded munitions impact areas would be expected to be comparable to past impacts in munitions impact areas. With continued implementation of the ITAM program, any impacts to soils in new or expanded munitions impact areas would be long-term and minor. There would be potential for long-term indirect impacts should inert munitions degrade and release metals or other constituents of concern to the soil. With munitions testing in more areas, the activities associated with recovery of metal from munitions tests would occur in more areas and could increase. Soil

disturbance associated with vehicle use to retrieve scraps of metal also could increase, but any impacts would be expected to remain minor.

New dismounted maneuver areas would be established in the Kofa Region, which would cover approximately 53,180 ac (51,354 ac under the Preferred Alternative). Limited off-road vehicle operation may occur in conjunction with dismounted maneuver activities and associated with initial troop deployment. Approximately 13,110 ac of the proposed maneuver areas would be located on the Cristobal family-Gunsight family complex and approximately 5,600 ac would be located on the Gilman family-Harqua family-Glenbar family complex soils. The nature of dismounted maneuvers, with Soldiers moving in a diffuse pattern across the landscape rather than as a cluster, would reduce the potential for soils disturbance and erosion. Impacts to soils from dismounted maneuver training would be expected to be long-term and minor with continued implementation of the ITAM program.

Proposed activity K026 would overlap extensively with a proposed munitions impact area. Dismounted maneuvers would be limited to existing roads in this LTA unless UXO clearance is completed in advance of maneuvers. Therefore, use of the LTA that would result from K026 would not be expected to have more than negligible impacts to soils.

Electrical transmission and telecommunications lines would be installed at four locations in the Kofa Region. For analysis purposes, it is assumed that utility line extensions would be an equal mix of above-ground and below-ground infrastructure. In areas with highly erodible soils, utility infrastructure would be installed above-ground. Soil impacts from aerial lines would be limited to the footprint of the support poles and would be negligible to minor. Impacts to soils from utility line installation in other soils would be minor.

Implementation of the Proposed Action would likely result in minor impacts to soils that are not susceptible to erosion and moderate impacts to highly erodible soils that are disturbed. There would also be potential for interaction of activities conducted in the Kofa Region with activities proposed in other areas of YPG. Continued implementation of the YPG INRMP and the ITAM program would reduce the potential for severe soil impacts and for incremental interaction with other on-post projects and no significant cumulative impacts would be expected.

3.15.2.4 Impacts Summary

Impacts to soils on YPG would typically be short-term during construction, with the potential for long-term impacts as a result of increased erosion due to increased runoff rates or altered runoff flow patterns associated with land clearing, construction grading, and increased impervious area. The potential for impacts would be greatest in areas with highly erodible soils.

There would be unavoidable impacts to soils under the Proposed Action. Short-term impacts from construction and paving would occur on approximately 360 ac of soil (143 ac of highly erodible soils). Runoff from the newly created impervious areas (310 ac) could cause long-term soil impacts to the surrounding areas. Up to 161,560 ac of soil (62,000 ac of highly erodible soils) would be disturbed by maneuver areas and vehicle test courses. Approximately 1,330 ac (800 ac of highly erodible soils) would be disturbed by DZs. Approximately 1,035 ac of soil (600 ac of highly erodible soils) would be cleared for UAS launch/recovery areas and TGPs. These areas would have long-term potential for increased

erosion. Approximately 43,124 ac (26,330 ac of highly erodible soils) would be converted to munitions impact areas and could include localized areas with increased erosion potential from explosion cratering. The new munitions impact areas also would have the potential for long-term impacts to soils from contamination from metals and other potential contaminants following degradation of bullets and other munitions components.

Wildfire could result in indirect impacts to soils as a result of increased erosion following removal of vegetation by fire. Exposed soils would experience greater impacts from precipitation, and root systems of plants killed by fire would no longer bind soils. The potential for wildfire to impact soils would be greatest in the Cibola and Kofa Regions, where wildfires are allowed to burn due to the risk to firefighters from UXO. Wildfires in the Laguna Region are suppressed and do not substantially alter desert vegetation, so increased erosion potential as a result of wildfires would not be expected in the Laguna Region. Use of the new or expanded munitions impact areas could result in increased potential for wildfire ignition, which could result in increased risk to vegetation and a higher potential for soil erosion impacts. Clearing for TGPs and airfield/UAS support would create areas with little or no fuel load and would likely reduce the potential for wildfire to spread through these areas, which could result in a long-term benefit to soils.

Installation of utility infrastructure would result in disturbance to approximately 20 ac. The potential for increased erosion would be long-term because of the very slow recovery of desert vegetation following disturbance. Proposed telecommunications utility infrastructure would be installed above-ground in areas with highly erodible soils to minimize the potential for increased erosion. Soil impacts from aerial lines would be negligible and limited to the footprint of the support poles.

Appropriate construction BMPs would be implemented to stabilize disturbed soils and minimize the potential for increased erosion. Construction BMPs also would reduce the potential for increased stormwater runoff. YPG would continue implementation of its ITAM to maintain vegetation and soils in proposed testing and training areas. Appropriate post-construction stormwater controls (see Section 3.20) would be implemented to minimize the potential for long-term increased erosion potential from increased stormwater runoff during operations. A mitigation summary is provided in Section 3.15.2.4.

There would be potential for interaction of activities conducted under the Proposed Action and other past, present, and reasonably foreseeable activities, including the commercial-scale renewable solar electrical energy generation facilities, to create increased soil erosion on YPG. Impacts to soils from establishment of TGPs would be minor with implementation of BMPs. There also could be minor cumulative impacts to soils on YPG from multiple TGPs established through time, but no regional cumulative impacts to soils beyond the boundary of YPG would be expected. The YPG INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects. Cumulative impacts would be expected to be minor.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. Approximately 115 ac of the 1,675-ac project area would be completely cleared of vegetation. The project area is entirely within the Superstition-Rositas series, which exhibits a moderate to high susceptibility to water and wind erosion. Should

the project be constructed, appropriate erosion control measures would be implemented. Any contribution to cumulative impacts to soils would be minor.

Construction, operation, and maintenance of the five additional BLM solar projects would likely contribute to regional cumulative impacts to soils. While specific impacts are unknown at this time, it is likely that a substantial acreage would be cleared for each project, increasing the susceptibility of the soils to wind and run-off erosion. It is likely that BLM would require appropriate BMPs to minimize the potential for erosion. Therefore, any contribution to cumulative impacts to soils would be expected to be minor.

The potential for off-post past, present, and reasonably foreseeable actions to interact with the activities of the Proposed Action with regard to impacts to soils would be limited to the potential for increased erosion off-post as a result of Proposed Action activities. Other soils impacts resulting from the Proposed Action would be confined within the boundaries of YPG. Appropriate construction BMPs and post-construction stormwater controls would be implemented to minimize the potential for off-post impacts from increased runoff resulting from Proposed Action activities.

3.15.2.5 Mitigation

Mitigation measures, including measures implemented to avoid impacts, would address the potential for increased erosion from either wind or water. All disturbed soils would have a greater potential for erosion because the soils would be directly exposed to the effects of precipitation and wind. Mitigation measures would include, but would not be limited to, planning to avoid disturbance of highly erodible soils, construction BMPs to minimize the potential for onsite erosion, construction and post-construction stormwater controls, and continued implementation of the ITAM program and the INRMP. These measures are discussed below.

Planning Site Selection and Site design. During site selection and site design, soil erosion potential would be considered and activities that would cause loss of vegetation or soil disturbance or that would create new impervious areas would be identified; to the extent practical, such activities would be placed in areas where onsite and downslope soils are not susceptible to erosion. It is not possible to completely avoid highly erodible soils due to the sheer volume of activities proposed and the dispersed occurrence of such soils across the YPG landscape. TPG would minimize the location of activities that could lead to increased erosion potential on highly erodible soils. Further, efforts would be made in site designs to result in conditions where post-disturbance site hydrology is unchanged with respect to stormwater runoff velocities and volumes.

Construction BMPs to Minimize Onsite Erosion. During construction, BMPs would be used to stabilize disturbed soils, which would minimize the potential for soil erosion. Construction BMPs to minimize the potential for erosion from wind and water would comply with the ADOT *Erosion and Pollution Control Manual* (2005). BMPs that could be used include, but would not be limited to, the following:

- Preservation of existing vegetation—existing vegetation provides natural protection against soil erosion and would be preserved if practicable.
- Mulching—mulch would be applied to disturbed soil to prevent erosion during and following precipitation events.

- Slope Protection—several measures could be used to minimize erosion from disturbed slopes, which could consist of geotextiles, vegetation, mulch, or a combination.
- Silt Fence—a sediment barrier would be used where necessary to prevent the movement of sediment from disturbed areas.

Additional BMPs would be implemented to minimize the potential for increased wind erosion during construction and operation. BMPs that could be used to minimize the potential for wind erosion would include, but would not be limited to, the following (CASQA, 2003):

- Wet Suppression—watering prevents dust and wind erosion only for a short period and should be applied at least daily to be effective. Overwatering may also cause surface water erosion.
- Chemical Dust Suppression—chemicals would be chosen appropriately depending on the soil type, temperature, humidity, and wind velocity. The chemicals may also interfere with the soil's infiltration abilities, thus impacting re-vegetation on the site.
- Gravel or Asphalt—gravel could be applied to disturbed soils to prevent wind erosion.
- Covering construction stockpiles with tarps and canvases

Construction and Post-construction Stormwater Controls. There would be potential for localized increased runoff from new impervious areas. Without appropriate control measures, increased runoff could affect downstream areas, including off-post lands, by creating scour that could remove soils from uplands along washes. Stormwater controls would be implemented to facilitate infiltration and reduce the potential for scour. These controls could include, but would not be limited to:

- Use of temporary detention areas with controlled outflow
- Preservation of existing vegetation
- Mulching
- Site design to direct stormwater runoff away from washes
- Incorporation of constructed detention/infiltration areas into site designs
- Incorporation of designs to capture stormwater for subsequent use
- Use of pervious surfaces to the extent practicable
- Use of semi-pervious surfaces where appropriate

ITAM and INRMP. The YPG ITAM program is implemented to maintain conditions that realistically simulate conditions in other desert regions for operational testing and training activities. Range management and rehabilitation prevent deterioration of conditions that could adversely affect operational testing and training if allowed to proceed unchecked. Substantial soil erosion from ongoing training can lead to a loss of realism. Continued implementation of the ITAM program would address soil erosion so that it would not negatively affect the mission.

The INRMP is implemented to maintain or restore the condition of natural resources on YPG. By promoting vegetation and soil health, continued implementation of the INRMP reduces the potential for erosion from exposed soils and also reduces the potential for wildfire from build-up of excessive fuel loads.

3.16 Threatened or Endangered Species and Species of Concern

3.16.1 Existing Conditions

Threatened, endangered, or sensitive (TES) species of concern include federally listed species protected by the ESA of 1973 (16 U.S.C. § 1531 et seq.), species listed as Wildlife of Special Concern by the AZGFD, and other species with a conservation status of concern, including species identified by USFWS and the BLM. In addition, wild horses and burros, which are protected under the Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) as amended, occur on YPG.

The ESA was established to provide a program for the conservation of TES species and the habitats in which they occur, which is administered by the USFWS for non-marine species. The ESA requires federal agencies to ensure that their actions are not likely to jeopardize the existence of any listed species or result in the destruction or negative modification of designated critical habitat of listed species.

The bald eagle was delisted under the ESA in 2007 (50 CFR 17). Bald eagles are protected under the Bald and Golden Eagle Protection Act (16. U.S.C. 668 et seq.), and also by the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712 as amended).

Because the only occurrences of federally-listed species within the boundaries of YPG are transient sightings incidental to movement of animals and because no federally-listed species use YPG for required life cycle needs, YPG has not needed to consult formally with USFWS for a BO regarding ongoing activities on the installation. Due to the reintroduction of an experimental population per Section 10(j) of the ESA of the Sonoran pronghorn (*Antilocapra americana* ssp. *sonoriensis*) on Kofa NWR, YPG entered into formal consultation with USFWS and received a BO on September 9, 2014. This BO is discussed under the evaluation of this species. YPG has consulted and received BOs regarding activities conducted at off-post locations.

3.16.1.1 Species Listed or Proposed for Listing Under the Endangered Species Act

Species listed under the ESA that are known to occur in Yuma and La Paz Counties are listed in Table 3-17. The sections following the table describe federally protected species known to occur or with potential to occur on YPG.

TABLE 3-17
Federally Protected Species Known to Occur in Yuma and La Paz Counties, Arizona
Yuma Proving Ground

Common Name	Scientific Name	Status	Habitat
American Peregrine Falcon	*Falco peregrinus anatum*	Delisted, Monitor, WSC	Areas with rocky, steep cliffs, primarily near water, where prey (primarily shorebirds, songbirds, and waterfowl) concentrations are high. Nests are found on ledges of cliffs, and sometimes on man-made structures.
Bonytail Chub [a]	*Gila elegans*	Endangered, WSC	Warm, swift, turbid mainstem rivers of the Colorado River basin and reservoirs in lower basin. The Colorado River upstream of Imperial Dam has been designated as critical

TABLE 3-17
Federally Protected Species Known to Occur in Yuma and La Paz Counties, Arizona
Yuma Proving Ground

Common Name	Scientific Name	Status	Habitat
			habitat for the bonytail chub (Bureau of Reclamation, 1996). No suitable habitat for this species occurs on YPG and this species would not be affected by the Proposed Action. The species is not discussed further.
California Brown Pelican	*Pelicanus occidentalis californicus*	Delisted. Monitor	Coastal land and islands; species found occasionally around Arizona's lakes and rivers. No suitable habitat for this species occurs on YPG and this species would not be affected by the Proposed Action. The species is not discussed further.
Desert Tortoise, Sonoran	*Gopherus morafkai* (formerly a distinct population segment of *Gopherus agassizii*)	Candidate, WSC	Primarily rocky (often steep) hillsides and bajadas of Sonoran desert scrub in Arizona, but may encroach into desert grassland, juniper woodland, interior chaparral habitats, and even pine communities. Washes and valley bottoms may be used in dispersal.
Lesser Long-nosed Bat [b]	*Leptonycteris curasoae yerbabuenae*	Endangered, WSC	Desert scrub habitat with agave and columnar cacti present as food plants.
Razorback Sucker	*Xyrauchen texanus*	Endangered, WSC	Riverine and lacustrine areas, including backwaters, generally not in fast-moving water. The Colorado River upstream of Imperial Dam has been designated as critical habitat for the razorback sucker (Bureau of Reclamation, 1996).No suitable habitat for this species occurs on YPG and this species would not be affected by the Proposed Action. The species is not discussed further.
Roundtail Chub [a]	*Gila robusta*	Candidate	Cool to warm waters of rivers and streams, often occupying the deepest pools and eddies of large streams. No suitable habitat for this species occurs on YPG and this species would not be affected by the Proposed Action. The species is not discussed further.
Sonoran Pronghorn [b]	*Antilocapra americana* ssp. *sonoriensis*	Endangered, WSC The pronghorn released on Kofa NWR are considered a non-essential experimental population as per Section 10(j) of the ESA.	Broad intermountain alluvial valleys with creosote bush-bursage and palo verde-mixed cacti associations.
Southwestern Willow Flycatcher	*Empidonax trallii eximus*	Endangered, WSC	Cottonwood/willow and tamarisk vegetation communities along rivers and streams. No suitable habitat for this species occurs on YPG and this species would not be affected

TABLE 3-17
Federally Protected Species Known to Occur in Yuma and La Paz Counties, Arizona
Yuma Proving Ground

Common Name	Scientific Name	Status	Habitat
			by the Proposed Action. The species is not discussed further.
Sprague's Pipit	*Anthus spraguei*	Candidate	Strong preference to native grasslands with vegetation of intermediate height and lacking woody shrubs. No suitable habitat for this species occurs on YPG and this species would not be affected by the Proposed Action. The species is not discussed further.
Yellow-billed Cuckoo	*Coccyzus americanus*	Candidate, WSC	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries). No suitable habitat for this species occurs on YPG and this species would not be affected by the Proposed Action. The yellow-billed cuckoo is not discussed further.
Yuma Clapper Rail	*Rallus longirostruis yumaensis*	Endangered, WSC	Fresh water and brackish marshes. No suitable habitat for this species occurs on YPG and this species would not be affected by the Proposed Action. The Yuma clapper rail is not discussed further.

Sources: USFWS Arizona Ecological Services (USFWS AES), 2009a; USFWS AES, 2009b; USFWS AES, 2010a; USFWS AES, 2010b; USFWS AES, 2010c; USFWS, 2010d; USFWS AES, 2012, Johnson et al., 2006, USFWS, 2005, USFWS, 2009a, USFWS, 2009b.
Notes: [a] Only occurring in La Paz County; [b] Occurring in Yuma County but does not occur on YPG; WSC = Wildlife of Special Concern in Arizona

A plant identified as the endangered Nichol Turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii*) was photographed on YPG in 1995, but voucher specimens were not collected or recorded and the plant has never been relocated. This report may have resulted from observation of an atypical small specimen of another barrel cactus. At present, USFWS does not recognize Nichol Turk's head cactus as occurring in Yuma or La Paz Counties (USFWS AES, 2010a, 2010b). The current species status identifies this species as restricted to three populations in Arizona: in the Vekol Mountains in Pinal County and the Waterman Mountains in north-central Pima County (AZGFD, 2008; USFWS AES, 2009c). Because USFWS considers this species not to occur on YPG and because the initial report has not been confirmed, the Nichol Turk's head cactus is not addressed further in this FPEIS.

The flat-tailed horned lizard (*Phrynosoma mcallii*) was proposed for listing under the ESA. On March 15, 2011, USFWS issued a determination that the listing of the flat-tailed horned lizard as a threatened species under the ESA was not warranted and withdrew its November 29, 1993, proposed rule to list the species under the ESA (USFWS, 2011b). As this species is no longer proposed for listing and because its known range does not extend onto YPG, the flat-tailed horned lizard is not discussed further in this FPEIS.

American Peregrine Falcon. The American peregrine falcon is a large falcon, slate-gray above and pale below, with a mottled appearance on the underside from thin black lines and spots. The peregrine falcon was delisted in 1999, but populations will be monitored by the

USFWS until 2015 (USFWS, 2003). The species occurs from Alaska and extreme western Canada south to the western mountains and can be seen throughout Arizona. This falcon prefers cliffs and steep terrain that are near water. The steep terrain on YPG is not near water, but this habitat is found along the Colorado River. The American peregrine falcon occurs on YPG as an occasional migrant (YPG, 2012b).

Sonoran Desert Tortoise. The Sonoran desert tortoise (formerly a distinct population segment of the desert tortoise, but now recognized as a distinct species [Murphy et al., 2011]) is a candidate species for listing under the ESA. This species is also classified as a Tier 1b Species of Greatest Conservation Need by the AZGFD. The Sonoran desert tortoise has a domed shell, typically 8 to 15 inches high, with a brownish upper shell, a yellowish plastron, stocky forelimbs with large conical scales, and a short tail. This diurnal, solitary species is strictly terrestrial and requires firm but not hard ground to construct burrows, adequate moisture for survival of eggs and young, and grass, cactus, or other low-growing vegetation for food. The tortoise hibernates in the burrow from late fall until spring. Breeding typically occurs in spring and early summer with a clutch size of 2 to 14 eggs and incubation ranging from 90 to 120 days. The Sonoran desert tortoise occurs in southwestern Arizona and Sonora, Mexico (USFWS AES, 2012; YPG, 2012b).

Sonoran desert tortoises live in small distinct groups typically on rocky bajadas and steep slopes. This species has been observed in the East Arm of the Kofa Region and in the Cibola Region of YPG (YPG, 2012b). The Arizona Game and Fish Department (AZGFD) has identified certain areas as primary desert tortoise habitat on and near YPG (Figures 3-5 through 3-7), although the animals have been observed in other areas of YPG. Approximately 375 square miles of the area designated as primary tortoise habitat occurs in the northern portion of the Cibola Region (Figure 3-6), where a low density population occurs (There have been 11 sightings of individual tortoises in this area.). Approximately 95 square miles identified by AZGFD as primary desert tortoise habitat is within the boundary of the eastern Kofa Region, and there has been one historical tortoise sighting in this area (Figure 3-7). Sonoran desert tortoises are considered susceptible to disease, collecting pressure from the pet trade, poaching, habitat destruction, and population fragmentation due to urbanization, mining, and off-road vehicle activity (USFWS AES, 2012; YPG, 2012b).

YPG has incorporated those portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008; Appendix I) that are consistent with the military mission into management of this species and considers these guidelines to develop appropriate mitigation strategies when evaluating activities.

Lesser Long-nosed Bat. The lesser long-nosed bat is listed as an endangered species under the ESA. The lesser long-nosed bat prefers desert scrub habitat with agave and columnar cacti as food sources. This species roosts during the day in caves or abandoned mines and tunnels and comes out at night to forage for nectar, pollen, and fruit of paniculate agaves and columnar cacti. This bat is migratory and occurs in Arizona only from April through September (USFWS AES, 2010a). This species is not known to occur on YPG, and agave plants, an important food source for the species, are very rare on YPG, making the habitat generally unsuitable. It is very unlikely that the lesser long-nosed bat would occur on YPG.

Sonoran Pronghorn. The Sonoran pronghorn (*Antilocapra americana* ssp. *sonoriensis*) is a subspecies of the American pronghorn that was originally listed as threatened with

extinction under the Endangered Species Preservation Act of 1966 on February 24, 1967. With the passage of the ESA, this subspecies was listed as endangered. The Sonoran pronghorn is a hoofed animal that resembles an antelope. It has a yellowish-tan color with white areas on the rump, throat, sides of the face, and underparts. The horns are black with a single prong. The Sonoran pronghorn is North America's fastest land animal and its speed and eyesight help the animals avoid predators. Flat to rolling topography is the preferred habitat for the subspecies, which includes broad intermountain alluvial valleys with creosote bush-bursage and palo verde-mixed cacti associations (YPG, 2012b). Within its current range, the Sonoran pronghorn generally prefers creosote bush-bursage, palo verde-mixed cacti, and ephemeral wash habitats. According to a model by USFWS, more than 55 percent of YPG (approximately 757 square miles) is potentially suitable habitat for this species (USFWS, 2009c). Generally, bajadas are fawning areas and sandy dune areas provide food on a seasonal basis. Cacti, forbs, and shrubs are important food plants for the Sonoran pronghorn and the fruit of chain-fruit cholla (*Opuntia fulgida*) can be consumed to provide a water source (USFWS, 2009c).

The subspecies is known to inhabit the Barry M. Goldwater Range, Cabeza Prieta NWR, Organ Pipe National Monument, and Mexico. The closest natural population of Sonoran pronghorn is on the Barry M. Goldwater Range, which is across I-8 and approximately 10 miles south of YPG. The interstate highway and the extensive farming along the Gila River Valley effectively prevent movement of this population onto YPG. The other populations are south and east of the Barry M. Goldwater Range.

In 2010, the USFWS designated the Sonoran pronghorn as a nonessential experimental population, as defined under Section 10(j) of the ESA within a portion of its historic range. This area is located north of I-8 and south of I-10 and encompasses all of YPG (USFWS, 2011c). Nine pronghorn were released into the Kofa NWR in the King Valley area by the USFWS in January 2013 in an attempt to establish additional Sonoran pronghorn populations within this portion of its historic range. From the 2013 release, three pronghorn died, two returned to the release pen, and one is unaccounted for (Bright, 2013). Three of the remaining pronghorns are observed regularly on the eastern portion of the Kofa Range on YPG. In January 2014, 23 additional pronghorn were released onto Kofa NWR within King Valley.

The pronghorn have been observed on YPG using a man-made pond (SWTR pond) on the eastern portion of the Kofa Range, which is located toward the southern end of King Valley. This pond is maintained to supply water for dust suppression or construction and maintenance activities on YPG. It is not fenced and is frequented by deer, horses, coyotes, and other wildlife. Camera traps detected the pronghorn using this facility multiple times in June, August, and September of 2013. No observations of pronghorn occurred in July and October 2013, but this likely is due to camera failures. Normal dispersal of the nonessential experimental population of Sonoran pronghorn will likely result in additional animals occurring on YPG. As their population increases, so will pronghorn encounters on YPG.

Normal dispersal of Sonoran pronghorn released or living on Kofa NWR has resulted in the animals occurring on YPG, at least as transients. USFWS has documented radio-collared Sonoran pronghorn moving across YPG, primarily through King Valley in the Kofa Region, to lands south of YPG. The likelihood of animals occurring on or traversing YPG will increase as the population increases. Released animals may be taken within the boundaries

of YPG when the take is incidental to, and not the purpose of, carrying out a lawful activity. Otherwise, a take of these animals is prohibited unless authorized through consultation with USFWS. YPG is required to report a take resulting from military operations to USFWS. For the purposes of ESA Section 7 consultation, since the Sonoran pronghorn released on Kofa NWR are classified as nonessential experimental when on YPG, pursuant to Section 10 (j) of the ESA, the pronghorn are treated as a species proposed for listing. This status requires conferencing with USFWS on any projects likely to jeopardize the continued existence of the entire species. YPG entered formal Section 7 consultation with USFWS regarding its activities and operations relative to this experimental population and received a BO on September 9, 2014. Because this population of pronghorn is classified as threatened within the boundaries of Kofa NWR, YPG would consult with USFWS regarding any new military activities that would extend onto the refuge.

3.16.1.2 Other Native Sensitive Species

The AZGFD classifies some native wildlife as species of special concern. The USFS and BLM also classify some native species of plants and animals as sensitive species. In addition to these native species, non-native wild horses and burros, which are protected by federal law, occur on YPG.

There are 45 sensitive species of plants and animals known to occur in Yuma and La Paz Counties that are not listed under the ESA (AZGFD, 2010c; Appendix J). Sixteen of these species occur on near the boundaries of YPG: American peregrine falcon and Sonoran desert tortoise, discussed above, and the banded Gila monster (*Heloderma suspectum cinctum*), California leaf-nosed bat (*Macrotus californicus*), cave myotis (bat) (*Myotis velifer*), desert barrel cactus (*Ferocactus cylindraceus*), desert rosy boa (*Lichanura trivirgata gracia*), loggerhead shrike (*Lanius ludovicianus*), Mohave fringe-toed lizard (*Uma scoparia*), osprey (*Pandion haliaetus*), Parish's onion (*Allium parishii*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), spotted bat (*Euderma maculatum*), straw-top cholla (*Cylindropuntia echinocarpa*), western burrowing owl (*Athene cunicularia hypugaea*) and western yellow bat (*Lasiurus xanthinus*). The 14 species not previously discussed in this document are described below.

Kofa Mountain barberry (*Berberis harrisoniana*) is known from the region, but extensive surveys for this distinctive plant indicate it does not occur on YPG.

Banded Gila Monster. The banded Gila monster is a medium-sized venomous lizard with a robust body. It has a large head, narrow neck, and two black collar bands separated by a white band. In Arizona, the banded Gila monster occurs in deserts across the northwestern and western parts of the state, north of the Gila River. Both Yuma and La Paz Counties are within the range of the species. The banded Gila monster generally occurs on hillsides and slopes, in canyons, gullies, and washes with rock substrates, and occasionally in rock piles. Fallen logs or debris are often used for burrows and the species prefers highland rocky outcrops during winters (AZGFD, 2011a). Suitable habitat for this species occurs among the various washes and along the rocky hillsides throughout YPG.

California Leaf-nosed Bat. The California leaf-nosed bat is a medium sized gray bat with large ears and a flattened, leaf-shaped nose. The species typically roosts in the ceilings of caves and mines in groups of up to several hundred (AZGFD, 2011b). The California leaf-nosed bat mostly inhabits Sonoran desert scrub habitat and feeds on insects and possibly

cactus fruits. This species is known to roost in mines and caves on YPG and is one of the most commonly observed bats on the installation (YPG, 2012b).

Cave Myotis. The cave myotis (bat) is a relatively large myotis, with color ranging from light brown to nearly black, with a bald patch between the shoulder blades. The cave myotis roosts in caves, tunnels, and mineshafts and under bridges. It typically forages in desert scrub of creosote, brittlebush, palo verde, and cacti. In Arizona, winter roosts are typically wet mine tunnels above 6,000 ft (AZGFD, 2011b). Marginal foraging habitat occurs on YPG, and the old mines on YPG could provide roosting habitat.

Desert Barrel Cactus. The desert barrel cactus typically exhibits a single stemmed, erect or slightly leaning growth form. This cactus can reach 10 ft tall, but averages around 5 ft. The flowers are maroon on the outside and yellow on the inside. The species typically occurs on gravelly or rocky hillsides, canyon walls, alluvial fans, and margins of washes in the Mohave and Sonoran Deserts derived from igneous or limestone substrates. This species occurs in Yuma County near the northwest end of the Gila Mountains and near the southern end of the Kofa Mountains. This species is classified as salvage restricted in Arizona, but is not otherwise threatened (AZGFD, 2011c).

Desert Rosy Boa. The desert rosy boa is a heavy-bodied snake averaging 24 to 45 inches in length with a pale gray to dark bluish slate-gray color. This species is mainly nocturnal and spends most of the time deep in rock crevices or underground. The species typically occurs in rocky areas in desert ranges, especially canyons with permanent or intermittent streams and basalt- or granite-derived soils. The desert rosy boa is known to occur in the Kofa NWR near the border with YPG and could occur on YPG (AZGFD, 2011a). Habitat for this species would be marginal on YPG, due to the lack of intermittent or permanent streams with riparian areas.

Loggerhead Shrike. The loggerhead shrike is slightly smaller than the American robin and grayish in color with a distinct black mask that extends above the eye and across the bill. This bird prefers open country with scattered trees and shrubs, savanna, and desert scrub. Shrikes are often seen perched on poles, wires, or fence posts (AZGFD, 2011d). The loggerhead shrike is a resident species on YPG.

Mohave Fringe-toed Lizard. The Mohave fringe-toed lizard is distinguished by a black spot on each side of the belly, crescent-shaped black throat markings, and a greenish yellow-tinged belly. This lizard prefers areas of fine, loose, windblown sand of dunes, flats, riverbanks, and washes in the Mojave Desert of California and in the extreme western part of Yuma County. The species is a BLM Sensitive species and is classified as Wildlife of Special Concern in Arizona. The Mohave fringe-toed lizard occurs in the northwest portion of the Cibola Region on YPG where an apparently stable population exists within a sand dune complex (Figure 3-6). The area where the Mohave fringe-toed lizard occurs in the Cibola Region is not within the area that would be affected by the Proposed Action. Potentially suitable habitat for this species also occurs within the Laguna Region (YPG, 2012b).

Osprey. The osprey is a large raptor that is brown above and white below, with a white head and dark line near the eye on each side. Osprey typically nest near waterbodies and in Arizona mainly occur at lakes in the White Mountains and across the Mogollon Plateau. A few occurrences are known along the Salt and Gila Rivers (YPG, 2012b). There is no suitable

foraging or roosting habitat for this species on YPG, but it is occasionally observed on YPG as an incidental. Because of its mobility, the osprey would not be affected by the Proposed Action and is not further discussed.

Parish's Onion. The Parish's onion is an herbaceous perennial that occurs on open rocky and sandy slopes in the Mojave Desert and desert mountain ranges. The species occurs within the Kofa NWR. The Parish's onion is a BLM Sensitive species and is classified as salvage restricted by the State of Arizona (AZGFD, 2011c). Salvage restricted includes species regulated by the Arizona Native Plant Law that can only be collected with a permit. This species may occur on YPG near the border with the Kofa NWR.

Pocketed Free-tailed Bat. The pocketed free-tailed bat is one of the smallest bat species, averaging 2.95 to 3.5 inches in total length. The upper fur is dull with a tawny, buffy, or brown color and paler, buffy to yellowish white underneath. The species occurs in a variety of upland and lowland habitats, which include riparian areas, desert scrub, moist woodlands, and forests. It appears to prefer cliffs and rocky walls near water. The pocketed free-tailed bat roosts in caves, mines, cliff crevices, and man-made structures. This species is known to occur in Yuma County and winters in the Lower Colorado River area (AZGFD, 2011b). This species likely occurs on YPG and could roost on the installation.

Spotted Bat. Spotted bats occur in varied habitats, but most often in riparian habitats or in dry, rough desert scrub, from low to high desert. This species occurs in Yuma County, but is known only from south of the Gila River. Spotted bats are a Federal Species of Concern, BLM Sensitive, USFS Sensitive, and a Wildlife of Special Concern in Arizona (AZGFD, 2011b). This species may forage or occur as a transient on YPG but would not roost there. It is unlikely that this species would be affected by the Proposed Action.

Straw-top Cholla. Straw-top cholla occurs in the driest parts of the Sonoran and Mojave Deserts, generally in creosote bush scrub habitats. This species has been documented as occurring on YPG. Straw-top cholla is not threatened or considered sensitive to extinction, but is listed as salvage restricted in Arizona (AZGFD, 2011c).

Western Burrowing Owl. This medium sized ground-dwelling owl occurs in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands (AZGFD, 2011d). Western burrowing owls occur on YPG and are known from much of the surrounding area, including the Lower Colorado and Gila River valleys and the City of Yuma area (AZGFD, 2011d; YPG, 2012b).

Western Yellow Bat. Western yellow bats are medium-sized and usually pale, yellow-brown in color. Southern Arizona is considered the northern extent of its range and the species likely occurs there year-round. This species is usually found near thick vegetation while roosting and has been found in palm fronds. Western yellow bats also occur in riparian areas with thick, leafy vegetation (YPG, 2012b). Western yellow bats are BLM Sensitive, USFS Sensitive, and a Wildlife of Special Concern in Arizona (AZGFD, 2011b). A western yellow bat was tentatively identified during mist net surveys in Vinegaroon Wash (YPG, 2012b) and one western yellow bat was captured by AZGFD at Lake Alex. Suitable roosting habitat for this species is not present on YPG, but the species may forage on YPG or occur as a transient.

3.16.1.3 Wild Horses and Burros

Wild horses and burros (*Equus* spp.) are protected by the Wild Free-Roaming Horses and Burros Act of 1971, which protects free-roaming horses and burros from capture, branding, harassment, or death. In spite of the non-native status of these animals, the Wild Free-Roaming Horses and Burros Act states that these should be considered an integral part of the natural system of the public lands in areas where they occurred in 1971 (BLM, 2006). Wild horses and burros occur on YPG and are managed under the Cibola-Trigo Herd Management Area Plan, which includes all of YPG, and the public lands adjacent to the installation. Burros and wild horses could occur throughout YPG, but typically concentrate near water sources, including artificial tanks, Ivan's Well, and Lake Alex (YPG, 2012b).

3.16.2 Environmental Consequences

The following were evaluated to determine potential impacts to threatened or endangered species:

- Permanent loss of habitat due to construction of impervious surfaces
- Temporary loss of habitat due to testing and training activities in the ranges, including areas of habitat that could be restored
- Removal of water tanks that may be used by threatened or endangered species, or by species of concern.
- Disruption of the behavior of TES species due to construction or training and testing activities on YPG
- Reduction in population and survival rates of TES species due to construction or testing and training activities
- Reduction in population and survival rates of TES species, particularly the Sonoran desert tortoise, due to a concentration of predators at the edges of human activities, powerlines, and roads.
- Taking of a threatened, endangered, or candidate species due to construction or testing and training activities, including actions that would take Sonoran pronghorn within the boundaries of Kofa NWR.

3.16.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to TES species include:

- Negligible (less than significant)—Activities that would cause barely perceptible behavioral changes in TES species
- Minor to Moderate (less than significant)—Activities that would cause behavioral changes in TES species but that would not cause mortality or reduce reproduction or productivity
- Severe (significant)—Activities that would cause mortality of TES species
- Severe (significant)—Activities that would cause behavioral changes in TES species that reduce reproduction or productivity

3.16.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, conditions on YPG would not change and testing and training activities would continue to fluctuate between historical high and low levels. Ongoing testing and training would occur in specific areas within YPG (Figures 2-4 through 2-12). Tables identifying the testing and training activities that would occur under the No Action Alternative are provided in Appendix B (Tables B-1 through B-3), separated according to the three regions (Laguna, Cibola, and Kofa Regions). No test areas, munitions impact areas, or DZs would be expanded under the No Action Alternative. No construction or demolition would occur under the No Action Alternative. Continuing mission operations would not result in impacts to TES species with current species distributions, as testing and training activities continue in authorized areas at authorized levels. The evaluations and analyses presented in the NEPA documents listed in Section 2.3.2 provide an assessment of the potential impacts to TES species that would result from the No Action Alternative. The analyses presented in the NEPA documents listed above are incorporated into this FPEIS by reference.

Should TES species distributions change, impacts to TES species could result from on-road and off-road vehicle use, dismounted maneuvers, and test operations (including the set-up for test operations).

Direct impacts to Sonoran pronghorn on YPG could include injury or direct mortality as a result of firing into munitions impact areas. The same impacts could also occur outside of designated munitions impact areas as a result of overshoots and stray rounds, vehicle collisions, animals becoming tangled in communication wire or fencing, or animals being injured by running into infrastructure such as buildings, towers, trenches, or any other man-made structures.

Historically, YPG has fired long-range munitions over the Kofa NWR. The recently established long-range munitions impact areas in the Cibola Region (YPG, 2013a) allow some testing of these munitions types to be relocated from the Kofa Region to the Cibola Region and have reduced the need for firing over the Kofa NWR. However, mission requirements will continue to result in firing over the artillery buffer in Kofa NWR into munitions impact areas on YPG. YPG will coordinate appropriately with USFWS in advance of any such activities. Any impacts from these testing activities would be expected to be minor and related to startle from the noise of the rounds in flight.

There would be potential for overshoots and stray rounds fired on KFR to enter the artillery buffer area of the Kofa NWR and there would be a remote possibility for impacts to the threatened Sonoran pronghorn on the refuge. While military munitions may enhance pronghorn habitat by creating depressions that retain water and have greater vegetation growth, there is the potential for direct injury and mortality from munitions overshoots (Krausman et al., 2007).

There is potential for recreational users on the southern portion of Kofa NWR to be within YPG Airspace R-2307. Prior to conducting operations with a safety fan that extends into the Kofa NWR, YPG will verify there are no people in the portion of an SDZ extending into the Kofa NWR. Helicopters will be used to locate people where large portions of an SDZ overlap Kofa NWR, primarily in R-2307. Helicopters have higher potential to disturb pronghorn due to their rotor noise and hovering during low-altitude flight. Helicopter

safety sweeps of the refuge in R-2307 would occur mostly over mountainous terrain where habitat is less suitable for Sonoran pronghorn. Such overflights would occur only as needed and any disturbance to Sonoran pronghorn would be expected to be limited to temporary displacement, should animals be in the area of the sweep.

Current YPG military activities on Kofa NWR include over flights and safety fans for munitions testing. Depending on conditions at the time of testing and test-specific parameters, military activities, including UAS operation, occur over the refuge daily within Airspaces R-2307, R-2308A, R-2308b, and R-2308C (refer to Figure 2-3). Most military use of this airspace occurs between 8,000 and 32,000 ft AGL (Franklin, 2013b, personal communication). The IONMP identifies Kofa NWR and Imperial NWR as areas where pilots should remain at least 2,000 ft AGL, and this noise recommendation also is recognized in the LAAF Operations Manual. Studies conducted on the Barry M. Goldwater Range, where a natural population of Sonoran pronghorn occurs, for MCAS Yuma determined that the animals did not respond negatively to military aircraft over flights, exhibiting neither behavioral changes nor increased energy expenditures, relative to control populations, when subjected to military aircraft over flights (Krausman et al., 2005). Because of the altitude maintained by military aircraft when over Kofa NWR, military aircraft over flights on Kofa NWR would not be expected to have behavioral impacts to Sonoran pronghorn.

YPG would continue to implement the portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008; Appendix I) that are consistent with the military mission to develop appropriate avoidance and mitigation strategies for proposed activities that would occur in Sonoran desert tortoise habitat.

Under the No Action Alternative, YPG would continue to coordinate with AZGFD to rehabilitate injured animals, including TES species, where recovery is practicable. YPG would continue to maintain movement corridors and migratory pathways that would allow seasonal movements of the experimental population of Sonoran pronghorn, should they begin utilizing YPG. YPG would coordinate law enforcement efforts with AZGFD and USFWS to address illegal hunting and habitat degradation associated with unauthorized recreation and illegal hunting, and YPG would patrol remote areas and maintain boundary and access signs to deter illegal and unauthorized activities that could negatively affect TES species. These actions would benefit TES species.

The NRC-licensed DU impact area has a DU Catchment Structure, and spent DU rounds are regularly collected by Ammunition Recovery personnel and stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. There is an evaporative lagoon that collects runoff from the DU Catchment Structure and is sized to accommodate a 100-year storm event to minimize the potential for stormwater transport of DU off-post or to other areas on-post. Studies have shown (Obregon, 2013c, personal communication) that DU is contained within the DU licensed area and does not migrate. Because the DU is contained within the NRC-licensed DU impact area, DU would not directly affect any TES species. The greatest potential for impacts would be to small herbivores (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.16.2.3 Impacts of the Proposed Action/Preferred Alternative

This section addresses potential impacts to TES species on YPG; common wildlife species are addressed in Section 3.21. Impacts to TES species that could occur under the No Action Alternative, if species distributions change, also would occur under the Proposed Action. In addition, there would be potential for direct and indirect impacts from construction and use of new or expanded testing and training areas. Direct impacts to TES species would result from displacement or incidental mortality. Indirect impacts to TES species could result from disturbance that leads to nest/den abandonment, loss of habitat, or disruption of migratory pathways. The majority of habitat for TES species on YPG would remain intact. Additional indirect impacts to TES species could result from introduction or spread of exotic invasive plant species, which would result in habitat degradation. Disruption of normal activity patterns and loss of habitat would be the primary impacts to wildlife. Limited incidental mortality would likely occur, but would be less than significant at the population level. YPG would continue to maintain movement corridors and migratory pathways for wildlife.

Areas with water tanks (discussed in Section 3.20) that may be used by protected species would be avoided to the extent such action is consistent with the military mission. Excluding new or expanded LTAs, which would not affect wildlife water tanks, only eight proposed activities would occur in proximity to established water tanks. Current plans would not result in removal or relocation of any wildlife water tanks, but should changes occur that would result in water tank removal to implement an activity, any wildlife water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location. Disruption of normal animal activity patterns would likely result from removal and replacement of water tanks, but these impacts would be short-term and minor with regard to TES species. No population level impacts would be expected.

Exotic invasive plant species can become established in areas where soils are disturbed, such as construction sites and areas used for testing and training. Exotic invasive plant species displace native vegetation and offer less habitat value than native plants. Encroachment by exotic invasive plants can eliminate food resources and structural habitat used by TES species. Native TES species are not adapted to these non-native plants and may not be capable of using them for food or habitat. Exotic invasive plant species consume more water than native vegetation and can reduce available surface water or shallow groundwater. The reduction in available water can lead to water stress in TES species and ultimately to mortality and reduction of population viability. Because exotic invasive plants can affect TES species through alteration of habitat, increased potential for wildfire, and loss of available water, it is desirable to control these species on YPG. A program to establish exclusion, monitoring, and eradication of exotic invasive plants on YPG is being developed as part of the ongoing INRMP implementation (YPG, 2012b). Control of exotic invasive plant species would be beneficial to TES species and their habitat.

Wildfire could impact TES species on YPG through direct mortality, disruption of reproduction, or loss of habitat. Desert plants are not adapted to fire, and wildfire impacts to TES plant species would be greater than those to TES animal species. Exotic invasive plant species have the greatest potential to affect wildfire size and intensity through creation of extensive stands with high fuel loads (see Sections 3.7 and 3.18). Areas where native vegetation is cleared or where soils are disturbed are more susceptible to colonization by

exotic invasive plant species. Because desert vegetation recovers slowly, wildfire impacts to TES plant species and habitat for TES species are long-term. Depending on the size and intensity, impacts from a particular wildfire could range from minor to severe. Measures that would be implemented to minimize the potential for colonization and growth of exotic invasive plant species are discussed in Sections 3.7 and 3.18. Implementation of these measures would minimize the potential for severe impacts to TES species from wildfire. Control of exotic invasive plant species would reduce wildfire risk to TES species.

Noise and the physical activity associated with the presence of humans during construction and during testing and training events can cause TES animals to relocate. TES animals may abandon nests or dens in the immediate area of human activities, including abandonment of young. These types of impacts can be minimized during construction by conducting work outside of the reproductive period, but avoidance of this type would not be practicable for testing and training activities. The nearly constant level of testing and training conducted on YPG makes it unlikely that TES animals would nest or den in proximity to areas used for these purposes, unless the TES animals were already acclimatized to increased human activity. Because most construction would occur in areas where high levels of human activity already occur and because testing and training are ongoing at or near most locations where new or expanded testing and training areas are proposed, it is expected that the potential for nest/den abandonment would be minor. Where feasible, activities would be scheduled to minimize potential conflict with TES animal reproduction and rearing of young. There would be yearly fluctuations in the frequency, intensity, or duration of testing and training events (as discussed in Sections 2.1.2 and 2.3.3.8), but these fluctuations would be within the maximum and minimum levels observed historically.

Incidental mortality of TES species could occur during construction or during testing and training activities. The potential for incidental mortality of TES plant and animal species was minimized through site selection. Where practicable, proposed activities would be implemented in areas where TES species do not occur. No TES species would be expected to become locally extinct as a result of increased incidental mortality caused by the Proposed Action. Where practicable, TES animals or plants would be relocated from proposed activity areas in accordance with procedures established in the INRMP. Any impacts from incidental mortality associated with construction would be minor and short-term. Incidental mortality from testing and training activities would be minor and long-term.

The following sections provide a discussion of the potential for species-impacts to TES species that could occur on YPG.

Transient Species. One protected bird species, the delisted American peregrine falcon, may occur as a transient or migrant on YPG. Because these species would not be expected to roost on YPG and because they are highly mobile, these animals would be able to relocate from areas of disturbance. Impacts to these species would likely be limited to displacement. Any such impacts would be negligible to minor.

Federally Listed Species. This section addresses potential impact to the Sonoran desert tortoise and the experimental population of Sonoran pronghorn. No other species listed or candidate species for listing under the ESA have the potential to be impacted by the Proposed Action on YPG.

Sonoran Desert Tortoise. YPG would continue to implement the portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008 Appendix I) that are consistent with the military mission to develop appropriate avoidance and mitigation strategies for proposed activities that would occur in Sonoran desert tortoise habitat. Most components of the Proposed Action would be implemented in portions of YPG with low Sonoran desert tortoise populations or in areas unoccupied by Sonoran desert tortoise at present. Therefore, indirect impacts resulting from habitat alteration would be the most likely impacts to the species. There would be potential for direct mortality in areas where tortoises occur and the potential for direct impacts is discussed following the discussion of indirect impacts.

Proposed construction sites for a fire station, runway, C-130 parking area, re-fueling area, and aircraft hangar in the northern portion of the Laguna Region (L105, L107a-d) are in proximity to a desert tortoise sighting and the 1-mile buffer associated with that sighting (Figure 3-5). Although there has been a desert tortoise identified near the proposed construction activity, there are no areas classified as primary desert tortoise habitat within the boundaries of the Laguna Region. Additional environmental analysis would be required before the implementation of these long-term projects, as conditions would be subject to change in the intervening period. YPG will follow the portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008 Appendix I) that are consistent with the military mission in potential desert tortoise areas.

Habitat alteration in areas that have been identified as primary desert tortoise habitat, which could indirectly impact the Sonoran desert tortoise in the Cibola Region, would result from the construction/establishment of runways-helipads, buildings, dismounted maneuver areas, DZs, UAS launch/recovery areas, utility lines, test courses, LTAs, munitions impact areas, and TGPs.

In the Cibola Region, up to 980 ac would be used for six proposed DZs (C002-a through C002-f), up to 1,220 ac would be used as impact areas (C003-a through C003-c, C006, C009, C011), and up to 45,260 ac would be used as LTAs for dismounted maneuvers (C060, C061, C062, and C063). No vegetation clearing would occur in the impact areas or LTAs and only minimal clearing would occur in DZs. Habitat impacts would be minor from proposed testing and training activities in DZs, which would be spread in space and time.

Up to 17 ac within areas that have been identified as primary desert tortoise habitat in the Cibola Region could be removed or cleared for proposed construction activities (buildings, graded parking areas, and access trails (C004a, C005a, C008a, C010, C033a, C046a) (Figure 3-6). Proposed activities C066a and C066-b would alter approximately 5.5 ac of land within the area classified as primary desert tortoise habitat. However, under the Preferred Alternative, the cable drop site in the Kofa Region (K024), which is not within an area identified as primary desert tortoise habitat, would be implemented rather than C066. Incidental mortality of Sonoran desert tortoise could occur during clearing of vegetation and during testing and training activities. Any such losses would likely be very rare as a result of implementation of appropriate mitigation measures consistent with the portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008 Appendix I) that are consistent with the military mission. Impacts to areas classified as primary tortoise habitat resulting from

vegetation clearing and construction activities in the Cibola Region would be long-term and moderate.

Infrastructure improvement activities (C004-b, C005-b, C007-b, C012-b, C013, C033-b, and C040-b) are proposed within areas identified as primary desert tortoise habitat in the northern Cibola Region (Figure 3-6). Construction-related soil and vegetation disturbance along utility lines on up to 8.2 ac could occur. Impacts to tortoise habitat from infrastructure improvements would be temporary and minor because improvements would be spread out through time and the habitat would be expected to gradually recover following infrastructure improvements.

In the Cibola Region, there are five activities under the Proposed Action that would occur in proximity to the documented Sonoran desert tortoise sighting or the 1-mile buffer associated with the sighting (Figure 3-6). The activities include a DZ (C002-b), building construction (C005-a), an LRA impact area (C065), and two proposed LTAs (C060, C062). Additionally, portions of a proposed LTA (C001) in the southern part of the Cibola Region are within the 1-mile buffer area of the documented Sonoran desert tortoise sighting (Figure 3-6). However, this LTA would not be in the area classified as primary desert tortoise habitat, and impacts to desert tortoise from dismounted maneuvers would be minor.

Alteration of habitat in the area designated as primary Sonoran desert tortoise habitat could result from activities in the East Arm of the Kofa Region and any habitat alteration could indirectly impact the Sonoran desert tortoise. Habitat alteration would result from establishment and operation of a DZ (K001), the East Kofa Ops Center (K030), a testing/training complex in the northern portion of the East Arm (K030), and training activities at the East Arm LTA (K021) (Figure 3-7). Under the Proposed Action, approximately 36.1 ac of desert scrub habitat in the Kofa Region would be removed or cleared for the training complexes, approximately 194 ac would be converted to a DZ, and approximately 28,233 ac could be converted to an LTA. No vegetation clearing would occur in the proposed DZs or the proposed dismounted maneuver area. These proposed activities could impact land classified as primary Sonoran desert tortoise habitat, but the large amount of acreage associated with K021 (an LTA) would not experience substantial disturbance as activities would be limited to dismounted maneuvers. Impacts to areas identified as primary tortoise habitat resulting from vegetation clearing and construction activities in the Kofa Region would be long-term and moderate. YPG will follow the portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008 Appendix I) consistent with the military mission in potential desert tortoise areas.

Because Sonoran desert tortoise exhibit high site fidelity, it is unlikely the species would avoid areas of high human activity. In areas of high quality habitat for the Sonoran desert tortoise, surveys would be conducted to determine whether the species occurs and animals would be relocated to other suitable habitat to minimize impacts. If active nests are found in an area that would be disturbed, activities would be delayed until after the eggs have hatched and the young could be relocated into other suitable habitat. Any relocation of Sonoran desert tortoise would be done following procedures in the INRMP and in coordination with USFWS.

Should the Sonoran desert tortoise be listed as threatened or endangered under the ESA, either additional coordination or ESA Section 7 consultation with USFWS would be

required prior to any land-disturbing activities in areas where Sonoran desert tortoise are known to occur on YPG. Depending on the activity, either a Biological Assessment or Biological Evaluation would be prepared to support consultation.

If adjacent habitats are likely to support the Sonoran desert tortoise, simple barriers, such as exclusion fencing, may be erected around construction areas to deter entry into the area. If denied access to the proposed work area, it is expected that the tortoise would shift activity to other nearby suitable habitat.

Incidental mortality of Sonoran desert tortoise could occur during clearing of vegetation and during testing and training activities. Any such losses would likely be very rare as a result of relocation and exclusion measures that will be implemented in areas where the species is likely to occur and because most components of the Proposed Action would be implemented in areas where Sonoran desert tortoise are not known to occur. No local populations would likely be extirpated due to the Proposed Action (YPG DPW, 2010b). Impacts would be long-term and moderate.

No TGPs are proposed for areas where the Sonoran desert tortoise is known to occur. Each proposed TGP site would be assessed prior to implementation for presence of Sonoran desert tortoise or their nests. Should use of a proposed TGP site by Sonoran desert tortoise be documented, YPG could choose to relocate a proposed TGP, if practicable, to avoid potential impacts to this species or measures would be taken to relocate tortoises from an area prior to establishment of the TGP. If active nests are found in an area, activities could be delayed until after the eggs have hatched and the young could be relocated as discussed above or the nest could be sheltered in place using the appropriate protocols through coordination with AZGFD, with the young relocated if hatching occurs prior to the end of the work. Impacts would be minor and long-term.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a solar electrical energy generation facility would not result in loss of land designated as primary desert tortoise habitat, depending on the site selected. This could incrementally combine with other projects in the region to produce cumulative impacts to Sonoran desert tortoise.

Should the Sonoran desert tortoise be listed under the ESA, YPG would re-evaluate any projects proposed for implementation in portions of the installation where the Sonoran desert tortoise might occur and would consult with USFWS, as necessary prior to any ground-disturbing activities.

Sonoran Pronghorn. Three of the pronghorn released on Kofa NWR have been regularly observed by camera traps using a man-made pond in the eastern part of the Kofa Region near the southern end of King Valley (Steward, 2013, personal communication). This pond is maintained for dust suppression and for construction and maintenance activities on YPG. The pond is not fenced and is frequented by deer, horses, coyotes, and other wildlife. The animals have not been observed west of US 95 in the Cibola Region (USFWS, 2013). It is

likely that, as the released Sonoran pronghorn population grows, the occurrence of these animals on YPG will increase.

The experimental population of Sonoran pronghorn would likely continue to periodically move onto YPG concurrent with activities implemented under the Proposed Action. Testing and training activities would be ongoing and the experimental population of Sonoran pronghorn could be impacted directly or indirectly by human presence on the range, vehicle traffic, noise from munitions firing and impact, and aircraft noise (YPG DPW, 2014). Explosions from munitions testing and training on YPG in the Castle Dome Mountains along the western boundary of Kofa NWR would be audible for several miles onto the Kofa NWR, including in areas where Sonoran pronghorn may occur. However, it is unlikely that this noise would be heard in the vicinity of the captive breeding pens (USFWS, 2009c). Response to explosive noise could alter habitat utilization by causing pronghorn to move away from food or water sources, and behavioral impacts could impact nutrition and health of the animals, particularly in times of drought. However, because munitions testing and training occur throughout the year in this area, the noise from these events would likely be perceived as part of the background noise and would not affect pronghorn unless the animals were in immediate proximity to a detonation.

Wildfire, either naturally occurring or resulting from human activities, could result in loss or alteration of Sonoran pronghorn habitat. A portion of wildfires that result from human activities may be ignited as a result of testing and training activities on YPG. Wildfires that ignite from activities on YPG could create short-term indirect impacts to Sonoran pronghorn from loss of foraging habitat or loss of vegetative cover that leads to increased predation. Wildfire also may result in long-term indirect beneficial impacts to Sonoran pronghorn because forage quality may be enhanced by increased growth of plants following fire. A reduction in density of large perennial plants (such as shrubs and large cacti) following wildfire may be favorable by pronghorn; however, the reduction in cover may result in increased fawn mortality from predation.

Direct impacts to Pronghorn on YPG could result from vehicle strikes, tangling in communication wire or fencing, or injury by running into infrastructure such as buildings, towers, or trenches. Detonations from military munitions may create depressions that retain water and have greater vegetation growth, which can improve forage quality or quantity for Sonoran pronghorn. However, there also is potential for direct injury or mortality from detonations. The potential for such injury on YPG is very low due to the low numbers of Sonoran pronghorn that cross YPG and the low likelihood of an animal actually being at a detonation point at the time of the explosion. Munitions overshoots or errant rounds have a very low probability of landing on the Kofa NWR and most historical rounds that strayed onto the refuge landed in a mountainous area where Sonoran pronghorn would be unlikely to occur. The potential for direct impacts to Sonoran pronghorn on the Kofa NWR as a result of errant rounds or overshoots would be negligible.

Current YPG military activities on Kofa NWR include over flights and safety fans for munitions testing. Depending on conditions at the time of testing and test-specific parameters, military activities, including UAS operation, occur over the refuge daily within Restricted Airspaces R-2307, R-2308A, R-2308b, and R-2308C (refer to Figure 2-3). Most military use of this airspace occurs between 8,000 and 32,000 ft AGL (Franklin, 2013b, personal communication). The IONMP identifies Kofa NWR and Imperial NWR as areas

where pilots should remain at least 2,000 ft AGL, and this noise recommendation also is recognized in the LAAF Operations Manual. Studies conducted on the Barry M. Goldwater Range, where a natural population of Sonoran pronghorn occurs, for MCAS Yuma determined that the animals did not respond negatively to military aircraft over flights, exhibiting neither behavioral changes nor increased energy expenditures, relative to control populations, when subjected to military aircraft over flights (Krausman et al., 2005). Because of the altitude maintained by military aircraft when over Kofa NWR, military aircraft over flights on Kofa NWR would not be expected to cause behavioral impacts on Sonoran pronghorn. No low level flights over Kofa NWR would occur under the Proposed Action.

Implementation of proposed new UAS launch/recovery areas in the Cibola Region would reduce the number of UAS flights over the southern portion of the Kofa NWR because there would be more options for conducting testing activities and tests would be spread over more of YPG.

Proposed Activities K003 and K030 would occur in the portion of the Kofa Region where Sonoran pronghorn have been documented (Figure 3-8). After considering concerns raised by USFWS, YPG has selected a reduced version of these activities under the Preferred Alternative, reducing the size of the proposed munitions impact area and LTA. The boundaries would stop 1 kilometer (0.62 mile) south of the installation boundary at the Kofa NWR on the north and 500 m (0.31 mile) east of the installation boundary with the Kofa NWR on the west (Figure 2-18).

YPG initiated consultation with USFWS under Section 7 of the ESA regarding activities with potential to impact Sonoran pronghorn on the Kofa NWR on March 25, 2014 (YPG, 2014a; YPG, 2014b; Appendix A). Consultation was concluded with issuance of a BO by the USFWS on September 9, 2014. The BO included three Reasonable and Prudent Measures with implementing Terms and Conditions that YPG will comply with:

1. To comply with Reasonable and Prudent Measure Number 1: YPG shall monitor environmental conditions on the Kofa Range, including weather patterns (e.g., temperature, precipitation, humidity) and status of fuels (e.g., distribution and density of annual vegetation or any other vegetation that is capable of carrying fire across the landscape).
2. To comply with Reasonable and Prudent Measure Number 2: YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire department with wildland firefighting capabilities. Additionally, YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire station on the KFR to provide rapid response on the Kofa Range in the event of fire. If the fire department and/or fire station are discontinued at any time in the future, YPG shall notify USFWS-AESO and Kofa NWR, and this Term and Condition may need to be re-evaluated.
   Should YPG detect exceptional fuel conditions that are conducive to carrying fire, then YPG shall increase fire readiness by (1) providing additional fire briefings to test officers to stress the importance of initial fire spotting and early notification, and (2) subject to availability of funds, maintaining fire break infrastructure where such infrastructure is compatible with the military mission (as determined by the Senior Commander) and pronghorn conservation (as determined through coordination with Kofa NWR and

USFWS-AESO) and is anticipated to reduce the risk of fire spreading to Kofa NWR (as determined by local firefighting agencies).

3. YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to USFWS-AESO and Kofa NWR as soon as possible. The report (can be in the form of an email) will, at a minimum, include the date(s), acreage, and location(s) of the fire(s), as well as the number of pronghorn in the vicinity of the fire, if known. YPG shall also immediately notify Kofa NWR once aware that a fire has encroached or may encroach onto the refuge.

Conservation measures that are included in the Proposed Action that would be implemented by YPG include:

1 Implement the 2014 Final Incident Response Protocol for Sonoran Pronghorn, which includes: (a) notifying USFWS and other appropriate parties as outlined in the protocol as soon as possible if Sonoran pronghorn are observed on YPG that are injured, sick, or dead; and (b) coordinating range access for USFWS and AZGFD as appropriate for capture of sick or injured pronghorn as well as recovery of dead individuals if necessary. Coordination will involve adherence to range safety and security procedures.

2 Avoid placing activities in proximity to artificial water sources (suitable for Sonoran pronghorn) to the extent that such action is consistent with the military mission.

3 YPG will adhere to the terms of the MOU between the Kofa NWR, Imperial NWR, BLM, and YPG, which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands.

Should the status of Sonoran pronghorn released in the Kofa NWR be reclassified under the ESA with regard to activities on YPG, YPG would re-evaluate any projects proposed for implementation in portions of the installation where the Sonoran pronghorn might occur and would consult appropriately with USFWS prior to any activities that could impact the species.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Sites under consideration for the development of the proposed solar facility are not within areas used by Sonoran pronghorn. However, the habitat loss and displacement of animals from the up to approximately 8,900-ac area could incrementally negatively affect Sonoran pronghorn through increased competition for resources in areas used by pronghorn. This could contribute to minor cumulative impacts to the species.

Other Native Species of Concern. This section discusses the potential for impacts to other species of concern that are not listed or candidate species for listing under the ESA. These species include USFS and BLM Sensitive species with potential to occur on YPG.

Banded Gila Monster. It is unlikely that construction in cantonment areas would have potential to impact the banded Gila monster, as the species would not be expected to occur in these areas. Down-range construction and vegetation clearing could negatively impact

this species through loss of habitat. Because this species is slow-moving, and would tend to hide from rather than flee human disturbance, direct impacts also could result from earth-moving activities. In areas of high quality habitat for the banded Gila monster, surveys would be conducted to determine whether the species occurs and animals would be relocated to other suitable habitat to minimize impacts. If adjacent habitats are likely to support the banded Gila monster, simple barriers, such as silt fencing, may be erected around construction areas to deter entry into the area. Impacts would be minor and long-term.

It is possible that TGPs could be placed in areas where the banded Gila monster would occur. Each proposed TGP site would be assessed prior to implementation for presence of banded Gila monster or their nests. Should use of a proposed TGP site by banded Gila monster be documented, YPG could choose to relocate a proposed TGP, if practicable, to avoid potential impacts to this species or measures would be taken to relocate the lizards from an area prior to establishment of the TGP. Impacts would be minor and long-term.

Bat Species of Concern. The California leaf-nosed bat and cave myotis both forage and roost on YPG and it is likely that the pocketed free-tailed bat also forages and roosts on YPG. Caves and mines that provide roosting habitat for these bats would not be impacted by the Proposed Action. As a result, there would be no impacts to roosting habitat. Potential foraging habitat would be reduced through clearing associated with construction and establishment of TGP and UAS launch/recovery areas and land disturbance associated with DZs. Because these species forage primarily at night, no direct impacts would be expected from clearing activities. Night testing and training activities could cause direct impacts, but such occurrences would be rare. Impacts to these species would be negligible to minor and long-term.

The western yellow bat and the spotted bat may occur as transients or migrants on YPG. Because these species would not be expected to roost on YPG and because they are highly mobile, these animals would be able to relocate from areas of disturbance. Impacts to these species would likely be limited to displacement. Any such impacts would be negligible to minor.

Loggerhead Shrike. Potential foraging and nesting habitat for the loggerhead shrike would be reduced through clearing associated with construction activities, establishment of TGP and UAS launch/recovery areas, and land disturbance associated with DZs. Due to the mobility of the species, incidental mortality would be unlikely if nests are avoided. Shrikes would likely relocate away from disturbance-causing activities unless already nesting in an area. In areas of high quality nesting habitat for the loggerhead shrike, surveys would be conducted to determine whether the species is nesting. If an activity could not be relocated from the nesting area, it would be delayed until after young have fledged to avoid impacts to the species. Impacts would be long-term and moderate.

Western Burrowing Owl. Construction and expansion of testing and training could impact the western burrowing owl through loss of habitat. The grasslands around the lower Colorado and Gila Rivers provide large amounts of preferred habitat for this species and it is likely that the western burrowing owl would relocate away from areas of human use unless already nesting in an area. In areas of high quality nesting habitat for the western burrowing owl, surveys would be conducted to determine whether the species is nesting. If an activity could not be relocated from a nesting area, it would be delayed until after young have

fledged to avoid impacts to the species. The Proposed Action would have a minor to moderate long-term negative impact on western burrowing owls.

It is possible that TGPs could be placed in areas where the western burrowing owl would occur. Each proposed TGP site would be assessed prior to implementation for presence of western burrowing owl or their nests. Should use of a proposed TGP site by western burrowing owl be documented, YPG could choose to relocate a proposed TGP, if practicable, to avoid potential impacts to this species or measures would be taken to relocate western burrowing owls from an area prior to establishment of the TGP. If a TGP could not be relocated from a nesting area, it would be delayed until after young have fledged to avoid impacts. Establishment of new TGPs would have a minor long-term negative impact on western burrowing owls.

Desert Rosy Boa. The areas on YPG where the Proposed Action would be implemented do not contain potentially suitable habitat for the desert rosy boa. No impacts to this species would be expected.

No TGPs are proposed for areas where the desert rosy boa could occur. Each proposed TGP site would be assessed prior to implementation for presence of desert rosy boa or their nests. Should use of a proposed TGP site by desert rosy boa be documented, YPG could choose to relocate a proposed TGP, if practicable, to avoid potential impacts to this species or relocate the desert rosy boa from an area proposed as a TGP.

Mohave Fringe-toed Lizard. The Mohave fringe-toed lizard is known to occur on YPG only in a sand dune area in the northern Cibola Region. This area would not be impacted by any activities under the Proposed Action, including placement of TGPs. While potentially suitable habitat for the species does occur in parts of the Laguna Region, the species has not been found in the Laguna Region. The Proposed Action would not affect the Mohave fringe-toed lizard or its habitat.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Depending on the site selected, development of a solar electrical generation facility could contribute to cumulative impacts to this species.

Parish's Onion. Parish's onion occurs in the Kofa NWR near the boundary of YPG and could occur on YPG in areas near the refuge. No impacts from activities under the Proposed Action are likely to occur near the boundary with the Kofa NWR. Expansion of munitions impact areas to or near the boundary with the Kofa NWR would not likely result in munitions being fired into these peripheral areas. Any impacts would likely be from overshoots or errant rounds, which would be very infrequent. While incidental mortality could occur, such events would be rare and would not be expected to have population-level effects. Any impacts would be negligible to minor, but individual impacts would be long-term due to the slow growth rate of these species.

Other Plant Species of Concern. The desert barrel cactus, and straw-top cholla, saguaro cactus, and ocotillo occur scattered throughout YPG and these species would likely be impacted by vegetation clearing associated with creation of TGPs and UAS launch/recovery

areas and land disturbance associated with DZs. These other plant species of concern also could be impacted by other construction activities. Plants would be salvaged where practicable and relocated to other suitable habitat on YPG. There would be minor long-term impacts to these species as a result of the Proposed Action.

It is possible that TGPs could be placed in areas where these plant species occur. Each proposed TGP site would be assessed for the presence of sensitive plant species prior to implementation. Should sensitive plant species be documented at a proposed TGP site, YPG could choose to relocate a proposed TGP, if practicable, to avoid potential impacts or YPG could salvage plants that would be affected and relocate them to other suitable habitat to minimize impacts.

Wild Horses and Burros. Past and ongoing testing and training on YPG do not appear to have negatively impacted wild horse and burro populations. These animals are very mobile and able to relocate from areas where disturbance occurs. These animals would be expected to leave areas where construction is occurring and resume use of any suitable habitat in proximity to construction sites once construction is complete. Any impacts from construction would be temporary and minor. These species use habitat throughout YPG and it is unlikely that use of new or expanded testing and training areas would have no more than minor impacts to wild horses and burros. Testing and training impacts would be long-term.

No TGP sites are proposed at locations where wild horses or burros are known to congregate. It is possible that wild horses and burros could be transient visitors at proposed TGP sites. Vegetation clearing to establish a TGP would not be done if wild horses or burros were present. Work would be delayed until the animals had left the area. Any impacts would be minor and temporary.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a solar renewable energy facility would result in the loss of up to approximately 8,900 ac of desert scrub habitat that may be used by wild horses and burros. This habitat loss, when combined with other incremental habitat loss from activities implemented under the Proposed Action, could result in indirect cumulative impacts to wild horses and burros.

Proposed Action Impacts Summary. TES animal species would be temporarily disturbed by construction activities and associated noise. It is likely that mobile TES species would relocate to similar habitat nearby. After construction is complete, TES animal species could resume use of areas adjacent to the construction or acclimatize to the new habitat occupied at the time of displacement. Most proposed construction would occur in cantonment areas or other previously developed locations where potential TES animal species habitat is limited and human activity is common. Impacts from construction of the Proposed Action would likely be minor and short-term.

Wildfire could impact TES species on YPG through direct mortality, disruption of reproduction, or loss of habitat. Wildfire would likely have a greater impact on TES plant species than on animal species. Exotic invasive plant species can affect wildfire size and

intensity in areas where native vegetation is cleared or where soils are disturbed during activities. Depending on size and intensity, impacts from a particular wildfire could range from minor to severe. Measures that would be implemented to minimize the potential for colonization and growth of exotic invasive plant species are discussed in Sections 3.7 and 3.18.

New TGPs could result in disturbance, including clearing, of up to 50.6 ac of desert scrub habitat in the Cibola Region, but only within isolated areas of up to 2.2 ac each. Clearing would be spread through both space and time, but the slow recovery of desert vegetation would result in vegetation and habitat impacts being long-term. Each proposed TGP site would be assessed for the presence of TES species prior to implementation. Should TES species be documented at a proposed TGP site, YPG could choose to relocate a proposed TGP, if practicable, to avoid potential impacts or YPG could choose to relocate TES species from the area of disturbance. TES plant species would be salvaged and relocated to other suitable habitat to minimize impacts. TES animal species that are not very mobile could be relocated from these areas. If nests or dens are present in a proposed TGP area and the TGP could not be relocated, it would be delayed until after young have fledged/departed to avoid impacts.

Current plans would not result in removal or relocation of water tanks, but should changes occur that would result in water tank removal to implement an activity, any water tanks that would be removed would be replaced by a comparable water tank as close as feasible to the original location.

No low level military aircraft over flights over Kofa NWR are proposed, and the number of UAS flights over Kofa NWR would likely be reduced with implementation of new UAS launch/recovery sites in the Cibola Region.

The cumulative effect of incremental vegetation and habitat loss within YPG from all proposed activities would be moderate. No significant incremental impacts to TES species from vegetation clearing or habitat loss would be expected. Past and reasonably foreseeable future activities also could interact with the effects of the Proposed Action concerning impacts to TES species. Because all impacts to TES species resulting from the Proposed Action would be confined within the boundary of YPG and because there would be no loss of species, it is not expected that TES species impacts of the Proposed Action would interact with off-post actions to affect regional TES species populations.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. Should the project be constructed approximately 51.5 ac of moderately suitable habitat for the Mojave fringe-toed lizard would be lost, but no other impacts to TES species or their habitats would result. There could be minor contributions to cumulative impacts on TES species and their habitats.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to TES species and their habitats through land clearing and site preparation activities associated with construction. The magnitude of disturbance, the occurrence of particular TES species, and the occurrence of potentially suitable habitats for TES species within and near the proposed projects is not known at this time and the potential for cumulative impacts cannot be assessed accurately. However, it is likely that

BLM will require appropriate coordination or consultation with USFWS and AZGFD with regard to the potential to impact TES species. Through this process and subsequent implementation of any conservation measures identified by the regulatory agencies, it is expected that any contribution to cumulative impacts to TES species and their habitats would be minimal.

At present, white-nose syndrome is not known to affect bat populations in the Yuma area (USFWS, 2011d). Should this disease spread to the Southwest, there would be potential for cumulative impacts to cave-dwelling or cave-hibernating bats in the region. Because of the uncertainty associated with the potential spread of this disease, the potential for cumulative impacts associated with white-nose syndrome cannot be evaluated at this time.

3.16.2.4 Mitigation

YPG considered potential impacts to TES species in selecting locations for proposed activities. By avoiding known TES species locations, YPG minimized the potential for impacts to TES species. When implementing construction projects in areas where TES animal species are likely to nest or den, YPG would schedule construction to occur outside the nesting or denning period where practicable.

To minimize the potential for impacts from activities proposed within or adjacent to high quality TES species habitat, surveys would be conducted. If TES species are found in the proposed construction/testing/training area, YPG would first determine whether the proposed activity could be relocated. If relocation of the activity is not practicable, YPG would relocate TES species to nearby suitable habitat if practicable.

If proposed work or activities could not be done outside the nesting/denning periods for TES species, work could be delayed until after young had fledged or departed the area when practicable, or the nest could be sheltered in place using the appropriate protocols through coordination with AZGFD.

YPG would continue to implement the portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008 Appendix I) consistent with the military mission to develop appropriate avoidance and mitigation strategies for proposed activities that would occur in Sonoran desert tortoise habitat. Where earth moving or vegetation clearing would occur adjacent to suitable habitat for the banded Gila monster or Sonoran desert tortoise, simple barriers, such as silt fencing, would be placed to deter entry by these species.

To minimize the potential for impacts to TES species, YPG would limit surface-disturbing activities to the smallest area practicable and would avoid vegetation where feasible.

The USFWS issued a BO regarding activities that may affect the Sonoran pronghorn on Kofa NWR that included three Reasonable and Prudent Measures with implementing Terms and Conditions that YPG will comply with:

1. To comply with Reasonable and Prudent Measure Number 1: YPG shall monitor environmental conditions on the Kofa Range, including weather patterns (e.g., temperature, precipitation, humidity) and status of fuels (e.g., distribution and density of annual vegetation or any other vegetation that is capable of carrying fire across the landscape).

2. To comply with Reasonable and Prudent Measure Number 2a and 2b: YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire department with wildland firefighting capabilities. Additionally, YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire station on the KFR to provide rapid response on the Kofa Range in the event of fire. If the fire department and/or fire station are discontinued at any time in the future, YPG shall notify USFWS-AESO and Kofa NWR, and this Term and Condition may need to be re-evaluated.
   Should YPG detect exceptional fuel conditions that are conducive to carrying fire, then YPG shall increase fire readiness by (1) providing additional fire briefings to test officers to stress the importance of initial fire spotting and early notification, and (2) subject to availability of funds, maintaining fire break infrastructure where such infrastructure is compatible with the military mission (as determined by the Senior Commander) and pronghorn conservation (as determined through coordination with Kofa NWR and USFWS-AESO) and is anticipated to reduce the risk of fire spreading to Kofa NWR (as determined by local firefighting agencies).
3. YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to USFWS-AESO and Kofa NWR as soon as possible. The report (can be in the form of an email) will, at a minimum, include the date(s), acreage, and location(s) of the fire(s), as well as the number of pronghorn in the vicinity of the fire, if known. YPG shall also immediately notify Kofa NWR once aware that a fire has encroached or may encroach onto the refuge.

Conservation measures that are included in the Proposed Action that would be implemented by YPG include:

- Implement the 2014 Final Incident Response Protocol for Sonoran Pronghorn, which includes: (a) notifying USFWS and other appropriate parties as outlined in the protocol as soon as possible if Sonoran pronghorn are observed on YPG that are injured, sick or dead; and (b) coordinating range access for USFWS and AZGFD as appropriate for capture of sick or injured pronghorn as well as recovery of dead individuals if necessary. Coordination will involve adherence to range safety and security procedures.
- Avoid placing activities in proximity to artificial water sources (suitable for Sonoran pronghorn) to the extent that such action is consistent with the military mission.
- YPG will adhere to the terms of the MOU between the Kofa NWR, Imperial NWR, BLM, and YPG which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands.

Areas with wildlife water tanks (discussed in Section 3.20) that may be used by protected species would be avoided to the extent such action is consistent with the military mission. Excluding new or expanded LTAs, which would not affect wildlife water tanks, only eight proposed activities would occur in areas where wildlife water tanks are located. Any wildlife water tanks that would be removed to implement an activity would be replaced by a comparable new water tank prior to removal to maintain the resource in the area. If

removal of a water tank used by wildlife is necessary, a new water tank would be established as close as feasible to the removed water tank.

The INRMP (YPG, 2012b) directs the management of natural resources, including TES species, within YPG. Through continued implementation of the INRMP, YPG uses the best available scientific knowledge and techniques to manage its resources. YPG would update its INRMP, as appropriate, and continue to implement the INRMP, which would benefit TES species.

Management of exotic invasive plants on YPG (see Section 3.18) would benefit wildlife through improved habitat conditions. Measures that would be implemented to avoid or minimize impacts to soils (see Section 3.15), vegetation (see Section 3.18), and water resources (see Section 3.20) would provide indirect benefits to wildlife through improved habitat conditions.

Should the Sonoran desert tortoise be listed under the ESA, consultation with USFWS regarding potential impacts to this species may result in additional mitigation measures that would be implemented to meet requirements established through the ESA Section 7 consultation process. Any such mitigation measures are unknowable at this time, but YPG would comply with requirements established through the ESA consultation process.

YPG will consult with USFWS under Section 7 of the ESA regarding activities with potential to impact Sonoran pronghorn on the Kofa NWR. Should the status of Sonoran pronghorn released in the Kofa NWR be reclassified under the ESA with regard to activities on YPG, YPG would re-evaluate any projects proposed for implementation in portions of the installation where the Sonoran pronghorn might occur and would consult appropriately with USFWS prior to any activities that could impact the species.

3.17 Traffic/Transportation

3.17.1 Existing Conditions

YPG contains approximately 180 miles of paved roads, 820 miles of improved roads (gravel/graded), and numerous unimproved roads (dirt only). There are six airfields and the installation has approximately 2,000 square miles of designated restricted airspace. Installation airspace management is discussed in Section 3.3. This section discusses the YPG transportation system, including a description of routes to the installation, the internal road system, air services, rail transport, and transportation of ordnance.

3.17.1.1 External Transportation Network

YPG is located near the Arizona-California border, 25 miles north of Yuma. It is approximately 180 miles east of San Diego and approximately 185 miles southwest of Phoenix. U.S. Interstate 10 (I-10), which extends between Los Angeles and Phoenix, is just north of the northern boundary of the Cibola Region. I-8, another east/west travel route south of YPG, passes through Yuma and connects San Diego with Tucson.

US 95 is a two-lane paved road designated as a rural principal arterial (YMPO, 2010). US 95 is the principal access route to YPG and runs generally north/south between I-8 and I-10, and US 95 bisects the Laguna Region of YPG and generally lies between the Cibola Region and the Kofa NWR.

Another paved road, County Highway S24/Imperial Dam Road, provides access to the installation from the California Imperial Valley area.

General traffic volume in the region typically is greater during the winter months, coinciding with the influx of a high seasonal visitor population. The Yuma County population typically increases by 80,000 to 100,000 residents during the winter. Traffic volume decreased by about 1 percent during the 2007-2008 time period (YMPO, 2010).

3.17.1.2 Installation Road System

Facilities on YPG are linked by an internal network of maintained paved and gravel roads. Numerous unimproved roads and trails occur throughout more remote areas of the installation. YPG maintains approximately 180 miles of paved roads, 820 miles of improved roads (gravel/graded), and numerous unimproved roads (dirt only). Road access within YPG is limited because of security constraints and potentially hazardous conditions resulting from the test mission. Personnel access is controlled using security registration, checkpoints, Range Control monitoring, guard posting, signs, and fences. Public access restriction signs are placed along public thoroughfares (YPG, 2012b).

The majority of paved roads are in the Laguna Region, serving the MAA, the Yuma Test Area, and LAAF. Roads in the Cibola and Kofa Regions are mostly gravel or unimproved. In 1984, the gravel road system was upgraded with a 6-inch subsurface layer of compacted clay/gravel. The main roadways and well-traveled secondary roads are maintained by private contractors, and maintenance includes grading, watering, and repair from storm damage (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). The description of the road system that follows is organized by geographic region.

Kofa Region. Aberdeen Road, Third Avenue, and Firing Front Road are the primary roads in the Kofa cantonment. All other roads in the Kofa Region are considered secondary. The ACP is on Aberdeen Road, which serves the main cantonment and continues to Firing Front Road. Third Avenue and Firing Front Road provide access to most facilities within the developed part of the Kofa Region.

There are six major gravel roads and two major paved roads within the Kofa Firing Range. All are closed to public access due to the nature of the test area. Gravel roads in this region include Growl, Kofa-Mohawk, Kofa-Wellton, Mortar Range, and Firing Front/Extension Roads. Pole Line Road is paved for approximately 20 miles extending from the Kofa cantonment and is gravel surfaced beyond that. The gravel portion of Pole Line Road is Growl Road and is maintained as necessary, generally following heavy storms that damage the surface. Secondary roads are routinely maintained (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

East Arm is mostly undeveloped and lacks an extensive road system. Some roads near the eastern portion of KFR provide access to munitions impact areas and other installation sites. East Arm is closed to public access.

YPG maintains a designated area, referred to as Safe Haven, for after-hours deliveries of sensitive cargo. Semi-trailers that arrive on YPG outside of normal business hours park at Safe Haven until they can enter YPG and make their delivery.

Cibola Region. The north and south Cibola Ranges consist of large plains surrounded by mountains and are used predominantly for aircraft armament firing and UAS testing. An

extensive network of gravel and unimproved roads allows personnel to reach testing and sensor locations. These roads also are used for range maintenance and to retrieve cargo from DZs. The main roads, all of which are gravel and maintained as required, consist of Middle Mountain, West Cibola Access, Water Tank, Cibola Front, Cheyenne Base, CM 1, Redhill, East Target, West Target, Rocket Alley, MTI (Moving Target Indicator), Target Boundary, Hogan's Highway, Rick Douglas Trail, and Bob Davis Highway. Several other small connecting roads also are maintained according to their use. Cibola Lake Road and Corral Road cross the north Cibola Region in a generally east-west direction. Cibola Lake Road is open to public access, but surrounding land is closed. The remainder of the Cibola Region road system is closed to public access (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

Laguna Region. The Laguna Region includes the MAA, the Yuma Test Area, LAAF, CDH, and the Air Cargo Complex. The eastern edge of the Laguna Region is Firing Front Road, which also defines the western boundary of the Kofa Region. Imperial Dam Road, which transects the Laguna Region, is a public road and provides the primary access to the MAA. Martinez Lake Road is a public road maintained by Yuma County that crosses YPG between Cibola and Laguna Regions (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

After entering the Main Gate ACP at the Laguna Region from Imperial Dam Road, Third Street provides access to most Garrison offices. B Street and Halo Street are the primary access roads to the residential areas, and F Street runs through the center of the support function facilities (such as the Commissary and Gymnasium). First Street, Second Street, and Zavala Avenue provide additional connections to F Street and the support function facilities. Barranca Road connects the MAA with YTC and LAAF and is access-controlled with a card reader gate.

Most of the vehicle mobility courses are in the Laguna Region. Mobility courses are not maintained as part of the transportation system, but are maintained as test areas. Unpaved roads in the Laguna Region are used to transport vehicles to mobility courses for testing (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.17.1.3 Air Transportation

The Yuma International Airport is approximately 26 miles south of YPG and offers air service via commercial carriers. This airport, which shares facilities with MCAS Yuma, is capable of accommodating most commercial and military aircraft. Air access into YPG is restricted to military and government use. Airspace over YPG and surrounding areas is restricted, as discussed in Section 3.3.1.

Within the installation, YPG operates LAAF and the CDH in support of military flight operations and aircraft test projects. LAAF has two 6,000-ft runways (150-ft wide N-S runway and adjacent 100-ft wide E-W runway) serving rotary-wing and fixed-wing aircraft, including C-130, C-5, and C-17 cargo aircraft. LAAF provides 24-hour mission support on an as-needed basis. During peak summer temperatures, aircraft are restricted to 40 percent of their gross maximum weight. LAAF also would support UAS testing once the Federal Aviation Administration finalizes the request for restricted airspace for R-2306-F.

The CDH, located in the Laguna Region, has a 4,400-ft runway and supports rotary-wing aircraft and UAS testing. CDH has four helipads to accommodate aircraft parking. The

facility also includes a taxiway and support facilities. UAVs also are supported at several test runways located in the Cibola Region.

There are no helipads within the Yuma Test Area or KFR. There is a helipad at CDA, two within the Indian Wash Test Area, one near DET/REC targets, one at CM-1, three at IRCC, three at Comanche Flats, one at 4K pad, and one at Cobra Flats Aviation Test Facility. There are three steel-mat helipads within the Cibola Range Complex. In addition, there is one serviceable emergency helipad at the MAA.

3.17.1.4 Railroads

Union Pacific Railroad operates a primary east-west freight corridor known as the Sunset Route just south of YPG. The Sunset Route links the Ports of Los Angeles and Houston and accommodates up to 70 freight trains per day. Passenger rail service is provided by Amtrak (the Sunset Limited combined with the Texas Eagle), with service offered three days each week in each direction. YPG utilizes an off-post location, Blaisdell Siding, for railway transport and evaluation of equipment loads under various railway transport conditions.

3.17.1.5 Transportation of Ordnance and Hazardous Substances

On YPG, industrial processes, routine maintenance activities, testing, and support activities are the primary operations using hazardous substances and generating wastes. Additional hazardous substances present on YPG are lead and asbestos. Munitions and explosive components are transported and stored on YPG and used in testing and training activities.

In accordance with the Hazardous Material Transportation Act (HMTA), tests that require transport and storage of hazardous materials are coordinated with Materiel Test Directorate, Range Safety, and environmental programs prior to transport. YPG has a Hazardous Waste Tracking System for all hazardous wastes generated through industrial activities. Hazardous wastes generated on YPG are managed using the Less Than 90 Day Hazardous Waste Storage Yard, located in the YTC area. Hazardous wastes and expired hazardous substances accumulate at this location until disposal. No wastes from outside YPG are accepted and no treatment or hazardous wastes disposal occurs on YPG (YPG, 2012b).

3.17.2 Environmental Consequences

The following were evaluated to determine potential impacts to traffic and transportation:

- Disruption or improvement of current road, air, and rail transportation patterns and systems.
- Change in the volume or timing of use of road, air, and rail transportation systems.
- Change in the type of vehicles and aircraft utilizing transportation systems.

Traffic impacts could result in indirect impacts to airspace when the use of airspace increases or decreases, and to hazardous materials when transportation of these substances to and on YPG changes. See Section 3.3 for a discussion of potential airspace impacts and Section 3.9 for a discussion of hazardous materials.

3.17.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to traffic and transportation include:

- Minor to Moderate (less than significant)—Activities that would cause short-term interruptions to traffic flow (e.g., closing, rerouting, or constructing roads, changes in daily or peak-hour traffic volume), but would not substantially negatively affect the YPG mission.
- Minor to Moderate (less than significant)—Activities that would permanently alter or increase use of roads or other transportation system(s) within their current capacity or temporarily exceed the capacity of a transportation system.
- Severe (significant)—Activities that would permanently alter traffic or transportation network(s) and activities that would exceed the capacity of a transportation system long-term. Activities that would substantially negatively affect the YPG mission.

3.17.2.2 Impacts of the No Action Alternative

Under the No Action Alternative there would be no change from existing traffic/ transportation conditions on YPG. The Kofa cantonment area and KFR would continue to be inaccessible during and following periods of heavy precipitation due to flooding in Castle Dome Wash. ACPs would not be improved and there could be delays associated with entry to various areas on YPG as a result of inadequate facilities. Improvements to range roads in the Kofa Region would not be made and these roads would continue to deteriorate.

3.17.2.3 Impacts of the Proposed Action/Preferred Alternative

External Roads and Installation Roads. Construction projects would generate additional construction-related vehicle use during working hours on roads on and leading to YPG. Temporary road closures and short-term minor increases in traffic on roads leading to or adjacent to project locations could occur.

There would be yearly fluctuations in the frequency, intensity, or duration of testing and training events (as discussed in Sections 2.1.2 and 2.3.3.8), but these fluctuations would be within the maximum and minimum levels observed historically. Because there would be no change in traffic volume on YPG as a result of the Proposed Action, no impacts to traffic/ transportation would be expected from the increase in testing and training capabilities.

Implementation of multiple projects would result in additional direct impacts to roads on YPG.

- Realignment of Barranca Road in LAAF would result in the temporary disruption of on-post traffic on this road during the realignment.
- Installation of new security gates along Campo Avion Road would result in temporary disruption of on-post traffic during gate installation.
- Construction of ACP improvements would cause temporary disruptions to traffic at CDH, YTC, MAA, and the Kofa cantonment. Upon completion, traffic flow into these areas would be improved.
- Construction of Aberdeen Road flood upgrades would result in temporary disruptions to traffic entering or leaving the Kofa Region. Safety and accessibility of the road during high flow events would be improved following completion of the upgrades.
- Relocation of Safe Haven would involve temporary disruptions from construction of a new road from Aberdeen Road near the ACP. Upon completion, this road would

provide access to the relocated Safe Haven. This project would improve traffic flow into the Kofa Region by improving the process for overnight holding of trucks/cargo that arrive after hours.

- Conversion of Street D near Cox Field into a pedestrian walkway would permanently alter traffic flow in the vicinity. Pedestrian safety would be enhanced by the removal of traffic from the road.
- Improvements to the truck ACP at the Kofa cantonment would cause a temporary disruption of truck traffic during construction and would improve truck traffic flow following construction.

Sections of roads within the YPG cantonment and range areas may have to be temporarily closed during construction and as part of road and ACP improvement activities. During road closures traffic control procedures, including flaggers and posted detours, would minimize any impact on traffic flow. Any impacts would be temporary and minor.

The East Kofa Operations Center (K025) would be staffed and there would be an increase in vehicle traffic on KFR roads. All movement to and from the East Kofa Operations Center would be coordinated through Range Control. This increase in traffic would be minor and would not be expected to adversely affect traffic flow within KFR.

Testing at the DZ that would be created by Project K001, operation of the testing/training complex in the northern portion of the East Arm (K030), and training activities at the East Arm LTA (K021) would result in personnel operating in very remote areas. All movement to and from these locations would be coordinated through Range Control. This increase in traffic would be minor and would not be expected to adversely affect traffic flow within KFR.

Similarly, traffic flow along Aberdeen Road would be disrupted by construction of the flood upgrades. Appropriate traffic control measures would be implemented during construction to minimize the disruption of traffic flow, and may include detours, a temporary crossing of Castle Dome Wash, timing construction to avoid peak traffic volume times, and flaggers. Any impacts would be temporary and minor. Once the flood upgrades are complete, traffic flow to and from the Kofa cantonment and KFR would improve.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Construction-related traffic associated with development of a solar renewable energy facility would travel on US 95. If construction were to coincide with other construction projects in the area, there could be incremental increases in traffic that would create minor temporary cumulative impacts to civilian and military traffic on US 95. No potential for cumulative impacts to traffic would be expected from operation of a solar facility at either site.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. If construction were to coincide with other construction projects in the area, there could be incremental increases in traffic that would create minor temporary cumulative impacts to

regional traffic on US 95. The facility will be operational in 2015 and construction-related traffic impacts would end at that time. No potential for cumulative impacts to traffic would be expected from operation of the project.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to regional traffic. Three of the proposed projects are located on the US 95 corridor and would cause increases in traffic along this corridor during construction, which would negatively contribute to cumulative traffic impacts during the construction period. Because of the interface with a major US highway (US 95), contractors for these projects would be required to use appropriate traffic control procedures to minimize traffic impacts. However, even brief delays associated with construction traffic could incrementally interact with military traffic to create more substantial traffic impediments. However, any such incremental impacts would be temporary and would end when construction was complete.

ADOT has five current or reasonably foreseeable projects in the vicinity of YPG. ADOT would widen and improve the Avenue 3E Bridge in Yuma. In addition, repave a section of Business Route 8 (4th Avenue) from near the California state line to Catalina Drive in Yuma. There are also plans with the Federal Highway Administration, to implement transportation improvements on US 95 from approximately mile marker 42 to mile marker 66, an area that is within or adjacent to the eastern side of the Cibola Region as well as a traffic interchange improvement project at I-8/Araby Road (ADOT, 2013). In addition, a bridge on US 95 over Fortuna Wash is scheduled to be constructed in 2015-2016. No other transportation projects are known or planned that would have potential to interact with the Proposed Action.

The Business Route 8 repaving, Avenue 3E Bridge improvements, I-8/Araby Road traffic interchange improvements, and improvements to SR 195 and US 95 could interact with traffic associated with the Proposed Action. The Proposed Action activities would not affect the overall capacity of the road system to accommodate traffic. Short-term construction projects would result in an increase in traffic volume on off-post roads or YPG roads, but would not generate traffic beyond the capacities of those roads. The impacts would cease upon completion. Road improvements are expected to reduce congestion and improve flow; therefore, they would result in beneficial cumulative impacts once construction is complete.

Air Transportation. Implementation of components of the Proposed Action would result in more efficient air operations on YPG. Expanding the size and location of runways, aircraft parking and shelters, hangars, taxiways, and similar facilities would reduce travel times and allow for greater use of both the diversity and volume of air assets tested.

During construction, activities could be restricted or curtailed and temporary impacts from congestion and delays could occur at locations associated with aircraft launching, landing, fueling, and storage. Upon completion, this work would facilitate the use of aircraft and reduce the potential for conflicts over airspace uses, resulting in a beneficial impact to the testing mission. Impacts would primarily be associated with the following components of the Proposed Action:

- Construct Runway 18/36 extension at LAAF (L002-a).
- Construct helicopter and UAS parking, UAS storage facility, and UAS maintenance hangar, and relocate C-130 CALA at CDH (L007-a-d).

- Construct an aircraft shelter and other infrastructure. Clear a UAS launch/recovery area at Comanche Flats (L014-a).
- Repair landing pad at K-9 Village (L015-a).
- Construct buildings, including two FCS Rotary Class IV hangars, large transient UAS hangar with pad access, and FCS large Class IV hangar and aviation growth hangar to the west of LAAF (L100-b-e).
- Construct USASOC Tactical Hangar at LAAR (L100-f)
- Construct new UAV airfield and hangars, taxiways, UAS flight test area, and other supporting infrastructure at LAAF/MAA (L102-c).
- Construct CASA hangar (L102-d)
- Construct C-130 parking, hot cargo refueling area, and airship hangar at CDH (L103-c-d, L103-f).
- Construct crosswind runway at CDH (L105).
- Construct runway extension, aircraft shelter, and POL storage area, and install hard power/fiber, and communication service, at Phoenix UAS site (C007-a).
- Construct aircraft shelter, aircraft pad, taxiway, graded parking lot, and POL storage area at North UAV Complex (C010 and C046).
- Construct landing pad at CM 1 (C018).
- Construct landing pad at Site 10 Missile Test Facility (C026-b).
- Construct aircraft shelter and infrastructure, including secure building with a ramp, additional buildings, and POL storage area, and clear a launch/recovery area, centered at (-114.356, 33.077) (C021-a-d).
- Construct runway expansion, taxiway, aircraft shelter, building, concrete slab, and infrastructure, and relocate meteorological tower centered at (-114.36, 33.074) (C022-a-e).
- Construct aircraft shelter and infrastructure, including a POL storage area, and clear a launch/recovery area, centered at (-114.363, 33.051) (C023-a-d).
- Construct runway, taxiway, aircraft shelter, and building, and install hard power/fiber, adjacent to existing helicopter pad at IRCC (C025-a-b).
- Construct aircraft shelter and infrastructure, including a POL storage area, and clear a launch/recovery area east of Rocket Alley (C030-a).
- Construct aircraft shelter and infrastructure, including a POL storage area, and clear a launch/recovery area at C-17 (C033-a).
- Construct aircraft shelter and infrastructure, including a POL storage area, and clear a launch/recovery area at SWTR (K004-a).
- Install launch/recovery systems and a GCS trailer at Tower 48 (K006).
- Construct runway and infrastructure west of S-15 Command and Control Shelter (K007-a-b).

- Construct runway, taxiway, aircraft shelter, multiple buildings, POL storage area, and infrastructure, and clear a launch/recovery area at the East Arm (K030).

Demands for use of restricted airspace throughout the Cibola Region for manned and unmanned flight operations would fluctuate depending on annual needs, but the levels of use would be expected to be within the historical use of this airspace. Airspace management is discussed in Section 3.3. The amount of restricted airspace would not increase. No changes to airspace management, beyond those previously analyzed under NEPA, would occur under the Proposed Action. There would be no potential for direct or indirect impacts to private air transportation.

No significant cumulative impacts would be expected from construction and repair of aircraft facilities on YPG. Expansion of testing would result in a greater use of airspace, which could limit the timing and availability of airspace for future use.

Railroads. The Proposed Action does not involve railroads. No direct or indirect impacts would occur.

Ordnance and Hazardous Substances. The Proposed Action would in increased transport of ordnance and hazardous substances to and within YPG to reach new testing and training areas. Impacts associated with the transport, storage, and use of ordnance and hazardous substances are discussed in Section 3.9.

3.17.2.4 Mitigation

YPG would implement mitigation to minimize the potential adverse impacts to traffic from temporary road closures. During road closures in the Cibola Region, traffic control procedures, including flaggers and posted detours, would be implemented. During construction of the Aberdeen Road flood upgrades, appropriate traffic control measures would be implemented during construction to minimize the disruption of traffic flow, and may include detours, a temporary crossing of Castle Dome Wash, timing construction to avoid peak traffic volume times, and flaggers.

3.18 Vegetation

3.18.1 Existing Conditions

North of Mexico, the Sonoran Desert consists of two subregions: the Arizona Upland and the Lower Colorado River Valley (Colorado Desert). Each of these subregions extends southward into Mexico, where four additional subregions of the Sonoran Desert occur. The Sonoran Desert is characterized by two wet seasons, with most precipitation typically occurring in winter (December and January) and a second wet period in the summer monsoon period (July through mid-September). Rainfall in the Sonoran Desert typically ranges from 3 to 15 inches per year, but there can be drier years or localities. The Arizona Upland is the eastern part of the U.S. Sonoran Desert and it receives more precipitation than the Colorado Desert subregion. In the Arizona Upland, precipitation totals are nearly equal between winter and summer. The Colorado Desert is the western part of the Sonoran Desert in the U.S. and typically is drier and hotter than the Arizona Upland, with a greater disparity between summer and winter precipitation (Spellenberg, 2003; Phillips and Comus, 2000). YPG is in the Colorado Desert.

In the Colorado Desert of Arizona, trees are uncommon and limited to areas where water flows. Columnar cacti, such as saguaro, are less common than in the Arizona Upland due to less moisture availability, and grow more widely scattered and smaller than in the Arizona Upland subregion. Ironwood (*Olneya tesota*), smoketree (*Psorothamnus spinosus*), palo verdes (*Parkinsonia spp.*), and desert willow (*Chilopsis linearis*) are relatively common along washes (Spellenberg, 2003). Bajadas are dominated by creosote bush (*Larrea tridentata*), which also may occur in washes, and white bursage (*Ambrosia dumosa*) or big galleta (*Pleuraphis rigida*) where grasses are a dominant component. Ocotillo (*Fouquieria splendens*), cholla (*Cylindropuntia* spp.), prickly pear (*Opuntia* spp.), and barrel cacti (*Ferrocactus* spp.) also are obvious components of the vegetation (Spellenberg, 2003).

Mesquite bosques, or woodlands, consist of mainly mesquite trees and a diverse understory, which provides habitat for many species. Bosques in the Southwest typically occur as narrow strips along riparian zones, however on YPG they occur in isolated patches varying in size and are mostly not associated with defined drainages. A survey of bosques on YPG was completed in 2009 (AZGFD, 2011e) and determined that bosques may vary in size from 0.5 ac to over 40 ac in size on YPG.

Vegetation on YPG is adapted to the hot, arid environment, where summer daytime temperatures can exceed 120 degrees Fahrenheit (Spellenberg, 2003). Open plains are sparsely covered with drought-tolerant shrubs, grasses, and cacti. The most common plant species on YPG is creosote bush, which occurs over large areas or mixed with combinations of ocotillo, bursage (*Ambrosia deltoidea*), teddy bear cholla cactus (*Cylindropuntia bigelovii*), and foothills palo verde trees (*Parkinsonia microphylla*) depending on landscape position.

Areas of sandy soil support big galleta communities that include foothills palo verde, honey mesquite (*Prosopis glandulosa*), or bursage. The hillsides of YPG typically support brittlebush (*Encelia farinosa*) and other plants including various cacti (such as saguaro, cholla, and prickly pear). Saguaro cacti on YPG are less numerous and more scattered than in the eastern Sonoran Desert. The foothills and mountainous areas typically support a mixed shrub community. The desert washes typically support a variety of woody plants, including palo verde, ironwood, smoketree, mesquite, and catclaw acacia (*Senegalia greggii*). Larger washes support bosques of smoketree, mesquite, ironwood, and palo verde. The vegetation characteristics of the highest mountain slopes of YPG are similar to those of the Arizona Upland Subdivision of the Sonoran Desert; these YPG slopes sustain sparse populations of saguaro and other cacti, agaves (*Agave deserti*), beargrass (*Nolina microcarpa*), and palo verde (YPG, 2012b).

At YPG, vegetation density noticeably decreases downstream of bajadas heavily impacted by military training, testing, and infrastructure. Bajadas are typically covered with well-developed desert pavement (see Section 3.15 for a discussion of desert pavement). Vegetation densities on YPG are also decreasing in first order rills downstream from unimpacted areas, indicating that natural desert conditions may be changing. Therefore, changes in desert vegetation are likely due to natural and anthropogenic forces (McDonald et al., 2004).

On YPG precipitation rarely exceeds the amount required to infiltrate below surface horizons, and runoff from adjacent piedmonts, especially along channels, is needed to augment the moisture plants receive from other sources. The Av horizon of desert pavement is fine-textured with high clay content, which results in surface water runoff rather than

infiltration. However, the underlying Bw horizon is gravel-rich and, when the Av horizon is disturbed, surface water infiltrates through the lower horizons. Therefore, military land use activities that disrupt the Av horizon of desert pavement can change the frequency or amount of surface flow along low-order channels and directly impact the ecological condition of vegetation along channels (McDonald et al., 2004).

Non-native and invasive species occur on YPG. The main non-native plants of concern are considered exotic invasive plants and include buffelgrass, Athel tamarisk (*Tamarix aphylla),* salt cedar (*Tamarix* spp. and hybrids), Arabian grass (*Schismus arabicus*), Mediterranean grass, and Sahara mustard. Although buffelgrass only occurs in a few scattered locations, its potential for spread in favorable rainfall years and for carrying ecosystem-changing fires make it YPG's current weed of greatest concern (Merrill, 2012, personal communication). These invasive grasses and Sahara mustard increase fuel loads and carry fire well, resulting in larger and more intense wildfires. Sahara mustard skeletons blow in the wind and may pile up along fence lines in masses up to 10 ft high. Sahara mustard is considered the most detrimental non-native species on YPG due to its impact on wildlife, native plants, and potentially the mission of YPG (YPG, 2012b). Many native vegetation species are poorly adapted to fire and the intense wildfires can result in drastic changes to the vegetation. Puncturevine (*Tribulus terrestris*) is actively controlled in cantonment areas, but this species has not spread outside of developed portions of YPG.

At present, YPG implements an invasive species management program. A Draft Invasive Species Management Plan has been developed and is expected to be finalized in 2013. A program to establish exclusion, monitoring, and eradication of all exotic invasive plants on YPG is in the beginning stages by the Environmental Sciences/Natural Resource Management Department as part of the ongoing INRMP implementation (YPG, 2012b).

3.18.2 Environmental Consequences

The following were evaluated to determine potential impacts to vegetation:

- Permanent loss of vegetation cover due to direct impacts from construction clearing and creation of impervious surfaces such as buildings, roads, or parking areas.
- Temporary direct disturbance to vegetation such as removal of vegetation to accommodate construction staging areas where vegetation is capable of becoming restored to a natural community.
- Direct disturbance of vegetation for testing or test support actions.
- Direct disturbance of vegetation as a result of trampling during dismounted maneuvers, off-road vehicle operation, or operation of test equipment.
- Indirect displacement of native vegetation through invasion by exotic invasive plant species following soil or vegetation-disturbing activities.
- Indirect impacts from accelerated soil erosion as a result of exposed or compacted soils.
- Beneficial impacts that control exotic species or eliminate or reduce the potential for vegetation disturbance during test operations.

Indirect impacts to GHGs (Section 3.2), fire management (Section 3.7), soils (Section 3.15), surface water quality (Section 3.20), and wildlife (Section 3.21) can result when vegetation is disturbed. These are discussed in their respective sections.

3.18.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to vegetation include:

- Minor to Moderate (less than significant)—Activities that would alter the local or regional vegetation patterns; includes consideration of vegetation as wildlife habitat.
- Severe (significant)—Activities that would allow the propagation of non-native plant species.
- Severe (significant)—Activities that would eliminate regional native plant species.
- Severe (significant)—Activities that would segment vegetation such that regional wildlife species are jeopardized.
- Severe (significant)—Activities that would eliminate a vegetation type from YPG or the region.

3.18.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, continuing mission operations would result in impacts to vegetation, as testing and training activities continue in currently authorized areas at currently authorized levels. Vegetation impacts could result from off-road vehicle and equipment activity and maneuvers, dismounted maneuvers, set-up for test operations, and live-fire exercises. Impacts of these activities have been previously evaluated under NEPA in the assessments listed in Section 2.3.2.

The evaluations and analyses presented in the NEPA documents listed in Section 2.3.2 provide an assessment of the potential impacts to vegetation that would result from the No Action Alternative, with testing and training continued at current levels and no new construction. The analyses presented in the NEPA documents listed above are incorporated into this FPEIS by reference.

YPG has prioritized detection and eradication of buffelgrass through its INRMP. This exotic invasive annual grass has been specifically targeted because of its role in carrying wildfire through arid environments. Known occurrences are treated and monitored for regrowth and new occurrences are sought through various detection means. These efforts will benefit native grasses and forbs through elimination of an exotic species that is a superior competitor and will benefit native cacti and woody vegetation through removal of this potential fuel load source.

Range sustainability on YPG is managed through the ITAM program, which is implemented to maintain conditions that realistically simulate conditions in other desert regions for operational testing and training activities. Range management and rehabilitation prevent deterioration of conditions that could adversely affect operational testing and training if allowed to proceed unchecked.

Beneficial impacts associated with replacement of turf with xeriscaping would not occur under the No Action Alternative.

3.18.2.3 Impacts of the Proposed Action/Preferred Alternative

The analysis of potential impacts to vegetation as a result of implementing the Proposed Action is based on the difference in impacts that would occur under the Proposed Action compared to those that would occur under the No Action Alternative. Where there would be a difference ion impacts between the Proposed Action and the Preferred Alternative, the difference is discussed. Potential impacts to vegetation could occur from the following activities:

- Building/facility construction
- Utility infrastructure installation (electrical transmission/telecommunications lines)
- Off-road vehicle and equipment testing
- Dismounted maneuver activities
- Munitions testing
- Live-fire training and operational testing
- DZ establishment
- TGPs establishment
- Wildfire

Exotic invasive plant species typically consume more water than native species. The potential for exotic invasive plant species to depress shallow groundwater tables is discussed in Section 3.20. The following sections discuss the potential impacts to vegetation that may result in each of the three areas on YPG.

There would be yearly fluctuations in the frequency, intensity, or duration of testing and training events (as discussed in Sections 2.1.2 and 2.3.3.8), but these fluctuations would be within the maximum and minimum levels observed historically. Because there would be no increase in the amount of testing and training conducted on YPG, no impacts to vegetation would be expected under the Proposed Action as a result of frequency, intensity, or duration of testing and training events. Impacts to vegetation would result from the establishment of new testing and training activities, as discussed below.

Laguna Region. Within the Laguna Region, new building/facility construction, airfield runway/taxiway construction/improvement, roadway improvements, and ACP improvements would be the primary activities that would cause impacts to vegetation. Limited additions to utility infrastructure would occur in the Laguna Region and these would have minor impacts to vegetation. Expanded dismounted maneuver areas and new vehicle test courses are proposed for parts of the Laguna Region, and the subsequent use of these areas could impact vegetation. A new DZ is proposed for the Laguna Region and would result in vegetation clearing.

Most proposed new building and facility construction would occur in the Laguna Region. Site preparation for construction of buildings would eliminate all vegetation from the area of construction. Additional impervious areas would be created through construction, with the potential for increased stormwater runoff. Scour from erosion as a result of increased runoff could result in loss of vegetation along flow paths.

Proposed construction activities would result in clearing of approximately 350 ac of desert habitat in the Laguna Region, with all vegetation removed from this acreage as a result. These activities would not result in elimination of any native species or specific habitat types from YPG because, although the impacts would be permanent and moderate due to

the area of lost vegetation relative to the size of YPG. Approximately 125 ac of new impervious area would be created. Cleared areas converted to impervious area would have no potential for contributing to the spread of exotic invasive plants on YPG. The remaining approximately 225 ac of cleared desert would have the potential for colonization by exotic invasive species. Most of this area would be within a proposed UAS launch/recovery area (approximately 160 ac) and the remainder would be primarily associated with various range road improvements. This acreage would not be managed through the ITAM program because it is not associated with training areas. Cleared areas converted to impervious area would have no potential for contributing to the spread of exotic invasive plants on YPG. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas.

There would be potential for increased runoff from the approximately 125 ac of new impervious area. Stormwater controls are discussed in Section 3.20. Without appropriate control measures, increased runoff could result in increased erosion, which could then remove native vegetation through scour. The potential loss of vegetation through scour from erosive water flow could extend off-post and affect vegetation on adjacent downstream properties. During construction, BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils from stormwater runoff. See Section 3.15 for a detailed discussion of construction BMPs for soil stability.

Electrical transmission/telecommunications lines would be installed at seven locations in the Laguna Region, with the potential for minor vegetation impacts along the length of new utility line at each of the sites. For analysis purposes, it is assumed that utility line extensions would be an equal mix of above-ground and below-ground infrastructure, with vegetation impacts primarily limited to areas where below-ground installation would occur. Vegetation impacts from aerial lines would be limited to the footprint of the support poles. Below-ground infrastructure would result in complete disturbance to vegetation within the utility corridor. Approximately 0.6 ac would be disturbed from installation of utility lines in the Laguna Region. While the disturbed area would be stabilized to minimize the potential for erosion or spread of exotic invasive plant species, the impacts would be long-term because desert vegetation recovers slowly following disturbance, due to the harsh environment and the limited availability of water. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas. Installation of utility lines would not result in any species being eliminated from YPG and no identified habitat types would be lost. Impacts from installation of utility lines would be minor.

Dismounted maneuver activities would occur over a larger area near West LA and K-9 Village. The LTA at West LA would be expanded by 6,520 ac to connect with K-9 Village. Battalion-level dismounted maneuvers simulating deployment in open desert to achieve an urban target in either the West LA or K-9 Village MOUT areas would be conducted. The LTA at Muggins/Middle Mountain (L030) would be expanded up to approximately 6,331 ac under the Preferred Alternative (reduced from 16,640 ac as originally proposed). Additional expanded dismounted maneuver areas would be established in the Laguna Region, which would cover approximately 1,970 ac. No direct impacts to vegetation would result from this

activity. Subsequent use of the area for dismounted maneuvers during operational testing and training activities would have the potential to impact vegetation from trampling by Soldiers. In addition, new vehicle test courses would be established within approximately 9,040 ac in the Laguna Region. Discernible trails would be established, minimizing the potential for soil compaction and for exposing soils outside the boundary of the vehicle test courses. However, when active vehicle testing is not ongoing, these test courses may be used to conduct blended testing or dismounted maneuver training. Trampling of vegetation could occur, but most troop movement would be dispersed to avoid inadvertent creation of discernible trails and would avoid woody desert plants. This would minimize soil compaction and the potential for damage to vegetation. Limited off-road vehicle operation may occur in conjunction with dismounted maneuver activities and initial troop deployment. Any impact from off-road vehicle operation would be localized and minor. Impacts to vegetation from dismounted maneuver training activities would be expected to be negligible with continued implementation of the ITAM program.

Wildfire adversely affects desert vegetation. Within the Laguna Region, wildfires are suppressed and do not substantially alter desert vegetation. Because no change to the wildfire management program would occur under the Proposed Action, no impacts to vegetation would be expected as a result of wildfire in the Laguna Region. There is potential for increased colonization by exotic invasive plant species if disturbed areas are not managed, which could result in increased fuel loads and greater potential for severe wildfire. This is discussed further in Section 3.7. In addition, implementation of INRMP measures that guide detection and control of exotic invasive plant species would reduce the potential for increased fuel loads and associated increased wildfire risk from these species.

Creation of a DZ would result in disturbance to approximately 45 ac in the Laguna Region. The DZ would not be entirely cleared of vegetation, but disturbance would occur during testing and training activities. Disturbance to vegetation would generally be caused from the dropping of objects directly onto the ground by parachute and from payload retrieval by vehicles. Due to the slow growth of desert vegetation, impacts would be long-term. No species would be lost from YPG and no specific habitat type would be eliminated. The long-term impacts to vegetation from testing and training activities in the DZ would be moderate. There would be increased potential for invasion by herbaceous exotic invasive species as a result of repeated testing and training activities. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas.

No munitions testing occurs in the Laguna Region and no TGPs would be established in this region. No new off-road vehicle testing in the Laguna Region would occur under the Proposed Action. These activities would not affect vegetation in the Laguna Region.

There would be potential for interaction of activities conducted in the Laguna Region under the Proposed Action and activities proposed in other areas of YPG with regard to vegetation. Because no loss of species or habitat types would result, any incremental contribution to loss of native desert vegetation that would result from implementation of the Proposed Action in the Laguna Region would not be significant. The YPG INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects.

The proposed Cox Field improvements would have a minor beneficial impact on native vegetation. Approximately 8 ac of irrigated turf grass would be replaced with xeriscaping, which would feature native desert vegetation.

Cibola Region. The amount of proposed new building/facility construction in the Cibola Region is much less than that proposed for the Laguna Region. Most of the proposed building/facility construction for the Cibola Region is new construction rather than replacement of existing structures and there would be potential for disturbance to vegetation from construction activities. Numerous airfields across the Cibola Region are proposed for runway expansion and new supporting infrastructure, with the potential for impacts to vegetation at each site. Multiple areas are proposed for use as munitions impact areas, either new areas or expansions of existing munitions impact areas with potential for long-term impacts to vegetation in these areas. Utility infrastructure extensions would occur throughout the Cibola Region and could have moderate impacts to vegetation. New dismounted maneuver areas are proposed for parts of the Cibola Region, and the subsequent use of these areas could impact vegetation. New DZs are proposed for the Cibola Region, and 23 new TGPs would be established in the Cibola Region to support testing activities. Both of these activities would affect vegetation.

Proposed construction activities would result in clearing of approximately 740 ac of desert habitat in the Cibola Region, with all vegetation removed from this acreage as a result. These activities would not result in elimination of any native species or specific habitat types from YPG because, although the impacts would be permanent and moderate due to the area of lost vegetation relative to the size of YPG. New construction, including paving for runways and airfield support pads, would convert approximately 130 ac of the Cibola Region to impervious surfaces. The remaining approximately 610 ac of cleared desert would have the potential for colonization by exotic invasive species. Most of this area would be within a proposed UAS launch/recovery area (approximately 530 ac) and the remainder would be primarily associated with TGPs and construction of the forward staging area. The permanent impacts to vegetation from construction and paving in the Cibola Region would be moderate. Once construction is complete, no further impacts to vegetation in the Cibola Region would result from operations (testing and training) that would use the new facilities. Cleared areas converted to impervious area would have no potential for contributing to the spread of exotic invasive plants on YPG. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas.

There would be potential for localized increased runoff from the approximately 130 ac of new impervious area. Stormwater controls are discussed in Section 3.20. Without appropriate control measures, increased runoff could result in increased erosion, which could then remove native vegetation through scour. Depending on the location of the new impervious area, the potential loss of vegetation through scour from erosive water flow could extend off-post and affect vegetation on adjacent downstream properties. During construction, BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils from stormwater runoff. See Section 3.15 for a detailed discussion of impacts to soils and construction BMPs for soil stability.

Expansion or creation of DZs would result in disturbance to approximately 980 ac in the Cibola Region. DZs would not be entirely cleared of vegetation, but disturbance would occur during testing and training activities. Disturbance to vegetation would generally be caused by dropping of objects directly on the ground by parachute and from payload retrieval by vehicles. Due to the slow growth of desert vegetation impacts would be long-term. No species would be lost from YPG and no specific habitat type would be eliminated. The long-term impacts to vegetation from testing and training activities in DZs would be moderate. There would be increased potential for invasion by herbaceous exotic invasive species as a result of repeated testing and training activities. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas.

Electrical transmission and telecommunications lines would be installed to 20 locations in the Cibola Region. For analysis purposes, it is assumed that utility line extensions would be an equal mix of above-ground and below-ground infrastructure, with vegetation impacts primarily limited to areas where below-ground installation would occur. Vegetation impacts from aerial lines would be limited to the footprint of the support poles. Approximately 16 ac of vegetation would be disturbed from installation of new utility lines in the Cibola Region. Because desert vegetation recovers slowly, due to the harsh environment and the limited availability of water, any impacts from construction of utility lines would be long-term. Installation of utility lines would not result in elimination of any species from YPG and no identified habitat types would be lost. Impacts from installation of utility lines would be moderate. Areas disturbed during installation of new utility lines would be subject to colonization by exotic invasive plant species. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas.

New and expanded dismounted maneuver areas would be established in the Cibola Region, which would cover approximately 66,400 ac. No direct impacts to vegetation would result from this activity. Subsequent use of the area for dismounted maneuver during operational testing and training activities would have potential to impact vegetation from trampling by Soldiers. Most troop movement would be dispersed to avoid inadvertent creation of discernible trails and would avoid woody desert plants. This would minimize soil compaction and potential for damage to vegetation. Limited off-road vehicle operation may occur in conjunction with dismounted maneuver activities and initial troop deployment. Any impacts from off-road vehicle operation would be localized and minor. Impacts to vegetation from dismounted maneuver training activities would be expected to be negligible with continued implementation of the ITAM program.

In addition, new vehicle test courses would be established within an area up to 4,644 ac in the Cibola Region. Discernible trails would be established, minimizing the potential for soil compaction and impacts to vegetation outside of the vehicle test courses. However, when vehicle testing is not ongoing, the area may be used to perform blended testing or dismounted maneuver training within the vehicle test course boundary.

Twenty-three new TGPs would be established to meet identified testing and training needs in the Cibola Region. Each TGP would cover an area of up to 2.2 ac. Shrubs and other

woody vegetation would be cleared at ground level with minimal soil disturbance to eliminate potential interfere with proposed testing and observations. Up to 50.6 ac of vegetation in the Cibola Region would be cleared. No species loss would be expected from clearing for TGPs. If a TGP would be in an area of native vegetation, the impact could range from minor (limited woody vegetation) to moderate (area predominantly desert shrub vegetation). Because desert vegetation recovers slowly, due to the harsh environment and the limited availability of water, any impacts from establishment of TGPs would be long-term. No regional cumulative impacts to vegetation beyond the boundary of YPG would be expected. There could be increased potential for invasion by herbaceous exotic invasive species as a result of clearing vegetation for TGPs. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas. Clearing for TGPs also could be beneficial, if a selected TGP would be within an area dominated by exotic invasive vegetation. Clearing of such an area would be a minor benefit to desert vegetation. Impacts from vegetation clearing for TGPs could reach approximately 125 ac across YPG within the timeframe for vegetative recovery of a given TGP site. This would constitute a minor cumulative impact to desert vegetation on YPG, but no regional cumulative impacts to vegetation beyond the boundary of YPG would be expected.

There are multiple locations within the Cibola Region where new munitions impact areas would be established or where existing munitions impact areas would be expanded. Approximately 16,300 ac would be converted to munitions impact areas. Of this total, approximately 16,040 ac would receive both inert and explosive fire and approximately 250 ac at JERC I, II, and III would be for inert fire only. There would be no direct impacts to vegetation in these areas from creation of the munitions impact areas. After munitions impact areas are established, there would be the potential for episodic disturbance to vegetation from munitions testing and operational testing or training activities that would fire into these areas. Munitions impact areas that receive only inert fire would be less impacted, as direct impacts to vegetation would be negligible. There would be potential for long-term indirect changes to vegetation as a result of altered growing conditions should inert munitions degrade and release metals or other constituents of concern to the soil.

Wildfire adversely affects desert vegetation, and these impacts are long-term. Within the Cibola Region, most wildfires are allowed to burn due to the risk of firefighters encountering UXO while working to control a fire. Because no change to the wildfire management program would occur under the Proposed Action, no direct change in the potential for vegetation damage from wildfire in the Cibola Region would result. The potential exists for increased colonization by exotic invasive plant species if disturbed areas are not managed, which could result in increased fuel loads and greater potential for severe wildfire. This is discussed further in Section 3.7. In addition, implementation of INRMP measures that guide detection and control of exotic invasive plant species would reduce the potential for increased fuel loads and associated increased wildfire risk from these species.

Use of the new or expanded munitions impact areas could result in increased potential for wildfire to start, which could result in increased risk to vegetation. Clearing for TGPs and airfield/UAS support would create areas with little or no fuel load and would likely reduce the potential for wildfire to spread in the Cibola Region and could result in a long-term benefit to vegetation.

There would be potential for interaction of activities conducted in the Cibola Region under the Proposed Action and activities proposed in other areas of YPG with regard to vegetation. Because no loss of species or habitat types would result, any incremental contribution to loss of native desert vegetation that would result from implementation of the Proposed Action in the Cibola Region would not be significant. The YPG INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects.

Kofa Region. New building/facility construction in the Kofa Region is primarily limited to new or replacement structures at fixed GPs, where previous clearing would limit the potential for impacts to vegetation, and at new training complexes. Utility infrastructure would be extended to six new locations in the Kofa Region and could impact vegetation.

Proposed construction activities would result in clearing of approximately 215 ac of desert habitat in the Kofa Region, with all vegetation removed from this acreage as a result. These activities would not result in elimination of any native species or specific habitat types from YPG because, although the impacts would be permanent and moderate due to the area of lost vegetation relative to the size of YPG. New construction, including paving, creation of a UAS launch/recovery area near SWTR, the East Kofa Operations Center, and the training complex in the northern part of East Arm, would convert approximately 54 ac of the Kofa Region to impervious surfaces. Cleared areas converted to impervious area would have no potential for contributing to the spread of exotic invasive plants on YPG. The remaining approximately 160 ac cleared in the Kofa Region would have potential for colonization by exotic invasive species. Most of this area would be within a proposed UAS launch/recovery area (approximately 156 ac). This acreage would not be managed through the ITAM program because it is not associated with training areas. YPG would modify its INRMP to address invasive plant species control in the newly disturbed areas. Absent future management to control exotic invasive plant species, the impacts to vegetation from displacement of native species could be significant. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of exotic invasive plants into disturbed areas.

Approximately 54 ac of new impervious area would be created in the Kofa Region. All vegetation would be removed from these areas. No species would be lost from YPG and no specific habitat type would be eliminated. The permanent impacts to vegetation from construction and paving in the Kofa Region would be moderate. Because these sites would be covered with impervious surfaces, there would be no potential for exotic invasive plants to colonize the new impervious areas. Once construction is complete, no further impacts to vegetation in the Kofa Region would result from operations (testing and training) that would use the new facilities.

There would be potential for localized increased runoff from the approximately 54 ac of new impervious area in the Kofa Region. Stormwater controls are discussed in Section 3.20. Without appropriate control measures, increased runoff could result in increased erosion, which could then remove native vegetation through scour. Depending on the location of the new impervious area, the potential loss of vegetation through scour from erosive water flow could extend off-post and affect vegetation on adjacent downstream properties. During construction, BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils

from stormwater runoff. See Section 3.15 for a detailed discussion of construction BMPs for soil stability.

Electrical transmission and telecommunications lines would be installed to four locations in the Kofa Region. For analysis purposes, it is assumed that utility line extensions would be an equal mix of above-ground and below-ground infrastructure, with vegetation impacts primarily limited to areas where below-ground installation would occur. Vegetation impacts from aerial lines would be limited to the footprint of the support poles. Approximately 2.7 ac of vegetation would be disturbed from installation of new utility lines in the Kofa Region. Because desert vegetation recovers slowly, due to the harsh environment and the limited availability of water, any impacts from construction of utility lines would be long-term. Installation of utility lines would not result in elimination of any species from YPG and no identified habitat types would be lost. Impacts from installation of utility lines would be moderate and, should any utility lines be installed as aerial lines, the impacts to vegetation would be reduced. Areas disturbed during installation of new utility lines would be subject to colonization by exotic invasive plant species. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas.

New dismounted maneuver areas would be established in the Kofa Region, which would cover approximately 51,354 ac with implementation of the Preferred Alternative, as selection of a reduced area for K026 would reduce proposed LTA acreage in the Kofa Region by 1,826 ac. No direct impacts to vegetation would result from this activity. Subsequent use of the area for dismounted maneuvers during operational testing and training activities would have the potential to impact vegetation from trampling by Soldiers. Most troop movement would be dispersed to avoid inadvertent creation of discernible trails and would avoid woody desert plants. This would minimize soil compaction and potential for damage to vegetation. Limited off-road vehicle operation may occur in conjunction with dismounted maneuver activities and initial troop deployment. Any impacts from off-road vehicle operation would be localized and minor. Impacts to vegetation from dismounted maneuver training activities would be expected to be negligible with continued implementation of the ITAM program.

Expansion or creation of DZs would result in disturbance to approximately 305 ac in the Kofa Region. DZs would not be entirely cleared of vegetation, but disturbance would occur during testing and training activities. Disturbance to vegetation would generally be caused by dropping of objects directly on the ground by parachute and from payload retrieval by vehicles. Due to the slow growth of desert vegetation impacts would be long-term. No species would be lost from YPG and no specific habitat type would be eliminated. The long-term impacts to vegetation from testing and training activities would be moderate. There would be increased potential for invasion by herbaceous exotic invasive species as a result of repeated testing and training activities. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas.

There are multiple locations within the Kofa Region where new munitions impact areas would be established or where existing munitions impact areas would be expanded. All of the new and expanded munitions impact areas (26,824 ac under the Preferred Alternative)

in the Kofa Region would be used for inert and explosive fire. There would be no direct impacts to vegetation in these areas from the creation of the munitions impact areas. After munitions impact areas are established, there would be the potential for episodic disturbance to vegetation from munitions testing and operational testing or training activities that would fire into these areas. Munitions impact areas that receive only inert fire would be less impacted, as direct impacts to vegetation would be negligible. There would be potential for long-term indirect changes to vegetation as a result of altered growing conditions should inert munitions degrade and release metals or other constituents of concern to the soil.

Under the Proposed Action, there would be no change to off-road vehicle operation in the Kofa Region. No impacts to vegetation in the Kofa Region, beyond those already authorized and occurring under the No Action Alternative, would result from these activities.

Wildfire adversely affects desert vegetation. Within the Kofa Region, most wildfires are allowed to burn due to the risk of firefighters encountering UXO while working to control a fire. Wildfires usually cause long-term damage to desert vegetation. Because no change to the wildfire management program would occur under the Proposed Action, no direct change in the potential for vegetation damage from wildfire in the Kofa Region would result. The potential exists for increased colonization by exotic invasive plant species if disturbed areas are not managed, which could result in increased fuel loads and greater potential for severe wildfire. This is discussed further in Section 3.7. In addition, implementation of INRMP measures that guide detection and control of exotic invasive plant species would reduce the potential for increased fuel loads and associated increased wildfire risk from these species.

Use of the new or expanded munitions impact areas could result in increased potential for wildfire to start, which could result in increased risk to vegetation. Clearing for TGPs and airfield/UAS support would create areas with little or no fuel load and would likely reduce the potential for wildfire to spread in these areas, which could result in a long-term benefit to vegetation from reduced wildfire spread.

There would be potential for interaction of activities conducted in the Kofa Region under the Proposed Action with activities proposed in other areas of YPG with regard to vegetation. Because no loss of species or habitat types would result, any incremental contribution to loss of native desert vegetation that would result from implementation of the Proposed Action in the Kofa Region would not be significant. Implementation of the YPG INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a commercial-scale renewable solar electrical energy generation facility could result in vegetation clearing on up to 8,900 ac, which could incrementally add to other projects on YPG that remove vegetation and lead to minor cumulative impacts to vegetation.

Impacts Summary. Impacts to vegetation on YPG typically either are permanent, such as where construction or paving eliminates vegetation from an area, or long-term because the harsh environment and the limited availability of water in the desert result in very slow recovery of vegetation following disturbance. There would be unavoidable impacts to vegetation under the Proposed Action. Approximately 2,175 ac of desert vegetation would experience long-term impacts from clearing of desert scrub vegetation for UAS launch/recovery areas and disturbance to vegetation from DZ activities. Another approximately 310 ac would be lost to construction and paving, and up to approximately 204,470 ac would experience intermittent long-term impacts from use as munitions impact areas, vehicle test courses, or dismounted maneuver areas.

Installation of utility infrastructure would affect approximately 20 ac of vegetation. These impacts would be long-term because of the very slow recovery of desert vegetation following disturbance.

All areas of exposed, disturbed soils would be subject to invasion by exotic invasive plant species. Construction BMPs would be used to stabilize disturbed soils, which would minimize the potential for invasion by exotic invasive species. Further, the development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas. Construction BMPs also would reduce the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils from stormwater runoff.

Within the Laguna Region, wildfires are suppressed and do not substantially alter desert vegetation. Because no change to the wildfire management program would occur under the Proposed Action, no impacts to vegetation would be expected as a result of wildfire in the Laguna Region. Within the Cibola and Kofa Regions, most wildfires are allowed to burn due to the risk of firefighters encountering UXO. Wildfires in the Cibola and Kofa Regions typically would result in long-term damage to desert vegetation because most native desert species are poorly adapted to fire. Because no change to the wildfire management program would occur under the Proposed Action, no direct change in the potential for vegetation damage from wildfire in the Cibola and Kofa Regions would result. There is potential for increased colonization by exotic invasive plant species in any areas where soils would be disturbed under the Proposed Action, if disturbed areas are not managed. This could result in increased fuel loads and greater potential for severe wildfire. This is discussed further in Section 3.7. Use of the new or expanded munitions impact areas could result in increased potential for wildfire ignition, which could result in increased risk to vegetation. Clearing for TGPs and airfield/UAS support would create areas with little or no fuel load and would likely reduce the potential for wildfire to spread in these areas, which could result in a long-term benefit to vegetation from reduced wildfire spread.

There would be no loss of plant species from YPG and no loss of any identified habitat type on the installation as a result of implementation of the Proposed Action. Impacts to vegetation on YPG as a result of the Proposed Action would be moderate and long-term because of the very slow recovery of desert vegetation following disturbance.

There would be a minor beneficial impact on native vegetation from replacement of approximately 8 ac of irrigated turf grass at Cox Field with xeriscaping that would feature native desert vegetation.

There would be potential for interaction of activities conducted under the Proposed Action with other current activities conducted in other areas on YPG with regard to vegetation. Because no loss of species or habitat types would result, any incremental contribution to loss of native desert vegetation that would result from implementation of the Proposed Action would not be significant. The YPG INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects. Implementation of INRMP measures that guide detection and control of exotic invasive plant species would reduce the potential for increased fuel loads and associated increased wildfire risk from these species.

The cumulative effect of incremental loss of vegetation from clearing within YPG from all proposed activities would be moderate. Past and reasonably foreseeable future activities also could interact with the effects of the Proposed Action concerning impacts to vegetation. Because all impacts to vegetation resulting from the Proposed Action would be confined within the boundary of YPG and because there would be no loss of species or specific habitat types, it is not expected that vegetation impacts of the Proposed Action would interact with off-post actions to affect regional vegetation.

Should a renewable energy facility be placed in the Cibola Region, there would be impacts to desert vegetation. No loss of species or habitat types would be expected, but the incremental impact of additional negative impacts to vegetation cannot be determined at this time. A separate, programmatic or site-specific NEPA analysis would be required prior to implementation of a renewable energy project. The site-specific analysis would address the potential for impacts to vegetation and would assess the potential for cumulative effects with regard to the activities in this Proposed Action.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. Approximately 115 ac of the 1,675-ac project area would be completely cleared of vegetation and it is likely that there would be additional vegetation loss during construction. No loss of species or habitat types would be expected and it is anticipated that any contribution to cumulative impacts to vegetation would be insignificant.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to vegetation. While specific impacts are unknown at this time, it is likely that a substantial acreage would be cleared of native vegetation for each project. It is likely that BLM will require appropriate measures, possibly including modifications to site designs to prevent loss of any vegetation type or species from the region. Therefore, any contribution to cumulative impacts to vegetation would be expected to be minor.

3.18.2.4 Mitigation

There would be potential for localized increased runoff from new impervious areas. Without appropriate control measures, increased runoff could result in increased erosion, which could then remove native vegetation through scour. Construction and post-construction stormwater controls would be implemented to facilitate infiltration and reduce the potential for scour. See Sections 3.15 and 3.20 for discussions of stormwater controls. Depending on the location of the new impervious areas, the potential loss of vegetation through scour from erosive water flow could extend off-post and affect vegetation on

adjacent downstream properties. During construction, BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils from stormwater runoff. See Section 3.15 for a discussion of construction BMPs for soil stability.

To minimize the potential for impacts to vegetation, YPG would limit surface-disturbing activities to the smallest area practicable and would avoid vegetation where feasible.

YPG would modify its INRMP to address invasive plant species control in the new disturbed areas. Without future management to control exotic invasive plant species, the impacts to vegetation from displacement of native species could be significant.

The YPG ITAM program would help to maintain desert vegetation in areas used for training activities.

3.19 Visual Resources

Visual resources include natural and man-made components of the environment perceived by human receptors. "Aesthetics" refers to beauty in both form and appearance. Perceptions and aesthetic values may vary among individuals depending upon personal preferences.

3.19.1 Existing Conditions

Areas of aesthetic and visual value on YPG and the surrounding area include the Muggins Mountain Wilderness Area, Kofa NWR, Imperial NWR, Trigo Mountains Wilderness Area, including the Needles Eye pinnacle on the Trigo Mountains, Red Bluff Mountain, La Posa Dunes, Mohave Peak, the White Tanks Management Area in East Arm, and Camp Laguna. Some washes that flow into the Colorado River, including Mohave, Gould, Yuma, McAllister, and Indian washes, are also considered areas of special interest, and may provide aesthetic and visual resources to some viewers (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Wilderness and refuge areas provide the public recreational activities such as picnicking, camping, hiking, and sight-seeing.

Due to the rugged mountains and varying topography, the public viewshed on YPG is primarily limited to the views available from US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road. The southern part of the Kofa Region, which is largely unused, can be seen by persons traveling by train. Development on YPG is mainly concentrated in the cantonments, while testing and training areas typically remain open and undeveloped. Most facilities and training and testing areas on YPG are not visible from public roads.

The design and appearance of facilities on YPG are guided by the YPG Installation Design Guide. The guide promotes enhancement of the natural and man-made environments by using consistent architectural themes and standards and aims to improve functionality of the installation. Most development occurs within the valleys of YPG, and development along hillsides and in washes is generally discouraged (AECOM et al., 2011).

3.19.2 Environmental Consequences

This section evaluates the direct, indirect, and cumulative impacts that could alter the associated visual setting of a portion of YPG, as viewed from off-post, by altering the visual landscape associated with that area. The following were evaluated to determine potential impacts to visual resources:

- Permanently alter a site so that a public viewing point or vista is obstructed or otherwise adversely affected.
- Prevent or substantially impair views from a public viewpoint during construction activities.
- Introduce physical features that are substantially out of character with adjacent developed areas.

3.19.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to visual resources include:

- No Impact—Activities that would not be viewable by the general public or that would not create visually observable effects.
- Negligible (less than significant) – Activities that would result in barely barely perceptible changes to the visual environment.
- Minor to Moderate (less than significant)—Activities that may temporarily affect views to the public from US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road resulting from construction, primarily dust, but would be mitigated by construction BMPs.
- Minor to Moderate (less than significant)—Activities that may permanently change the landscape as viewed by the public from US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road resulting from new development, but would be mitigated by proper building design that mimics the landscape.
- Severe (significant)—Activities that may permanently change the landscape as viewed by the public from US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road resulting from testing and training activities.
- Severe (significant)—Activities that may permanently impact areas of aesthetic and visual value as seen from public viewing points.

3.19.2.2 Impacts of the No Action Alternative

Impacts to visual resources associated with the No Action Alternative are indirectly attributable to testing and training activities currently being conducted on YPG. Training and testing activities that may cause airborne dust or use smoke obscurant are known to create a temporary visual obstruction in the form of haze in areas of aesthetic and visual value. The airborne dust is typically caused by ground-based maneuvers, including vehicle testing and training on unpaved tracks or off-road, dismounted maneuvers, and certain smoke obscurant testing. Any impacts to public views would be limited to testing and training activities in proximity to US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road. Most testing and training locations are not visible to the public. Many

tests conducted on YPG involve either proprietary equipment or procedures or are otherwise sensitive. Selection of sites to conduct testing typically avoids areas that may be routinely viewed by the public. This approach minimizes the potential for ongoing activities on YPG to create visual impacts.

The use of lighter-than-air UASs is also part of the current testing and training mission on YPG, and UASs are sometimes visible to the public. When visible to the public, a lighter-than-air UAS appears as a tethered balloon. Depending upon the perception of the viewer, the quality of the viewshed or of areas of aesthetic and visual value may lower. Lighter-than-air UASs typically are deployed at high altitudes and would not obscure views of areas of aesthetic and visual value. Current testing and training activities on YPG, included within the No Action Alternative, have a temporary negative minor impact on visual resources.

Areas of aesthetic and visual value that could be impacted by testing and training activities in the Cibola Region include La Posa Dunes, Needles Eye, Mohave Peak, Cibola NWR, Trigo Wilderness Area, Imperial NWR, Kofa NWR, and the Mohave, Gould, Yuma, McAllister, and Indian washes. Activities in the Laguna Region could impact areas of aesthetic and visual value, which include Camp Laguna, Muggins Mountains, Red Bluff Mountain, and Kofa NWR. Activities in the Kofa Region are generally not visible to the public and would be unlikely to impact areas of aesthetic and visual value such as Kofa NWR, Red Bluff Mountain, and the White Tanks Management Area.

3.19.2.3 Impacts of the Proposed Action/Preferred Alternative

Activities included within the No Action Alternative would continue under the Proposed Action. Because the yearly fluctuations in the frequency, intensity, or duration of testing and training events (as discussed in Sections 2.1.2 and 2.3.3.8) would be within the maximum and minimum levels observed historically, no impacts to visual resources would be expected under the Proposed Action as a result of frequency, intensity, or duration of testing and training events. Impacts to visual resources would result from the establishment of new testing and training activities, as discussed below.

Potential temporary minor negative impacts to areas of aesthetic and visual value may occur during construction as a result of airborne dust from the use of heavy equipment and site preparation. Airborne dust may contribute to haze that would partially obscure public views from some view points along US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road. Construction contractors would be required to implement dust suppression practices to limit the amount of airborne dust from construction activities. The view from along these major roads has already been impacted by the presence of overhead transmission lines. The occasional small airborne dust from construction areas would not greatly alter the viewing experience. Airborne dust is further discussed in Section 3.2.

Construction and associated equipment would likely not be visible to the public or would be largely unnoticed due to the operation of military equipment and vehicles in the vicinity. The presence and operation of construction equipment is not expected to alter the public viewing experience from areas near YPG.

Permanent minor negative impacts to the publicly visible landscape could occur as a result of new buildings. New development would generally occur in cantonments in the Laguna and Kofa Regions, which are currently developed and not readily visible to the public during travel along US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road.

New buildings would be designed to blend with the existing visual landscape by using consistent architectural themes in accordance with the YPG Installation Design Guide. New development would also occur in several isolated areas in the Cibola and Kofa Regions. The construction of the complex in the East Arm, at SWTR, the East Kofa Operations Center, and the proposed aerial cable drop in either Cibola Region or Kofa Region would be in remote areas with very little public access. There would be permanent minor negative impacts to the visible landscape.

While testing and training activities typically are located to avoid casual observation by the public, temporary minor negative impacts to areas of aesthetic and visual value may occur as a result of activities on new or expanded training and testing areas. Any visual impacts would typically be limited to testing and training in proximity to US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road, as other testing and training locations would not be visible to the public (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Testing and training activities that include off-road vehicle operation, testing on unpaved tracks, dismounted maneuvers, and certain smoke obscurant testing can create temporary obstruction to public views.

The YPG Environmental Awareness program developed instructions for units training on YPG that include proper procedures and avoidance measures to be implemented during ground-based training activities to minimize potential impacts to areas of aesthetic and visual value. Continued implementation of the ITAM program would maintain or rehabilitate testing and training areas to maintain conditions that realistically simulate conditions in other desert regions. Terrain impacts to washes could also be repaired to reduce negative visual impacts.

Under the Proposed Action, there would be an increase in use of lighter-than-air UASs and the size of these craft also may increase. It is likely that multiple lighter-than-air UAS would be deployed simultaneously across the installation if testing needs warrant. These would likely appear to the public as a tethered balloon and could be used long-term. These lighter-than-air UASs may lower the quality of public views of areas of aesthetic and visual value depending on the perception of the viewer. This incremental increase in lighter-than-air UAS testing could be considered a minor negative cumulative impact.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a commercial-scale renewable solar electrical energy generation facility would change the visual characteristics of the surrounding area and would incrementally contribute to cumulative impacts to visual resources in combination with other development in the region.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. The 1,675-ac project area would change the visual characteristics of the area and incrementally contribute to cumulative impacts to visual resources.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to visual resources. At this time specific details on the project areas are unknown but it is likely the project areas would change the visual character of the area and would create a negative viewing experience for some observers.

3.19.2.4 Mitigation

The use of dust suppression practices during construction would minimize the amount of airborne dust.

New buildings would be designed using consistent architectural themes and standards in accordance with the YPG Installation Design Guide to blend with the existing visual landscape.

The YPG Environmental Awareness program developed instructions for units training on YPG that include proper procedures and avoidance measures to be implemented during ground-based training activities to minimize potential impacts to areas of aesthetic and visual value.

Continued implementation of the ITAM program would maintain or rehabilitate testing and training areas to maintain conditions that realistically simulate conditions in other desert regions. Terrain impacts to washes could also be repaired to reduce negative visual impacts.

3.20 Water Resources

3.20.1 Existing Conditions

YPG is located in the Lower Colorado Planning Area (LCPA), as defined in the Arizona Water Atlas (Arizona Department of Water Resources [ADWR], 2009). Planning Areas are an organizational concept developed by ADWR to provide a regional perspective on supply, demand, and other water resource issues. Water resources in the Yuma area are intensely managed to meet water delivery requirements of U.S. users, to manage high ground-water levels in the valleys, and to manage treaty-mandated water quality and quantity requirements of Mexico (USGS, 2006). The LCPA encompasses some 17,200 square miles, including all or part of four watersheds. The LCPA is within the Basin and Range physiographic province characterized by northwest-southeast trending mountain ranges separated by broad alluvial valleys with elevations generally less than 3,500 ft. With the exception of the Colorado River, there are no perennial streams in the planning area. Historically, the Gila River was considered perennial for most of its length, but during the 20th century farming practices and dams upstream and within the planning area eliminated perennial flows in this river. Broad sandy washes that flow only in response to major precipitation events are the main surface water features in the planning area (ADWR, 2009).

3.20.1.1 Surface Water

There are no wetlands and few permanent surface water sources within the boundaries of YPG. Surface water resources in the area include rivers and impoundments, desert washes, and water tanks. West of YPG, the Colorado River forms the border with California and flows in a southerly direction into Mexico and the Gulf of California. Surface drainage from the western part of YPG flows into the Colorado River. The Gila River flows in a westerly direction and joins the Colorado south of YPG. Surface drainage from the central and eastern parts of YPG flows into the Gila River.

Colorado and Gila Rivers. The Colorado River basin provides a major renewable water supply in the southwestern United States. Most of the water in the Colorado River and its tributaries is used for irrigation, and additional water uses include municipal and industrial supplies and regional environmental systems maintenance. The USGS has more than 50 years of data on the Lower Colorado River for use in understanding the hydrologic system and developing methods to apportion consumptive use of water from the river. The USEPA approved salinity control standards proposed by the Colorado River Basin Salinity Control Forum for three locations in Arizona, including the segment below Imperial Dam. The salinity control standards establish a flow-weighted average annual salinity standard that must be maintained on the Lower Colorado River. At Imperial Dam, the salinity standard is 879 milligrams per liter (mg/L) of sodium (ADWR, 2009). The USGS regularly collects Colorado River water samples at Imperial Dam, and the water is consistently high in sodium. Other water quality issues in the Lower Colorado River include excessive levels of nutrients, metals, endocrine-disrupting compounds, perchlorate, bacteria and pathogens, and sediment. Imperial Dam and Laguna Dam create impoundments along the Colorado River in the vicinity of YPG (ADWR, 2009).

Senator Wash is an off-stream storage facility approximately 2 miles upstream from Imperial Dam. It was constructed to supplement limited storage behind Imperial Dam and Laguna Dam. When sufficient storage is not available at Imperial and Laguna Dams, water is pumped to Senator Wash and used to regulate releases from Imperial Dam. Use of Senator Wash prevents over-deliveries to Mexico during times of high flow and ensures that demands can be met under low flow conditions. Senator Wash Reservoir has a capacity of 13,836 acre-feet at a pool elevation of 251 ft mean sea level (msl). Typically, the pool elevation varies between 210 ft msl and 240 ft msl, fluctuating according to water flow and user demand (Bureau of Reclamation, 1996).

Water in the Gila River is impounded by a series of dams well upstream of the YPG area and flow does not reach the Colorado River under normal conditions. Water quality of the Gila River fluctuates according to water flow rates. During flooding, the river has very good quality, with lower sodium, calcium, and conductivity levels. During low flow conditions, drainage ditches add water from surrounding farmlands to the river, raising the conductivity levels and adding fertilizer and pesticide residues to the water (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

The Lower Colorado and Lower Gila Rivers are listed on the Arizona 2006/2008 303(d) List of Impaired Waters (ADEQ, 2010; USEPA, 2009a). Approximately 32 miles of the Lower Colorado River above the Mexican border are listed as impaired due to low dissolved oxygen levels and elevated selenium levels (ADEQ, 2010). Approximately 28 miles of the Lower Gila River are listed as impaired due to elevated selenium and boron levels (ADEQ, 2010). One other water in the Lower Gila River watershed, Painted Rocks Borrow Pit Lake, is listed as impaired due to low dissolved oxygen levels and elevated levels of Dichlorodiphenyltrichloroethane (DDT) metabolites, toxaphene, and chlordane in fish (ADEQ, 2010; USEPA, 2009a).

Water from YPG arrives at both rivers during flood events when the river water is of better quality. The runoff from YPG typically is of good quality, but the volume is minimal compared to the total river flow during flooding episodes and any contribution from YPG is barely perceptible (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

Desert Washes. Low rates of precipitation and high evapotranspiration rates cause ephemeral streams (desert washes) on YPG to remain dry most of the year. Heavy rains can produce flash flood situations as these washes drain surface water. Washes vary in size, from less than 3 ft in width and depth, to more than a 3,200 ft in width and 33 ft in depth. Many washes contain numerous small channels that change course during major flood events. Desert washes are regulated as waters of the U.S. under Section 404 of the CWA (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Figures 2-4 through 2-15 depict the major desert washes at YPG and in the surrounding area.

There are several wash systems located in the Cibola Region that drain toward the Colorado River:

- Gould and Mohave washes, in the northern part of the Cibola Region, drain north-northwest.
- Yuma Wash drains to the south in the southwestern portion of the Cibola Region.
- McAllister Wash drains south through the south Cibola Region.
- Indian Wash, fed by numerous smaller washes, drains south-southwest through the Cibola Region.
- Los Angeles Wash, fed by numerous smaller washes, drains south-southwest through the southernmost portion of the Cibola Region.

There are two main washes in the Laguna Region that drain toward the Gila River:

- Vinegaroon Wash is located in the southeast corner of the Laguna Region. The wash is fed by several smaller washes, and drains south and west.
- Castle Dome Wash originates from the Castle Dome Mountains and crosses the Laguna Region, roughly paralleling US 95. The wash also receives runoff from several smaller washes originating in the Kofa Mountains, and drains to the south-southwest.

Runoff in the Kofa Region generally tends to have characteristics of sheet flow rather than confined flood events. The few large washes in the Kofa Region are fed by sheet flow and smaller washes and drain south toward the Gila River:

- Hoodoo Wash originates in the Kofa NWR, traverses the extreme northern section of the Kofa Region, and drains to the southeast.
- King Valley Wash is in the east-central portion of the Kofa Region. It originates in the Kofa NWR and drains to the south-southeast.
- Big Eye Wash is in the central portion of the Kofa Region. It is fed by several smaller washes originating in the Kofa Mountains and drains south-southwest.

Natural and Artificial Water Tanks. YPG has few natural, year-round sources of water. YPG works with AZGFD to construct and maintain 30 man-made, self-sustaining watering holes, which are called wildlife water tanks. There are additional natural water tanks on YPG that are not maintained and that contain water only in response to precipitation that also are used by wildlife when water is available. Some artificial water tanks were constructed specifically to direct wildlife to or away from certain areas on YPG (USAEC, 2005). The natural and artificial water sources used by wildlife are described below:

- Tinajas are naturally occurring, bowl-shaped cavities scoured from bedrock. Tinajas are usually located in the mountain canyons and occur at the base of waterfalls where the bedrock formation changes to softer rock. Rocks trapped in the cavity increase the rate of scouring.
- Enhanced tinajas are tinajas that have been artificially improved to increase water storage capacity and prolong availability. Most retain water throughout the year under normal precipitation conditions.
- Water catchments are artificial storage tanks ranging from 1,500 to 34,500 gallons. AZGFD constructed water catchments in the Cibola and Kofa Regions for wildlife use on YPG.
- Other artificial water sources have developed as a result of leaking landscape irrigation pipes, excess water released from standpipes, or pumping well-water into impoundments. Impoundments on YPG include Lake Alex, near Pole Line Road and north of Red Bluff Mountain in the central portion of the Kofa Region, and Ivan's Well, near Growl Road and Kofa Mohawk Road in the eastern portion of the Kofa Region (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

Wetlands. EPA and USACE regulations define wetlands at 40 CFR 122.2 and 40 CFR 328.3(b) as "…those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Further, wetlands that are determined to be waters of the United States are subject to regulation under the CWA and classified as jurisdictional wetlands. Less than 1 percent of Arizona is wetland habitat. Streams and wetlands throughout Arizona were modified or drained, resulting in the historical loss of more than one-third of its original wetlands. The largest and most extensive wetlands in Arizona are along riparian zones and include oxbow lakes, marshes, cienegas, and bosques. Nonriparian areas, such as tinajas, playas, and caldera lakes may support wetlands (USGS, 1999).

There are no wetlands on YPG. Desert washes and natural tinajas on YPG do not support wetland vegetation (Parsons, 2011). The nearest wetlands occur along the Colorado River.

Surface Water Quality. Surface water quality on YPG is protected and maintained through implementation of the Pollution Prevention Act of 1990 (42 U.S.C. 133), the Safe Drinking Water Act (42 U.S.C. 300f), and the CWA.

The CWA protects surface waters by establishing effluent guidelines and water quality standards and by controlling discharges of oil and hazardous substances into surface water. Section 404 of the CWA prohibits dredging or discharges of fill material into waters of the United States without a permit from USACE. On YPG, Section 404 applies to desert washes, and a permit is required for any activity discharging fill material in a desert wash, including road crossings, bank protection, channelization, and new construction (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

The Army Pollution Prevention Program focuses on implementing changes in chemicals, equipment, and processes to achieve a meaningful, cost-effective reduction in the generation of pollution without adverse impacts to mission readiness (U.S. Army, 2011). To minimize

the potential for contamination of surface water, containment basins trap discharges of fuel and prevent discharges to surface water. Two aboveground fuel storage tank areas at the Kofa Firing Front have concrete secondary containment basins. The Laguna Region has eight aboveground fuel storage areas, most of which have concrete secondary containment basins. All fuel storage areas and tanks are monitored and visually inspected for leakage by the Environmental Programs and Logistics offices. The number of fuel storage tanks on YPG may increase or decrease depending on mission requirements. Any tank additions or removals would be subjected to site-specific NEPA analysis prior to being implemented.

Stormwater runoff from the majority of the NRC-licensed DU area is through natural ephemeral washes. The NRC-licensed DU impact area has a DU Catchment Structure, and spent DU rounds are regularly collected by Ammunition Recovery personnel and stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. There is an evaporative lagoon that collects runoff from the DU Catchment Structure and is sized to accommodate a 100-year storm event to minimize the potential for stormwater transport of DU off-post or to other areas on-post. Studies have shown (Obregon, 2013c, personal communication) that DU is contained within the DU licensed area and does not migrate. There is no reasonable potential for off-post migration of DU as the NRC-licensed DU impact area is more than 10 miles from the boundary. The low annual rainfall, generally level gradient of desert pavement, and high specific gravity of DU limit the transport of DU to washes. Insufficient rainfall also limits the flow in washes, thereby limiting the probability of DU transport (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.20.1.2 Groundwater

Regional Setting. Basin and Range aquifers underlie the southern half of Arizona. Basin and Range aquifers in southern Arizona generally occur as unconsolidated gravel, sand, silt, and clay, or partly consolidated sedimentary or volcanic materials that have filled deep fault-block valleys formed by large vertical displacement across faults. Mountain ranges that generally consist of impermeable rocks separate adjacent valleys. When mountains encircle a valley, the aquifer in the valley is isolated, and groundwater is contained within the valley. Most valleys are interconnected, and groundwater typically moves among valleys through the interconnected network of aquifers (Robson and Banta, 1995).

Basin and Range aquifers are the principal sources of groundwater in southern Arizona. The aquifers occur in approximately 120 alluvium-filled basins interspersed between mountain ranges. About 150,000,000 acre-feet of recoverable groundwater is in storage in the upper 100 ft of the saturated sediments of these basins. The groundwater in some basins is extensively utilized, and large water level declines have occurred; in other basins, population is sparse, groundwater is not extensively utilized, and water levels are stable (Robson and Banta, 1995).

Recharge to the Basin and Range aquifers occurs primarily from precipitation in mountains surrounding the basins. Average annual precipitation averages 4 to 8 inches in basins and more than 16 inches in most mountain ranges. The arid climate, with high summer temperatures and large rates of evaporation and transpiration, results in almost all precipitation in basins and most precipitation in mountains being lost to evapotranspiration. Only about 5 percent of the precipitation that falls recharges the basin-fill aquifers. Water not lost to evapotranspiration may infiltrate the soil and upper zones of fractured bedrock,

where it may flow to springs or through fractures and discharge into the basin fill at the base of the mountains. Larger streams in the basins often flow on alluvium that is unconsolidated and highly permeable, enabling rapid infiltration where streams may recharge basin-fill aquifers at considerable distance from the mountains. Small ephemeral streams and water flowing through fractured bedrock generally recharge the aquifers near the mountain fronts. When the stream and aquifer are in direct hydraulic connection, as is the case along the Colorado River in Arizona, surface water and groundwater may function as an interdependent stream-aquifer system. Precipitation supplies about 2,500,000 acre-feet per year of recharge to the Arizona part of the Basin and Range aquifers. Underflow can be a significant component of recharge or discharge in connected basins of Arizona. Groundwater flows through these valleys from high elevation basins to lower elevation basins. Underflow commonly ranges from a few hundred to a few thousand acre-feet per year, with a few larger valleys between basins exhibiting underflow in excess of 30,000 acre-feet per year (Robson and Banta, 1995).

Surface infiltration of water is an important component of recharge to the Basin and Range aquifers. In extensively developed areas, additional recharge may result from human intervention in the hydrologic cycle. Part of the water used to irrigate commercial crops, golf courses, and other vegetation percolates into the basin fill and ultimately recharges the aquifers. Water in reservoirs, canals, and wastewater outfalls also can percolate downward and recharge the aquifers. Up to half of the irrigation water applied to fields in Arizona may ultimately recharge aquifers (Robson and Banta, 1995).

Discharge from the Basin and Range aquifers in Arizona is by evapotranspiration, streams and spring flow, underflow, and well withdrawal. Evapotranspiration is the largest natural component of groundwater discharge. Groundwater can be directly lost to evaporation in areas of shallow water table such as wet playas, marshes, and salt flats. In areas where vegetation obtains most of its water from the water table, such as thick groves of salt cedar or cottonwood, plants transpire large volumes of water. Prior to groundwater development, evapotranspiration was about 1,300,000 acre-feet per year along the Lower Colorado River in Arizona, and about 700,000 acre-feet per year along the Gila River. Natural evapotranspiration can decrease when groundwater withdrawal lowers the water table (Robson and Banta, 1995).

Groundwater discharges to streams or lakes where the water level in the aquifer is above the level of the stream or lake bed. This situation can occur where a constriction in the width or thickness of the aquifer forces groundwater to the surface, or where groundwater flows toward a stream from aquifers of higher elevation on either side of the stream. In arid climates, perennial flows that cross many miles of basin fill are usually maintained by groundwater discharge from underlying aquifers. Prior to groundwater development, the Gila River and its principal tributaries, the Salt, Verde, and San Pedro Rivers, were perennial. These rivers and the Colorado River, which is perennial, received groundwater discharge from aquifers in most of the basins they crossed (Robson and Banta, 1995).

Yuma. Historically, the Colorado and Gila Rivers were the source of nearly all groundwater in the Yuma basin through direct infiltration from the river channels and from annual flooding when high flows overtopped the river banks (ADWR, 2009; Dickinson et al., 2006). Impoundment of water in upstream reservoirs on the Colorado River has resulted in loss of sedimentation and scouring of the river channel, lowering the river profile in the Yuma area

and causing the Colorado River to act as a drain to the groundwater system (Dickinson et al., 2006). Due to upstream impoundments and consumptive use, the Gila River now flows intermittently, causing it to act as a drain to the groundwater system. Groundwater from YPG flows in a general southerly direction to the two rivers.

The major aquifers of the Lower Gila basin are in recent stream alluvium and basin fill. The thickness of the Tertiary and Quaternary basin fill in the Yuma basin may exceed 16,000 ft in some areas, but only the upper 2,000 ft to 2,500 ft is considered hydrologically important because of its transmissive properties. This aquifer is divided into three zones, with the middle, coarse-gravel zone forming the principal water-producing unit. Depths to the coarse-gravel zone begin at about 100 ft in the Colorado and Gila River valleys (ADWR, 2009).

The Yuma basin is the driest region in Arizona, averaging 0 to 4 inches of precipitation per year (ADWR, 2009). Most of the precipitation that falls quickly evaporates in the arid environment, and there is little groundwater recharge from precipitation. The difference between precipitation in the area and potential evapotranspiration rates is estimated at -63 to 0 inches per year (Reilly et al., 2008).

Groundwater quality varies across the Yuma basin, with elevated concentrations of total dissolved solids, arsenic, lead, agricultural pesticides, nitrate, and VOCs in some areas. Historically, the chemical composition of groundwater was similar to that of water in the Colorado and Gila Rivers. Groundwater quality has been altered as a result of agricultural practices (ADWR, 2009).

YPG uses well water for its domestic and industrial operations, drawing from groundwater in two aquifers beneath YPG: a shallow unconfined aquifer in alluvial deposits, and a deep aquifer in consolidated volcanic rocks. The depth to groundwater ranges from 30 ft below ground surface (bgs) in Well X to 750 ft bgs in Well M (ADEQ, 2009). While many groundwater areas in the Desert Southwest have experienced long-term declines in groundwater elevation, groundwater depression has not been observed at YPG. This probably results from the lack of development on YPG (YPG, 2012b). Groundwater basin data indicate that groundwater return flow during years of low flow on the Colorado River remained steady at 79,000 acre-feet per year and did not indicate declines in groundwater elevations (Dickinson et al., 2006). Groundwater quality, consumptive use, and water conservation measures to reduce groundwater demand are discussed in Section 3.5.

3.20.2 Environmental Consequences

There are no wetlands or designated floodplains on YPG. No activities that would disturb water tanks are proposed. The analysis of potential impacts to water resources focuses on desert washes and groundwater. The following were evaluated to determine potential impacts to water resources:

- Construction or other ground disturbance within or in proximity to washes
- Construction site preparation that would extend into the shallow groundwater table
- Deterioration of water quality through increased sedimentation as a result of construction or testing and training activities
- Deterioration of water quality from contaminants such as POLs reaching water courses

- Alteration of morphology of desert washes due to channelization
- Loss of streambed within a desert wash through placement of structures such as culverts
- Increased potential for turbidity as a result of sedimentation from construction site runoff
- Increased potential for sedimentation from testing or training activities in areas adjacent to desert washes
- Alteration of stream flow direction through placement of structures such as surface water crossings
- Alteration of stream flow velocity through channelization or placement of culverts and other types of stream crossings
- Removal of constructed water tanks
- Groundwater subsidence from withdrawal by humans or growth of invasive plants
- Changes in groundwater quality as a result of proposed activities

Potential impacts to groundwater may result from contamination by hazardous materials or hazardous waste and are discussed in Section 3.9. Potential impacts from consumptive use also are addressed in Section 3.5. Contamination of water resources from hazardous materials, including POLs and explosives also would represent an impact to water resources; these impacts are discussed in Section 3.9.

3.20.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to water resources include:

- Negligible (less than significant) – Activities that would result in a change to the resource that is barely perceptible.
- Minor to Moderate (less than significant)—Activities that would result in the introduction of pollutants that directly or cumulatively would not degrade water quality to below federal or state standards.
- Minor to Moderate (less than significant)—Activities that would result in loss of channel through placement of road crossings but would not otherwise alter streamflow characteristics.
- Minor to Moderate (less than significant)—Activities that would result in increased groundwater consumption but that would not deplete groundwater resources.
- Severe (significant) –Activities that would alter patterns of or increase the intensity of flood water movement.
- Severe (significant) –Activities that would result in the introduction of pollutants that directly or cumulatively would degrade water quality to below federal or state standards.
- Severe (significant) –Activities that would result in the introduction of pollutants that further contribute to impairment of a waterbody on the 303(d) List of Impaired Waters.

- Severe (significant)—Groundwater is depleted to the degree that subsidence causes fissures to form.
- Severe (significant) –Activities that would place fill within desert washes other than minimum necessary for a transportation crossing.
- Severe (significant)—Activities resulting in the introduction of pollutants degrading water beyond what is allowed by CWA—Section 404 permitting or NPDES permitting.

3.20.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, testing and training would continue to fluctuate between historical high and low levels and utilize existing facilities and infrastructure with no new construction. Ongoing testing and training occur in specific areas within YPG (Figures 2-4 through 2-12). Tables B-1 through B-3 (Appendix B) identify the testing and training activities that would occur under the No Action Alternative, separated according to the three regions (Laguna, Cibola, and Kofa Regions). No test areas, munitions impact areas, or DZs would be expanded under the No Action Alternative. No construction or demolition would occur under the No Action Alternative. Mission operations would result in minor impacts to water resources, as testing and training activities continue in currently authorized areas at currently authorized levels. Water resources impacts could result from on-road and off-road vehicle use, dismounted maneuvers, set-up for test operations, POL spills, chemical decomposition of military constituents from live-fire exercises, and activities that involve consumptive use of groundwater. Impacts of these activities have been previously evaluated under NEPA as follows in the assessments listed in Section 2.3.2.

The evaluations and analyses presented in the NEPA documents listed in Section 2.3.2 provide an assessment of the potential impacts to water resources that would result from the No Action Alternative, with testing and training continued at current levels and no new construction. The analyses presented in the NEPA documents listed Section 2.3.2 are incorporated into this FPEIS by reference. Activities would comply with the BMPs identified in the SPCCP and ISCP.

Beneficial impacts resulting from a reduction in irrigation water used at Cox Field would not occur under the No Action Alternative.

3.20.2.3 Impacts of the Proposed Action/Preferred Alternative

Impacts to water resources that would occur under the No Action Alternative also would occur under the Proposed Action. This section discusses the potential for additional impacts to water resources as a result of implementing the Proposed Action.

There would be no further degradation of waters listed as impaired on the 303(d) List of Impaired Waters as a result of activities conducted under the Proposed Action.

Exotic invasive plant species grow more rapidly and produce greater biomass in a given time than native Sonoran Desert vegetation. To achieve these accelerated growth rates, exotic invasive plant species consume more water than native vegetation. The local shallow groundwater table could be depressed or depleted, depending on the degree to which exotic invasive plant species occur. At present, YPG implements an invasive species management program. A Draft Invasive Species Management Plan has been developed and is expected to be finalized in 2013. A program to establish exclusion, monitoring, and eradication of all invasive plants on YPG is in the early stages by the Environmental Sciences/Natural

Resource Management Department as part of continued INRMP implementation (YPG, 2012b). Control of exotic invasive plant species would be beneficial to local groundwater resources.

The yearly fluctuations in the frequency, intensity, or duration of testing and training events (as discussed in Sections 2.1.2 and 2.3.3.8) would be within the maximum and minimum levels observed historically and there would be no change in personnel assigned to YPG. Therefore, no increase in consumption of groundwater on YPG would occur under the Proposed Action as a result of increases in personnel. The construction of a new WTP at CDH would not result in an increase in consumptive use of groundwater on the installation because this area is already provided potable water by pipe distribution from the Kofa WTP, which is supplied by groundwater.

The Proposed Action would be compliant with Section 438 of the Energy Independence and Security Act of 2007 (EISA) and the *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)* (Office of the Undersecretary of Defense, 2010). Under EISA, Section 438 (Title 42, U.S.C., Section 17094) requires that a federal facility with a footprint that exceeds 5,000 ft^2 use site planning, design, construction, and maintenance strategies for the property to "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to temperature, rate, volume, and duration of flow" (DoD, 2010).

These maintenance strategies may include green infrastructure and low-impact development (LID) practices such as reducing impervious surfaces and using appropriate vegetative practices, porous pavements, and cisterns. USEPA *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (USEPA, 2009b) provides guidance on complying with EISA, through the use of LID techniques. EISA Section 438 requirements are separate from and independent of stormwater control requirements under the CWA and are not appropriate for inclusion in stormwater permits unless a State or the USEPA has promulgated regulations for EISA Section 438 requirements that are applicable to all regulated entities under its CWA authority (DoD, 2010). At this time, Arizona has not adopted such a policy. The DoD Unified Facilities Criteria on LID (UFC 3-210-10) mandate stormwater management to maintain hydrologic functions of a site and to mitigate potential adverse impacts of stormwater runoff. Compliance with EISA would minimize the potential for post-construction stormwater from buildings to alter downstream water resources.

The following sections discuss the potential impacts to water resources that may result in each of the three areas on YPG.

Laguna Region. Impacts to water resources and water quality that could occur under the Proposed Action as a result of construction or improvements of buildings and facilities, airfield runways and taxiways, roadways and ACPs, and utility infrastructure would be temporary and localized. Individual project designs would minimize the potential for negative impacts to the extent practicable. Expanded dismounted maneuver areas and new vehicle test courses are proposed for parts of the Laguna Region, and the subsequent use of these areas could impact soils. A new DZ is proposed for the Laguna Region. Appropriate site-specific BMPs would be implemented during and following construction to further reduce the potential for impacts. Most activities that would be implemented in the Laguna

Region would have no potential for direct impacts to water resources, but there would be potential for indirect impacts to these resources.

No munitions testing occurs in the Laguna Region and no TGPs would be established in this region. No new off-road vehicle testing in the Laguna Region would occur under the Proposed Action. These activities would not affect water resources in the Laguna Region.

Construction of the Aberdeen Road flood improvements would require a CWA Section 404 permit from USACE and a CWA Section 401 Water Quality certification from ADEQ. YPG would obtain these authorizations once the design is complete prior to construction. YPG and its construction contractor would be required to comply with all conditions of the CWA Section 404 permit and Section 401 Water Quality certification, including implementation of any mitigation that may be specified as a condition of the CWA Section 404 permit.

No other activities analyzed in detail that are proposed for the Laguna Region would require CWA permitting. Expansion and creation of LTAs and DZs would encompass some areas within washes, but these activities do not require CWA permitting. Should project designs change such that one or more proposed activities would encroach on washes, YPG would obtain appropriate CWA Section 404 permitting in advance of implementing activities with impacts to waters and would comply with all permit conditions.

Direct impacts to water resources would result from the Aberdeen Road flood improvements, which would replace or improve the existing low water crossing (LWC) of Castle Dome Wash between US 95 and the Kofa cantonment. A portion of Castle Dome Wash would be disturbed during construction, with the possibility of both short- and long-term impacts. Short-term impacts would result if a temporary crossing is needed to maintain traffic flow during construction. Aberdeen Road is the main access route for the Kofa cantonment and KFR, and the road must remain passable during construction. Impacts from a temporary crossing would be localized and would end once construction was complete. Long-term impacts would result from construction of improvements to the LWC. It is likely that a small portion of the wash would be lost or converted to artificial substrate as a result of the improvements.

Proposed construction activities in the Laguna Region would result in clearing approximately 350 ac of desert habitat, with 125 ac being converted to new impervious area. Construction impacts could include erosion and sedimentation following vegetation and soil disturbance. The Arizona Pollutant Discharge Elimination System (AZPDES) program, administered by ADEQ, requires that stormwater be treated to the maximum extent practicable to minimize the potential for impacts to water resources. An AZPDES construction general stormwater permit for stormwater discharges from construction activities would be required for each individual and unrelated construction activity. Individual and unrelated construction activities that would disturb less than 5 ac, that would be more than 0.25 mile from an impaired or outstanding Arizona water, and that would have an erosivity value of less than 5 as calculated by the Smart Notice of Intent (NOI) System may qualify for waiver options (ADEQ, 2008; 2011b). If a project meets the waiver requirements, the contractor would be required to comply with the conditions of the AZPDES permit. Proposed activities that are interrelated and dependent would be considered as components of a common plan of development, and these interrelated construction activities would be grouped into one single AZPDES Construction General Permit. This Construction general permit would address all construction impacts of the

interrelated construction activities, including specific component construction activities that would result in less than 1 ac of ground disturbance (ADEQ, 2008; 2011b).

Excluding new or expanded LTAs, which would not affect wildlife water tanks, only one proposed activity would occur in proximity to an established water tank used by wildlife in the Laguna Region. Site selection and preliminary designs for the proposed building and asphalt pad avoid the water tank. Current plans would not result in removal or relocation of any wildlife water tanks. Should changes occur that would result in water tank removal to implement an activity, any wildlife water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location to maintain the resource. Should removal of a wildlife water tank be necessary, it could affect TES species (Section 3.16) and wildlife (Section 3.21) in the area.

Standard construction BMPs would be coupled with the development and implementation of a Construction SWPPP, which is required by the AZPDES Construction General Permit, to stabilize disturbed soils and minimize the potential for indirect impacts to water resources. The construction contractor would be responsible for developing and implementing a project-specific Construction SWPPP. Following the completion of construction, a site would be stabilized and BMPs implemented to minimize the potential for sediments and contaminants to enter nearby washes. BMPs that could be implemented include, but are not limited to, using infiltration or detention areas during construction to prevent scour from stormwater runoff, installing and maintaining silt fencing around disturbed soils, and mulching disturbed soils to reduce the impact energy of precipitation. Because appropriate BMPs would be implemented, the potential adverse impacts to water quality resulting from construction would be minor.

There would be potential for increased runoff from the approximately 180 ac of new impervious area. Without appropriate control measures, increased runoff could result in increased erosion, which could increase the introduction of sediments and other pollutants to water resources. Appropriate post-construction stormwater controls would minimize the potential for adverse impacts to water resources. Because the decrease in the amount of pervious surface area would be relatively small compared to the size of the aquifer, the negative impact to groundwater recharge would be minor. The volume and rate of stormwater runoff from new impervious areas would likely increase. Post-construction stormwater BMPs, including detention/infiltration areas, would be compliant with Section 438 of EISA, as applicable, and would minimize the potential for impacts to surface hydrology or groundwater. Impacts would be permanent and moderate.

Utility lines would be installed at seven locations in the Laguna Region, with approximately 0.6 ac of land disturbed during installation. While the disturbed area would be stabilized to minimize the potential for erosion, there would be a minor potential for indirect sedimentation impacts to nearby washes. No direct impacts to water resources would be expected. Appropriate BMPs, as discussed for new construction, would be implemented to minimize the potential for erosion. Any indirect impacts to water resources from installation of utility lines would be minor.

Dismounted maneuver activity would occur over a larger area near West LA and K-9 Village. The LTA at West LA would be expanded to connect with K-9 Village (approximately 6,520 ac). Battalion-level dismounted maneuvers simulating deployment in open desert to achieve an urban target in either the West LA or K-9 Village MOUT areas

would be conducted. The LTA at Muggins/Middle Mountain would be expanded up to approximately 6,331 ac under the Preferred Alternative (reduced from 16,640 ac as originally proposed). Additional expanded dismounted maneuver areas would be established in the Laguna Region, which would cover approximately 1,970 ac. In addition, new vehicle test courses would be established within approximately 9,040 ac in the Laguna Region. Discernible trails would be established minimizing soil compaction and the potential for exposing soils outside the boundary of the vehicle test courses. However, when active vehicle testing is not ongoing the vehicle test courses may be used to conduct blended testing or dismounted maneuver training. Soil disturbance would occur during the establishment of the vehicle test course and soil disturbance could occur during the other activities, but most troop movement would be dispersed to avoid inadvertent creation of discernible trails, which would minimize soil compaction and rutting. This would minimize the potential for indirect impacts to water quality from increased erosion/sedimentation. Limited off-road vehicle operation may occur in conjunction with dismounted maneuver activities and initial troop deployment. Vehicles would not be operated in washes, except for direct crossings. Any direct impact from off-road vehicle operation would be localized and minor. Indirect impacts to water resources from dismounted maneuver training activities and associated off-road vehicle use would be expected to be negligible with continued implementation of the ITAM program.

Creation of a DZ would result in disturbance to approximately 45 ac in the Laguna Region. The DZ would not be entirely cleared of vegetation, but localized soil disturbance would occur during testing and training activities. Disturbance to vegetation would generally be caused by dropping of objects directly on the ground by parachute and from payload retrieval by vehicles. Due to the slow growth of desert vegetation impacts would be long-term. Indirect impacts to surface water resources could occur should excessive sediments be carried to washes. DZs would be established in level areas, so the potential for increased erosion is slight. Continued implementation of the INRMP and ITAM program would minimize the potential for increased erosion from DZs. Any impacts would be expected to be minor.

A new evaporative lagoon has been constructed in the Laguna Region. See Section 3.5 for a discussion of the new Laguna Region evaporative lagoon, which will provide minor indirect benefits to groundwater resources through more efficient handling of wastewater.

Wildfire destroys desert vegetation and creates conditions favorable for accelerated erosion, which can lead to increased sedimentation in washes. Within the Laguna Region, wildfires are suppressed and do not substantially alter precipitation runoff rates or volumes. Because no change to the wildfire management program would occur under the Proposed Action, no indirect impacts to water resources would be expected as a result of wildfire in the Laguna Region. There is potential for increased colonization by exotic invasive plant species if disturbed areas are not managed, which could result in increased fuel loads and greater potential for severe wildfire. This is discussed further in Section 3.7.

There would be little potential for interaction of activities conducted in the Laguna Region under the Proposed Action with activities proposed in other areas of YPG with regard to water resources. Any incremental contribution to degradation or loss of water resources that would result from implementation of the Proposed Action in the Laguna Region would not

be significant. Continued implementation of the INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects.

The proposed Cox Field improvements would have a minor beneficial impact on water resources. Approximately 8 ac of irrigated turf grass would be replaced with xeriscaping, which would feature native desert vegetation. This would result in a slight reduction of consumptive water use in maintaining Cox Field.

Cibola Region. Most of the proposed building/facility construction for the Cibola Region is new construction rather than replacement of existing structures. Numerous airfields across the Cibola Region are proposed for runway expansion and additional supporting infrastructure. Munitions impact area expansion, new dismounted maneuver areas, and a new vehicle test course are proposed for parts of the Cibola Region, and the subsequent use of these areas could cause soil disturbance. Utility infrastructure extensions would occur throughout the Cibola Region. Twenty-three TGPs would be established in the Cibola Region and there would be soil disturbance associated with establishment of these sites.

No projects proposed for the Cibola Region would require CWA permitting. Expansion and creation of LTAs and DZs, as well as creation of new or expanded munitions impact areas, would encompass some areas within washes, but these activities do not require CWA permitting. Should project designs change such that one or more proposed activities would encroach on washes, YPG would obtain appropriate CWA Section 404 permitting in advance of implementing activities with impacts to waters and would comply with all permit conditions.

The proposed WTP at CDH, which would serve CDH and CDA, would not increase demand on groundwater. At present, water is supplied to CDH and CDA from the Kofa WTP via a pipe system. Source water supplied by Well M would increase and existing demands on Well H and Well J would decrease, resulting in no net change in demand from that aquifer. Any impacts to groundwater would be negligible.

Proposed construction activities would result in clearing of approximately 740 ac of desert habitat in the Cibola Region, with all vegetation removed from this acreage as a result. New construction, including paving for runways and airfield support pads, would convert approximately 130 ac of the Cibola Region to impervious surfaces, with soil disturbance occurring during vegetation removal from these areas. Construction impacts could include erosion and sedimentation following vegetation and soil disturbance. An AZPDES construction general stormwater permit for stormwater discharges from construction activities would be required for each individual and unrelated construction activity. Individual and unrelated construction activities that would disturb less than 5 ac, that would be more than 0.25 mile from an impaired or outstanding Arizona water, and that would have an erosivity value of less than 5 as calculated by the Smart NOI System may qualify for waiver options (ADEQ, 2008; 2011b). If a project meets the waiver requirements, the contractor would be required to comply with the conditions of the AZPDES permit. Proposed activities that are interrelated and dependent would be considered as components of a common plan of development, and these interrelated construction activities would be grouped into one single AZPDES Construction General Permit. This Construction General Permit would address all construction impacts of the interrelated construction activities, including specific component construction activities that would result in less than 1 ac of ground disturbance (ADEQ, 2008; 2011b).

Excluding new or expanded LTAs, which would not affect water tanks, only two proposed activities (involving building construction, concrete pad construction, and graded parking) would occur in proximity to established water tanks that are used by wildlife in the Cibola Region. Site selection and preliminary designs for these activities avoid impacts to the water tanks. Current plans would not result in removal or relocation of any wildlife water tanks. Should changes occur that would result in removal of a water tank used by wildlife to implement an activity, any water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location to maintain the resource. Should removal of a water tank used by wildlife be necessary, it could affect TES species (Section 3.16) and wildlife (Section 3.21) in the area.

Standard construction BMPs would be coupled with the implementation of a Construction SWPPP to stabilize disturbed soils and minimize the potential for indirect impacts to water resources. Following the completion of construction, a site would be stabilized and BMPs implemented to minimize the potential for sediments and contaminants to enter nearby washes. BMPs that could be implemented include, but are not limited to, using infiltration or detention areas during construction to prevent scour from stormwater runoff, installing and maintaining silt fencing around disturbed soils, and mulching disturbed soils to reduce the impact energy of precipitation. Because appropriate BMPs would be implemented, the potential adverse impacts to water quality resulting from construction would be minor.

There would be potential for increased runoff from the approximately 130 ac of new impervious area. Without appropriate control measures, increased runoff could result in increased erosion, which could increase the introduction of sediments and other pollutants to water resources, including groundwater. Appropriate post-construction stormwater controls would minimize the potential for adverse impacts to water resources. Because the decrease in the amount of pervious surface area would be relatively small compared to the size of the aquifer, the negative impact to groundwater recharge would be minor. The volume and rate of stormwater runoff from new impervious areas would likely increase. Post-construction stormwater BMPs, including detention/infiltration areas, would be compliant with Section 438 of EISA, as applicable, and would minimize the potential for impacts to surface hydrology or groundwater. Impacts would be permanent and moderate.

Utility lines would be installed at 20 locations in the Cibola Region, with approximately 16 ac of land disturbed during installation. While the disturbed area would be stabilized to minimize the potential for erosion, there would be a minor potential for indirect sedimentation impacts to nearby washes. No direct impacts to water resources would be expected. Appropriate BMPs, as discussed for new construction, would be implemented to minimize the potential for erosion. Any indirect impacts to water resources from installation of utility lines would be minor.

Approximately 530 ac, included in the construction activities discussed above, in the Cibola Region, would be cleared for creation of UAS launch/recovery areas. These UAS launch/recovery areas would have the potential for increased stormwater runoff and sedimentation. Appropriate stormwater controls would minimize the potential for adverse impacts to water resources. Stormwater controls could include but are not limited to, pollution prevention, minimizing exposure, and maximizing infiltration.

Six new or expanded LTAs are proposed in Cibola totaling 66,399 ac (Table 3-18). Use of the areas for dismounted maneuvers during operational testing and training activities would

have potential to impact and disturb soils, but most troop movement would be dispersed to avoid inadvertent creation of discernible trails, which would minimize soil compaction and rutting. This also would minimize the potential for indirect impacts to water quality from increased erosion/sedimentation. Limited off-road vehicle operation could occur in conjunction with dismounted maneuver activities and initial troop deployment. Vehicles would not be operated in washes, except for direct crossings. Any direct impact from off-road vehicle operation would be localized and minor. Indirect impacts to water resources from dismounted maneuver training activities and associated off-road vehicle use would be expected to be negligible with continued implementation of the ITAM program.

TABLE 3-18
Proposed LTAs in Cibola
Yuma Proving Ground

LTA	Acreage
C041 Expand LTA at Middle Mountain	11,230 ac
C060 Create LTA at TOW Town	29,010 ac
C061 Create LTA at JERC I/Saderville	8,437 ac
C062 Create LTA at JERC II	3,503 ac
C063 Create LTA at JERC III	4,312 ac
C064 Create LTA at Yuma Wash	9,907 ac

In addition, a new vehicle test course would be established within an area up to 4,644 ac in the Cibola Region. Discernible trails would be established minimizing soil compaction and the potential for exposing soils outside the boundary of the vehicle test course. However, when active vehicle testing is not ongoing the area may be used to perform blended testing or dismounted maneuver training at the vehicle test course.

There are multiple locations within the Cibola Region where new munitions impact areas would be established or where existing munitions impact areas would be expanded. Approximately 16,300 ac would be converted to munitions impact areas. Of this total, approximately 16,040 ac would receive both inert and explosive fire and approximately 250 ac at JERC I, II, and III would be for inert fire only. There would be no direct impacts to water resources from the creation of the munitions impact areas. Use of explosive fire in munitions impact areas would create localized soil disturbance that would have the potential for soil erosion and subsequent sedimentation in washes. Inert fire impact areas would experience less soil disturbance, but there would be potential for long-term indirect impacts to surface water resources or shallow groundwater resources should the munitions degrade and release MCOCs to the soil.

Expansion or creation of DZs would result in disturbance to approximately 978 ac in the Cibola Region. DZs would not be entirely cleared of vegetation, but disturbance would occur during testing and training activities. Disturbance to vegetation would generally be caused by dropping of objects directly onto the ground by parachute and from payload retrieval by vehicles, which could increase erosion potential in these areas. Due to the slow growth of desert vegetation, impacts would be long-term. Indirect impacts to surface water resources could occur should excessive sediments be carried to washes. DZs would be

established in level areas, so the potential for increased erosion is slight. Continued implementation of the INRMP and ITAM program would minimize the potential for increased erosion from DZs. Any impacts would be expected to be minor.

TGPs would be established at 23 locations in the Cibola Region. TGPs would not be located within washes, so no direct impacts to water resources would result. Each TGP would cover an area of up to 2.2 ac, which would be cleared of vegetation that could interfere with proposed testing and observations. Minor soil disturbance could occur and there would be increased potential for erosion. The potential for indirect impacts to water resources would vary depending on testing needs and the type of vegetation at a proposed TGP. Impacts could range from minor (limited exposed soils from vegetation clearing and not in proximity to a wash) to moderate (extensive soil exposure and in proximity to a wash). Up to 50.6 ac of vegetation would be cleared for TGPs within the Cibola Region, which would create the potential for minor cumulative impacts to surface waters on YPG, but no regional cumulative impacts to surface waters beyond the boundary of YPG would be expected.

There would be little potential for interaction of activities conducted in the Cibola Region under the Proposed Action with activities proposed in other areas of YPG with regard to water resources. Any incremental contribution to degradation or loss of water resources that would result from implementation of the Proposed Action in the Cibola Region would not be significant. Continued implementation of the INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects.

Kofa Region. New building/facility construction in the Kofa Region is primarily limited to new or replacement structures at fixed GPs, where previous clearing and grading have already disturbed soils, and at new training complexes. Utility infrastructure would be extended to six locations and would impact soils.

No projects proposed for the Kofa Region would require CWA permitting. Expansion and creation of dismounted maneuver areas and creation of new or expanded munitions impact areas would encompass some areas within washes, but these activities do not require CWA permitting. Should project designs change such that one or more proposed activities would encroach on washes, YPG would obtain appropriate CWA Section 404 permitting in advance of implementing activities with impacts to waters and would comply with all permit conditions.

Approximately 215 ac of soils would be disturbed to accommodate new construction and utility infrastructure. Construction impacts could include erosion and sedimentation following vegetation and soil disturbance. An AZPDES construction general stormwater permit for stormwater discharges from construction activities would be required for each individual and unrelated construction activity. Individual and unrelated construction activities that would disturb less than 5 ac, that would be more than 0.25 mile from an impaired or outstanding Arizona water, and that would have an erosivity value of less than 5 as calculated by the Smart NOI System may qualify for waiver options (ADEQ, 2008; 2011b). If a project meets the waiver requirements, the contractor would be required to comply with the conditions of the AZPDES permit. Proposed activities that are interrelated and dependent would be considered as components of a common plan of development, and these interrelated construction activities would be grouped into one single AZPDES Construction General Permit, which would address all construction impacts of the

interrelated construction activities, including specific component construction activities that would result in less than 1 ac of ground disturbance (ADEQ, 2008; 2011b).

Standard construction BMPs would be coupled with the implementation of a Construction SWPPP to stabilize disturbed soils and minimize the potential for indirect impacts to water resources. Following the completion of construction, a site would be stabilized and BMPs implemented to minimize the potential for sediments and contaminants to enter nearby washes. BMPs that could be implemented include, but are not limited to, using infiltration or detention areas during construction to prevent scour from stormwater runoff, installing and maintaining silt fencing around disturbed soils, and mulching disturbed soils to reduce the impact energy of precipitation. Because appropriate BMPs would be implemented, the potential adverse impacts to water quality resulting from construction would be minor.

New construction, including paving, creation of a UAS launch/recovery area near SWTR, East Kofa Operations Center, and the training complex in the northern part of East Arm, would convert approximately 54 ac of the Kofa Region to impervious surfaces. There would be potential for increased runoff from the approximately 54 ac of new impervious area. Without appropriate control measures, increased runoff could result in increased erosion, which could increase the introduction of sediments and other pollutants to water resources, including groundwater. Appropriate post-construction stormwater controls would minimize the potential for adverse impacts to water resources. Because the decrease in the amount of pervious surface area would be relatively small compared to the size of the aquifer, the negative impact to groundwater recharge would be minor. The volume and rate of stormwater runoff from new impervious areas would likely increase. Post-construction stormwater BMPs, including detention/infiltration areas, would be compliant with Section 438 of EISA, as applicable, and would minimize the potential for impacts to surface hydrology or groundwater. Impacts would be permanent and moderate.

Utility lines would be installed at nine locations in the Kofa Region, with approximately 2.7 ac of land disturbed during installation. While the disturbed area would be stabilized to minimize the potential for erosion, there would be a minor potential for indirect sedimentation impacts to nearby washes. The construction East Kofa Operations Center would include a new water well for use and this is the only direct impact to water resources expected. No other direct impacts to water resources would be expected. Appropriate BMPs, as discussed for new construction, would be implemented to minimize the potential for erosion. Any indirect impacts to water resources from installation of utility lines would be minor.

Approximately 156 ac in the Kofa Region would be cleared for creation of a UAS launch/recovery area near SWTR. Vegetation clearing would expose soils and could create conditions favorable for increased runoff and erosion, which can lead to increased sedimentation in washes. Appropriate stormwater controls would minimize the potential for adverse impacts to water resources. Stormwater controls could include, but are not limited to, pollution prevention, minimizing exposure of disturbed soils, and enhancing infiltration.

New dismounted maneuver areas would be established in the Kofa Region, which would cover approximately 53,180 ac (51,354 ac under the Preferred Alternative). No direct impacts to vegetation would result from this activity. Subsequent use of the area for dismounted maneuver during operational testing and training activities would have potential to impact

vegetation from trampling by Soldiers. Most troop movement would be dispersed to avoid inadvertent creation of discernible trails and would avoid woody desert plants. This would minimize soil compaction and potential for damage to vegetation and subsequent soil exposure. Limited off-road vehicle operation may occur in conjunction with dismounted maneuver activities and initial troop deployment. Any impacts from off-road vehicle operation would be localized and minor. Impacts to vegetation from dismounted maneuver training activities would be expected to be negligible with continued implementation of the ITAM program.

There are multiple locations within the Kofa Region where new munitions impact areas would be established or where existing munitions impact areas would be expanded. All of the proposed new and expanded munitions impact areas (26,824 ac under the Preferred Alternative) in the Kofa Region would be used for inert and explosive fire. There would be no direct impacts to water resources from the creation of the munitions impact areas. Use of explosive fire in munitions impact areas would create localized soil disturbance that would have the potential for soil erosion and subsequent sedimentation in washes. Inert fire impact areas would experience less soil disturbance, but there would be potential for long-term indirect impacts to surface water resources or shallow groundwater resources should the munitions degrade and release MCOCs to the soil.

Expansion or creation of DZs would result in disturbance to approximately 305 ac in the Kofa Region. DZs would not be entirely cleared of vegetation, but disturbance would occur during testing and training activities. Disturbance to vegetation would generally be caused by dropping of objects directly onto the ground by parachute and from payload retrieval by vehicles, which could increase erosion potential in these areas. Due to the slow growth of desert vegetation, impacts would be long-term. Indirect impacts to surface water resources could occur should excessive sediments be carried to washes. DZs are established in level areas, so the potential for increased erosion is slight. Continued implementation of the INRMP and ITAM program would minimize the potential for increased erosion from DZs. Any impacts would be expected to be minor.

Excluding new or expanded LTAs, which would not affect water tanks, only five proposed activities would occur in proximity to established wildlife water tanks in the Kofa Region. Site selection and preliminary designs for these proposed activities (which involve building renovation, building construction, and road construction) would avoid impacts to wildlife water tanks. Current plans would not result in removal or relocation of any wildlife water tanks. Should changes occur that would result in water tank removal to implement an activity, any wildlife water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location to maintain the resource. Should removal of a water tank used by wildlife be necessary, it could affect TES species (Section 3.16) and wildlife (Section 3.21) in the area.

There would be little potential for interaction of activities conducted in the Kofa Region under the Proposed Action with activities proposed in other areas of YPG with regard to water resources. Any incremental contribution to degradation or loss of water resources that would result from implementation of the Proposed Action in the Kofa Region would not be significant. Continued implementation of the INRMP and the ITAM program would reduce the potential for incremental interaction with other on-post projects.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a commercial-scale renewable solar electrical energy generation facility would create new impervious surface area over much of an up to approximately 8,900-ac site. Depending on post-construction stormwater controls that would be implemented with development of the facility, there could be increased stormwater runoff that could contribute to cumulative impacts to surface water and groundwater resources. In addition, operation of the facility would result in consumptive use of water. A separate, specific NEPA analysis would be conducted for any such project that would be developed and the amount of operational water consumption would depend on the technology chosen. However, there would be potential for moderate cumulative impacts to groundwater from long-term consumptive use.

Cumulative Impacts Summary. Because potential direct effects to water resources would be confined within the boundaries of YPG and because BMPs and design features would minimize the potential for indirect impacts to offsite waters, there is little potential for interaction of the Proposed Action with other past, present, and reasonably foreseeable projects. As discussed above, no cumulative impacts would be expected on YPG.

Incremental impacts to water quality and groundwater depletion would be the potential routes of interaction with past, present, and reasonably foreseeable off-post actions. Because activities under the Proposed Action would not affect water quality, no cumulative impacts to water quality would be expected as a result of implementation of the Proposed Action. Consumptive use of groundwater would occur under the Proposed Action, but the anticipated use would be small relative to the aquifer capacity. It is expected that minor cumulative impacts to groundwater would result in conjunction with other actions that also consumptively use groundwater.

Excluding new or expanded LTAs, which would not affect water tanks used by wildlife, only eight proposed activities would occur in areas in proximity to wildlife water tanks (Figures 3-9 through 3-11). Any wildlife water tanks that would be removed to implement an activity would be replaced by a comparable new water tank prior to removal to maintain the resource in the area. Replacement wildlife water tanks, if necessary, would be established as close as feasible to the removed water tank. No cumulative impacts to water resources would be expected with regard to water tanks.

YPG has begun investigating the possibility of developing a solar renewable energy facility on the installation to increase YPG's energy security and meet federal mandates and legislative requirements to increase production and consumption of renewable energy resources. This development would be through an EUL with a private company. Solar technologies under consideration by the Army include solar PV, Dish Stirling, and dry-cooled concentrating solar thermal technologies. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). There would be only minor consumptive use during construction of any of the technologies that would not contribute to

cumulative impacts to water resources. Solar PV and Dish Stirling convert sunlight directly into electricity using PV panels and the only operational water demands would be approximately 20 gallons per megawatt-hour (MW-h) of electricity generated to wash solar PV panels to maintain optimum operating efficiency (Tribal Energy and Environmental Information Clearinghouse, 2012; U.S. Department of Energy, undated). Because this would be a continuing demand for water, it would be expected to contribute incrementally to cumulative imapcts to water resources.

Solar thermal plants produce electric power by concentrating solar energy using a mirror or lens configuration to generate electricity with steam turbines. Dry-cooled solar thermal plants use up to 80 gallons of water per MW-h generated for mirror washing and operations (U.S. Department of Energy, undated).

Operation of the solar facility would result in consumptive use of water. The amount of operational water depends on the technology chosen during the separate NEPA analysis. However, there would be potential for moderate cumulative impacts to groundwater from long-term consumptive use.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. The project would require over 1,150 acre-feet of water for construction and would require 200 acre-feet of water annually for operation of the dry-cooled facility. Water for the Quartzsite facility would be obtained from the regional aquifers or from the Colorado River. If groundwater is the source, there would be potential for cumulative impacts to groundwater from long-term consumptive use. If water is obtained from the Colorado River, there would be potential for cumulative impacts to surface water from long-term consumptive use. The potential for cumulative impacts to water resources would be minor.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to water resources. These proposed projects would be expected to result in increased demand for water for construction, cleaning, and operation, which could cause cumulative impacts on regional water resources from incremental increased consumption.

3.20.2.4 Mitigation

There would be potential for localized increased runoff from new impervious areas. Without appropriate control measures, increased runoff could affect downstream areas, including off-post lands by creating scour that could remove soils from uplands along washes. Stormwater controls would be implemented to facilitate infiltration and reduce the potential for scour. These controls could include, but would not be limited to:

- Construct replacement tanks for any wildlife water tanks that would be displaced by an activity.
- Use of temporary detention areas with controlled outflow to contain stormwater during construction
- Preservation of existing vegetation –intercepts and retains precipitation and reduces the potential for increased runoff

- Mulching—intercepts and retains precipitation and reduces the potential for increased runoff
- Site design to direct stormwater runoff away from washes and into natural areas where infiltration can occur
- Incorporation of constructed detention/infiltration areas into site designs
- Incorporation of designs to capture stormwater for subsequent use
- Use of pervious surfaces to the extent practicable
- Use of semi-pervious surfaces where appropriate

Facilities would be designed to be compliant with Section 438 of EISA, as applicable, to minimize potential impacts from stormwater runoff. YPG would obtain a CWA Section 404 permit from USACE and a CWA Section 401 Water Quality certification from ADEQ prior to construction of the Aberdeen Road flood improvements. YPG and its construction contractor would be required to comply with all conditions of the CWA Section 404 permit and Section 401 Water Quality certification, including implementation of any mitigation that may be specified as a condition of the CWA Section 404 permit. Should project designs change such that one or more proposed activities would encroach on washes, YPG would obtain appropriate CWA Section 404 permitting in advance of implementing activities with impacts to waters and would comply with all permit conditions.

The INRMP directs YPG to comply with all applicable federal, state, and local laws and regulations, including CWA Section 404 permits, CWA Section 401 water quality certifications, and ADWR Water Rights. As appropriate, the INRMP would be revised to address new activities during subsequent scheduled interagency review.

3.21 Wildlife and Fisheries

3.21.1 Existing Conditions

Wildlife on YPG is typical of the Colorado Desert. Common wildlife species usually have physical and behavioral adaptations to survive the extreme hot and dry conditions that may include light coloration, body armoring, and increased surface area of heat dissipating body parts. Many species also demonstrate nocturnal behavior to avoid the hot daytime temperatures. Mammal, reptile, and bird species are well-represented, while fish and amphibians are limited to perennial waterbodies such as the Colorado and Gila Rivers. The following sections discuss each of these groups within the region and on YPG.

3.21.1.1 Mammals

YPG supports a variety of large and small mammal species. Common large mammals include the desert bighorn sheep, mule deer, coyote, kit fox (*Vulpes macrotis*), gray fox, badger (*Taxidea taxus*), bobcat (*Lynx rufus*), ringtail (*Bassariscus astutus*), and occasional mountain lion. Wild burros and horses also occur on the installation and are managed under the Cibola-Trigo Herd Management Area Plan. Desert bighorn sheep populations are monitored and managed on YPG. See Section 3.16 for a discussion of the protection and management practices established for TES species that occur on YPG (YPG, 2012b).

Common small mammals known to occur on YPG include the rock pocket mouse (*Chaetodipus intermedius*), Merriam's kangaroo rat (*Dipodomys merriami*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail, woodrats (*Neotoma* spp.), Harris' antelope squirrel (*Ammospermophilus harrisii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), California leaf-nosed bat (*Macrotus californicus*), California myotis (*Myotis californicus*), and western pipistrel (*Pipistrellus hesperus*) (YPG, 2012b).

Mesquite bosques provide excellent habitat for mammal species. The most common species observed utilizing the bosques on YPG include mule deer, desert cottontail rabbits, black-tailed jackrabbits, and coyotes. Remote camera surveys determined that larger bosques (10 ac or more in size) received greater wildlife use than small bosques (AZGFD, 2011e).

3.21.1.2 Reptiles and Amphibians

Surveys for reptiles and amphibians were conducted for East Arm and the Cibola Region in 1986 and identified 30 reptile and 3 amphibian species occurring on the installation. The most commonly occurring reptile species included the desert horned lizard (*Phrynosoma platyrhinos*), western whiptail (*Cnemidophorus tigris*), side-blotched lizard (*Uta stansburiana*), sidewinder snake (*Crotalus cerastes*), western diamondback rattlesnake (*Crotalus atrox*), coachwhip (*Masticophis flagellum*), and western shovel-nosed snake (*Chionactis occipitalis*). The red-spotted toad (*Anaxyrus punctatus*), Couch's spadefoot (*Scaphiopus couchii*), and Sonoran desert toad (*Incilius alvarius*) are the three amphibian species known to occur on YPG (YPG, 2012b).

3.21.1.3 Birds

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The MBTA of 1918 established Federal responsibilities to protect birds migrating between the United States and Canada. Subsequent treaties with Mexico (1936), Japan (1972), and the Union of Soviet Socialist Republics (1976) expanded the scope of international protection of migratory birds. Each subsequent treaty was incorporated into the MBTA as an amendment. The provisions of the MBTA are implemented domestically within the signatory countries. Under the MBTA, nearly all species of birds occurring in the United States, their eggs, and their nests are protected. There are 836 bird species protected by the MBTA in the United States, 58 of which are legally hunted as game birds. The MBTA makes it illegal to take (to hunt, pursue, wound, kill, possess, or transport by any means) listed bird species, their eggs, feathers, or nests unless otherwise authorized, such as within legal hunting seasons (USFWS, 2011e). The *National Defense Authorization Act of 2003* authorizes the Armed Forces to take migratory birds incidental to military readiness activities, subject to certain limitations.

The Bald and Golden Eagle Protection Act of 1940, as amended, makes it illegal to take, transport, or possess bald and golden eagles or to engage in commerce in these species with limited allowed exceptions (USFWS, 2011f).

Avifauna. YPG supports an abundant and diverse avifauna typical of the Colorado Desert. All native species occurring on YPG are protected under the MBTA. Common resident birds include the Gambel's quail (*Callipepla gambelii*), verdin (*Auriparus flaviceps*), cactus wren (*Campylorhynchus brunneicapillus*), black-throated sparrow (*Amphispiza bilineata*), loggerhead shrike (*Lanius ludovicianus*), black-tailed gnatcatcher (*Polioptila melanura*), American kestrel

(*Falco sparverius*), turkey vulture (*Cathartes aura*), and red-tailed hawk (*Buteo jamaicensis*) (YPG, 2012b).

The white-winged dove and mourning dove are seasonally abundant on YPG, and many other species migrate through the area as part of the general Pacific Flyway. Surveys conducted in North Cibola Region and East Arm indicated that certain bird species were locally abundant in specific habitats. The rock wren (*Salpinctes obsoletus*) and canyon wren (*Catherpes mexicanus*) were found to be common in high elevation montane habitats dominated by palo verdes and mixed cacti plant communities and two other species, the Costa's hummingbird (*Calypte costae*) and phainopepla (*Phainopepla nitens*), also were seasonally abundant in montane habitats. The sage sparrow (*Amphispiza belli*), LeConte's thrasher (*Toxostoma lecontei*), and horned lark (*Eremophila alpestris*) were identified as typical residents of the sparsely vegetated lower bajadas dominated by creosote bush and bursage or big galleta plant communities (YPG, 2012b).

In the Colorado Desert, the greatest bird use occurs along washes due to greater availability of water and increased habitat diversity (Phillips and Comus, 2000). On YPG, the large washes with bosques of foothills palo verde and smoketree plant associations support the highest densities and richest diversity of desert bird species. Desert washes make up 5 percent of the habitat on YPG, but account for 90 percent of desert birdlife. Common residents of these washes include the lesser goldfinch (*Carduelis psaltria*), common yellowthroat (*Geothlypis trichas*), and red-winged blackbird (*Agelaius phoeniceus*). The Lucy's warbler (*Vermivora luciae*) and yellow warbler (*Dendroica petechia*) are seasonal migrants species also commonly observed in these habitats (YPG, 2012b).

Wintering golden eagles are likely to be uncommon or incidental on the YPG and nesting by this species on the installation has not been documented (YPG, 2012b). Nesting by golden eagles has been reported on the Kofa NWR.

3.21.1.4 Fisheries

Of the approximately 36 fish species historically native to Arizona, 21 are federally protected and 1 is extinct. Some native fish species of the Colorado River basin include the roundtail chub (*Gila robusta*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), Colorado squawfish (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), speckled dace (*Rhinichthys osculus*), and striped mullet (*Mugil cephalus*) (Colorado Plateau-Land Use History Northern Arizona [CP-LUHNA], 1998). The desert sucker (*Catostomus clarkii*), Gila longfin dace (*Agosia chryogaster chryogaster*), machete (*Elops affinis*), Sonora sucker (*Catostomus insignis*), speckled dace, and striped mullet are native fishes to the Gila River basin (USBR, 2009).

Natural and man-made water tanks are present on the installation but do not support native fisheries. Naturally occurring waters on YPG are ephemeral and do not provide adequate and sustainable fisheries habitat (YPG, 2012b).

YPG is east of the Colorado River and north of the Gila River. These rivers have been impacted by dam construction and withdrawal of water for irrigation and other human uses, and the native fish populations have been greatly altered (Phillips and Comer, 2000). Both rivers support game fish populations of flathead catfish (*Pylodictis olivaris*), channel catfish (*Ictalurus punctatus*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), striped bass (*Morone saxatilis*), bluegill (*Lepomis macrochirus*), redear

sunfish (*Lepomis microlophus*), tilapia (*Oreochromis niloticus niloticus*), striped mullet (*Mugil cephalus*), common carp (*Cyprinus carpio*), black crappie (*Pomoxis nigromaculatus*), and rainbow trout (*Oncorhynchus mykiss*) (Yuma Sun, 2008).

3.21.2 Environmental Consequences

The following were evaluated to determine potential impacts to wildlife and fisheries:

- Permanent loss of habitat due to construction or clearing
- Temporary loss of habitat due to testing and training activities
- Disruption of wildlife behavior due to construction or training and testing activities
- Removal of wildlife water tanks
- Reduction in reproduction and survival rates of wildlife species due to construction or testing and training activities
- Unauthorized take of an MBTA species, including bald and golden eagles, during construction or testing and training activities
- Loss of habitat as a result of sedimentation or migration of toxic substances into off-post waters

3.21.2.1 Significance Criteria

Significance criteria for the analysis of direct, indirect, and cumulative impacts to wildlife and fisheries include:

- Minor to Moderate (less than significant)—Activities that would cause changes in behavior that result in long-term or permanent changes of habitat use.
- Minor to Moderate (less than significant)—Activities that would cause changes in behavior that do not result in a level of physiological stress that substantially affects productivity or survival.
- Minor to Moderate (less than significant)—Activities that would cause changes in behavior that result in temporary displacement of populations or temporary changes in habitat use that do not lead to a substantial decrease in productivity or survival.
- Minor to Moderate (less than significant)—Activities that would affect a fish population but do not cause population-level impacts within local waterways.
- Minor to Moderate (less than significant)—Activities that would result in changes to habitat for birds protected under the MBTA but do not cause population-level effects.
- Severe (significant)—Activities that would cause increases in species mortality rates that jeopardize sustainable regional populations or negatively affect established state wildlife management levels for populations.
- Severe (significant) –Activities that would violate the MBTA or Bald and Golden Eagle Protection Act or otherwise cause discernible population-level impacts at the installation or regional level.
- Severe (significant)—Activities that would lead to population-level impacts to any fish species within local waterways.

- Severe (significant)—Activities that would cause changes in behavior that result in long-term or permanent changes of habitat use.
- Severe (significant)—Activities that would cause changes in behavior that result in physiological stress that substantially affects productivity or survival of a wildlife or fisheries population.
- Severe (significant)—Activities that would cause changes in habitat use that result in permanent displacement of populations from current range or shifts in habitat use that result in substantially decreased productivity or survival.

3.21.2.2 Impacts of the No Action Alternative

Under the No Action Alternative, conditions on YPG would not change and testing and training capabilities would remain at current levels. Ongoing testing and training would occur in specific areas within YPG (Figures 2-4 through 2-12). Tables identifying the testing and training activities that would occur under the No Action Alternative are provided in Appendix B (Tables B-1 through B-3), separated according to the three regions (Laguna, Cibola, and Kofa Regions). No test areas, munitions impact areas, or DZs would be expanded under the No Action Alternative. No construction or demolition would occur under the No Action Alternative. Mission operations would result in minor impacts to wildlife, as testing and training activities continue in authorized areas at authorized levels. Wildlife impacts could result from on-road and off-road vehicle use, illegal hunting, dismounted maneuvers, and test operations (including set-up for these operations). Impacts of these activities have been previously evaluated under NEPA in the assessments listed in Section 2.3.2.

The evaluations and analyses presented in the NEPA documents listed in Section 2.3.2 provide an assessment of the potential impacts to wildlife that would result from the No Action Alternative. The analyses presented in the NEPA documents listed above are incorporated into this FPEIS by reference.

Under the No Action Alternative, YPG would continue to coordinate with AZGFD to rehabilitate injured animals where recovery is practicable. YPG would continue to maintain movement corridors and migratory pathways to allow seasonal movements of animals. YPG would coordinate law enforcement efforts with AZGFD and USFWS to address illegal hunting and habitat degradation associated with unauthorized recreation and illegal hunting. YPG would patrol remote areas and maintain boundary and access signs to deter illegal and unauthorized activities that could negatively affect wildlife.

Wildlife could be startled by noise created by testing or training on YPG and the No Action Alternative, but have not been observed to alter long-term behavior or to exhibit reduced survival as a result of noise from YPG. Testing and training activities have been occurring on YPG since the 1950s and wildlife have become acclimatized to this type of noise disturbance. Disturbance to wildlife from noise created by testing and training on YPG would recur through time, but individual events would be minor and temporary.

Ongoing testing and training activities do not seem to have negatively affected populations of game species. Desert bighorn sheep populations have been stable in the past 10 years and the current population is larger than in the 1980s (YPG, 2012b). Mule deer on YPG increased by approximately 1,000 animals, from 1,256 to 2,254, between 1991 and 2007. No impacts to game species would be expected under the No Action Alternative.

The NRC-licensed DU impact area has a DU Catchment Structure, and spent DU rounds are regularly collected by Ammunition Recovery personnel and stored by YPG Radiation Protection until packaged and transported to a licensed disposal facility by the Army's Radioactive Waste Authority. There is an evaporative lagoon that collects runoff from the DU Catchment Structure and is sized to accommodate a 100-year storm event to minimize the potential for stormwater transport of DU off-post or to other areas on-post. Studies have shown (Obregon, 2013c, personal communication) that DU is contained within the DU licensed area and does not migrate. Therefore, DU would not directly affect any wildlife species. Previous investigations indicate that impacts likely would be limited to small herbivores that are less mobile and have limited foraging ranges rather than large mammals, such as mule deer and desert bighorn sheep (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.21.2.3 Impacts of the Proposed Action/Preferred Alternative

Impacts to wildlife that would occur under the No Action Alternative also would occur under the Proposed Action. In addition, there would be direct and indirect impacts from construction and use of new or expanded testing and training areas. Direct impacts to wildlife would result from displacement, reduced health from increased stress, or incidental mortality. Indirect impacts to wildlife could result from disturbance that results in nest/den abandonment, reduced foraging time, loss of habitat, or disruption of migratory pathways. The majority of wildlife habitat on YPG would remain intact and would be able to sustain wildlife populations. Additional indirect impacts could result from introduction or spread of exotic invasive plant species that would result in habitat degradation. Disruption of normal activity patterns and loss of habitat would be the primary impacts to wildlife. Limited incidental mortality would likely occur, but would be less than significant at the population level. YPG would continue to maintain movement corridors and migratory pathways for wildlife. This section addresses potential impacts to common wildlife on YPG; potential impacts to TES species are addressed in Section 3.16.

Wildlife on YPG tends to be most abundant near sources of water. Artificial water tanks have been placed to encourage wildlife to relocate away from areas where testing and training activities regularly occur. Only eight proposed activities would be conducted in proximity to artificial water sources (Figures 3-9 through 3-11). The potential for impacts due to proximity to water tanks was discussed in Section 3.20.

Desert bighorn sheep typically utilize the mountainous areas on YPG and may traverse non-mountainous areas (Figures 3-9 through 3-11). Through site selection for proposed activities, YPG has minimized the location of activities in mountainous areas to the extent practicable. Where it is necessary to locate activities in mountainous areas, if practicable, the activities are located near the periphery of mountains to minimize intrusion into mountains. Use of LTAs proposed in mountainous areas could result in disturbance of sheep during lambing and rearing of young. TEMO will coordinate with YPG Natural Resources staff prior to scheduling testing or training events in LTAs in mountainous areas to avoid interference with ewes and lambs during these sensitive times. During other times of the year, dismounted maneuvers in proposed LTAs would have no more than minor impacts to desert bighorn sheep.

Exotic invasive plant species can become established in areas where soils are disturbed, such as construction sites and areas used for testing and training. Exotic invasive plant species

displace native vegetation and offer less habitat value than native plants. Encroachment by exotic invasive plants can eliminate food resources and structural habitat used by native wildlife. Native wildlife species are not adapted to these non-native plants and may not be capable of using them for food or habitat. Exotic invasive plant species consume more water than native vegetation and can reduce available surface or shallow groundwater. The reduction in available water can lead to water stress in wildlife and ultimately to mortality and reduction of population viability. Because exotic invasive plants can affect wildlife through alteration of habitat, increased wildfire, and loss of available water, it is desirable to control these species on YPG. A program to establish exclusion, monitoring, and eradication of exotic invasive plants on YPG is being developed as part of the ongoing INRMP implementation (YPG, 2012b). Control of exotic invasive plant species would be beneficial to wildlife and wildlife habitat.

Wildfire could impact wildlife species on YPG through direct mortality, disruption of reproduction, or loss of habitat. Exotic invasive plant species have the greatest potential to affect wildfire size and intensity through creation of extensive stands with high fuel loads (see Sections 3.7 and 3.18). Areas where native vegetation is cleared or where soils are disturbed are more susceptible to colonization by exotic invasive plant species. Because desert vegetation recovers slowly, wildfire impacts to wildlife habitat are long-term. Depending on size and intensity, impacts from a particular wildfire could range from minor to severe. Measures that would be implemented to minimize the potential for colonization and growth of exotic invasive plant species are discussed in Sections 3.7 and 3.18. Implementation of these measures would minimize the potential for severe impacts to wildlife from wildfire. Control of exotic invasive plant species would reduce wildfire risk to wildlife.

Noise and the physical activity associated with the presence of humans during construction and during testing and training events can cause wildlife to relocate. Animals, such as birds and mammals, may abandon nests or dens in the immediate area of human activities, including abandonment of young. These types of impacts can be minimized during construction by conducting work outside of the reproductive period, but avoidance of this type would not be practicable for testing and training activities. The nearly constant level of testing and training conducted on YPG makes it unlikely that animals would nest or den in proximity to areas used for these purposes unless those animals were already acclimatized to increased human activity. Because most construction would occur in areas where high levels of human activity already occur and because testing and training are ongoing at or near most locations where increases are proposed, it is expected that the potential for nest/den abandonment would be minor. Where feasible, activities would be scheduled to minimize potential conflict with animal reproduction and rearing of young.

Incidental mortality of wildlife and avian species could occur during construction or during testing and training activities. Because these activities would occur over a larger area under the Proposed Action, it is likely that additional incidental mortality would occur compared to the No Action Alternative. No species would be expected to become locally extinct as a result of increased incidental mortality caused by the Proposed Action. Where practicable, wildlife would be relocated from proposed activity areas in accordance with procedures established in the INRMP. Any impacts from incidental mortality associated with construction would be minor and short-term. Incidental mortality from testing and training activities would be minor and long-term.

Development of new facilities or infrastructure can increase predation. As electrical transmission lines, communication towers, or other structures are constructed, avian predators may utilize these areas as hunting perches. A common characteristic of roads in a desert environment is that water shedding from the road surface frequently causes a higher abundance of vegetation along roadsides, which can draw wildlife near roads where they may be hit by vehicles. This roadkill can attract predators such as ravens and coyotes, which further prey upon smaller mammals and reptiles.

Should it become necessary, removal of wildlife water tanks (discussed in Section 3.20) could affect wildlife species. Excluding new or expanded LTAs, which would not affect water tanks, only eight proposed activities would occur in proximity to wildlife water tanks. Areas with water tanks that may be used by wildlife species have been avoided to the extent practicable. Current plans would not result in removal or relocation of any wildlife water tanks, but should changes occur that would result in water tank removal to implement an activity, any wildlife water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location. Disruption of normal animal activity patterns would likely result from removal and replacement of water tanks, but these impacts would be a short-term and minor with regard to TES species. No population level impacts would be expected.

Managed game species could be impacted by testing and training activities under the Proposed Action. Construction under the Proposed Action would not occur in areas where game management is conducted and would not be expected to impact game species. Potential impacts would be the same as described for general wildlife. Impacts to game species could affect recreational hunting. The potential for the Proposed Action to impact recreational hunting is discussed in Section 3.12. New and expanded testing and training areas would largely be placed outside of preferred habitats of the desert bighorn sheep. Impacts to this species would be expected to be minor and short-term. Mule deer would be expected to experience similar short-term impacts. Both species would be expected to acclimatize to the use of new or expanded testing and training areas with time. Because the yearly fluctuations in the frequency, intensity, or duration of testing and training events (as discussed in Sections 2.1.2 and 2.3.3.8) would be within the maximum and minimum levels observed historically, the level of human activity associated with testing and training would not be expected to increase but it would occur over a larger area.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a renewable solar electric generation facility would result in removal of up to approximately 8,900 ac of desert scrub habitat. There likely would be moderate incremental cumulative impacts to wildlife species that utilize this habitat when this loss is combined with other projects on YPG that would remove desert scrub habitat.

Most impacts to wildlife from the Proposed Action would be indirect impacts from loss of habitat. As directed by the INRMP, YPG would monitor habitat and wildlife and would use adaptive management to maintain biological resources to the maximum extent practicable. The potential for impacts wildlife is discussed by region in the following sections.

Laguna Region. Most proposed construction would occur in the Laguna Region. Because of extensive previous development and high levels of human activity in the Laguna Region, the potential for construction to impact wildlife is less than in other regions of YPG, where less development and activity occur. Construction could displace wildlife from suitable habitat that is within or adjacent to the construction footprint. Displacement could be short-term, where habitat would not be lost, or permanent if the habitat area would be destroyed by construction. Because there is suitable habitat for relocation both on YPG and in the area surrounding the Laguna Region, impacts from displacement in the Laguna Region would be expected to be minor.

In the Laguna Region approximately 350 ac of desert scrub habitat would be removed and, of that total, 125 ac would be converted to impervious surfaces, as discussed in Section 3.18. Approximately 160 ac of the cleared area would be used for a UAS launch/recovery area and the remainder would be mainly associated with range road improvements. Creation of a new DZ would result in the disturbance of approximately 45 ac. Installation of utility lines would remove approximately 0.6 ac of desert scrub habitat. Because of the level of development and human activity in the Laguna Region, loss of habitat would have less impact on wildlife than in other parts of YPG.

Expansion of dismounted maneuver areas and new vehicle test courses would impact respectively approximately 8,490 ac and 9,040 ac, most of which would not be cleared of vegetation, unless required to meet specific testing requirements. Under the Proposed Action, use of the areas added as expanded LTAs would be limited to dismounted maneuvers and would not include the establishment of new concentrated bivouac areas for large units or new off-road vehicle/equipment parking areas. Because vegetation would not be removed and because these areas are in proximity to locations that currently receive high human activity, impacts to wildlife would be expected to be minor.

There is one proposed construction activity in the Laguna Region in proximity to a water tank used by wildlife (Figure 3-9). Site selection and preliminary designs for the proposed building and asphalt pad avoid the water tank. Current plans would not result in removal or relocation of any wildlife water tanks. Should changes occur that would result in water tank removal to implement an activity, any wildlife water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location to maintain the resource. Disruption of normal activity patterns from removal and replacement of new water tanks would be a short-term, minor impact to wildlife species in the Laguna Region. No population level impacts would be expected. Should removal of a water tank used by wildlife be necessary, it could affect TES species (Section 3.16) and water resources in the area (Section 3.20).

Continued implementation of the INRMP to manage habitat on YPG would minimize the potential for impacts to wildlife from loss of habitat. Wildlife impacts in the Laguna Region would be long-term and minor.

Cibola Region. In the Cibola Region, approximately 740 ac of desert scrub vegetation would be removed and, of that total, 130 ac would be converted to impervious surfaces, as discussed in Section 3.18. Approximately 530 ac of the cleared are would be used as a UAS launch/recovery area and the remainder would be associated with TGPs and the forward staging area. Creation and expansion of DZs would result in disturbance to approximately 978 ac of desert scrub vegetation. Installation of utility lines would disturb approximately 16

ac cleared for installation of utilities. Because of the small area that would be cleared relative to the size of the Cibola Region, impacts to wildlife would be minor to moderate.

Expansion of munitions impact areas would impact approximately 16,300 ac, most of which would not be cleared of vegetation, unless required to meet specific testing requirements. Because vegetation would not be removed and because these areas are in proximity to locations that currently receive munitions impacts and high human activity, impacts to wildlife would be expected to be minor.

YPG would establish 23 new TGPs that would include clearing of up to 50.6 ac of desert scrub habitat in the Cibola Region. Clearing would be spread across the Cibola Region and would be spread in time, but the slow recovery of desert vegetation would result in habitat impacts being long-term. Because individual TGPs would be relatively small and would be dispersed across the landscape, wildlife impacts from TGPs would be expected to be minor and long-term.

Expansion of dismounted maneuver areas would cover approximately 66,400 ac. Under the Proposed Action, use of the areas added as expanded LTAs would be limited to dismounted maneuvers and would not include the establishment of new concentrated bivouac areas for large units or new off-road vehicle/equipment parking areas. No direct impacts to habitat would result from creation of this maneuver area. Dismounted maneuvers typically would result in diffuse movement through the area, which would have negligible impacts on habitat. Dismounted maneuver activities could displace wildlife from the areas during operational testing and training activities. Because operational testing and training activities could occur throughout the year, displacement of wildlife would be expected to recur unless animals acclimatize to the periodic human activity. Because any training activities would be of short duration (typically less than 2 weeks) and there would be extended periods of inactivity between training events, the recurring impacts would be temporary.

Establishment of a new vehicle test course would cover an area up to 4,644 ac. Minor direct impacts to habitat would result from creation of discernible trails. Vehicle testing and dismounted maneuver activities could displace wildlife from the areas during operational testing and training activities. Because testing and training activities could occur throughout the year, displacement could range from temporary to permanent.

There are two proposed construction activities in the Cibola Region in proximity to wildlife water tanks (Figure 3-10). Current plans would not result in removal or relocation of any wildlife water tanks. Should changes occur that would result in water tank removal to implement an activity, any wildlife water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location to maintain the resource. Disruption of normal activity patterns from removal and replacement of new water tanks would be a short-term, minor impact to wildlife species in the Cibola Region. No population level impacts would be expected. Should removal of a water tank used by wildlife be necessary, it could affect TES species (Section 3.16) and water resources in the area (Section 3.20).

Continued implementation of the INRMP to manage habitat on YPG would minimize the potential for impacts to wildlife from loss of habitat. Impacts of the Proposed Action on wildlife in the Cibola Region would be long-term and moderate.

Kofa Region. New building/facility construction in the Kofa Region is primarily limited to new or replacement structures at fixed GPs, where previous clearing would limit the potential for impacts to vegetation, and at new training complexes. Much like the situation in the Laguna Region, the potential for impacts to wildlife would be minor due to the previous and ongoing disturbance and the level of human activity associated with the fixed GPs.

Proposed construction activities would result in clearing of approximately 215 ac of desert habitat in the Kofa Region, with all vegetation removed from this acreage as a result. New construction, including paving, creation of a UAS launch/recovery area near SWTR, the East Kofa Operations Center, and a training complex in the northern part of East Arm, would convert approximately 54 ac of the Kofa Region to impervious surfaces. Approximately 156 ac of the cleared area would be used as a UAS launch/recovery area. Approximately 2.7 ac of desert scrub habitat would be cleared for utilities placement and approximately 305 ac of desert scrub habitat would be disturbed by activities related to DZs. Because of the small area that would be cleared relative to the size of the Kofa Region, any impacts to wildlife would be minor.

New dismounted maneuver areas would be established in the Kofa Region, which would cover up to approximately 53,180 ac (51,354 ac under the Preferred Alternative). This Proposed Action limits the use of these LTAs to dismounted maneuvers and does not include the establishment of concentrated bivouac areas for large units or off-road vehicle/equipment parking areas. No direct impacts to habitat would result from this activity. Dismounted maneuvers typically would result in diffuse movement through the area, which would have negligible impacts on habitat. Dismounted maneuver activities could displace wildlife from the areas during operational testing and training activities. Because operational testing and training activities could occur throughout the year, displacement of wildlife would be expected to recur through time unless animals acclimatize to the periodic human activity. Because any training activities would be of short duration (typically less than 2 weeks) and there would be extended periods of inactivity between training events, the recurring impacts would be temporary.

Approximately 29,757 ac of desert scrub habitat would be used for munitions impact area expansion, which would not be cleared except to meet specific testing requirements. Because vegetation would not be removed, because specific testing activities employing munitions live fire involve small numbers of rounds with many designated for air burst, and because these areas are surrounded by large areas that currently receive munitions impacts, impacts to wildlife would be expected to be minor to moderate. Wildlife regularly are observed using or traversing munitions impact areas without incident and it is expected that no more than incidental impacts from munitions testing would result.

There are five proposed construction activities in the Kofa Region in proximity to wildlife water tanks (Figure 3-11). Current plans would not result in removal or relocation of any wildlife water tanks. Should changes occur that would result in water tank removal to implement an activity, any wildlife water tanks that would be removed would be replaced prior to removal by a comparable water tank as close as feasible to the original location to maintain the resource. Disruption of normal activity patterns from removal and replacement of new water tanks would be a short-term, minor impact to wildlife species in the Kofa Region. No population level impacts would be expected. Should removal of a

water tank used by wildlife be necessary, it could affect TES species (Section 3.16) and water resources in the area (Section 3.20).

Continued implementation of the INRMP to manage habitat on YPG would minimize the potential for impacts to wildlife from loss of habitat. Impacts of the Proposed Action on wildlife in the Cibola Region would be long-term and moderate.

Impacts Summary. Wildlife would be temporarily disturbed by construction activities and associated noise. It is likely that wildlife would relocate to similar habitat nearby. After construction is complete, wildlife may resume use of areas adjacent to the construction or acclimatize to the new habitat occupied at the time of displacement. Most proposed construction would occur in cantonment areas or other previously developed locations where wildlife habitat is limited and human activity is common. Impacts from construction would likely be minor and short term at any given location, but would recur through time across the installation.

New dismounted maneuver areas would be established at multiple locations across YPG. Dismounted maneuvers typically would result in diffuse movement through an area, which would have negligible impacts on habitat. Dismounted maneuver activities could displace wildlife from areas during operational testing and training activities. Because operational testing and training activities could occur throughout the year, displacement of wildlife would be expected to recur through time unless animals acclimatize to the periodic human activity. Because any training activities would be of short duration (typically less than 2 weeks) and there would be extended periods of inactivity between training events, the recurring impacts would be temporary.

Excluding new or expanded LTAs, which would not affect wildlife water tanks, only eight proposed activities would occur in areas in proximity to wildlife water tanks (Figures 3-9 through 3-11). Any wildlife water tanks that would be removed to implement an activity would be replaced by a comparable new water tank prior to removal to maintain the resource in the area. Replacement wildlife water tanks, if necessary, would be established as close as feasible to the removed water tank. No cumulative impacts to wildlife would be expected with regard to water tanks.

Wildfire could impact wildlife species on YPG through direct mortality, disruption of reproduction, or loss of habitat. Exotic invasive plant species can affect wildfire size and intensity in areas where native vegetation is cleared or where soils are disturbed during activities. Depending on size and intensity, impacts from a particular wildfire could range from minor to severe. Measures that would be implemented to minimize the potential for colonization and growth of exotic invasive plant species are discussed in Sections 3.7 and 3.18.

New TGPs could result in disturbance, including clearing, of up to 50.6 ac of desert scrub habitat in the Cibola Region and up to 26.4 ac of desert scrub vegetation annually in the Kofa Region, but only within isolated areas of up to 2.2 ac each. Clearing would be spread through both space and time, but the slow recovery of desert vegetation would result in habitat impacts being long-term. Because individual TGPs would be relatively small and would be dispersed across the landscape, wildlife impacts from TGPs would be expected to be minor and long-term.

The cumulative effect of incremental habitat loss within YPG from all proposed activities would be moderate. No significant incremental impacts to wildlife from this habitat loss would be expected. Past and reasonably foreseeable future activities also could interact with the effects of the Proposed Action concerning impacts to wildlife. Because all impacts to wildlife resulting from the Proposed Action would be confined within the boundary of YPG and because there would be no loss of species, it is not expected that wildlife impacts of the Proposed Action would interact with off-post actions to affect regional wildlife populations.

YPG is considering development of a commercial-scale renewable solar electrical energy generation facility through use of an EUL with private business. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar energy generation facility on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). Development of a renewable solar electric generation facility could contribute to cumulative impacts to wildlife species that utilize desert scrub habitat through incremental loss of habitat.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. This project would result in the loss of up to 1,675 ac of wildlife habitat. However, it is not anticipated this would contribute to regional cumulative impacts to wildlife populations.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to wildlife and fisheries. While specific impacts are unknown at this time, it is likely that a substantial acreage would be cleared of native vegetation for each project, which would reduce available habitat for native wildlife and likely would contribute to individual mortality for some species. It is likely that BLM will require appropriate measures, possibly including modifications to site designs to prevent loss of any habitat type or species from the region. Therefore, any contribution to cumulative impacts to wildlife and fisheries would be expected to be minor.

3.21.2.4 Mitigation

YPG considered potential impacts to wildlife in selecting locations for proposed activities. Because wildlife species tend to be most abundant near sources of water, YPG avoided placing activities in proximity to artificial water sources to the extent practicable. By avoiding wildlife concentration areas, YPG minimized the potential for impacts to wildlife. When implementing construction projects in areas where wildlife are likely to nest or den, YPG would schedule construction to occur outside the nesting or denning period where practicable.

To minimize the potential for impacts to wildlife YPG would limit surface-disturbing activities to the smallest area practicable and would avoid vegetation where feasible. Any water tanks that would be removed would be replaced by a comparable tank. If removal of a water tank is necessary, a new water tank would be established near the current water tank prior to maintain the resource.

The INRMP (YPG, 2012b) directs the management of natural resources, including wildlife, within YPG. Through continued implementation of the INRMP, YPG utilizes the best

available scientific knowledge and techniques to manage wildlife. To manage and sustain wildlife on YPG, the installation would:

- Survey, monitor, and analyze wildlife population trend information
- Assess wildlife habitat needs
- Manage resources to provide and protect wildlife habitat
- Maintain wildlife movement corridors and migration routes
- Relocate wildlife to maintain, enhance, or restore populations and distributions
- Ensure that water tanks provide the water needed to sustain wildlife populations
- Undertake actions to minimize illegal hunting
- Undertake actions to minimize habitat degradation from unauthorized activities
- Cooperate with AZGFD to obtain wildlife rehabilitation services
- Cooperate with AZGFD and USFWS for wildlife law enforcement

Management of exotic invasive plants on (see Section 3.18) would benefit wildlife through improved habitat conditions. Measures that would be implemented to avoid or minimize impacts to soils (see Section 3.15), vegetation (see Section 3.18), and water resources (see Section 3.20) would provide indirect benefits to wildlife through improved habitat conditions.

3.22 Summary of Impacts and Mitigation

Potential impacts of the alternatives considered in this FPEIS are summarized in Table 3-19. Cumulative impacts and potential minimization and mitigation measures are summarized in Tables 3-20 and 3-21.

TABLE 3-19
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
Air Quality	No change from existing conditions. Benefits from reduced use of portable generators would not occur.	Minor impacts from increased emissions due to operation of minor permanent sources of air emissions created by proposed construction activities, operation of new facilities, vehicle operation to travel to new facilities, and testing and training activities in new locations. Temporary negative impacts due to fugitive dust from construction. Negligible short-term impacts to local air quality as a result of emissions from construction equipment. Minor beneficial impacts from installation of hard power and telecommunications lines with associated reduction in the use of portable generators for testing and training.
Airspace Management	No change from existing conditions.	No change from existing conditions.
Cultural Resources	Potential impact from inadvertent discovery of cultural resources during testing or training activities at current approved locations and levels. Potential for damage to cultural	Potential impact from inadvertent discovery of cultural resources during ongoing activities. Potential impacts to cultural resources in areas not previously surveyed. As appropriate, surveys, SHPO consultation

TABLE 3-19
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
	resources from vandalism. As appropriate, surveys, SHPO consultation under the NHPA, and mitigation would be implemented	under the NHPA, and mitigation would be implemented. Potential for minor to moderate impacts from construction and training activities and from increased potential for inadvertent discovery due to increase in area where activities would be implemented. Potential for damage to cultural resources from vandalism.
Energy/Utilities	Portable generators would continue to be used at current levels and locations. Continued use of utilities at current levels, which would fluctuate depending on annual testing and training needs. Continued use of bottled water and individual RO systems outside of MAA. Satellite uplinks powered by portable generators would continue to be used for telecommunications. Benefits from reduced use of portable generators would not occur. No change from existing conditions for solid waste. No significant increase in non-hazardous waste is anticipated to occur. No significant impacts to the non-hazardous waste landfill capacity would be anticipated. Potential for conflicts in scheduling multiple users with needs to conduct testing in areas free of electromagnetic interference from cellular/radio towers.	**Energy/Electricity** Beneficial impacts from construction of more energy-efficient buildings. Energy demand would fluctuate depending on annual testing and training needs, with potential for minor to moderate impacts to energy use in the region in years of high levels of testing and training. Minor beneficial impacts from use of solar-powered lights. Moderate long-term beneficial impacts to regional energy consumption from installing hard power to locations currently using portable generators. Minor beneficial impacts to air quality from reduced emissions and to hazardous materials management from reduced transport and handling of fuels following installation of hard power to testing and training locations with associated reduction in generator use. **Water** No impacts to groundwater as no change in groundwater use is projected. Minor indirect temporary impacts to surface waters during construction. **Wastewater** New evaporative lagoon at CDH and new sewage lagoon at Kofa cantonment area would have minor beneficial impacts on wastewater utilities. **Telecommunications** Minor beneficial impacts to air quality from reduced emissions and to hazardous materials management from reduced transport and handling of fuels following installation of hard power to testing and training locations with associated reduction in use of generators and satellite uplinks. Greater flexibility in scheduling users needing test areas free of electromagnetic interference. **Solid Waste** No significant increase in non-hazardous waste is anticipated to occur. No significant

TABLE 3-19
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
		impacts to the non-hazardous waste landfill capacity or regional construction and demolition landfills are anticipated.
Environmental Justice and Protection of Children	No change from existing conditions.	No changes from existing conditions and no impacts.
Fire Management	No change from existing conditions. The potential for wildfires would continue and fire management activities would continue. Fire management from new EOC in the Laguna Region would not occur. YPG will implement the Terms and Conditions specified in the September 9, 2014 BO from USFWS that pertain to fire management in the Kofa Region.	Minor increase in potential for wildfires due to use of new or expanded testing and training locations. Minor to moderate potential for increased fuel load from growth of exotic invasive plant species. New EOC in the Laguna Region would benefit fire management. YPG will implement the Terms and Conditions specified in the September 9, 2014 BO from USFWS that pertain to fire management in the Kofa Region.
Geological Resources	No change from existing conditions.	No change from existing conditions and no impacts.
Hazardous Materials/Hazardous Waste	No change from existing conditions. No changes in volumes of hazardous materials used or hazardous wastes generated. Potential for leaks from on-road and off-road vehicle use and maintenance, POL spills, and chemical decomposition of munitions constituents of concern (MCOCs) would remain. YPG will continue to conduct regular range assessments to determine the potential for migration of MCOCs. YPG would implement appropriate measures should off-range migration that could affect human health or the environment be indicated.	Impacts and sampling described for the No Action Alternative would occur, plus additional potential for minor impacts from leaks associated with vehicle use and maintenance, POL spills, and chemical decomposition of MCOCs as a result of use of new or expanded testing and training areas. Activities would comply with the BMPs identified in the SPCCP and ISCP. Minor short-term increase in hazardous waste generation due to demolition of buildings containing ACMs. Potential for minor impacts from increased use and disposal of certain hazardous materials during testing and training activities. Potential for impacts from installation of air conditioning components. Minor beneficial effects from construction of appropriate down-range facilities to store and contain POLs and reduce the potential for spills. Minor beneficial effects from installation of hard power and telecommunications to testing and training sites that would reduce use of portable generators and also reduce the transport of fuel.
Land Use	No change from existing conditions.	Minor changes from conversion of open space to other uses, but consistent with military land uses.

TABLE 3-19
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
		The slight changes in the noise zones that may result from large artillery testing would not require any changes to the land uses designated in the Yuma County 2020 Comprehensive Plan.
Noise	No change from existing conditions. Continued sporadic impacts to wildlife from noise during testing and training activities. Continued potential for complaints from the Martinez Lake area.	The slight changes in the noise zones that may result from large artillery testing would not affect use of surrounding lands outside the installation boundary. Minor long-term impact on wildlife from disturbance from sporadic noise from use of new or expanded testing and training areas. Minor temporary impact to wildlife from noise due to construction activities. Potential for minor disturbance of outdoor conversations due to construction noise. No permanent sensitive human receptors in proximity to construction areas.
Recreation	No change from existing conditions. No new recreation facilities would be constructed.	No impacts to off-post recreational opportunities. Potential for minor to moderate impacts to recreational hunting in the Cibola Hunting Area, Martinez Hunting Area, and the East Arm Hunting Area due to use of new and expanded testing and training areas. Beneficial impacts to other on-post recreation from construction of new park, youth center addition, and improvements to other passive recreational opportunities. Loss of greenspace in MAA that is used by residents for passive recreation from Cox Field improvements. Potential disruption of some on-post recreation during construction.
Safety	No change from existing conditions. Recreational users on the southern portion of Kofa NWR within YPG airspace R-2307could be exposed to risk when operations on YPG have a safety fan that extends onto Kofa NWR. Safety benefits that would result from the Proposed Action would not occur.	Potential for minor increase in safety incidents due to increase use of new or expanded testing and training areas, but the rate of incidents (expressed per worker hour) would not be expected to change. Minor potential increase in frequency of wildfire ignition due to use of new or expanded testing and training areas. Potential for minor short-term impacts to construction worker safety. Potential minor temporary impacts to traffic safety due to construction-related traffic. Moderate benefits to operational safety due to AT/FP improvements, MEDEVAC helicopter pads, flood upgrades on Aberdeen Road, pedestrian safety from D Street conversion to walkway, and installation of shading at multiple locations.

TABLE 3-19
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
		Minor benefit to personnel safety from installation of hard power and telecommunications in the Cibola and Kofa Regions due to decreased transportation of fuel and portable generators. Minor benefit to personnel safety due to reduced heat stress following installation of new shade structures. Minor benefit to safety from placing overhead wires underground. Moderate benefit from relocating safe haven away from YPG personnel. Recreational users on the southern portion of Kofa NWR within YPG airspace R-2307could be exposed to risk when operations on YPG have a safety fan that extends onto Kofa NWR.
Socioeconomics	No change from existing conditions. Short-term benefits to local economy from construction would not occur.	Minor short-term beneficial impacts to local economy from purchase of building materials, short-term construction jobs, and secondary spending by construction workers. Potential for negligible to minor impacts on local fuel and water retailers from reduction in demand for these services on YPG.
Soils	No change from existing conditions. Continued impacts to soils from testing and training activities at authorized locations and levels.	Impacts described for the No Action Alternative would continue, but with increased potential for impacts due to use of new or expanded testing and training areas. Increase in disturbed area and disturbance to soils used for dismounted maneuver training, munitions impact areas, DZs, and UAS launch/recovery areas resulting in negligible to minor impacts to soils that are not susceptible to erosion to moderately erodible and moderate impacts to highly erodible soils that are disturbed. Minor impact from establishment of TGPs in the Cibola Region. Long-term indirect impact from degradation of munitions into soils in munitions impact areas. Disturbance due to construction resulting in negligible to minor impacts to soils that are not highly erodible to moderately erodible and moderate impacts to highly erodible soils. Minor impacts from disturbance to soils during installation of utilities.
Threatened and Endangered Species and Species of	No change from existing conditions. Potential for minor impacts to TES species, as	**Transient or Incidental Species** Negligible to minor impacts likely from displacement during construction, testing, or

TABLE 3-19
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
Concern	testing and training activities continue at existing locations and levels.	training activities. **Sonoran Desert Tortoise** Long-term moderate impacts from loss of habitat and potential for incidental mortality. **Sonoran Pronghorn** Long-term minor impacts from visual and auditory disturbance to the experimental population due to testing and training activities. Potential threat to individual pronghorn from munitions testing or UXO. Potential alteration of foraging habitat in the event of wildfire. **Banded Gila Monster** Minor long-term impacts from loss of habitat and disturbance from construction, testing, and training activities. **TES Bat Species** Negligible to minor long-term impacts due to loss of foraging habitat. **Loggerhead Shrike** Moderate long-term impacts from loss of habitat and disturbance caused by construction, testing, and training activities. **Western Burrowing Owl** Moderate long-term impacts due to loss of habitat and disturbance from construction, testing, and training activities. **Parish's Onion** Negligible to minor long-term impacts from incidental mortality and due to the slow growth rate of these species. **Other TES Plants** Minor long-term impacts from clearing of vegetation for construction, testing, and training purposes. **Wild Horses and Burros** Minor temporary impacts due to construction activities. Minor long-term impacts due to displacement and loss of habitat from establishment of new or expanded testing and training areas. No impacts to other species.
Traffic/Transportation	No change from existing conditions. No new impacts would occur.	Potential increase in temporary road closures and construction-related traffic. Minor short-term impact. Long-term beneficial impacts from improved traffic safety due to flood upgrades, intersection improvements, and range road improvements. Long-term benefits to mission from increased efficiency of military air activities due to new infrastructure.

TABLE 3-19
Impacts by Resource Area
Yuma Proving Ground

Resource Area	No Action Alternative	Proposed Action
Vegetation	No change from existing conditions. Continued impacts to vegetation from testing and training activities at current locations and levels.	Minor to moderate impacts due to removal of vegetation for construction, use of new or expanded testing and training areas, and use of new impact areas.
Visual Resources	No change from existing conditions. Current testing and training activities would continue to have negligible to minor impacts to visual resources.	Temporary minor impacts from construction-related airborne dust. Recurring temporary minor impacts from dust and other obscurants caused by testing and training. Potential long-term minor impacts from increased use of lighter-than-air UASs. Potential minor long-term impacts from appearance of new buildings.
Water Resources	Continued impacts from contaminants and water consumption due to testing and training activities at current locations and levels.	Potential temporary minor adverse impacts to water quality resulting from sediment runoff during construction and an increase in impervious surfaces following construction, reduced with use of appropriate BMPs Minor to moderate increased potential for impacts to groundwater from degradation of munitions. Minor potential for offsite impacts due to transport of contaminants and sediments generated from stormwater runoff on new or expanded testing and training areas. Potential negligible reduction in groundwater recharge rates due to new impervious area.
Wildlife and Fisheries	No change from existing conditions. Minor impacts to wildlife would continue under current levels of testing and training activities at current locations.	Minor short-term impact from incidental mortality, displacement, and disturbance due to construction. Potential for minor to moderate long-term impacts from incidental mortality, displacement, and disturbance due to creation and use of new or expanded testing and training areas. Minor to moderate long-term indirect impacts from loss of habitat due to construction, UAS launch/recovery areas, utilities, and TGPs and only minor impacts from disturbance of habitat due to use of DZs.

Any activities and projects selected for implementation following analysis in this FPEIS will require additional evaluation and processing prior to implementation. Specific project proponents must submit a work order (DA 4283) or service order and other required documents, such as a dig permit, for approval by YPG Environmental Services Division for the proposed project. Further, a specific proposed project may require Real Property Planning Board approval, additional NEPA review (as determined by this analysis), NHPA Section 106 consultation, or environmental permit applications, and state or federal

regulatory agency approvals prior to implementation. These approvals may result in additional mitigation measures being required for specific projects.

3.22.1 Cumulative Effects Summary

Table 3-20 summarizes the potential cumulative impacts for each resource area. This section summarizes the potential for cumulative impacts for the resource areas identified in the table as having the potential for cumulative impacts; those with no potential for cumulative impacts are not discussed further.

There are 10 projects implemented on YPG in the past 7 years that could contribute to cumulative impacts to resources. These projects are discussed in the following NEPA documents:

- Final Environmental Assessment for the Unmanned Aircraft Systems Test Center. Jason Associates Corporation. January 2008. (Jason Associates Corporation, 2008a)
- Final Environmental Assessment for the Proposed Cobra Flats, Comanche Flats, and Site 2 Military Training Areas. Jason Associates Corporation. January 2008. (Jason Associates Corporation, 2008b)
- Final Environmental Assessment for the Army Test Tracks. Prepared for U.S. Army Garrison Yuma Proving Ground. Jason Associates Corporation. March 2008 (Jason Associates Corporation, 2008c)
- Environmental Assessment for Improvised Explosive Devices (IED) Test Environment. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground (YPG Directorate of Public Works). January 2010. (YPG DPW, 2010a)
- Environmental Assessment for Impact Areas Expansion. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. March 2010. (YPG DPW, 2010b)
- Environmental Assessment for Cibola Impact Areas. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. April 2011. (Gutierrez Canales Engineering, P.C., 2011)
- Environmental Assessment for Fuel Facilities Optimization. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. November 2011. (YPG DPW, 2011a)
- Environmental Assessment for Persistent Surveillance Systems Program. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. December 2011. (YPG DPW, 2011b)
- Environmental Assessment for Long Range Munitions. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. April 2013. (YPG DPW, 2013a)
- Environmental Assessment for Military Training Area Expansion. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. May 2013. (YPG DPW, 2013b)

Each of these projects was subjected to specific NEPA evaluation and the analyses included assessment of the potential for cumulative impacts to affected resources. The cumulative impacts analyses presented in these NEPA documents are incorporated into this FPEIS by reference and are not further discussed.

YPG has begun investigating the development of a solar renewable energy resource on the installation to increase YPG's energy security and meet federal mandates and legislative requirements to increase production and consumption of renewable energy resources. This development would be through an EUL with a private company. Solar technologies under consideration by the Army include solar PV, Dish Stirling, and dry-cooled concentrating solar thermal technologies. Multiple locations are under consideration in the Cibola and Kofa Regions. The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to several thousand acres (B&V, 2011; USAEC, 2012). An EUL for solar power generation is not a component of the Proposed Action, and specific NEPA analysis would be conducted for any such project. The potential for cumulative impacts from development and operation of a solar power generation facility was considered in the assessment of potential cumulative impacts in this analysis. Construction, operation, and maintenance of such a facility could contribute to cumulative impacts to air quality, cultural resources, energy and utilities, hazardous materials, land use, recreation, socioeconomics, soils, TES species, traffic/transportation, vegetation, visual resources, surface water and groundwater resources, and wildlife.

The Quartzsite Solar Energy Project would construct, operate, maintain, and decommission a 100-MW commercial solar thermal generation power plant using dry-cooling technology with a 1.5-mile generator tie-line, switchyard and access road over approximately 1,675 ac about 10 miles north of Quartzsite, Arizona in La Paz County. The Quartzsite Solar Energy Project, which is scheduled for operation in 2015, would have the potential to contribute to cumulative impacts to air quality, cultural resources, energy and utilities, hazardous materials, health and safety, land use, noise, recreation, socioeconomics, soils, TES species, traffic/transportation, vegetation, visual resources, water resources, and wildlife. A discussion of each resource area with potential impacts follows Table 3-20 and contains additional details regarding the nature of the impacts. There are no cumulative impacts predicted for the following resource areas: airspace management, environmental justice and protection of children, and geological resources.

There are five other proposed solar projects within approximately 10 miles of YPG that are associated with BLM. The Palomas project is proposed to be a concentrated solar power trough and would be located east of YPG adjacent to the Aqua-Caliente solar project. The LaPosa Solar Terminal and Quartzsite project are proposed to be a concentrated solar power trough and would be located along I-95 between Cibola and the Kofa NWR. The Windcat Quartzsite project is proposed as concentrated solar power tower and would be located along I-95 between Cibola and the Kofa NWR. At this time, project-specific details are unknown. However, these solar projects have the potential to contribute to cumulative impacts to air quality, cultural resources, energy and utilities, hazardous materials, health and safety, land use, noise, recreation, socioeconomics, soils, TES species, traffic/transportation, vegetation, visual resources, water resources, and wildlife. There are no cumulative impacts predicted for the following resource areas: airspace management, environmental justice and protection of children, and geological resources.

TABLE 3-20
Summary of Cumulative Effects
Yuma Proving Ground

Resource Area	Potential Cumulative Impacts
Air Quality	Potential for minor incremental contributions to combustion emissions and dust generation from Proposed Action. Potential for net minor benefits from reduced reliance on fossil fuels for electrical energy production with development of renewable solar electric generation projects.
Airspace Management	None
Cultural Resources	Unknown; there are areas not previously surveyed for cultural resources which would be evaluated on a project-specific basis in the future. Potential for minor cumulative impacts with development of the Quartzsite Solar Energy Project and the five additional BLM solar projects.
Energy/Utilities	Beneficial impacts from reduction in use of generators and fossil fuels. Minor incremental contribution to benefits to wastewater treatment. Potential for minor beneficial impacts to energy/utilities from development of renewable solar electric generation facilities in the region.
Environmental Justice and Protection of Children	None
Fire Management	Potential for cumulative impacts relative to fuel loading and potential spread of wildfires from increased potential for establishment and growth of exotic invasive plant species in areas disturbed but not converted to impervious surface. Potential for incremental increase in ignition of wildfires from live fire activities resulting from the Proposed Action.
Geological Resources	None
Hazardous Materials/Hazardous Waste	Potential for cumulative impact from increased hazardous material use and disposal resulting from use of new or expanded testing and training areas under the Proposed Action. Contribution from YPG would be minor. Potential for moderate cumulative impacts from heat transfer liquids and brine during operation of renewable solar energy facilities.
Land Use	Potential for cumulative impacts from operational and testing use and development of a renewable solar electric generation facility, which would prevent military use of up to 1,000 ac. Contribution from military mission as a result of the Proposed Action would likely be minor. Potential for interaction with regional solar facilities for incremental impacts to regional land use from conversion to new uses.
Noise	Potential for cumulative impacts if aircraft traffic from Yuma Airport and MCAS Yuma increase in the future. Contribution from YPG would be minor.
Recreation	Potential for incremental cumulative impacts from operational use and development of a renewable solar electric generation facility as more land is made unavailable for recreational hunting. Potential for cumulative impacts to regional recreation from operational use and development of the Quartzsite Energy Project and the five additional BLM solar projects.
Safety	Beneficial impacts from transportation improvements on US 95.
Socioeconomics	Potential for minor beneficial cumulative impacts from development and operation of renewable solar electric generation facilities.

TABLE 3-20
Summary of Cumulative Effects
Yuma Proving Ground

Resource Area	Potential Cumulative Impacts
Soils	Moderate incremental impacts from loss of vegetation associated with TGPs and development of renewable solar electric generation facilities.
Threatened or Endangered Species and Species of Concern	Potential for minor incremental loss of suitable habitat, including potential habitat loss from development of the renewable solar electric generation facilities.
Traffic/Transportation	Minor beneficial impacts from improved traffic flow. Potential for minor temporary cumulative impacts from increased traffic during construction of the renewable solar electric generation facilities.
Vegetation	Moderate incremental loss of vegetation and habitat, including potential habitat loss from the development of renewable solar electric generation facilities.
Visual Resources	Minor incremental increase in lighter-than-air UAS testing could contribute to cumulative impact to visual resources in some locations. Potential for minor cumulative impacts to visual resources from development of a renewable solar electric generation facility and from development of the Quartzsite Energy Project and the five additional BLM solar projects.
Water Resources	Potential minor incremental cumulative impacts to water resources from Proposed Action. Potential for minor to moderate cumulative impacts to water resources from development and operation of renewable solar electric generation facilities.
Wildlife and Fisheries	Moderate incremental loss of habitat, including potential habitat loss from development of the renewable solar electric generation facilities.

3.22.1.1 Air Quality

Most air quality impacts would be minor and temporary. There would long-term incremental additions of dust from use of new or expanded testing and training areas resulting from vehicle operation, munitions firing, and other activities. Development of a commercial-scale renewable solar electrical energy generation facility could generate fugitive dust. Appropriate BMPs, described in Section 3.2.2.3, would be implemented to minimize dust generation, as appropriate. There would be slight increases to the current levels of dust generated by testing and training activities. There also would be minor long-term increases in combustion engine emissions from increased vehicle use, but, as noted above, these would not be expected to result in exceedances of air quality standards. Development of commercial-scale renewable solar electrical energy generation facilities would result in long-term beneficial impacts to air quality through reduced fossil fuel emissions associated with other electrical generation methods; however, the use of fossil fuels to produce demineralized water to wash mirrors and to transport that demineralized water to the facility would partially offset any benefits. Any contribution to cumulative impacts would be expected to be minor.

The Quartzsite Solar Energy Project would remain below all major source thresholds and any contribution to cumulative impacts would be expected to be minor.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to air quality during construction as a result of emissions

from operation of construction equipment and personal vehicles and from the generation of fugitive dust. It is expected that BLM will require that construction contractors implement appropriate BMPs and equipment maintenance procedures to minimize this potential. Once operational, these facilities could contribute to beneficial impacts to regional air quality through a reduction in use of fossil fuels to generate electricity.

3.22.1.2 Cultural Resources

Activities that have been sited in areas that were surveyed and assessed for cultural resources and that have complete SHPO consultation with a determination that no significant cultural resources occur would not affect cultural resources and would have no potential for cumulative impacts to cultural resources. Implementation of the proposed activities may affect historic properties at YPG. Development of a commercial-scale renewable solar electrical energy generation facility could impact cultural resources and any such impacts could interact with other activities that impact cultural resources to produce cumulative effects. YPG is developing a PA in consultation with SHPO, ACHP, and interested tribes that will identify means to avoid, minimize, and mitigate potential effects.

Regional solar energy projects were considered in addition to proposed activities on YPG. The Quartzsite Solar Energy Project contains one cultural property that is recommended for inclusion in the NRHP that could be affected; impacts would be mitigated through avoidance and construction monitoring. Any contribution to cumulative impacts to cultural resources from the Quartzsite Solar Energy Project would be expected to be minor.

Construction, operation, and maintenance of the additional BLM solar projects could contribute to cumulative impacts to regional cultural resources. At this time cultural resources in the project areas are unknown and the potential for cumulative impacts to this resource area cannot be assessed accurately. However, it is expected that BLM will require that these projects conduct appropriate investigations and consultation with SHPO regarding cultural resources to ensure that these resources are not negatively impacted or to develop and implement appropriate mitigation for unavoidable impacts that would Reduce impacts to less than significant and minimize the potential for cumulative impacts.

3.22.1.3 Energy/Utilities

Replacement of portable generators with grid-supplied power would reduce demand and would be a moderate benefit to energy consumption in the region. A long-term cumulative benefit to air quality would be expected from this action due to the reduction in emissions.

The reduction in portable generator use would reduce the need to transport fuel for operation of generators to the areas receiving hard power and telecommunications service, which would reduce the use of vehicles to transport fuel, leading to reductions in fuel consumption and air emissions. The elimination of transporting fuel to these sites would indirectly benefit regional energy use and provide beneficial cumulative impacts to air quality. In addition, there would be reduced potential for petroleum spills, either from transport accidents or from refueling. This would be an indirect beneficial impact with regard to hazardous material by reducing the potential for a release of petroleum products to the environment.

Operation of the WTP would reduce generation of solid waste associated with bottled water as well as reduce fuel consumption from the delivery of bottled water. This would be a minor cumulative benefit to waste generation and fuel consumption.

Should the Kofa cantonment wastewater treatment and sewer system be replaced, it would be a benefit to wastewater treatment. Any new sewer lines installed as a result of the Proposed Action would likely make minor contributions to cumulative benefits to wastewater treatment.

Development of a commercial-scale renewable solar electrical energy generation facility would result in beneficial cumulative impacts to energy and utilities by providing increased renewable energy sources in the region.

Several current or reasonably foreseeable energy projects are proposed in the YPG area and may result in cumulative impacts. The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County that will be operational in 2015. An additional solar power facility is also proposed at the former White Wing Ranch, but the size and location of the project are unknown at this time. Arizona Public Service proposes to construct a 500-kV transmission. There also are five additional proposed solar facilities on BLM land near YPG. These proposed projects would be expected to result in increased demand for water for construction, cleaning, and operation, which could cause cumulative impacts on water utilities from incremental increased consumption. In addition, these projects also would result in reduced demand for fossil fuels to generate electrical power, which would result in beneficial impacts to energy supply and usage in the region.

3.22.1.4 Fire Management

There would be potential for cumulative impacts relative to fuel loading and potential spread of wildfires from increased potential for establishment and growth of exotic invasive plant species in areas disturbed but not converted to impervious surface. There also would be potential for incremental increase in ignition of wildfires from live fire activities resulting from the Proposed Action. No additional projects were identified that would have potential to interact with fire management on YPG to create cumulative impacts.

3.22.1.5 Hazardous Materials/Hazardous Waste

Development of a commercial-scale renewable solar electrical energy generation facility could result in generation of hazardous materials.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to hazardous materials cumulative impacts. At this time details on hazardous materials in the project areas are unknown and the potential for cumulative impacts cannot be assessed accurately. However, it is expected that BLM will require that these projects implement appropriate use, storage, and disposal measures to minimize the potential for cumulative impacts.

The Quartzsite Solar Energy Project north of Quartzsite, Arizona in La Paz County could result in the generation of hazardous materials. No cumulative impacts to hazardous materials would be expected from construction of either solar facility. The facility will be dry-cooled (U.S. Department of Energy and BLM, 2013) and thermal cooling fluid and brine would be by-products of electrical power generation that would require disposal. Depending on the Therminol compound used, there could be a moderate potential for cumulative impacts to hazardous materials from use and disposal of Therminol heat transfer fluids during operation of a dry-cooled concentrating solar facility.

No other future projects with potential hazardous materials impacts are known at this time. Testing and training requirements are expected to continue to evolve over time. This could result in an increase in testing and training activities throughout YPG, which would have the potential for increased use of hazardous materials, an increase in the need for disposal of hazardous wastes, and the potential for exposure of existing subsurface contamination.

3.22.1.6 Land Use

Development of a commercial-scale renewable solar electrical energy generation facility could interact with land use on YPG. Up to 8,900 ac of Range/Open Land within YPG would be converted to industrial use and would no longer be available for meeting the military mission (B&V, 2011; USAEC, 2012). When combined with land use impacts from other projects on YPG, development of a renewable solar facility could result in minor cumulative impacts to land use on YPG.

While YPG actions would not directly interact with land use outside the installation boundary, the potential for incremental impacts to regional land use would exist. Construction, operation, and maintenance of the five additional BLM solar projects and the Quartzsite Solar Energy Project would cause land to be converted from open land into solar facilities, which would reduce available rangeland. The potential for these solar projects to contribute to regional land use cumulative impacts cannot be assessed accurately at this time, but there is a reasonable probability that implementation of these projects would contribute to regional land use impacts.

3.22.1.7 Noise

Predicted noise levels from the Proposed Action would not be expected to interact with noise outside of the YPG boundary. Noise from the Barry M. Goldwater Air Force Range and from MCAS Yuma is not expected to overlap noise from YPG. Noise contours from YPG activities are within the YPG boundary except for a small area north of the Kofa Range and east of the Cibola Range.

Should flights from MCAS Yuma or the Yuma Airport increase in the future, there would be potential for cumulative impacts to noise. Aircraft operations on YPG could incrementally add to the noise from MCAS Yuma and the airport. Because most aircraft operated on YPG are rotary wing aircraft or UAS, the incremental contribution to the noise environment would be less than that from commercial jet aircraft operating from the airport or military jet aircraft operating from MCAS Yuma. Any incremental contribution from aircraft noise resulting from the Proposed Action would be expected to be minor.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. There could be short-term noise impacts during construction, but the Project would not contribute to cumulative noise impacts because operational noise would be minimal.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to short-term noise impacts during construction, but the projects would likely not contribute to cumulative noise impacts because operational noise would be minimal.

3.22.1.8 Recreation

Development of a commercial-scale renewable solar electrical energy generation facility could affect recreational hunting and contribute to cumulative impacts to this resource.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. Approximately 1,675 ac would be converted from open land, which could cause indirect impacts to nearby recreational uses through alteration of the visual landscape. The Quartzsite Solar Energy Project could contribute to cumulative impacts to regional recreation.

Construction, operation, and maintenance of the five additional BLM solar projects would likely result in incremental loss of recreational opportunities on BLM lands as projects are implemented. In addition, the appearance of the solar facilities could be a negative experience for recreational users in the area. The combination of loss of usable land and degradation of the recreational experience through altered visual character could contribute to cumulative impacts to regional recreation.

3.22.1.9 Safety

There would be potential for foreseeable future projects to interact with safety on YPG. Should a commercial-scale solar-powered electrical generation facility be constructed in the Cibola Region within YPG, glare from such a facility could affect aircraft operations within YPG airspace, which could increase safety risks.

Proposed ADOT improvements to US 95 would provide increased traffic safety along this road for public travel and for YPG-related travel. This would be a cumulative benefit to safety in the region and would also occur under the No Action Alternative.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. There would be minimal health and safety risks during construction and operations of the project, and they would not contribute to regional safety cumulative impacts.

Construction, operation, and maintenance of the five additional BLM solar projects would be unlikely to contribute to regional safety cumulative impacts. There would be minimal health and safety risks during construction and operations of the project, and they would not contribute to regional safety cumulative impacts.

No other past, present, or reasonably foreseeable projects would have the potential to interact with safety on YPG. No other cumulative impacts are expected.

3.22.1.10 Socioeconomics

There could be minor cumulative beneficial impacts to socioeconomics from development and operation of a commercial-scale renewable solar electrical energy generation facility. There would be long-term creation of a few jobs, which would have a negligible beneficial impact on regional employment. Operation of this facility would reduce the demand for electricity from the grid for YPG, which could contribute to reduced rates paid for electricity and provide incremental benefits to the regional economy.

There could be minor cumulative beneficial impacts to regional socioeconomics from development and operation of the Quartzsite Solar Energy Project, approximately 10 miles north of Quartzsite, Arizona in La Paz County. There would be short-term creation of 280 jobs and long-term creation of 47 jobs, which would incrementally benefit regional employment. Operation of the facility would provide additional source of electrical power,

which could contribute to reduced rates paid for electricity and provide incremental benefits to the regional economy.

There could be minor cumulative beneficial impacts to regional socioeconomics from development and operation of the five additional BLM solar projects. There likely would be short-term and long-term job creation, which would incrementally benefit regional employment. Operation of the facilities would provide additional sources of electrical power, which could contribute to reduced rates paid for electricity and provide incremental benefits to the regional economy.

3.22.1.11 Soils

Impacts to soils from establishment of TGPs would be minor with implementation of BMPs and no regional cumulative impacts to soils beyond the boundary of YPG would be expected.

Development of a commercial-scale renewable solar electrical energy generation facility would result in soil disturbance on up to 8.900 ac (B&V, 2011; USAEC, 2012). This could incrementally add to other projects on YPG that create soils disturbance and lead to minor cumulative impacts to soils.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. Approximately 115 ac of the 1,675-ac project area would be completely cleared of vegetation. The project area is entirely within the Superstition-Rositas series, which exhibits a moderate to high susceptibility to water and wind erosion. Should the project be constructed, appropriate erosion control measures would be implemented. Any contribution to cumulative impacts to soils would be minor.

Construction, operation, and maintenance of the five additional BLM solar projects would likely contribute to regional cumulative impacts to soils. While specific impacts are unknown at this time, it is likely that a substantial acreage would be cleared for each project, increasing the susceptibility of the soils to wind and run-off erosion. It is likely that BLM will require appropriate BMPs to minimize the potential for erosion. Therefore, any contribution to cumulative impacts to soils would be expected to be minor.

3.22.1.12 Threatened or Endangered Species and Species of Concern

The cumulative effect of incremental vegetation and habitat loss within YPG from all proposed activities would be moderate. No significant incremental impacts to TES species from vegetation clearing or habitat loss would be expected. No significant impacts to TES species from relocation of water tanks would be anticipated. Past and reasonably foreseeable future activities also could interact with the effects of the Proposed Action concerning impacts to TES species. Development of a commercial-scale renewable solar electrical energy generation facility would result in loss of up to approximately 8,900 ac of desert habitat (B&V, 2011; USAEC, 2012), and could result in loss of land designated as primary desert tortoise habitat. This could contribute to cumulative impacts to Sonoran desert tortoise.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. Should the project be constructed, approximately 51.5 ac of moderately suitable habitat for

the Mojave fringe-toed lizard would be lost, but no other impacts to TES species or their habitats would result. There could be minor contributions to the cumulative impacts on TES species and their habitats.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to TES species and their habitats through land clearing and site preparation activities associated with construction. The magnitude of disturbance, the occurrence of particular TES species, and the occurrence of potentially suitable habitats for TES species within and near the proposed projects is not known at this time and the potential for cumulative impacts cannot be assessed accurately. However, it is likely that BLM will require appropriate coordination or consultation with USFWS and AZGFD with regard to the potential to impact TES species. Through this process and subsequent implementation of any conservation measures identified by the regulatory agencies, it is expected that any contribution to cumulative impacts to TES species and their habitats would be minimal.

Because all impacts to TES species resulting from the Proposed Action would be confined within the boundary of YPG and because there would be no loss of species, it is not expected that TES species impacts of the Proposed Action would interact with off-post actions to affect regional TES species populations.

3.22.1.13 Traffic/Transportation

Road improvements along US 95 are expected to reduce congestion and improve flow, resulting in beneficial cumulative impacts.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. If construction were to coincide with other construction projects in the area, there could be incremental increases in traffic that would create minor temporary cumulative impacts to regional traffic on US 95. The facility will be operational in 2015 and construction-related traffic impacts would end at that time. No potential for cumulative impacts to traffic would be expected from operation of the project.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to traffic/transportation. Two of the five projects are located along the US 95 corridor and there could be incremental increases in traffic that would create minor temporary cumulative impacts to regional traffic on US 95. Because of the interface with US 95, use appropriate traffic control procedures to minimize traffic impacts. However, even brief delays associated with construction traffic could incrementally interact with military traffic to create more substantial traffic impediments. However, any such incremental impacts would be temporary and would end when construction was complete.

3.22.1.14 Vegetation

YPG would establish 23 new TGPs in the Cibola Region. The magnitude of impact to vegetation would vary depending on testing needs and the type of vegetation at a proposed TGP. For each TGP, up to 2.2 ac of desert shrub vegetation would be cleared. No species loss would be expected from clearing for TGPs. If a TGP would be in an area of native vegetation, the impact could range from minor (limited woody vegetation) to moderate (area predominantly desert shrub vegetation). Because desert vegetation recovers slowly,

due to the harsh environment and the limited availability of water, any impacts from establishment of TGPs would be long-term.

There could be increased potential for invasion by herbaceous exotic invasive species as a result of clearing vegetation. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas. Clearing for TGPs could be beneficial if a selected TGP would be within an area dominated by exotic invasive vegetation. Clearing of such an area would be a minor benefit to desert vegetation. Impacts from vegetation clearing could reach approximately 125 ac across YPG within the timeframe for vegetative recovery of a given TGP site. This would constitute a minor cumulative impact to desert vegetation on YPG, but no regional cumulative impacts to vegetation beyond the boundary of YPG would be expected.

There are multiple locations within the Cibola and Kofa Region where new munitions impact areas would be established or where existing munitions impact areas would be expanded. Approximately 46,070 ac would be converted to munitions impact areas. Of this, approximately 45,820 ac would receive both inert and explosive fire and approximately 250 ac at JERC I, II, and III would be for inert fire only. There would be no direct impacts to vegetation in these areas from creation of the munitions impact areas. After munitions impact areas are established, there would be the potential for episodic disturbance to vegetation from munitions testing and operational testing or training activities that would fire into these areas. Munitions impact areas that receive only inert fire would be less impacted, as direct impacts to vegetation would be negligible. There would be potential for long-term indirect changes to vegetation as a result of altered growing conditions should inert munitions degrade and release metals or other constituents of concern to the soil.

Development of a commercial-scale renewable solar electrical energy generation facility would result in vegetation clearing on up to approximately 8,900 ac (B&V, 2011; USAEC, 2012). This could incrementally add to other projects on YPG that remove vegetation and lead to minor cumulative impacts to vegetation.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. Approximately 115 ac of the 1,675-ac project area would be completely cleared of vegetation and it is likely that there would be additional vegetation loss during construction. No loss of species or habitat types would be expected, and it is anticipated that any contribution to cumulative impacts to vegetation would be insignificant.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to vegetation. While specific impacts are unknown at this time, it is likely that a substantial acreage would be cleared of native vegetation for each project. It is likely that BLM will require appropriate measures, possibly including modifications to site designs to prevent loss of any vegetation type or species from the region. Therefore, any contribution to cumulative impacts to vegetation would be expected to be minor.

The cumulative effect of incremental loss of vegetation from clearing within YPG from all proposed activities would be moderate. Past and reasonably foreseeable future activities also could interact with the effects of the Proposed Action concerning impacts to vegetation.

Because all impacts to vegetation resulting from the Proposed Action would be confined within the boundary of YPG and because there would be no loss of species or specific habitat types, it is not expected that vegetation impacts of the Proposed Action would interact with off-post actions to affect regional vegetation.

3.22.1.15 Visual Resources

Under the Proposed Action, there would be an increase in use of lighter-than-air UASs and the size of these craft also may increase. It is likely that multiple lighter-than-air UAS would be deployed simultaneously across the installation if testing needs warrant. The incremental increase in lighter-than-air UAS testing could be considered a minor negative cumulative impact.

Development of a commercial-scale renewable solar electrical energy generation facility would change the visual characteristics of the area and could contribute to cumulative impacts to visual resources in the region.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. The 1,675-ac project area would change the visual characteristics of the area and incrementally contribute to cumulative impacts to visual resources.

Construction, operation, and maintenance of the five additional BLM solar projects could change the visual characteristics of the area and incrementally contribute to cumulative impacts to visual resources and would create a negative viewing experience for some observers.

3.22.1.16 Water Resources

YPG would establish 23 new TGPs in the Cibola Region. New TGPs would not be placed in washes, so no direct impacts to water resources would result. Each TGP would cover an area of up to 2.2 ac, which would be cleared of woody vegetation. Minor soil disturbance could occur and there would be increased potential for erosion. The potential for indirect impacts to water resources would vary depending on testing needs and the type of vegetation at a proposed TGP. Impacts could range from minor (limited exposed soils from vegetation clearing and not in proximity to a wash) to moderate (extensive soil exposure and in proximity to a wash). Impacts from vegetation clearing could reach approximately 125 ac across YPG within the timeframe for vegetative recovery of a given TGP site. This would create the potential for minor cumulative impacts to surface waters on YPG, but no regional cumulative impacts to surface waters beyond the boundary of YPG would be expected.

Because potential direct effects to water resources would be confined within the boundaries of YPG and because BMPs and design features would minimize the potential for indirect impacts to offsite waters, there is little potential for interaction of the Proposed Action with other past, present, and reasonably foreseeable projects. As discussed above, no cumulative impacts would be expected on YPG.

Incremental impacts to water quality and groundwater depletion would be the potential routes of interaction with past, present, and reasonably foreseeable off-post actions. Because activities under the Proposed Action would not affect water quality, no cumulative impacts to water quality would be expected as a result of implementation of the Proposed Action. Consumptive use of groundwater would occur under the Proposed Action, but the

anticipated use would be small relative to the aquifer capacity. It is expected that minor cumulative impacts to groundwater would result in conjunction with other actions that also consumptively use groundwater.

Development of a commercial-scale renewable solar electrical energy generation facility would create new impervious surface area over much of an up to approximately 8,900-ac site (B&V, 2011; USAEC, 2012). Depending on post-construction stormwater controls that would be implemented with development of the facility, there could be increased stormwater runoff from the facility that could contribute to cumulative impacts to surface water and groundwater resources. Operation of the solar facility would result in consumptive use of water. The amount of operational water depends on the technology chosen during the separate NEPA analysis. However, there would be potential for cumulative impacts to groundwater from long-term consumptive use. The potential for cumulative impacts to water resources would be moderate.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County. The facility will be dry-cooled, would require over 1,150 acre-feet of water for construction of the facility, and would require 200 acre-feet of water annually for operation (U.S. Department of Energy and BLM, 2013). Water for the Quartzsite facility would be obtained from the regional aquifers or from the Colorado River. If groundwater is the source, there would be potential for cumulative impacts to groundwater from long-term consumptive use. If water is obtained from the Colorado River, there would be potential for cumulative impacts to surface water from long-term consumptive use. The potential for cumulative impacts to water resources would be minor.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to water resources. Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to water resources. These proposed projects would be expected to result in increased demand for water for construction, cleaning, and operation, which could cause cumulative impacts on regional water resources from incremental increased consumption.

3.22.1.17 Wildlife and Fisheries

The cumulative effect of incremental habitat loss within YPG from all proposed activities would be moderate. No significant incremental impacts to wildlife from this habitat loss would be expected. No significant impacts to wildlife from relocation of water tanks would be anticipated. Past and reasonably foreseeable future activities also could interact with the effects of the Proposed Action concerning impacts to wildlife. Because all impacts to wildlife resulting from the Proposed Action would be confined within the boundary of YPG and because there would be no loss of species, it is not expected that wildlife impacts of the Proposed Action would interact with off-post actions to affect regional wildlife populations.

Development of a commercial-scale renewable solar electric generation facility could result in removal of up to approximately 8.900 ac of desert scrub habitat. There likely would be minor to moderate incremental cumulative impacts to wildlife species that utilize this habitat when this loss is combined with other projects on YPG that would remove desert scrub habitat.

The Quartzsite Solar Energy Project would construct a 100-MW solar-powered electrical generation facility approximately 10 miles north of Quartzsite, Arizona in La Paz County.

This project would result in the loss of up to 1,675 ac of wildlife habitat. However, it is not anticipated this would contribute to regional cumulative impacts to wildlife populations.

Construction, operation, and maintenance of the five additional BLM solar projects could contribute to cumulative impacts to wildlife and fisheries. While specific impacts are unknown at this time, it is likely that a substantial acreage would be cleared of native vegetation for each project, which would reduce available habitat for native wildlife and likely would contribute to individual mortality for some species. It is likely that BLM will require appropriate measures, possibly including modifications to site designs to prevent loss of any habitat type or species from the region. Therefore, any contribution to cumulative impacts to wildlife and fisheries would be expected to be minor.

3.22.2 Mitigation Summary

Table 3-21 summarizes the proposed mitigation measures for resource areas with the potential for significant impacts from the Proposed Action. Avoidance of resources would be considered as the primary mitigation measure, but it would not be possible to avoid all resources for all proposed activities. The table shows potential mitigation measures, including implementation of BMPs, in the event avoidance is not practicable.

TABLE 3-21
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
Air Quality	Yes, for activities in non-attainment area	Implement BMPs during construction to reduce fugitive dust emissions. Yuma would revise the Title V permit as needed to align with ADEQ regulations and Title V permit monitoring, recordkeeping, and reporting requirements.	3.2.2.4
Airspace Management	No	Continue coordination with MCAS Yuma and private/commercial air traffic controllers.	3.3.2.3
Cultural Resources	Yes	Implement Integrated Cultural Resources Management Plan (ICRMP) procedures; avoid or protect significant sites; monitor protection measures; implement data recovery; coordinate/consult with SHPO and Native American tribes, as appropriate, and implement any required mitigation from SHPO consultation. Environmental Awareness Training for persons working in areas where paleobotanical resources occur. Follow stipulations of executed PA.	3.4.8 3.4.2
Energy/Utilities	No	Incorporate energy-efficient design into new buildings. Use solar lights where practicable. Recycle/reuse to the extent practicable. Install hard power to additional locations to reduce reliance on diesel-powered generators at testing and training locations. Recycle and reuse to the extent practicable.	3.5.2.4

TABLE 3-21
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
Environmental Justice and Protection of Children	No	None	3.6.2.3
Fire Management	Yes	Develop and implement a program to monitor invasive plants; continue to implement ITAM; coordinate with BLM, Kofa NWR, and U.S. Forest Service (USFS) on fire management; develop and interpret wildfire data with other agencies. Use GIS fire risk model to identify areas of high fire risk and incorporate into range operations as practicable. Implement Terms and Conditions 1a, 2a, 2b, and 3a from the USFWS BO of September 9, 2014.	3.7.2.4
Geological Resources	No	None	3.8.2.3
Hazardous Materials/Hazardous Waste	Yes	Continue management of hazardous materials; consult with state and federal agencies; manage and dispose of hazardous materials and wastes in compliance with applicable laws, regulations, and guidance; follow standard protective measures and procedures. Update, as necessary and implement SPCCP. Require non-ozone-depleting chemicals as refrigerants in new air conditioning systems. Continue to conduct regular range assessments to determine the potential for migration of MCOCs and implement appropriate measures to protect human health.	3.9.2.4
Land Use	Yes	Continue coordination with local plans to avoid incompatibilities, as appropriate.	3.10.2.4

TABLE 3-21
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
Noise	Yes	Require construction workers to use appropriate hearing protection. Maintain aircraft operations in compliance with established Installation Compatible Use Zones (ICUZs). Locate noise-generating activities away from sensitive noise receptors and use natural barriers where practicable. Conduct noise-intensive activities during favorable weather conditions where practicable. Use lower noise products where practicable. Continue noise complaint management procedure and implement fly-neighborly programs. Adjust timing of disruptive activities and inform the public of unusual increases in intensity of testing and training.	3.11.2.4
Recreation	No	None	3.12.2.4
Safety	Yes	Minimize potential risks and exposure; require contractors to follow Occupational Safety and Health Administration (OSHA) standards; comply with YPG safety program and specific safety protocols for testing and training activities. Use GIS fire risk model to identify areas of high fire risk and incorporate into range operations as practicable. Verify there are no people in the portion of an SDZ extending into the Kofa NWR, primarily by visual or electronic means. Helicopters will be used to locate people only where large portions of an SDZ overlap Kofa NWR, primarily in R-2307.	3.13.2.4
Socioeconomics	No	None	3.14.2.4
Soils	Yes	Avoid highly erodible soils; minimize soil disturbance to the extent practicable; implement construction BMPs and stormwater controls; continue to implement ITAM program and Integrated Natural Resources Management Plan (INRMP).	3.15.2.5
Threatened or Endangered Species and Species of Concern	Yes	Avoid known sensitive habitats during siting process. Avoid impacts to water sources; schedule construction projects to avoid or minimize conflicts with reproduction; avoid implementing activities in areas where sensitive species occur to the extent practicable; relocate or deter species to minimize impacts if necessary; implement INRMP procedures. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible. YPG will continue to incorporate those	3.16.2.4

TABLE 3-21
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
		portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008 Appendix I) that are consistent with the military mission into management of this species and will consider these guidelines to develop appropriate mitigation strategies when evaluating activities. Should the Sonoran desert tortoise be listed under the ESA, then activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted. YPG will comply with the Reasonable and Prudent Measures with implementing Terms and Conditions of the USFWS BO regarding activities that may affect the Sonoran pronghorn on Kofa NWR: • To comply with Reasonable and Prudent Measure Number 1: YPG shall monitor environmental conditions on the Kofa Range, including weather patterns (e.g., temperature, precipitation, humidity) and status of fuels (e.g., distribution and density of annual vegetation or any other vegetation that is capable of carrying fire across the landscape). • To comply with Reasonable and Prudent Measure Number 2: YPG shall continue to maintain a fire department with wildland firefighting capabilities. YPG shall continue to maintain a fire station at Kofa to provide rapid response on the Kofa Range in the event of fire. Should YPG detect exceptional fuel conditions that are conducive to carrying fire, then YPG shall increase fire readiness by (1) providing additional fire briefings to test officers to stress the importance of initial fire spotting and early notification and (2) considering maintenance of fire break infrastructure as funding and military mission permit. • To comply with Reasonable and Prudent Measure Number 3: YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to USFWS-AESO and Kofa NWR as soon as possible. The report (can be	

TABLE 3-21
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
		in the form of an email) will, at a minimum, include the date(s), acreage, and location(s) of the fire(s), as well as the number of pronghorn in the vicinity of the fire, if known. YPG shall also immediately notify Kofa NWR once aware that a fire has encroached or may encroach onto the refuge Conservation measures that are included in the Proposed Action that would be implemented by YPG include: • Implement the 2014 Final Incident Response Protocol for Sonoran Pronghorn, which includes: (a) notifying USFWS and other appropriate parties as outlined in the protocol as soon as possible if Sonoran pronghorn are observed on YPG that are injured, sick, or dead; and (b) coordinating range access for USFWS and AZGFD as appropriate for capture of sick or injured pronghorn as well as recovery of dead individuals if necessary. Coordination will involve adherence to range safety and security procedures. • Avoid placing activities in proximity to artificial water sources (suitable for Sonoran pronghorn) to the extent that such action is consistent with the military mission. • YPG will adhere to the terms of the MOU between the Kofa NWR, Imperial NWR, BLM, and YPG, which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands. Should the experimental Sonoran pronghorn population in the Kofa NWR be reclassified under the ESA, then activities proposed in areas where the pronghorn may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted.	
Traffic/Transportation	Yes	Implement traffic control procedures as appropriate; minimize construction activities during peak traffic periods on YPG.	3.17.2.3
Vegetation	Yes	Develop and implement a program to monitor invasive plants; continue to implement ITAM and INRMP; implement appropriate construction BMPs and stormwater controls.	3.18.2.4

TABLE 3-21
Summary of Potential Mitigation Measures for Each Resource Area
Yuma Proving Ground

Resource Area	Potentially Significant Impact	Potential Mitigation Measures	Document Section
		Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible.	
Visual Resources	Yes	Apply appropriate dust suppression practices; design buildings to blend with existing structures; continue implementation of the Environmental Awareness program.	3.19.2.4
Water Resources	Yes	Develop and implement Construction SWPPPs to reduce potential for environmental exposure to pollutants in stormwater. Implement appropriate construction BMPs and stormwater controls; design to maximize use of pervious and semi-pervious surfaces; continue to implement INRMP; implement any mitigation required in Section 404 permits obtained.	3.20.2.4
Wildlife and Fisheries	Yes	Avoid wildlife concentration areas and sensitive habitats (e.g. water sources); schedule construction projects to avoid or minimize conflicts with reproduction; continue to implement INRMP. Limit surface-disturbing activities to the smallest area practicable. Avoid vegetation where feasible.	3.21.2.4

Notes:
Information provided is summarized from the analysis provided for each resource area elsewhere in Section 3.
Mitigation measures identified would be implemented, as appropriate, for each specific activity undertaken. Only those measures appropriate for a given action would be implemented.

A discussion of each resource area follows the table and contains additional details regarding potential mitigation measures and the conditions under which each may be appropriate. There are no significant impacts, and thus no mitigation, for the following resource areas: airspace management, energy/utilities, environmental justice and protection of children, geological resources, recreation, and socioeconomics. Summaries of the proposed mitigation measures for these resource areas are not included. This document presents a programmatic approach to impact analysis. For some resource areas, additional analysis may be required to assess impacts from specific activities and additional mitigation measures may be developed.

3.22.2.1 Air Quality

Mitigation measures would reduce fugitive dust emissions during construction. Measures to reduce or eliminate fugitive dust emissions would include the use of BMPs during construction.

3.22.2.2 Airspace Management

To reduce impacts and conflicts with airspace management, YPG would continue to coordinate with MCAS Yuma and private and commercial air traffic controllers.

3.22.2.3 Cultural Resources

The YPG ICRMP explains how YPG can mitigate impacts to significant historic properties through avoidance, physical protection, data recovery, or other mitigation measures. As there are currently no NRHP eligible structures on YPG, there is no discussion of mitigation measures for historic structures.

The following are treatment plans for the protection and mitigation of prehistoric, historic archaeological sites, and paleobotanical resources: avoidance of areas with known significant sites; physical protection of individual sites through fencing, berming, or other protective measures to make the sites inaccessible; and monitoring the effectiveness of the protection measures

U.S. Army Garrison has determined that implementation of projects in this FPEIS would affect historic properties at YPG. A PA is being developed, in consultation with SHPO, ACHP, and interested tribes, that will identify means to avoid, minimize, and mitigate the potential effects.

Through the planning process for the Proposed Action, activities were sited to avoid known archaeological and paleobotanical resources to the extent practicable in order to minimize impacts to significant cultural resources. For areas proposed for activities where previous cultural resource surveys have not been conducted, measures may include surveys, tribal consultation, compliance with stipulations in the Section 106 PA, and activity-specific NEPA analysis.

Environmental Awareness Training for cultural resources would be implemented for persons working or training on YPG. This training would explain the importance of archaeological and paleobotanical resources and the protection of these resources on YPG

3.22.2.4 Energy/Utilities

To mitigate and reduce the energy demand of the Proposed Action YPG would incorporate energy-efficient design into new buildings and use solar lights where practicable.

3.22.2.5 Fire Management

Mitigation measures would reduce the potential for fires and improve fire management. YPG is developing a program to monitor and manage all invasive plants on YPG. YPG would continue to implement ITAM and restore disturbed areas to natural conditions when practicable to prevent the spread of exotic invasive species. YPG would continue to coordinate with BLM, the Kofa NWR, and the USFS on fire management strategies and to develop and interpret wildfire data. To the extent allowed within safety constraints from UXO, efforts to control and manage wildfires on YPG would be implemented.

3.22.2.6 Hazardous Materials/Hazardous Waste

Mitigation of the potential impacts from the Proposed Action includes the continued management of hazardous materials using existing environmental programs and guidance to manage the handling and disposal of hazardous materials and waste in compliance with applicable laws and regulations. If new facilities would be sited in previously contaminated sites, appropriate protective measures would be implemented to safeguard construction workers. If contaminated soil is encountered during construction, it would be removed and properly disposed of in accordance with appropriate regulations. Appropriate protective

procedures would be implemented when renovation or demolition of existing buildings would result in potential exposure to ACM.

Range assessments would continue to be conducted to determine the potential for migration of MCOCs from ranges. YPG would implement appropriate measures should off-range migration that could affect human health or the environment be indicated.

In the event that munitions and explosives of concern are discovered in areas of proposed construction, they would not be disturbed until qualified personnel could properly assess and implement appropriate disposition. As required, the Army would consult with the appropriate state and federal agencies.

3.22.2.7 Land Use

YPG would continue coordination and participation in local plans and development meetings to ensure that encroachment and land use incompatibilities from adjacent lands are avoided.

3.22.2.8 Noise

Measures to prevent land use incompatibilities with adjacent lands, including impacts from noise, would include physical and procedural measures. Physical mitigation measures would include:

- Locating or relocating ranges relative to natural barriers such as valleys and mountains
- Constructing berms or barriers around small caliber ranges
- Orienting noise sources toward the interior of the installation and away from sensitive receptors

Procedural mitigation measures would include:

- Participating actively in local and regional planning, including use of GIS and noise contours
- Conducting noise-intensive activities under favorable weather conditions that minimize noise transfer
- Maintaining aircraft operations in compliance with established ICUZ
- Implementing fly-neighborly programs
- Adjusting the timing of particularly disruptive activities where feasible
- Informing the public of any unusual increases in intensity of testing and training activities or of activities to be resumed after a period of inactivity
- Reviewing EAs and EISs
- Monitoring noise on the ground when appropriate
- Implementing noise complaint management procedures

To minimize human exposure, safety zones and hazardous noise areas would be established as needed and would include the use of noise level meters and warning signs.

3.22.2.9 Safety

YPG would implement mitigation measures to minimize the potential adverse impacts to safety from construction and active munitions areas. During construction, workers would follow appropriate OSHA regulations and on-post personnel would comply with the YPG safety program. Each testing and training activity would have a specific safety protocol that would be followed.

3.22.2.10 Soils

Mitigation measures, including measures implemented to avoid impacts, would address the potential for increased erosion from either wind or water. All disturbed soils would have a greater potential for erosion because the soils would be directly exposed to the effects of precipitation and wind. Mitigation measures would include:

- Planning, site selection, and site design to avoid disturbance of highly erodible soils
- Implementation of construction BMPs to minimize the potential for onsite erosion (for example, preserving existing vegetation, mulching, slope protection, silt fencing, wet suppression and chemical dust suppression)
- Construction and post-construction stormwater controls (for example, site design, temporary detention areas, mulching, use of pervious and semi-pervious surfaces)
- Continued implementation of the ITAM program and the INRMP.

3.22.2.11 Threatened or Endangered Species and Species of Concern

By avoiding known TES species locations and water sources, YPG would minimize the potential for impacts to TES species. When implementing construction projects in areas where TES animal species are likely to nest or den, YPG would schedule construction to occur outside the nesting or denning period where practicable.

Surveys would be conducted to minimize the potential for impacts from activities proposed within or adjacent to high quality TES species habitat, as necessary. If TES species are found in the proposed activity areas, YPG would determine whether the proposed activity could be relocated. If relocation of the activity is not practicable, YPG would relocate TES species to nearby suitable habitat if practicable. If proposed activities could not be scheduled outside the nesting/denning periods for TES species, work could be delayed until after young had fledged or departed the area when practicable or the nest could be sheltered in place using the appropriate protocols through coordination with AZGFD.

Where vegetation clearing might occur in or adjacent to suitable habitat for the banded Gila monster or Sonoran desert tortoise, simple barriers such as silt fencing would be placed to deter entry by these species.

YPG implements those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Appendix I) that are consistent with the military mission. Should the Sonoran desert tortoise be listed as threatened or endangered under the ESA, either additional coordination or ESA Section 7 consultation with USFWS would occur prior to any land-disturbing activities in areas where Sonoran desert tortoise are known to occur on YPG. Depending on the activity, either a Biological Assessment or Biological Evaluation would be prepared to support consultation.

To minimize the potential for impacts to TES species YPG would limit surface-disturbing activities to the smallest area practicable and would avoid vegetation where feasible.

YPG will consult with USFWS on any proposed activities that may affect the Sonoran pronghorn on the Kofa NWR.

The INRMP directs the management of natural resources, including TES species within YPG. Through continued implementation of the INRMP, YPG utilizes the best available scientific knowledge and techniques to manage its resources. Measures that would be implemented to avoid or minimize impacts to soils, vegetation, and water resources would provide indirect benefits to wildlife through improved habitat conditions.

3.22.2.12 Traffic/Transportation

YPG would implement mitigation to minimize the potential adverse impacts to traffic from temporary road closures. During road closures, traffic control procedures would be implemented such as flaggers or posted detours. During construction of the Aberdeen Road flood upgrades, appropriate traffic control measures would be implemented to minimize the disruption of traffic flow, and may include detours, timing construction to avoid peak traffic volume times, and flaggers.

3.22.2.13 Vegetation

Construction and post-construction stormwater controls would be implemented to facilitate infiltration and reduce the potential for scour. Depending on the location of the new impervious areas, the potential loss of vegetation through scour from erosive water flow could extend off-post and affect vegetation on adjacent downstream properties. During construction, BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils from stormwater runoff.

YPG would modify its INRMP to address invasive plant species control in the new disturbed areas. Without future management to control exotic invasive plant species, the impacts to vegetation from displacement of native species could be significant. Continued implementation of the YPG ITAM program would help to maintain desert vegetation in areas used for training activities. It would also maintain or rehabilitate testing and training areas to maintain conditions that realistically simulate conditions in other desert regions.

3.22.2.14 Visual Resources

The use of dust suppression practices during construction would minimize the amount of airborne dust. New buildings would be designed using the YPG Installation Design Guide to blend with the existing visual landscape. The YPG Environmental Awareness program developed instructions for units training on YPG that include proper procedures and avoidance measures to be implemented during ground-based training activities to minimize potential impacts to areas of aesthetic and visual value.

3.22.2.15 Water Resources

There would be potential for localized increased runoff from new impervious areas. Without appropriate control measures, increased runoff could affect downstream areas, including off-post lands, by creating scour that could remove soils from uplands along washes. Stormwater controls would be implemented to facilitate infiltration and reduce the

potential for scour (for example, site design, use of temporary detention areas, preserving existing vegetation, mulching, and use of pervious and semi-pervious surfaces).

YPG would obtain a CWA Section 404 permit from USACE and CWA Section 401 Water Quality certification from ADEQ prior to construction of the Aberdeen Road flood improvements. YPG and its construction contractor would be required to comply with all conditions of the CWA Section 404 permit and Section 401 Water Quality certification, including implementation of any mitigation that may be specified as a condition of the permit.

The INRMP directs YPG to comply with all applicable federal, state, and local laws and regulations, including CWA Section 404 permits, CWA Section 401 water quality certifications, and Arizona Department of Water Resources Water Rights.

3.22.2.16 Wildlife and Fisheries

The following steps would be used when practicable to minimize impacts: avoid wildlife concentration areas; avoid impacts to water sources; schedule construction projects to avoid or minimize conflicts with reproduction; and continue to implement INRMP procedures.

YPG considered potential impacts to wildlife in selecting locations for proposed activities in order to avoid wildlife concentration and water sources. When implementing construction projects in areas where wildlife are likely to nest or den, YPG would schedule construction to occur outside the nesting or denning period where practicable.

Through continued implementation of the INRMP, YPG utilizes the best available scientific knowledge and techniques to manage wildlife, including, but not limited to: survey, monitor, and analyze wildlife population trend information; assess wildlife habitat needs; maintain wildlife habitat needs; maintain wildlife movement corridors and migration routes; ensure water tanks provide the needed water for wildlife; and relocate wildlife; minimize illegal hunting and unauthorized activities. YPG cooperates with AZGFD and USFWS for wildlife rehabilitation and law enforcement.

Measures that would be implemented to avoid or minimize impacts to soils, vegetation, and water resources would provide indirect benefits to wildlife through improved habitat conditions.

This page intentionally left blank.

SECTION 4

List of Preparers

NEPA Project Team

First Name	Last Name	Organization
Joe	Hand	USACE
Karla	James	YPG Environmental Sciences Division
Meg	McDonald	YPG Environmental Sciences Division
Sergio	Obregon	YPG Environmental Sciences Division
Charles	Ruerup	YPG Environmental Sciences Division

List of Preparers

Name	Degree(s)	Years of Experience	Document Sections
Mark Cochran	BA, Biology	31	3
David Dunagan	MA, English	29	All
Michael Graham	BS, Urban and Regional Studies MURP, Urban and Regional Planning MIM, International Management AICP	32	2
Janet Hill	BS, Civil Engineering MS, Civil Engineering	17	3
Josh Jamell	BS, Ecology	12	All
Elizabeth Jorgensen	BS, Environmental Science	8	All
Sara Kent	BS, Ecology	6	3
Jay Minix	BS, Environmental Geology	12	2,3
Sara Orton	BS, Political Science MPS, Preservation Studies	14	1,2,3
Robert Price	BS, Zoology, History MS, Environmental Science Master of Public Affairs	17	All
Richard Reaves	BS, Wildlife Ecology and Resource Management PhD, Wetland and Wildlife Ecology	20	All
Tom Simpson	PhD, Ecology	29	All
Frank Smith	BS, Industrial Engineering MS, Administration AICP	24	2

List of Preparers

Name	Degree(s)	Years of Experience	Document Sections
Scott Smith	BS, Geology	13	2,3
Greg Twigg	BA, Geography	13	2,3
Ron Vaughn	BS, Chemical Engineering MS, Environmental Engineering	21	3
Melanie Wiggins	BS, Biology MAS, Environmental Policy and Management	18	3
Kira Zender	MS, Urban and Regional Planning	18	All

SECTION 5

Distribution List

Native American Organization

Ak-Chin Indian Community

Chemehuevi Indian Tribe

Cocopah Indian Tribe

Colorado River Indian Tribes

Fort McDowell Yavapai Nation

Fort Mojave Indian Tribe

Gila River Indian Community Council

Quechan Indian Tribe

Salt River Pima-Maricopa Indian Community

San Carlos Apache Tribe

Hopi Tribe

Tohono O'odham Nation

Yavapai-Apache Nation

Yavapai-Prescott Indian Tribe

Agency

ACC PMS/CEV

Arizona Department of Agriculture, Native Plant Program

Arizona Department of Environmental Quality

Arizona Department of Environmental Quality, Air Quality Division

Arizona Game and Fish Department

Bureau of Indian Affairs—Western Regional Office

Bureau of Land Management, Yuma District Office

Environmental Department MCAS Yuma

Imperial National Wildlife Refuge

Kofa National Wildlife Refuge

Southwest Arizona National Wildlife Refuge Complex

U.S. Border Patrol

U.S. Bureau of Reclamation, Yuma Area Office

U.S. Environmental Protection Agency, Region IX

U.S. Fish and Wildlife Service

Wellton-Mohawk Natural Resources Conservation District

NRCS Yuma Service Center

Laguna Natural Resource Conservation District (NRCD), Yuma NRCD

Public and Local Government

Arizona Deer Association

Arizona Desert Bighorn Sheep Society

Arizona Historical Society

Arizona Wilderness Coalition

Audubon Society

City of Yuma

Greater Yuma Economic Development Corp

La Paz County

Sierra Club, Grand Canyon Chapter

Yuma Chamber of Commerce Military Affairs Committee

Yuma County

Yuma County Chamber of Commerce

Yuma County Development Services

Political Representatives

City of Yuma

Congressman Raul M. Grijalva—AZD07

House of Representatives

La Paz County Community Development

United States Senate

Yuma County

SECTION 6

References

Abatzoglou, J.T. and C.A. Kolden. 2011. Climate Change in Western US Deserts: Potential for Increased Wildfire and Invasive Annual Grasses. *Rangeland Ecology and Management* 64:471–478, September 2011.

AECOM, bws architects, and Kaya Associates, Inc. 2011. *Installation Design Guide Prepared for U.S. Army/Yuma Proving Ground*. January.

Arizona Department of Commerce. 2006. *Arizona Military Regional Compatibility Project Policy Guidebook*. July.

Arizona Department of Economic Security. 2006. Population Projections from 2006-2055, Research Administration, Population Statistics Unit. March 31.

Arizona Department of Environmental Quality (ADEQ). 2006. *Yuma PM_{10} Maintenance Plan*. Air Quality Division. August 11, 2006. http://www.azdeq.gov/environ/air/plan/download/yumaplan.pdf Accessed on February 8, 2013.

Arizona Department of Environmental Quality (ADEQ). 2008. Fact Sheet: Arizona Pollutant Discharge Elimination System 2008 Construction General Permit (AZG2008-01). Available from: http://www.azdeq.gov/environ/water/permits/index.html.

Arizona Department of Environmental Quality (ADEQ). 2009. U.S. Army Yuma Proving Ground ADEQ Report.

Arizona Department of Environmental Quality (ADEQ). 2010. 2006/2008 List of 3030(d) Impaired Waters. http://www.azdeq.gov/environ/water/assessment/assess.html. Accessed on May 23, 2011.

Arizona Department of Environmental Quality (ADEQ). 2011a. State of Arizona Air Monitoring Network Plan for the Year 2011. Air Quality Division, Air Assessment Section Final Report, August 2, 2011.

Arizona Department of Environmental Quality (ADEQ). 2011b. Water Quality Division: Application Forms and Guidance. http://www.azdeq.gov/function/forms/appswater.html#cgp. Accessed on May 26, 2011.

Arizona Department of Health Services. 2012. Arizona—Valley Fever Report 2007-2011. Available from http://www.azdhs.gov/phs/oids/epi/disease/cocci/surv_dat.htm.

Arizona Department of Health Services. 2013. Confirmed & Probable cases 2012 (selected morbidities) 2012 Final Data. Available from http://www.azdhs.gov/phs/oids/data/current.htm.

Arizona Department of Transportation (ADOT). 2005. *Erosion and Pollution Control Manual*. February. Available at: http://www.azdot.gov/inside_adot/OES/Water_Quality/Stormwater/Index.asp.

Arizona Department of Transportation (ADOT). 2013. Yuma District—Current Projects. Http://www.azdot.gov/highways/districts/Yuma/Current_Projects.asp. Accessed on June 17, 2013.

Arizona Department of Water Resources (ADWR). 2009. Arizona Water Atlas. Volume 7, Lower Colorado River Planning Area.

Arizona Game and Fish Department (AZGFD). 2008. Nichol Turk's Head cactus **(***Echinocactus horizonthalonius* var. *nicholii***)**. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 7 p.

Arizona Game and Fish Department (AZGFD), 2010a. Game Management Unit 43B, updated March 2010. http://www.AZGFD.gov/h_f/hunting_units_43b.shtml. Accessed on March 11, 2011.

Arizona Game and Fish Department (AZGFD), 2010b. Game Management Unit 41, updated April 2010. http://www.AZGFD.gov/h_f/hunting_units_41.shtml. Accessed on March 11, 2011.

Arizona Game and Fish Department (AZGFD). 2010c. Element Status Designations by County, Taxon, Scientific Name. Updated November 24. Accessed from Arizona Game and Fish Department Species Lists. http://www.azgfd.gov/w_c/edits/hdms_species_lists.shtml. Accessed on February 8, 2013.

Arizona Game and Fish Department (AZGFD). 2011a. Reptile Abstracts, Distribution Maps, and Illustrations. http://www.azgfd.com/w_c/edits/hdms_abstracts_reptiles.shtml. Accessed on February 25, 2011.

Arizona Game and Fish Department (AZGFD). 2011b. Mammal Abstracts, Distribution Maps, and Illustrations. http://www.azgfd.com/w_c/edits/hdms_abstracts_mammals.shtml. Accessed on February 25, 2011.

Arizona Game and Fish Department (AZGFD). 2011c. Plant Abstracts, Distribution Maps, and Illustrations. http://www.azgfd.com/w_c/edits/hdms_abstracts_plants.shtml. Accessed on February 25, 2011.

Arizona Game and Fish Department (AZGFD). 2011d. Bird Abstracts, Distribution Maps, and Illustrations. http://www.azgfd.com/w_c/edits/hdms_abstracts_birds.shtml. Accessed on February 25, 2011.

Arizona Game and Fish Department (AZGFD). 2011e. Wildlife Use of Mesquite Bosques in the Sonoran Desert. http://www.azgfd.gov/w_c/WildlifeUseMesquiteBosque.shtml. Accessed on October 28, 2011.

Arizona Game and Fish Department (AZGFD), 2012. Game Management Unit 43A, updated May 2012. http://www.AZGFD.gov/h_f/hunting_units_43a.shtml. Accessed on January 07, 2013.

Arizona Interagency Desert Tortoise Team, 2008. *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat.* Prepared as a supplement to the 1996 Arizona Interagency Desert Tortoise Team Management Plan.

Berli, M., T.G. Caldwell, E.V. McDonald, and D.A. Gilewitch. 2007. Modeling Desert Pavement Deterioration due to Heavy Vehicle Traffic. Proceedings of the Joint North America, Asia-Pacific ISTVS Conference and Annual Meeting of Japanese Society for Terramechanics. June 23-26, 2007.

Black and Veatch Corporation (B&V). 2011. Yuma Proving Ground Enhanced Use Leasing (EUL) Market Study. Draft report. February 2011.

Brandon, Michael. 2011a. Personal communication with Rich Reaves/CH2M HILL. October 24, 2011.

Brandon, Michael. 2011b. Personal communication with Melanie Wiggins/CH2M HILL. May 17, 2011.

Bright, J.L. 2013. Sonoran Pronghorn Monthly Update, October 4, 2013. Unpublished Committee Report, Arizona Game and Fish Department.

Brown, J.K. and J.K Smith (editors). 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257 pp.

Bullard, Thomas F., Eric V. McDonald, E. Jamie Trammell, and Graham K. Dalldorf. 2011. Development of a Geomorphic-Based Archaeological Sensitivity Model for the U.S. Army Yuma Proving Ground, Arizona. Prepared by Desert Research Institute. On file at Environmental Sciences Division, U.S. Army Garrison, Yuma Proving Ground, Yuma, Arizona.

Bureau of Land Management (BLM). 2006. The Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195). January.

Bureau of Land Management California. 2011. Imperial Sand Dunes. http://www.blm.gov/ca/st/en/fo/elcentro/recreation/ohvs/isdra.html. Accessed on January 17, 2011.

Bureau of Reclamation. 1996. *Biological Assessment: Description and Assessment of Operations, Maintenance, and Sensitive Species of the Lower Colorado River-August 1996* http://www.usbr.gov/lc/region/g2000/assess/toc.htm. Accessed on March 9, 2011.

Caldwell, T.G., E.V. McDonald, S.N. Bacon, and G. Stullenbarger. 2008. *The Performance and Sustainability of Vehicle Dust Courses for Military Testing*. Journal of Terramechanics 45: 213-221.

California Stormwater Quality Association (CASQA). 2003. Wind Erosion Control. January.

Centers for Disease Control and Prevention (CDC). 2013. Valley Fever: Awareness if the Key. http://www.cdc.gov/features/valleyfever/. Accessed October 2, 2013.

Climate Change Advisory Group. 2006. Climate Change Action Plan. August, 2006. Accessed from ADEQ Arizona Climate Change Initiatives: Documents Website. http://www.azclimatechange.gov/docs.html. Accessed on March 21, 2011.

Cocopah Indian Tribe. 2011. Yuma Arizona Recreation. http://www.cocopah.com/recreation.html. Accessed on December 6, 2011.

Colorado Plateau-Land Use History Northern Arizona (CP-LUHNA) 1998. *Endangered Fish and of the Colorado Plateau*. http://cpluhna.nau.edu/Biota/fishes.htm. Accessed on January 5, 2011.

Department of Defense (DoD). 1998. Stratigraphic, Sedimentologic, and Paleobotanical Investigations of Terrace Gravels, U.S. Army Yuma Proving Ground. January.

Department of Defense (DoD). 2010. Memorandum of DOD Implementation of Storm Water Requirements under Section 438 of the Energy Independence and Security Act (EISA). January 19.

Dickinson, J.E., Land, M., Faunt, C.C., Leake, S.A., Reichard, E.G., and J.B. Fleming. 2006. Hydrogeologic Framework Refinement, Ground-Water Flow and Storage, Water-Chemistry Analyses, and Water-Budget Components of the Yuma Area, Southwestern Arizona and Southeastern California. Prepared in cooperation with the Bureau of Reclamation, U.S.

EA Engineering, Science, and Technology Inc. 2014. Draft Operational Range Assessment Program Periodic Review Phase I Qualitative Assessment Report Addendum Yuma Proving Ground Yuma, Arizona.

Flores, M. 2011. YPG water treatment plants soon to begin operating. Special to Yuma Sun, February 18, 2011 5:02 PM. http://www.yumasun.com/articles/water-67768-area-ground.htm. Accessed on March 9, 2011.

Franklin, Patrick. 2013a. Personal communication to CH2M HILL. Expanded Descriptions of Kofa and Cibola Region Activities. January 30, 2013.

Franklin, Patrick. 2013b. Personal communication to D. Steward/YPG. Air Activities over Kofa National Wildlife Refuge. December 8, 2013.

Global Security. 2013. Preliminary Planning. Army FM 5-430-00-2 Chapter 10. http://www.globalsecurity.org/military/library/policy/army/fm/5-430-00-2/Ch10.htm. Accessed on January 17, 2013.

Glover, J. 2011. Personal communication to J. Jamell/CH2M HILL. May 2, 2011.

Gutierrez Canales Engineering, P.C. 2011. Environmental Assessment, Cibola Impact Areas. April. Prepared for Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground/

Gutierrez-Palmenberg, Inc. and Jason Associates Corporation. 2001. Final Range Wide Environmental Impact Statement, U.S. Army Yuma Proving Ground, Yuma and La Paz Counties, Arizona. Command Technology Directorate CSTE-DTC-YP-CD-ES. July 2001.

Hendricks, D. M. 1985. *Arizona Soils*. College of Agriculture, University of Arizona.

Homefacts.com. 2011a. Yuma County Federal Communication Commission Towers. http://www.homefacts.com/fcctowers/Arizona/Yuma-County.html. Accessed on June 22, 2011.

Homefacts.com. 2011b. La Paz County Federal Communication Commission Towers. http://www.homefacts.com/fcctowers/Arizona/La-Paz-County.html. Accessed on June 22, 2011.

Hoon, Brian. 2013. Personal communication to Rob Price/CH2M HILL and Richard Reaves/CH2M HILL regarding Wastewater Resources. August 6, 2013.

Inter Tribal Council of Arizona. 2011a. Cocopah Tribe. http://www.itcaonline.com/tribes_cocopah.html. Accessed on February 10, 2011.

Inter Tribal Council of Arizona. 2011b. Quechan Tribe. http://itcaonline.com/?page_id=1173. Accessed on February 8, 2013.

Inter Tribal Council of Arizona. 2011c. Colorado River Indian Tribes. http://www.itcaonline.com/tribes_colriver.html. Accessed on February 10, 2011.

Jason Associates Corporation. 2000. Environmental Assessment for the Combat Systems Test Complex, May 30, 2000. Command Technology Directorate CSTE-DTC-YP-CD. Jason Associates Corporation. May 2000.

Jason Associates Corporation. 2001. Environmental Assessment for Mohave Drop Zone. Prepared for U.S. Army Proving Ground Command Technology Directorate. Jason Associates Corporation. September, 2001.

Jason Associates Corporation. 2007. Environmental Assessment for the Joint Experimentation Range Complex (JERC) III, Operational Road Course and Service/Access Road. December 2007.

Jason Associates Corporation. 2008a. Final Environmental Assessment for the Unmanned Aircraft Systems Test Center. Jason Associates Corporation. January 2008.

Jason Associates Corporation. 2008b. Final Environmental Assessment for the Proposed Cobra Flats, Comanche Flats, and Site 2 Military Training Areas. January 2008.

Jason Associates Corporation. 2008c. Final Environmental Assessment for the Army Test Tracks. Prepared for U.S. Army Garrison Yuma Proving Ground. Jason Associates Corporation. March 2008.

Jason Associates Corporation. 2008d. Hazardous Waste Management Plan U.S. Army Garrison Yuma Proving Ground Yuma, Arizona, August.

Jason Associates Corporation and North Wind Environmental. 2000. Solid Waste Facility Plan, Revised Final Report. Prepared for U.S. Army Garrison Yuma Proving Ground. October 2000.

Johnson, M.; Holmes, J.; Weber, R.; and Dionne, M. 2006. Yellow-billed Cuckoo Distribution, Abundance and Habitat Use Along the Lower Colorado and Gila Rivers in La Paz and Yuma Counties, 2005, Final Report. July 30.

Kaya Associates, Inc. 2012. Yuma Proving Ground Fire Fuel GIS Layer and Fire Behavior Modeling. January, 2012.

Krausman, P.R, L.K. Harris, R.R. Wilson, J.W. Cain III, and K.K.G. Koenen. 2005. Bombing and Sonoran Pronghorn: A Clear and Present Danger? *Journal of Wildlife Management* 71(8): 2820-2823.

Krausman, P.R, L.K. Harris, C.L. Blasch, K.K.G. Koenen, and J. Francine. 2007. Effects of Military Operations on Behavior And Hearing of Endangered Sonoran Pronghorn. *Wildlife Monographs* 157:1-41.

Lewis, Marla. Personal communication with Melanie Wiggins/CH2M HILL. June 23, 2011 regarding SWMUs at YPG.

The Maguire Company. 2008. Economic Impact of Arizona's Principal Military Operations, Final Report.

McDonald, Alison. Personal communication with Rob Price/CH2M HILL. May 02, 2011 regarding cultural resource surveys at YPG.

McDonald, Alison. 2014. Personal communication with Lori Price/CH2M HILL on 10/15/14 regarding cultural resource surveys at YPG.

McDonald E., E. Hamerlynck, J. McAuliffe, and T. Caldwell. 2004. *Analysis of Desert Shrubs Along First-Order Channels on Desert Piedmonts: Possible Indicators of Ecosystem Condition and Historic Variation*. Strategic Environmental Research and Development Program. Desert Research Institute.

Merrill, Laura. Personal communication with CH2M HILL. December 19, 2012 regarding invasive plant species on YPG.

Mittlehauser Corporation. 1994. Environmental Assessment Yuma Proving Ground United States Army. Original Document (1987) by U.S. Army Corps of Engineers and Michael Brandman Associates, Inc., revised by Mittlehauser Corporation, 1994.

Murphy R. W., Berry K. H., Edwards, T., Leviton, A. E., Lathrop, A., and Riedle, J. D. 2011. The dazed and confused identity of Agassiz's land tortoise, Gopherus agassizii (Testudines: Testudinidae) with the description of a new species and its consequences for conservation. ZooKeys 113: 39-71.

Natural Resources Conservation Service (NRCS). 1991. The soil survey of the U.S. Army Yuma Proving Ground, Arizona-parts of La Paz and Yuma Counties, U.S. Department of Agriculture Soil Survey Report, 164 p.

Neary, D.G., K.C. Ryan, and L.F. DeBano. 2005. Wildland fire in ecosystems: effects of fire on soils and water. Gen. Tech. Rep. RMRS-GTR-42-vol.4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 250 pp.

Obregon, Sergio. 2013a. Personal communication to Rich Reaves/CH2M HILL and Kira Zender/CH2M HILL regarding 2012 Air Emissions Report. July 11, 2013.

Obregon, Sergio. 2013b. Personal communication to Rob Price/CH2M HILL and Richard Reaves/CH2M HILL regarding Water Resources. August 1, 2013.

Obregon, Sergio. 2013c. Personal communication to Rob Price/CH2M HILL and Richard Reaves/CH2M HILL regarding DU Comments. January 29, 2013.

Office of the Undersecretary of Defense. 2010. *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)*.

Parsons. 2008. Long Range Component, Real Property Master Plan. Preliminary Submittal. October.

Parsons. 2011. Long Range Component, Real Property Master Plan. Final Submittal. March 2011.

Parsons. 2013. RCRA Facility Investigation Report for Inactive Landfill YPG-029 U.S. Army Garrison Yuma Proving Ground. March, 2013.

Phillips, S.J. and P.W. Comus (editors). 2000. A Natural History of the Sonoran Desert. Arizona-Sonora Desert Museum. University of California Press. 628 pp.

President's Council on Environmental Quality (CEQ). 1997. Considering Cumulative Effects Under the National Environmental Policy Act. http://ceq.hss.doe.gov/nepa/ccenepa/ccenepa.htm. Accessed on June 2, 2011.

Reilly, T.E., Dennehy, K.F., Alley, W.M., and Cunningham, W.L. 2008. Ground-Water Availability in the United States: U.S. Geological Survey Circular 1323, 70 p., also available online at http://pubs.usgs.gov/circ/1323/

Robson, S.G. and E.R. Banta. 1995. HA 730-C: Groundwater Atlas of the United States Arizona, Colorado, New Mexico, Utah. Online Version of the Groundwater Atlas of the United States, available from http://pubs.usgs.gov/ha/ha730/ch_c/index.html.

Skaggs, Gregory. 2013. Personal Communication with Rich Reaves/CH2M HILL in regards to the Energy/Utility Section.

Solutia Inc. 2012a. MSDS for Therminol products—North America. http://www.therminol.com/pages/region/na/msds.asp. Accessed on November 2, 2012.

Solutia Inc. 2012b. MSDS for Therminol 66. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012c. MSDS for Therminol 72. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012d. MSDS for Therminol 75. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012e. MSDS for Therminol LT. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012f. MSDS for Therminol VP-3. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012g. MSDS for Therminol VP-1. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012h. MSDS for Therminol XP. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012i. MSDS for Therminol FF. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012j. MSDS for Therminol 55. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012k. MSDS for Therminol D-12. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012l. MSDS for Therminol VLT. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012m. MSDS for Therminol 59. Available from http://www.therminol.com/pages/region/na/msds.asp.

Solutia Inc. 2012n. MSDS for Therminol 62. Available from http://www.therminol.com/pages/region/na/msds.asp.

Sonoran Desert Museum. 2011. Invaders of the Sonoran Desert Region: Sahara Mustard (*Brassica tournefortii*). http://www.desertmuseum.org/invaders/invaders_saharamustard.php. Accessed on May 27, 2011.

Spellenberg, R. 2003. Sonoran Desert Wildflowers: A Falcon Guide. The Globe Pequot Press. 246 pp.

Tierra Environmental Services. 2001. Final Native American Consultation Plan for U.S. Army Yuma Proving Ground, Yuma, Arizona. Report on file at Environmental Sciences Division, U.S. Army Garrison, Yuma Proving Ground, Yuma, Arizona.

Tribal Energy and Environmental Information Clearinghouse. 2012. Solar Energy System Descriptions. http://teeic.anl.gov/er/solar/restech/desc/index.cfm. Accessed on November 2, 2012.

U.S. Army. 2011. Pollution Prevention (P2). U.S. Army Environmental Command website http://aec.army.mil/usaec/p2/index.html. Accessed on March 8, 2011.

U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM). 1999. Firing Range Study No. 32-EE-5813-99, Field Investigation Report, Munition Test Range Environmental Management Project, Yuma Proving Ground, Arizona. U.S. Army Environmental Command, Aberdeen Proving Ground, Maryland. September 1999.

U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM). 2007. Qualitative Range Assessment Project No. 38-Eh-041g-05 Yuma Proving Ground, Arizona. U.S. Army Environmental Command, Aberdeen Proving Ground, Maryland. February 2007.

U.S. Department of Energy and Bureau of Land Management (BLM). 2013. Record of Decision for the Quartzsite Solar Energy Project and Amendment to the Yuma Field Office Resource Management Plan. http://www.blm.gov/az/st/en/prog/energy/solar/quartzsite_solar_energy.html. Accessed July 8, 2014.

U.S. Army Environmental Command (USAEC). 2005. USAEC Environmental Update: Spring 2005. http://aec.army.mil/usaec/newsroom/update/spr05/spr0518.html. Accessed on March 29, 2011.

U.S. Army Environmental Command (USAEC). 2007. NEPA Analysis Guidance Manual. 404 pp plus appendices.

U.S. Army Environmental Command (USAEC). 2012. Memorandum of Record: YPG Solar Development.

U.S. Army Garrison Yuma, Environmental Sciences Directorate (YPG). 2004. Environmental Assessment for the Joint Experimental Range Complex. March 2, 2004.

U.S. Army Garrison Yuma, Environmental Sciences Directorate (YPG) 2006. Environmental Assessment for the Joint Experimental Range Complex. August 2006.

U.S. Army Garrison Yuma Proving Ground (YPG). 2007. Hazardous Waste Treatment Facility-Arizona HWMA Permit Application.

U.S. Army Garrison Yuma Proving Ground (YPG). 2008. Form 1391: Open Burn Pad with Storm Retention.

U.S. Army Garrison Yuma Proving Ground (YPG). 2011a. Learn More About Yuma Proving Ground. http://www.yuma.army.mil/chub_what.shtml. Accessed on February 8, 2011.

U.S. Army Garrison Yuma Proving Ground (YPG). 2011b. Family Assistance Center. http://www.yuma.army.mil/garrison/sites/services/family.asp. Accessed on February 10, 2011.

U.S. Army Garrison Yuma Proving Ground (YPG). 2012a. Integrated Cultural Resources Management Plan, U.S. Army Garrison Yuma, Yuma, Arizona, Fiscal Years 2012-2016. Revised by David Rhode of Desert Research Institute, and Meg McDonald, Environmental Sciences Division, U.S. Army Garrison Yuma.

U.S. Army Garrison Yuma Proving Ground Yuma (YPG). 2012b. Integrated Natural Resources Management Plan and Environmental Assessment. June 2012.

U.S. Army Garrison Yuma Proving Ground (YPG). undated a. *Standard Operating Procedure (SOP) for Conducting Automotive Testing* (YP-YTC-P-5001). Yuma Test Center. 17 December 2008.

U.S. Army Garrison Yuma Proving Ground (YPG). undated b. *Standard Operating Procedure (SOP) for Conducting Combat Vehicle Weapons Systems and Ammunition* (YP-YTC-P-5100). Yuma Test Center.

U.S. Army Installation Management Command. 2010. National Environmental Policy Act (NEPA) Practices and Procedures. IMCOM Circular 200-10-1. 22 November 2010.

U.S. Army Public Health Command. 2011. U.S. Army Yuma Proving Ground Draft Installation Operational Noise Management Plan. September.

U.S. Bureau of Reclamation: Lower Colorado Region—Phoenix Office (USBR). 2009. *Native Aquatic Species of the Gila River Basin in Arizona and New Mexico*.

http://www.usbr.gov/lc/phoenix/biology/azfish/profintro.html. Accessed on January 5, 2011.

U.S. Census Bureau (USCB). 2000. (NP-D1-A) Projections of the Resident Population by Age, Sex, Race, and Hispanic Origin: 1999 to 2100. Issued January 13.

U.S. Census Bureau (USCB). 2011a. American FactFinder 2010 Census Data. http://factfinder2.census.gov/main.html. Accessed on November 18, 2011.

U.S. Census Bureau (USCB). 2011b. American Community Survey Data from 2008 to 2010, Poverty Data. http://factfinder2.census.gov/main.html. Accessed on November 18, 2011.

U.S. Census Bureau (USCB). 2011c. American FactFinder 1990 Summary File 1 Population Data. http://factfinder.census.gov/servlet/DTGeoSearchByListServlet?ds_name= DEC_1990_ STF1_&_lang=en&_ts=315160907488. Accessed on February 7, 2011.

U.S. Census Bureau (USCB). 2011d. American FactFinder 2000 Summary File 1 Data. http://factfinder.census.gov/servlet/DTSubjectShowTablesServlet?_ts=315161122561. Accessed on February 7, 2011.

U.S. Congress, Office of Technology Assessment. 1993. *Energy Efficiency: Challenges and Opportunities for Electric Utilities, OTA-E-561*. September.

U.S. Department of Energy, undated. Concentrating Solar Power Commercial Application Study: Reducing Water Consumption of Concentrating Solar Power Electricity Generation. Report to Congress. Available from: http://www.nrel.gov/csp/publications.html.

U.S. Environmental Protection Agency (USEPA). 1974. *Information Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA/ONAC 550/9-74-004. March 1974.

U.S. Environmental Protection Agency (USEPA). 2009a. Enclosure 2: Waters Added by EPA to Arizona's Section 303(d) 2006-2008 List. http://www.epa.gov/region09/water/tmdl/ arizona.html. Accessed on May 23, 2011.

U.S. Environmental Protection Agency (USEPA). 2009b. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. EPA 841-B-09-001. December 2009.

U.S. Environmental Protection Agency (USEPA). 2010. Glossary of Climate Change Terms.

U.S. Environmental Protection Agency (USEPA). 2011a. Climate Change: Greenhouse gas Emissions. http://epa.gov/climatechange/emissions/index.html. Accessed on March 7, 2011.

U.S. Environmental Protection Agency (USEPA). 2011b. Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009. http://epa.gov/climatechange/emissions/ usinventoryreport.html. Accessed on March 21, 2011.

U.S. Environmental Protection Agency (USEPA). 2012. National Ambient Air Quality Standards. http://www.epa.gov/air/criteria.html. Accessed on July 31, 2013.

U.S. Environmental Protection Agency (USEPA). 2013. State and County Emission Summaries. http://www.epa.gov/air/emissions/. Accessed July 30, 2013.

U.S. Fish and Wildlife Service (USFWS). 2003. Monitoring Plan for the American Peregrine Falcon. December.

U.S. Fish and Wildlife Service (USFWS). 2005. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Southwestern Willow Flycatcher (Empidonax trallii eximus); Final Rule. Federal Register Vol. 70, No. 201. Wednesday October 19, 2005.

U.S. Fish and Wildlife Service (USFWS). 2008. Kofa National Wildlife Refuge. http://www.fws.gov/southwest/refuges/arizona/kofa/index.html. Accessed on January 17, 2011.

U.S. Fish and Wildlife Service (USFWS). 2009a. Endangered and Threatened Wildlife and Plants; Removal of the Brown Pelican (*Pelecanus occidentalis*) From the Federal List of Endangered and Threatened Wildlife. Vol. 74, No. 220. Tuesday November 17, 2009.

U.S. Fish and Wildlife Service (USFWS). 2009b. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List a Distinct Population Segment of the Roundtail Chub (*Gila robusta*) in the Lower Colorado River Basin. Federal Register Vol. 74, No. 128. Tuesday July 7, 2009.

U.S. Fish and Wildlife Service (USFWS). 2009c. Draft Environmental Assessment for the Reestablishment of Sonoran Pronghorn. U.S. Fish and Wildlife Service Region 2. 1 October 2009.

U.S. Fish and Wildlife Service (USFWS). 2010. Imperial National Wildlife Refuge. http://www.fws.gov/southwest/refuges/arizona/Imperial/index.html. Accessed on January 17, 2011.

U.S. Fish and Wildlife Service (USFWS). 2011a. Cibola National Wildlife Refuge. http://www.fws.gov/southwest/refuges/CibolaNWR/. Accessed on January 17, 2011.

U.S. Fish and Wildlife Service (USFWS). 2011b. Endangered and Threatened Wildlife and Plants; Withdrawal of Proposed Rule to List the Flat-Tailed Horned Lizard as Threatened. Federal Register Vol. 76, No. 50. Tuesday March 15, 2011.

U.S. Fish and Wildlife Service (USFWS). 2011c. Federal Register. Endangered and Threatened Wildlife and Plants; Establishment of a Nonessential Experimental Population of Sonoran Pronghorn in Southwestern Arizona. Final Rule. Vol 76, No. 87. May 5, 2011.

U.S. Fish and Wildlife Service (USFWS). 2011d. *White-nose syndrome: The devastating disease of hibernating bats in North America.* November 2011. Available from: http://www.fws.gov/WhiteNoseSyndrome/about.html.

U.S. Fish and Wildlife Service (USFWS). 2011e. Migratory Birds and Habitat Programs. http://www.fws.gov/pacific/migratorybirds/mbta.htm. Accessed on May 18, 2011.

U.S. Fish and Wildlife Service (USFWS). 2011f. Bald Eagle Protection Act. http://wildlifelaw.unm.edu/fedbook/eagleact.html. Accessed on May 18, 2011.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES). 2009a. Bonytail (*Gila elegans*). February.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES). 2009b. Razorback Sucker (*Xyrauchen texanus*). February.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES). 2009c. Nichol Turk's Head Cactus (*Echinocactus horizonthalonius* var. *nicholii*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Arizona Ecological Services Field Office. Phoenix, Arizona.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES). 2010a. Threatened and Endangered Species: Yuma County. http://www.fws.gov/southwest/es/arizona/Threatened.htm. Accessed on February 15, 2011.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES) 2010b. Threatened and Endangered Species: La Paz County. http://www.fws.gov/southwest/es/arizona/Threatened.htm. Accessed on February 15, 2011.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES). 2010c. Roundtail chub, Lower Colorado River Distinct Population Segment (DPS) (*Gila Robusta*). http://www.fws.gov/southwest/es/arizona/Roundtail.htm. Accessed on March 22, 2011.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES). 2010d. News Release—Fish and Wildlife Service to Update Road Map to Recovering Endangered Yuma Clapper Rail. February 10.

U.S. Fish and Wildlife Service Arizona Ecological Services (USFWS AES). 2012. Sonoran Desert Tortoise—general Species information. August 2012. Available from http://www.fws.gov/southwest/es/arizona/Sonoran_Tort.htm.

U.S. Geological Survey (USGS). 1999. National Water Summary on Wetland Resources, United States Geological Survey Water Supply Paper 2425: State Summaries, Arizona. http://water. usgs.gov/nwsum/WSP2425/state_highlights_summary.html. Accessed on April 4, 2011.

U.S. Geological Survey (USGS). 2004. Geologic Provinces of the United States: Basin and Range Province. http://geomaps.wr.usgs.gov/parks/province/basin-range.html. Accessed on January 27, 2011.

U.S. Geological Survey (USGS). 2006. Hydrogeologic Framework Refinement, Ground-Water Flow and Storage, Water-Chemistry Analyses, and Water-Budget Components of the Yuma Areas, Southwestern Arizona and Southeastern California, Scientific Investigations Report 2006-5135.

U.S. Geological Survey (USGS). 2008. National Seismic Hazard Maps. http://earthquake.usgs.gov/hazards/products/conterminous/2008/maps/. Accessed on January 28, 2011.

University of Arizona. 2011. Arizona's Native American Tribes. http://edrp.arid.arizona.edu/tribes.html. Accessed on February 10, 2011.

Vanderheiden, G. 2004. About Decibels (dB). http://trace.wisc.edu/docs/2004-About-dB/. Accessed on January 16, 2014.

Yuma Area Ag Council. 2011. Yuma Area Irrigation Districts. http://www.yaac.net/irrigation.html. Accessed on March 29, 2011.

Yuma County. 2011. About the County. http://www.co.yuma.az.us/index.aspx?page=542. Accessed on February 7, 2011.

Yuma County. 2013. Yuma County 2020 Comprehensive Plan. Updated January 22, 2013. http://www.co.yuma.az.us/index.aspx?page=1037. Accessed on June 25, 2013.

Yuma County Chamber of Commerce. 2011. Demographics. http://www.yumachamber.org/demographics.html. Accessed on February 7, 2011.

Yuma Metropolitan Planning Office (YMPO). 2010. YMPO 2033 Regional Transportation Plan

Yuma Metropolitan Planning Office (YMPO). 2013. 2014 Air Quality Conformity Analysis. Adopted July 25, 2013.

Yuma Proving Ground Department of Public Works (YPG DPW). 2009. Environmental Assessment for All-Terrain Vehicle (ATV) Designated Recreational Use Area. January 2009.

Yuma Proving Ground Department of Public Works (YPG DPW). 2010a. Environmental Assessment for Improvised Explosive Devices (IED) Test Environment. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. January 2010.

Yuma Proving Ground Department of Public Works (YPG DPW). 2010b. Environmental Assessment for Impact Areas Expansion. Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. March 2010.

Yuma Proving Ground Department of Public Works (YPG DPW). 2011a. Environmental Assessment for Fuel Facilities Optimization, Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. November 2011.

Yuma Proving Ground Department of Public Works (YPG DPW). 2011b. Environmental Assessment for Persistent Surveillance Systems Program, Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. December 2011.

Yuma Proving Ground Department of Public Works (YPG DPW). 2013a. Environmental Assessment for Long Range Munitions, Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. April 2013.

Yuma Proving Ground Department of Public Works (YPG DPW). 2013b. Environmental Assessment for Military Training Area Expansion, Environmental Sciences Division, Directorate of Public Works, U.S. Army Garrison Yuma Proving Ground. May 2013.

Yuma Proving Ground Department of Public Works (YPG DPW). 2014. Sonoran Pronghorn Biological Evaluation for Continued Operations at Yuma Proving Grounds as they May Affect Pronghorn on Kofa NWR. Submitted to U.S. Fish and Wildlife Service on March 25, 2014.

Yuma Proving Ground Hunting Program (YPG HP). 2011. Rules and Regulations. http://www.yuma.army.mil/hunting_rules.shtml. Accessed on January 20, 2011.

Yuma Sun. 2008. Winter Guide: Yuma Not too Dry for Fishing. http://media.yumasun.com/winterguide/fishing06.php. Accessed on January 5, 2011.

Zia Engineering and Environmental Consultants, 2011. Spill Prevention, Control, and Countermeasure Plan, U. S. Army Garrison Yuma. April.

This page intentionally left blank.

SECTION 7

Public Involvement and Persons Contacted

7.1 Introduction

NEPA is intended to ensure public participation in the EIS process. Public participation includes effective communication between all federal, state, and local agencies, tribal governments, and other persons or organizations that may have an interest in the project. As required by NEPA, the public was invited to attend public scoping meetings held on June 14 and 15, 2011. Agency scoping meetings were held on June 14, 2011. Public meetings on the Draft Programmatic Environmental Impact Statement were conducted on September 24 and 25, 2013, and public comments on the Proposed Action were solicited. There will be a notice to the public of the waiting period between issuance of the FPEIS and signature of the ROD. Other methods used to reach the general public and interested stakeholders included meeting announcements in newspapers and news releases to local print and broadcast news media. Further public communication includes maintaining contact with public officials and agency representatives, ensuring that calls from the public are addressed in a timely manner, and contacting stakeholders through placement of notices of public meetings. The Draft Programmatic Environmental Impact Statement was circulated to potentially interested stakeholders and comments requested. The FPEIS also will be circulated to potentially interested stakeholders and comments requested. Public involvement materials are located in Appendix A. These materials include copies of the NOI, public notices for the scoping meeting, the Notice of Availability, public notices for the Draft Programmatic Environmental Impact Statement public meetings, and the project mailing list.

7.2 Notice of Intent

An NOI to prepare a Programmatic EIS (PEIS) was published in the FR (Vol. 76, No. 101) on May 25, 2011.

7.3 Coordination

Potentially interested stakeholders were identified and invited to participate in the NEPA process. Table 7-1 identifies contacts for coordination of Native American Issues. State and Federal agency contacts are identified in Table 7-2. Table 7-3 lists the public stakeholders contacted and Table 7-4 identifies the local, state, and Federal political representatives who were contacted. Appendix A contains copies of correspondence directed to and received from cooperating local, state and federal agencies and tribal governments.

TABLE 7-1
Native American Coordination
Yuma Proving Ground

First Name	Last Name	Organization
Louis J.	Manuel, Jr.	Ak-Chin Indian Community Council
Caroline	Antone	Ak-Chin Indian Community
Charles	Wood	Chemehuevi Indian Tribe
Ronald	Escobar	Chemehuevi Indian Tribe
Sherry	Cordova	Cocopah Indian Tribe
Jill	McCormick	Cocopah Indian Tribe
Lisa	Swick	Colorado River Indian Tribes
Eldred	Enas	Colorado River Indian Tribes
Clinton M.	Pattea	Fort McDowell Yavapai Nation
Karen	Ray	Fort McDowell Yavapai Nation Community
Linda	Otero	Fort Mojave Indian Tribe
Timothy	Williams	Fort Mojave Tribal Council
Barnaby V.	Lewis	Gila River Indian Community Council
William R.	Rhodes	Gila River Indian Community Council
Mike	Jackson, Sr.	Quechan Indian Tribe
Bridget	Nash-Chrabascz	Quechan Indian Tribe
Diane	Enos	Salt River Pima-Maricopa Indian Community
Kelly	Washington	Salt River Pima-Maricopa Indian Community
Vernelda	Grant	San Carlos Apache Tribe
Terry	Rambler	San Carlos Apache Tribe
Leigh	Kuwanwisiwma	Hopi Tribe
LeRoy N.	Shingoitewa	Hopi Tribe
Ned	Norris, Jr.	Tohono O'odham Nation
Peter	Steere	Tohono O'odham Nation
David	Kwail	Yavapai-Apache Nation
Delores	Plunkett	Yavapai-Apache Nation
Ernest	Jones, Sr.	Yavapai-Prescott Indian Tribe
Linda	Ogo	Yavapai-Prescott IndianTribe

TABLE 7-2
State and Federal Agency Coordination
Yuma Proving Ground

First Name	Last Name	Agency
Elvie R.	Hoag	ACC PMS/CEV
James	McGinnis	Arizona Department of Agriculture, Native Plant Program
Delfina C.	Olivarez	Arizona Department of Environmental Quality
Edward	Ranger	Arizona Department of Environmental Quality
Henry	Darwin	Arizona Department of Environmental Quality, Air Quality Division
Rebecca	Davidson	Arizona Game and Fish Department
Troy	Smith	Arizona Game and Fish Department
Bryan	Bowker	Bureau of Indian Affairs—Western Regional Office
Irene	Herder	Bureau of Indian Affairs—Western Regional Office
Dave	Daniels	Bureau of Land Management, Yuma District Office
Dave	Rodriguez	Environmental Department MCAS Yuma
Elaine	Johnson	Imperial National Wildlife Refuge
Susanna	Henry	Kofa National Wildlife Refuge
Mitch	Ellis	Southwest Arizona National Wildlife Refuge Complex
Richard	Hays	U.S. Border Patrol
Cynthia	Hoeft	Bureau of Land Management, Yuma District Office
Christopher	Wallis	U.S. Bureau of Reclamation, Yuma Area Office
Wayne	Nastri	U.S. Environmental Protection Agency, Region IX
Steven L.	Spangle	U.S. Fish and Wildlife Service
David	Sharpe	Wellton-Mohawk Natural Resources Conservation District
Cheryl	Lambert	NRCS Yuma Service Center
Sheryl	Christenson	Laguna Natural Resource Conservation District (NRCD), Yuma NRCD

TABLE 7-3
Public Stakeholder Coordination
Yuma Proving Ground

First Name	Last Name	Organization
Pete	Cimellaro	Arizona Deer Association
Bill	Luffy	Arizona Desert Bighorn Sheep Society
Carol	Brooks	Arizona Historical Society
Jason	Williams	Arizona Wilderness Coalition
Patricia	Rather	Audubon Society

TABLE 7-3
Public Stakeholder Coordination
Yuma Proving Ground

First Name	Last Name	Organization
Julie	Engel	Greater Yuma Economic Development Corp
Sandy	Bahr	Sierra Club, Grand Canyon Chapter
Don	Foltz	Yuma Chamber of Commerce Military Affairs Committee
Ken	Rosevear	Yuma County Chamber of Commerce
Monty	Stansbury	Yuma County Development Services

TABLE 7-4
Political Representatives
Yuma Proving Ground

First Name	Last Name	Organization
Alan	Krieger	City of Yuma
Laurie	Lineberry	City of Yuma
Charlene	Fernandez	Congressman Raul M. Grijalva—AZD07
Russ	Jones	House of Representatives
Lynne	Pancrazi	House of Representatives
Colleen	McVey	La Paz County Community Development
John	McCain	United States Senate
Don	Shooter	United States Senate
Scott	Bernhart	La Paz County
Robert	Pickles	Yuma County
Maria	Gonzalez	Yuma County

7.4 Scoping and Information Meetings

Federal, state, and local agencies, environmental groups, and the public were invited to attend open house public scoping meetings on Tuesday, June 14, 2011 at YPG and on Wednesday, June 15, 2011 in Yuma, Arizona.

The public scoping meetings announced the commencement of the PEIS process and were used to gather initial public concerns and issues. Background information was presented on the project and its purpose, the area of study, and the potential options available. A public notice was mailed to stakeholders prior to the public scoping meeting. Notice of the public scoping meeting was also posted in the local newspapers. At the scoping meeting, the public was given an opportunity to ask questions and make comments concerning the project. No comments were received at the public scoping meetings. The court reporter prepared an affidavit stating no comments were received.

7.5 Distribution of the FPEIS

Upon completion, the FPEIS will be posted on the YPG website and made available at local libraries. Copies of the FPEIS will also available from YPG upon request.

7.6 Point of Contact

Written comments regarding this FPEIS should be sent to the following contact. Requests for more information may also be obtained from the following point of contact:

Attention: Sergio Obregon, National Environmental Policy Act Coordinator
U.S. Army Garrison Yuma Proving Ground
Environmental Division, IMWE-YMA-PWE
301 C Street, Yuma, Arizona 85365-9498

This page intentionally left blank.

SECTION 8

Public, Agency, and Tribal Comments and Responses

Agency/Tribal Comments Received
The following comments were received. The PEIS was revised, as appropriate based upon consideration of these comments. All comments and specific responses are provided in Appendix A.

The Hopi Tribe/May 9, 2011
Arizona Game and Fish Department/June 28, 2011
The Hopi Tribe/July 5, 2011
San Carlos Apache Tribe/June 2, 2012
The Hopi Tribe/May 7, 2012
Arizona State Historic Preservation Office/June 29, 2012
Advisory Council on Historic Preservation/August 1, 2012
The Hopi Tribe/August 6, 2012
Yavapai-Prescott Indian Tribe/September 4, 2012
Advisory Council on Historic Preservation/October 17, 2012
U.S. Environmental Protection Agency/September 26, 2013
Arizona Game and Fish Department/October 2, 2013
U.S. Fish and Wildlife Department/October 23, 2013
U.S. Fish and Wildlife Department/October 25, 2013
U.S. Fish and Wildlife Department/January 8, 2014

No Public Comments Received

This page intentionally left blank.

SECTION 9

Index

Aberdeen, ES-11, 2-22, 2-45, 2-70, 3-92, 3-141, 3-144, 3-145, 3-148, 3-176, 3-187, 3-204, 3-229, 3-230, 6-8, C-78, C-79, C-81, C-83, C-84, C-85

aerostat, 2-1, 2-2, 2-3, 2-5, 2-10, B-5, B-11, B-12, B-15, B-18, B-20, B-21

Air Cargo Complex, 2-2, 3-141

airspace, ES-2, 1-3, 2-3, 2-7, 2-12, 2-14, 2-33, 2-47, 2-48, 2-49, 2-50, 2-58, 2-59, 2-60, 2-61, 2-62, 3-7, 3-17, 3-18, 3-70 , 3-71, 3-72, 3-75, 3-76, 3-78, 3-93, 3-125, 3-131, 3-140, 3-142, 3-143, 3-146, 3-147, 3-148, 3-204, 3-204, 3-209, 3-214, 3-225, 3-226

ambient air quality, 3-12

asbestos, ES-9, ix, 2-69, 3-34, 3-143

asbestos-containing material (ACM), ES-9, ix, 2-69, 3-57, 3-63, 3-66, 3-227

Barranca Road, 2-19, 2-41, 3-13, 3-37, 3-142, 3-144, C-13, C-78, C-79, C-80, C-82, C-83, C-84

bat, 3-118, 3-120, 3-122, 3-134, 3-137, 3-188, C-21, C-40, C-52, C-60, C-74

best management practices (BMPs), ES-5, ES-9, ES-13, ES-17, ES-18, ES-19, ix, 2-69, 2-72, 2-73, 2-75, 2-76, 3-7, 3-14, 3-15, 3-16, 3-17, 3-61, 3-62, 3-63, 3-64, 3-102, 3-103, 3-104, 3-105, 3-106, 3-107, 3-108, 3-109, 3-110, 3-111, 3-112, 3-113, 3-153, 3-155, 3-158, 3-160, 3-162, 3-163, 3-175, 3-176, 3-177, 3-178, 3-180, 3-181, 3-183, 3-184, 3-185, 3-202, 3-206, 3-211, 3-215, 3-216, 3-219, 3-220, 3-221, 3-223, 3-225, 3-226, 3-228, 3-229, C-2, C-12, C-14, C-16, C-17, C-18, C-19, C-23, C-25, C-29, C-30, C-31, C-34, C-35, C-36, C-37, C-38, C-41, C-42, C-46, C-57, C-78, C-80, C-82, C-83, C-84, C-85

Big Eye Wash, 3-169

biological opinion (BO), ES-7, ES-15, ix, 2-68, 2-74, 3-49, 3-115, 3-120, 3-132, 3-138, 3-202, 3-221, 3-223, C-73

Blaisdell Railroad Siding, 1-4, 2-4

Camp Laguna, 3-23, 3-163, 3-164

Camp Navajo, 1-4, 2-3

Castle Dome Annex (CDA), x, 2-30, 2-56, 3-32, 3-33, 3-34, 3-38, 3-58, 3-68, 3-142, 3-179, C-2, C-10

Castle Dome Heliport (CDH), ES-6, x, 2-2, 2-20, 2-23, 2-25, 2-42, 2-68, 3-17, 3-32, 3-33, 3-34, 3-38, 3-67, 3-76, 3-103, 3-141, 3-142, 3-144, 3-146, 3-147, 3-175, 3-179, 3-201, B-1, C-2, C-6, C-15, C-27, C-30, C-31, C-78, C-80, C-83

Castle Dome Wash, 2-45, 3-23, 3-92, 3-144, 3-145, 3-148, 3-169, 3-176, C-79, C-81, C-85

Cibola National Wildlife Refuge (Cibola NWR), 3-68, 3-84, 3-164, 6-11

Clean Air Act (CAA), x, 3-7, 3-9, 3-11, 3-51

Clean Water Act (CWA), ES-18, x, 3-51, 3-168, 3-169, 3-170, 3-174, 3-176, 3-179, 3-183, 3-187, 3-230, C-85

Cocopah Indian Reservation, 3-41, 3-42

Comprehensive Environmental Response Compensation and Liability Act (CERCLA), x, 3-51, 3-53

Death Valley, 1-4, 2-4

depleted uranium (DU), xi, 2-3, 2-12, 2-16, 2-18, 3-52, 3-54, 3-61, 3-62, 3-68, 3-88,

3-125, 3-170, 3-192, 6-7, B-10, B-16, B-18, C-76

desert pavement, 3-46, 3-61, 3-97, 3-98, 3-99, 3-100, 3-101, 3-149, 3-170

desert tortoise, ES-13, ES-14, 2-26, 2-27, 2-30, 2-31, 2-32, 2-33, 2-34, 2-35, 2-36, 2-37, 2-39, 2-40, 2-71, 2-75, 3-43, 3-117, 3-118, 3-120, 3-123, 3-125, 3-127, 3-128, 3-129, 3-130, 3-138, 3-140, 3-216, 3-223, 3-229, C-20, C-39, C-50, C-59, C-71

detailed analysis, ES-3, ES-4, 2-8, 2-18, 2-21, 2-22, 2-30, 2-32, 2-33, 2-39, 2-41, 2-64, 2-65, 3-1, 3-13, C-54

East Arm, ES-2, ES-11, 2-1, 2-3, 2-37, 2-39, 2-40, 2-60, 2-63, 2-64, 2-69, 3-16, 3-17, 3-22, 3-38, 3-47, 3-65, 3-83, 3-85, 3-88, 3-92, 3-109, 3-118, 3-129, 3-141, 3-145, 3-147, 3-158, 3-163, 3-165, 3-183, 3-188, 3-189, 3-197, 3-203, C-29, C-34, C-42, C-44

enhanced use lease (EUL), ES-3, xi, 1-5, 3-4, 3-16, 3-39, 3-65, 3-80, 3-86, 3-96, 3-102, 3-130, 3-133, 3-135, 3-136, 3-145, 3-160, 3-166, 3-185, 3-186, 3-195, 3-199, 3-208, 6-3

Fort Yuma Indian Reservation, 3-41, 3-42

Golden Knights, 2-6, B-1

greenhouse gases (GHGs), xi, 3-10, 3-11, 3-12, 3-16

groundwater, ES-3, ES-6, ES-18, 2-68, 2-72, 3-32, 3-35, 3-38, 3-52, 3-54, 3-63, 3-126, 3-152, 3-171, 3-172, 3-173, 3-174, 3-175, 3-178, 3-179, 3-180, 3-182, 3-183, 3-184, 3-185, 3-186, 3-193, 3-201, 3-206, 3-208, 3-219, C-25, C-42, C-43, C-53, C-57, C-76

hazardous air pollutant (HAP), xii, 3-9, 3-51

hazardous substance, 3-52, 3-53, 3-58, 3-59, 3-60, 3-63, 3-64, 3-65, 3-88, 3-89, 3-143, 3-148, 3-170

highly erodible, C-17, C-34, C-37, C-82

hunting, ES-1, ES-11, 2-69, 3-21, 3-66, 3-75, 3-82, 3-83, 3-84, 3-85, 3-86, 3-87, 3-89, 3-125, 3-188, 3-191, 3-194, 3-200, 3-203, 3-210, 3-214, 3-230, 6-2, 6-13, C-16

Imperial Sand Dunes, 1-4, 2-4, 3-84, 6-3

Indian Wash, 3-142, 3-168

Integrated Training Area Management (ITAM), ES-7, ES-13, ES-17, xii, 2-74, 2-75, 2-76, 3-45, 3-46, 3-47, 3-48, 3-49, 3-63, 3-101, 3-104, 3-105, 3-106, 3-107, 3-108, 3-109, 3-110, 3-111, 3-112, 3-113, 3-114, 3-151, 3-152, 3-153, 3-154, 3-156, 3-157, 3-158, 3-159, 3-160, 3-161, 3-162, 3-165, 3-166, 3-178, 3-179, 3-181, 3-182, 3-184, 3-185, 3-221, 3-223, 3-225, 3-226, 3-228, 3-229, C-2, C-55, C-58, C-59, C-61, C-76

invasive, ES-7, ES-17, 2-68, 2-74, 2-76, 3-43, 3-45, 3-46, 3-47, 3-48, 3-49, 3-93, 3-125, 3-126, 3-136, 3-139, 3-149, 3-150, 3-151, 3-152, 3-153, 3-154, 3-155, 3-156, 3-157, 3-158, 3-159, 3-160, 3-161, 3-162, 3-173, 3-175, 3-179, 3-192, 3-193, 3-198, 3-200, 3-202, 3-209, 3-212, 3-217, 3-221, 3-225, 3-226, 3-229, 6-6, C-13, C-20, C-22, C-24, C-26, C-29, C-38, C-42, C-43, C-53, C-84

Kofa Mountains, 3-121, 3-169

Kofa National Wildlife Refuge (Kofa NWR), ES-2, ES-4, ES-7, ES-8, ES-9, ES-11, ES-12, ES-13, ES-15, ES-16, ES-17, 1-5, 2-1, 2-3, 2-70, 2-74, 2-75, 2-76, 2-77, 3-5, 3-17, 3-44, 3-49, 3-68, 3-70, 3-75, 3-76, 3-78, 3-79, 3-80, 3-84, 3-90, 3-94, 3-115, 3-116, 3-119, 3-121, 3-123, 3-124, 3-130, 3-131, 3-132, 3-133, 3-135, 3-137, 3-138, 3-139, 3-140, 3-163, 3-164, 3-169, 3-189, 3-204, 3-204, 3-209, 3-221, 3-222, 3-223, 3-224, 3-225, 3-227, 3-229, 5-1, 6-4, 6-11, 6-13, 7-3, C-20, C-21, C-38, C-50, C-51, C-60, C-61, C-64, C-65, C-72, C-73, C-74, C-75

La Posa Dunes, 3-163, 3-164

Laguna Army Airfield (LAAF), xiii, 2-2, 2-7, 2-17, 2-19, 2-23, 2-24, 2-41, 2-47,

3-13, 3-27, 3-28, 3-32, 3-33, 3-37, 3-46, 3-48, 3-56, 3-67, 3-74, 3-76, 3-79, 3-91, 3-125, 3-131, 3-141, 3-142, 3-144, 3-146, B-1, C-2, C-8, C-13, C-30, C-44, C-46, C-53, C-78, C-79, C-80, C-81, C-82, C-83, C-84

Laguna Mountains, 3-21, 3-50

laser systems, 2-13, 2-14

lead, xiii, 3-7, 3-45, 3-50, 3-52, 3-55, 3-57, 3-61, 3-88, 3-101, 3-102, 3-113, 3-114, 3-126, 3-143, 3-160, 3-172, 3-179, 3-184, 3-190, 3-191, 3-193, 3-215, 3-218, C-13, C-20, C-29, C-38, C-43, C-71, C-76, C-79

lead-based paint (LBP), xiii, 3-52, 3-57

Light Maneuver Training Area (LTA), ES-1

Los Angeles Wash, 3-168

Main Administrative Area (MAA), ES-6, ES-11, xiii, 2-2, 2-20, 2-24, 2-43, 2-64, 2-67, 2-70, 3-13, 3-31, 3-32, 3-33, 3-67, 3-76, 3-83, 3-87, 3-92, 3-141, 3-142, 3-144, 3-146, 3-201, 3-203, C-3, C-7, C-78, C-80, C-83

mammal, 3-188

Martinez Lake, ES-10, 2-41, 2-69, 3-69, 3-70, 3-75, 3-76, 3-83, 3-90, 3-142, 3-163, 3-164, 3-165, 3-203, B-3, B-24, B-53

McAllister Wash, 3-168

Migratory Bird Treaty Act (MBTA), xiii, 3-115, 3-188, 3-189, 3-190, 3-191

mining, 3-21, 3-22, 3-50, 3-118

Muggins Mountains, 3-21, 3-23, 3-50, 3-79, 3-164, B-20

munitions impact area, ES-1, ES-2, ES-4, ES-13, ES-17, 2-2, 2-3, 2-8, 2-11, 2-13, 2-14, 2-37, 2-54, 2-57, 2-58, 2-59, 2-61, 2-62, 2-66, 2-70, 2-71, 2-77, 3-2, 3-7, 3-25, 3-44, 3-45, 3-46, 3-47, 3-48, 3-55, 3-61, 3-63, 3-66, 3-68, 3-71, 3-80, 3-88, 3-89, 3-105, 3-106, 3-107, 3-108, 3-109, 3-110, 3-111, 3-112, 3-123, 3-124, 3-128, 3-132, 3-135, 3-141, 3-154, 3-157, 3-159, 3-160, 3-161, 3-174, 3-179, 3-182, 3-183, 3-184, 3-191, 3-196, 3-197, 3-204, 3-205, 3-217, B-6, B-16, C-4, C-6, C-12, C-14, C-55, C-57, C-59, C-62, C-63, C-64, C-65, C-66, C-67, C-68, C-69, C-70, C-71, C-72, C-74, C-75, C-76, C-77

National Ambient Air Quality Standards (NAAQS), vi, xiv, 3-7, 3-8, 6-10

Native American, vii, 1-8, 2-73, 3-19, 3-22, 3-23, 3-24, 3-40, 3-41, 3-221, 5-1, 6-8, 6-12, 7-1, 7-2

Oatman Hill, 1-4, 2-4

pesticide, 3-168

PM10, vi, vii, xiv, 3-7, 3-8, 3-9, 3-13, 3-14, 3-102, 6-1, C-3, C-19, C-35, C-67, C-82

PM2.5, xiv, 3-7, 3-8

Prescott Airport, 1-4, 2-3

Programmatic Agreement (PA), ES-2, ES-5, viii, xiv, 3-20, 3-21, 3-26, 3-27, 3-28, 3-30, 3-211, 3-221, 3-226, C-5

Quechan, 3-42, 5-1, 6-5, 7-2

recreation, ES-3, ES-11, 2-8, 2-18, 2-69, 2-70, 3-42, 3-78, 3-84, 3-85, 3-87, 3-88, 3-125, 3-191, 3-203, 3-208, 3-209, 3-210, 3-214, 3-225, 6-3, 6-4, C-66

reptile, 3-188

Resource Conservation and Recovery Act (RCRA), xv, 2-46, 3-51, 3-52, 3-53, 3-55, 3-57, 3-59, 6-7

Senator Wash, 1-4, 2-3, 3-167

site-specific analysis, 2-7, 2-64, 3-162

site-specific NEPA analysis, ES-1, ES-4, 1-1, 2-8, 2-41, 3-26, 3-162, 3-170

solid waste, ES-6, xv, 2-18, 2-68, 3-34, 3-35, 3-38, 3-39, 3-52, 3-59, 3-201, 3-212

solid waste management units (SWMUs), 3-52, 3-53, 6-6

Sonoran Desert, ES-2, ES-13, ES-14, x, 2-71, 2-75, 3-6, 3-14, 3-43, 3-45, 3-61, 3-117, 3-118, 3-121, 3-125, 3-127, 3-128, 3-129, 3-138, 3-148, 3-149, 3-175, 3-205, 3-223, 3-229, 6-2, 6-3, 6-7, 6-8, 6-12, C-20, C-39, C-50, C-59, C-71, C-72, I-1

Sonoran pronghorn, ES-13, ES-15, ES-16, ES-17, 2-71, 2-75, 2-76, 3-115, 3-118, 3-119, 3-123, 3-124, 3-125, 3-127, 3-130, 3-131, 3-132, 3-133, 3-138, 3-139, 3-140, 3-223, 3-224, 3-225, 3-229, C-21, C-39, C-50, C-60, C-72, C-73

Stormwater Pollution Prevention Plan (SWPPP), ES-18, xv, 2-76, 3-63, 3-177, 3-180, 3-183, C-3, C-14, C-18, C-34, C-82

surface water, ES-3, ES-6, 2-68, 3-97, 3-103, 3-113, 3-126, 3-149, 3-150, 3-167, 3-168, 3-170, 3-171, 3-173, 3-179, 3-182, 3-184, 3-185, 3-186, 3-201, 3-208, 3-219, C-25, C-42, C-53, C-77, C-85

tinajas, 3-169, 3-170

Trigo Mountains, 3-68, 3-163

U.S. Highway 95 (US 95), xvi, 1-5, 2-2, 2-45, 3-5, 3-17, 3-23, 3-74, 3-75, 3-78, 3-89, 3-90, 3-92, 3-93, 3-130, 3-140, 3-145, 3-146, 3-163, 3-164, 3-165, 3-169, 3-176, 3-210, 3-214, 3-216, 3-217, B-3, B-13, C-3, C-24, C-25, C-50, C-53, C-72, C-83, C-85

unexploded ordnance (UXO), ES-10, ES-13, xvi, 2-47, 2-48, 2-60, 2-61, 2-71, 3-7, 3-28, 3-44, 3-47, 3-48, 3-49, 3-54, 3-68, 3-71, 3-88, 3-89, 3-92, 3-108, 3-110, 3-111, 3-157, 3-159, 3-161, 3-205, 3-227, B-17, C-3, C-57, C-59, C-64, C-65, C-67, C-76, C-77, C-79

valley fever, 3-14, 3-90, 3-93

volatile organic compounds (VOCs), xvi, 3-9, 3-15, 3-53, 3-172

wastewater, ES-6, 2-18, 2-25, 2-68, 3-11, 3-31, 3-33, 3-34, 3-35, 3-38, 3-171, 3-179, 3-202, 3-209, 3-212

water erosion, 3-99, 3-104, 3-106, 3-107, 3-109

water quality, ES-1, ES-18, 2-72, 3-31, 3-99, 3-167, 3-170, 3-173, 3-174, 3-176, 3-177, 3-178, 3-180, 3-181, 3-183, 3-185, 3-187, 3-206, 3-219, 3-230

water tank, 2-21, 2-28, 2-29, 2-30, 2-37, 2-44, 2-52, 2-54, 2-55, 2-56, 2-61, 3-123, 3-126, 3-137, 3-139, 3-167, 3-169, 3-173, 3-177, 3-180, 3-185, 3-186, 3-187, 3-190, 3-192, 3-194, 3-195, 3-197, 3-198, 3-200, 3-216, 3-220, 3-230, C-7, C-20, C-26, C-28, C-32, C-36, C-37, C-39, C-43, C-50, C-54, C-59, C-61, C-71, C-77

White Tanks, 3-22, 3-23, 3-163, 3-164

wild horses and burros, 3-114, 3-120, 3-123, 3-136, C-22, C-40, C-52, C-60, C-75

wildfire, ES-1, ES-7, ES-11, ES-13, ES-17, 2-70, 2-71, 2-74, 2-76, 3-43, 3-44, 3-45, 3-46, 3-47, 3-48, 3-49, 3-93, 3-105, 3-108, 3-110, 3-111, 3-114, 3-126, 3-131, 3-133, 3-136, 3-139, 3-151, 3-154, 3-157, 3-159, 3-160, 3-161, 3-179, 3-193, 3-198, 3-204, 3-205, 3-221, 3-225, 3-227, C-13, C-14, C-20, C-22, C-26, C-29, C-38, C-41, C-43, C-45, C-47, C-52, C-56, C-57, C-64, C-66, C-72, C-73, C-74, C-75, C-79, C-83

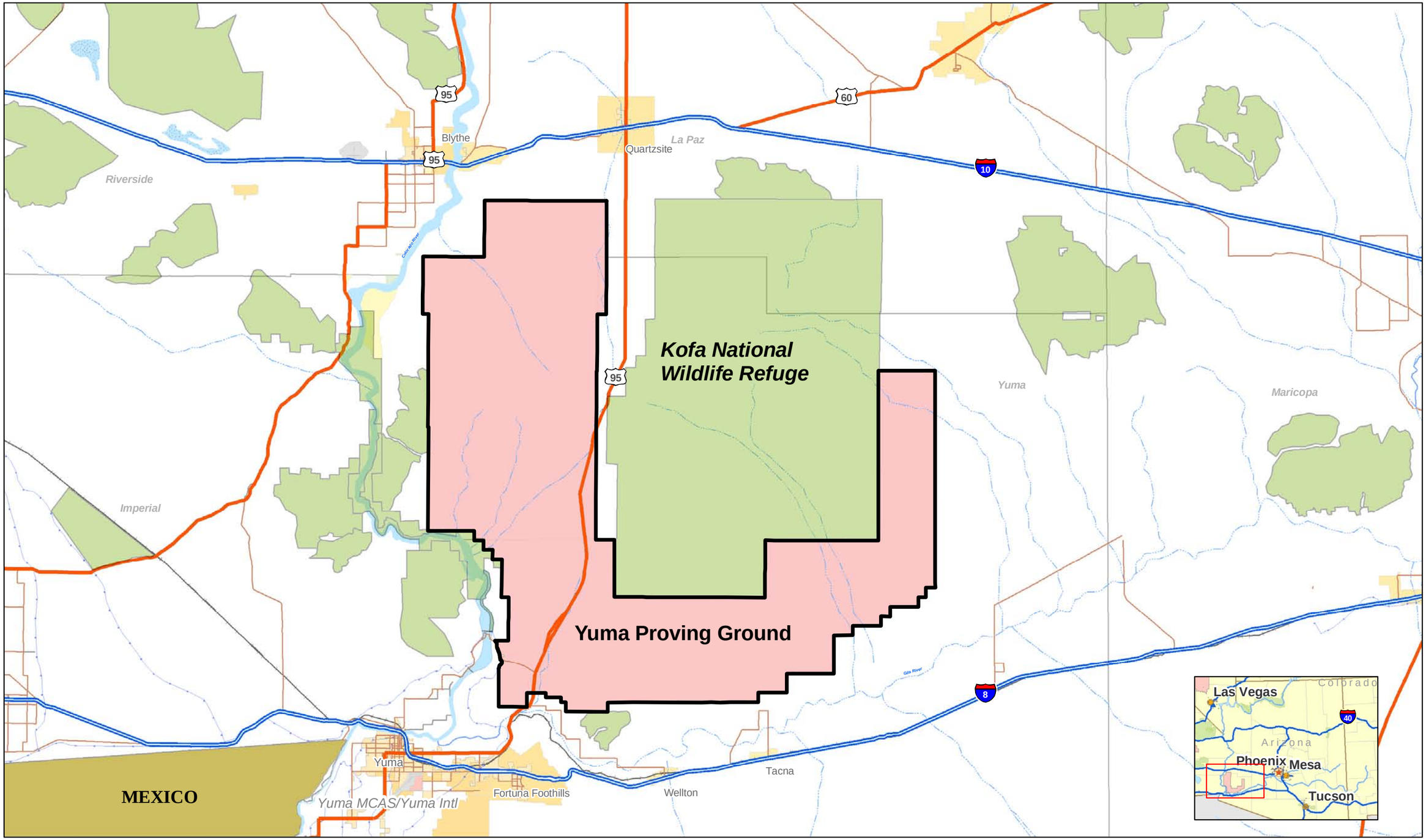
wind erosion, 3-14, 3-97, 3-102, 3-103, 3-104, 3-105, 3-106, 3-107, 3-109, 3-112, 3-113, 3-114, 3-215, C-17, C-19, C-34, C-35, C-67, C-82

YPG safety program, ES-11, 2-75, 3-88, 3-90, 3-94, 3-222, 3-228

Yuma Wash, 2-28, 2-32, 2-36, 2-51, 2-58, 2-59, 3-23, 3-168, 3-181, C-8, C-11

Figures

For Planning Purposes Only



Limited Access Highway
Highway
Major Road
Federal Conservation Area
Range Area

N

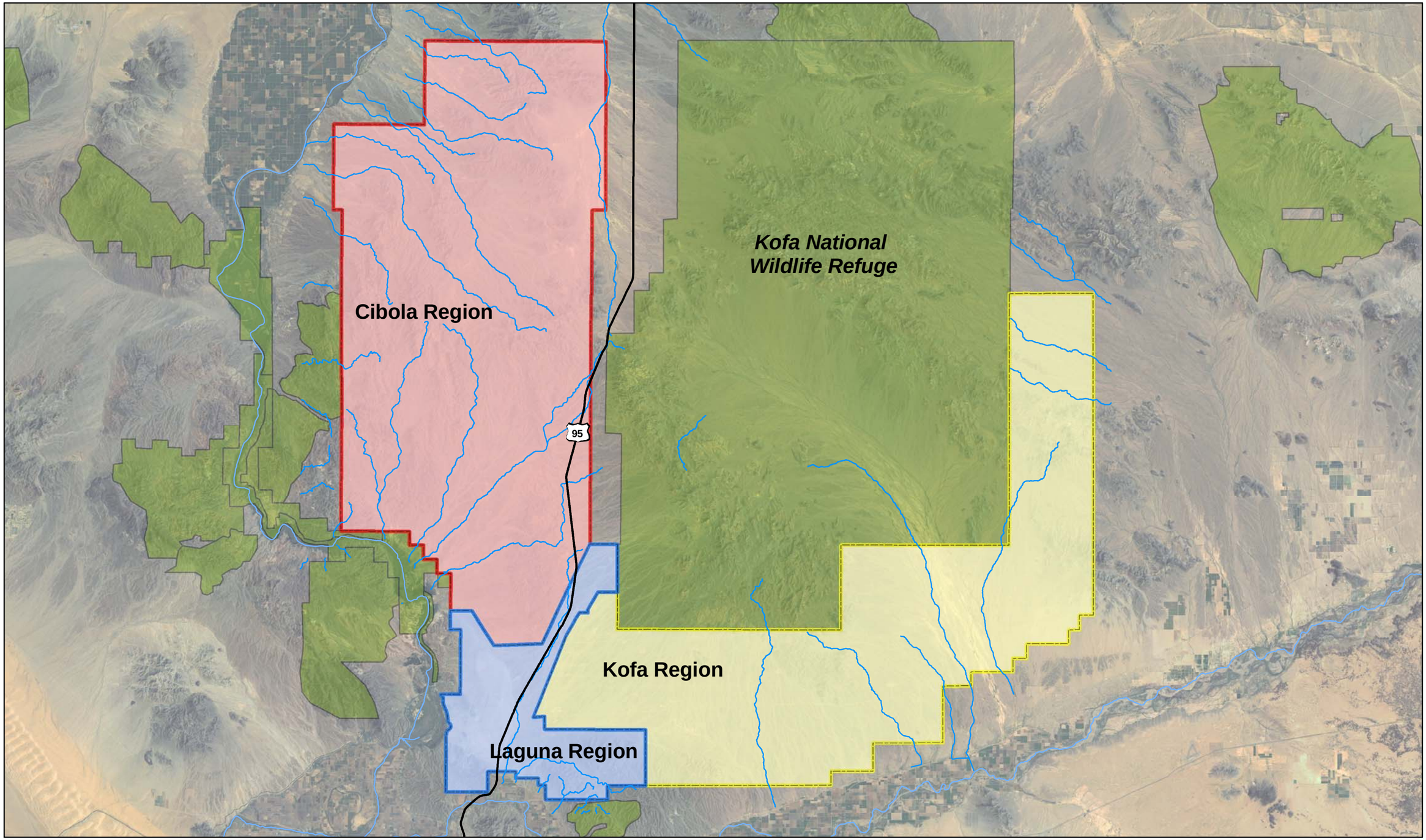
0 10 20 Miles

FIGURE 2-1
Project Location Map
Yuma Proving Ground
Yuma, Arizona

\\GALILEO\PROJ\YUMA_364516\MAPFILES\PROJECTLOCATION.MXD JMINIX 2/24/2011 16:02:50

CH2MHILL

For Planning Purposes Only



Highway
River
Major Wash
Cibola Region
Kofa Region
Laguna Region
Federal Conservation Area

Imagery Source:
ESRI Online/AEX, 2006

N

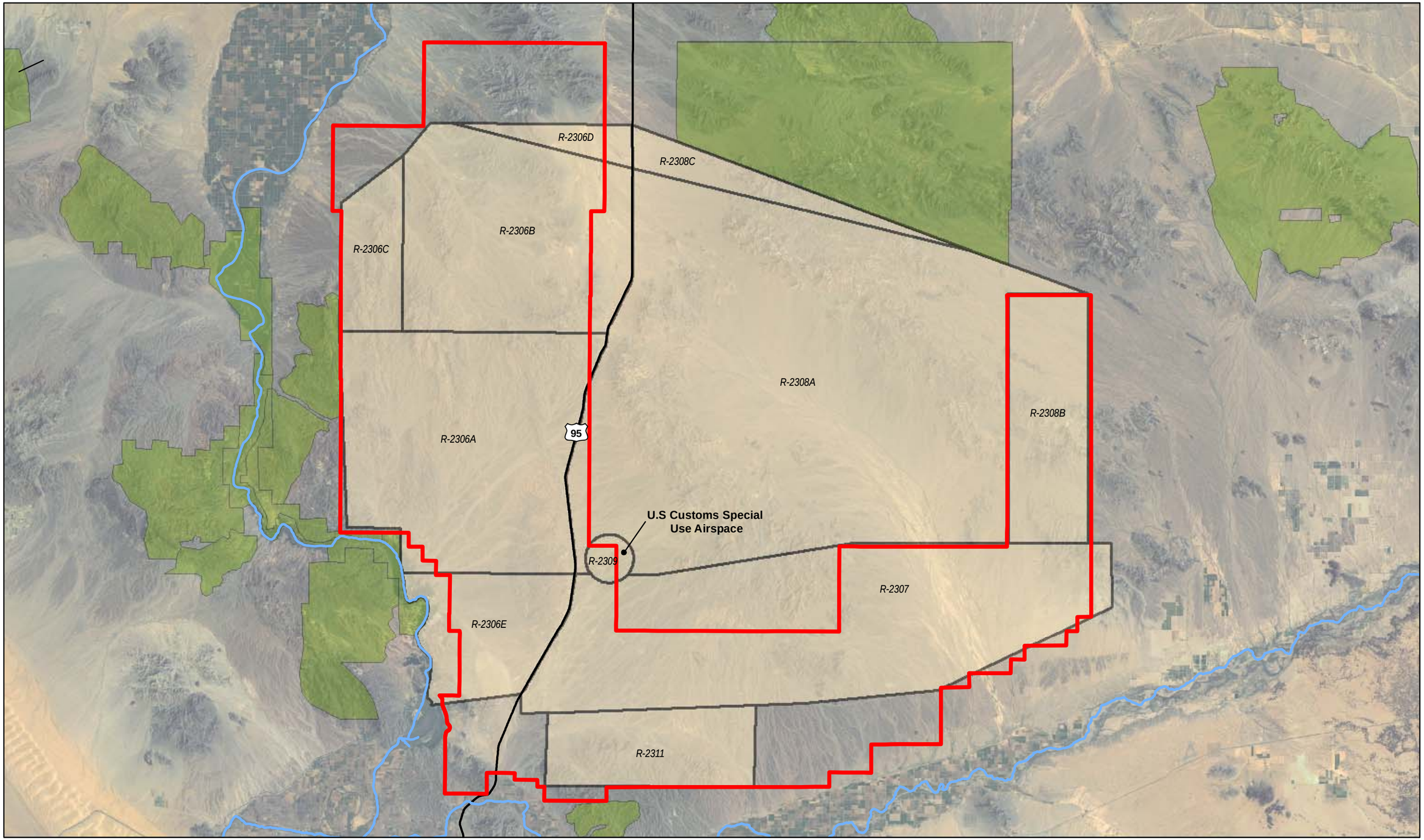
0 5 10 Miles

FIGURE 2-2
Designated Areas on Yuma Proving Ground
Yuma Proving Ground
Yuma, Arizona

\\GALILEO\PROJ\YUMA_364516\MAPFILES\DESIGNATEDAREAS.MXD JMINIX 2/24/2011 15:29:11

CH2MHILL

For Planning Purposes Only



River
Highway
Restricted Airspace
Yuma Proving Ground

Imagery Source
ESRI Online\AEX 2006

N

0 5 10 Miles

FIGURE 2-3
Yuma Proving Ground Restricted Airspace
Yuma Proving Ground
Yuma, Arizona

For Planning Purposes Only

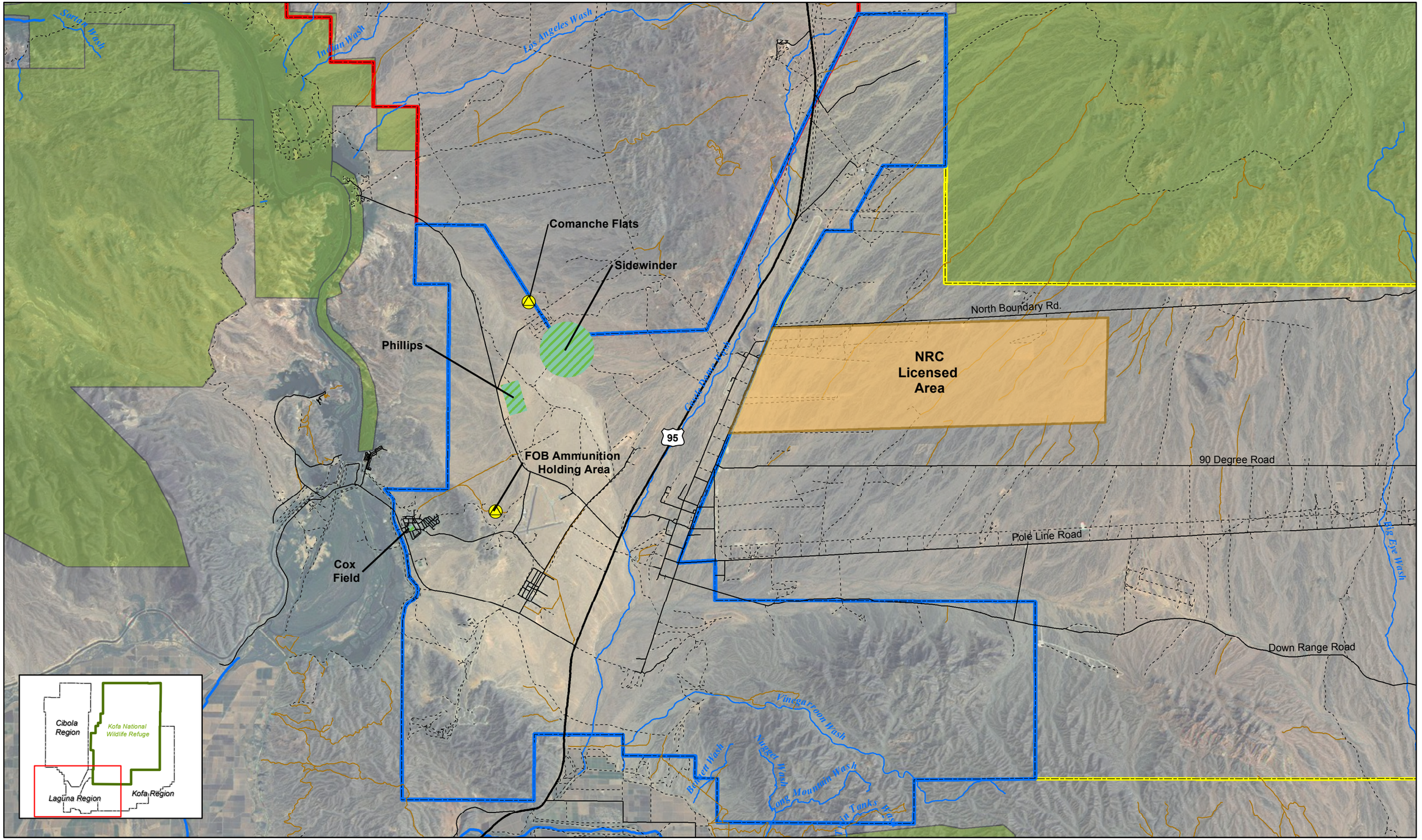
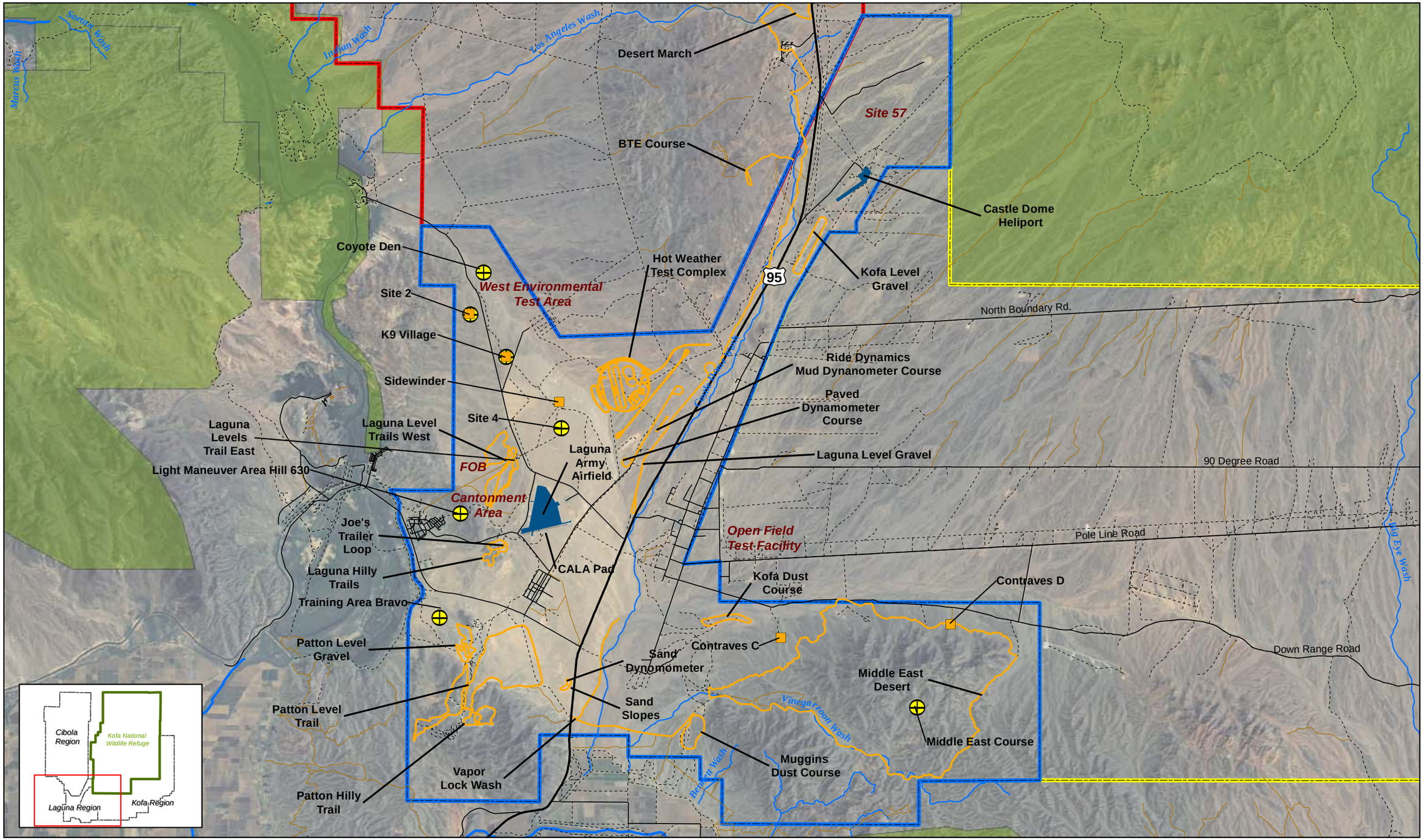


FIGURE 2-4
No Action Alternative -Impact Areas - Laguna Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only



Maneuver Area
Launch/Recovery
River
Major Wash
Highway
Paved Road
Unpaved Road
Trail
Vehicle Test Course
Landing Strip
Federal Conservation Area
Cibola Region
Kofa Region
Laguna Region

Imagery Source:
ESRI Online/AEX, 2006

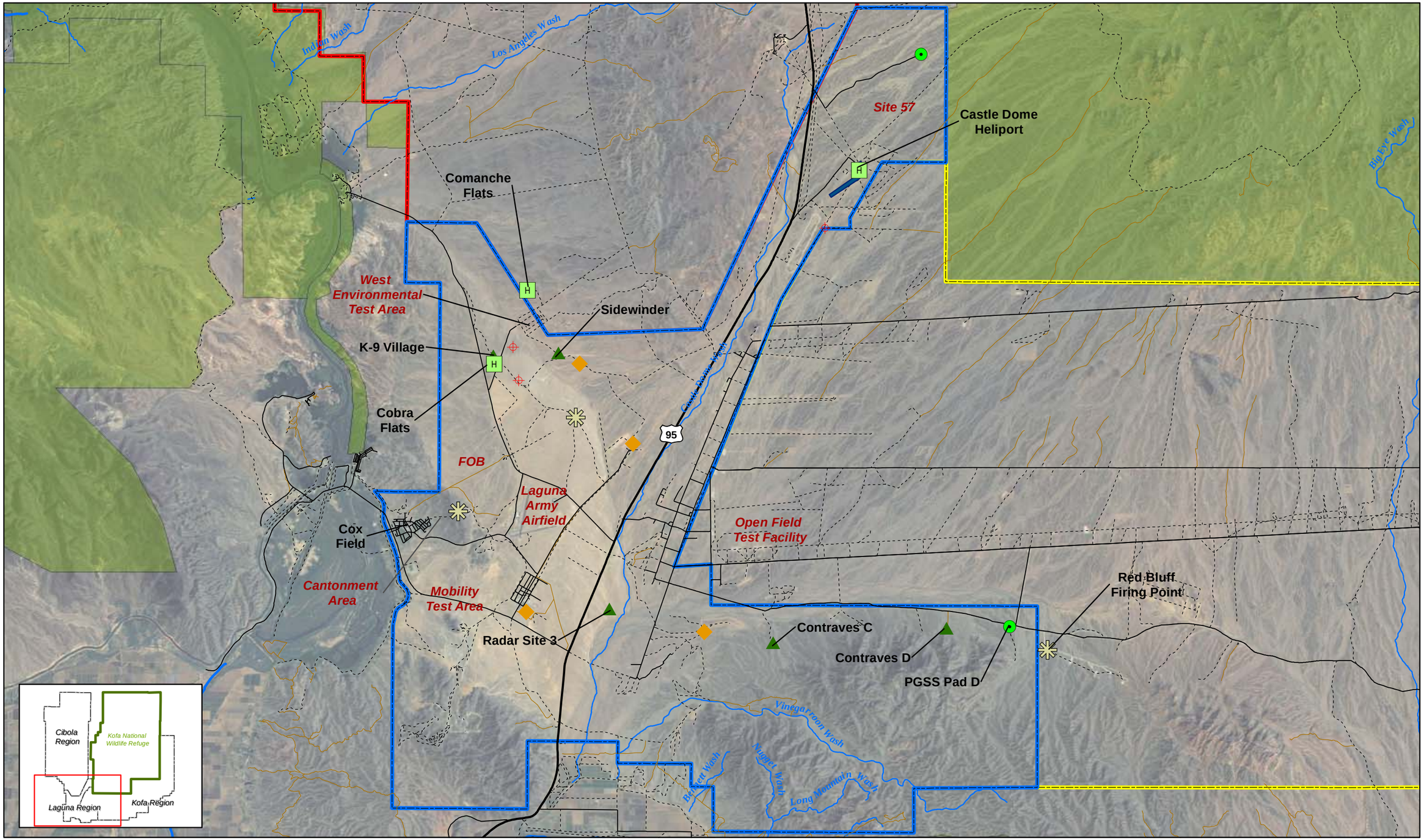
N

0 2 4 Miles

FIGURE 2-5
No Action Alternative -Training Courses and Airfields - Laguna Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only



Helipad Site
Gun Position
Radio Site
Aerostat
Instrumentation Sites
Meteorological Station
Major Wash
River
Highway
Paved Road
Unpaved Road
Trail
Cibola Region
Kofa Region
Laguna Region
Federal Conservation Area

Imagery Source:
ESRI Online/AEX, 2006

N

0 2 4 Miles

FIGURE 2-6
No Alternative Action -Points of Interest: Towers, Stations, Instrumention, and Helipad Sites- Laguna Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only

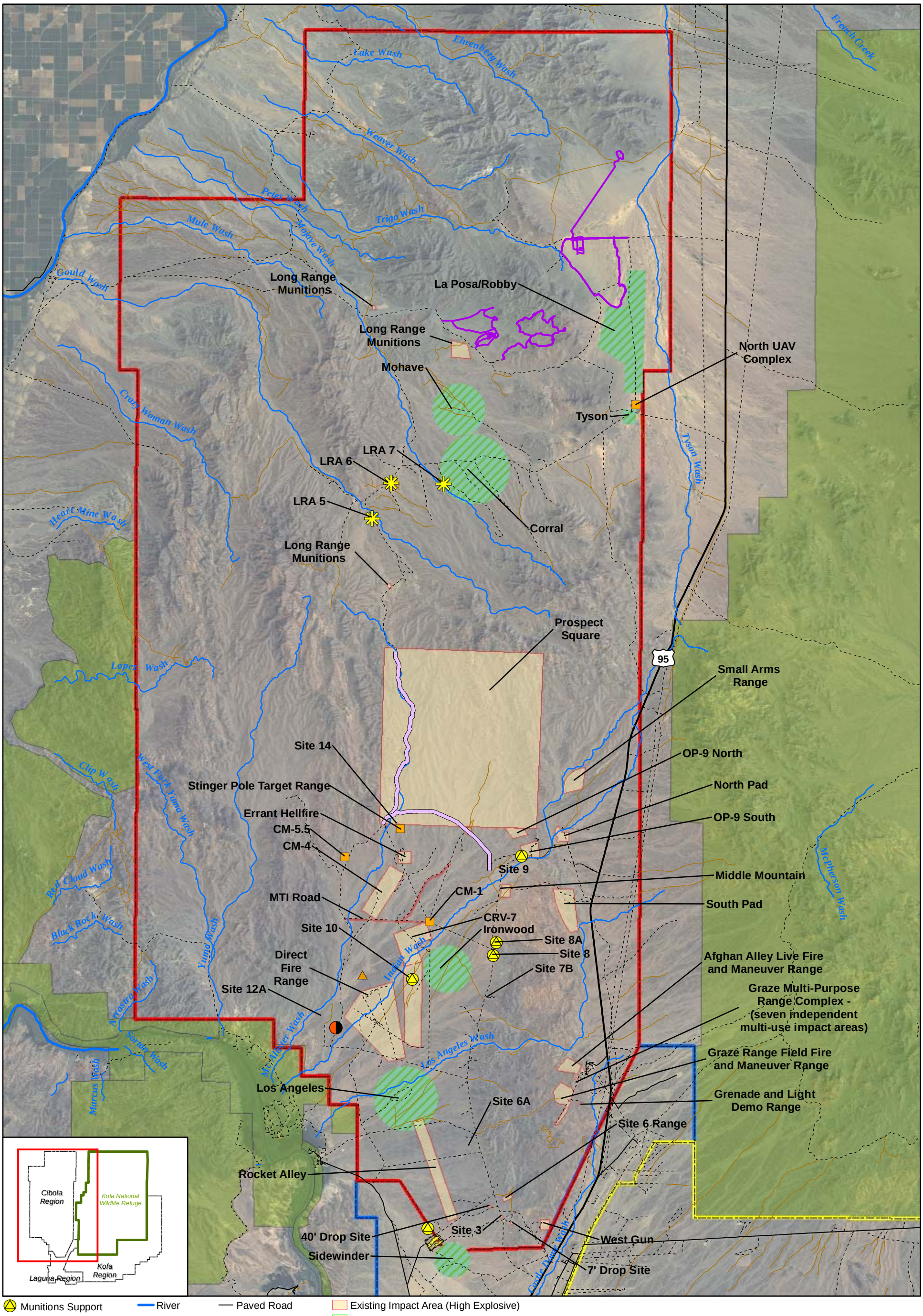


FIGURE 2-7
No Action Alternative -Impact Areas - Cibola Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only

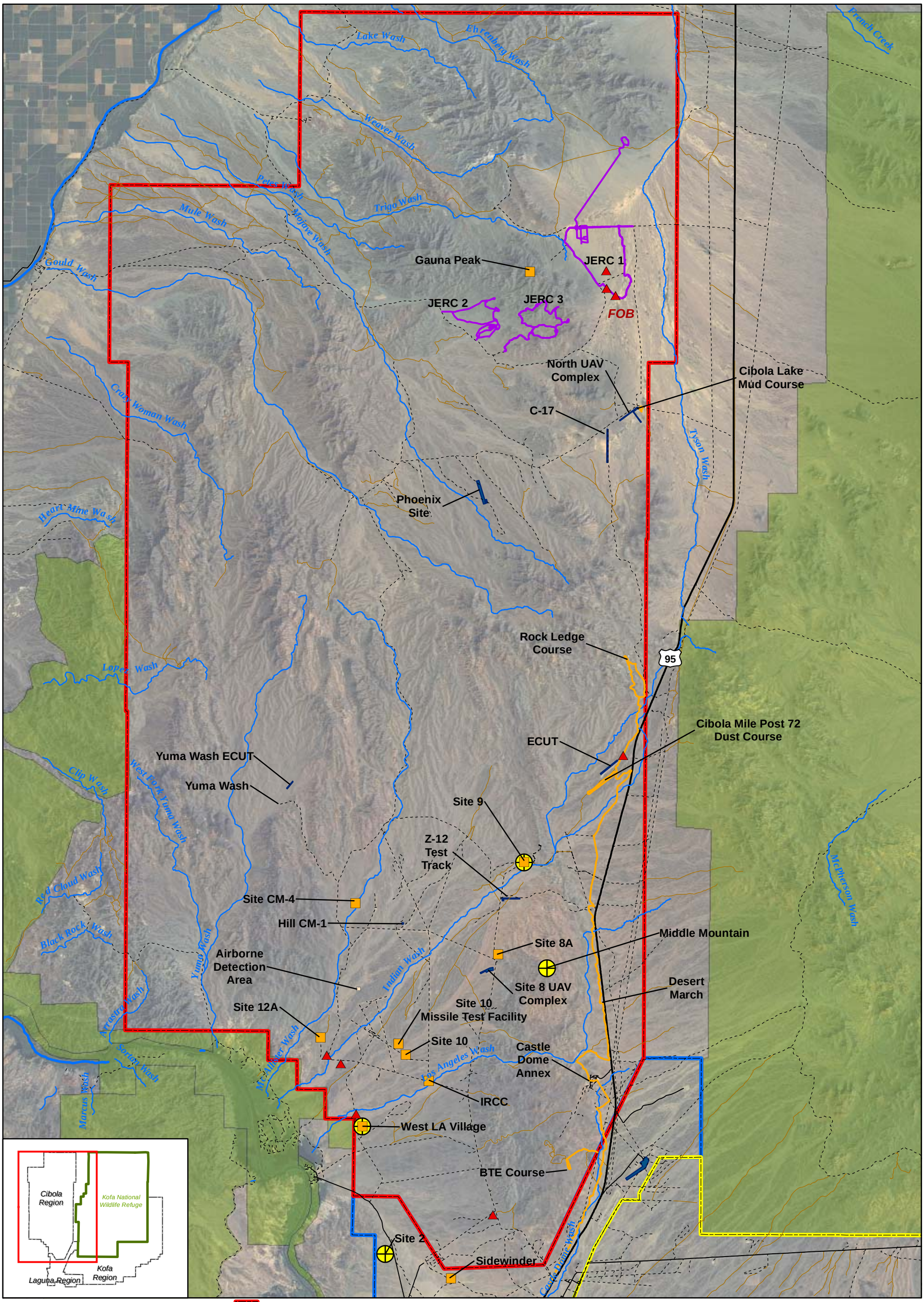


FIGURE 2-8
No Action Alternative - Training Courses and Airfields - Cibola Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only

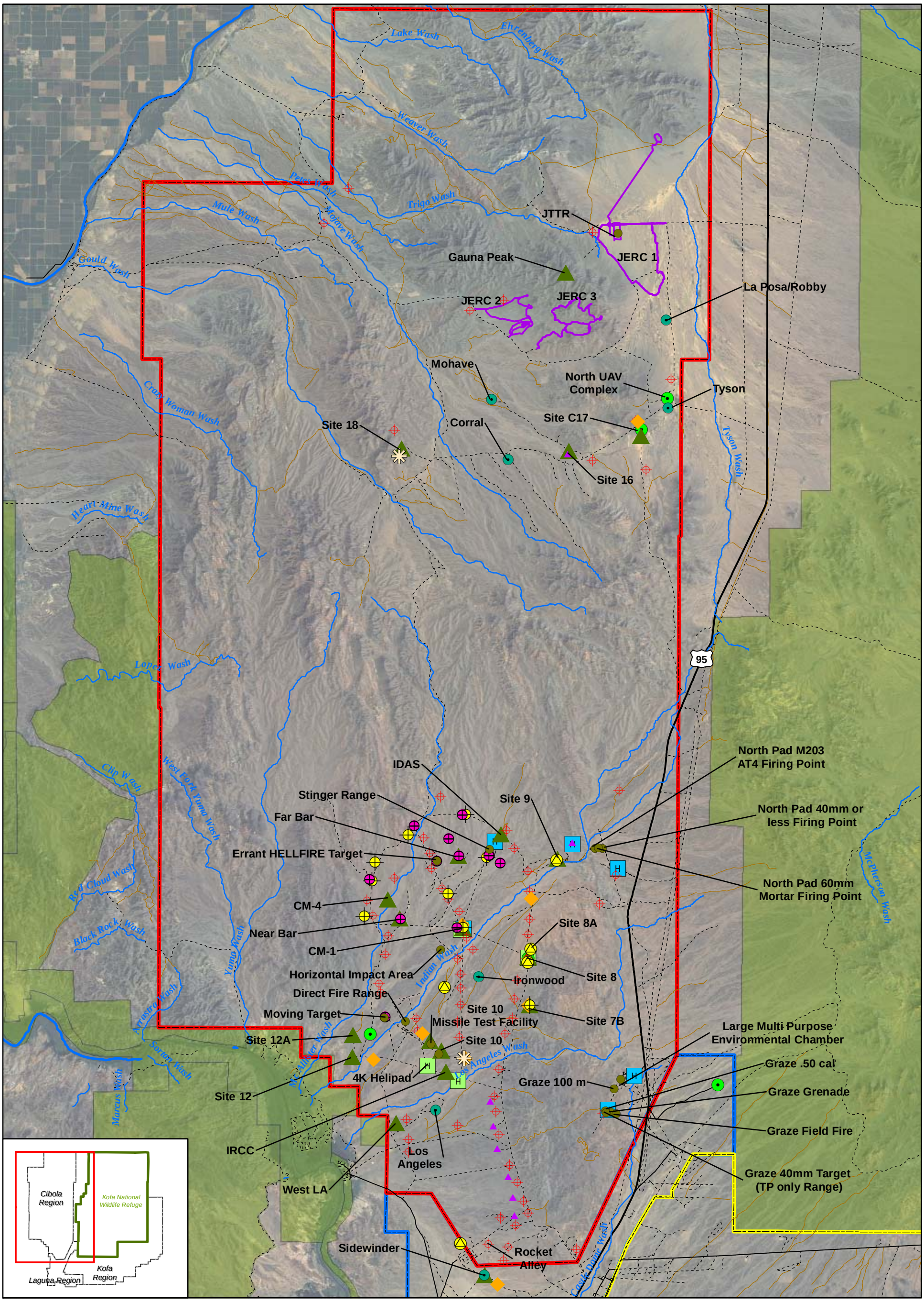
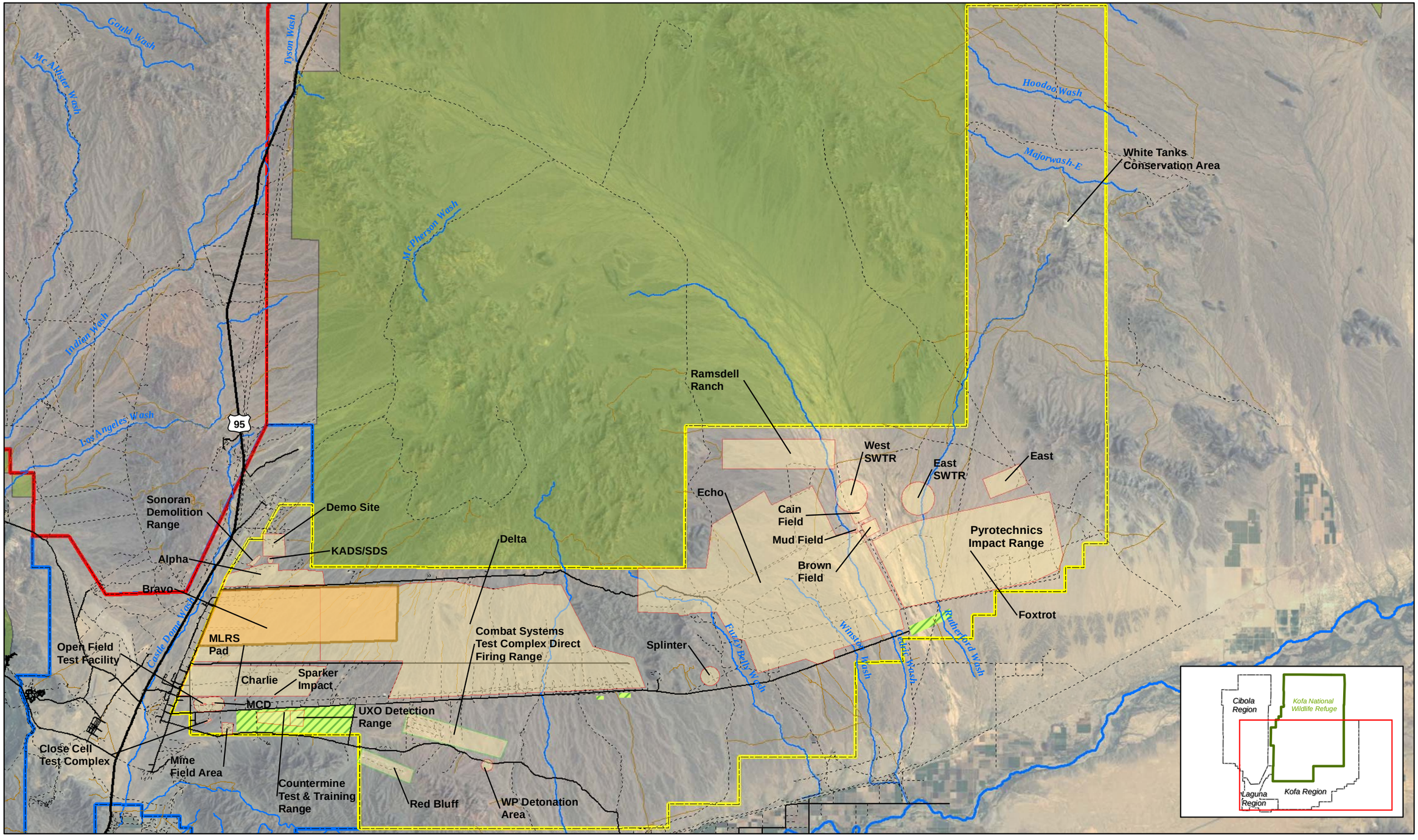


FIGURE 2-9
No Action Alternative - Points of Interest: Towers, Stations, Instrumentation, and Helipad Sites - Cibola Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL.

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\CIBOLA_POI_20121012.MXD JJAMELL 7/1/2013 4:57:04 PM



Highway
Paved Road
Unpaved Road
Trail
River
Major Wash
Airborne Detection Area
NRC Licensed Area
Federal Conservation Area
Cibola Region
Kofa Region
Laguna Region
Existing Impact Area (High Explosive)
Existing Impact Area (Inert)

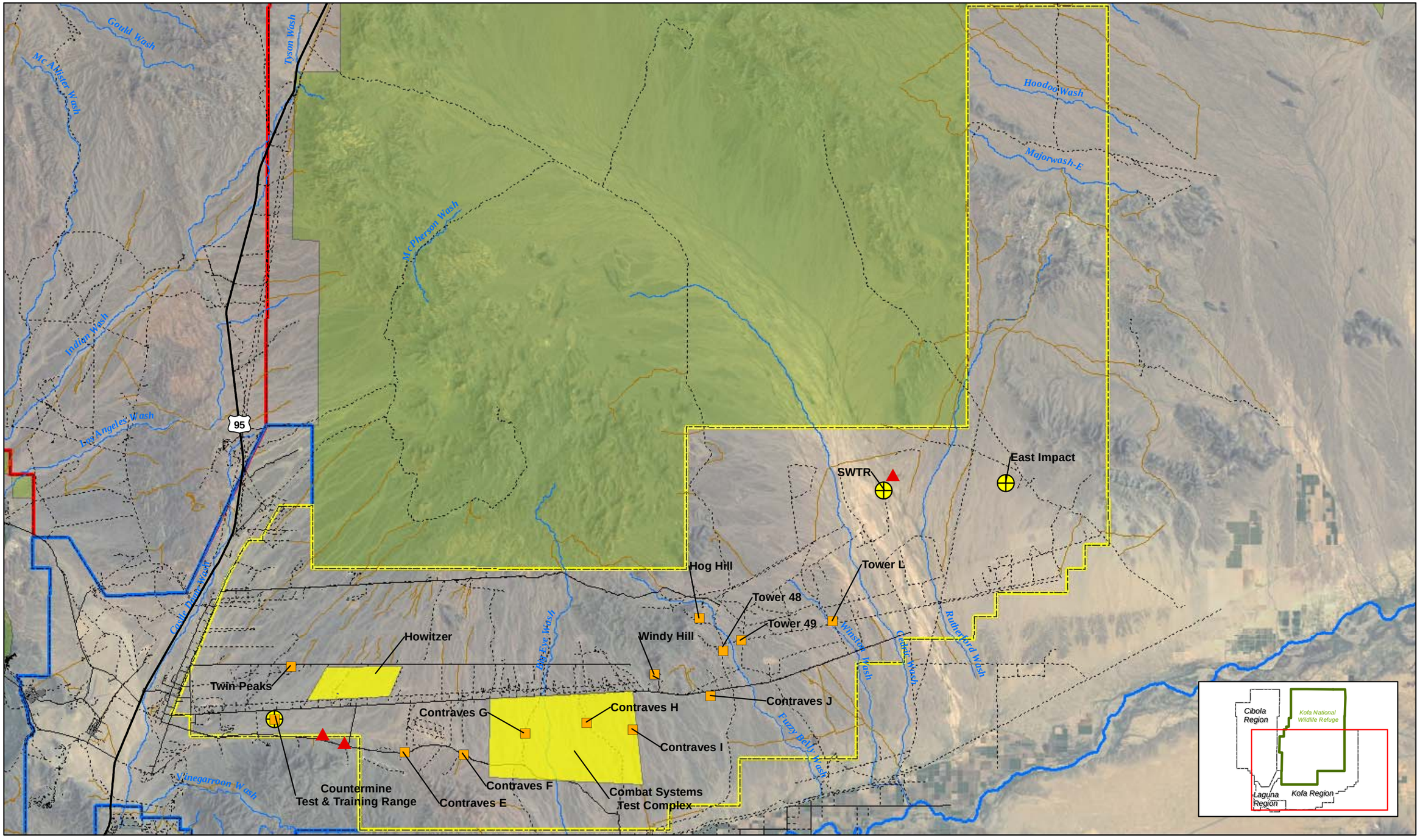
Imagery Source:
ESRI Online/AEX, 2006

N

0 2 4 Miles

FIGURE 2-10
No Action Alternative - Impact Areas - Kofa Region
Yuma Proving Ground
Yuma, Arizona

For Planning Purposes Only



Maneuver Area
UAS Launch/Recovery
Highway
PSS
Paved Road
Unpaved Road
Trail
Federal Conservation Area
Movement/Maneuver Area
Cibola Region
Kofa Region
Laguna Region

N

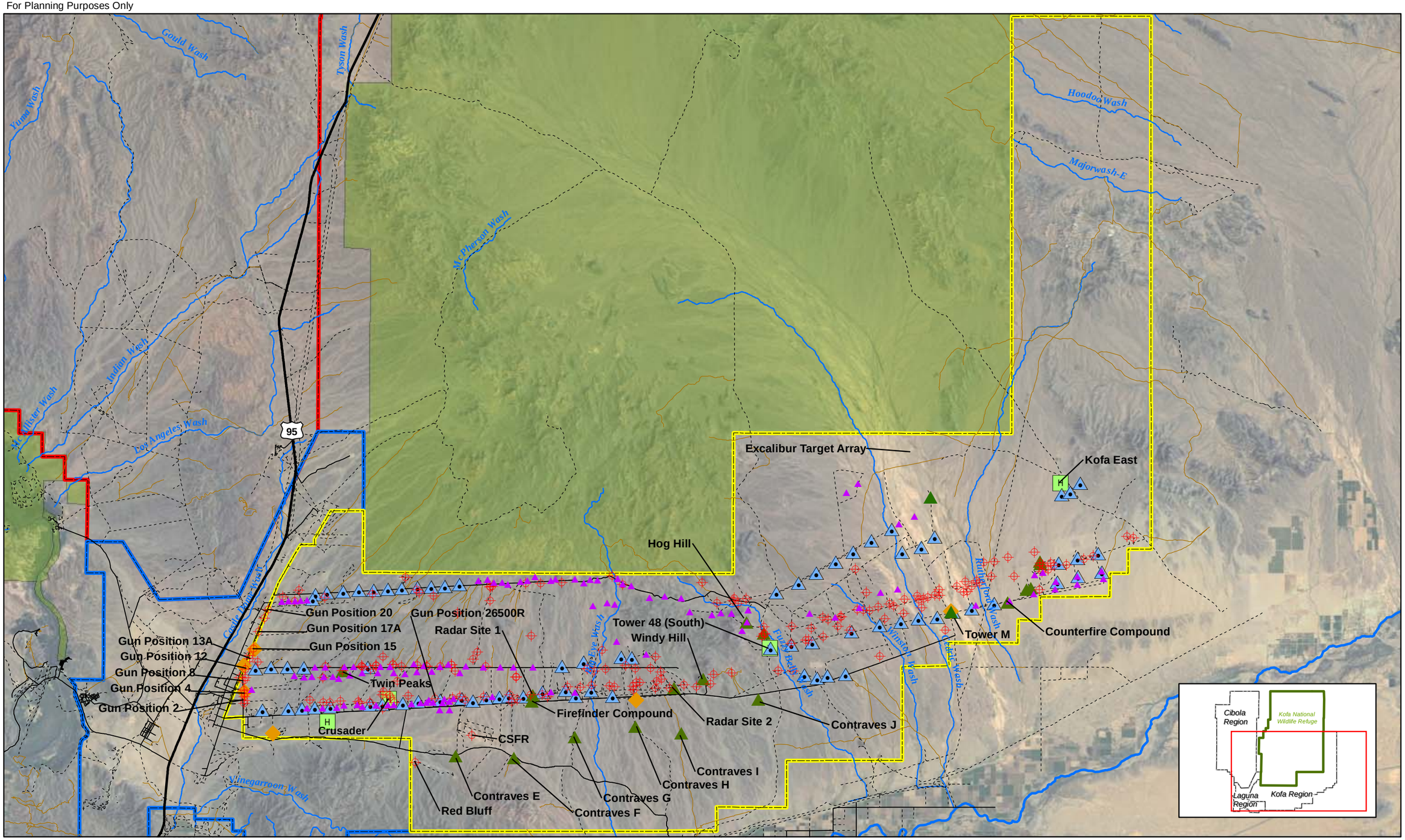
0 2 4 Miles

Imagery Source:
ESRI Online/AEX, 2006

FIGURE 2-11
No Action Alternative Training Courses and Airfields - Kofa Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only



Observation Point
Gun Position
Tower
Radio Site
Instrumentation Site
Meteorological Station
Helipad Site
River
Major Wash
Highway
Paved Road
Unpaved Road
Trail
Kofa Region
Cibola Region
Laguna Region
Federal Conservation Area

Imagery Source:
ESRI Online/AEX, 2006

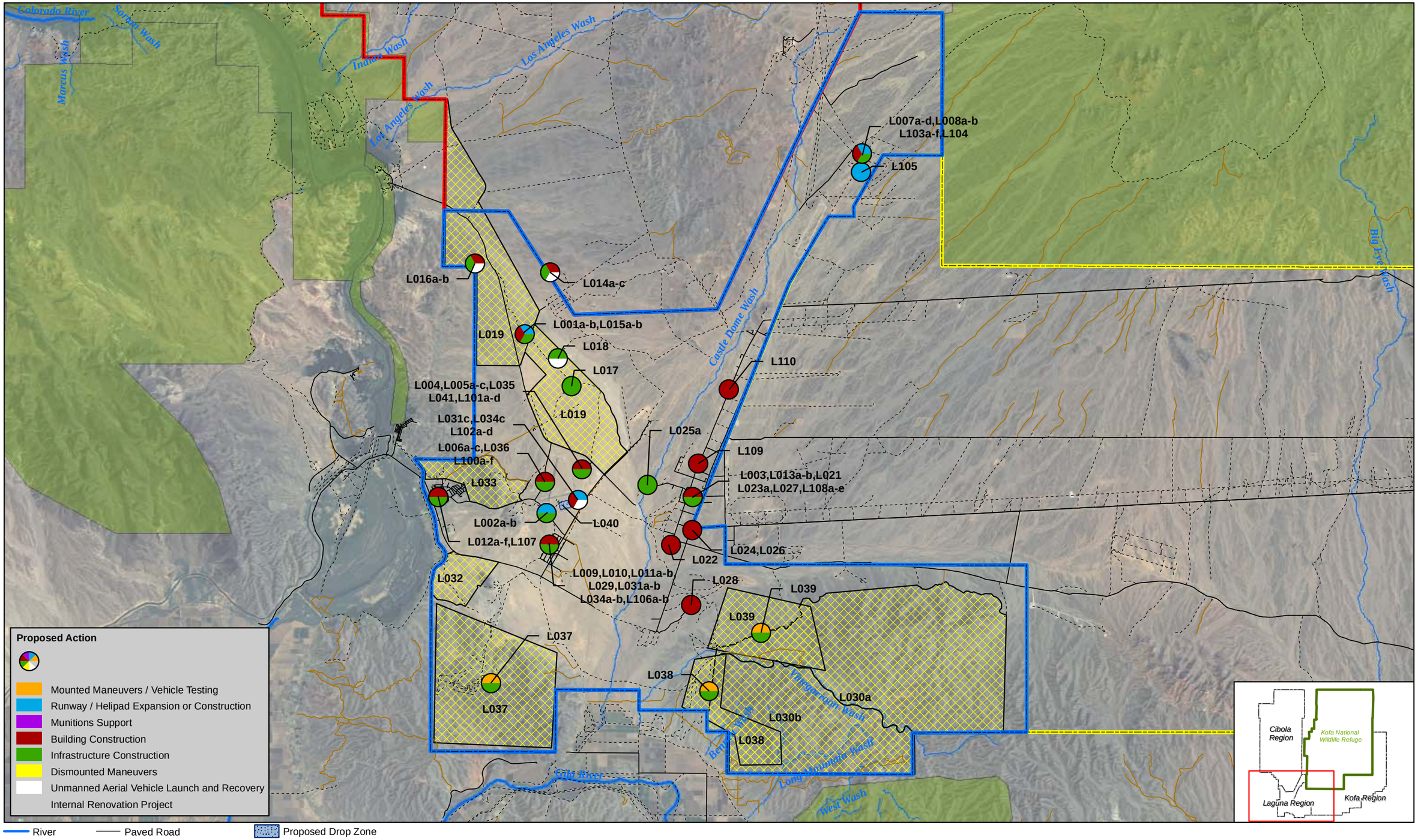
N

0 2 4 Miles

FIGURE 2-12
No Action Alternative -Points of Interest: Towers, Stations, Instrumention and Helipad Sites - Kofa Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only



River
Major Wash
Highway
Paved Road
Unpaved Road
Trail
Federal Conservation Area
Proposed Drop Zone
Proposed Dismounted Maneuver Area
Cibola Region
Kofa Region
Laguna Region

Imagery Source:
Bing Maps Aerial Imagery

N

0 1 2 Miles

FIGURE 2-13
Proposed Action Activities - Laguna Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\LAGUNA_PROPOSEDACTION_20121025.MXD JJAMELL 6/4/2013 8:58:36 AM

For Planning Purposes Only

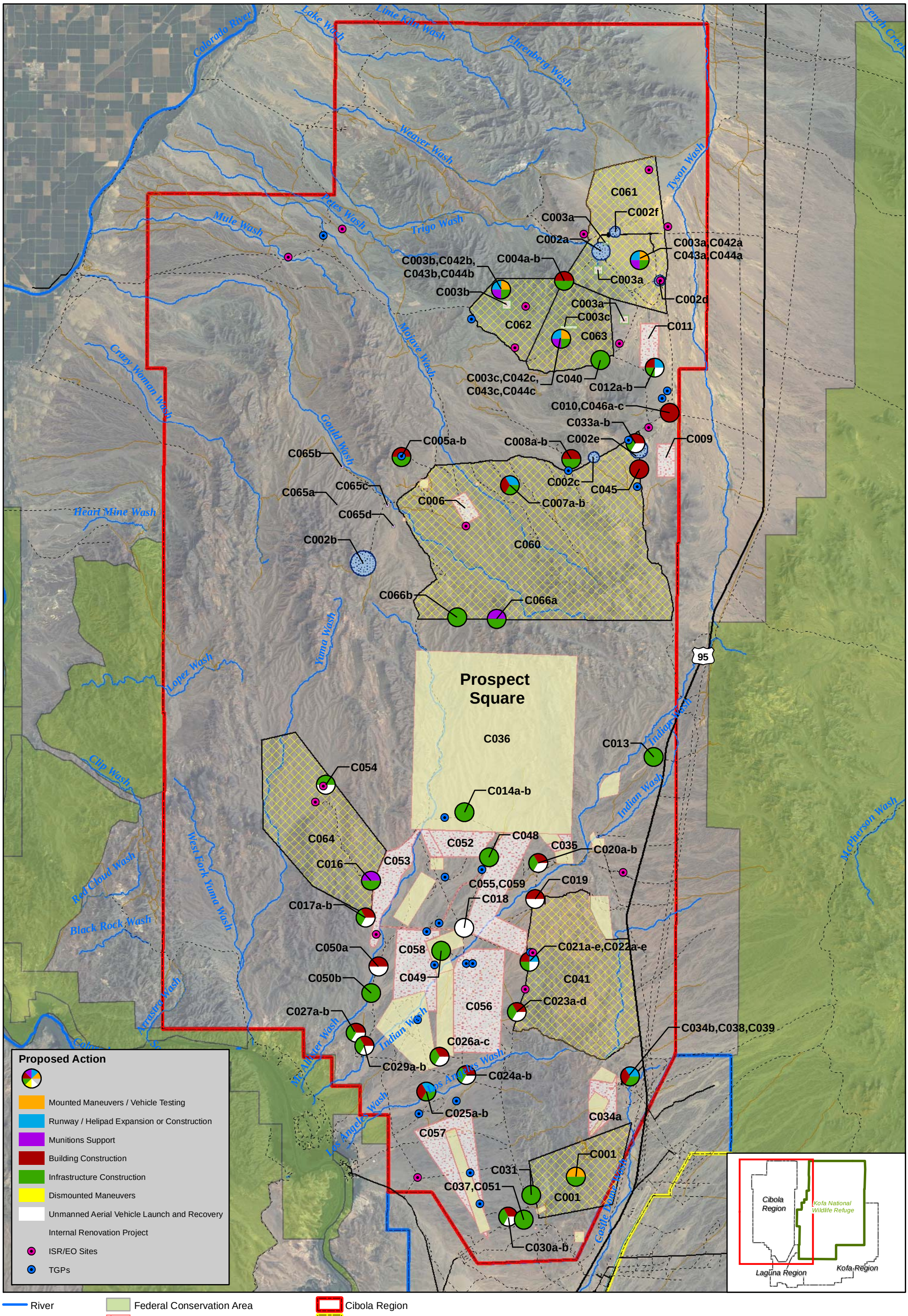
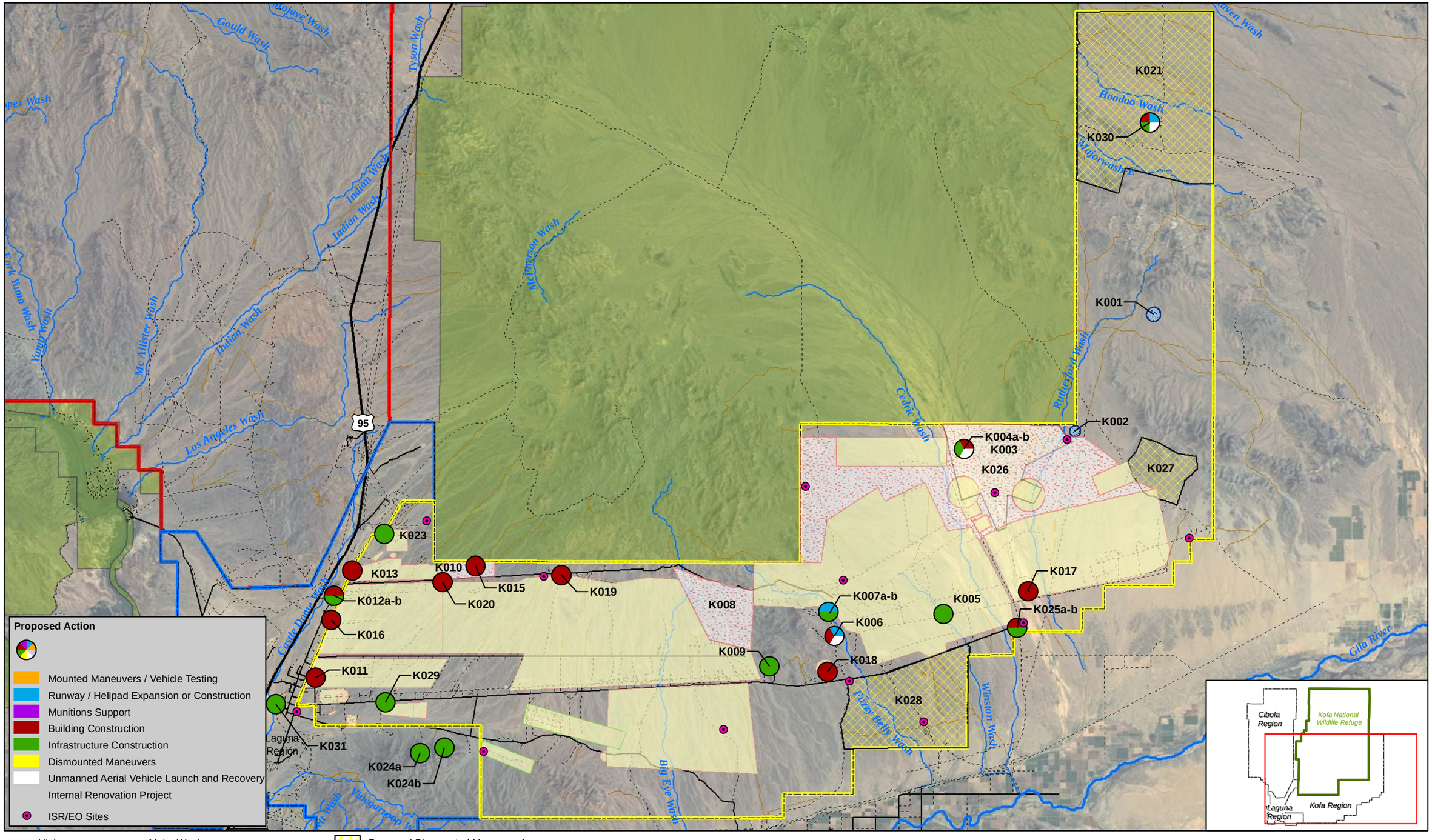


FIGURE 2-14
Proposed Action Activities - Cibola Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only



Highway
Paved Road
Unpaved Road
Trail
River
Major Wash
Proposed Impact Area (High Explosive)
Existing Impact Area (High Explosive)
Existing Impact Area (Inert)
Proposed Drop Zone
Proposed Dismounted Maneuver Area
Cibola Region
Kofa Region
Laguna Region
Federal Conservation Area

Imagery Source:
Bing Maps Aerial Imagery

N

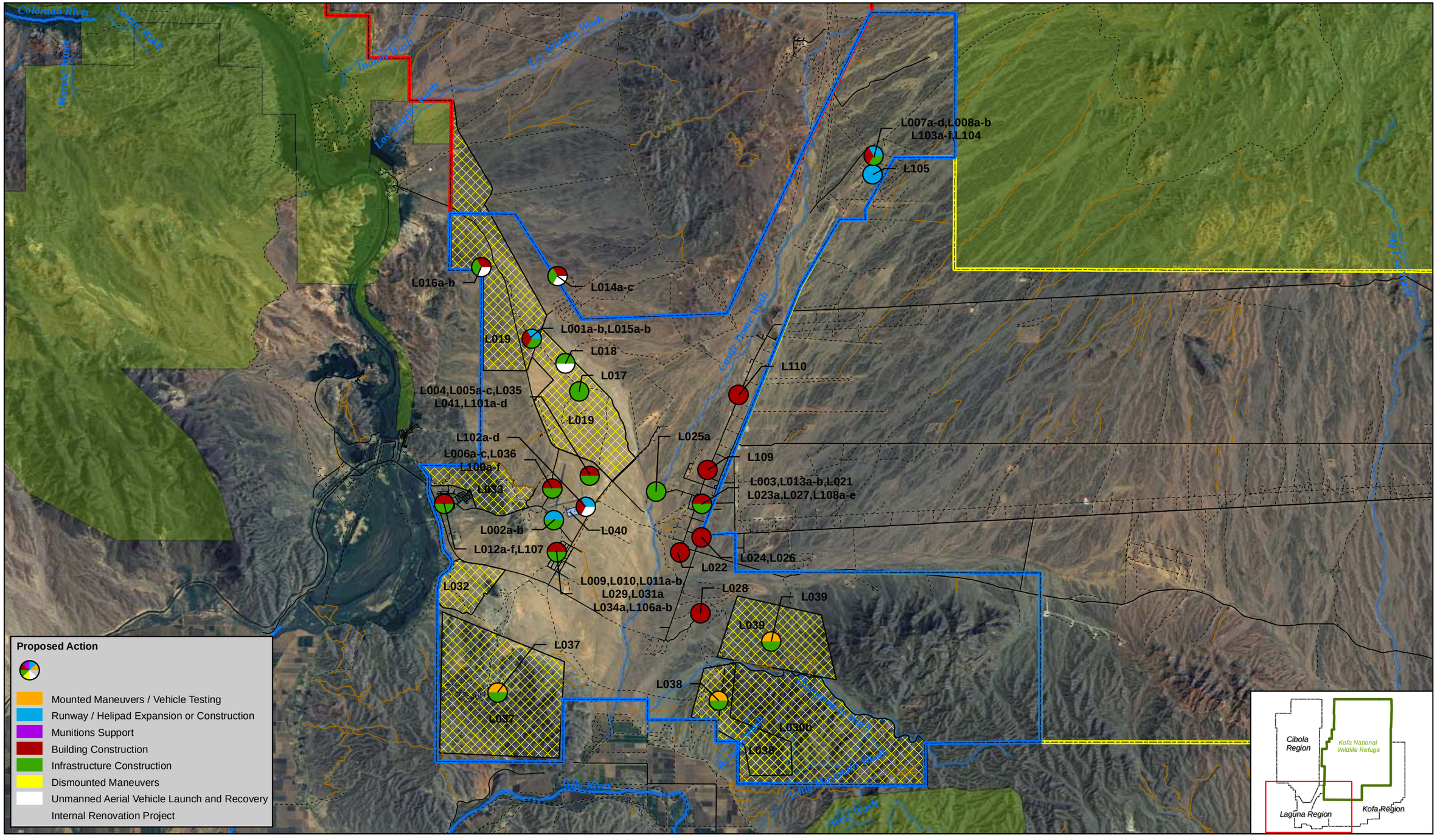
0 2 4 Miles

FIGURE 2-15
Proposed Action Activities - Kofa Region
Yuma Proving Ground
Yuma, Arizona

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\KOFA_PROPOSEDACTION_20121022.MXD JJAMELL 5/31/2013 8:29:16 AM

CH2MHILL

For Planning Purposes Only



River
Major Wash
Highway
Paved Road
Unpaved Road
Trail
Federal Conservation Area
Proposed Drop Zone
Cibola Region
Kofa Region
Laguna Region

Imagery Source:
ESRI

N

0 1 2 Miles

FIGURE 2-16
Preferred Alternative Activities - Laguna Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\LAGUNA_PROPOSEDACTION_20121025.MXD JJAMELL 1/27/2014 2:53:04 PM

For Planning Purposes Only

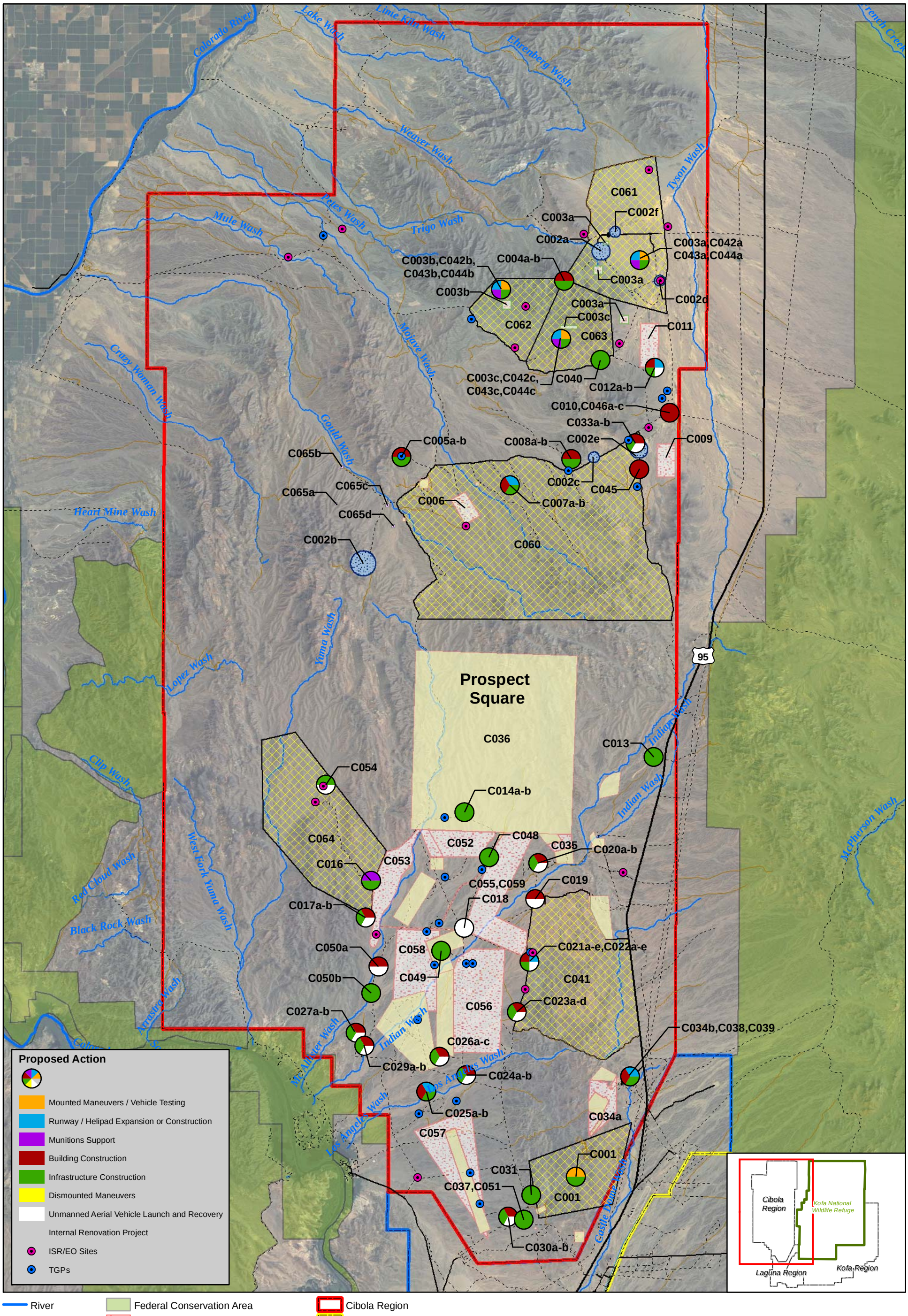
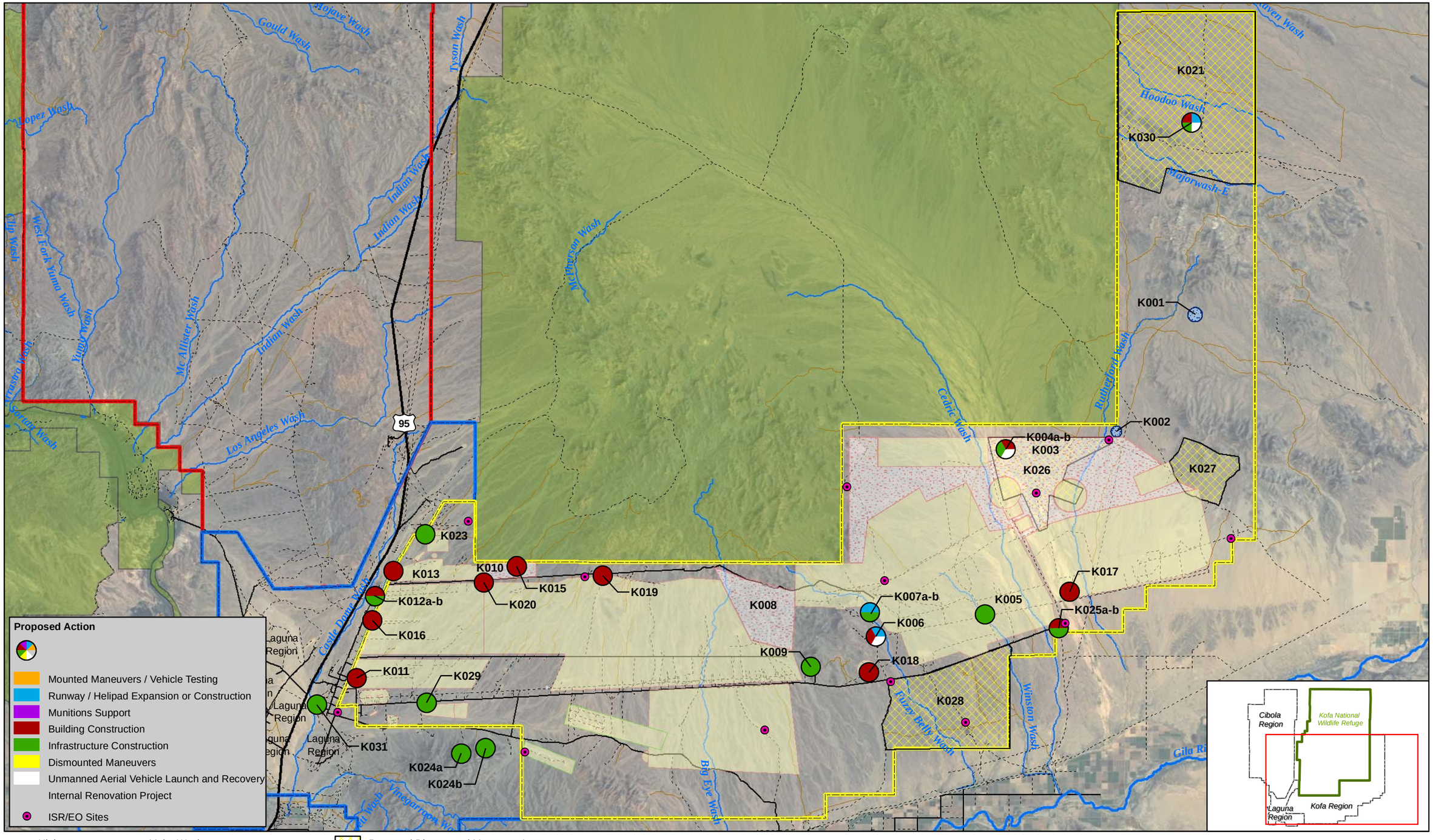


FIGURE 2-17
Preferred Alternative Activities - Cibola Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only



Highway
Paved Road
Unpaved Road
Trail
River
Major Wash
Proposed Impact Area (High Explosive)
Existing Impact Area (High Explosive)
Existing Impact Area (Inert)
Proposed Drop Zone
Proposed Dismounted Maneuver Area
Cibola Region
Kofa Region
Laguna Region
Federal Conservation Area

Imagery Source:
Bing Maps Aerial Imagery

N

0 2 4 Miles

FIGURE 2-18
Preferred Alternative Activities - Kofa Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

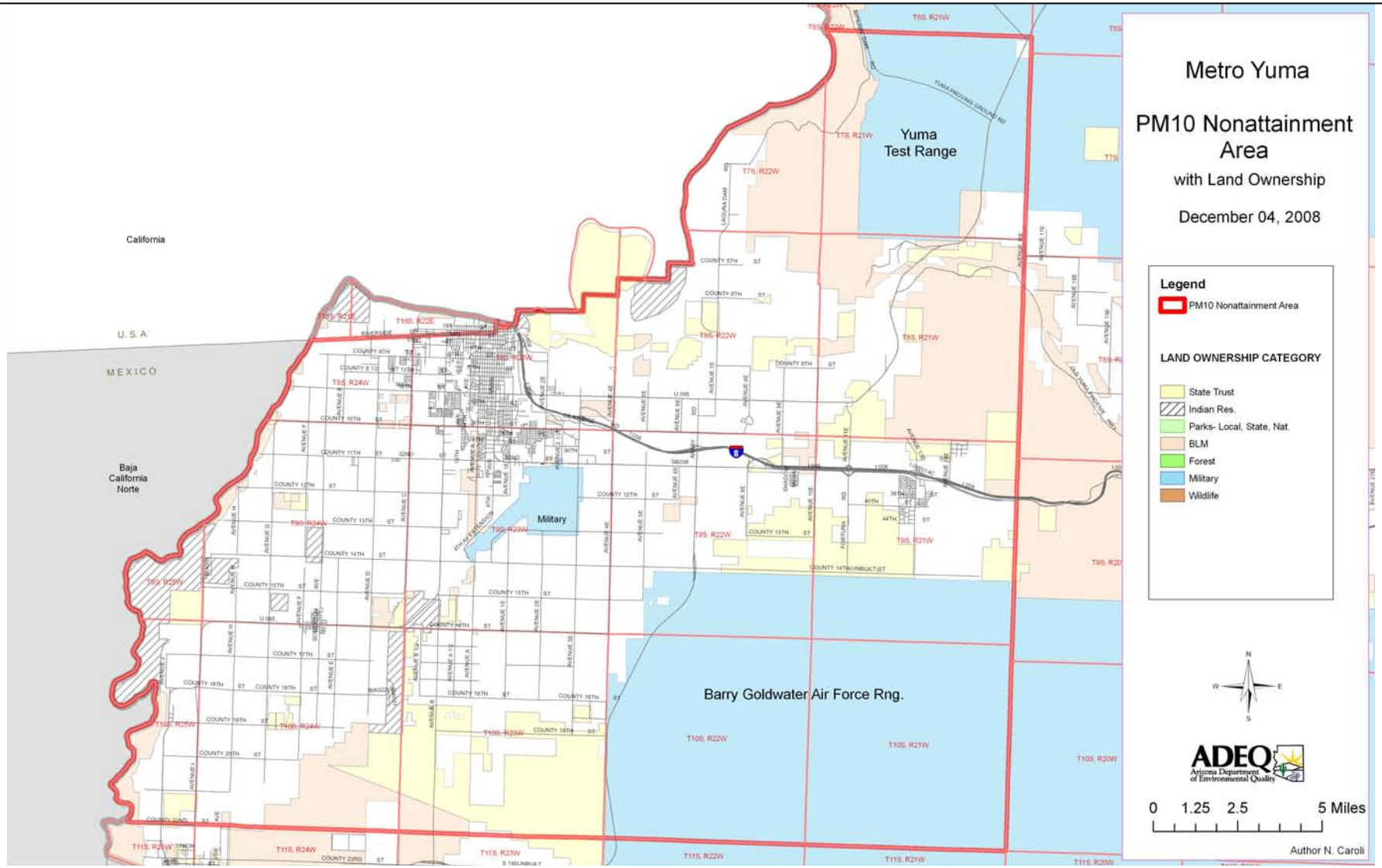
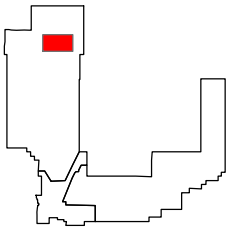
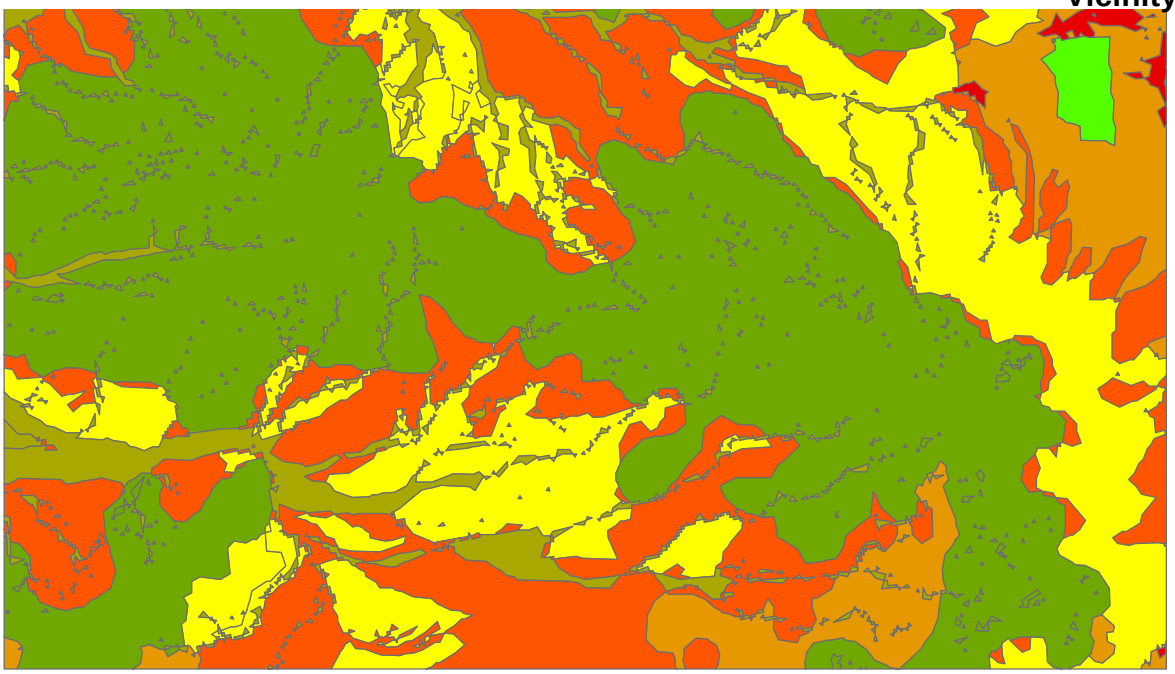


FIGURE 3-1
Air Quality
Yuma Proving Ground
Yuma, Arizona

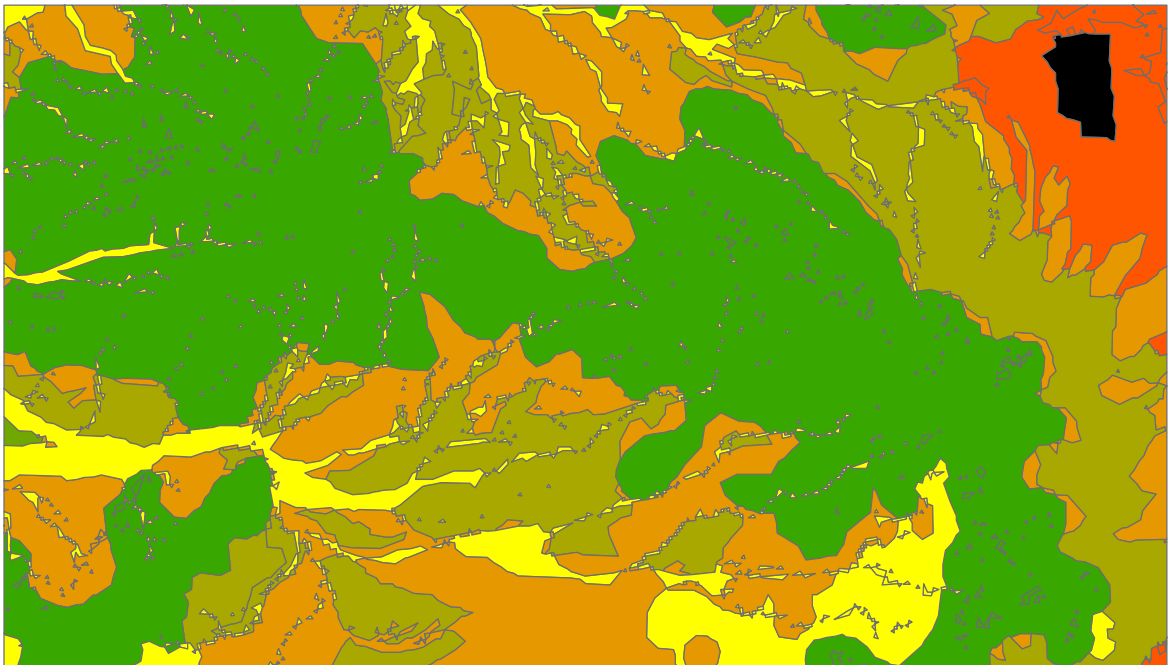


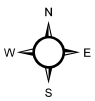
Vicinity Map

1998 Fuel Loads



2005 Fuel Loads





0 0.5 1 Miles

Potential Threat

0	2
0.5	2.5
1	3
1.5	3.5
	4

Figure 3-2
Comparison of Fuel Loads in 1998 and 2005

For Planning Purposes Only

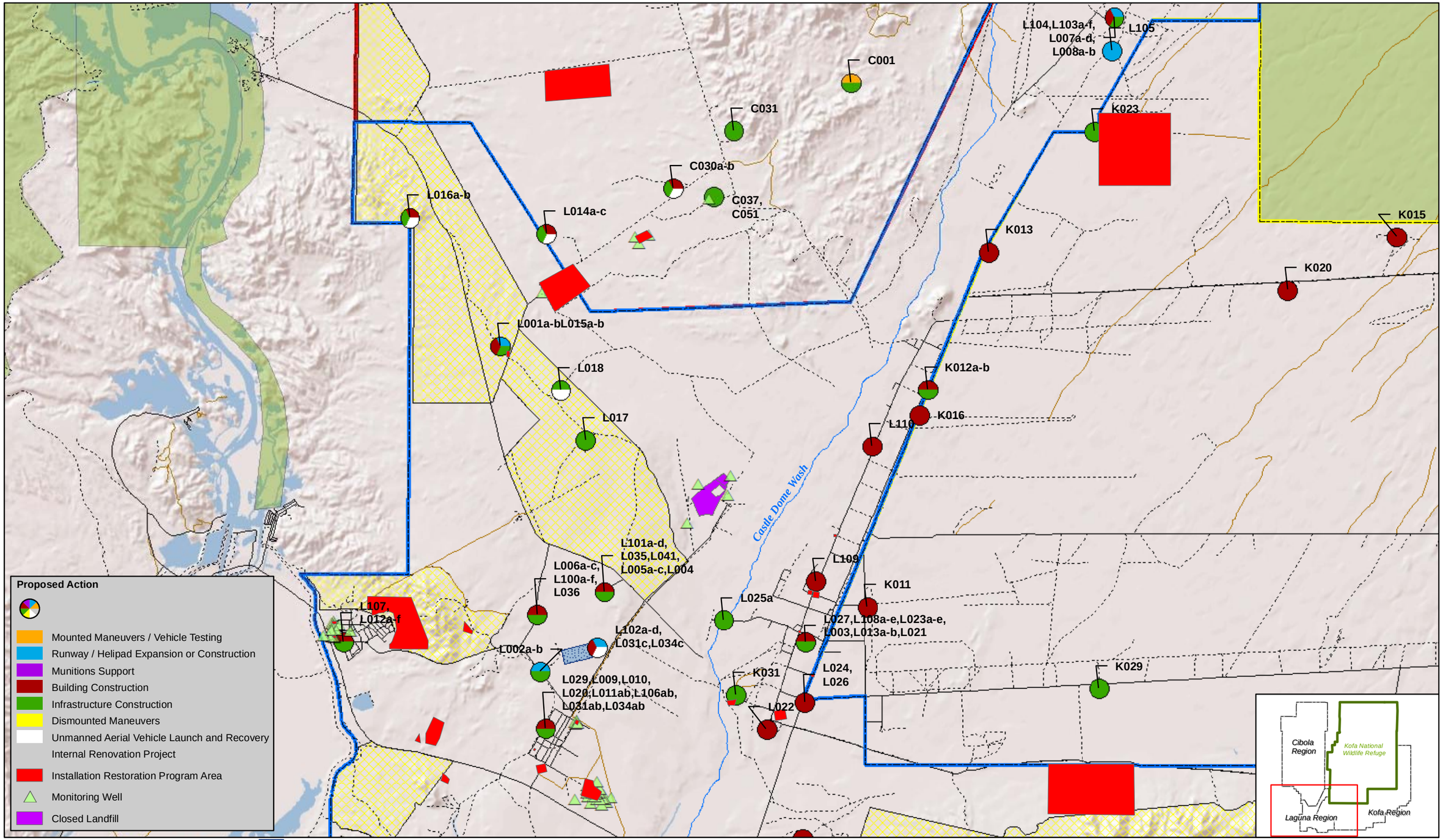
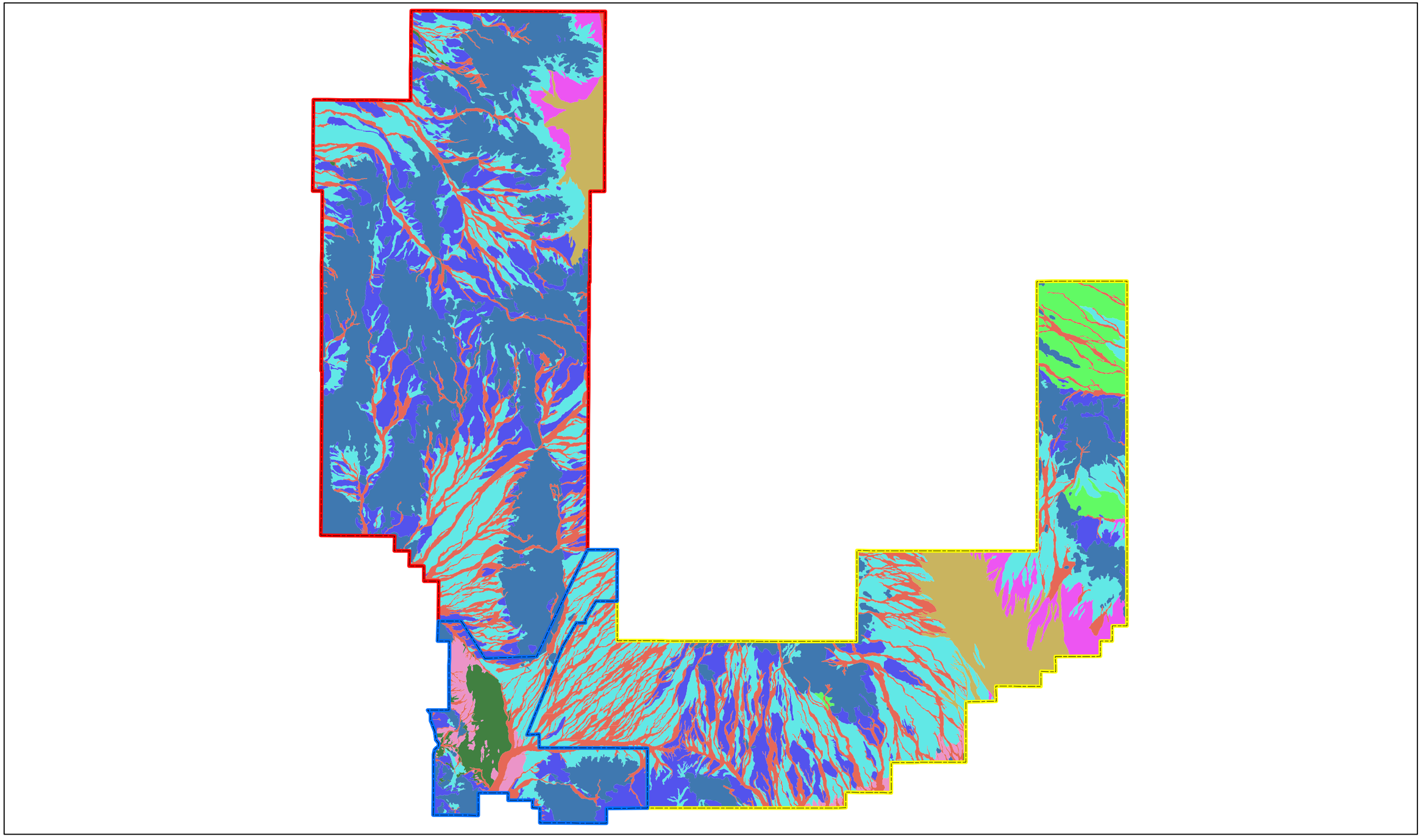


FIGURE 3-3
Installation Restoration Program Areas
and Monitoring Wells - YPG
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\LAGUNA_PROPOSEDACTION_20121025.MXD JJAMELL 6/27/2014 11:45:26 AM

For Planning Purposes Only



Cibola Region
Kofa Region
Laguna Region

Soil Map Unit

Carsitas-Chuckawalla
Chuckawalla-Gunsight
Cristobal-Gunsight
Gilman-Harqua-Glenbar
Gunsight-Chuckawalla
Lithic Torriorthents & Typic Torriorthents
Riverbend-Carrizo
Superstition-Rositas
Tuscon-Tremant-Antho

N

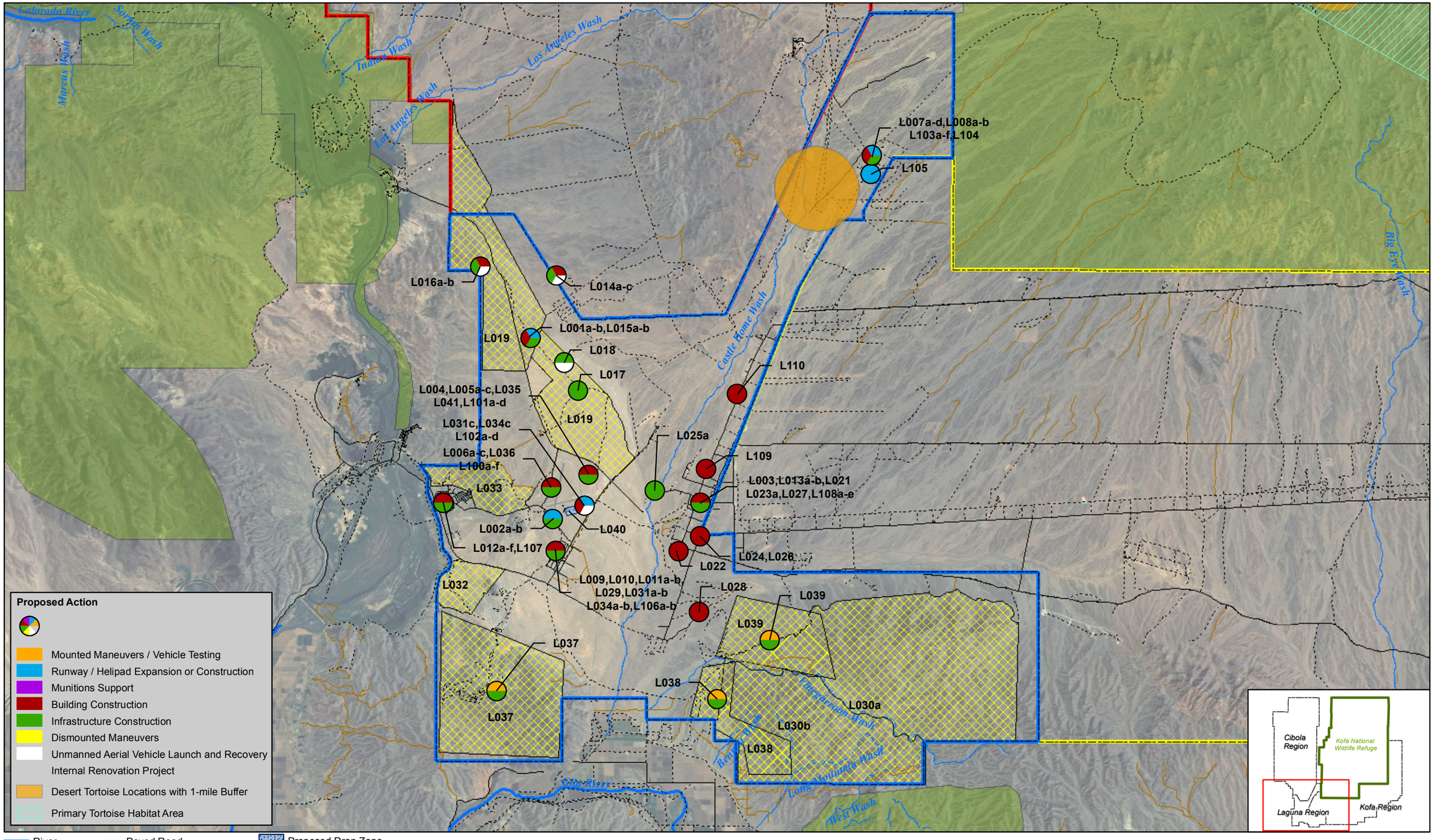
0 5 10 Miles

FIGURE 3-4
Soil Map Units
Yuma Proving Ground
Yuma, Arizona

\\GALILEO\PROJ\YUMA_364516\MAPFILES\SOILS.MXD JMINIX 5/9/2011 16:58:30

CH2MHILL

For Planning Purposes Only



River
Major Wash
Highway
Paved Road
Unpaved Road
Trail
Federal Conservation Area
Proposed Drop Zone
Proposed Dismounted Maneuver Area
Cibola Region
Kofa Region
Laguna Region

Desert Tortoise Data Source:
AZGF

N

0 1 2 Miles

FIGURE 3-5
Desert Tortoise Primary Habitat Area - Laguna Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\LAGUNA_PROPOSEDACTION_20121025.MXD JJAMELL 6/27/2014 1:33:54 PM

For Planning Purposes Only

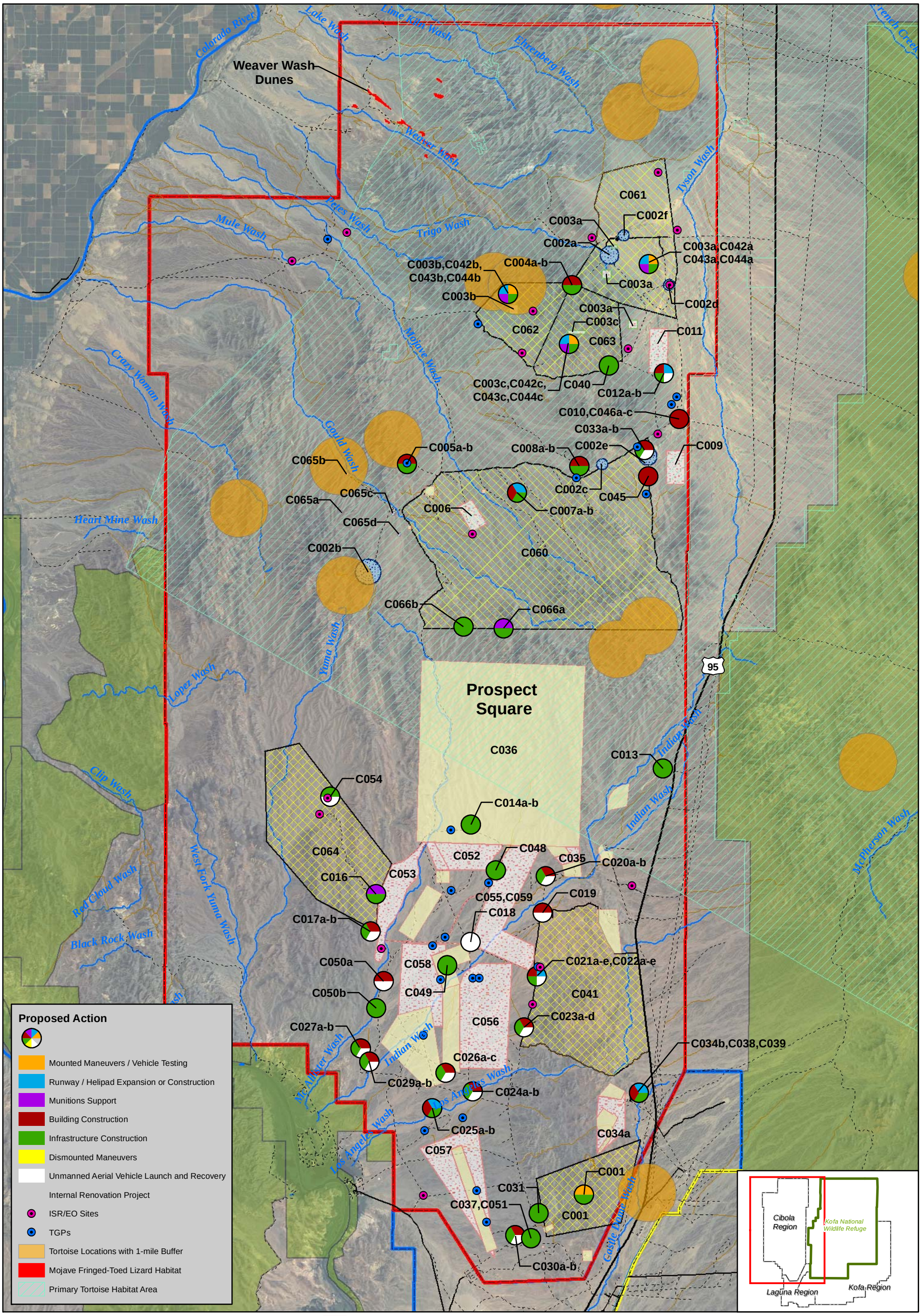
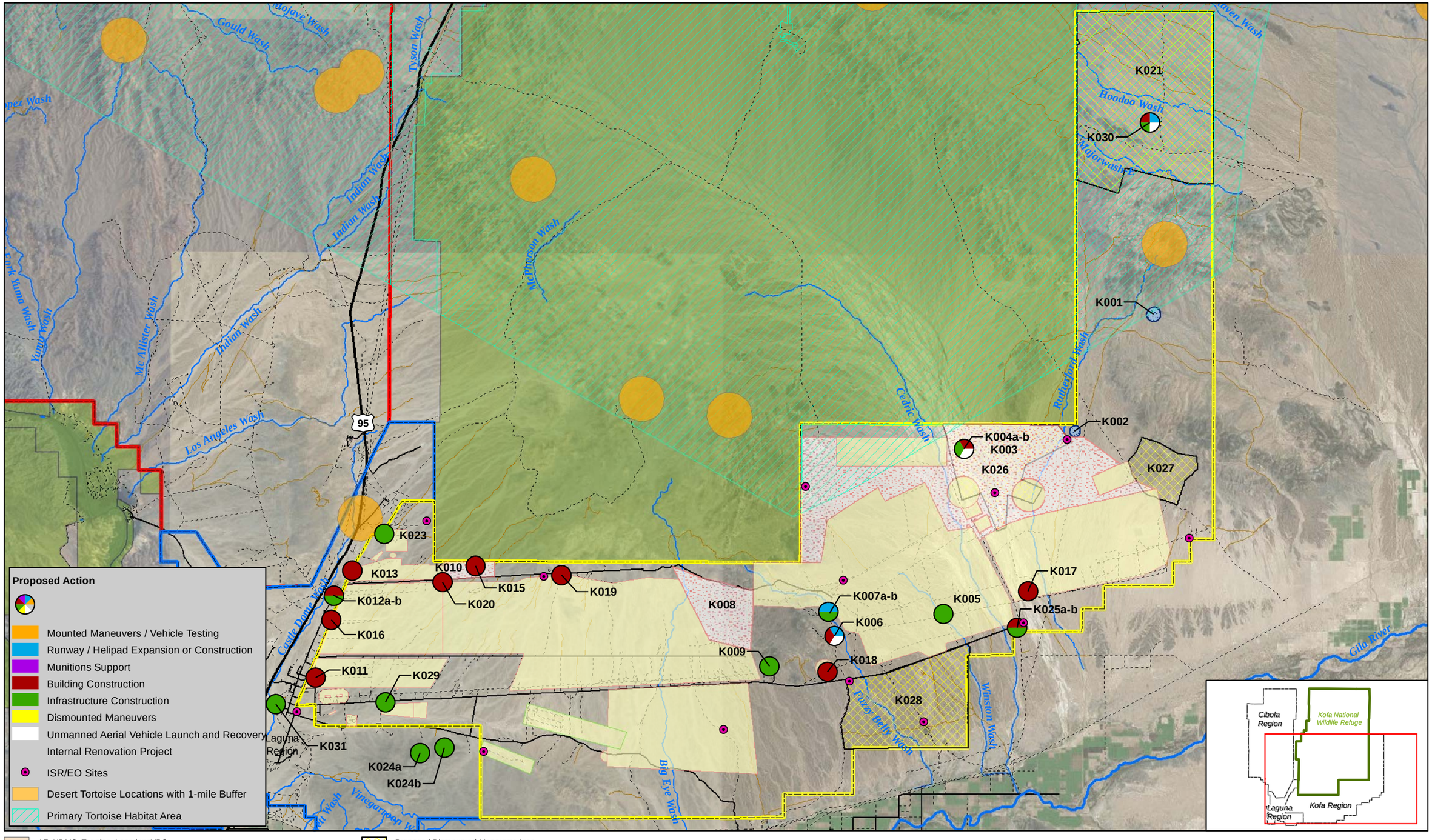


FIGURE 3-6
Desert Tortoise and Mojave Fringed-Toed Lizard Habitat - Cibola Region
Yuma Proving Ground
Yuma, Arizona

For Planning Purposes Only



Proposed Action

- Mounted Maneuvers / Vehicle Testing
- Runway / Helipad Expansion or Construction
- Munitions Support
- Building Construction
- Infrastructure Construction
- Dismounted Maneuvers
- Unmanned Aerial Vehicle Launch and Recovery
- Internal Renovation Project
- ISR/EO Sites
- Desert Tortoise Locations with 1-mile Buffer
- Primary Tortoise Habitat Area

- AZ_HDMS_Tortoise_LocationsYPG
- Highway
- Paved Road
- Unpaved Road
- Trail
- River
- Major Wash
- Proposed Impact Area (High Explosive)
- Existing Impact Area (High Explosive)
- Existing Impact Area (Inert)
- Proposed Drop Zone
- Proposed Dismounted Maneuver Area
- Cibola Region
- Kofa Region
- Laguna Region
- Federal Conservation Area

Desert Tortoise Data Source: AZGF

N

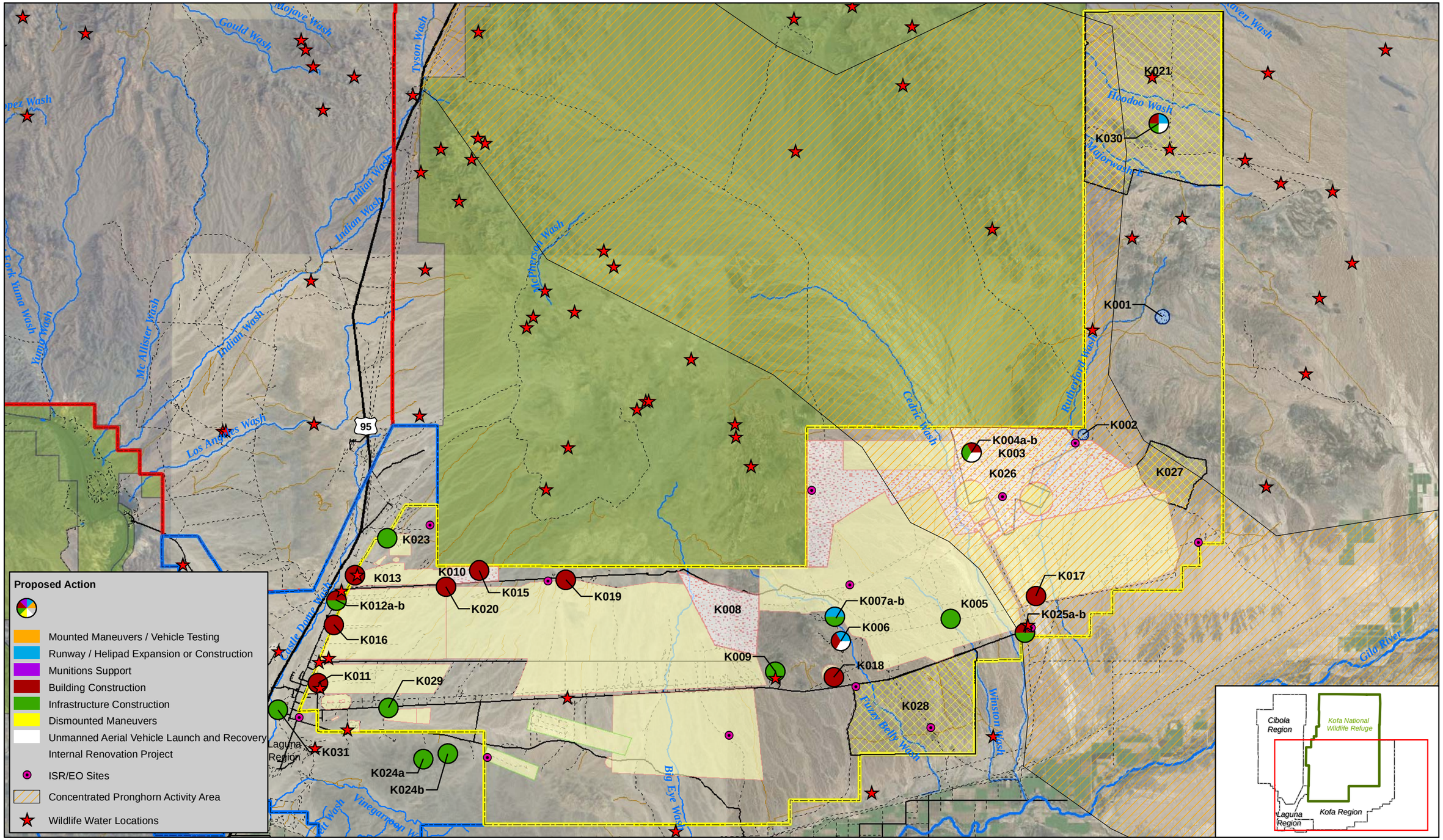
0 2 4 Miles

FIGURE 3-7
Primary Tortoise Habitat Area - Kofa Region
Yuma Proving Ground
Yuma, Arizona

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\KOFA_PROPOSEDACTION_20121022.MXD JJAMELL 6/27/2014 1:51:47 PM

CH2MHILL

For Planning Purposes Only



Highway
Paved Road
Unpaved Road
Trail
River
Major Wash
Proposed Impact Area (High Explosive)
Existing Impact Area (High Explosive)
Existing Impact Area (Inert)
Proposed Drop Zone
Proposed Dismounted Maneuver Area
Cibola Region
Kofa Region
Laguna Region
Federal Conservation Area

Imagery Source:
Bing Maps Aerial Imagery

N

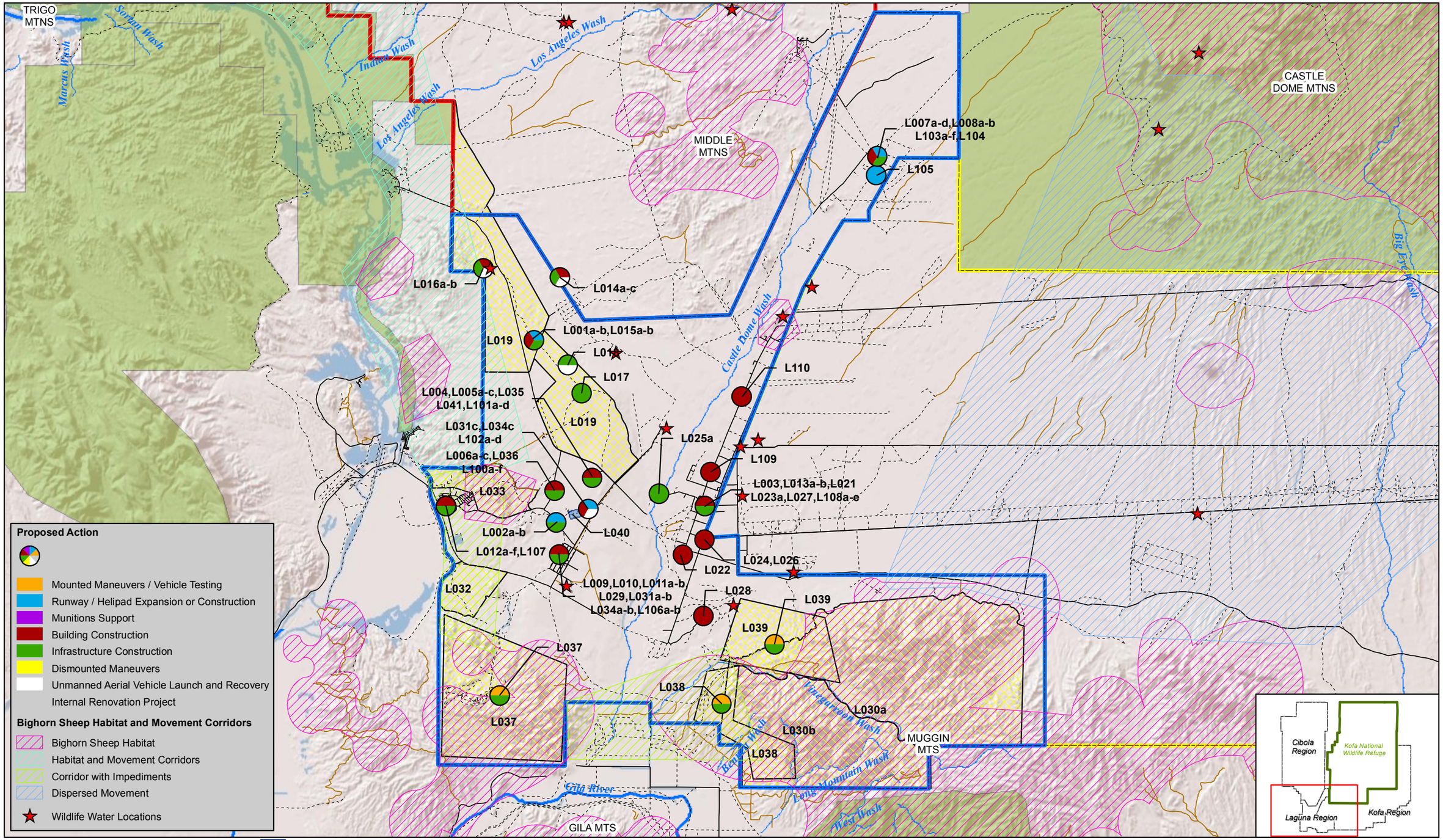
0 2 4 Miles

FIGURE 3-8
Pronghorn Antelope Concentrated Activity Area and Locaions - Kofa Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\KOFA_PROPOSEDACTION_20121022.MXD JJAMELL 6/27/2014 1:56:04 PM

For Planning Purposes Only



River
Major Wash
Highway
Paved Road
Unpaved Road
Trail
Federal Conservation Area
Proposed Drop Zone
Proposed Dismounted Maneuver Area
Cibola Region
Kofa Region
Laguna Region

Bighorn Sheep Data Source:
INRMP, 2012

N

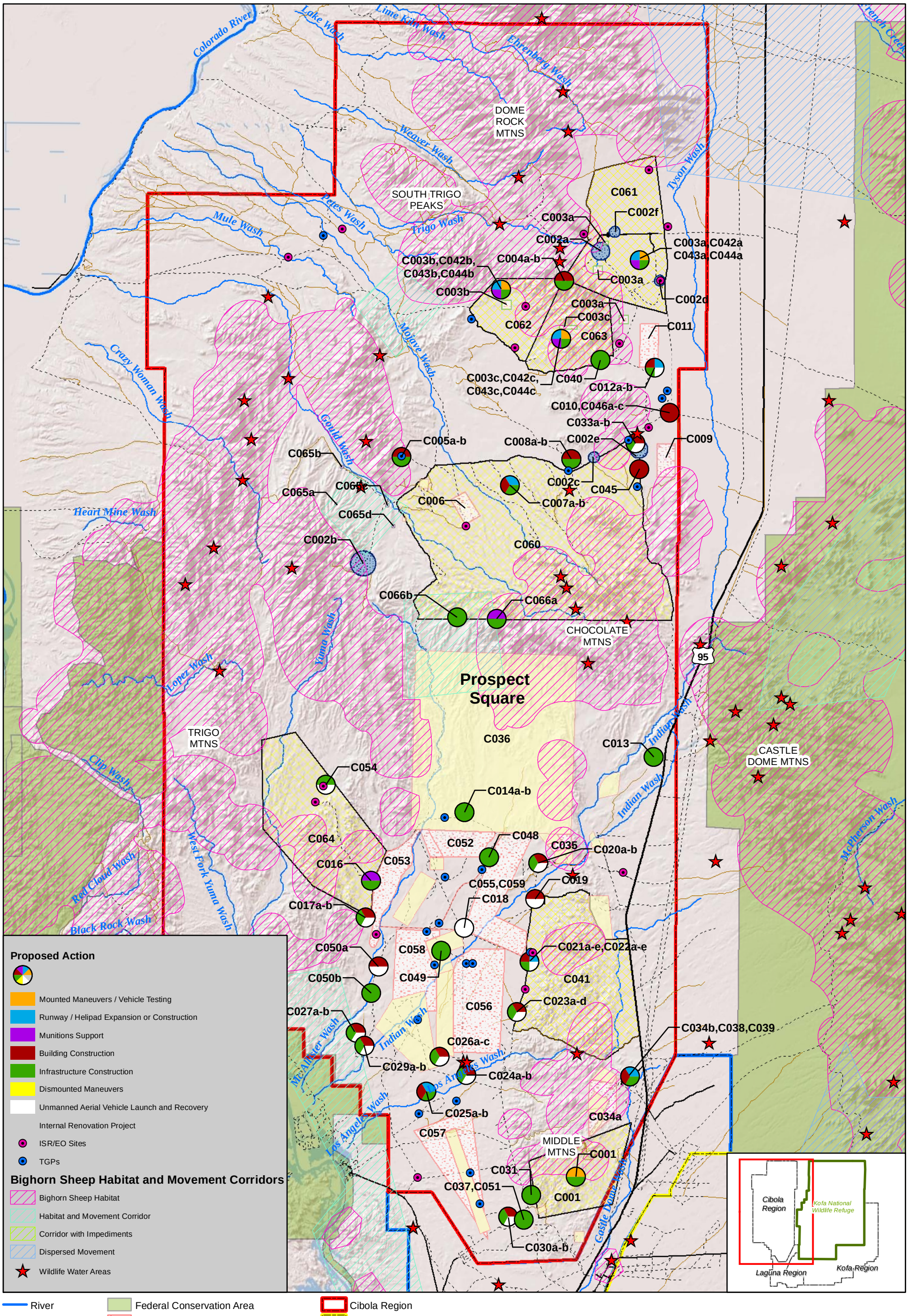
0 1 2 Miles

FIGURE 3-9
Bighorn Sheep Concentrated Activity Areas - Laguna Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\LAGUNA_PROPOSEDACTION_20121025.MXD JJAMELL 11/5/2013 3:35:19 PM

For Planning Purposes Only



River
Major Wash
Highway
Paved Road
Unpaved Road
Trail

Federal Conservation Area
Proposed Impact Area (High Explosive)
Proposed Impact Area (Inert)
Existing Impact Area (High Explosive)
Proposed Drop Zone
Proposed Dismounted Maneuver Area

Cibola Region
Kofa Region
Laguna Region

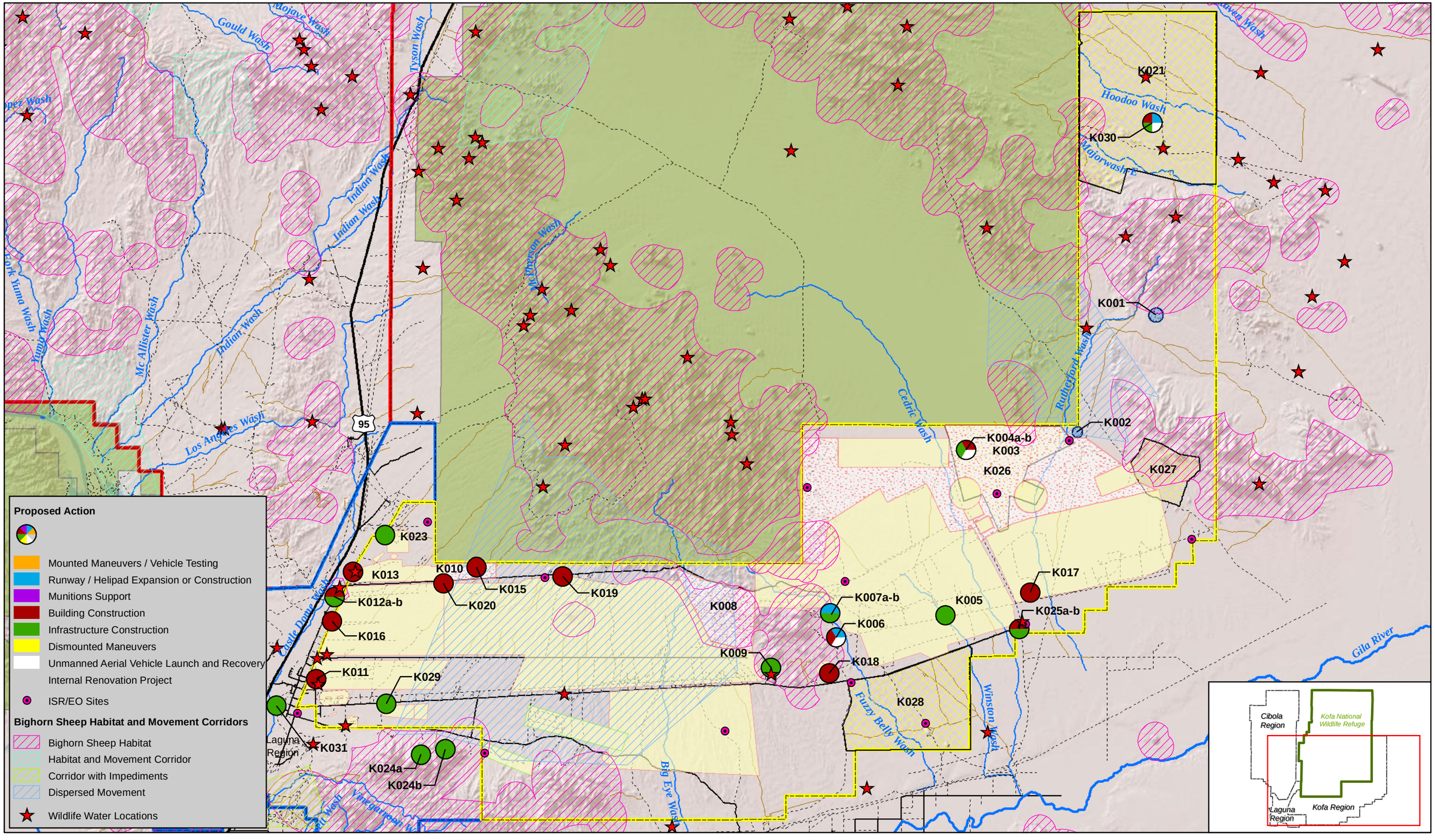
Bighorn Sheep Data Source:
INRMP, 2012

N
0 2 4 Miles

FIGURE 3-10
Bighorn Sheep Activity Concentration Areas - Cibola Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

For Planning Purposes Only



Highway
Paved Road
Unpaved Road
Trail
River
Major Wash
Proposed Impact Area (High Explosive)
Existing Impact Area (High Explosive)
Existing Impact Area (Inert)
Proposed Drop Zone
Proposed Dismounted Maneuver Area
Cibola Region
Kofa Region
Laguna Region
Federal Conservation Area

Bighorn Sheep Data Source:
INRMP, 2012

N

0 2 4 Miles

FIGURE 3-11
Bighorn Sheep Concentrated Activity Area and Locaions - Kofa Region
Yuma Proving Ground
Yuma, Arizona

CH2MHILL

ATL \\GALILEO\PROJ\YUMA_364516\MAPFILES\KOFA_PROPOSEDACTION_20121022.MXD JJAMELL 11/5/2013 4:05:24 PM

Appendix A
Public Outreach

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

April 22, 2011

Environmental Sciences Division

Ms. Elvie R. Hoag
Chief, Environmental Branch
ACC PMS/CEV
11817 Canon Blvd., Suite 306
Newport News, Virginia 23606

Dear Ms. Hoag:

The United States Army Garrison Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the Real Property Master Plan at the Yuma Proving Ground (YPG) northeast of Yuma, Arizona. This letter provides advance notice of the publication of the Notice of Intent (NOI) for the EIS in the Federal Register to allow your agency additional time to consider the action and identify any issues relevant for consideration in the NEPA analysis.

The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet mission requirements.

Two public scoping meetings will be scheduled following publication of the NOI, likely in mid-May. A separate meeting for interested agencies will be held prior to one of the public meetings. A notification letter with proposed project and meeting details will be sent once the NOI is published and meeting dates are set. Your office will be provided with a copy of the draft and final versions of the PEIS for review and comment. Your comments on this proposed action are requested. Comments or questions should be directed to the NEPA Coordinator, IMWE-YMA-PWE, U.S. Army Garrison Yuma, 301 C Street, Yuma AZ 85365-9498, facsimile (928) 328-6696, telephone (928) 328-2015, or email ypgnepa@conus.army.mil.

Sincerely,

Richard T. Martin
Garrison Manager

Distribution List for April 22, 2011 Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

Agency
ACC PMS/CEV
Arizona Department of Agriculture, Native Plant Program
Arizona Department of Environmental Quality
Arizona Department of Environmental Quality, Air Quality Division
Arizona Game and Fish Department
Bureau of Indian Affairs - Western Regional Office
Bureau of Land Management, Yuma District Office
Environmental Department MCAS Yuma
Imperial National Wildlife Refuge
Kofa National Wildlife Refuge
Southwest Arizona National Wildlife Refuge Complex
U.S. Border Patrol
Bureau of Land Management, Yuma District Office
U.S. Bureau of Reclamation, Yuma Area Office
U.S. Environmental Protection Agency, Region IX
U.S. Fish and Wildlife Service

Public and Local Government
Arizona Deer Association
Arizona Desert Bighorn Sheep Society
Arizona Wilderness Coalition
Audubon Society
City of Yuma
La Paz County
Sierra Club, Grand Canyon Chapter
Yuma County Development Services

THE HOPI TRIBE

LeRoy N. Shingoitewa
CHAIRMAN

Herman G. Honanie
VICE-CHAIRMAN

May 9, 2011

Richard T. Martin, Garrison Manager
Attention: Dr. Meg McDonald, Cultural Resources Manager IMWE-YMA-PWE
Department of the Army, US Army Installation Management Command
Headquarters, United States Army Garrison, Yuma
301 C Street
Yuma, Arizona 85365-9498

Dear Mr. Martin,

This letter is in response to your correspondences dated April 22 and May 2, 2011, regarding Yuma Proving Ground preparing a programmatic environmental impact statement for the implementation of the Real Property Master Plan, and a consultation meeting scheduled for June 8, 2011. The Hopi Tribe claims cultural affiliation to prehistoric cultural groups in Arizona, including the Hohokam prehistoric cultural group in southern Arizona. The Hopi Cultural Preservation Office supports the identification and avoidance of prehistoric archaeological sites, and we consider the prehistoric archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate Yuma Proving Ground's continuing solicitation of our input and your efforts to address our concerns.

The Hopi Cultural Preservation Office has stated that we appreciate that the Yuma Proving Ground is identifying historic properties in potential use areas, and we are interested in consulting on any proposal that has the potential to adversely affect prehistoric cultural resources on the Yuma Proving Ground. We will be unable to send a representative to the June 8th meeting. However, we are interested in receiving copies for review and comment of the revised integrated cultural and natural resource management plans, the programmatic environmental impact statement, and the updates on cultural and natural resource management on these lands.

We appreciate that Yuma Proving Ground is extremely interested in avoiding and not damaging places of tribal concern and significance. If you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office at 928-734-3619 or tmorgart@hopi.nsn.us. Thank you for your consideration.

Respectfully,

Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

xc: Arizona State Historic Preservation Office

P.O. BOX 123 KYKOTSMOVI, AZ 86039 (928) 734-3000

Education Division conducted a formal section 7 consultation under the ESA. On November 18, 2008, NMFS issued a Biological Opinion (2008 BiOp) and concluded that the issuance of an IHA is likely to affect, but not likely to jeopardize the continued existence of Steller sea lions. NMFS has also issued an incidental take statement (ITS) for Steller sea lions pursuant to section 7 of the ESA. The ITS contains reasonable and prudent measures for implementing terms and conditions to minimize the effects of this take. NMFS has reviewed the 2008 BiOp and determined that there is no new information regarding effects to Steller sea lions; the action has not been modified in a manner which would cause adverse effects not previously evaluated; there has been no new listing of species or no new designation of critical habitat that could be affected by the action; and the action will not exceed the extent or amount of incidental take authorized in the 2008 BiOp. Therefore, the proposed IHA does not require the reinitiation of Section 7 consultation under the ESA.

National Environmental Policy Act (NEPA)

To meet NMFS' NEPA requirements for the issuance of an IHA to PRBO, NMFS prepared an Environmental Assessment (EA) in 2007 that was specific to seabird research activities on SEFI, WEI, ANI, and PRNS and evaluated the impacts on the human environment of NMFS' authorization of incidental Level B harassment resulting from seabird research in Central California. At that time, NMFS determined that conducting the seabird research would not have a significant impact on the quality of the human environment and issued a Finding of No Significant Impact (FONSI) and, therefore, it was not necessary to prepare an environmental impact statement for the issuance of an IHA to PRBO for this activity. In 2008, NMFS prepared a supplemental EA (SEA) titled "Supplemental Environmental Assessment for the Issuance of an Incidental Harassment Authorization to Take Marine Mammals by Harassment Incidental to Conducting Seabird and Pinniped Research in Central California and Environmental Assessment for the Continuation of Scientific Research on Pinnipeds in California Under Scientific Research Permit 373–1868–00," to address new available information regarding the effects of PRBO's seabird and pinniped research activities that may have cumulative impacts to the physical and biological environment. At that time, NMFS concluded that issuance of an IHA for the December 2008 through 2009 season would not significantly affect the quality of the human environment and issued a FONSI for the 2008 SEA regarding PRBO's activities. In conjunction with this year's application, NMFS has again reviewed the 2007 EA and the 2008 SEA and determined that there are no new direct, indirect or cumulative impacts to the human and natural environment associated with the IHA requiring evaluation in a supplemental EA and NMFS, therefore, reaffirms the 2008 FONSI. A copy of the EA, SEA, and the NMFS FONSI for this activity is available upon request (see **ADDRESSES**).

Dated: May 20, 2011.

James H. Lecky,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2011–12978 Filed 5–24–11; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF DEFENSE

Department of the Army

Real Property Master Plan Programmatic Environmental Impact Statement, at Yuma Proving Ground, Arizona

AGENCY: Department of the Army, DoD.

ACTION: Notice of Intent.

SUMMARY: The Department of the Army intends to prepare a Programmatic Environmental Impact Statement (PEIS) to analyze the environmental impacts resulting from adoption and implementation of a Real Property Master Plan (RPMP), including test areas and training activities at Yuma Proving Ground.

ADDRESSES: For questions concerning the RPMP PEIS, please contact Mr. Sergio Obregon, U.S. Army Garrison Yuma Proving Ground, National Environmental Policy Act Coordinator, IMWE–YMA–PWE, 301 C Street, Yuma, AZ 85365–9498. Written comments may be mailed to that address or e-mailed to *ypgnepa@conus.army.mil.*

FOR FURTHER INFORMATION CONTACT: Mr. Chuck Wullenjohn, Yuma Proving Ground Public Affairs Office, at (928) 328–6189 Monday through Thursday from 6:30 a.m. to 5 p.m., Mountain Standard Time.

SUPPLEMENTARY INFORMATION: Yuma Proving Ground consists of approximately 840,000 acres of DoD-managed land in the Sonoran Desert in southwestern Arizona and occupies portions of Yuma and La Paz counties. The mission at Yuma Proving Ground is ensuring the readiness of U. S. forces and materiel to perform in hot arid conditions around the world. This requires rigorous testing of ground and aerial vehicles, weapons, munitions, sensors, and guidance systems and realistic training. The U.S. has been engaged in hostile conflicts in environments similar to those found at Yuma Proving Ground, resulting in a need for increased testing of existing and developing military equipment, vehicles, and munitions under these environmental conditions. To meet these needs, the U.S. Army intends to prepare a RPMP PEIS at Yuma Proving Ground to analyze potential impacts from new construction, changes in testing and training, and activities conducted under private industry partnerships. Renewable energy initiatives will also be discussed in the PEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives.

Alternatives will consist of alternative siting locations for certain activities within Yuma Proving Ground and different magnitudes of implementation with regard to spatial extent of potential impacts and frequency and duration of specific events. The EIS will also analyze the No Action Alternative, under which no new construction would occur and there would be no changes in testing and training activities conducted at Yuma Proving Ground.

No changes are proposed to activities conducted at off-post areas in Arizona and California that are used for specific testing activities under conditions not found at Yuma Proving Ground. Therefore, these areas would not be considered in the development of alternatives for the RPMP PEIS.

All activities under consideration would be conducted within the boundaries of the installation. Resource areas that may be impacted include air quality, airspace, traffic, noise, water resources, biological resources, cultural resources, socioeconomics, utilities, land use, and solid and hazardous materials/waste. Impacts to these resources may occur as a result of converting existing land use to support military testing and training or from increasing the scope or magnitude of testing and training activities. The analysis will also consider the potential for cumulative environmental effects.

The public will be invited to participate in the scoping process to provide input on the proposed action and alternatives, which will be evaluated in the PEIS. After publication of the Notice of Intent to prepare the PEIS, the Army will schedule at least two public meetings to provide information about the proposed action

and alternatives and to solicit input and feedback from the public on issues to be addressed in the PEIS. Meetings will be announced in local media. The public will also be invited to review and comment on the Draft PEIS when it is released. Comments from the public will be considered before any decision is made regarding implementing the proposed action.

Brenda S. Bowen,

Army Federal Register Liaison Officer.

[FR Doc. 2011–12914 Filed 5–24–11; 8:45 am]

BILLING CODE 3710–08–P

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Public Scoping Meeting and Preparation of Environmental Impact Statement for Luce Bayou Interbasin Transfer Project in Liberty County and Harris County, TX

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: The U.S. Army Corps of Engineers, Galveston District, has received a permit application for a Department of the Army Permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344) from the Coastal Water Authority (SWG–2009–00188) for the proposed Coastal Water Authority's Luce Bayou Interbasin Transfer Project located in eastern Liberty County with the 26.5-mile corridor extending southwestward from the Trinity River to a discharge point near the confluence of Luce Bayou with Lake Houston. The primary Federal involvement associated with the proposed action is the discharge or dredged or fill material into waters of the United States, including jurisdictional wetlands, and the construction of structures that may affect navigable waters. Federal authorizations for the proposed project would constitute a "major federal action." Based on the potential impacts, both individually and cumulatively, the Corps intends to prepare an Environmental Statement (EIS) in compliance with the National Environmental Policy Act to render a final decision on the permit applications.

The Corps' decision will be to either issue, issue with modification or deny Department of the Army permits for the proposed action. The EIS will assess the potential social, economic and environmental impacts of the construction and operation of the interbasin conveyance, associated facilities, and appurtenances and is intended to be sufficient in scope to address Federal, State and local requirements, environmental issues concerning the proposed action, and permit reviews.

DATES: The scoping period will commence with the publication of this notice. The formal scoping period will end 60 days after the publication of this notice. Comments regarding issues relative to the proposed project should be received.

ADDRESSES: You may submit comments by any of the following methods: *Mail:* Jayson M. Hudson, U.S. Army Corps of Engineers, Regulatory Branch, P.O. Box 1229, Galveston, TX 77553–1229; *Fax:* (409) 766–3931 or *E-mail: Jayson.m.hudson@usace.army.mil.* Emailed comments, including attachments, should be provided in .doc, .docx, .pdf or .txt formats. Documents pertinent to the proposed project may be examined at *http://www.swg.usace.army.mil/reg/eis.asp.*

FOR FURTHER INFORMATION CONTACT: Mr. Jayson Hudson, (409) 766–3108.

SUPPLEMENTARY INFORMATION: The Galveston District intends to prepare a DEIS on the proposed Luce Bayou Interbasin Transfer Project which is the proposed transfer of water from the Trinity River in Liberty County to Lake Houston in Harris County, TX. The Coastal Water Authority proposed this project and is the applicant for the Department of the Army permit (DA) SWG–2009–00188.

1. *Project Background:* The Coastal Water Authority is proposing to convey up to 400 million gallons of water per day (MGD) under gravity in accordance with the City of Houston's existing water rights permit from the Trinity River to Lake Houston, a distance of approximately 26.5 miles. The Trinity River water would be conveyed from the proposed pump station through large diameter pipelines to a sediment storage and settling basin and then through an earthen canal to outfall at the Lake Houston discharge point. The canal would have side berms and there would be an access road, drainage ditches, and perimeter fencing surrounding the water conveyance canal. The proposed project consists of the following:

a. A new water pumping station will be constructed on the Trinity River at Capers Ridge approximately 10 miles north of Dayton, TX.

b. Dual, 108-inch diameter force mains will be constructed extending from the Capers Ridge pump station approximately 3.5 miles to the west and southwest to outfall to the sedimentation settling basin.

c. An approximate 20-acre sedimentation settling and storage basin.

d. An approximate 23.5 mile clay-lined earthen canal with 4:1 side slopes within a 300-foot easement that would include access roads, berms, chain link perimeter fencing, flow control structures, and metering stations.

e. Box culverts at canal and roadway crossings and multiple bawl-ground siphons constructed to facilitate wildlife movement and maintain existing hydrology along the canal conveyance system.

f. An approximate 10-acre maintenance facility located approximately 6 miles north of Dayton, TX.

g. Discharge structure along the southeastern shoreline of Lake Houston.

2. *Scoping and Public Involvement Process:* A Public Notice was published on April 19, 2010 to initiate the public scoping process for the proposed project. At that time, based on information provided by the Applicant, a preliminary review indicated that an Environmental Impact Statement (EIS) was not required. However, based on continuing permit assessment and information brought forth during the initial coordination process, areas of potential significant impact on the human environment have been identified. Therefore, the EIS process is being implemented so that the permit application can be fully evaluated and a permit decision can be made. All comments received to date, including those provided for review during the initial scoping process, will be considered by the Galveston District during EIS preparation. The purpose of the EIS scoping meeting is to gather information on the subjects to be studied in detail by the EIS.

3. *Purpose and Need.* The basic purpose of the proposed action is to provide drinking water for the City of Houston and surrounding area. The overall purpose is to provide drinking water utilizing water rights currently held by the City of Houston in the Trinity River. The Corps recognizes that there is a public and private need for drinking water.

4. *Alternatives.* An evaluation of alternatives to the Applicant's preferred alternative initially being considered includes a No Action alternative, alternatives that would avoid, minimize and compensate for impacts to the aquatic environment within the project right-of-way, alternatives that would avoid, minimize and compensate for

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

May 31, 2011

Environmental Sciences Division

Mr. Louis J. Manuel, Jr.
Chairman
Ak-Chin Indian Community Council
42507 W. Peters and Nall Road
Maricopa, Arizona 85239

Dear Chairman Manuel:

The United States Army Garrison Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the Real Property Master Plan at the U.S. Army Yuma Proving Ground (YPG) northeast of Yuma, Arizona.

The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet the demand and space needed to meet mission requirements.

A scoping meeting for interested agencies and tribes will occur on Tuesday, June 14, 2011 at 3:00 p.m. at YPG's Main Administrative Area, in the Desert Breeze Travel Camp Community Center, Building 6. The first public meeting will also be held at this location, on Tuesday June 14, 2011 from 6:00 to 8:00 p.m. A second public meeting will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364, on Wednesday June 15, 2011 from 6:00 to 8:00 p.m. Enclosed are driving directions from Yuma to the meeting location on YPG. Your office will be provided with a copy of the draft and final versions of the PEIS for review and comment. Your comments on this proposed action are requested. Comments or questions should be directed to the NEPA Coordinator, IMWE-YMA-PWE, U.S. Army Garrison Yuma, 301 C Street, Yuma AZ 85365-9498, facsimile (928) 328-6696, telephone (928) 328-2015, or email ypgnepa@conus.army.mil.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosure

Distribution List for May 31, 2011 Tribal and Agency Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

Agency
ACC PMS/CEV
Arizona Department of Agriculture, Native Plant Program
Arizona Department of Environmental Quality
Arizona Department of Environmental Quality, Air Quality Division
Arizona Game and Fish Department
Bureau of Indian Affairs - Western Regional Office
Bureau of Land Management, Yuma District Office
Environmental Department MCAS Yuma
Imperial National Wildlife Refuge
Kofa National Wildlife Refuge
Southwest Arizona National Wildlife Refuge Complex
U.S. Border Patrol
Bureau of Land Management, Yuma District Office
U.S. Bureau of Reclamation, Yuma Area Office
U.S. Environmental Protection Agency, Region IX
U.S. Fish and Wildlife Service
Wellton-Mohawk Natural Resources Conservation District
NRCS Yuma Service Center

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

May 31, 2011

Environmental Sciences Division

Honorable Alan Krieger
City of Yuma
One City Plaza
Yuma, AZ 85366

Dear Honorable Krieger:

The United States Army Garrison Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the Real Property Master Plan at the U.S. Army Yuma Proving Ground (YPG) northeast of Yuma, Arizona.

The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet the demand and space needed to meet mission requirements.

The first public meeting will be held at YPG's Main Administrative Area, in the Desert Breeze Travel Camp Community Center, Building 6, on Tuesday June 14, 2011 from 6:00 to 8:00 p.m. A second public meeting will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364, on Wednesday June 15, 2011 from 6:00 to 8:00 p.m. Enclosed are driving directions from Yuma to the meeting location on YPG. Your office will be provided with a copy of the draft and final versions of the PEIS for review and comment. Your comments on this proposed action are requested. Comments or questions should be directed to the NEPA Coordinator, IMWE-YMA-PWE, U.S. Army Garrison Yuma, 301 C Street, Yuma AZ 85365-9498, facsimile (928) 328-6696, telephone (928) 328-2015, or email ypgnepa@conus.army.mil.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosure

Distribution List for May 31, 2011 Political Representatives Letter

Political Representatives
City of Yuma
Congressman Raul M. Grijalva – AZD07
House of Representatives
House of Representatives
La Paz County Community Development
United States Senate
United States Senate
Yuma County

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION IV, 9140 E. 28TH ST., YUMA, AZ 85365

GOVERNOR
JANICE K. BREWER
COMMISSIONERS
CHAIRMAN, ROBERT R. WOODHOUSE, ROLL
NORMAN W. FREEMAN, CHINO VALLEY
JACK F. HUSTED, SPRINGERVILLE
J.W. HARRIS, TUCSON
ROBERT E. MANSELL, WINSLOW
DIRECTOR
LARRY D. VOYLES
DEPUTY DIRECTORS
GARY R. HOVATTER
BOB BROSCHEID

June 28, 2011

Sergio Obregon
NEPA Coordinator
U.S. Army Yuma Proving Ground
IMWE-YMA-PWE
301 C Street
Yuma, Arizona 85365-9498

Re: Scoping Comments for the YPG Real Property Master Plan and Programmatic Environmental Impact Statement

Dear Mr. Obregon:

The Arizona Game and Fish Department (Department) received your May 31, 2011 letter requesting our participation in the scoping process for the development of a Programmatic Environmental Impact Statement (PEIS) for the implementation of the Real Property Master Plan at the United States Army Garrison Yuma Proving Ground (YPG). Department personnel also participated in the June 15, 2011 agency scoping meeting and the June 16, 2011 public meeting, and we are proving the following comments for your consideration.

Proposed Action

As the Department understands, the PEIS will analyze environmental impacts resulting from the implementation of the Real Property Master Plan. This will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems. It will provide for realistic training, and allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action.

Department Recommendations

Given the limited information available regarding the proposed action at this time, we recommend YPG coordinate early and often with the Department throughout the National Environmental Policy Act (NEPA) process to help identify potential impacts to wildlife populations and habitats, and to develop appropriate avoidance, minimization, or mitigation measures. Additionally, the Department recommends YPG consider the following scoping issues:

1. Analyze potential impacts to vegetation, including mesquite bosques, desert washes, dunes, foothills, mountain ranges, water catchments, and other habitats utilized by wildlife.

2. Analyze potential impacts to specific wildlife species, including the Sonoran desert tortoise, mule deer, desert bighorn sheep, Sonoran pronghorn, and other special status species. Access the Department's Environmental On-line Review Tool to help identify special status species that have been identified as occurring in the project vicinity. This On-line Tool contains the best available data through the Heritage Database Management System (HDMS) and can aid in a thorough evaluation of potential impacts to wildlife species[1];

3. Analyze potential impacts to hunter access, law enforcement, and wildlife management activities, such as surveys and translocations, which could be impacted by the proposed action.

4. Coordinate with other resource management agencies such the U.S. Army Corps of Engineers regarding Clean Water Act issues, and the U.S. Fish and Wildlife Service regarding Migratory Bird Treaty Act and Endangered Species Act issues.

5. Ensure the YPG 1997 Integrated Natural Resource Management Plan (INRMP) is comprehensively reviewed and updated to provide programmatic guidance for the conservation, management, and monitoring of the range's natural resources, given the considerable new knowledge of wildlife resources that have been obtained through cooperative studies with YPG, and the change and expansion in testing, training, and other mission activities across the installation over the previous decade.

[1] The Department's HDMS data are not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity.

Thank you for the opportunity to provide scoping comments on the development of this PEIS. The Department appreciates your continued coordination and cooperation regarding the conservation and management of wildlife populations, habitats, and wildlife-oriented recreation on YPG. If you have any questions or would like to further discuss our comments, please contact me at 928-341-4068.

Sincerely,

Troy G. Smith
Habitat Program Manager
Region IV, Yuma

cc: Josh Avey, Chief, Habitat Branch
Pat Barber, Regional Supervisor, Region IV
Laura Canaca, Project Evaluation Program Supervisor, Habitat Branch
Elaine Johnson, Project Leader, Southwest AZ National Wildlife Refuge Complex
Kirk Koch, Acting Manager, Yuma BLM Field Office
Leonard Ordway, Assistant Director, Field Operations Division

AGFD # M11-06152931

Affidavit of Publication

STATE OF ARIZONA

COUNTY OF YUMA

CITY OF YUMA

I, Darlene Firestone being duly sworn on oath now and during all times herein stated, have been the publisher (or authorized representative of Publisher) and designated agent of the publication known as,

Yuma Sun ("Publication"), a newspaper of general circulation in the county of Yuma, State of Arizona, by Newspapers of Southwestern Arizona, Inc.,

And having full knowledge of the facts herein stated as follows:

The advertisement for US Proving Grounds ("Ad/Advertiser") was published to the Publication's full circulation as requested by Advertiser on the:
29th Day of May, 2011.

By: _____

Subscribed and sworn to before me
This 8th day of June, 2011.

Virgen P. Perez
Notary Public

Notary Seal:

OFFICIAL SEAL
VIRGEN P PEREZ
Commission # 163644
Notary Public - State of Arizona
YUMA COUNTY
My Comm. Expires May 10, 2013

Casey Anthony's mother, ex-boyfriend testify; murder trial to resume Tuesday

ORLANDO, Fla. — The mother of a Florida woman accused of killing her 2-year-old daughter gave a tour of the family home, including a playhouse built for the toddler and the above-ground pool the defense team claims the girl drowned in.

Cindy Anthony testified Saturday at her daughter's murder trial that she and Caylee went swimming on June 15, 2008 — the last day she saw her granddaughter. She said she removed a ladder into the pool — something she did every time the pool wasn't being used.

Casey Anthony, who is charged with first-degree murder in the toddler's summer 2008 death, wiped away tears with a tissue during her mother's testimony. Prosecutors contend Casey Anthony suffocated the girl with duct tape. If convicted, she could be sentenced to death.

Cindy Anthony was not asked directly Saturday whether she thought the young girl drowned. The trial will resume Tuesday in Orlando.

Through most of her testimony, Caylee remained on display on television monitors along the courtroom, where evidence is displayed for the jury, media and spectators. Anthony eventually interrupted her questioning, asking prosecutors to remove the photo.

Married folks now outnumbered: Census data shows them leading less than half of US households

PORTLAND, Ore. — Three mornings a week, when Becky Leung gets ready for work, her boyfriend is just getting home from his overnight job.

Leung, 27, cohabits in a Portland, Ore., townhome with her boyfriend but has no plans yet to wed, a reflection of the broader cultural shift in the U.S. away from the traditional definition of what it means to be a household.

Data released Thursday by the U.S. Census Bureau shows married couples have found themselves in a new position: They're no longer the majority.

It's a trend that's been creeping along for decades, but in the 2010 Census, married couples represent 48 percent of all households. That's down from 52 percent in the last Census and, for the first time in U.S. history, puts households led by married couples as a plurality.

"I see a lot of people not having the typical 8-to-5 job, or couples where one person is employed and one isn't. There's other priorities before marriage," Leung said.

The flip in the 2010 Census happened in 32 states. In another seven states, less than 51 percent of households were helmed by married couples.

PLAYS HIS GUITAR at
borough of New York o
American immigrants v
only indigenous langua
Spanish, and are findin
U.S. means having to l

Some i
cite no
Spanis

Speakers o
indigenou
languages fa
extra hurdl

ASSOCIATED PRES

NEW YORK — Co
Aguilar needs help
she goes to the doc
when her co-worker
nail salon call her
phone.

A Mexican who ha
in the U.S. for two
she only speaks a v
of Mixteco, an indig
language from the st
Oaxaca, Puebla and
rero in southern Mex

"It is hard somet
whispers the 28-ye
who was born in

PUBLIC NOTICE

The United States Army Garrison Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with Sections 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementations of the Real Property Master Plan at the Yuma Proving Ground (YPG) northeast of Yuma, Arizona. The Notice of Intent (NOI) for the PEIS was published in the Federal Register on May 25, 2011.

The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. Renewable energy initiatives will be discussed in the PEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet the demand and space needed to meet mission requirements.

A public meeting will be held on YPG from 6:00 to 8:00 PM at Building 6, the Desert Breeze Travel Camp Community Center, located on the main administrative area, off of Imperial Dam Road on Tuesday, June 14, 2011. A second public meeting will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364 on Wednesday, June 15, 2011 from 6:00 to 8:00 PM. Draft and final versions of the PEIS will be made available to the public for review and comment when completed. The scoping process officially begins with the publication of the NOI in the Federal Register, Public scoping comments will be solicited through June 30, 2011. YPG will also accept public input throughout the NEPA process. All interested parties are invited to attend the public meetings and to submit comments or questions by mail to Sergio Obregon, National Environmental Policy Act Coordinator, U.S. Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, or e-mail ypgnepa@conus.army.mil. By phone, contact Chuck Wullenjohn at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday.

Harry Wm
Longbottom
ATTORNEY AT LAW, P.L.L.C.
"Your Lawyer in the Foothills!"



Practicing Since 1977
General Practitioner
•Estate & Probate •Wills •Tru
•Commercial Law •Real Esta
•Conservatorships Guardiansh
•Tax Lien Foreclosures

11242 S. Foothills Blvd (by Foothills Village - South Front Corner of 34th St. & Foothills B
(928) 342-0444 • harry.longbottom@azbar.org

Affidavit of Publication

STATE OF ARIZONA

COUNTY OF YUMA

CITY OF YUMA

I, Darlene Firestone being duly sworn on oath now and during all times herein stated, have been the publisher (or authorized representative of Publisher) and designated agent of the publication known as,

Bajo El Sol ("Publication"), a newspaper of general circulation in the county of Yuma, State of Arizona, by Newspapers of Southwestern Arizona, Inc.,

And having full knowledge of the facts herein stated as follows:

The advertisement for US Proving Ground ("Ad/Advertiser") was published to the Publication's full circulation as requested by Advertiser on the:
3rd Day of June, 2011.

By: [signature]

Subscribed and sworn to before me
This 8th day of June, 2011.

Virgen P. Perez
Notary Public

Notary Seal:

OFFICIAL SEAL
VIRGEN P PEREZ
Commission # 163644
Notary Public - State of Arizona
YUMA COUNTY
My Comm. Expires May 10, 2013

...etito!

...tar nuestro Sushi Bar



Comida China
Japonesa
Ensalada
Postre
de Helado



¡¡Sorteo GRATUITO
Inscríbase Ahora!!
Viernes 1° de Julio del 2011
LG TV de 42" o $600 en Tarjetas de Regalo*
¡Además de muchos otros premio!
*Tarjetas de Regalo para Eat Asian Buffet

HORARIO
10:30-9:00
Dom-Juev
10:30-9:30
Vier y Sáb

CUPÓN
Vence Junio 18 del 2011
$1.00 MENOS
Cualquier Cerveza, Vino o Saki con Compra de Comida
*No Se Puede Combinar Con Ninguna Otra Oferta.

...AT
...UPER BUFFET
...Verde
...55
928-317-9108

- We Paint - Exterior & Interior
- Room Additions
- Whole House Renovations
- Luxury Master Suites
- Patio Covers
- Casitas & Ramadas
- Outdoor Kitchen / BBQ Islands
- Arizona Rooms
- Replacement Windows & Doors
- Handyman Service



Complete kitchens
as low as $4,499 installed!

SUNNYSIDE
www.azsunnyside.com
928-785-2285

Certified Firm
BBB MEMBER CENTRAL/NORTHERN ARIZONA
ROC#230703
Licensed, Bonded, Insured

AVISO PUBLICO

El ejército de los Estados Unidos de Yuma Proving Grounds tiene la intención de preparar una Declaración de Programación de Impacto Ambiental (PEIS, por sus siglas en inglés) en conformidad con la sección 102(2)(c) de Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) para analizar los impactos ambientales como resultado de la implementación del Plan Maestro de Propiedad Real (RPMP, por sus siglas en inglés) en Yuma Proving Ground (YPG, por sus siglas en inglés) al noreste de Yuma, Arizona El Aviso de Intención (NOI por sus siglas en inglés) de la PEIS fue publicado en el Registro Federal el 25 de mayo de 2011.

El proyecto permitiría a YPG a mantener una instalación capaz de probar sistemas de vanguardia del terreno militar y sistemas de vehículos aéreos, armas, municiones, sensores y sistemas de orientación; para proporcionar una formación realista y permitir la flexibilidad necesaria para entrar en proyectos del ejército y del sector privado legalmente admisibles donde tales proyectos sean compatibles con la misión militar de YPG. Se discutirán iniciativas de energía renovable en la PEIS, pero un análisis de la NEPA específicos del proyecto será necesario antes a la implementación de las iniciativas de energía renovable específicas. YPG realizaría los proyectos de construcción y demolición (principalmente en las zonas de acantonamiento), continuará las pruebas existentes y actividades de capacitación y ampliará algunas pruebas de formación y actividades. No habría una expansión de YPG como resultado de la acción propuesta. La construcción nueva incluiría una variedad de instalaciones para satisfacer la demanda y el espacio necesario para cumplir con los requerimientos de la misión.

Se llevará a cabo una reunión pública en YPG de las 6:00pm a 8:00pm en el edificio 6, del Centro Comunitario Desert Brezee Travel Camp, ubicado en el área administrativa principal en la salida de la calle Imperial Dam Road, el martes 14 de junio de 2011. Se llevará a cabo una segunda reunión pública en la biblioteca pública de Yuma, ubicada en el 2951 South 21st, Yuma AZ, 85364 el miércoles 15 de junio de 2011 de las 6:00pm a 8:00pm. Se pondrán a disposición del público versiones del borrador y finales de la PEIS para su revisión y comentario una vez finalizados. El proceso de exploración oficialmente comienza con la publicación de la NOI en el Registro Federal. Comentarios públicos serán solicitados hasta el 30 de junio de 2011. YPG también aceptará la opinión pública durante todo el proceso de NEPA. Todas las partes interesadas están invitadas a asistir a las reuniones públicas y a enviar comentarios o preguntas por correo a Sergio Obregon, Coordinador de la Ley Nacional de Política Ambiental a U.S Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, o por correo electrónico al ypgnepa@conus.army.mil. Por teléfono, llame a Chuck Wullenjohn al (928) 328-6189 de 6:30 AM a 5:00 PM, de lunes a jueves.

THE OUTPOST

U.S. Army Yuma Proving Ground, Yuma, Arizona 85365

Volume 41 No. 1 June 13, 2011

Published for the employees and families of Yuma Proving Ground, Yuma Test Center, U.S. Army Garrison — Yuma, Cold Regions Test Center and Tropic Regions Test Center

Summit focuses on MRAP tests

Event fosters communication between testers of Mine Resistant Ambush Protected vehicles throughout the U.S.

By Mark Schauer

During the worst years of the Iraqi insurgency, the Mine Resistant Ambush Protected (MRAP) vehicle was developed to protect American Soldiers from the destructive power of roadside bombs and other improvised explosive devices (IEDs). After extensive testing, the heavily fortified platform with a blast-defusing V-shaped hull was rapidly fielded.

The vehicle's effectiveness resulted in the development of specialized variants, from the route-clearing Buffalo MRAP that uses a long hydraulic claw to dig land mines and IEDs to the MRAP All-Terrain Vehicle (M-ATV), a lighter and more

tested at YPG.

The number of variants and the program's status as a joint effort between the Army, Marine Corps, Air Force, and Navy mean the engineers who design and test MRAPs are scattered throughout the country. To facilitate interaction, the MRAP Joint Program Office (JPO) has held an annual engineering summit for the past three years. This year's two day event was held at YPG, and every MRAP tester in the Combat and Automotive Systems division participated.

"They hear about what is going on within the whole spectrum of the MRAP program, not just the area they are focused in," said Isaac Rodriguez, team leader in YPG's combat and



NEWS NOTES

Public Notice

U.S. Army Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the real property master plan. The notice of intent for the PEIS was published in the federal register on May 25, 2011.

The project will allow YPG to maintain a facility capable of state-of-the-art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. Renewable energy initiatives will be discussed in the PEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet the demand and space needed to meet mission requirements.

A public meeting will be held on YPG, Tuesday, June 14 from 6 p.m. to 8 p.m. at Bldg. 6, the Desert Breeze Travel Camp Community Center, located on the main administrative area. A second public meeting will be held at the Yuma Public Library, 2951 South 21st Drive, on Wednesday, June 15, from 6 p.m.to 8 p.m. Draft and final versions of the PEIS will be made available to the public for review and comment when completed. The scoping process officially begins with the publication of the NOI in the federal register.

Public scoping comments will be solicited through June 30, 2011. YPG will also accept public input throughout the NEPA process. All interested parties are invited to attend the public meetings and to submit comments or questions by mail to Sergio Obregon, National Environmental Policy Act coordinator, U.S. Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Ariz., 85365-9498, or e-mail ypgnepa@conus.army.mil. By phone, contact Chuck Wullenjohn at (928) 328-6189 from 6:30 a.m. to 5 p.m., Monday through Thursday.

COUPON
Expires 7/31/11

Arizona Auto Clinic

YPG AIR CONDITIONING SPECIAL

- System & Compressor Analysis
- Check System For Leaks
- Clean Condenser
- Check Drive Belts
- Check Proper Cooling System Operation
- Check Outlet Temperature

$25.95



MOVE IN SPECIAL!

Twin Mattress Set - Starting at $99!
Full Mattress Set - Starting at $129!
Queen Mattress Set - Starting at $139!

Full Sleigh Bed With FREE Mattress Set - Starting at $399!
Queen Sleigh Bed With FREE Mattress Set - Starting at $429!

Microfiber Sofa & Love Seat - Starting at $399!

Share Report Abuse Next Blog» Create Blog Sign In

Desert Messenger, Quartzsite, AZ

from the publisher of Quartzsite's FREE Community Paper Newspaper with local events and entertainment.

Follow Desert Messenger by Email

Submit



Desert Messenger online

CLICK HERE to view the current issue
and to sign up for FREE SUBSCRIPTION to receive emails when the next issue becomes available online.

Quartzsite Links

Quartzsite Big Tent RV Shows
Quartzsite Business Chamber of Commerce
Quartzsite Gem & Mineral Club
Quartzsite Library
Quartzsite RV Parks, BLM Camping
Quartzsite Scholars' Academy
Quartzsite Videos
Silly Al's Pizza, Quartzsite
Town of Quartzsite, Arizona
Tyson Wells Showgrounds

Twitter

Thursday, June 2, 2011

YPG public meetings planned for June 14 & 15

Yuma, Arizona - The United States Army Garrison Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the Real Property Master Plan at the Yuma Proving Ground (YPG) northeast of Yuma, Arizona. The Notice of Intent (NOI) for the PEIS was published in the Federal Register on May 25, 2011.

The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. Renewable energy initiatives will be discussed in the PEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet the demand and space needed to meet mission requirements.

A public meeting will be held on YPG at Building 6, the Desert Breeze Travel Camp Community Center, located on the main administrative area off of Imperial Dam Road on

Tuesday June 14, 2011 from 6:00 pm to 8:00 pm

A second public meeting will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364 on

Wednesday June 15, 2011 from 6:00 to 8:00 PM.

Draft and final versions of the PEIS will be made available to the public for review and comment when completed. The scoping process officially begins with the publication of the NOI in the Federal Register. Public scoping comments will be solicited through June 30, 2011. YPG will also accept public input throughout the NEPA process.

All interested parties are invited to attend the public meetings and to submit comments or questions by mail to Sergio Obregon, National Environmental Policy Act Coordinator, U.S. Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, or e-

mail ypgnepa@conus.army.mil. By phone, contact Chuck Wullenjohn at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday.

Posted by Shanana "Rain" Golden-Bear at 5:26 PM

Labels: public meeting, Quartzsite AZ, ypg, yuma az, Yuma Proving Ground

0 comments:

Post a Comment

Comment as: Select profile...

Post Comment Preview

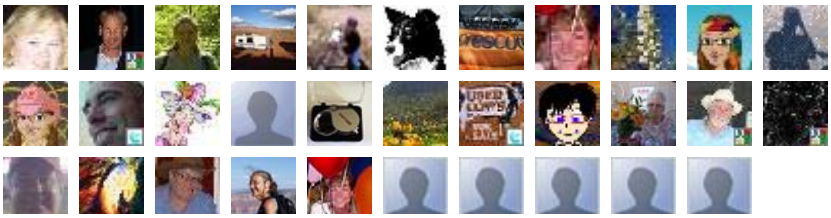
Newer Post Home Older Post

Subscribe to: Post Comments (Atom)

Followers

Follow with Google Friend Connect

Followers (32)



Search This Blog

Search

powered by Google™

Join the conve

Blog Archive

▼ 2011 (81)
▼ June (8)
Quartzsite to Parker lane closures Mon. & Tues.
Quartzsite Propane flames up at RV Pit Stop
Quartzsite's own Paul Winer gives FREE concert Fri...
So. Arizona: Seeking Veteran Advisory Council advo...
YPG public meetings planned for June 14 & 15
Hwy. 72 & 95 construction extends into weekend
Quartzsite Council no show for short noticed speci...
Mittry Lake reopened
► May (21)
► April (19)
► March (12)
► February (12)
► January (9)
► 2010 (117)
► 2009 (25)
► 2008 (6)

www.DesertMessenger.com

Quartzsite Newspaper. News, Events, & Entertainment. Download Deadlines, Rate Card, links to other Quartzsite sites! http://www.desertmessenger.com/

MBA

Media Bloggers Association

Loaded Web

LOADED WEB

Bullying Awareness Prevention month

Elephant in the room

About Me



Shanana "Rain" Golden-Bear
Quartzsite, Arizona, United States

Quartzsite newspaper. Just being a human tuning fork, sharing joy and gratitude everywhere I go! Creating a vehicle for the people's voice to be heard in Quartzsite, Arizona and having fun! Contact: "Rain" at desertmessenger7@yahoo.com or call 541-218-2560.

View my complete profile

Draft

Public Involvement Management Strategy

Environmental Impact Statement for Yuma Proving Ground, Yuma, Arizona

Prepared for

U.S. Army Corps of Engineers Mobile District

December 1, 2010

CH2MHILL

Contents

Section		Page
1.0	**Introduction**	**1**
2.0	**Project Background**	**2**
3.0	**Project Issues and Stakeholders**	**3**
4.0	**Public Involvement Tools and Activities**	**4**
4.1	Public Scoping Workshops	4
4.2	Agency and Tribal Scoping Meetings	5
4.3	Public Hearing	5
4.4	Fact Sheets/Meeting Handouts	5
4.5	Press Releases and Public Notices	6
4.6	Mailing List	6
4.7	Internet Web Page	7
4.8	Executive Order 12898, Environmental Justice and Executive Order 13045, Child Protection Requirements	7

Appendices

A PIMS Schedule for the YPG EIS
B Public Involvement Documents

1.0 Introduction

This Public Involvement Management Strategy (PIMS) has been prepared to support the Yuma Proving Ground (YPG) Environmental Impact Statement (EIS) process. The purpose of this PIMS is to develop and guide the implementation of a public involvement strategy that will inform and educate the general public and interested stakeholders about the YPG EIS process. The PIMS includes information about tools and activities, such as fact sheets/meeting handouts, a web page, public scoping meetings, a public hearing, public notices, and press releases that will be used to communicate with the general public and stakeholders as the project moves through the EIS process.

2.0 Project Background

The U. S. Army intends to prepare an EIS, in accordance with Section 102(2) (c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from the implementation of the Real Property Master Plan at YPG.

3.0 Project Issues and Stakeholders

NEPA is intended to consider environmental impacts in agency decision making and ensure public participation in the EIS process, which includes the identification and evaluation of project-specific issues. Public participation includes effective communication between all Federal, state, and local agencies, tribal governments, and other persons or organizations that may have an interest in the project. As part of the process, the public will be invited to attend public scoping workshops, and once the draft EIS is completed, review the document and participate in a public hearing.

Public scoping workshops are planned for Spring/Summer of 2011 to announce the commencement of the EIS process and to gather any initial concerns or issues the public might have with the project. Information provided at these meetings will include background information on the project and its purpose, the area of study, and the options being considered. The public will be given an opportunity to ask questions and make comments concerning the project and provide input on development of alternatives. Continued public involvement for the remainder of this project will be ensured through enactment of this PIMS.

Methods to reach the general public and interested stakeholders, in addition to the public meetings and public hearing, will include meeting announcements, press releases to local print and broadcast media, and a web site.

The U.S. Army will be the lead agency for this EIS. Other interested agencies and stakeholders may include:

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- Bureau of Land Management
- Arizona Department of Environmental Quality
- Arizona Game and Fish Department
- Arizona Department of Mines and Mineral Resources
- Arizona State Historic Preservation Officer
- Other Department of Defense entities
- Native American tribes
- Other interest groups such as: Arizona Desert Big Horn Sheep Society

4.0 Public Involvement Tools and Activities

Public involvement is a vital part of the EIS process: it provides the general public and stakeholders an opportunity to understand and comment on Federal projects that could affect them. There are many different methods used to involve the general public and stakeholders; however, every public involvement strategy must include a public scoping workshop, a public hearing, and public comment period, as well as public notices and press releases. The public involvement tools and activities for the YPG EIS process will include the following:

- Public Scoping Workshops (planned for June 14, 2011 at the YPG Desert Breeze Travel Camp Community Center Yuma Public Library and June 15, 2011 at the Yuma Public Library)
- A Public Hearing in October 2011
- Fact Sheets/Meeting Handouts
- Public Notices and Press Releases
- Mailing Lists
- Compliance with Executive Order 12898, Environmental Justice, and Executive Order 13045, Child Protection Requirements

4.1 Public Scoping Workshops

Public scoping meetings are scheduled for June 14, 2011 at YPG and June 15, 2011 at the Yuma Public Library to announce the commencement of the EIS process and to gather any initial concerns or issues the public might have with the project. The meeting will be conducted in a workshop format with a series of display stations available for the public to review and obtain information about the project. Information presented on these display boards will consist of background information on the project and its purpose, the area of study, and the options under consideration. All graphic displays and handouts will be reviewed by YPG prior to use.

A public notice will be mailed to interested stakeholders prior to the public scoping workshops. Notice of the public scoping workshops will be advertised in the Yuma Sun, Bajo El Sol, Desert Messenger, and the YPG Outpost. Press releases will be sent to local TV news Channels 11 and 13, and local radio stations as identified by YPG. At the scoping workshops, the public will be given an opportunity to ask questions and make comments concerning the project. A court reporter will be present to transcribe the meeting.

A draft and final meeting summary, submitted to the YPG, will be prepared, summarizing the results and comments received at the public scoping workshops. A

hard copy of the workshop transcripts will be included in the meeting summary. This meeting summary will be posted on the YPG EIS web site.

4.2 Agency and Tribal Scoping Meetings

Agency and tribal governmental scoping meetings will be scheduled to overlap with the public scoping meetings (i.e., during an afternoon prior to the public meeting) to provide an opportunity for interested agencies and Native American tribes to ask questions and provide feedback on the YPG EIS process. A draft and final meeting summary will be prepared. Additional scoping meetings or calls may be scheduled upon request of the interested parties.

4.3 Public Hearing

One public hearing will be held in winter 2011 in Yuma to address the Draft EIS. The format of the hearing will include a presentation of the purpose and need for the project; a short presentation on how an EIS is organized; a discussion of the alternatives evaluated under the EIS; and a discussion of the purpose of the public comment period. Various graphics, including maps and charts, will be displayed in the meeting area. All graphics and handouts will be reviewed by YPG prior to use.

YPG representatives will open the public hearing. The Project Manager and other key contractor personnel will present the proposed alternatives, the evaluation framework for the alternatives, and the possible environmental effects of the proposed alternatives. A summary of the Draft EIS will be presented. The general public and interested stakeholders will then be provided an opportunity to make oral comments on the proposed action.

A court reporter will record the meeting, and a draft and final summary of the public hearing will be prepared. The summary for the hearing will be posted on the EIS web site. A hard copy of the meeting summary, along with a copy of the court reporter's transcript, will be provided to the YPG.

A public notice will be mailed to interested stakeholders prior to the public hearing. A notice of the meeting will also be posted on the YPG EIS web site and in local newspapers.

4.4 Fact Sheets/Meeting Handouts

Public involvement tools will also include fact sheets and meeting handouts. Fact sheets to be produced will provide information on the YPG EIS activities and status. The fact sheets will be provided at the meetings and later posted to the YPG EIS web site. Additional meeting handouts will also be prepared for distribution and display at the public workshops and public hearing. Suggested presentation boards for the scoping meetings include:

- Welcome Board (Project Title/Project Proponent)
- Project Location
- What is an EIS?

- Purpose and Need
- NEPA Issues
- Project Schedule
- Recreation and Natural Resources
- Cultural Resources

4.5 Press Releases and Public Notices

Press releases and public notices serve to notify the public of the status of an EIS. Press releases for the YPG EIS will be distributed prior to the public scoping workshops, the Draft EIS filing, the public hearing, and the submittal of the Final EIS. A public notice will also be published prior to the public hearing. Press releases will be issued prior to the scheduled public scoping workshops and the public hearing. Each press release will include the date, location, and purpose of the scoping workshops and the hearing. All public meetings will be held either in the City of Yuma or at the YPG.

The press releases for the Draft and Final EIS will be issued concurrently with the filing of each document. The press release for the Draft EIS will include the Notice of Availability of the draft document as well as the date for the public hearing. The press release for the Final EIS will include the Notice of Availability for the final document.

The following list presents the total number of press releases and corresponding milestones:

Press Release #1	Public Scoping Meetings
Press Release #2/Public Notice	Filing of Draft EIS (Date of publication in Federal Register)
Press Release #3/Public Notice	Public Hearing
Press Release #4	Filing of Final EIS (Date of publication in Federal Register)

4.6 Mailing List

Interested stakeholders and the general public also participate in the EIS process through inclusion on the public mailing list. Those included on the mailing list will be environmental organizations, Yuma organizations, local agencies, state and Federal agencies, state legislative representatives, and Federal congressional representatives. Others to be included on the list will be news media and public libraries within the Yuma area and those individuals who commented during the scoping process and/or during the public workshops and hearing.

The mailing list will be used as a source for the distribution of Notices of Availability for the Draft and Final EIS as well as for the public meeting announcements, press releases, and other notices and communications to the public. The distribution list for the Draft and Final EIS will also indicate the format in which these documents will be provided electronically.

The mailing list will be edited and updated periodically (and prior to the release of the fact sheets) so that those individuals who commented at the scoping meeting, the public workshop, and public hearing will be included. The list will also be updated to include others who have expressed an interest in the project, as well as deleting those requesting removal from the list, changes in address, and undeliverable mail.

4.7 Internet Web Page

An internet web site will be used to increase communication with the general public and stakeholders. This has proven to be a very efficient means of providing information on public workshops and hearings and serves as another method for the general public to provide comments. Other information and materials, such as fact sheets and meeting handouts, can be promptly posted and updated on the web site.

The web site to be created for the Draft EIS will include a home page, information on the EIS process, status of the project, and updates on public involvement activities. The Draft EIS and other support documents will also be posted to the web site. This tool will also provide the means for the general public and stakeholders to respond to the various submittals during the YGP EIS process. Other information to be included on the web site will be meeting summaries, YPG EIS fact sheets/meeting handouts, Notices of Availability, the EIS bibliography, press releases, and the project schedule.

4.8 Executive Order 12898, Environmental Justice and Executive Order 13045, Child Protection Requirements

Another component of an EIS, as part of the public involvement plan, is ensuring that two executive orders, Executive Order 12898 and Executive Order 13045, are followed. Executive Order 12898 requires Federal agencies, to the greatest extent possible and permitted by law, to address environmental justice in minority and low-income populations, when Federal actions are involved. Executive Order 13045 was issued to protect children from environmental health and safety risks.

To ensure compliance with these executive orders, representatives of minority and children's groups will be contacted and asked to identify issues of potential interest. They will also be asked to identify other groups or individuals that should be included on the general public mailing list.

To comply with these executive orders, all public notices, documents, and meeting summaries will be concise, understandable, and readily accessible to the public. These executive orders for environmental justice and child protection requirements will be explained at the public scoping workshop and hearing and in the EIS fact sheets.

APPENDIX A

PIMS Schedule for the YPG EIS

Press Release/Public Notice sent prior to Public Scoping Workshops	
Public Scoping Workshop at YPG	June 14, 2011
Public Scoping Workshop at Yuma Public Library	June 15, 2011
Draft EIS to the Public	Fall 2011
Public Hearing	Winter 2011-12
FEIS Public Comment Period	Summer 2012
Record of Decision	Summer 2012

APPENDIX B

Public Involvement Documents

Appendix B will be compiled upon completion of the project. This appendix will include fact sheets/meeting handouts, press releases, public workshop and hearing notices, meeting summaries, and other items created for the project, as appropriate.

U.S. ARMY YUMA PROVING GROUND
NEWS RELEASE

FOR IMMEDIATE RELEASE

CONTACT: Chuck Wullenjohn
Public Affairs Office
Telephone: (928) 328-6189

Yuma, Arizona - The United States Army Garrison Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the Real Property Master Plan at the Yuma Proving Ground (YPG) northeast of Yuma, Arizona. The Notice of Intent (NOI) for the PEIS was published in the Federal Register on May 25, 2011.

The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. Renewable energy initiatives will be discussed in the PEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet the demand and space needed to meet mission requirements.

A public meeting will be held on YPG from 6:00 pm to 8:00 pm at Building 6, the Desert Breeze Travel Camp Community Center, located on the main administrative area off of Imperial Dam Road on Tuesday June 14, 2011. A second public meeting will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364 on Wednesday June 15, 2011 from 6:00 to 8:00 PM. Draft and final versions of the PEIS will be made available to the public for review and comment when completed. The scoping process officially begins with the publication of the NOI in the Federal Register. Public scoping comments will be solicited through June 30, 2011. YPG will also accept public input throughout the NEPA process. All interested parties are invited to attend the public meetings and to submit comments or questions by mail to Sergio Obregon, National Environmental Policy Act Coordinator, U.S. Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, or e-mail ypgnepa@conus.army.mil. By phone, contact Chuck Wullenjohn at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday.

EJERCITO DE LOS ESTADOS UNIDOS DE YUMA PROVING GROUND
COMUNICADO DE PRENSA

PARA DIFUSIÓN INMEDIATA

CONTACTO: Chuck Wullenjohn
Oficina de Asuntos Públicos
Teléfono: (928) 328-6189

El ejército de los Estados Unidos de Yuma Proving Grounds tiene la intención de preparar una Declaración de Programación de Impacto Ambiental (PEIS, por sus siglas en inglés) en conformidad con la sección 102(2)(c) de Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) para analizar los impactos ambientales como resultado de la implementación del Plan Maestro de Propiedad Real (RPMP, por sus siglas en inglés) en Yuma Proving Ground (YPG, por sus siglas en inglés) al noreste de Yuma, Arizona El Aviso de Intención (NOI por sus siglas en inglés) de la PEIS fue publicado en el Registro Federal el 25 de mayo de 2011.

El proyecto permitiría a YPG a mantener una instalación capaz de probar sistemas de vanguardia del terreno militar y sistemas de vehículos aéreos, armas, municiones, sensores y sistemas de orientación; para proporcionar una formación realista y permitir la flexibilidad necesaria para entrar en proyectos del ejército y del sector privado legalmente admisibles donde tales proyectos sean compatibles con la misión militar de YPG. Se discutirán iniciativas de energía renovable en la PEIS, pero un análisis de la NEPA específicos del proyecto será necesario antes a la implementación de las iniciativas de energía renovable específicas. YPG realizaría los proyectos de construcción y demolición (principalmente en las zonas de acantonamiento), continuará las pruebas existentes y actividades de capacitación y ampliará algunas pruebas de formación y actividades. No habría una expansión de YPG como resultado de la acción propuesta. La construcción nueva incluiría una variedad de instalaciones para satisfacer la demanda y el espacio necesario para cumplir con los requerimientos de la misión.

Se llevará a cabo una reunión pública en YPG de las 6:00pm a 8:00pm en el edificio 6, del Centro Comunitario Desert Brezee Travel Camp, ubicado en el área administrativa principal en la salida de la calle Imperial Dam Road, el martes 14 de junio de 2011. Se llevará a cabo una segunda reunión pública en la biblioteca pública de Yuma, ubicada en el 2951 South 21st , Yuma AZ, 85364 el miércoles 15 de junio de 2011 de las 6: 00pm a 8:00pm. Se pondrán a disposición del público versiones del borrador y finales de la PEIS para su revisión y comentario una vez finalizados. El proceso de exploración oficialmente comienza con la publicación de la NOI en el Registro Federal. Comentarios públicos serán solicitados hasta el 30 de junio de 2011. YPG también aceptará la opinión pública durante todo el proceso de NEPA. Todas las partes interesadas están invitadas a asistir a las reuniones públicas y a enviar comentarios o preguntas por correo a Sergio Obregon, Coordinador de la Ley Nacional de Política Ambiental a U.S Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, o por correo electrónico al ypgnepa@conus.army.mil. Por teléfono, llame a Chuck Wullenjohn al (928) 328-6189 de 6:30 AM a 5:00 PM, de lunes a jueves.

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 9:37 AM
To: 'news@kswt.com'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173
rprice2@ch2m.com

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 9:38 AM
To: 'news@kyma.com'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173
rprice2@ch2m.com

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 9:45 AM
To: 'kcfy@kcfyfm.com'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173
rprice2@ch2m.com

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 9:48 AM
To: 'kim.johnson@kawc.org'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Ms. Johnson,

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173
rprice2@ch2m.com

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 9:58 AM
To: 'todaysbestmusic@z93yuma.com'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173
rprice2@ch2m.com

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 10:01 AM
To: 'jeffharris@edbroadcasters.com'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Mr. Harris,

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173
rprice2@ch2m.com

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 10:10 AM
To: 'oldiesradio@kjokyuma.com'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173
rprice2@ch2m.com

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 10:39 AM
To: 'kyrm@lwrn.org'
Subject: Press Release
Attachments: YPG_Press_Release_Spanish_06-03-11.docx; YPG Press Release 6-3-11.docx

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 1:27 PM
To: '928-782-3874'
Subject: Press Release
Attachments: YPG_Press_Release_Spanish_06-03-11.docx; YPG Press Release 6-3-11.docx

Ms. Rosella Lopez,

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173

Price, Robert/ATL

From: Price, Robert/ATL
Sent: Friday, June 03, 2011 2:01 PM
To: '928-343-0218'
Subject: Press Release
Attachments: YPG Press Release 6-3-11.docx

Please see the attached press release for information on an upcoming project at United States Army Garrison Yuma Proving Ground. Two public meetings will be held in mid-June to provide an opportunity for comment.

Contacts for additional information on the project are included in the attachment.

Thank you.

Rob Price
Environmental Scientist
CH2M HILL
Northpark 400
1000 Abernathy Road, Suite 1600
Atlanta, Georgia 30328
Direct 678.530.4275
Fax 770.604.9183
Mobile 404.368.3173

Media Contact List

Newspapers
Bajo El Sol
Desert Messenger
Yuma Sun

Television Stations
KECY (Fox 9)
KSWT (CBS 13)
KYMA (NBC 11)

Radio Stations
KCFY (88.1 FM)
KAWC (88.9 FM/1320 AM)
KYRM (91.9 FM)
KLJZ (93.1 FM)
KTTI (95.1 FM)
KCEC (104.5 FM)
KQSR (100.9 FM)
KBLU (560 AM)
KJOK (1400 AM)

Mailing List											
Title	**First Name**	**Last Name**	**Job Title**	**Company**	**Address1**	**Address2**	**City**	**State**	**Postal Code**	**Email Address**	**Phone Number**
Ms.	Caroline	Antone	Cultural Resources Manager	Ak-Chin Indian Community	42507 W. Peters and Nall Road		Maricopa	Arizona	85239		
Ms.	Sandy	Bahr	Conservation Outreach Director	Sierra Club, Grand Canyon Chapter	202 East McDowell Road, Suite 277		Phoenix	Arizona	85004-4536		
Mr.	Scott	Bernhart	Director, Community Development	La Paz County	1112 Joshua, Suite 202		Parker	Arizona	85344		
Mr.	Bryan	Bowker	Regional Director	Bureau of Indian Affairs - Western Regional Office	2600 N. Central Avenue #400		Phoenix	Arizona	85365		
Ms.	Carol	Brooks	Curator	Arizona Historical Society	240 S. Madison Avenue		Yuma	Arizona	85364		
Ms.	Sheryl	Christenson	District Supervisor	Laguna NRCD, Yuma NRCD	2197 S 4th Ave, Suite104		Yuma	Arizona	85364		
Mr.	Pete	Cimellaro	President	Arizona Deer Association	P.O. Box 21868		Mesa	Arizona	85277		
Ms.	Sherry	Cordova	Chairwoman	Cocopah Indian Tribe	County 15th and Avenue G		Somerton	Arizona	85350		
Mr.	Dave	Daniels	Planning & Environmental Coordinator	Bureau of Land Management, Yuma District Office	2555 East Gila Ridge Road		Yuma	Arizona	85364		
Mr.	Henry	Darwin	Director	Arizona Department of Environmental Quality, Air Quality Division	1110 West Washington Street		Phoenix	Arizona	85365		
Ms.	Rebecca	Davidson	Project Evaluation Program Supervisor, Habitat Program	Arizona Game and Fish Department	5000 W. Carefree Highway		Phoenix	Arizona	85004-3008		
Mr.	Mitch	Ellis	Complex Manager	Southwest Arizona National Wildlife Refuge Complex	9300 E. 28th St.		Yuma	Arizona	85007		
Mr.	Eldred	Enas	Chairman	Colorado River Indian Tribes	26600 Mohave Road		Parker	Arizona	85344		
Ms.	Julie	Engel	President/CEO	Greater Yuma Economic Deve	899 Plaza Circle Drive	Suite 2	Yuma	AZ	85364		
Ms.	Diane	Enos	Chairwoman	Salt River Pima-Maricopa Indian Community	10005 East Osborn Road		Scottsdale	Arizona	85256		
Mr.	Ronald	Escobar	Secretary Treasurer	Chemehuevi Indian Tribe	P.O. Box 1976		Havasu Lake	California	92363		
Ms.	Charlene	Fernandez	Community Representative	Congressman Raul M. Grijalva – AZD07	201 Bingham Avenue	Suite 2	Somerton	AZ	85350	Charlene.Fernandez@mail.house.gov	928-343-7933
Mr.	Don	Foltz	Chairman	Yuma Chamber of Commerce Miltary Affairs Committee	180 W 1st Street	Suite A	Yuma	AZ	85364		
Ms.	Maria	Gonzalez	Environmental Compliance Inspector	Yuma County	198 S. Main Street		Yuma	AZ	85364	maria.gonzalez@yumacounty.az.gov	928-817-5139
Ms.	Vernelda	Grant	Director, Historic Preservation Office	San Carlos Apache Tribe	P.O. Box O		San Carlos	Arizona	85550		
Mr.	Richard	Hays	Supervising Border Patrol Agent	U.S. Border Patrol	4035 South Avenue A		Yuma	Arizona	85007		
Ms.	Susanna	Henry	Refuge Manager	Kofa National Wildlife Refuge	Southwest Arizona National Wildlife Refuge Complex	9300 E. 28th St.	Yuma	Arizona	94105-3901		
Ms.	Irene	Herder	Superintendent	Bureau of Indian Affairs - Western Regional Office	2600 N. Central Avenue #400		Phoenix	Arizona	85365		
Ms.	Elvie R.	Hoag	Chief, Environmental Branch	ACC PMS/CEV	11817 Canon Blvd., Suite 306		Newport News	Virginia	85004-3008		
Ms.	Cynthia	Hoeft	Director of Resource Management Office	Bureau of Land Management, Yuma District Office	2555 East Gila Ridge Road		Yuma	Arizona	85364		
Mr.	Mike	Jackson, Sr.	President	Quechan Indian Tribe	P.O. Box 1899		Yuma	Arizona	85366		
Ms.	Elaine	Johnson	Refuge Manager	Imperial National Wildlife Refuge	P.O.Box 72217	12812 N. Wildlife Way	Yuma	Arizona	85007		

Congressman	Russ	Jones	House of Representatives		1700 W. Washington	Room 345	Phoenix	AZ	85007	rjones@azleg.gov	602-926-3002
Mr.	Ernest	Jones, Sr.	President	Yavapai-Prescott Tribe	530 East Merritt Street		Prescott	Arizona	86301		
Honorable	Alan	Krieger	Mayor	City of Yuma	One City Plaza		Yuma	AZ	85366	Mayors invite must got out through Col. Payne's Office. Alan.Krieger@YumaAz.gov	928-373-5002
Mr.	Leigh	Kuwanwisiwma	Director, Hopi Cultural Preservation Office	Hopi Tribe	P.O. Box 123		Kykotsmovi	Arizona	86039		
Mr.	David	Kwail	Chairman	Yavapai-Apache Nation	2400 W. Datsi Road		Camp Verde	Arizona	86322		
Ms.	Cheryl	Lambert	District Conservationist	NRCS Yuma Service Center	2197 S 4TH AVE, STE 104		Yuma	Arizona	85364		
Mr.	Barnaby V.	Lewis	Tribal Historic Preservation Officer	Gila River Indian Community Council	P.O. Box 2140		Sacaton	Arizona	85247		
Ms.	Laurie	Lineberry	Assistant Director of Community Development	City of Yuma	P.O. Box 13013		Yuma	Arizona	85366-3013		
Mr.	Bill	Luffy	President	Arizona Desert Bighorn Sheep Society	P.O. Box 21705		Mesa	Arizona	85277		
Mr.	Louis J.	Manuel, Jr.	Chairman	Ak-Chin Indian Community Council	42507 W. Peters and Nall Road		Maricopa	Arizona	85239		
Honorable	John	McCain	United States Senate		2201 East Camelback Road	Suite 115	Phoenix	AZ	85016	No Public Email Available	602-952-2410
Ms.	Jill	McCormick	Cultural Resources Manager	Cocopah Indian Tribe	County 15th and Avenue G		Somerton	Arizona	85350		
Mr.	James	McGinnis	Supervisor, Special Investigations	Arizona Department of Agriculture, Native Plant Program	1688 West Adams		Phoenix	Arizona	85365		
Ms.	Colleen	McVey		La Paz County Community Development	1112 Joshua Avenue	Suite 202	Parker	AZ	85344	cmcvey@co.la-paz.az.us	928-669-6138
Ms.	Bridget	Nash-Chrabascz	Quechan Historic Preservation Officer	Quechan Indian Tribe	P.O. Box 1899		Yuma	Arizona	85366		
Mr.	Wayne	Nastri	Regional Administrator (ORA-1)	U.S. Environmental Protection Agency, Region IX	75 Hawthorne Street		San Francisco	California	85021		
Mr.	Ned	Norris, Jr.	Chairman	Tohono O'Odham Nation	P.O. Box 837		Sells	Arizona	86534		
Ms.	Linda	Ogo	Culture Research Department Director	Yavapai-Prescott Tribe	530 East Merritt Street		Prescott	Arizona	86301		
Ms.	Delfina C.	Olivarez	Project Manager, Federal Project Unit	Arizona Department of Environmental Quality	1110 West Washington Street		Phoenix	Arizona	85007		
Ms.	Linda	Otero	Director, AhaMaKav Cultural Society	Fort Mojave Indian Tribe	P.O. Box 5990		Mohave Valley	Arizona	86440		
Congresswoman	Lynne	Pancrazi	House of Representatives		1700 W. Washington	Room 324	Phoenix	AZ	85007	lpancrazi@azleg.gov	602-926-3004
Dr.	Clinton M.	Pattea	President	Fort McDowell Yavapai Nation	P.O. Box 17779		Fountain Hills	Arizona	85268		
Mr.	Robert	Pickles	Yuma County Administrator	Yuma County	198 S. Main Street		Yuma	AZ	85364		
Ms.	Delores	Plunkett	Director, Cultural Department	Yavapai-Apache Nation	2400 W. Datsi Road		Camp Verde	Arizona	86322		
Mr.	Terry	Rambler	Chairman	San Carlos Apache Tribe	P.O. Box O		San Carlos	Arizona	85550		
Mr.	Edward	Ranger	Administrative Counsel	Arizona Department of Environmental Quality	1110 West Washington Street		Phoenix	Arizona	85086-5000		
Ms.	Patricia	Rather	President	Audubon Society	P.O. Box 6395		Yuma	Arizona	85366		

Ms.	Karen	Ray	Language/Cultural Coordinator	Fort McDowell Yavapai Nation Community	P.O. Box 17779		Fountain Hills	Arizona	85268		
Mr.	Elliott George	Ray	Colorado River Indian Tribes Museum	Colorado River Indian Tribes	26600 Mohave Road		Parker	Arizona	85344		
Mr.	William R.	Rhodes	Governor	Gila River Indian Community Council	P.O. Box 2140		Sacaton	Arizona	85247		
Mr.	Dave	Rodriguez	Director	Environmental Department MCAS	Box 99110		Yuma	Arizona	85365		
Mr.	Ken	Rosevear	Executive Director	Yuma County Chamber of Commerce	180 W 1st Street	Suite A	Yuma	AZ	85364		
Mr.	David	Sharpe	Chairman	Wellton-Mohawk Natural Resources Conservation District	c/o Natural Resources Conservation Service	5578 South Avenue 37E	Roll	Arizona	85347		
Mr.	LeRoy N.	Shingoitewa	Chairman	Hopi Tribe	P.O. Box 123		Kykotsmovi	Arizona	86039		
Honorable	Don	Shooter	United States Senate		1700 W. Washington	Room 304	Phoenix	AZ	85007	dshooter@azleg.gov	602-926-4139
Mr.	Troy	Smith	Habitat Program Manager	Arizona Game and Fish Department	9140 East 28th Street		Yuma	Arizona	85365		
Mr.	Troy	Smith		AZ Game and Fish Departmen	9140 E 28th Street		Yuma	Arizona	85365		
Mr.	Steven L.	Spangle	Arizona Ecological Services Field Office	U.S. Fish and Wildlife Service	2322 West Royal Palm Road, Suite 103		Phoenix	Arizona	85364		
Mr.	Monty	Stansbury	Planning Director	Yuma County Development Services	2703 South Avenue B		Yuma	Arizona	85364		
Mr.	Peter	Steere	Tribal Historic Preservation Officer	Tohono O'Odham Nation	P.O. Box 837		Sells	Arizona	86534		
Ms.	Lisa	Swick	Acting Director, Colorado River Indian Tribes Museum	Colorado River Indian Tribes	26600 Mohave Road		Parker	Arizona	85344		
Mr.	Christopher	Wallis	Director of Resource Management Office	U.S. Bureau of Reclamation, Yuma Area Office	7301 Calle Aqua Salada		Yuma	Arizona	85365-3596		
Mr.	Kelly	Washington	Cultural Resources Department Director	Salt River Pima-Maricopa Indian Community	10005 East Osborn Road		Scottsdale	Arizona	85256		
Mr.	Timothy	Williams	Chairman	Fort Mojave Tribal Council	500 Merriman Avenue		Needles	Californi	92363		
Mr.	Jason	Williams	Regional Director	Arizona Wilderness Coalition	P.O. Box 2741		Prescott	Arizona	86302		
Mr.	Charles	Wood	Chairman	Chemehuevi Indian Tribe	P.O. Box 1976		Havasu Lake	Californi a	92363		

SIGN-IN SHEET
(PLEASE PRINT)

June 14, 2011
YUMA PROVING GROUND
AGENCY SCOPING MEETING

Name	Agency	Address Include City and Zip Code	Phone #	Email Address
Sheryl Christenson	Laguna NRCD	21975 4th Ave. suite 104	928 317-1935	sheryl.christensen@az.nacdnet.ine
Elliott George Ray	CRIT Museum	1007 A2 Ave	928-669-8970	CRIT.MUSEUM@Yahoo

SIGN-IN SHEET
(PLEASE PRINT)

June 14, 2011
YUMA PROVING GROUND
AGENCY SCOPING MEETING

Name	Agency	Address Include City and Zip Code	Phone #	Email Address
Kim Maloney		10709 E 34th Pl Yuma AZ	328-3771	Kmaloney@kmec-llc.com
Troy Smith	AGFD	9140 E 28th St, Yuma, AZ	928-341-4068	trsmith@azgfd.gov
Chuck Harper	YPG-PEO		928-328-2635	Charles.G.Harper@us.army.mil

SIGN-IN SHEET
(PLEASE PRINT)

June 14, 2011
YUMA PROVING GROUND
AGENCY SCOPING MEETING

Name	Agency	Address Include City and Zip Code	Phone #	Email Address
Lesley Walther	Zia Engineering	2575 W. 24th St Apt. 134	(716 928) 2630	Walther.lesley@gmail.com
Lisa Swick	CRIT	10017 AZ Ave	(928)6698790	CRIT.museum@yahoo.com

SIGN-IN SHEET
(PLEASE PRINT)

June 14, 2011
YUMA PROVING GROUND
PUBLIC SCOPING MEETING

Name	Address Include City and Zip Code	Phone #	Email Address	Add to Mail List (Y/N)
HATCH, CHRIS	972 Halo St, YPG, Yuma, AZ 85365	328-6650	christopher.f.hatch@us.army.mil	

SIGN-IN SHEET
(PLEASE PRINT)

June 15, 2011
YUMA PROVING GROUND
PUBLIC SCOPING MEETING

Name	Address Include City and Zip Code	Phone #	Email Address	Add to Mail List (Y/N)
Charles Rueruf	1129 Branson Ave Yuma, Az 85364	928 750 3649	Charles.rueruf@us.army.mil	yes
Noah Cullis	One City Plaza City of Yuma, AZ	928 373-5000 x3036	Noah.Cullis@YumaAz.gov	Yes.
Bill Knowles	9140 E 25th St Yuma AZ 85365	520-341-7647	bknowles@azgfd.gov	yes
JOSEPH BARNETT	12435 E PATRICIA DR. YUMA, AZ 85367	928-783-3371	joseph_barnett@fws.gov	YES

Welcome to the Yuma Proving Ground

OPEN HOUSE

Scoping Meeting

Please sign in and take your time to view the informational exhibits.
Staff (with name tags) are available to answer your questions.

We appreciate your valuable time spent with us this evening.
YOUR OPINIONS ARE IMPORTANT.
Please complete a comment card before you leave to help guide the direction of this proposed project.

For more information or to express your opinions on this project, please contact:
Sergio Obregon
National Environmental Policy Act Coordinator
U.S. Army Garrison Yuma Proving Ground
IMWE-YMA-PWE
301 C Street, Yuma, Arizona 85365-9498
email:ypgnepa@conus.army.mil
By phone contact **Chuck Wullenjohn** at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday.

What is an Environmental Impact Statement (EIS)?

*The **National Environmental Policy Act** requires federal agencies to prepare an **EIS** to assess the environmental impacts of federal actions that could significantly affect the human environment.**

***The human environment includes…** Land, Air, Water, Living Organisms, and Cultural Resources.*

NEPA requires federal agencies to consider the social and environmental impacts of federal projects. It also requires that the public be allowed to participate in the decision making process.

NEPA allows for multiple level of analysis with an EIS being the most detailed. One of the initial steps in an EIS is to conduct Scoping Meetings.

*An EIS document describes the effects from the proposed federal action as well as those from alternative actions that were considered. It also presents information on mitigation to reduce any impacts.**

** **An Impact is…** A change or consequence that results from an activity, it can be positive, negative or both. It may be mitigated to lessen or remove the impact.*

What is a Scoping Meeting?

Scoping Meetings provide the opportunity for the public and other government agencies to gather information and provide formal oral or written comments on-the-record. Comments received during the scoping meeting will be included in the official public record along with an official response to each comment.

How Do I Submit Comments?

Comments can be provided in person to the court reporter or in writing via the comment forms provided at this meeting. During the initial scoping period which ends on June 30, 2011, additional comments can be submitted via mail or email to:

Comments can be submitted to:
Sergio Obregon
National Environmental Policy Act Coordinator
U.S. Army Garrison Yuma Proving Ground
IMWE-YMA-PWE
301 C Street, Yuma, Arizona 85365-9498
email:ypgnepa@conus.army.mil

What is the Next Step?

After the scoping period, YPG will consider the public and agency input and prepare the Preliminary Draft PDEIS. Additional opportunities for public involvement will occur during the formal public review period for the Draft PDEIS. This public review period will last 30 days and will include a public hearing for additional public comment. The Final EIS and all comments and responses on the Draft EIS will be made available to the public.

What will this PDPEIS address?

WHAT will this PDPEIS Address?

This Preliminary Draft Programmatic Environmental Impact Statement (PDPEIS) will address implementation of the Real Property Master Plan, which includes:

- Construction and demolition of facilities and infrastructure
- Changes to testing and training activities
- Changes to testing and training areas

The PDPEIS addresses two types of actions:

- Short-term, well-defined actions that would be implemented without additional NEPA analysis once a decision is made
- Long-term, less well-defined actions that would occur later in time and would receive additional site-specific NEPA analysis prior to project implementation

Why is this a Programmatic EIS?

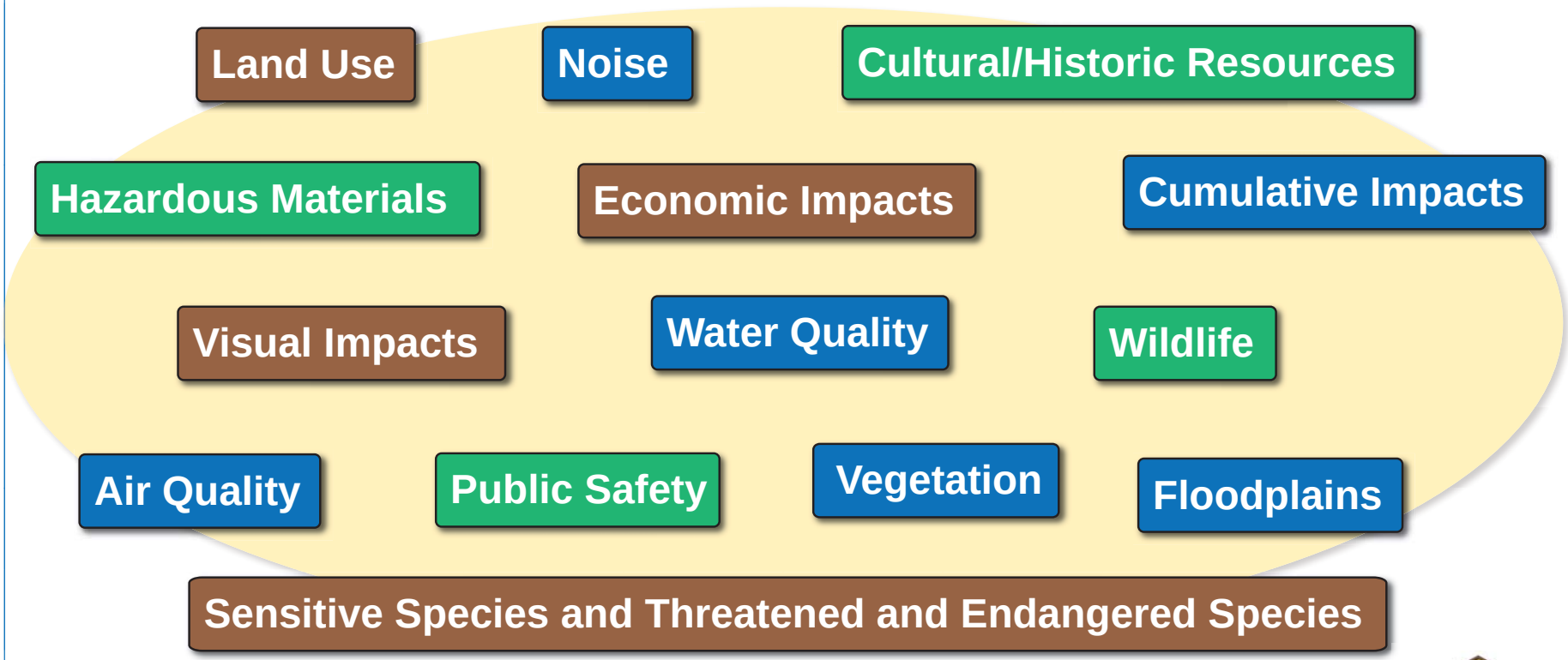
This is a programmatic EIS because some activities are evaluated broadly and will require additional focused NEPA analysis prior to implementation.

The broad analysis in this document will form the basis for Subsequent NEPA analysis through a process called tiering.

NEPA and Social, Economic, and Environmental Issues

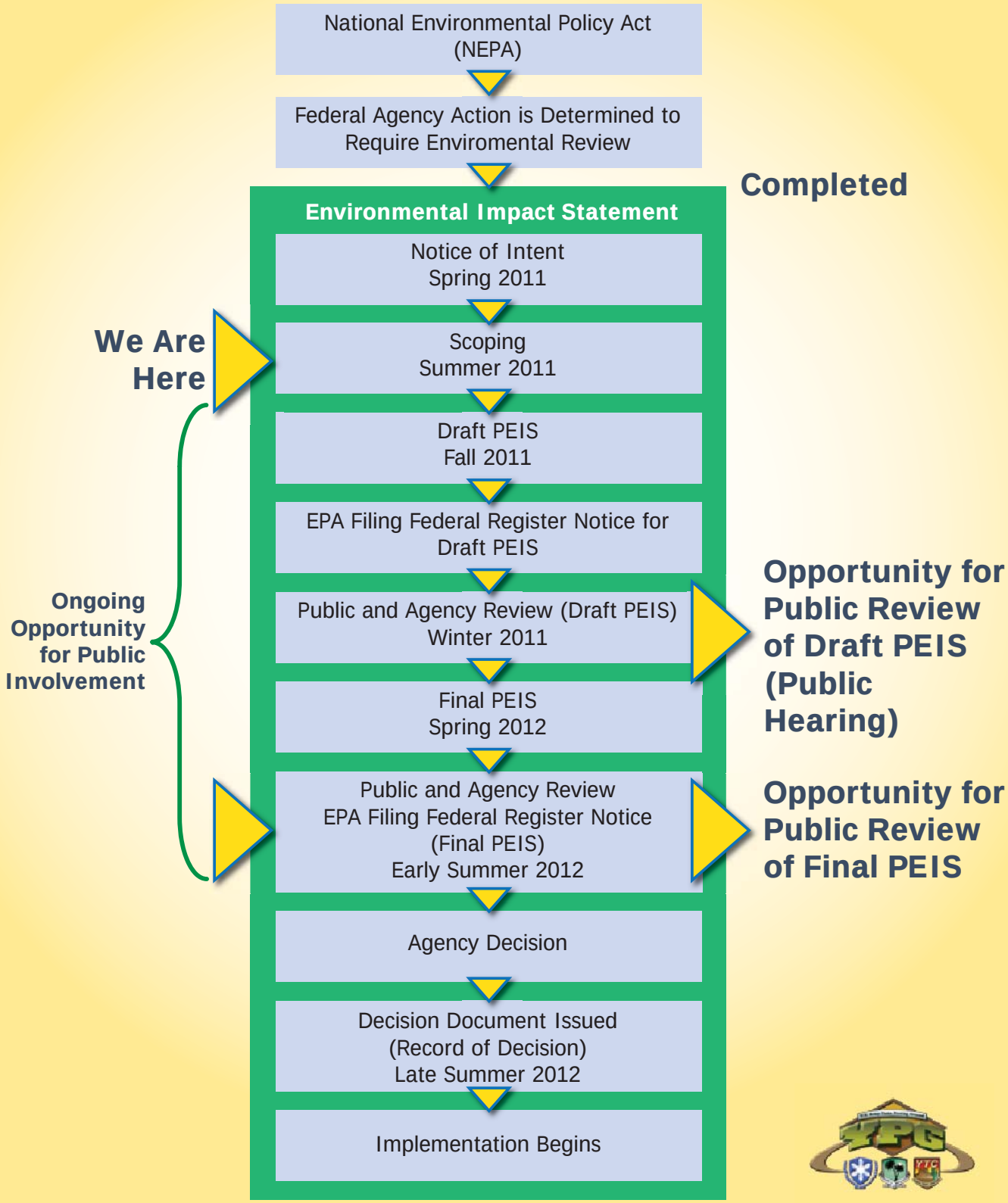
Because this is a federal action, the Yuma Proving Ground Programmatic EIS will consider the potential impacts of considered alternatives. YPG will avoid, minimize, and mitigate potential adverse impacts to the extent practicable.

Typical resource areas evaluated include:



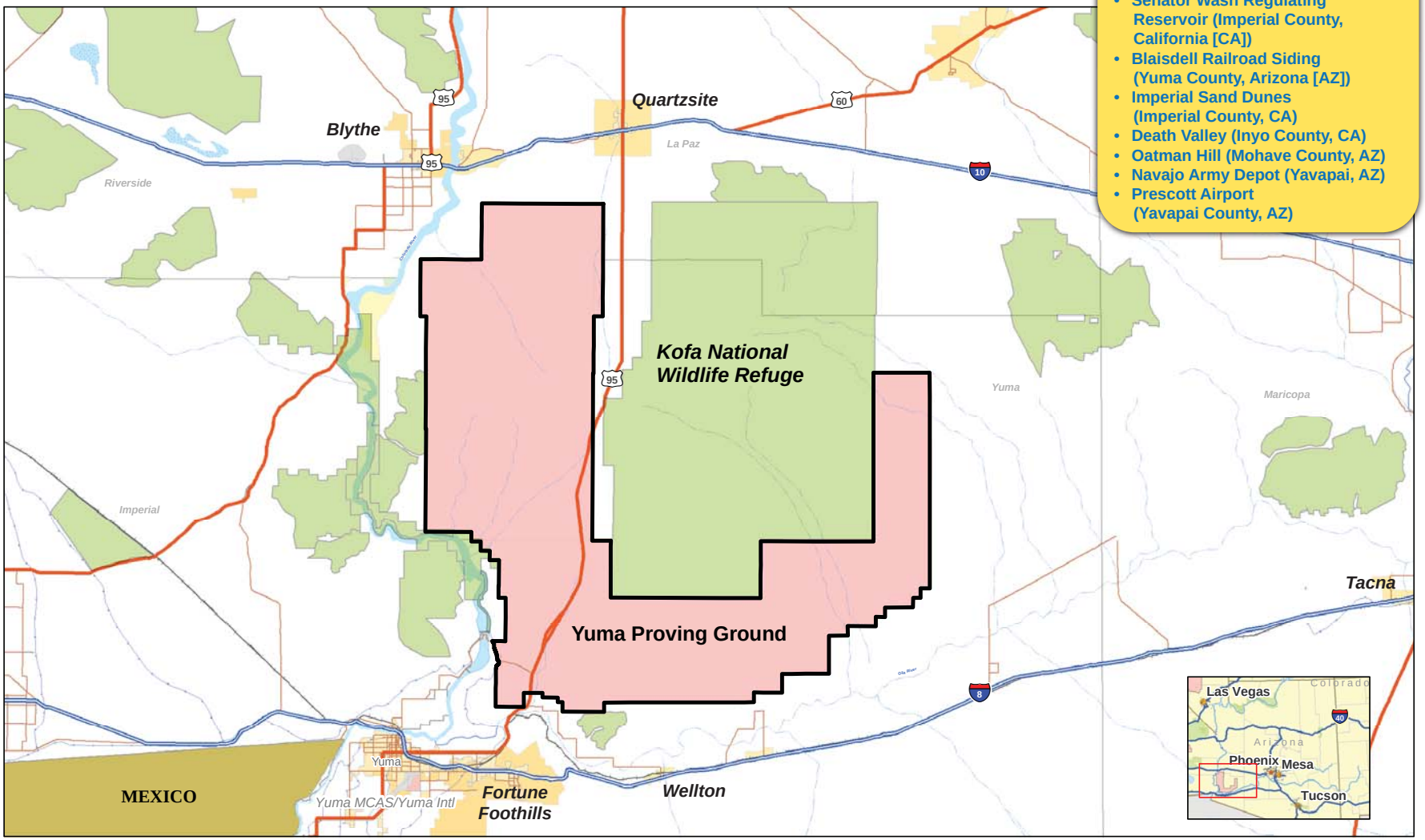
Schedule and Opportunities for Public Comment
NEPA Process

Federal Environmental Review Process



Project Location

For Planning Purposes Only



Off-post locations not included in this Programmatic EIS

- Senator Wash Regulating Reservoir (Imperial County, California [CA])
- Blaisdell Railroad Siding (Yuma County, Arizona [AZ])
- Imperial Sand Dunes (Imperial County, CA)
- Death Valley (Inyo County, CA)
- Oatman Hill (Mohave County, AZ)
- Navajo Army Depot (Yavapai, AZ)
- Prescott Airport (Yavapai County, AZ)

Limited Access Highway
Highway
Major Road
Federal Conservation Area
Range Area

N

0 10 20 Miles

Proposed Action

Activities Under Consideration

Under the Proposed Action, YPG will continue to operate as multipurpose installation that serves a broad customer base. Activities anticipated at YPG include:

1. New Construction and Demolition of Facilities and Infrastructure
    - Buildings
    - Runways/Helipads
    - Utilities

2. Modified/Increased Testing
    - New sensors and systems
    - Increased range and power of weapons
    - Improvements in vehicle systems
    - Combat vehicles

3. Modified/Increased Training

4. Weapons Firing/Impact Areas
    - Small Arms/Inert
    - High Explosive
    - Gun Positions



Purpose and Need

Purpose of the Proposed Action

The purpose of the Proposed Action is to enable YPG to continue to meet its military mission by providing adequate facilities and infrastructure for:

- testing military ground and aerial vehicle systems
- testing weapons, ammunition, sensors, and guidance systems
- provide realistic military training
- provide for private industry partnerships





Need for the Proposed Action

The Proposed Action would ensure the readiness of U.S. forces and materiel to meet the demands of hot arid environment theaters around the world. The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into Army/private industry projects.

Natural Resources















Bienvenido a la reunión de exploración del ejército de los Estados Unidos de *Yuma Proving Ground* para la Declaración de Impacto Ambiental Programático

El ejército agradece su asistencia y sus opiniones. Por favor repase los carteles en secuencia y discuta sus preguntas e interés con los miembros del proyecto. Comentarios de ámbito público serán solicitados hasta el 30 de junio de 2011 y pueden entregarse con el taquígrafo de la corte (reportero de la corte) en la estación final. El ejército también aceptará la opinión del público durante todo el desarrollo de la Declaración de Impacto Ambiental Programático (PEIS, por sus siglas en inglés).

Estación # 1 proporciona el formato de la reunión y registración.
Esta hoja de datos pretende ofrecerle a usted un entendimiento de lo que se propone en *Yuma Proving Ground* (YPG), el porqué su opinión es importante, y cómo guiarse en esta reunión de ámbito público.

Estación # 2 proporciona una visión general del proyecto.
El objetivo de la Acción Propuesta es que YPG siga cumpliendo con su misión militar proporcionando instalaciones adecuadas e infraestructura para probar sistemas y material militar, proporcionar entrenamiento militar realista y prever asociaciones con la industria privada.

Para que YPG continúe preparando a las fuerzas estadounidenses y material que cumpla con las demandas en ambientes áridos y calientes alrededor del mundo, se propone lo siguiente:

- Demolición de estructuras obsoletas
- Construcción de instalaciones e infraestructura
- Modificar o aumentar las pruebas
- Modificar o aumentar el entrenamiento
- Ubicaciones nuevas de disparo de armas
- Expansión de áreas de impacto de municiones

Estación # 3 proporciona información sobre la NEPA y EIS.
El proceso de exploración oficialmente solicita su opinión a las partes interesadas en las actividades previstas. La Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) requiere que las agencias preparen una Declaración de Impacto Ambiental (EIS, por sus siglas en inglés) para evaluar los impactos ambientales de las acciones federales que podrían afectar significativamente el medio ambiente humano. Para YPG, el ejército preparará un EIS programático (PEIS en lugar de un EIS estándar) porque algunas actividades requerirán un análisis más centrado en la NEPA antes de su implementación. Planteará la construcción, demolición, decisiones a corto plazo, las decisiones a largo plazo y cambios a las pruebas y actividades de entrenamiento. Versiones borrador y finales del PEIS estarán disponibles al público para su revisión antes de tomar una decisión.

Estación # 4 se centra en cuestiones de recursos.
El ejército está buscando información sobre cuestiones tales como los recursos culturales, energía y utilidades, residuos peligrosos y materiales peligrosos, uso de la tierra, ruido, seguridad, terreno, vegetación, recursos visuales, vida silvestre y especies en amenaza y peligro de extinción. Otras cuestiones adicionales se incluyen en esta estación.

Estación # 5 proporciona un reportero de la corte para anotar sus comentarios verbales.
Esperamos que esta reunión ayude a aclarar sus preguntas e intereses que le gustaría ver resueltos en el análisis ambiental. Por favor proporcione sus comentarios al reportero de la corte. También puede enviar sus comentarios por escrito por medio de correo o por correo electrónico a:

Sergio Obregon
Coordinador de la Ley Nacional de Política Ambiental
U.S. Army Garrison Yuma Proving Ground
IMWE-YMA-PWE
301 C Street
Yuma, AZ 85365-9498
Correo electrónico: ypgnepa@conus.army.mil

Todos los comentarios que sean recibidos con fecha hasta el día 30 de junio de 2011 recibirán una respuesta en el borrador del PEIS. Para preguntas generales sobre el proyecto, por favor llame a **Sergio Obregon** al (928) 328-2015 de 6:30 AM a 5:00 P.M., del lunes a jueves.

ES120610064056SCO364516.01.02.01 YPG_Factsheet_spanish.ai 6/11

Welcome to the U.S. Army Yuma Proving Ground

Public Scoping Meeting for the Programmatic Environmental Impact Statement

The Army appreciates your attendance and welcomes your input. Please review the posters in sequence and discuss your questions and concerns with project team members. Public scoping comments will be solicited through June 30, 2011 and can be submitted at this meeting through the court reporter at the final station. The Army will also accept public input throughout the development of the PEIS.

Station #1 provides the meeting format and sign-in.
This fact sheet is intended to provide you with an understanding of what is being proposed at YPG, why your input is important, and how to navigate this open house-style public scoping meeting.

Station #2 provides a project overview.
The purpose of the Proposed Action is to enable Yuma Proving Ground (YPG) to continue to meet its military mission by providing adequate facilities and infrastructure to test military materiels and systems, provide realistic military training, and provide for private industry partnerships.

In order for YPG to continue to ready U.S. forces and materiel to meet the demands of hot arid environment theaters around the world, the following is being proposed:

- Demolition of obsolete structures
- Construction of facilities and Infrastructure
- Modified or Increased Testing
- Modified or Increased Training
- New Weapons firing locations
- Expanded Munitions Impact Areas

Station #3 provides NEPA and EIS information.
The scoping process officially seeks input from stakeholders on the intended activities. The National Environmental Policy Act requires agencies to prepare an Environmental Impact Statement (EIS) to assess the environmental impacts of federal actions that could significantly affect the human environment. For YPG, the Army will prepare a programmatic EIS (PEIS rather than a standard EIS) because some activities will require additional focused NEPA analysis prior to implementation. It will address construction, demolition, short-term decisions, long-term decisions, and changes to testing and training activities. Draft and final versions of the PEIS will be made available to the public for review before a decision is made.

Station #4 focuses on resource issues.
The Army is seeking input on issues such as cultural resources, energy/utilities, hazardous materials/hazardous waste, land use, noise, safety, soils, vegetation, visual resources, wildlife, and sensitive species. Additional issues are included at Station #4.

Station #5 provides a court reporter to record your verbal comments. We hope this meeting helps to clarify your questions and concerns that you would like to see addressed in the environmental analysis. Please provide your comments to the court reporter. Or you may submit written comments by mail or email to:

Sergio Obregon
National Environmental Policy Act Coordinator
U.S. Army Garrison Yuma Proving Ground,
IMWE-YMA-PWE
301 C Street
Yuma, AZ 85365-9498
email: ypgnepa@conus.army.mil

All comments received by June 30, 2011 will receive a response in the Draft PEIS. For general questions about the project, please contact **Chuck Wullenjohn** at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday.

ES120610064056SCO364516.01.02.01 YPG_Factsheet.ai 6/11

AFFIDAVIT OF COURT REPORTER

In the matter of:

UNITED STATES ARMY GARRISON YUMA PROVING GROUND PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT RESULTING FROM IMPLEMENTATION OF THE REAL PROPERTY MASTER PLAN AT YUMA PROVING GROUND NORTHEAST OF YUMA, ARIZONA.

STATE OF ARIZONA)
) ss.
COUNTY OF YUMA)

I, MICHELE E. BALMER, Certified Reporter No. 50489 for the State of Arizona, do hereby certify:

1. That on June 14, 2011, from 6:00 p.m. to 8:00 p.m., I was present at the public meeting held at the YPG Desert Breeze Travel Camp Community Center, Yuma, Arizona, and that no public comment was received;

2. That on June 15, 2011, from 6:00 p.m. to 8:00 p.m., I was present at the public meeting held at the Yuma Main Library, 2951 South 21st Drive, Yuma, Arizona, and that no public comment was received;

DATED at Yuma, Arizona this 17th day of June, 2011.

Michèle E. Balmer

MICHELE E. BALMER
Arizona Certified
Reporter No. 50489

YUMA COURT REPORTERS, LLC
220 South Second Avenue
Yuma, Arizona 85364
(928) 782-7591
yumacourtreporters.com

Scoping Report

Introduction

A Programmatic Environmental Impact Statement (PEIS) is being prepared by the U.S. Army Garrison Yuma Proving Ground (YPG), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the Real Property Master Plan (RPMP) at the U.S. Army Yuma Proving Ground (YPG) northeast of Yuma, Arizona.

Scoping meetings were conducted to allow stakeholders and the public to identify significant concerns or issues they have with the Proposed Actions described in the PEIS or to suggest other alternatives to the Proposed Action which should be considered. This report includes a synopsis of the scoping meetings, a listing of the concerns and issues that were raised, an evaluation of those issues, and recommendations for addressing those concerns and issues.

Meeting Synopsis

Four meetings were held as part of the scoping process. The project was presented to potentially interested tribal governments on June 8 as part of a larger tribal meeting at YPG. A scoping meeting was held at 3:00PM at YPG on June 14 for the state and federal agencies and local governmental entities with potential interest in the EIS process. The Arizona Fish and Game Department (FGD) and the Laguna Natural Resource Conservation District (NRCD) also attended the meeting, as well as representatives of the Colorado River Indian Tribe. Two public meetings were held for citizens on June 14 and June 15. Both meetings took place from 6:00-8:00PM. One meeting was conducted on YPG and was open to the public, and one was held at the Yuma public library. Representatives from the US Fish and Wildlife Service (USFWS), FGD, and City of Yuma who were unable to attend the June 14 meeting attended the June 15 meeting.

Notifications for the agency meeting were sent via two letters to individual agencies, political representatives, and tribal governments. Notifications to the public occurred via a Notice of Intent published on May 25, 2011, in the Federal Register, a press release in both English and Spanish, and a Public Notice advertisement published in local news publications, including the Yuma Sun Newspaper, Bajo El Sol (Spanish language newspaper), Quartzite Desert Messenger, and the Outpost (YPG base publication). A press release was also distributed to area radio and television outlets.

Summary

Several issues were raised by stakeholders who attended the scoping meetings. At the agency scoping meeting at YPG on June 14 Troy Smith, of the Arizona FGD, mentioned several issues his agency typically considers with projects. These include:

- Public access to hunting areas, or changes to hunting seasons
- Impacts to sensitive habitats such as desert washes, mesquite bosques, dunes, mountains, or big horn sheep habitat
- Cumulative impacts that would occur on a large scale to wildlife over the next 20 years
- Interruptions to the survey periods of sheep and mule deer
- Any activities that might occur in waters used by wildlife
- Any activities that might impact or break linkages of habitat (such as roads)
- Activities that may spread invasive species

- Activities that would impact the ability of the Bureau of Land Management (BLM) to manage wild horses or burros

Once the Draft EIS is prepared, Arizona FGD would like the opportunity to review the document.

It was noted that BLM is currently managing an experimental population of Sonoran pronghorn which will eventually be released in the YPG vicinity.

Sheryl Christenson, from the Laguna NRCD, indicated several concerns on behalf of her organization. She expressed interest in any construction projects, including utility lines, which may impact farmland adjacent to YPG, minimization of PM-10 for air quality considerations, and dust control measures.

Elliott George Ray, a representative from the CRIT Museum at the Colorado River Indian Tribe, indicated that they would like to review the materials and provide written comments if they identified any concerns.

It was suggested by attendees that the following be included on stakeholder lists for the project going forward:

- The Welton Mohawk Irrigation and Drainage District
- The Barry Goldwater Range NRCD
- Nearby wildlife refuges
- Winter visitors who frequent the Quartzite area
- The local Yuma Valley Rod and Gun Club

In addition to the cumulative impacts concerns raised by Arizona FGD, several other projects were discussed which stakeholders attending the meeting thought should be considered for cumulative impacts. They include:

- Proposed solar plants at White Wing Ranch near Palomas Mountains and The Quartzite Solar Project (10 miles north of Quartzite). A draft EIS has recently been published for the project near Quartzite.
- Proposed 500 kV transmission line planned for 2014, to be constructed by APS
- Widening project for Highway 95, which has been taken off the 5-year short-term plan and has been postponed to a 2015-2016 at the earliest but will include a bridge over Fortuna Wash.
- Secure border projects-communication tower projects at various locations along the border.

The public scoping meetings were held on June 14 and 15 at YPG and at the public library. One person attended the meeting on June 14, and four people attended the meeting on June 15. Representatives from the USFWS, FGD, and City of Yuma were among the attendees of the June 15 public meeting.

The City of Yuma requested information on any actions proposed in the PEIS that would extend beyond the current boundaries of YPD or any proposed expansion of the installation. The USFWS representative expressed concern with the lack of a buffer between one of the proposed impact areas in Kofa and the adjacent NWR.

Testimony

Neither the public meeting on June 14 nor the public meeting on June 15 produced any public comments. The court reporter affidavit of the meeting is presented in Appendix A.

Conclusions and Recommendations

No significant issues or concerns were raised by the attendees of the meetings. Where practicable, issues raised by attendees and projects mentioned for potential cumulative impacts were incorporated into the Preliminary Draft PEIS. All attendees expressed interest in receiving a copy of the draft document once it has been prepared. At that time (i.e. once details of the projects are available), additional comments on the project are expected.

Two issues were raised which will require additional consideration by YPG during development of the PEIS:

1). USFWS expressed concern with the lack of buffer between a proposed impact area and the adjacent wildlife refuge. Adjustment of the boundaries of the proposed impact area should be considered.

2). The scoping meeting was held during the summer when many seasonal residents are not present in Quartzite. An effort should be made to hold the next opportunity for formal public comment, the public hearing on the draft document, during the winter.

Appendix A – Transcript of Meeting

AFFIDAVIT OF COURT REPORTER

In the matter of:

UNITED STATES ARMY GARRISON YUMA PROVING GROUND
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT RESULTING
FROM IMPLEMENTATION OF THE REAL PROPERTY MASTER PLAN
AT YUMA PROVING GROUND NORTHEAST OF YUMA, ARIZONA.

STATE OF ARIZONA)
) ss.
COUNTY OF YUMA)

I, MICHELE E. BALMER, Certified Reporter No. 50489 for the State of Arizona, do hereby certify:

1. That on June 14, 2011, from 6:00 p.m. to 8:00 p.m., I was present at the public meeting held at the YPG Desert Breeze Travel Camp Community Center, Yuma, Arizona, and that no public comment was received;
2. That on June 15, 2011, from 6:00 p.m. to 8:00 p.m., I was present at the public meeting held at the Yuma Main Library, 2951 South 21st Drive, Yuma, Arizona, and that no public comment was received;

DATED at Yuma, Arizona this 17th day of June, 2011.

Michèle E. Balmer

MICHELE E. BALMER
Arizona Certified
Reporter No. 50489

YUMA COURT REPORTERS, LLC
220 South Second Avenue
Yuma, Arizona 85364
(928) 782-7591
yumacourtreporters.com

Appendix B – Agency Meeting – June 14th List of Attendees

Name	Agency	Address	Phone	Email
Kim Maloney	KMEC Consulting, LLC.	10709 E 34th Pl, Yuma, AZ	328-3771	kmaloney@kmec-llc.com
Lesley Walther	Zia Engineering	2575 W. 24th St Apt 134	928-XXX-2630	Walther.lesley@gmail.com
Troy Smith	AFGD	9140 E 28th St, Yuma AZ	928-341-4068	trsmith@azgfd.gov
Chuck Harper	YPG PEO		928-328-2635	Charles.G.Harper@us.army.mil
Lisa Swick	CRIT Museum Colorado River Indian Tribe	1007 AZ Ave	928-669-8790	CRIT.Museum@yahoo.com
Elliott George Ray	CRIT Museum Colorado River Indian Tribe			
Sheryl Christenson	Laguna NRCD			

Appendix C – Public Meeting – June 14th List of Attendees

Name	Address	Phone	Email
Chris Hatch	972 Halo St, YPG, Yuma, AZ	328-668-	Christopher.f.hatch@us.army.mil

Appendix D – Public Meeting – June 15th List of Attendees

Name	Address	Phone	Email
Charles Ruerup	1129 Brangus Ave, Yuma AZ	928-750-3649	Charles.ruerup@us.army.mil
Noah Cullis	One City Plaza, City of Yuma, AZ	928-373-5000	Noah.cullins@yuma.az.gov
Bill Knowles	9140 E 25th St, Yuma AZ	928-341-4047	bknowles@az.yuma.gov
Joseph Barnett	12435 E Patricia Dr, Yuma AZ	928-983-3371	Joseph.barnett@fws.gov

Appendix D – Meeting Notice

U.S. ARMY YUMA PROVING GROUND
NEWS RELEASE

FOR IMMEDIATE RELEASE

CONTACT: Chuck Wullenjohn
Public Affairs Office
Telephone: (928) 328-6189

Yuma, Arizona - The United States Army Garrison Yuma Proving Ground intends to prepare a Programmatic Environmental Impact Statement (PEIS), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of the Real Property Master Plan at the Yuma Proving Ground (YPG) northeast of Yuma, Arizona. The Notice of Intent (NOI) for the PEIS was published in the Federal Register on May 25, 2011.

The project will allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission of YPG. Renewable energy initiatives will be discussed in the PEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives. YPG would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities. No expansion of YPG would result from the proposed action. New construction would include a variety of facilities to meet the demand and space needed to meet mission requirements.

A public meeting will be held on YPG from 6:00 pm to 8:00 pm at Building 6, the Desert Breeze Travel Camp Community Center, located on the main administrative area off of Imperial Dam Road on Tuesday June 14, 2011. A second public meeting will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364 on Wednesday June 15, 2011 from 6:00 to 8:00 PM. Draft and final versions of the PEIS will be made available to the public for review and comment when completed. The scoping process officially begins with the publication of the NOI in the Federal Register. Public scoping comments will be solicited through June 30, 2011. YPG will also accept public input throughout the NEPA process. All interested parties are invited to attend the public meetings and to submit comments or questions by mail to Sergio Obregon, National Environmental Policy Act Coordinator, U.S. Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, or e-mail ypgnepa@conus.army.mil. By phone, contact Chuck Wullenjohn at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday.

EJERCITO DE LOS ESTADOS UNIDOS DE YUMA PROVING GROUND
COMUNICADO DE PRENSA

PARA DIFUSIÓN INMEDIATA

CONTACTO: Chuck Wullenjohn
Oficina de Asuntos Públicos
Teléfono: (928) 328-6189

Yuma, Arizona - El ejército de los Estados Unidos tiene la intención de preparar una Declaración de Programación de Impacto Ambiental (PEIS, por sus siglas en inglés) en conformidad con la Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) para la adopción e implementación del Plan Maestro de Propiedad Real (RPMP, por sus siglas en inglés) en Yuma Proving Ground (YPG, por sus siglas en inglés), AZ La PEIS analizará la propuesta de construcción, las pruebas y actividades de capacitación. Todas las acciones bajo consideración estarán dentro de los límites existentes de YPG.

Yuma Proving Ground es un desierto caliente y centro de evaluación esencial para la preparación militar. Abarca más de 1.300 de millas cuadradas con unos 350 días soleados y alrededor de tres pulgadas de lluvia al año. Ingenieros, científicos y personal técnico llevan a cabo pruebas en sus instalaciones de prueba y realizan más de 100 pruebas y evaluaciones en cualquier momento dado. También se discutirán iniciativas de energía renovable en la PEIS, pero el análisis de la NEPA específico del proyecto será necesario antes de la implementación de iniciativas de energía renovable específica.

Se invita al público a participar en el proceso de exploración para esta PEIS. Se programarán dos reuniones de exploración y alcance público después de la publicación de un Aviso de Intención (NOI, por sus siglas en inglés) en el Registro Federal. La notificación de las reuniones se anunciará en los medios locales. Todas las partes interesadas están invitadas a asistir a las reuniones públicas y a enviar comentarios o preguntas por correo a Sergio Obregon, Coordinador de la Ley Nacional de Política Ambiental a U.S Army Garrison Yuma Proving Ground, IMWE-YMA-PWE, 301 C Street, Yuma, Arizona 85365-9498, o por correo electrónico al ypgnepa@conus.army.mil. Por teléfono, llame a Chuck Wullenjohn al (928) 328-6189 de 6:30 am a 5:00 pm, de lunes a jueves.

El proceso de exploración oficialmente comienza con la publicación de la NOI en el Registro Federal. Se solicitarán comentarios del público durante 30 días después de la publicación o hasta 15 días después de la última reunión, cualquiera que sea la fecha posterior. YPG también aceptará comentarios públicos durante todo el proceso de la NEPA.

-FIN

Education Division conducted a formal section 7 consultation under the ESA. On November 18, 2008, NMFS issued a Biological Opinion (2008 BiOp) and concluded that the issuance of an IHA is likely to affect, but not likely to jeopardize the continued existence of Steller sea lions. NMFS has also issued an incidental take statement (ITS) for Steller sea lions pursuant to section 7 of the ESA. The ITS contains reasonable and prudent measures for implementing terms and conditions to minimize the effects of this take. NMFS has reviewed the 2008 BiOp and determined that there is no new information regarding effects to Steller sea lions; the action has not been modified in a manner which would cause adverse effects not previously evaluated; there has been no new listing of species or no new designation of critical habitat that could be affected by the action; and the action will not exceed the extent or amount of incidental take authorized in the 2008 BiOp. Therefore, the proposed IHA does not require the reinitiation of Section 7 consultation under the ESA.

National Environmental Policy Act (NEPA)

To meet NMFS' NEPA requirements for the issuance of an IHA to PRBO, NMFS prepared an Environmental Assessment (EA) in 2007 that was specific to seabird research activities on SEFI, WEI, ANI, and PRNS and evaluated the impacts on the human environment of NMFS' authorization of incidental Level B harassment resulting from seabird research in Central California. At that time, NMFS determined that conducting the seabird research would not have a significant impact on the quality of the human environment and issued a Finding of No Significant Impact (FONSI) and, therefore, it was not necessary to prepare an environmental impact statement for the issuance of an IHA to PRBO for this activity. In 2008, NMFS prepared a supplemental EA (SEA) titled "Supplemental Environmental Assessment for the Issuance of an Incidental Harassment Authorization to Take Marine Mammals by Harassment Incidental to Conducting Seabird and Pinniped Research in Central California and Environmental Assessment for the Continuation of Scientific Research on Pinnipeds in California Under Scientific Research Permit 373–1868–00," to address new available information regarding the effects of PRBO's seabird and pinniped research activities that may have cumulative impacts to the physical and biological environment. At that time, NMFS concluded that issuance of an IHA for the December 2008 through 2009 season would not significantly affect the quality of the human environment and issued a FONSI for the 2008 SEA regarding PRBO's activities. In conjunction with this year's application, NMFS has again reviewed the 2007 EA and the 2008 SEA and determined that there are no new direct, indirect or cumulative impacts to the human and natural environment associated with the IHA requiring evaluation in a supplemental EA and NMFS, therefore, reaffirms the 2008 FONSI. A copy of the EA, SEA, and the NMFS FONSI for this activity is available upon request (see **ADDRESSES**).

Dated: May 20, 2011.

James H. Lecky,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2011–12978 Filed 5–24–11; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF DEFENSE

Department of the Army

Real Property Master Plan Programmatic Environmental Impact Statement, at Yuma Proving Ground, Arizona

AGENCY: Department of the Army, DoD.

ACTION: Notice of Intent.

SUMMARY: The Department of the Army intends to prepare a Programmatic Environmental Impact Statement (PEIS) to analyze the environmental impacts resulting from adoption and implementation of a Real Property Master Plan (RPMP), including test areas and training activities at Yuma Proving Ground.

ADDRESSES: For questions concerning the RPMP PEIS, please contact Mr. Sergio Obregon, U.S. Army Garrison Yuma Proving Ground, National Environmental Policy Act Coordinator, IMWE–YMA–PWE, 301 C Street, Yuma, AZ 85365–9498. Written comments may be mailed to that address or e-mailed to *ypgnepa@conus.army.mil.*

FOR FURTHER INFORMATION CONTACT: Mr. Chuck Wullenjohn, Yuma Proving Ground Public Affairs Office, at (928) 328–6189 Monday through Thursday from 6:30 a.m. to 5 p.m., Mountain Standard Time.

SUPPLEMENTARY INFORMATION: Yuma Proving Ground consists of approximately 840,000 acres of DoD-managed land in the Sonoran Desert in southwestern Arizona and occupies portions of Yuma and La Paz counties. The mission at Yuma Proving Ground is ensuring the readiness of U. S. forces and materiel to perform in hot arid conditions around the world. This requires rigorous testing of ground and aerial vehicles, weapons, munitions, sensors, and guidance systems and realistic training. The U.S. has been engaged in hostile conflicts in environments similar to those found at Yuma Proving Ground, resulting in a need for increased testing of existing and developing military equipment, vehicles, and munitions under these environmental conditions. To meet these needs, the U.S. Army intends to prepare a RPMP PEIS at Yuma Proving Ground to analyze potential impacts from new construction, changes in testing and training, and activities conducted under private industry partnerships. Renewable energy initiatives will also be discussed in the PEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives.

Alternatives will consist of alternative siting locations for certain activities within Yuma Proving Ground and different magnitudes of implementation with regard to spatial extent of potential impacts and frequency and duration of specific events. The EIS will also analyze the No Action Alternative, under which no new construction would occur and there would be no changes in testing and training activities conducted at Yuma Proving Ground.

No changes are proposed to activities conducted at off-post areas in Arizona and California that are used for specific testing activities under conditions not found at Yuma Proving Ground. Therefore, these areas would not be considered in the development of alternatives for the RPMP PEIS.

All activities under consideration would be conducted within the boundaries of the installation. Resource areas that may be impacted include air quality, airspace, traffic, noise, water resources, biological resources, cultural resources, socioeconomics, utilities, land use, and solid and hazardous materials/waste. Impacts to these resources may occur as a result of converting existing land use to support military testing and training or from increasing the scope or magnitude of testing and training activities. The analysis will also consider the potential for cumulative environmental effects.

The public will be invited to participate in the scoping process to provide input on the proposed action and alternatives, which will be evaluated in the PEIS. After publication of the Notice of Intent to prepare the PEIS, the Army will schedule at least two public meetings to provide information about the proposed action

and alternatives and to solicit input and feedback from the public on issues to be addressed in the PEIS. Meetings will be announced in local media. The public will also be invited to review and comment on the Draft PEIS when it is released. Comments from the public will be considered before any decision is made regarding implementing the proposed action.

Brenda S. Bowen,

Army Federal Register Liaison Officer.

[FR Doc. 2011–12914 Filed 5–24–11; 8:45 am]

BILLING CODE 3710–08–P

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Public Scoping Meeting and Preparation of Environmental Impact Statement for Luce Bayou Interbasin Transfer Project in Liberty County and Harris County, TX

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: The U.S. Army Corps of Engineers, Galveston District, has received a permit application for a Department of the Army Permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344) from the Coastal Water Authority (SWG–2009–00188) for the proposed Coastal Water Authority's Luce Bayou Interbasin Transfer Project located in eastern Liberty County with the 26.5-mile corridor extending southwestward from the Trinity River to a discharge point near the confluence of Luce Bayou with Lake Houston. The primary Federal involvement associated with the proposed action is the discharge or dredged or fill material into waters of the United States, including jurisdictional wetlands, and the construction of structures that may affect navigable waters. Federal authorizations for the proposed project would constitute a "major federal action." Based on the potential impacts, both individually and cumulatively, the Corps intends to prepare an Environmental Statement (EIS) in compliance with the National Environmental Policy Act to render a final decision on the permit applications.

The Corps' decision will be to either issue, issue with modification or deny Department of the Army permits for the proposed action. The EIS will assess the potential social, economic and environmental impacts of the construction and operation of the interbasin conveyance, associated facilities, and appurtenances and is intended to be sufficient in scope to address Federal, State and local requirements, environmental issues concerning the proposed action, and permit reviews.

DATES: The scoping period will commence with the publication of this notice. The formal scoping period will end 60 days after the publication of this notice. Comments regarding issues relative to the proposed project should be received.

ADDRESSES: You may submit comments by any of the following methods: *Mail:* Jayson M. Hudson, U.S. Army Corps of Engineers, Regulatory Branch, P.O. Box 1229, Galveston, TX 77553–1229; *Fax:* (409) 766–3931 or *E-mail: Jayson.m.hudson@usace.army.mil.* Emailed comments, including attachments, should be provided in .doc, .docx, .pdf or .txt formats. Documents pertinent to the proposed project may be examined at *http://www.swg.usace.army.mil/reg/eis.asp.*

FOR FURTHER INFORMATION CONTACT: Mr. Jayson Hudson, (409) 766–3108.

SUPPLEMENTARY INFORMATION: The Galveston District intends to prepare a DEIS on the proposed Luce Bayou Interbasin Transfer Project which is the proposed transfer of water from the Trinity River in Liberty County to Lake Houston in Harris County, TX. The Coastal Water Authority proposed this project and is the applicant for the Department of the Army permit (DA) SWG–2009–00188.

1. *Project Background:* The Coastal Water Authority is proposing to convey up to 400 million gallons of water per day (MGD) under gravity in accordance with the City of Houston's existing water rights permit from the Trinity River to Lake Houston, a distance of approximately 26.5 miles. The Trinity River water would be conveyed from the proposed pump station through large diameter pipelines to a sediment storage and settling basin and then through an earthen canal to outfall at the Lake Houston discharge point. The canal would have side berms and there would be an access road, drainage ditches, and perimeter fencing surrounding the water conveyance canal. The proposed project consists of the following:

a. A new water pumping station will be constructed on the Trinity River at Capers Ridge approximately 10 miles north of Dayton, TX.

b. Dual, 108-inch diameter force mains will be constructed extending from the Capers Ridge pump station approximately 3.5 miles to the west and southwest to outfall to the sedimentation settling basin.

c. An approximate 20-acre sedimentation settling and storage basin.

d. An approximate 23.5 mile clay-lined earthen canal with 4:1 side slopes within a 300-foot easement that would include access roads, berms, chain link perimeter fencing, flow control structures, and metering stations.

e. Box culverts at canal and roadway crossings and multiple bawl-ground siphons constructed to facilitate wildlife movement and maintain existing hydrology along the canal conveyance system.

f. An approximate 10-acre maintenance facility located approximately 6 miles north of Dayton, TX.

g. Discharge structure along the southeastern shoreline of Lake Houston.

2. *Scoping and Public Involvement Process:* A Public Notice was published on April 19, 2010 to initiate the public scoping process for the proposed project. At that time, based on information provided by the Applicant, a preliminary review indicated that an Environmental Impact Statement (EIS) was not required. However, based on continuing permit assessment and information brought forth during the initial coordination process, areas of potential significant impact on the human environment have been identified. Therefore, the EIS process is being implemented so that the permit application can be fully evaluated and a permit decision can be made. All comments received to date, including those provided for review during the initial scoping process, will be considered by the Galveston District during EIS preparation. The purpose of the EIS scoping meeting is to gather information on the subjects to be studied in detail by the EIS.

3. *Purpose and Need.* The basic purpose of the proposed action is to provide drinking water for the City of Houston and surrounding area. The overall purpose is to provide drinking water utilizing water rights currently held by the City of Houston in the Trinity River. The Corps recognizes that there is a public and private need for drinking water.

4. *Alternatives.* An evaluation of alternatives to the Applicant's preferred alternative initially being considered includes a No Action alternative, alternatives that would avoid, minimize and compensate for impacts to the aquatic environment within the project right-of-way, alternatives that would avoid, minimize and compensate for

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

April 24, 2012

Environmental Sciences Division

Ms. Caroline Antone
Cultural Resources Manager
Ak-Chin Indian Community
42507 West Peters and Nall Road
Maricopa, Arizona 85239

Dear Ms. Antone:

U.S. Army Garrison Yuma Proving Ground (USAG YPG) has prepared a Real Property Master Plan (RPMP) that will allow the Garrison to maintain a facility capable of state of the art testing on military ground, to provide realistic training, and to allow flexibility to enter into legally permissible Army/private industry projects where such projects are compatible with the military mission. Yuma Proving Ground (YPG) would undertake construction and demolition projects (primarily within cantonment areas), continue existing testing and training activities, and expand some testing and training areas and activities within the installation boundaries. No expansion of YPG would result from the proposed action. The purpose of this letter is to provide an update on project milestones and upcoming meetings.

U.S. Army Garrison Yuma Proving Ground is preparing a Programmatic Environmental Impact Statement (PEIS) in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA). The purpose of the PEIS is to analyze the environmental impacts resulting from implementation of the RPMP at the USAG YPG northeast of Yuma, Arizona.

A Notice of Intent to prepare a PEIS was published on May 25, 2011 in the Federal Register. Subsequent to this publication, YPG presented the PEIS concept at a Tribal Consultation Meeting at YPG on June 8, 2011. An initial scoping meeting for interested agencies and tribes was conducted on the afternoon of June 14 at YPG's Main Administrative Area, with initial public scoping meetings held later that evening and the following day. Since that time, YPG has been finalizing the RPMP and working to identify reasonable alternatives that would meet mission requirements.

We anticipate initiating the Section 106 consultation process, in accordance with the National Historic Preservation Act (NHPA), during the summer of 2012. During this phase of consultation USAG YPG plans to focus on individual undertakings covered in the RPMP that are (1) within previously disturbed areas, (2) within areas that have had previous Section 106 consultation, and (3) within areas that are currently being surveyed prior to completion of the PEIS. For other undertakings included in the RPMP where the effects of its implementation on historic properties cannot be fully determined at this time (e.g., undertakings that span multiple years), USAG YPG is drafting a Programmatic Agreement per 36 CFR 800.14(b)(3). Initial Section 106 consultation meetings are anticipated to be held this summer.

We also anticipate inviting you or your representative to participate in Government-to-Government meetings to obtain your feedback on the Proposed Action and alternative actions presented in the PEIS. Following the Government-to-Government consultation identified above, the Army will make the PEIS available to the public for a 45-day review. The Army will continue Government-to-Government consultation throughout this period, as necessary.

We look forward to meeting with you in the near future and welcome your comments. Please direct comments or questions regarding the PEIS to the NEPA Coordinator, IMYM-PWE, U.S. Army Garrison Yuma, 301 C Street, Yuma AZ 85365-9498, facsimile (928) 328-6696, telephone (928) 328-2015, or email ypgnepa@conus.army.mil, or any questions regarding Section 106 consultation to the Cultural Resources Manager, Dr. Meg McDonald, (928) 328-2520, alison.m.mcdonald.civ@mail.mil.

Sincerely,



Richard T. Martin
Garrison Manager

Distribution List for April 24, 2012 Tribal Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

THE HOPI TRIBE

LeRoy N. Shingoitewa
CHAIRMAN

Herman G. Honanie
VICE-CHAIRMAN

May 7, 2012

Richard T. Martin, Garrison Manager
Attention: NEPA Coordinator IMYM-PWE; Dr. Meg McDonald, Cultural Resources Manager
Department of the Army, US Army Installation Management Command
Headquarters, United States Army Garrison, Yuma
301 C Street
Yuma, Arizona 85365-9498

Dear Mr. Martin,

This letter is in response to your correspondence April 24, 2012, regarding Yuma Proving Ground having prepared a Real Property Master Plan. The Hopi Tribe claims cultural affiliation to prehistoric cultural groups in Arizona, including the Hohokam prehistoric cultural group in southern Arizona. The Hopi Cultural Preservation Office supports the identification and avoidance of prehistoric archaeological sites, and we consider the prehistoric archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate Yuma Proving Ground's continuing solicitation of our input and your efforts to address our concerns.

The Hopi Cultural Preservation Office has stated that we appreciate that the Yuma Proving Ground is identifying historic properties in potential use areas, and we are interested in consulting on any proposal that has the potential to adversely affect prehistoric cultural resources on the Yuma Proving Ground. In the enclosed letter dated May 9, 2011, we stated we are interested in receiving a copy for review and comment of the Programmatic Environmental Impact Statement, and the updates on cultural and natural resource management on these lands.

We appreciate that Yuma Proving Ground is extremely interested in avoiding and not damaging places of tribal concern and significance. We understand National Historic Preservation Act consultations on the implementation of Real Property Master Plan will begin with individual undertakings that are within previously disturbed areas, areas that have had previous consultation, and areas that are currently being surveyed. We also understand that a Programmatic Agreement is being drafted for other areas.

Therefore, we look forward to continuing consultation on the implementation of the Real Property Master Plan, including being provided with copies of the draft Programmatic Environmental Impact Statement, draft Programmatic Agreement, and cultural resource survey reports for review and comment. If prehistoric sites are identified that will be adversely affected by project activities, we request consultation on any proposed treatment plans as well. If you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office at 928-734-3619 or tmorgart@hopi.nsn.us Thank you for your consideration.

Respectfully,

Leigh J. Kuwánwisiwma, Director
Hopi Cultural Preservation Office

xc: Arizona State Historic Preservation Office

Received from Tribal Admin_____

Mailed_____(initial & date)

Faxed_____(initial & date)

SAN CARLOS APACHE TRIBE
Historic Preservation & Archaeology Department
P.O. Box 0
San Carlos Arizona 85550
Tel. (928) 475-5797, Fax (928) 475-2423

Tribal Consultation Response Letter

Date: 06-07-2012
Contact Name: Meg McDonald alison.m.mcdonald.civ@mail.mil (928) 328-6696
Company: US Army Installation Management Command Headquarters US Army Garrison Yuma
Address: 301 C Street, Yuma, Arizona 85365-9498
Project Name/#: YPG has prepared a Real Property Master Plan that will allow the Garrison to maintain a facility capable of state of the art testing on military ground

Dear Sir or Madam:

Under Section 106 and 110 of the National Historic Preservation Act, we are replying to the above referenced project. Please see the appropriate marked circle, including the signatures of Vernelda Grant, Tribal Historic Preservation Officer (THPO), and the concurrence of the Chairman of the San Carlos Apache Tribe:

- ○ **NO INTEREST/NO FURTHER CONSULTATION** _____ (sign & date)
  I have determined that there is not a likelihood of eligible properties of religious and cultural significance to the San Carlos Apache Tribe in the proposed project area.
- ⊗ **CONCURRENCE WITH REPORT FINDINGS & THANK YOU** V Grant 07/11/12 (sign & date)
- ⊗ **REQUEST ADDITIONAL INFORMATION** V Grant 07/11/12 (sign & date)
  I require additional information in order to provide a finding of effect for this proposed undertaking, i.e. Project description ___ Map ___ Photos ___ Other SCAT-THPO looking forward to consulting w/ YPG in near future.
- ○ **NO EFFECT** _____ (sign & date)
  I have determined that there are no properties of religious and cultural significance to the San Carlos Apache Tribe that are listed on the National Register within the area of potential effect or that the proposed project will have no effect on any such properties that may be present.
- ○ **NO ADVERSE EFFECT** _____ (sign & date)
  Properties of cultural and religious significance within the area of effect have been identified that are eligible for listing in the National Register for which there would be no adverse effect as a result of the proposed project.
- ○ **ADVERSE EFFECT** _____ (sign & date)
  I have identified properties of cultural and religious significance within the area of potential effect that are eligible for listing in the National Register. I believe the proposed project would cause an adverse effect on these properties. Please contact the THPO for further discussion.

STIPULATION: We were taught traditionally not to disturb the natural world in a significant way, and that to do so may cause harm to oneself or one's family. Apache resources can be best protected by managing the land to be as natural as it was in pre-1870s settlement times. Please contact the THPO, if there is a change in any portion of all previously discussed projects. Thank you for contacting the San Carlos Apache Tribe, your effort is greatly appreciated.

CONCURRENCE: Terry Rambler 7/13/12

Terry Rambler, Tribal Chairman — Date

cc: SCATHPA files (V.Grant, 2011, updated)

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

June 27, 2012

Environmental Sciences Division

Mr. Charles Wood
Chairman Wood
Chemehuevi Indian Tribe
P.O. Box 1976
Havasu Lake, California 92363

Dear Chairman Wood:

Under Section 106 of the National Historic Preservation Act, as codified in Title 36, Code of Federal Regulations Part 800 (36 CFR 800), the United States Army Garrison Yuma Proving Ground (USAG YPG) is inviting the Chemehuevi Indian Tribe to consult on a Yuma Proving Ground (YPG) Programmatic Agreement (PA) for operational activities. U.S. Army Garrison Yuma Proving Ground has determined that a PA is an appropriate Program Alternative, as defined in 36 CFR 800.1, for cultural resources management at the Garrison.

U.S. Army Garrison Yuma Proving Ground is currently developing a Real Property Master Plan (RPMP) that will detail many short- and long-term goals of the Garrison. Through the RPMP process, USAG YPG has determined that a PA, developed through consultation with your Tribe and other interested Tribes, is appropriate. The PA will address preferred management strategies for historic properties that may be affected by implementation of the RPMP and other undertakings not captured in the RPMP that may occur, including training exercises, supported component activities, and basic maintenance and repair activities. Although the USAG YPG goal of the PA is to establish consultation procedures for the broader spectrum of typical undertakings on the Garrison, including the RPMP short- and long-term plans, a finalized PA would benefit the Garrison if completed during the development of the RPMP.

Signatories to the Section 106 PA will be USAG YPG and the Arizona State Historic Preservation Officer, as well as the Advisory Council on Historic Preservation should they wish to participate. In accordance with 36 CFR 800.6(a)(1)(i)(C) USAG YPG has invited the Advisory Council to participate in the consultation. Initial Section 106 consultation meetings to discuss the draft PA, RPMP, and its Programmatic Environmental Impact Statement are planned for the week of August 20, 2012; at that time, discussions about the goals and intentions of the PA and RPMP will occur. A draft meeting agenda is enclosed.

U.S. Army Garrison Yuma Proving Ground is able to assist with travel expenses and accommodations in order to make the trip feasible for you and an additional Tribal representative you designate. Enclosed are driving directions from Yuma to the Palm Garden on the Main Administrative Area of Yuma Proving Ground where the meeting will be held. Follow-up phone calls will be made by Dr. Meg McDonald, Cultural Resources Manager, to confirm your

attendance and assist with travel arrangements. If the Tribe cannot send a representative to the meeting, we will make other consultation arrangements with your office. Thank you in advance for your time and cooperation. A copy of this letter is being sent to Mr. Ronald Escobar, Secretary-Treasurer.

With this letter, USAG YPG is inviting your participation in the Section 106 process, and, more specifically, we are seeking your input regarding your knowledge of properties of religious or cultural significance that could be impacted by implementation of the RPMP. I look forward to consulting with you on the Section 106 Programmatic Agreement, the Real Property Master Plan, and matters of importance to your Tribe. If you have any questions or would like additional information, please contact Cultural Resources Manager, Dr. Meg McDonald, at alison.m.mcdonald.civ@mail.mil or (928) 328-2520.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

Distribution List for June 27, 2012 Tribal Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

THE HOPI TRIBE

LeRoy N. Shingoitewa
CHAIRMAN

Herman G. Honanie
VICE-CHAIRMAN

July 5, 2011

Richard T. Martin, Garrison Manager
Attention: Dr. Meg McDonald, Cultural Resources Manager IMWE-YMA-PWE
Department of the Army, US Army Installation Management Command
Headquarters, United States Army Garrison, Yuma
301 C Street
Yuma, Arizona 85365-9498

Dear Mr. Martin,

This letter is in response to your correspondence dated June 27, 2012, regarding Yuma Proving Ground preparing a programmatic agreement pursuant to the National Historic Preservation Act for the implementation of the Real Property Master Plan, and a consultation meeting scheduled for the week of August 20, 2012. The Hopi Tribe claims cultural affiliation to prehistoric cultural groups in Arizona, including the Hohokam prehistoric cultural group in southern Arizona. The Hopi Cultural Preservation Office supports the identification and avoidance of prehistoric archaeological sites, and we consider the prehistoric archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate Yuma Proving Ground's continuing solicitation of our input and your efforts to address our concerns.

In a letter dated May 9, 2011 regarding the Real Property Master Plan, the Hopi Cultural Preservation Office stated that we appreciate that the Yuma Proving Ground is identifying historic properties in potential use areas, and we are interested in consulting on any proposal that has the potential to adversely affect prehistoric cultural resources on the Proving Ground. In a letter dated May 7, 2012, we stated that we understood implementation of the Real Property Management Plan would being with individual undertakings that are within previously disturbed areas, and areas that are currently being surveyed.

We will be unable to send a representative to the meeting the week of August 20th. We appreciate that Yuma Proving Ground is extremely interested in avoiding and not damaging places of tribal concern and significance. Regarding the proposed programmatic agreement, we defer to the State Historic Preservation Office and other interested tribes. However, we reiterate that if prehistoric cultural resources are identified that will be adversely affected by project activities, please provide us with a copy of any proposed treatment plans for review and comment. If you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office at 928-734-3619 or tmorgart@hopi.nsn.us. Thank you for your consideration.

Respectfully,

Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

Enclosures: May 9, 2011, May 7, 2012, letters
xc: Arizona State Historic Preservation Office

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

June 27, 2012

Environmental Sciences Division

Ms. Katharine Kerr
Program Analyst
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004

Dear Ms. Kerr:

Under Section 106 of the National Historic Preservation Act, as codified in Title 36, Code of Federal Regulations Part 800 (36 CFR 800), the United States Army Garrison Yuma Proving Ground (USAG YPG) is initiating consultation on a Yuma Proving Ground (YPG) Programmatic Agreement (PA) for operational activities. U.S. Army Garrison Yuma Proving Ground has determined that a PA is an appropriate Program Alternative, as defined in 36 CFR 800.1, for cultural resources management at the Garrison. In accordance with 36 CFR 800.6(a)(1)(i)(C), this letter is our invitation to the Advisory Council to participate in the consultation.

U.S. Army Garrison Yuma Proving Ground is currently developing a Real Property Master Plan (RPMP) that will detail many short and long term goals of the Garrison. Through the RPMP process, USAG YPG has determined that a PA, developed through consultation with your office and interested Native American tribes, is appropriate. The PA will address preferred management strategies for historic properties that may be affected by implementation of the RPMP and other undertakings not captured in the RPMP that may occur, including training exercises, supported component activities, and basic maintenance and repair activities. Although the USAG YPG goal of the PA is to establish consultation procedures for the broader spectrum of typical undertakings on the Garrison, including the RPMP short- and long-term plans, a finalized PA would benefit the Garrison if completed during the development of the RPMP.

Signatories to the Section 106 PA will be USAG YPG and the Arizona State Historic Preservation Officer, as well as the Advisory Council on Historic Preservation should your office wish to participate. Initial Section 106 consultation meetings to discuss the draft PA and RPMP are scheduled for the week of August 20, 2012; at that time, discussions about the goals and intentions of the PA and RPMP will occur. A draft meeting agenda is enclosed. A framework draft of the PA, to be built upon during consultation, will be mailed several weeks prior to the scheduled date of the meetings.

Per 36 CFR 800.2(c)(2), USAG YPG has invited 14 Native American tribes to participate as consulting parties in the Section 106 process for both the PA and the RPMP, including the Ak-Chin Indian Community, the Chemehuevi Indian Tribe, the Cocopah Indian Tribe, the Colorado

River Indian Tribes, the Fort McDowell Yavapai Nation Community, the Fort Mojave Indian Tribe, the Gila River Indian Community, the Hopi Tribe, the Quechan Tribe, the Salt River Pima-Maricopa Indian Community, the San Carlos Apache Tribe, the Tohono O'Odham Nation, the Yavapai-Apache Nation , and the Yavapai-Prescott Tribe.

Please send your response to this invitation to consult and if you plan to attend the consultation meetings via mail, fax, or email to Dr. Meg McDonald, Environmental Sciences Division (IMYM-PWE), 301 C Street, Yuma, Arizona 85365-9495, fax: (928) 328-6696, or email: alison.m.mcdonald.civ@mail.mil. Enclosed are driving directions from Yuma to the Palm Garden on the Main Administrative Area of Yuma Proving Ground where the meetings will be held. We look forward to consultation with your office on the Section 106 Programmatic Agreement. If you have any questions or would like additional information, please contact Cultural Resources Manager, Dr. Meg McDonald, using the previously mentioned contact information.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

7007 2560 0002 7836 8140

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .45
Certified Fee	2.95
Return Receipt Fee (Endorsement Required)	2.35
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 5.75

YUMA PROVING GROUNDS CO
Postmark Here
JUN 28 2012

Sent To
Ms. Katharine Kerr
Program Analyst
Street, or PO
Advisory Council on Historic Preservation
Old Post Office Building
City, S
1100 Pennsylvania Ave. NW, Suite 803
PS For
Washington. DC 20004
PA
ructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Katharine Kerr
Program Analyst
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Ave. NW, Suite 803
Washington. DC 20004

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* B BOCDEN
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7007 2560 0002 7836 8140

PA

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

Preserving America's Heritage

August 1, 2012

Mr. Richard T. Martin
Garrison Manager
Department of the Army
U.S. Army Installation Management Command
Headquarters, United States Army Garrison, Yuma
301 C Street
Yuma, AZ 85365-9498

Ref: ***Development of a Operational Activities Section 106 Programmatic Agreement***
Yuma Proving Ground
La Paz and Yuma Counties, Arizona

Dear. Mr. Martin:

On July 2, 2012, the Advisory Council on Historic Preservation (ACHP) received your invitation for our participation in the development of a Programmatic Agreement (PA) for operational activities at Yuma Proving Ground (YPG). The ACHP appreciates the opportunity to participate in the development and revision of real property master plans and operational activities and the development of PAs to implement these activities. We are interested, however, in YPG's goals for the PA and recommend that YPG refrain from providing a draft PA to consulting parties until all parties have an opportunity understand the installation's intentions and discuss a plan for proceeding with development of the PA. After this discussion, we will notify you within 15 days of our decision on participation.

While we will not be able to attend the meeting planned for August 21-22 in person, we request that YPG make arrangements for our participation via teleconference.

If you have any questions, please contact Ms. Katharine R. Kerr at (202) 606-8534 or via e-mail at kkerr@achp.gov.

Sincerely,

Caroline D. Hall
Assistant Director
Office of Federal Agency Programs
Federal Property Management Section

ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004

neopost
08/02/2012
US POSTAGE
FIRST-CLASS MAIL
$00.45⁰
ZIP 20004
041L11207227

Richard T. Martin, Garrison Manager
Department of the Army
U.S. Army Installation Management Command

Headquarters, U. S. Army Garrison, Yuma
301 C Street
Yuma, AZ 85365-9498

85365949B H004

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

June 27, 2012

Environmental Sciences Division

Mr. James Garrison
Arizona State Historic Preservation Officer
1300 W. Washington
Phoenix, Arizona 85007

Dear Mr. Garrison:

Under Section 106 of the National Historic Preservation Act, as codified in Title 36, Code of Federal Regulations Part 800 (36 CFR 800), the United States Army Garrison Yuma Proving Ground (USAG YPG) is initiating consultation on a Yuma Proving Ground (YPG) Programmatic Agreement (PA) for operational activities. U.S. Army Garrison Yuma Proving Ground has determined that a PA is an appropriate Program Alternative, as defined in 36 CFR 800.1, for cultural resources management at the Garrison.

U.S. Army Garrison Yuma Proving Ground is currently developing a Real Property Master Plan (RPMP) that will detail many short and long term goals of the Garrison. Through the RPMP process, USAG YPG has determined that a PA, developed through consultation with your office and interested Native American tribes, is appropriate. The PA will address preferred management strategies for historic properties that may be affected by implementation of the RPMP and other undertakings not captured in the RPMP that may occur, including training exercises, supported component activities, and basic maintenance and repair activities. Although the USAG YPG goal of the PA is to establish consultation procedures for the broader spectrum of typical undertakings on the Garrison, including the RPMP short- and long-term plans, a finalized PA would benefit the Garrison if completed during the development of the RPMP.

Signatories to the Section 106 PA will be USAG YPG and the Arizona State Historic Preservation Officer, as well as the Advisory Council on Historic Preservation should they wish to participate. In accordance with 36 CFR 800.6(a)(1)(i)(C), USAG has invited the Advisory Council to participate in the consultation through a letter dated June 27, 2012. Initial Section 106 government-to-government consultation meetings to discuss the draft PA as well as the RPMP and its implementing Programmatic Environmental Impact Statement are scheduled for the week of August 20, 2012; at that time, discussions about the goals and intentions of the PA and RPMP will occur. A draft meeting agenda is enclosed. A framework draft of the PA, to be built upon during consultation, will be mailed several weeks prior to the scheduled date of the meetings.

Per 36 CFR 800.2(c)(2), USAG YPG has invited 14 Native American tribes to participate as consulting parties in the Section 106 process for both the PA and the RPMP, including the Ak-Chin Indian Community, the Chemehuevi Indian Tribe, the Cocopah Indian Tribe, the Colorado

River Indian Tribes, the Fort McDowell Yavapai Nation Community, the Fort Mojave Indian Tribe, the Gila River Indian Community, the Hopi Tribe, the Quechan Tribe, the Salt River Pima-Maricopa Indian Community, the San Carlos Apache Tribe, the Tohono O'Odham Nation, the Yavapai-Apache Nation , and the Yavapai-Prescott Tribe.

Please let us know if you plan to attend the consultation meetings the week of August 20, 2012 via mail, fax, or email to Dr. Meg McDonald, Environmental Sciences Division (IMYM-PWE), 301 C Street, Yuma, Arizona 85365-9495, fax: (928) 328-6696, or email: alison.m.mcdonald.civ@mail.mil. Enclosed are driving directions from Yuma to the Palm Garden on the Main Administrative Area of Yuma Proving Ground where the meetings will be held. We look forward to consultation with your office on the Section 106 Programmatic Agreement. If you have any questions or would like additional information, please contact Cultural Resources Manager, Dr. Meg McDonald, using the previously mentioned contact information.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

SHPO-2012-0655(105730)
GC

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

June 27, 2012

RECEIVED
JUN 29 2012
AH
ARIZONA STATE PARKS/S.H.P.

Environmental Sciences Division

Mr. James Garrison
Arizona State Historic Preservation Officer
1300 W. Washington
Phoenix, Arizona 85007

Dear Mr. Garrison:

Under Section 106 of the National Historic Preservation Act, as codified in Title 36, Code of Federal Regulations Part 800 (36 CFR 800), the United States Army Garrison Yuma Proving Ground (USAG YPG) is initiating consultation on a Yuma Proving Ground (YPG) Programmatic Agreement (PA) for operational activities. U.S. Army Garrison Yuma Proving Ground has determined that a PA is an appropriate Program Alternative, as defined in 36 CFR 800.1, for cultural resources management at the Garrison.

U.S. Army Garrison Yuma Proving Ground is currently developing a Real Property Master Plan (RPMP) that will detail many short and long term goals of the Garrison. Through the RPMP process, USAG YPG has determined that a PA, developed through consultation with your office and interested Native American tribes, is appropriate. The PA will address preferred management strategies for historic properties that may be affected by implementation of the RPMP and other undertakings not captured in the RPMP that may occur, including training exercises, supported component activities, and basic maintenance and repair activities. Although the USAG YPG goal of the PA is to establish consultation procedures for the broader spectrum of typical undertakings on the Garrison, including the RPMP short- and long-term plans, a finalized PA would benefit the Garrison if completed during the development of the RPMP.

Signatories to the Section 106 PA will be USAG YPG and the Arizona State Historic Preservation Officer, as well as the Advisory Council on Historic Preservation should they wish to participate. In accordance with 36 CFR 800.6(a)(1)(i)(C), USAG has invited the Advisory Council to participate in the consultation through a letter dated June 27, 2012. Initial Section 106 government-to-government consultation meetings to discuss the draft PA as well as the RPMP and its implementing Programmatic Environmental Impact Statement are scheduled for the week of August 20, 2012; at that time, discussions about the goals and intentions of the PA and RPMP will occur. A draft meeting agenda is enclosed. A framework draft of the PA, to be built upon during consultation, will be mailed several weeks prior to the scheduled date of the meetings.

Per 36 CFR 800.2(c)(2), USAG YPG has invited 14 Native American tribes to participate as consulting parties in the Section 106 process for both the PA and the RPMP, including the Ak-Chin Indian Community, the Chemehuevi Indian Tribe, the Cocopah Indian Tribe, the Colorado

River Indian Tribes, the Fort McDowell Yavapai Nation Community, the Fort Mojave Indian Tribe, the Gila River Indian Community, the Hopi Tribe, the Quechan Tribe, the Salt River Pima-Maricopa Indian Community, the San Carlos Apache Tribe, the Tohono O'Odham Nation, the Yavapai-Apache Nation , and the Yavapai-Prescott Tribe.

Please let us know if you plan to attend the consultation meetings the week of August 20, 2012 via mail, fax, or email to Dr. Meg McDonald, Environmental Sciences Division (IMYM-PWE), 301 C Street, Yuma, Arizona 85365-9495, fax: (928) 328-6696, or email: alison.m.mcdonald.civ@mail.mil. Enclosed are driving directions from Yuma to the Palm Garden on the Main Administrative Area of Yuma Proving Ground where the meetings will be held. We look forward to consultation with your office on the Section 106 Programmatic Agreement. If you have any questions or would like additional information, please contact Cultural Resources Manager, Dr. Meg McDonald, using the previously mentioned contact information.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

Thank you for the information. We look forward to reviewing and commenting on the Draft PA for your Program alternative.
Ann E. Howard 7/3/12
Deputy SHPO

State Historic Preservation Office
Arizona State Parks
1300 W. Washington
Phoenix, Arizona 85007
www.azstateparks.com

016H26502971
$00.450
07/05/2012
Mailed From 85007
US POSTAGE
Hasler

Richard T Martin
Garrison Manager
US Army Garrison Yuma
301 C Street
Yuma, AZ 85365-9498

TO DPW - ENV

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

July 30, 2012

Environmental Sciences Division

Mr. Louis J. Manuel, Jr.
Chairman
Ak-Chin Indian Community
42507 W. Peters and Nall Road
Maricopa, Arizona 85138

Dear Chairman Manuel:

The United States Army Garrison Yuma Proving Ground (USAG YPG) recently invited the Ak-Chin Indian Community to consult on a Yuma Proving Ground (YPG) Programmatic Agreement (PA) for operational activities through a letter dated June 27, 2012. Included with that invitation were information and a draft agenda concerning Section 106 consultation meetings the week of August 20, 2012. We are pleased to provide you with the enclosed copies of a final report and a draft agreement document that we welcome your input on during the consultation meetings. Another package of more information materials for the meetings will follow shortly.

The enclosed final report entitled "Archaeological Inventory and Historic Context of the Colorado-Gila Trail in the Cibola Range of United States Army Proving Ground, La Paz County, Arizona," is the culmination of nearly two years of research, fieldwork, and documentation of a major prehistoric trail that crosses YPG's Cibola Range. Although YPG has finalized the report, we now begin the difficult task of determining how to best preserve this valuable cultural resource in a manner that is compatible with Tribal desires and the Army Mission. We hope you can bring some creative ideas to our discussions concerning the Colorado-Gila Trail at the upcoming meeting and future forums.

The agreement document enclosed with this letter is a new draft of a Memorandum of Agreement (MOA) for which consultation was started but not finalized when the undertaking was initiated in 2000. The associated Extended Combat Systems Maneuver Area (ECSMA) consultation timeline, cultural resources report, and Environmental Assessment are included on a CD for your reference. Although extensively discussed in the past, we recognize that many new stakeholders may have additional contributions, which we hope to hear at the upcoming consultation meetings.

As stated in the previous letter, U.S. Army Garrison Yuma Proving Ground is able to assist with travel expenses and accommodations and Dr. Meg McDonald, Cultural Resources Manager, will be contacting you to confirm your attendance and assist with travel arrangements. If the Tribe cannot send a representative to the meeting, we will make other consultation arrangements

with your office. If you have any questions or would like additional information, please contact Cultural Resources Manager, Dr. Meg McDonald, at alison.m.mcdonald.civ@mail.mil or (928) 328-2520.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

Distribution List for July 30, 2012 Tribal Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

THE HOPI TRIBE

LeRoy N. Shingoitewa
CHAIRMAN

Herman G. Honanie
VICE-CHAIRMAN

August 6, 2012

Richard T. Martin, Garrison Manager
Attention: Dr. Meg McDonald, Cultural Resources Manager IMWE-YMA-PWE
Department of the Army, US Army Installation Management Command
Headquarters, United States Army Garrison, Yuma
301 C Street
Yuma, Arizona 85365-9498

Dear Mr. Martin,

This letter is in response to your correspondence dated July 30, 2012, regarding Yuma Proving Ground preparing a Memorandum of Agreement pursuant to the National Historic Preservation Act for the implementation of the Extended Combat Systems Maneuver Area, an enclosed *Archaeological Inventory and Historic Context of the Colorado-Gila Trail in the Cibola Range,* and a consultation meeting scheduled for the week of August 20, 2012. The Hopi Tribe claims cultural affiliation to prehistoric cultural groups in Arizona, including the Hohokam prehistoric cultural group in southern Arizona. The Hopi Cultural Preservation Office supports the identification and avoidance of prehistoric archaeological sites, and we consider the prehistoric archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate Yuma Proving Ground's continuing solicitation of our input and your efforts to address our concerns.

As we stated in our July 5, 2012, letter regarding the Real Property Master Plan, the Hopi Cultural Preservation Office we will be unable to send a representative to the meeting the week of August 20th. However, we reiterate that appreciate that the Yuma Proving Ground is identifying historic properties in potential use areas, and we are interested in consulting on any proposal that has the potential to adversely affect prehistoric cultural resources.

We have reviewed the enclosed *Archaeological Inventory and Historic Context of the Colorado-Gila Trail in the Cibola Range* that identifies the prehistoric trail AZ R:11:62 (ASM), 55 other National Register eligible prehistoric sites, and over 500 isolated occurrences along it. Because Hopi Clans migrated in prehistoric times and traveled in historic times, we appreciate trails as an important site type. We understand portions of the trail fall within the Mohave Drop Zone and other areas subject to disturbance and appreciate Yuma Proving Ground's difficult task in preserving this valuable cultural resource.

We have also reviewed the enclosed Extended Combat Systems Maneuver Area consultation timeline, cultural resources report and Environmental Assessment.

Regarding the proposed Memorandum of Agreement for the Extended Combat Systems Maneuver Area, we defer to the State Historic Preservation Office and other interested tribes. However, we reiterate that if prehistoric cultural resources are identified that will be adversely affected by project activities, please provide us with a copy of any proposed treatment plans for review and comment.

We appreciate that Yuma Proving Ground is extremely interested in avoiding and not damaging places of tribal concern and significance. If you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office at 928-734-3619 or tmorgart@hopi.nsn.us. Thank you for your consideration.

Respectfully,

Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

xc: Arizona State Historic Preservation Office

YAVAPAI

PRESCOTT ◆ INDIAN ◆ TRIBE

September 04, 2012

Richard T. Martin
Garrison Manager
Yuma Proving Grounds
301 C Street
Yuma, AZ 85365-9498

Dear Mr. Martin:

Thank you for your July 30, 2012 correspondence which contained a copy of the draft Yuma Proving Ground (YPG) Programmatic Agreement (PA) for operational activities and a copy of the final report entitled "Archaeological Inventory and Historic Context of the Colorado-Gila Trail in the Cibola Range of the United States Army Proving Ground, La Paz County, Arizona."

We appreciate your office's efforts to keep us updated on the PA, and we note that Tribes who sign on as Concurring Parties will be consulted on the mitigation of adverse effects to historic properties within the proposed Extended Combat Systems Maneuver Area. We support the proposed establishment of preservation areas to protect prehistoric trail segments and archaeological sites as well as the annual reporting and monitoring of these areas and resources.

In the Zia Engineering report you provided, we agree with Spier (1933:295) regarding the close similarities between the prehistoric Patayan and the Yuman speakers related by Spanish Chroniclers in the seventeenth and eighteenth centuries in southwestern Arizona demonstrating that they are the same culture group.

The ceramic assemblage comprising approximately 95 percent Patayan II-III ceramics and approximately 5 percent Patayan 1 ceramic types was excellently done and should help define the ceramic period defined by the Patayan. Your history of Lower Colorado River ceramic studies is particularly helpful for researchers working in this field.

Please note on the Concurring Parties signature page of the draft PA that Ernest Jones, Sr., is the President and not Chairman of the Yavapai-Prescott Indian Tribe. We are pleased you provided us a printed copy of the 'Colorado-Gila Trail' report for our archives and reference. Please forward a copy of the final PA for our Tribe to review when it is complete.

Sincerely,

Linda Ogo
Culture Research Department Director

530 E. MERRITT PRESCOTT, AZ 86301-2038 Phone 928-445-8790 FAX 928-778-9445

YAVAPAI
PRESCOTT ◆ INDIAN ◆ TRIBE
530 E. MERRITT PRESCOTT, AZ 86301-2038



Richard T. Martin
Yuma Proving Grouns
301 C Street
Yuma, AZ 85365-9498

8536594S801

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

August 9, 2012

Environmental Sciences Division

Mr. Louis J. Manuel, Jr.
Chairman
Ak-Chin Indian Community
42507 W. Peters and Nall Road
Maricopa, Arizona 85138

Dear Chairman Manuel,

The United States Army Garrison Yuma Proving Ground (USAG YPG) recently invited the Ak-Chin Indian Community to consult on a Yuma Proving Ground Programmatic Agreement (PA) for operational and maintenance activities through a letter dated June 27, 2012. Included with that invitation were information and a draft agenda concerning Section 106 consultation meetings the week of August 20, 2012. Enclosed are copies of potential stipulations for the draft PA for operations and maintenance at YPG, a Real Property Management Plan (RPMP) project list, an outline of the Environmental Impact Statement, and regional overview maps of the project locations. We welcome your input on these documents during the consultation meetings and in the coming months. This is the final packet of information materials for the meetings.

The enclosed RPMP project list details many short- and long-term goals of the Garrison. Some projects on the list are proposed in locations that are either extensively disturbed or are the sites of previous Section 106 consultations, some are proposed in previously undisturbed areas, and others are merely in the conceptual stage. We encourage you to bring questions and comments on any of these locations to the meetings the week of August 20, where we will have several people present who are familiar with the installation and proposed sites. Those projects subject to the Section 106 consultation process will be covered by the proposed PA, along with other undertakings not captured in the RPMP. Several hours of the meeting will be devoted to getting your input on the proposed PA stipulations.

As stated in the previous two letters, USAG YPG is able to assist with travel expenses and accommodations and Dr. Meg McDonald, Cultural Resources Manager, will be contacting you to confirm your attendance and assist with travel arrangements if arrangements have not already been made. If the Tribe cannot send a representative to the meeting, we will make other consultation arrangements with your office. If you have any questions or would like additional information, please contact Cultural Resources Manager, Dr. Meg McDonald, at alison.m.mcdonald.civ@mail.mil or (928) 328-2520.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

Distribution List for August 9, 2012 Tribal Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

Milford Wayne Donaldson, FAIA
Chairman

Clement A. Price, Ph.D.
Vice Chairman

John M. Fowler
Executive Director

Preserving America's Heritage

October 17, 2012

Honorable John McHugh
Secretary of the Army
1400 Defense Pentagon
Washington, DC 20301-1400

Ref: ***Development of a Operational Activities Section 106 Programmatic Agreement***
Yuma Proving Ground
La Paz and Yuma Counties, Arizona

Dear Secretary McHugh:

In response to a notification from United States Army Garrison, Yuma, the Advisory Council on Historic Preservation (ACHP) will participate in consultation to develop a Programmatic Agreement in accordance with 36 C.F.R. § 800.14(b)(3) for operational activities at Yuma Proving Ground. Our decision to participate in this consultation is based on the *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, contained within our regulations. The criteria are met for this proposed undertaking because there are questions regarding policy and interpretation of our regulations.

Section 800.6(a)(1)(iii) of our regulations requires that we notify you, as the head of the agency, of our decision to participate in consultation. By copy of this letter, we are also notifying Mr. Richard T. Martin, Garrison Manager, of this decision.

Our participation in this consultation will be handled by Ms. Katharine R. Kerr who can be reached at (202) 606-8534 or via e-mail at kkerr@achp.gov. We look forward to working with your agency and other consulting parties to consider alternatives to this undertaking that could avoid, minimize, or mitigate potential adverse effects on historic properties and to reach a Programmatic Agreement.

Sincerely,

John M. Fowler
Executive Director

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

October 25, 2012

Environmental Sciences Division

Mr. Louis J. Manuel, Jr.
Chairman
Ak-Chin Indian Community
42507 W. Peters and Nall Road
Maricopa, Arizona 85138

Dear Mr. Manuel:

Thank you for taking the time to participate, or sending a representative to participate on your behalf, in the United States Army Garrison Yuma Proving Ground (USAG YPG) National Historic Preservation Act/National Environmental Policy Act consultation meeting held on August 21-23, 2012. I hope the information provided aids in your understanding of potential impacts that the Yuma Proving Ground Real Property Master Plan (RPMP) projects and routine management activities at the facility may have on historic properties. An unedited transcript, as recorded by the professional stenographer who was present the first two days of the meeting, is enclosed in portable data format (*.pdf) on a compact disk. Please let me know if you would like a printed copy of the transcript; it will be sent only upon request due to its four binder volume. A short summary of the meeting is also enclosed.

Throughout the Section 106 consultation, I will continue to correspond with you and your designated Section 106 tribal representative, Ms. Caroline Antone. If you designate a new Section 106 representative, please let us know so that we can include them in all future correspondence. I am also sending a copy of this letter and the enclosures to Ms. Antone.

As stated in previous correspondence and during the consultation meeting, USAG YPG is developing a Section 106 Programmatic Agreement (PA) in accordance with 36 CFR 800.14(b)(1)(ii) and (iv) to address both the routine management of YPG and the potential effects from RPMP projects, some of which cannot be fully determined prior to the release of the Programmatic Environmental Impact Statement (PEIS). USAG YPG and the State Historic Preservation Officer will be the required signatories on this agreement. The Advisory Council on Historic Preservation has also confirmed that they will participate as a signatory.

USAG YPG has considered tribal comments and feedback received thus far and is preparing an initial draft PA. We plan to distribute this initial draft to all consulting parties at the end of October. I request that you review the initial draft PA and provide comments, questions, suggested revisions, edits, and other input within thirty calendar days in order to maintain the planned schedule. USAG YPG will revise the draft PA incorporating feedback and aim to provide a second draft PA in mid-January for further review and comment. At that time, we may consider having a second meeting or telephone conference. At any time during the process, however, please feel free to request additional meetings or conference calls if you wish to have specific discussions about the RPMP undertakings or measures to avoid, minimize, or mitigate potential effects from these and future undertakings. Our goal is to have a draft final PA ready in

March 2013 for the final review process with tribal councils. The required signatories would execute the final PA before the end of September 2013. We hope that by providing this proposed timeline at this early stage, everyone can be prepared to work together on scheduling to meet the goal of a signed PA and a final PEIS in the fall of 2013.

On a separate yet interdependent schedule, we plan to release the draft RPMP PEIS to the public for comment in January/early February 2013, with public hearings in March 2013. In order to incorporate your comments on the RPMP and its environmental impacts into the draft PEIS prior to public release, I encourage you to have your feedback regarding the list of RPMP projects distributed at the August meeting sent to us by November 16, 2012. Also, please note that cultural resources will be addressed in cultural resources sections within the body of the PEIS and will not have a separate cultural resources technical report that requires your review. The Section 106 PA will address the process to resolve potential effects to historic properties from the RPMP undertakings, making it imperative that the PA be executed prior to the issuance of the PEIS Record of Decision in the fall of 2013.

Thank you again for your tribe's participation in the August consultation meeting. We look forward to continuing the consultation process, concluding in a Section 106 PA that allows YPG to fulfill its mission while respecting historic properties and other cultural resources significant to the tribes. If you have any questions or would like additional information, please contact Cultural Resources Manager Dr. Meg McDonald, Environmental Sciences Division (IMYM-PWE), 301 C Street, Yuma, Arizona 85365-9495, or by phone (928) 328-2520, fax (928) 328-6696, or email at alison.m.mcdonald.civ@mail.mil.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

Distribution List for October 25, 2012 Tribal Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

January 8, 2013

Environmental Sciences Division

Mr. John M. Fowler
Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Ave. NW, Suite 803
Washington, D.C. 20004

Dear Mr. Fowler:

U.S. Army Garrison Yuma Proving Ground (USAG YPG) initiated consultation with the Advisory Council on June 27, 2012 for development of a Programmatic Agreement (PA) for Yuma Proving Ground (YPG); your office responded affirmatively via letter dated October 17, 2012 (enclosed). The draft PA for operations, maintenance, and development at YPG is enclosed for your review and comment; we are requesting responses within 35 days of receipt in order to consolidate comments during late February, distribute a second draft, and schedule a teleconference or other requested consultation meetings during late March. Both a paper copy and an electronic copy in Microsoft Word are enclosed to facilitate your review. A copy of the 2011 archaeological sensitivity model mentioned in the PA is also enclosed. Copies of the draft PA and sensitivity model are being mailed concurrently to the Arizona State Historic Preservation Officer (SHPO), all consulting federally recognized tribes, and other consulting parties listed in Attachment C of the PA.

The enclosed draft PA addresses preferred management strategies for historic properties that may be affected by implementation of undertakings that may occur, including basic maintenance, repair, and development activities, training exercises, and supported component activities. Although the USAG YPG goal of the PA is to establish consultation procedures for the broader spectrum of typical undertakings, execution of the PA is essential prior to signing of the Record of Decision for the Programmatic Environmental Impact Statement for Mission activities that is currently in development in order to resolve effects to cultural resources.

Per 36 CFR 800.2(c)(2), USAG YPG has invited 14 federally recognized Native American tribes to participate as consulting parties in the Section 106 process for the PA, including the Ak-Chin Indian Community, the Chemehuevi Indian Tribe, the Cocopah Indian Tribe, the Colorado River Indian Tribes, the Fort McDowell Yavapai Nation Community, the Fort Mojave Indian Tribe, the Gila River Indian Community, the Hopi Tribe, the Quechan Tribe, the Salt River Pima-Maricopa Indian Community, the San Carlos Apache Tribe, the Tohono O'odham Nation, the Yavapai-Apache Nation , and the Yavapai-Prescott Tribe. An initial Section 106 government-to-government consultation meeting to discuss potential draft PA stipulations was held on August 22, 2012. Representatives of eight of the 14 consulting tribes attended the

meeting. Ann Howard, Deputy SHPO, Kristin Leahy, Architectural Historian, Army Environmental Command, and Katharine Kerr, of your office, also participated via teleconference.

If you have any comments, please address your correspondence to Dr. Meg McDonald, Cultural Resources Manager, at alison.m.mcdonald.civ@mail.mil or (928) 328-2520. Thank you for your interest in and support of U.S. Army Garrison Yuma Proving Ground's cultural resources program.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

Distribution List for January 8, 2013 Tribal Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

Agency
Advisory Council on Historic Preservation
Arizona State Historic Preservation Officer

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

S: 11 February 2013

IMYM-ZA

8 January 2013

MEMORANDUM FOR Headquarters, Installation Management Command, (G4 – Dave Giffin), 2405 Gun Shed Road, Ft Sam Houston, TX 78234-1223

SUBJECT: TASKER 121013652 – Request for Legal, Resources Management, and Technical Review of the Draft Programmatic Agreement for Operations, Maintenance, and Development of Yuma Proving Ground, Arizona.

1. I am requesting legal, resources management, and cultural resources review of the enclosed draft Programmatic Agreement (PA) concurrent with USAG YPG consultation with the Arizona State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation (ACHP), 14 consulting federally recognized Native American tribes, and other consulting parties. Potential stipulations for this draft PA were discussed in detail during a consultation meeting on August 22, 2012. Representatives of eight of the 14 consulting tribes were in attendance at the meeting and representatives of the SHPO (Ann Howard, Deputy SHPO), ACHP (Katharine Kerr, Program Analyst, Federal Property Management Section), and Army Environmental Command (Kristin Leahy, Architectural Historian) also participated via teleconference.

2. Due to the critical nature of upcoming Mission activities that will be facilitated by execution of the PA, I request comments and concurrence from your office by February 11, 2013.

3. The point of contact for this action is Meg McDonald, IMYM-PWE, (928) 328-2520, alison.m.mcdonald.civ@mail.mil.

RICHARD T. MARTIN
Garrison Manager

2 Encls
1. Draft Programmatic Agreement
2. Yuma Proving Ground concurrence records

CF: Ted Grabowski, IMCN-E (w/encls)
Karl Kleinbach, IMAE-TS (w/encls)



Don't be caught off guard with an inefficient home comfort system!

CALL US FOR YOUR FREE IN-HOME EVALUATION!

www.getcoolquick.com

QUICK REFRIGERATION CO., INC

190 W. 10th Street • Yuma

(928) 782-3691

• Sales • Service • Preventative Maintenance

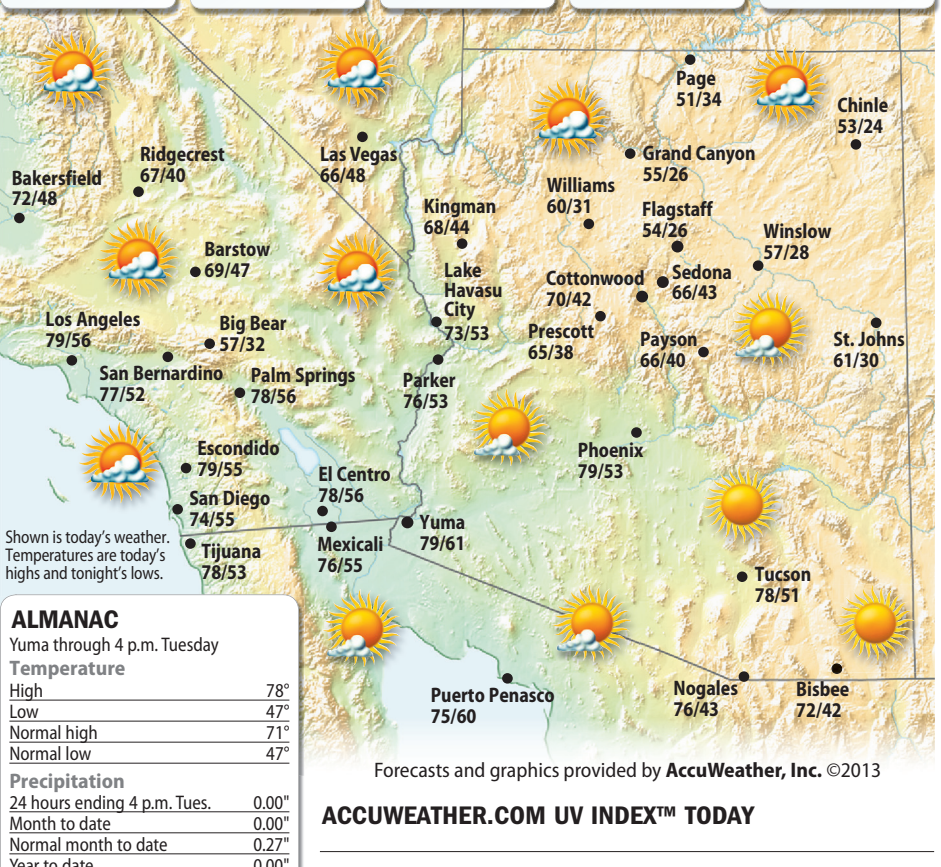
TRANE It's Hard To Stop A Trane.®

aps Rebates Available

ROC #202641

ACCUWEATHER® FORECAST FOR YUMA

TODAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Partial sunshine	Mostly cloudy	Mostly cloudy	Mostly cloudy	Mostly cloudy, a shower possible
79° 61°	79° 58°	77° 54°	72° 55°	74° 49°



Shown is today's weather. Temperatures are today's highs and tonight's lows.

ALMANAC

Yuma through 4 p.m. Tuesday

Temperature

High	78°
Low	47°
Normal high	71°
Normal low	47°

Precipitation

24 hours ending 4 p.m. Tues.	0.00"
Month to date	0.00"
Normal month to date	0.27"
Year to date	0.00"
Last year to date	Trace
Normal year to date	0.27"

Dew Point

7 a.m. today	22°

Humidity

Yesterday average	16%
Today's range	15%-30%

National Extremes Yesterday*

High	85° in Anaheim, CA
Low	-38° in Babbitt, MN

* for the 48 contiguous states

Sun and Moon

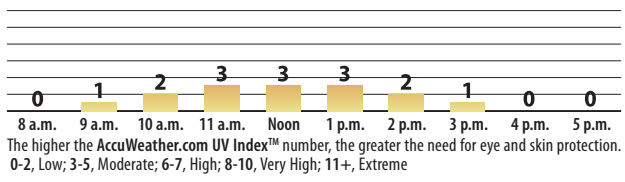
Sunrise today	7:38 a.m.
Sunset tonight	6:03 p.m.
Moonrise today	3:20 p.m.
Moonset today	4:51 a.m.

Moon Phases

Full	Last	New	First
Jan 26	Feb 3	Feb 9	Feb 17

Forecasts and graphics provided by **AccuWeather, Inc.** ©2013

ACCUWEATHER.COM UV INDEX™ TODAY



The higher the **AccuWeather.com UV Index™** number, the greater the need for eye and skin protection. **0-2**, Low; **3-5**, Moderate; **6-7**, High; **8-10**, Very High; **11+**, Extreme

ARIZONA CITIES

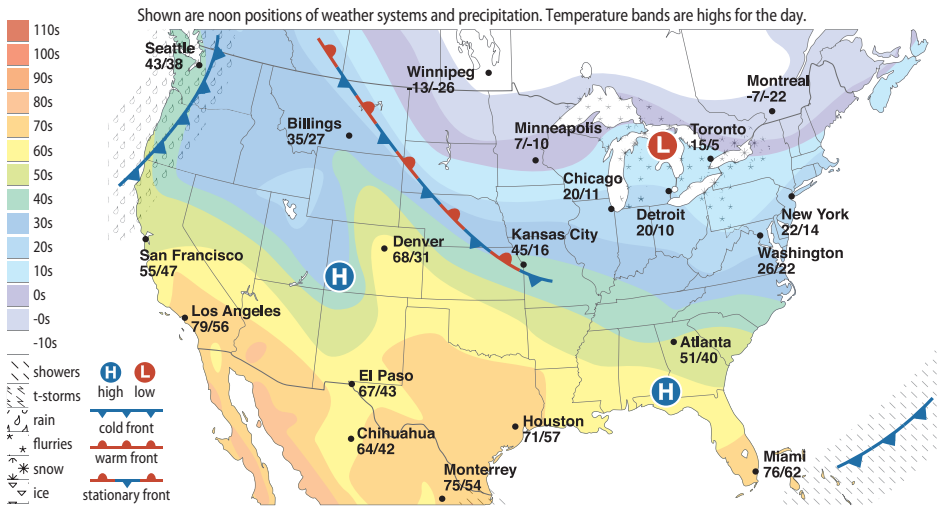
	Yesterday Hi	Lo	Prec	Today Hi	Lo	W	Thur. Hi	Lo	W
Alpine	54	7	0.00	59	28	s	54	30	pc
Bisbee	64	34	0.00	72	42	s	72	42	pc
Bullhead City	73	52	0.00	71	57	pc	73	56	c
Casa Grande	79	36	0.00	77	46	s	75	46	pc
Coolidge	na	na	na	79	47	s	76	47	pc
Cottonwood	70	28	0.00	70	42	pc	65	38	pc
Douglas	73	31	0.00	73	38	s	73	40	pc
Flagstaff	57	9	0.00	54	26	pc	49	24	pc
Gila Bend	81	40	0.00	81	54	s	79	50	pc
Globe	69	40	0.00	73	48	s	73	50	pc
Grand Canyon	57	10	0.00	55	26	pc	51	16	pc
Kingman	67	25	0.00	68	44	pc	64	39	pc
L. Havasu City	73	44	0.00	73	53	pc	72	50	c
Nogales	77	37	0.00	76	43	s	72	43	pc
Page	47	24	0.00	51	34	pc	57	35	pc
Parker	na	na	na	76	53	pc	76	50	c
Payson	68	22	0.00	66	40	s	73	39	pc
Phoenix	81	52	0.00	79	53	s	77	53	pc
Prescott	61	16	0.00	65	38	pc	61	33	pc
Safford	71	32	0.00	72	40	s	74	41	pc
St. Johns	57	11	0.00	61	30	s	60	30	pc
Sedona	68	45	0.00	66	43	pc	61	40	pc
Show Low	55	19	0.00	57	35	s	56	30	pc
Sierra Vista	70	40	0.00	73	48	s	71	46	pc
Tucson	81	46	0.00	78	51	s	74	50	pc
Williams	57	27	0.00	60	31	pc	52	26	pc
Window Rock	53	6	0.00	51	20	s	49	24	pc
Winslow	55	11	0.00	57	28	s	61	28	pc

Weather (W): **s**-sunny, **pc**-partly cloudy, **c**-cloudy, **sh**-showers, **t**-thunderstorms, **r**-rain, **sf**-snow flurries, **sn**-snow, **i**-ice, **Tr**-trace.

NATIONAL WEATHER TODAY

AccuWeather.com

Shown are noon positions of weather systems and precipitation. Temperature bands are highs for the day.



Frigid air will hold from the Upper Midwest to the Northeast today with bands of heavy snow around the Great Lakes. A front with rain and high-elevation snow will push onshore in the Northwest and is forecast to help break of the fog. Most other areas will be dry.

NATIONAL CITIES

	Yesterday Hi/Lo/Prec	Today Hi/Lo/W
Abilene, TX	66/30/0.00	71/50/pc
Akron, OH	12/5/0.06	15/10/sf
Albany, NY	20/14/0.02	16/2/sf
Albuquerque	57/25/0.00	58/32/s
Allentown, PA	20/15/0.00	20/10/sf
Amarillo	68/26/0.00	66/30/s
Anchorage	31/28/Tr	34/28/pc
Asheville	32/20/0.00	40/26/pc
Atlanta	45/29/0.00	51/40/pc
Atlantic City	22/18/0.05	24/13/pc
Austin	73/37/0.00	73/54/pc
Baltimore	24/18/0.00	24/15/pc
Baton Rouge	65/42/0.00	68/49/s
Bend, OR	51/22/0.00	45/22/c
Billings	47/11/0.00	35/27/pc
Birmingham	47/26/0.00	51/41/pc
Bismarck	14/-3/0.01	3/-11/c
Boise	19/-3/Tr	33/24/c
Boston	25/19/Tr	20/11/pc
Bridgeport	25/21/Tr	24/14/pc
Brownsville	77/53/0.00	77/61/pc
Buffalo	11/5/Tr	15/8/sf
Burlington, VT	12/6/0.03	2/-11/c
Caribou, ME	3/-16/0.00	-6/-17/pc
Casper	51/28/0.00	50/32/pc
Charleston, SC	56/41/0.00	52/38/s
Charleston, WV	22/11/0.00	28/17/sf
Charlotte, NC	43/30/0.00	44/29/s
Chattanooga	42/26/0.00	44/30/pc
Cheyenne	55/33/0.00	58/32/pc
Chicago	11/-1/0.00	20/11/sf
Cincinnati	19/8/Tr	30/14/sf
Cleveland	11/7/0.04	18/12/sf
Colorado Spgs	65/27/0.00	68/31/s
Columbia, SC	51/36/0.00	50/34/s
Columbus, GA	54/35/0.00	55/43/s
Columbus, OH	17/7/Tr	22/12/sf
Concord, NH	22/17/0.02	12/-4/pc
Corpus Christi	76/47/0.00	78/61/pc
Dallas	66/36/0.00	71/53/pc
Dayton	15/5/0.00	23/10/sf
Daytona Beach	61/53/0.00	64/43/s
Denver	64/33/0.00	68/31/s
Des Moines	17/4/0.00	28/4/pc
Detroit	12/-1/Tr	20/10/sf
Duluth	-2/-21/0.00	-1/-19/pc
El Paso	67/37/0.00	67/43/s
Elkins	16/5/Tr	20/13/sf
Erie	14/8/0.24	17/14/sf
Eugene	32/29/0.00	42/34/r
Evansville	23/14/0.00	38/20/s
Fairbanks	1/-15/0.00	-11/-20/sf
Fargo	8/-16/0.00	-4/-17/pc
Flint	10/-1/Tr	17/7/sf
Fort Smith	49/29/0.00	61/42/c
Fort Wayne	14/3/0.00	21/8/sf
Fresno	67/37/0.00	68/46/pc
Goodland	59/9/0.00	58/21/s
Grand Junction	28/-3/0.00	39/21/pc
Grand Rapids	10/-1/0.04	19/7/sf
Great Falls	50/26/0.00	39/32/c
Green Bay	4/-8/0.00	12/-2/c
Greensboro, NC	37/26/0.00	38/26/s
Harrisburg	20/15/Tr	21/14/sf
Hartford	23/17/0.01	20/7/pc
Helena	31/14/0.00	34/23/c
Honolulu	81/67/0.00	81/69/s
Houston	71/44/0.00	71/57/pc
Huntsville	41/24/0.00	46/35/pc
Indianapolis	18/4/0.00	27/13/sf
Jackson, MS	51/35/0.00	64/46/pc
Jacksonville	63/42/0.00	61/38/s
Juneau	36/30/Tr	37/30/sn
Kansas City	27/12/0.00	45/16/s
Knoxville	33/21/0.00	40/28/s
Lake Charles	67/41/0.00	68/54/pc
Lansing	10/-4/0.02	18/5/sf
Las Vegas	65/39/0.00	66/48/pc
Lexington	21/10/0.00	33/18/pc
Lincoln	24/10/0.01	33/9/s
Little Rock	43/26/0.00	54/42/c
Los Angeles	81/51/0.00	79/56/pc
Louisville	22/11/0.00	36/21/pc
Lubbock	68/24/0.00	73/35/s
Macon	53/31/0.00	56/38/s
Madison	8/-7/Tr	17/-2/c
Medford	44/21/0.00	48/29/sh
Memphis	41/26/0.00	50/37/c
Miami	78/63/0.00	76/62/s
Midland-Odessa	65/31/0.00	71/41/s
Milwaukee	8/-5/Tr	19/6/c
Minneapolis	2/-12/0.00	7/-10/pc
Minot	10/-4/Tr	-3/-10/c
Mobile	61/38/0.00	65/48/s
Montgomery	56/32/0.00	60/44/s
Nashville	31/19/0.00	44/26/pc
New Orleans	62/47/0.00	67/51/s
New York	22/19/0.00	22/14/pc
Newark	24/20/Tr	25/15/pc
Norfolk, VA	35/31/0.00	30/24/pc
North Platte	42/6/0.00	41/12/s
Oklahoma City	59/21/0.00	64/38/pc
Omaha	18/10/0.06	30/5/s
Orlando	65/55/0.00	69/46/s
Paducah	26/17/0.00	41/23/pc
Palm Springs	79/46/0.00	78/56/pc
Pendleton	24/22/0.00	35/29/r
Peoria	15/2/0.00	30/8/pc
Philadelphia	22/19/0.01	24/16/s
Pierre	18/5/0.01	16/2/pc
Pittsburgh	13/5/Tr	15/9/sf
Pocatello	23/-6/0.00	35/24/pc
Portland, ME	22/13/Tr	12/-2/pc
Portland, OR	42/24/0.00	45/35/r
Providence	24/20/0.08	20/9/pc
Pueblo	65/15/0.00	67/24/s
Raleigh	44/29/0.00	39/26/s
Rapid City	32/4/0.00	29/11/pc
Reno	45/19/0.00	53/30/c
Richmond	33/26/0.00	30/21/pc
Roanoke	29/19/0.00	32/23/pc
Rochester, NY	14/8/Tr	14/8/sf
Rockford	12/-3/0.00	22/3/sf
Sacramento	60/32/0.00	55/41/c
St. Louis	19/13/0.02	39/19/s
St. Thomas	82/73/0.00	85/74/s
Salem, OR	37/26/Tr	46/36/r
Salt Lake City	21/3/Tr	26/22/pc
San Angelo	70/33/0.00	74/50/pc
San Antonio	72/48/0.00	74/57/pc
San Diego	80/47/0.00	74/55/pc
San Francisco	57/41/0.00	55/47/sh
Santa Fe	54/23/0.00	56/28/s
St. Ste. Marie	-3/-15/0.06	12/-9/sf
Savannah	59/39/0.00	56/39/s
Seattle	38/29/0.00	43/38/r
Shreveport	58/34/0.00	70/54/pc
Sioux City	16/3/0.00	23/1/pc
Sioux Falls	13/-7/0.02	14/-5/pc
South Bend	9/3/0.17	21/9/sf
Spokane	24/4/0.00	33/26/sf
Springfield, IL	16/4/0.00	34/12/s
Springfield, MO	34/20/0.00	50/26/pc
Syracuse	16/10/0.05	10/1/sf
Tallahassee	62/42/0.00	63/39/s
Tampa	67/56/0.00	68/49/s
Toledo	11/1/0.02	19/7/sf
Topeka	34/15/0.00	48/17/s
Tulsa	54/21/0.00	59/34/pc
Tupelo	43/25/0.00	50/39/pc
Waco	69/35/0.00	71/54/pc
Washington, DC	30/20/0.00	26/22/pc
W. Palm Beach	76/62/0.00	74/58/s
Wichita	45/17/0.00	54/25/s
Wichita Falls	64/26/0.00	71/44/pc
Wilkes-Barre	15/10/Tr	19/8/sf
Wilmington, DE	22/17/0.01	24/18/pc
Wilmington, NC	48/38/0.00	44/29/s
Yakima	27/24/Tr	36/23/sf
Youngstown	10/6/0.04	14/10/sf

MEXICO AND CANADA CITIES

	Yesterday Hi	Lo	Today Hi	Lo	W
MEXICO					
Acapulco	92	74	90	73	pc
Ciudad Juarez	68	39	66	40	s
Ensenada	82	57	79	61	pc
Guadalajara	77	45	76	45	s
Hermosillo	88	54	87	53	s
Mexicali	77	40	76	55	pc
Mexico City	64	48	70	43	pc
Monterrey	66	58	75	54	pc
Puerto Penasco	78	52	75	60	s
Tijuana	82	55	78	53	pc
CANADA					
Calgary	19	14	25	17	sn
Charlottetown	9	5	0	-6	sf
Edmonton	9	7	11	-3	sn
Halifax	13	8	11	3	c
Kamloops	28	25	33	28	sf
Medicine Hat	18	10	17	8	c
Montreal	16	-4	-7	-22	pc
Moose Jaw	7	-4	4	-4	c
Niagara Falls	13	5	15	8	sf
Ottawa	1	-4	-8	-14	c
Prince Albert	5	-13	-9	-14	c
Prince George	27	9	24	19	sn
Quebec City	3	-13	-9	-20	pc
Regina	5	-15	2	-8	c
St. John's	25	21	22	13	sf
Saskatoon	3	-4	4	-10	c
Thunder Bay	0	-33	-2	-18	c
Toronto	9	9	15	5	sf
Vancouver	39	28	43	41	r
Winnipeg	-7	-27	-13	-26	pc

YumaSun.com

public notices

To advertise, call 928.539.6813 or Legals@yumasun.com

Search online at yumasun.com/sections/public-notices

NOTICE FOR FORMAL BIDS / PROPOSALS

City of YUMA

NOTICE IS HEREBY GIVEN THAT sealed proposals/bids will be received by the City of Yuma, Purchasing Division prior to the closing date for the following:

RFP NO: 2013-20000130 Professional Audit services CLOSES: February 14, 2013 @ 4:00 PM (AZ TIME)

SCOPE OF WORK: Provide Professional Audit Services to audit its financial statements and conduct any other related services as needed.

The bid/proposal forms, specifications and all necessary information may be obtained from www.AZPurchasing.org . Bidders may obtain bid notifications and solicitations at no cost by registering at http://azpurchasing.org and download the information. Information on other City of Yuma bids/proposals is available on local Channel 73, or the City's website www.YumaAz.gov/bids

LATE BIDS WILL NOT BE CONSIDERED.
The City of Yuma reserves the right to reject any and all bids, or to accept any bid or combination of bids deemed advantageous to it.
Daily January 23, 2013 - 1099017

TS No.: AZ-12-536385-JB Order No.: 120383748-AZ-MSO **Notice of Trustee's Sale** The following legally described trust property will be sold, pursuant to the power of Sale under that certain Deed of Trust dated 2/9/2005 and recorded 2/11/2005 as Instrument 2005-06187, in the office of the County Recorder of YUMA County, Arizona at public auction to the highest bidder: Sale Date and Time: 3/21/2013 at 10:00:00 AM Sale Location: At the front entrance of the Yuma County Courthouse, 168 South 2nd Avenue, Yuma, AZ 85364 Legal Description: LOT 63, OF PALO VERDE ESTATES UNIT NO. 1, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF YUMA COUNTY, ARIZONA, RECORDED IN BOOK 5 OF PLATS, PAGE 7. Purported Street Address: 2713 SOUTH MARY AVE, YUMA, AZ 85364 Tax Parcel Number: 695-15-063 Original Principal Balance: $122,400.00 Name and Address of Current Beneficiary: U.S. Bank National Association, as Trustee for Adjustable Rate Mortgage Trust 2005-7, Adjustable Rate Mortgage-Backed Pass-Through Certificates, Series 2005-7 C/O WELLS FARGO BANK 1 Home Campus X2504-017 Customer Service Des Moines, IA 50328 Name(s) and Address(s) of Original Trustor(s): ANGEL C. ALCAZAR AND MARIA R. ALCAZAR , HUSBAND AND WIFE 181 SOUTH LEWIS STREET APT. 317 7, ORANGE, CA 92868 Name and Address of Trustee/Agent: Quality Loan Service Corporation 2141 5th Avenue, San Diego, CA 92101 Phone: (866)-645-7711 Sales Line: 714-573-1965 Login to: www.prioritypostingcom AZ-12-536385-JB The successor trustee qualifies to act as a trustee under A.R.S. §33-803(A)(1) in its capacity as a licensed Arizona escrow agent regulated by the Department of Financial Institutions. If the sale is set aside for any reason, including if the Trustee is unable to convey title, the Purchaser at the sale shall be entitled only to a return of the monies paid to the Trustee. This shall be the Purchaser's sole and exclusive remedy. The purchaser shall have no further recourse against the Trustor, the Trustee, the Beneficiary, the Beneficiary's Agent, or the Beneficiary's Attorney. If you have previously been discharged through bankruptcy, you may have been released of personal liability for this loan in which case this letter is intended to exercise the note holders right's against the real property only. THIS OFFICE IS ATTEMPTING TO COLLECT A DEBT AND ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE. As required by law, you are hereby notified that a negative credit report reflecting on your credit record may be submitted to a credit report agency if you fail to fulfill the terms of your credit obligations. Dated: DEC 12 2012 QUALITY LOAN SERVICE CORPORATION By: Reina Isip, Assistant Secretary State of: California)) ss County of: San Diego) On DEC 12 2012 before me, Samantha Dalton, a notary public, personally appeared Reina Isip, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct. WITNESS my hand and official seal. Signature Samantha Dalton (Seal) SAMANTHA DALTON Commission # 1873842 Notary Public - California San Diego County My Comm. Expires Jan 16, 2014 P1013811
Daily January 16, 23, 30, 2013 & February 6, 2013 - 1098037

For results and more Sun Sports 539-6880

PROPOSED ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES) PERMIT

Proposed action by the Arizona Department of Environmental Quality (ADEQ) on an application for an Arizona Pollutant Discharge Elimination System (AZPDES) Permit to discharge pollutants to Waters of the United States. ADEQ is issuing this notice of proposed action under the Clean Water Act (CWA) and in accordance with Arizona Administrative Code (A.A.C.) R18-9-A907.

The Director proposes to issue an AZPDES permit to discharge to the following applicant, subject to certain effluent limitations and special conditions:

Public Notice No. 18-13AZ

AZPDES Permit No. AZ0023272
JBS Five Rivers Cattle Feeding LLC
1770 Promontory Circle
Greeley, CO 80634

JBS Five Rivers Cattle Feeding LLC (JBS) has applied for a new Arizona Pollutant Discharge Elimination System (AZPDES) permit for operation of a concentrated animal feeding operation (CAFO) located 4.7 miles east of Wellton and one mile north of Highway 8 in Yuma County, Arizona. The facility operation generates approximately 140,432 tons or 34,000,000 gallons of manure, litter, and process wastewater annually. On-site process drainage is contained in three holding ponds with a storage capacity of 33,000,000 gallons. Solid manure is deposited on the feedyard pen surface and composted and conveyed to third party farmers for land application off site. The holding ponds are designed and constructed to contain the runoff produced by the 25-year, 24-hour rainfall event. The facility utilizes process wastewater through evaporation; dust control on pens, roads, and open spaces; application to manure to adjust moisture during composting; or on a limited basis, land application to designated land management units (LMUs) when necessary after extreme or chronic precipitation events. Development and implementation of a site-specific Nutrient Management Plan (NMP), Best Management Practices (BMPs), and additional measures are required for both the CAFO production area and land application areas to control the discharge of pollutants; these are established as technology-based limitations. Sampling of plant tissue, soil, manure, and wastewater will be conducted as necessary in accordance with the sampling protocols described in the NMP.

NEED TO SELL SOMETHING? Classifieds in Yuma.com

The public notice and related documentation are available for public review, Monday through Friday, 8:30 a.m. to 4:30 p.m., at the ADEQ Records Center, 1110 W. Washington St., Phoenix, Arizona, 85007. In Phoenix, please call (602) 771-4380 or e-mail recordscenter@azdeq.gov 24 hours in advance to schedule an appointment to review the file.

Persons may submit comments or request a public hearing on the proposed action, in writing, to Chiou Chen , ADEQ, Water Quality Division, 1110 W. Washington St., 5415A, Phoenix, Arizona 85007. All written comments received by ADEQ by the close of business on the date 30 days after publication of this notice will be considered in the final permit decision. Requests for a hearing must be in writing and must state the issues proposed to be raised in a hearing. If there is a significant degree of public interest, the Director will hold a hearing in accordance with A.A.C. R18-9-908(B). Additional notice of such hearing would be published at least 30 days prior to the hearing date.

Please bring the foregoing notice to the attention of all persons you know would be interested in this matter.
Daily January 23, 2013 - 1098022

PUBLIC NOTICE

The U.S. Army Garrison Yuma Proving Ground (USAG YPG) proposes to enter into a Programmatic Agreement (PA) with the Arizona State Historic Preservation Officer and the Advisory Council on Historic Preservation regarding operation, maintenance, and development activities at Yuma Proving Ground. The PA was prepared in accordance with the National Historic Preservation Act (NHPA), 16 United States Code § 470f and its implementing regulations (36 Code of Federal Regulations 800).

The PA is intended to streamline the consultation process required under sections 106 and 110 of the NHPA for operation, maintenance, and development activities at YPG that are of a routine and recurring nature. The PA includes a number of stipulations to consider the potential for adverse effects on historic properties that could result from routine actions and to guide the consultation process for those activities.

Pursuant to 36 CFR 800.14(f), USAG YPG is providing this notice to allow the public an opportunity to comment on the proposed PA and the stipulations contained therein. The PA is available for a 30-day review period and may be downloaded from the YPG website at http://www.yuma.army.mil. Please direct comments, inquiries, or requests for hardcopies of the PA to U.S. Army Garrison, Yuma Proving Ground, Environmental Sciences, Meg McDonald, 301 C Street, IMYM-PWE, Yuma, AZ 85365-9498, by calling (928) 328-2520, or by email to **alison.m.mcdonald.civ@mail.mil**.

Copies of the PA are also available for review at the Yuma County Library, Main Branch (2951 S. 21st Dr., Yuma, AZ 85364, 928-782-1871), and at the Foothills Branch (13226 E. South Frontage Rd., Yuma, AZ 85367, 928-342-1640).

Daily January 23, 2013 - 1099002

Follow Sun Media anywhere you go!

Twitter: @YumaSun

Facebook: Facebook.com/YumaSunNews

Yuma Sun

Publisher's Affidavit of Publication

oOo

STATE OF ARIZONA }
COUNTY OF YUMA }

Lisa Reilly or Kathy White, having been first duly sworn, deposes and says: that Yuma Sun is a newspaper of general circulation published daily in the City of Yuma, County of Yuma, State of Arizona; that (s)he is the publisher or business manager of said paper; that the PUBLIC NOTICE

a printed copy of which, as it appeared in said paper, is hereto attached and made a part of this affidavit, was published in Yuma Sun For 1 issues; that the date of the first publication of said PUBLIC NOTICE

was JANUARY 23, 2013 and the date of the last publication being JANUARY 23, 2013 and that the dates when said PUBLIC NOTICE

was printed and published in said paper were JANUARY 23, 2013

Subscribed and sworn to before me, by the said Lisa Reilly or Kathy White

9th day of December, 2014

Virgen P. Perez Notary Public

OFFICIAL SEAL
VIRGEN P. PEREZ
Notary Public - State of Arizona
YUMA COUNTY
My Comm. Expires May 10, 2017

My commission expires **MAY 10, 2017**

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

April 1, 2013

Environmental Sciences Division

Mr. James Garrison
Arizona State Historic Preservation Officer
1300 W. Washington Street
Phoenix, Arizona 85007

Dear Mr. Garrison:

U.S. Army Garrison Yuma Proving Ground initiated consultation with your office on June 27, 2012 (SHPO 2012-0655[105730]) for development of a Programmatic Agreement (PA) for Yuma Proving Ground (YPG). Enclosed with this letter is a second draft of the PA, incorporating comments received to date. Both paper and electronic copies are included to facilitate your review and comment. All comments received on the first draft are included on compact disk (CD). The 2011 archaeological sensitivity model mentioned in the PA and the transcript from the August 22, 2012 tribal consultation meeting discussion of potential PA stipulations are also included on the CD. All materials are being mailed concurrently to the Advisory Council on Historic Preservation, all consulting federally recognized tribes, and other consulting parties listed in the PA. The enclosed draft PA addresses preferred management strategies for historic properties that may be affected by implementation of undertakings that may occur, including basic maintenance, repair, and development activities, training exercises, and supported component activities. Although the USAG YPG goal of the PA is to establish consultation procedures for the broader spectrum of typical undertakings, execution of the PA is essential prior to signing of the Record of Decision for the Programmatic Environmental Impact Statement for Mission activities that is currently in development in order to resolve effects to cultural resources.

In accordance with 36 CFR 800.6(a)(1)(i)(C), USAG YPG invited the ACHP to participate in the consultation through a letter dated June 27, 2012; the ACHP responded affirmatively via letter dated October 17, 2012 (enclosed). Per 36 CFR 800.2(c)(2), USAG YPG has invited 14 federally recognized Native American tribes to participate as consulting parties in the Section 106 process for the PA, including the Ak-Chin Indian Community, the Chemehuevi Indian Tribe, the Cocopah Indian Tribe, the Colorado River Indian Tribes, the Fort McDowell Yavapai Nation Community, the Fort Mojave Indian Tribe, the Gila River Indian Community, the Hopi Tribe, the Quechan Tribe, the Salt River Pima-Maricopa Indian Community, the San Carlos Apache Tribe, the Tohono O'odham Nation, the Yavapai-Apache Nation , and the Yavapai-Prescott Tribe. An initial Section 106 government-to-government consultation meeting to discuss potential draft PA stipulations was held on August 22, 2012. Representatives of eight of the 14 consulting tribes attended the meeting. Katharine Kerr, Program Analyst, ACHP, Kristin Leahy, Architectural Historian, Army Environmental Command, and Ann Howard, of your office, also participated via teleconference.

We have scheduled a meeting on the morning of April 17, 2013, in Building 308 on the Main Administrative Area of Yuma Proving Ground to discuss the enclosed second draft of the PA. The meeting agenda and a map to Building 308 are also enclosed. U.S. Army Garrison Yuma Proving Ground is able to assist with travel expenses and accommodations; please contact Dr. Meg McDonald, Cultural Resources Manager for details. If your office cannot send a representative, the enclosed agenda has teleconferencing instructions. Any comments you send via mail or email prior to the meeting will be presented at the meeting; as importantly, we welcome your comments in person or via telephone during the meeting if you cannot send comments prior to the meeting.

If you have any comments, please address your correspondence to Dr. Meg McDonald, Cultural Resources Manager, at alison.m.mcdonald.civ@mail.mil or (928) 328-2520. Thank you for your interest in and support of U.S. Army Garrison Yuma Proving Ground's cultural resources program.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

April 1, 2013

Environmental Sciences Division

Mr. John M. Fowler
Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Ave. NW, Suite 803
Washington, D.C. 20004

Dear Mr. Fowler:

U.S. Army Garrison Yuma Proving Ground (USAG YPG) initiated consultation with the Advisory Council on June 27, 2012 for development of a Programmatic Agreement (PA) for Yuma Proving Ground (YPG); your office responded affirmatively via letter dated October 17, 2012. Enclosed for your review and comment is a second draft PA; both a paper copy and an electronic copy in Microsoft Word are enclosed to facilitate your review. All comments received on the first draft are included on compact disk (CD). The 2011 archaeological sensitivity model mentioned in the PA and the transcript from the August 22, 2012 tribal consultation meeting discussion of potential PA stipulations are also included on the CD. All materials are being mailed concurrently to the Arizona State Historic Preservation Officer (SHPO), all consulting federally recognized tribes, and other consulting parties listed in the PA.

We have scheduled a meeting on the morning of April 17, 2013, in Building 308 on the Main Administrative Area of Yuma Proving Ground to discuss the enclosed second draft of the PA. The meeting agenda and a map to Building 308 are also enclosed. U.S. Army Garrison Yuma Proving Ground is able to assist with travel expenses and accommodations; please contact Dr. Meg McDonald, Cultural Resources Manager for details. If your office cannot send a representative, the enclosed agenda has teleconferencing instructions. Any comments you send via mail or email prior to the meeting will be presented at the meeting; as importantly, we welcome your comments in person or via telephone during the meeting if you cannot send comments prior to the meeting.

If you have any comments, please address your correspondence to Dr. Meg McDonald, Cultural Resources Manager, at alison.m.mcdonald.civ@mail.mil or (928) 328-2520. Thank you for your interest in and support of U.S. Army Garrison Yuma Proving Ground's cultural resources program.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosures

Distribution List for April 1, 2013 Tribal Letter

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Hopi Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

Agency
Advisory Council on Historic Preservation
Arizona Department of Transportation
Arizona Historical Society, Rio Colorado Division
Arizona Public Service Company, Natural Resources Department
Bureau of Land Management, Yuma Field Office
Western Area Power Administration, Desert South Region

Microwave Radio Systems, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, site surveys, U.S. Government and contractor technical assistance, and other related elements of program and logistics support. The estimated cost is $339 million.

This proposed sale will contribute to the foreign policy and national security of the United States by improving the Iraqi military's situational awareness and enhancing command and control from its National Military Headquarters to major subordinate commands.

The Government of Iraq intends to use these defense articles and services to provide critical redundancy for national level command and control.

This proposed sale of this equipment and support will not alter the basic military balance in the region.

The principal contractor will be Raytheon Company of Arlington, Virginia. There are no known offset agreements proposed in connection with this potential sale.

Implementation of this proposed sale will require U.S. Government and contractor representatives to travel to Iraq on an as-needed basis to provide program and technical support and training.

There will be no adverse impact on U.S. defense readiness as a result of this proposed sale.

[FR Doc. 2013–19976 Filed 8–15–13; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Office of the Secretary

Meeting of the Uniform Formulary Beneficiary Advisory Panel

AGENCY: Assistant Secretary of Defense (Health Affairs), DoD.

ACTION: Notice of meeting.

SUMMARY: Under the provisions of the Federal Advisory Committee Act of 1972 (5 U.S.C., as amended, 41 CFR 102–3.150) and the Government in the Sunshine Act of 1976 (5 U.S.C. 552b, as amended) the Department of Defense (DoD) announces the following Federal advisory committee meeting of the Uniform Formulary Beneficiary Advisory Panel (''the Panel'').

DATES: Thursday, September 19, 2013, from 9:00 a.m. to 1:00 p.m.

ADDRESSES: Naval Heritage Center Theater, 701 Pennsylvania Avenue NW., Washington, DC 20004.

FOR FURTHER INFORMATION CONTACT: CDR Joseph Lawrence, DFO, Uniform Formulary Beneficiary Advisory Panel, 4130 Stanley Road, Suite 208, Building 1000, San Antonio, TX 78234–6012. Telephone: (210) 295–1271 Fax: (210) 295–2789. Email Address: *Baprequests@tma.osd.mil.*

SUPPLEMENTARY INFORMATION:

Purpose of Meeting: The Panel will review and comment on recommendations made to the Director of TRICARE Management Activity, by the Pharmacy and Therapeutics Committee, regarding the Uniform Formulary.

Meeting Agenda:

1. Sign-In
2. Welcome and Opening Remarks
3. Public Citizen Comments
4. Scheduled Therapeutic Class Reviews (Comments will follow each agenda item)
   a. Corticosteroids-Immune Modulators
   b. Self-Monitoring Blood Glucose Systems
   c. Renin-Angiotensin Anti-hypertensives
   d. Pulmonary-1 Agents
   e. Designated Newly Approved Drugs in Already-Reviewed Classes
   f. Pertinent Utilization Management Issues
5. Panel Discussions and Vote

Meeting Accessibility: Pursuant to 5 U.S.C. 552b and 41 CFR 102–3.140 through 102–3.165, and the availability of space, this meeting is open to the public. Seating is limited and will be provided only to the first 220 people signing-in. All persons must sign-in legibly.

Administrative Session: Prior to the public meeting, the Panel will conduct an Administrative Session from 7:30 a.m. to 9:00 a.m. to discuss administrative matters of the Panel. The Administrative Session will be held at the Naval Heritage Center, 701 Pennsylvania Avenue NW., Washington, DC 20004. Pursuant to 41 CFR 102–3.160, the Administrative Session will be closed to the public.

Written Statements: Pursuant to 41 CFR 102–3.105(j) and 102–3.140 and 10(a)(3) of the Federal Advisory Committee Act, the public or interested organizations may submit written statements to the membership of the Panel at any time or in response to the stated agenda of a planned meeting. Written statements should be submitted to the Panel's Designated Federal Officer (DFO). The DFO's contact information can be obtained from the General Services Administration's Federal Advisory Committee Act Database at *https://www.fido.gov/facadatabase/public.asp* as well as in the **FOR FURTHER INFORMATION CONTACT** section.

Written statements that do not pertain to the scheduled meeting of the Panel may be submitted at any time. However, if individual comments pertain to a specific topic being discussed at a planned meeting, then these statements must be submitted no later than 5 business days prior to the meeting in question. The DFO will submit all written statements and provide copies to all the committee members.

Public Comments: In addition to written statements, the Panel will set aside 1 hour for individuals or interested groups to address the Panel. To ensure consideration of their comments, individuals and interested groups should submit written statements as outlined in this notice; but if they still want to address the Panel, then they will be afforded the opportunity to register the day of the meeting to address the Panel. The Panel's DFO will have a ''Sign-Up Roster'' available at the Panel meeting for registration on a first-come, first-serve basis. Those wishing to address the Panel will be given no more than 5 minutes to present their comments, and at the end of the 1 hour time period, no further public comments will be accepted. Anyone who signs-up to address the Panel, but is unable to do so due to the time limitation, may submit their comments in writing; however, they must understand that their written comments may not be reviewed prior to the Panel's deliberation.

To ensure timeliness of comments for the official record, the Panel encourages that individuals and interested groups consider submitting written statements instead of addressing the Panel.

Dated: August 13, 2013.

Aaron Siegel,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 2013–19927 Filed 8–15–13; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Department of the Army

Draft Programmatic Environmental Impact Statement for Activities and Operations at Yuma Proving Ground, Arizona

AGENCY: Department of the Army, DoD.

ACTION: Notice of Availability.

SUMMARY: The Department of the Army announces the availability of the Draft Programmatic Environmental Impact Statement (DPEIS) for implementation of activities and operations at Yuma Proving Ground (YPG). This document

analyzes and evaluates potential environmental impacts associated with short-term and long-term proposed construction projects and proposed changes to YPG's testing and training mission. YPG consists of approximately 840,000 acres of DoD-managed land in the Sonoran Desert in southwestern Arizona.

DATES: The public comment period will end 45 days after publication of an NOA in the **Federal Register** by the U.S. Environmental Protection Agency.

ADDRESSES: For questions concerning the DPEIS, please contact Mr. Sergio Obregon, U.S. Army Garrison Yuma Proving Ground, National Environmental Policy Act Coordinator, IMYM–PWE, Yuma, AZ 85365–9498. Written comments may be mailed to that address or emailed to *ypgnepa@conus.army.mil.*

FOR FURTHER INFORMATION CONTACT: Mr. Chuck Wullenjohn, Yuma Proving Ground Public Affairs Office, at (928) 328–6189 Monday through Thursday from 6:30 a.m. to 5:00 p.m., Mountain Standard Time.

SUPPLEMENTARY INFORMATION: The Department of the Army prepared a DPEIS to analyze potential impacts from new construction, changes in testing and training, and activities conducted under private industry partnerships. Potential renewable energy initiatives are also discussed in the DPEIS, but project-specific National Environmental Policy Act (NEPA) analysis separate from the DPEIS will be required prior to implementing any specific renewable energy initiatives.

There are two alternatives analyzed in this DPEIS: (1) No Action which describes the conditions under which no new actions would occur. There would be no changes in testing and training activities conducted at YPG, and (2) the Proposed Action which includes new construction and associated demolition, testing and training activities occurring on YPG, and new testing and training proposed by tenants to meet anticipated testing or training needs. The programmatic components of the DPEIS consist of a detailed analysis of well defined short-term projects and long-term projects with unspecified locations. These are analyzed to identify the maximum potential impact on a broad scale. These activities would be subjected to site-specific NEPA analysis prior to implementation and could include analysis of other reasonable alternatives to the identified action. Six other alternatives were considered but eliminated from further analysis.

The PEIS will be used to develop a future Real Property Master Plan (RPMP) at YPG. This analysis will support the future planning to ensure that YPG considers environmental impacts as it seeks to improve facilities and capabilities for the future. The analysis in the PEIS will also support the alternatives analysis for the RPMP. The DPEIS will also address cumulative impacts for existing, proposed, and reasonably foreseeable projects.

For the Proposed Action, the analysis is structured to allow the Army to select a subset of the proposed activities or, for certain activities, to select from among a range of options with regard to magnitude, frequency, or duration. The Army is not seeking to expand the boundaries of YPG and all proposed activities would be conducted within the boundaries of the installation or its currently authorized airspace. No changes are proposed to ongoing activities conducted at off-post areas in Arizona and California that are used for specific testing activities under conditions not found at YPG. Therefore, activities conducted in these areas are not included in the analysis in the DPEIS.

The potential for environmental impacts is greatest for the following resource areas: soils, air quality, solid and hazardous materials/waste, vegetation, and wildlife. Impacts to these resources may occur as a result of converting existing land use to support military testing and training or from increasing the scope or magnitude of testing activities.

All governmental agencies, interest groups, and individuals are invited to participate in public meetings and/or submit comments in writing. Information on the time and location of two public meetings will be published locally. In addition, YPG is engaged in consultation with federally recognized Native American tribes regarding the Proposed Action. YPG will meet the obligation to consult under Section 106 of the National Historic Preservation Act concurrently with this NEPA process through a Programmatic Agreement.

At this time, a Preferred Alternative has not been selected. The Army will select a Preferred Alternative after consideration of input from government agencies, Native American tribes, non-governmental organizations, and members of the public.

Copies of the DPEIS are available at the Yuma County Library, Main Branch, 2951 S. 21st Drive and the Yuma Proving Ground Post Library. The DPEIS can also be viewed at the following Web site: *http://www.yuma.army.mil/mhub_documents.shtml.*

Brenda S. Bowen,

Army Federal Register Liaison Officer.

[FR Doc. 2013–19827 Filed 8–15–13; 8:45 am]

BILLING CODE 3710–08–P

DEPARTMENT OF DEFENSE

Department of the Army

Record of Decision for the Construction and Operation of an Infantry Platoon Battle Course at Pōhakuloa Training Area, Hawai'i

AGENCY: Department of the Army, DoD.

ACTION: Notice of availability.

SUMMARY: The U.S. Army Pacific (USARPAC) and U.S. Army Garrison, Hawai'i, (USAG–HI) announce the decision to construct and operate a new Infantry Platoon Battle Course (IPBC) and associated infrastructure at Pōhakuloa Training Area (PTA), Hawai'i. This decision allows the Army to construct and operate an IPBC that will meet Army training requirements and will support the live-fire collective training needs of the Army, Army Reserve, and Hawai'i Army National Guard, as well as other Service components that are stationed or train in Hawai'i.

To comply with the National Environmental Policy Act (NEPA), the Department of the Army prepared an Environmental Impact Statement (EIS) that evaluated the potential environmental and socioeconomic effects associated with alternatives to construct and operate the IPBC. In the Final EIS published in the **Federal Register** on April 26, 2013 (78 FR 24734), the Army identified the Western Range Alternative as the preferred alternative. The Army has selected the preferred alternative in the Record of Decision (ROD). The Western Range Area Alternative is located in an under-utilized portion of the PTA impact area where no ranges currently exist. The location has been exposed to indirect munitions fire and constructing the IPBC here will reclaim a portion of the impact area. A copy of the ROD can be found at *www.garrison.hawaii.army.mil/pta_peis/default.htm.*

ADDRESSES: Email requests to obtain a copy of the ROD can be addressed to *USARMY.JBSA.AEC.MBX@mail.mil.*

FOR FURTHER INFORMATION CONTACT: US Army Environmental Command Public Affairs Office, at 1–855–846–3940 (toll free).

PUBLIC NOTICE

The United States Army Garrison Yuma Proving Ground (USAG YPG) announces the availability of a draft Programmatic Agreement (PA) in accordance with Section 106 of the National Historic Preservation Act.

The draft Section 106 PA addresses an ongoing program of operations and maintenance at YPG, as well as the activities considered in the DPEIS. USAG YPG determined that the development of a PA, in accordance with 36 Code of Federal Regulations § 800.14(b)(1)(ii) and (iv), is warranted because specific details on some projects are unknown and the effects on historic properties cannot be fully determined prior to their approval, and because of the routine nature of many actions that are part of the ongoing management and operation of YPG. The draft PA has been developed through consultation with the Advisory Council on Historic Preservation, the Arizona State Historic Preservation Officer, and federally recognized tribes in the region, and will be available for review in order to provide an opportunity for members of the public to express their views on resolving adverse effects to historic properties that could result from the activities and operations at YPG.

A public meeting to discuss the draft Programmatic Environmental Impact Statement and the Programmatic Agreement will be held on YPG from 6:00 pm to 8:00 pm at Building 6, the Desert Breeze Travel Camp Community Center, located on the Main Administrative Area off of Imperial Dam Road on Tuesday September 24, 2013. A second public meeting on the DPEIS will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364 on Wednesday September 25, 2013 from 6:00 pm to 8:00 pm.

The Draft PA will be available for review at the Yuma County Library, Main Branch, 2951 S. 21st Drive, the YPG Post Library, and the Foothills Branch Library, 13226 S Frontage Rd, Yuma, AZ, from September 2 through October 7, 2013. The public comment period for the draft Section 106 PA will be September 2 through October 7, 2013. The documents also can be viewed at the following website: http:// www.yuma.army.mil/mhub_documents.shtml.

For questions concerning the DPEIS, please contact Ms. Meg McDonald, U.S. Army Garrison Yuma Proving Ground, Cultural Resources Manager, IMYM–PWE, Yuma, AZ 85365-9498. Written comments may be mailed to that address or emailed to alison.m.mcdonald.civ@mail.mil.

Distribution List for August 22, 2013 Letter

Copy of Letter is Available at Yuma Proving Ground

Native American
Ak-Chin Indian Community
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribes
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Gila River Indian Community Council
Hopi Tribe
Quechan Indian Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Tohono O'Odham Nation
Yavapai-Apache Nation
Yavapai-Prescott Tribe

Agency
Arizona Department of Agriculture, Native Plant Program
Arizona Department of Environmental Quality
Arizona Department of Environmental Quality, Air Quality Division
Arizona Department of Transportation
Arizona Game and Fish Department
Bureau of Indian Affairs - Western Regional Office
Bureau of Land Management, Yuma District Office
Cibola National Wildlife Refuge
Environmental Department MCAS Yuma
Imperial National Wildlife Refuge
Kofa National Wildlife Refuge
Southwest Arizona National Wildlife Refuge Complex
U.S. Border Patrol
Bureau of Land Management, Yuma District Office
U.S. Bureau of Reclamation, Yuma Area Office
U.S. Department of Agriculture, Natural Resources Conservation District
U.S. Environmental Protection Agency, Region IX
U.S. Fish and Wildlife Service

Public, Political Representatives, and Local Government
Arizona Deer Association
Arizona Desert Bighorn Sheep Society
Arizona Historical Society
Arizona Wilderness Coalition
Audubon Society
City of Yuma
Center for Biological Diversity

Greater Yuma Economic Development Corporation
House of Representatives
La Paz County
Sierra Club, Grand Canyon Chapter
United States Senate
Western Arizona Council of Governments
Yuma County Chamber of Commerce
Yuma County
Yuma Metropolitan Planning Organization

LOCALES

Preguntas a los candidatos sobre sus plataformas

PERSONAL DE REDACCION

BAJO EL SOL

Yuma -- Diversos candidatos competirán para puestos en el concilio de Yuma en la elección primaria de la ciudad que se realizará el 27 de agosto.

El periódico Yuma Sun les hizo preguntas a los candidatos sobre sus plataformas. Esta es parte de una serie de notas sobre las respuestas de ellos.



KEITH C. PARSELS

Nombre del candidato: Keith C. Parsels

Años de edad: 61

Describa su plataforma: Eliminar la carga que el gobierno coloca a los negocios pequenos, y disminuir el control de la ciudad de Yuma por los gobiernos del estado de Arizona y de los Estados Unidos.

Si usted sea elegida, ¿cual será su primera prioridad?: Crear un consenso acerca de lo que es esencial para la mayoría de residentes de la ciudad, antes de que yo vote por cualquier aumento de impuesto o de cobro.

¿Que cree que es el reto más grande que enfrenta a los residentes de Yuma?: El desempleo y aumentos de impuestos y de cobros de servicios de utilidades, los cuales dañan a personas de bajos recursos, a las que carecen de empleo, a los jubilados o personas de tercera edad con ingresos fijos.



DANIEL SANCHEZ

Nombre del candidato: Daniel Sánchez

Años de edad: 28

Describa su plataforma: Gobierno transparente, animar a negocios locales y atraer a nuevas empresa a Yuma, y lograr la responsabilidad financiera.

Si usted sea elegida, ¿cual será su primera prioridad?: Me gustaría trabajar con mis concejales compañeros para desarrollar una declaración de visión y un plan estratégico que dirigiría a la ciudad durante los próximos dos años. Lograr una visión común es esencial para contar con un equipo profesional y productivo, y sin la colaboración seria imposíble trabajar por los intereses mejores de la ciudad. Una vez que se logre tal meta, quiero trabajar con el concilio y el administrador de la ciudad para cambiar la manera en que se crea el presupuesto de la ciudad.



PAUL JOHNSON

¿Que cree que es el reto más grande que enfrenta a los residentes de Yuma?: Creo que el reto más grande que enfrenta a residentes de Yuma es que hay demasiada personas quienes están apáticas a los problemas de su ciudad, entre ellas los jovenes que parecen menos ocupados a buscar soluciones.

Nombre del candidato: Paul Johnson

Años de edad: 69

Describa su plataforma: Trabajaré de forma colaborativa con los otros concejales, la mesa de supervisores del Condado de Yuma, así como otros grupos y organizaciones para atraer nuevos negocios a Yuma para reducir nuestra tasa horrible de desempleo. Trabajaré con los otros concejales para mejorar los servicios del municipio mientras reducir los costos a los contribuyentes. Trabajaré para reducir la congestión del tráfico por medio de buscar fondos para proyectos de mejoramiento a las calles, y continuaró a trabajar para mejorar los parques y programas recreativos para nuestros jovenes.

Si usted sea elegida, ¿cual será su primera prioridad?: Atraer a Yuma más puestos de trabajo de mejores salarios, lo que es esencial para reducir nuestra tasa horrible de desempleo.

¿Que cree que es el reto más grande que enfrenta a los residentes de Yuma?: El de reducir la tasa alta de desempleo en nuestra comunidad.

Llenan puesto directivo en ayuntamiento de San Luis

CESAR NEYOY

BAJO EL SOL

San Luis, Ariz.- Desde hoy, el ayuntamiento de esta ciudad tiene una nueva funcionaria, Jenny Torres, quien fue contratada como directora de Desarrollo Comunitario.

Torres, de 35 años de edad, llegó a llenar el puesto que ocupara Michel Trend, quien lo dejó en octubre, en un acuerdo con la ciudad.

"Estoy muy emocionada de regresar al puesto que dejé hace casi diez años, de traer la experiencia que he adquirido en el sector privado y trabajando de cerca de organzaciones del sector público", comentó Torres, quien ocupó el mismo puesto entre los años 2001 y 2004.

Nacida en California, Torres fue criada y reside en San Luis desde su niñez, aunque en años recientes se desempeño como gerente de proyectos para una compañia de bienes raíces en el Valle Imperial, donde, además, trabajó de cerca con organizaciones no lucrativas.

Antes de asumir el puesto, Torres, hija de la concejal Gloria Torres, trabajó para la organización no lucrativa Comité de Bien Estar, en esta ciudad.

"Apenas estoy revisando la metas que tiene la oficina. Tengo el reto de continuar trabajando para lograrlas, pero también el de aplicar mi experiencia e implantar ideas que puedan servir en bien de la comunidad", anotó la funcionaria.

Torres tiene una maestría en Administración Pública por la Northern Arizona University (NAU), y percibirá un salario de 64,000 dólares anuales.

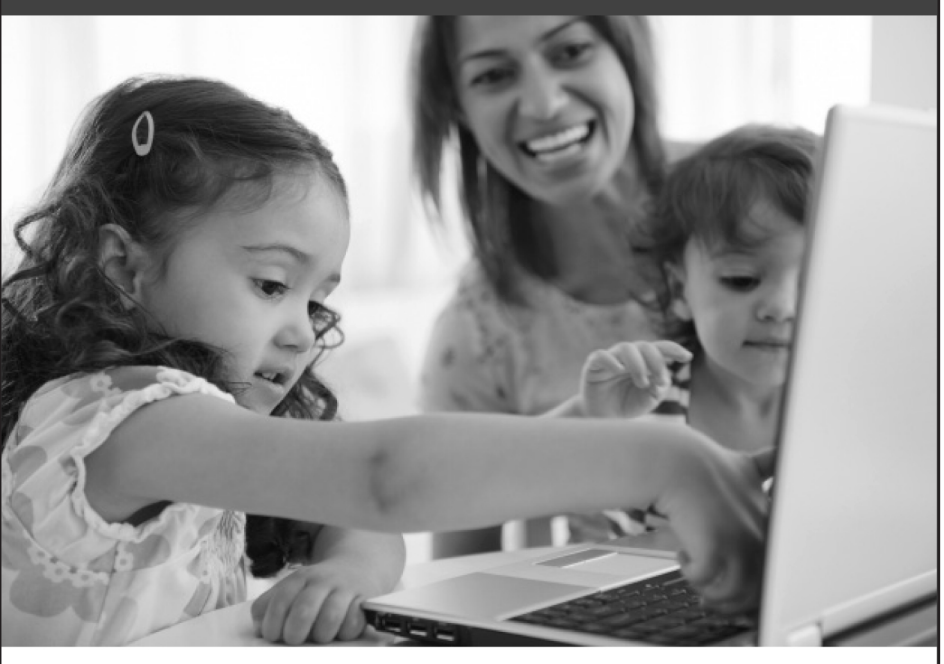
Torres llega a dirigir el departamento encargado de gestionar recursos externos para proyectos muncipales y promover el desarrollo económico.

Reconoció que llega al puesto en un tiempo difícil para la gestión de recursos: "La economía apenas se está recuperando; sé que es un tiempo difícil, pero vamos a ver qué mecanismos implementar para atraer recursos".



JENNY TORRES

Tener una conexión a Internet no es sólo conveniente. Es una necesidad.



El servicio de Internet en casa es importante para estudiar, trabajar y estar conectado. Y ahora está a tu alcance con Internet Basics de CenturyLink.

Las familias de bajos ingresos que califiquen y que residan en un área de servicio de CenturyLink deben llamar al **1.866.541.3330** o visitar **www.centurylink.com/internetbasics** para saber si califican y obtener más información sobre el programa de descuento Internet Basics de CenturyLink. El programa también ofrece una computadora a precio accesible y entrenamiento básico **gratis** en Internet.

CenturyLink

Visite nuestro sito web: www.bajoelsol.com



Lea nuestro periódico cada semana

AVISO PÚBLICO

El ejército de los Estados Unidos Garrison Yuma Proving Ground (USAG YPG, por sus siglas en inglés) anuncia la disponibilidad del Borrador de la Declaración de Programación de Impacto Ambiental (DPEIS, por sus siglas en inglés) en conformidad con la sección 102(2)(c) de la Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) para analizar los impactos ambientales como resultado de la implementación de las actividades y funcionamiento en Yuma Proving Ground (YPG, por sus siglas en inglés) al noreste de Yuma, Arizona y el borrador del Acuerdo de Programación (PA, por sus siglas en inglés) en conformidad con la Sección 106 de la Ley Nacional para la Conservación Histórica. El Aviso de Disponibilidad (NOA por sus siglas en inglés) de este DPEIS fue publicado en el Registro Federal el 16 de agosto de 2013.

Este documento analiza los posibles impactos por la nueva construcción, cambios en pruebas y capacitación y actividades llevadas a cabo bajo las asociaciones de la industria privada. Iniciativas de energía renovable se discuten en el DPEIS, pero el análisis de la NEPA para este proyecto será necesario antes de implementar iniciativas específicas de energía renovable. Hay dos alternativas analizadas en este DPEIS: (1) Ninguna Acción que describe las condiciones bajo las cuales no se producirían nuevas acciones. No habría ningún cambio en actividades de pruebas y capacitación que se realizan en YPG, y (2) la Acción Propuesta, que incluye la nueva construcción y demolición asociada, actividades de pruebas y capacitación que ocurren en YPG y nuevas pruebas y capacitación propuestos por los inquilinos para cumplir con pruebas o capacitación anticipadas. Para la Acción Propuesta, el análisis está estructurado para permitir que el ejército seleccione un subconjunto de las actividades propuestas o, para ciertas actividades, seleccionar entre una gama de opciones con respecto a la magnitud, frecuencia o duración. El ejército no está tratando de ampliar las fronteras de YPG y todas las actividades propuestas se llevarían a cabo dentro de los límites de la instalación o su espacio aéreo actualmente autorizado. El PEIS se utilizará para desarrollar un futuro Plan Maestro de Propiedades Inmuebles (RPMP, por sus siglas en inglés) en YPG. En este momento, no se ha seleccionado una Alternativa Preferida. El ejército seleccionará una Alternativa Preferida después de considerar la opinión de las agencias gubernamentales, las tribus Americanas Nativas, organizaciones no gubernamentales y miembros del público.

Se llevará a cabo una reunión pública para discutir el DPEIS en YPG de las 6:00pm a 8:00pm en el Edificio 6, del Centro Comunitario Desert Brezee Travel Camp, ubicado en el Area Administrativa Principal en la salida de la calle Imperial Dam Road, el Martes 24 de Septiembre de 2013. Se llevará a cabo una segunda reunión pública en la Biblioteca Pública de Yuma, ubicada en el 2951 South 21st Drive, Yuma AZ, 85364 el Miércoles 25 de Septiembre de 2013 de las 6: 00pm a 8:00pm.

El borrador del PA de Sección 106 aborda un programa continuo de las operaciones y mantenimiento en YPG, e incluye las actividades consideradas en el DPEIS. USAG YPG determinó que el desarrollo de un PA, según el Código de Regulaciones Federales 36 § 800.14(b)(1)(ii) y (iv), se justifica porque se desconocen detalles específicos sobre algunos proyectos y los efectos sobre las propiedades históricas no pueden determinarse completamente antes de su aprobación y debido a la costumbre rutinaria de muchas acciones que forman parte de la continua gestión y operación de YPG. El borrador del PA se ha desarrollado a través de consultas con el Consejo Consultivo de Conservación Histórica, el oficial de Conservación Histórica del estado de Arizona y tribus reconocidas por el gobierno federal en la región y estará disponible para revisión con el fin de proporcionar una oportunidad al público a expresar sus opiniones para resolver los efectos adversos a las propiedades históricas que podrían derivarse de las actividades y operaciones en YPG.

El período de comentario público para el DPEIS comienza oficialmente con la publicación de la NOA en el Registro Federal y el documento está disponible en la base de datos de la Declaración de Impactos Ambientales (EIS, por sus siglas en inglés) de la Agencia de Protección Ambiental de Los Estados Unidos (US EPA, por sus siglas en inglés) en su página de internet: http://www.epa.gov/compliance/nepa/eisdata.html. Comentarios sobre el DPEIS serán solicitados hasta el 7 de Octubre de 2013. El DPEIS también estará disponible al público para su revisión a partir del 23 de Agosto hasta el 7 de Octubre de 2013, en la sucursal de la biblioteca principal del Condado de Yuma, ubicada en el 2951 S. 21st Drive, en la biblioteca de YPG y en la biblioteca de Foothills, ubicada en el 13226 S. Frontage Rd., Yuma, AZ. El borrador del PA también estará disponible para su revisión y comentario en los mismos lugares a partir del 2 de Septiembre hasta el 7 de Octubre de 2013. Los documentos también se pueden revisar en la siguiente página de internet: http://www.yuma.army.mil/mhub_documents.shtml.

Las versiones finales del PEIS estarán disponibles al público para su revisión y comentario una vez terminados. YPG también aceptará comentarios del público durante todo el proceso NEPA. Todos aquellos interesadas están invitados a asistir a las reuniones públicas y a enviar comentarios o preguntas por correo a Sergio Obregon, Coordinador de NEPA a U.S Army Garrison Yuma Proving Ground, IMYM-PWE, 301 C Street, Yuma, Arizona 85365-9498, o por correo electrónico a: usarmy.ypg.imcom.mbx.nepa@mail.mil. Por teléfono, llame a Chuck Wullenjohn al (928) 328-6189 de 6:30 AM a 5:00 PM, de Lunes a Jueves. Preguntas o comentarios sobre el borrador de la Sección 106 del PA deberán ser enviados a Meg McDonald, Gerente de Recursos Culturales, a U.S Army Garrison Yuma Proving Ground, IMYM-PWE, 301 C Street, Yuma, Arizona 85365-9498, o por correo electrónico a: alison.m.mcdonald.civ@mail.mil.

00003320

City of YUMA

Resumen de Logros CDBG 2012

A la ciudad de Yuma le fueron otorgados $847,269 en fondos CDBG de parte del Departamento de Vivienda y Desarrollo Urbano (HUD). Estos fondos fueron combinados con $905,132.56 en fondos no gastados de años anteriores y $43,141.34 en ingresos del programa para un total de $1,795,542.90 disponibles para gastarse en 2012/2013. Los fondos CDBG actuales que se gastaron fueron $1,030,711.07. Estos fueron combinados con fondos del Departamento de Vivienda de Arizona, préstamos privados, inversiones privadas, servicios voluntarios y donaciones para lograr lo siguiente:

Programas de Vivienda y Actividades para la Conservación de Vecindarios para mejorar la calidad de vida para personas de ingresos bajos o moderados (LMI) en la ciudad de Yuma:

- Se completaron reparaciones menores en 5 hogares para abordar asuntos sobre seguridad y violaciones a códigos bajo el Programa de Reparaciones de Emergencia a Hogares, rehabilitación principal en 4 hogares y reconstrucción de 3 hogares bajo el Programa de Préstamo para Mejoras al Hogar. Todos los clientes asistieron a una Clase Obligatoria del Mantenimiento de Hogar
- Se completó modificaciones de acceso para minusválido y reparaciones menores al hogar para 14 propietarios de casa discapacitados y/o ancianos a través de SMILE
- Se llevó a cabo la Aplicación del Código en el Vecindario Yuma High (YHN), en el Vecindario Mesa Heights (MHN), y en el Vecindario Carver Park (CPN) y se completaron 884 inspecciones, se iniciaron 84 nuevos casos y se corrigieron 290 violaciones.
- Se completaron 94 inspecciones de casas en renta en unidades de vivienda y espacios de trailer parks en CPN y YHN y 221 violaciones fueron suprimidas
- En colaboración con varias organizaciones locales y muchos voluntarios, se participó en Rock n' Roll Paint-a-Thon y se pintó el exterior de los hogares de 10 personas LMI, ancianas y discapacitadas dentro de la ciudad
- Se aportaron fondos para Yuma Neighborhood Development Organization (YNDO) una Organización de Desarrollo Basado en la Comunidad (CBDO), para administrar una Cuenta de Desarrollo Individual (IDA) del Programa de Propiedad de Casa. 2 familias compraron una casa
- Se aportaron fondos a YNDO para adquirir 4 hogares vacantes dentro de la ciudad. Los hogares han sido rehabilitados y rentados a familias LMI a precios accesibles
- Se completó un Proyecto de Mejoramiento Pedestre en la calle 5ta, entre Avenidas 4ta y 5ta para mejorar la seguridad de los estudiantes en el YHN que asisten a Roosevelt, Fourth Ave. Jr. High y Yuma High School
- Se proveyeron fondos a Catholic Community Services para costos de ingeniería para un proyecto en HVAC en las facilidades del Albergue. La construcción se tomará lugar en 2013/2014
- Se aportaron fondos a Adult Literacy Plus para pagar costos de arquitectura para su proyecto Building Literacy Improvement. La construcción tomará lugar en 2013/2014

Actividades de Desarrollo Económico

- Se aportaron fondos para YNDO, una CBDO para administrar un Programa de Micro-negocios IDA. 5 Micro-negocios fueron abiertos

Actividades y Programas de Servicio Público

- Se colaboró con Servicios Legales Comunitarios (CLS) para llevar a cabo el Programa de Vivienda Justa (FH), el cual incluyó: Asesoría en FH y referencias para 73 personas, puestos en eventos comunitarios y distribución de información sobre FH; coordinación del Festival de Vivienda; entrevistas televisadas; y un concurso de póster para jóvenes. CLS colaboró con el Consejo del Suroeste de Vivienda Justa para proveer entrenamiento a los vendedores de bienes raíces y trabajadores de complejos de departamentos y para conducir una pruebas de FH relacionadas con la nacionalidad, raza y discapacidades en complejos de departamentos
- El Programa Simulacro de Pobreza de la Acción Comunitaria de Yuma (CAPS) tuvo una simulación de pobreza con aproximadamente 65 participantes. Los simulacros fueron diseñados para crear conciencia sobre los problemas que experimenta la gente que vive en la pobreza.
- Se operó el Centro Vecinal Dr. Martin Luther King, Jr. En asociación con el Consejo de la Industria Privada de Yuma se ofreció un Centro de Carreras para Jóvenes, incluyendo servicios tales como redacción de curriculum, habilidades para entrevistas, búsqueda de trabajo y asistencia para llenar solicitudes y tutoría entre compañeros, planeamiento educativo/de carrera, salud y actividades físicas y computadoras. Se asoció con el Arizona Western College (AWC) para proveer de un laboratorio de computación para estudiantes del AWC, pruebas de posicionamiento, asistencia para la solicitud de ayuda financiera, e información general del AWC para residentes del área. Se proveyeron servicios públicos y eventos vecinales para esta área LMI
- Se aportaron fondos para Crossroads Mission para proporcionar copagos de recetas médicas para 80 personas sin hogar, nuevos uniformes escolares para 32 niños sin hogar y medicamentos sin receta, suministros de artículos para primeros auxilios y de higiene personal para 2,392 personas sin hogar alojadas en los refugios
- Se aportaron fondos al Western Arizona Council of Governments (WACOG) para proveer asesoría sobre cómo prevenir ejecuciones hipotecarias a 25 hogares
- Se proporcionaron fondos a United Way para coordinar el Volunteer Income Tax Assistance (VITA) para ofrecer preparación de impuestos gratis, 664 personas recibieron ayuda
- Servicios de Alcance a Vecindarios fueron proveídos en el Vecindario Yuma High (YHN) y en el Vecindario Mesa Heights (MHN), incluyendo:
  - Publicación y distribución de 3 ejemplares, 4,000 copias de "A view from the Front Porch", boletín de vecindario en YHN y MHN
  - Se colaboró con el Yuma Community Food Bank para proveer distrubuciones de comida mensuales
  - Se colocaron puestos y se proporcionó información acerca de servicios disponibles en eventos vecinales
  - Cena de Gracias Anual en el Centro Vecinal Dr. Martin Luther King, aproximadamente 500 personas de bajos ingresos asistieron
  - Noche de Cine en el Centro Vecinal MLK, más de 80 jóvenes participaron

Después de la publicación de este anuncio, se inicia un periodo de comentarios de quince (15) días. Los comentarios pueden ser enviados por correo electrónico a Nikki.Hoogendoorn@YumaAZ.gov, en persona o por correo a Neighborhood Services, One City Plaza, Yuma, AZ 85364 o por teléfono (928) 373-5187, por fax al (928) 373-5188.

El Reporte Anual de Evaluación de Desempeño Consolidado (CAPER) completo puede ser examinado después del 10 de Septiembre del 2013 en el sitio www.ci.yuma.az.us o en los siguientes lugares:

City Clerk's Office and Department of Community Development, One City Plaza
Housing Authority of the City of Yuma (HACY), 420 Avenida Madison
Yuma County Library – Main Branch, 2951 S. 21 Drive y Heritage Branch, 350 3ra Avenida
Western Arizona Council of Governments (WACOG), 224 S. 3ra Avenida
MLK Neighborhood Center, 300 S. 13 Avenida

De acuerdo con el Ley de Americanos con Discapacidad (Americans with Disability Act, ADA) y con la sección 504 de la Ley de Rehabilitación de 1973, la Ciudad de Yuma no discrimina por motivos de discapacidad en la entrada o acceso a, o en el trato o empleo en, sus programas, actividades o servicios. Para información concerniente los derechos y provisiones de ADA o la Sección 504, o para solicitar acomodo razonable para participar en programas o actividades de la Ciudad o sus servicios, comuníquese con: ADA/Section 504 Coordinator, City of Yuma Human Resources Division, One City Plaza, Yuma, AZ 85364; (928) 373-5125 or TTY (928) 373-5149.

Orientation set for Miss Yuma County hopefuls

BY SARAH WOMER
@YSSARAHWOMER

A second orientation will be held for those interested in becoming Miss Yuma County 2014.

Prospective contestants and their parents are encouraged to attend the event, which will be held on Aug. 28 from 5 to 6:30 p.m. at Arizona Western College, 2020 S. Avenue 8E, in the 3C building.

During the meeting, there will be information presented about what the title of Miss Yuma County entails, the application process, the competition and eligibility requirements.

Girls should be no younger than 17 at the time of the Miss Yuma County Scholarship Pageant on Nov. 2, and should be no older than 24 as of Dec. 31. Also, prospective contestants should be a U.S. citizen and a resident of Yuma County for at least six months prior to competition.

Current Miss Yuma County Ashley Vicks said that she's hoping to have a total of at least 15 girls come out to compete for the local title.

"For years young women have benefited from involvement with the Miss Yuma County Scholarship Program. I am excited to work with members of the community to ensure that this scholarship opportunity remains strong and expands in the future," said June Wolfe, executive director of the Miss Yuma County Scholarship program.

Visit www.missyumacounty.org for more information. Those who cannot attend the orientation event but are still interested in becoming a contestant should contact Wolfe at missyumacounty@yahoo.com or 210-7770.

STORM
FROM PAGE A1

"It's certainly producing good strong winds and blowing dust," Pigett said.

The strong winds pushed a mobile home onto the roadway at 20th Avenue and Colorado Street. A semi-trailer blew over near 26th Street and Araby Road, causing road closures in the area.

Blowing dust limited visibility, causing several accidents. Police received multiple reports of collisions, which were still under investigation by press time. The police and fire departments asked citizens to remain indoors if at all possible.

Along with the severe weather warning, the National Weather Service recommended that motorists encountering blowing dust while driving "pull over as far off the roadway as possible and park. Turn off your headlights and keep your foot off the brake."

AccuWeather meteorologist Pigett expected some areas just west of the city to receive an excess of three inches of rain. In areas east and northeast of Yuma, he called for one to 2 ½ inches of rain and flash floods.

The meteorologist expected the storm to "collapse" at around 10 p.m.

Yuma Fire Department spokesman Mike Erfert noted "some pretty heavy rain on the east side of town." A resident reported that water flooded a basement in the Tamarack neighborhood, off of 24th Street.

Officials closed Araby Road between East 32 Street and the Interstate 8 overpass due to flooding. No southbound traffic was permitted from the I-8/Araby exits.

The fire department also reported several power poles and lines down in the area of 32nd Street at 8 ½ E and in front of Carver School. Power lines were also down at Avenue 7E north of Highway 95.

Due to the power outage and the number of downed lines in the area, officials of the San Pasqual Valley Unified School District in Winterhaven, Calif., decided to cancel classes for Friday.

The power outages affected several traffic lights.

"For right now, it's mostly the disruption of roadways due to downed power lines. We encourage people to stay indoors, if you don't have to be out, until it blows over," Erfert said.

"This is a good reminder that when we encounter an intersection with the traffic lights out, treat it as you would treat a four-way stop. It's not just a good idea, it's the law."

He also warned that people should also assume a downed power lines are live and stay away from them.

As of press time, APS did not have an estimated time when power would be restored.

"We have crews out everywhere trying to assess the damage," he said.

The fire department also reported a transformer fire and lines down in the area west of the City Public Works yard, off 1st Avenue.

Meteorologist Pigett expected the storm to "collapse" around 10 p.m.

"In some areas, there will be an excess of three inches of rain, just west of the city. It's not widespread, in some areas, east and northeast of Yuma, there will be one to 2½ inches of rain and flash floods," Pigett said.

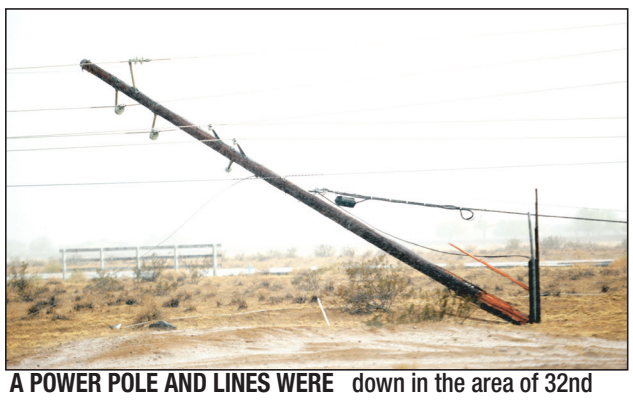
Other storm-related incidents included fallen carports, downed traffic and business signs, wood pole and palm tree on fire and flying roof shingles.

Hail was reported in the area of Arizona Western College, which canceled its night classes and the men's and women's soccer matches scheduled for the afternoon and evening.



Buy these photos at Photos.YumaSun.com PHOTOS BY CRYSTAL OCHOA/YUMA SUN

A LIGHT POLE FELL ONTO a parked vehicle in the 200 block of 16th Avenue caused by high winds from the thunderstorm Thursday evening.



A POWER POLE AND LINES WERE down in the area of 32nd Street and Avenue 8½ E during the thunderstorm. Yuma Fire Department also reported power lines down in front of Carver School and in the general area of 21st Avenue between Colorado Street and 1st Street.

PARENTS
FROM PAGE A1

Borquez are the parents of Edgar Borquez, the alleged driver in a hit-and-run collision with 14-year-old Mary Rodriguez while the girl was skateboarding early Saturday morning. Rodriguez succumbed to her injuries Sunday night at Phoenix Children's Hospital.

According to Prosecutor Karolyn Kaczorowski of the Yuma County Attorney's Office, Edgar Borquez allegedly went home and woke up his parents after the incident and told them what had happened. The parents allegedly took the car to the back of their home, covered it and later removed parts of the vehicle to be taken to Mexico for repairs. This allegedly took place even after news reports of the incident.

Edgar Borquez, 23, was arrested Monday at his home in the 8100 block of Yavapai Lane after Yuma police received a tip about the case on 78-CRIME. His car was seized as evidence.

Yuma police also arrested his parents after they admitted to concealing evidence. All three were booked into the Yuma County jail.

At about 4:52 a.m. Saturday, Yuma police responded to 24th Street and Avenue B after receiving a report of a collision involving a pedestrian. The victim, later identified as Rodriguez, was taken to Yuma Regional Medical Center for treatment. Due to the life-threatening injuries she had sustained, the girl was later flown to Phoenix Children's Hospital, where she died the following evening.

According to police, Rodriguez had been traveling southbound on a skateboard inside the crosswalk at the intersection when she was struck by a vehicle which left the scene.

BORQUEZ
FROM PAGE A1

edly running a red light, striking the victim resulting in her death and failing to stop.

Count 3: Driving under the influence of intoxicating liquor, a class 4 felony, for allegedly driving while impaired with a suspended, revoked or canceled driver's license and with a prior DUI conviction.

Count 4: Aggravated DUI, a class 6 felony, for allegedly driving with a suspended, revoked or canceled driver's license and while having a drug in the body.

Count 5: Aggravated DUI, a class 4 felony, for allegedly driving under the influence of intoxicating liquor while having two or more prior DUI violations. Lozano stated that Borquez had committed four DUI violations from 2010 to 2012.

Count 6: Aggravated DUI, a class 4 felony, for allegedly driving while having drugs in the body after being convicted of two or more DUI violations.

Count 7: Endangerment, a class 6 felony, for allegedly putting the life of an individual, identified only with the initials A.W. and born in 1987, in substantial danger of death.

Borquez asked for a public defendant, telling the judge that he was not employed, had earned $100 to $200 in income this month, had no money in a bank account and did not own a car or real estate.

Prosecutor Roger Nelson of the Yuma County Attorney's Office asked for a $650,000 cash-only bond, noting that second-degree murder is a "serious crime."

Rogers added that Borquez had allegedly left the scene of an accident involving the death of a person and made no attempt to aid, as well as pointing out that he was reportedly under the influence of alcohol and drugs.

Borquez also reportedly attempted to conceal the car with his parent's help and tried to destroy evidence.

Lozano agreed to keep the $650,000 cash-only bond amount.

If he posted the bond, the judge told Borquez he would be released with the following conditions: he can't leave the state; he promises to appear at all hearings, obey all laws and have no contact with any victims; and he cannot drive without a license, registration or insurance.

Lozano also said Borquez is prohibited from contacting the co-defendants, his parents, Guadalupe Borquez, 57, and Olivia Borquez, 54.

Borquez's next hearing is set for 2 p.m. Aug. 30.

Report graffiti

Report graffiti at 329-2828.

FUNERAL NOTICE

Oretta Ann 'Knippy' Knipmeyer Ness

Oretta Ann "Knippy" Knipmeyer Ness, 82, a former resident of Yuma, died July 17, 2013, at her home in Henderson, Nev.

Born Dec. 17, 1930, in Keytesville, Mo., she was an educator, academic advisor and guidance counselor.

A memorial service was held July 20 at Christ the Servant Lutheran Church in Henderson. Her cremains will be at Corder Cemetery at a later date. Memorials may be sent to Basic High School in Henderson, N.C., will be used to award student scholarships.

Read the newsroom's online blog, "On My Mind," at YumaSun.com

1115405-01
FREE Chrome Tips With Every Dual Exhaust
Prompt, Professional, Affordable Custom and Stock Exhaust Specialist
ECONOMY MUFFLER SERVICE
Yuma's Original Muffler Shop
Summer Hours: Tuesday - Friday 8am to 3pm
Evening by Appt. Only • Flexible Pick up Times
2337 S. 1st Ave. - 329-9102
Family Owned Since 1959 - Kevin Dale, Owner

20% OFF Massage Therapy
for
• Military
• Healthcare Professionals
• Fire Fighters
• Law Enforcement
• Seniors
BodyWorks
3970 W. 24th St. #101
(Ave. C & 24th St. • Mission Valley Plaza)
928-271-0918
www.bodyworksyuma.massagetherapy.com
241•1115468-01

ROBERTO P. GARCIA, MD

We provide Family Care for Adults, Physicals, Women's Health Care, Arthritis, Diabetes, Asthma, Emphysema, Hypertension, Cholesterol, Men's Health Care & Heart Problems, Pediatric Care.
Walk-Ins Welcomed
2295 S. Elks Lane
928-782-4791
www.garciamedicine.com

Get a filter or be a filter.

435 W 7th ST • Yuma, AZ 85364
928-783-7032
www.culliganyuma.com
Culligan
313_1111507-01

PUBLIC NOTICE

The United States Army Garrison Yuma Proving Ground (USAG YPG) announces the availability of the Draft Programmatic Environmental Impact Statement (DPEIS), in accordance with Section 102(2)(c) of the National Environmental Policy Act (NEPA), to analyze the environmental impacts resulting from implementation of activities and operation at the Yuma Proving Ground (YPG) northeast of Yuma, Arizona, and a draft Programmatic Agreement (PA) in accordance with Section 106 of the National Historic Preservation Act. The Notice of Availability (NOA) for this DPEIS was published in the Federal Register on August 16, 2013.

This document analyzes potential impacts from new construction, changes in testing and training, and activities conducted under private industry partnerships. Renewable energy initiatives are discussed in the DPEIS, but project-specific NEPA analysis will be required prior to implementing specific renewable energy initiatives. There are two alternatives analyzed in this DPEIS: (1) No Action which describes the conditions under which no new actions would occur. There would be no changes in testing and training activities conducted at YPG, and (2) the Proposed Action which includes new construction and associated demolition, testing and training activities occurring on YPG, and new testing and training proposed by tenants to meet anticipated testing or training needs. For the Proposed Action, the analysis is structured to allow the Army to select a subset of the proposed activities or, for certain activities, to select from among a range of options with regard to magnitude, frequency, or duration. The Army is not seeking to expand the boundaries of YPG and all proposed activities would be conducted within the boundaries of the installation or its currently authorized airspace. The PEIS will be used to develop a future Real Property Master Plan (RPMP) at YPG. At this time, a Preferred Alternative has not been selected. The Army will select a Preferred Alternative after consideration of input from government agencies, Native American tribes, non-governmental organizations, and members of the public.

A public meeting to discuss the DPEIS will be held on YPG from 6:00 pm to 8:00 pm at Building 6, the Desert Breeze Travel Camp Community Center, located on the Main Administrative Area off of Imperial Dam Road on Tuesday September 24, 2013. A second public meeting on the DPEIS will be held at the Yuma Public Library, 2951 South 21st Drive, Yuma AZ, 85364 on Wednesday September 25, 2013 from 6:00 pm to 8:00 pm.

The draft Section 106 PA addresses an ongoing program of operations and maintenance at YPG, as well as the activities considered in the DPEIS. USAG YPG determined that the development of a PA, in accordance with 36 Code of Federal Regulations § 800.14(b)(1)(ii) and (iv), is warranted because specific details on some projects are unknown and the effects on historic properties cannot be fully determined prior to their approval, and because of the routine nature of many actions that are part of the ongoing management and operation of YPG. The draft PA has been developed through consultation with the Advisory Council on Historic Preservation, the Arizona State Historic Preservation Officer, and federally recognized tribes in the region, and will be available for review in order to provide an opportunity for members of the public to express their views on resolving adverse effects to historic properties that could result from the activities and operations at YPG.

The public comment period for the DPEIS officially begins with the publication of the NOA in the Federal Register and the document is available on the US EPA Environmental Impact Statement (EIS) Database at http://www.epa.gov/compliance/nepa/eisdata.html. Comments on the DPEIS will be solicited through October 7, 2013. The DPEIS also will be available for review from August 23 through October 7, 2013, at the Yuma County Library, Main Branch, 2951 S. 21st Drive, the YPG Post Library, and the Foothills Branch Library, 13226 S Frontage Rd, Yuma, AZ. The Draft PA will be available for review at the same locations from September 2 through October 7, 2013. The public comment period for the draft Section 106 PA will be September 2 through October 7, 2013. The documents also can be viewed at the following website: http://www.yuma.army.mil/mhub_documents.shtml.

Final versions of the PEIS will be made available to the public for review and comment when completed. YPG will also accept public input throughout the NEPA process. All interested parties are invited to attend the public meetings and to submit comments or questions regarding the DPEIS by mail to Sergio Obregon, National Environmental Policy Act Coordinator, U.S. Army Garrison Yuma Proving Ground, IMYM-PWE, 301 C Street, Yuma, Arizona 85365-9498, or e-mail usarmy.ypg.imcom.mbx.nepa@mail.mil. By phone, contact Chuck Wullenjohn at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday. Comments or questions on the draft Section 106 PA should be submitted to Meg McDonald, Cultural Resources Manager, U.S. Army Garrison Yuma Proving Ground, IMYM-PWE, 301 C Street, Yuma AZ 85365-9498 or email alison.m.mcdonald.civ@mail.mil.

00003319

SAME DAY HEARING AIDS
FREE Hearing Tests Daily!
$125
Same/Next Day Hearing Aid Repair!
Beltone
IN THE FOOTHILLS ACROSS FROM THE POST OFFICE
11665 S Fortuna Rd. Yuma, AZ 85367
(928) 342-6000

TRANE'S NO SWEAT SUMMER PROMO
THE HOTTEST PROMO OF THE SUMMER!
NO INTEREST FOR 15 MONTHS
— AND —
UP TO $1250 TRADE-IN ALLOWANCE
— AND —
LOWER ENERGY BILLS
— AND —
TAX CREDITS UP TO $500
JULY 1 THRU AUGUST 31, 2013
See dealer for details.
COMSTOCK Air .com
Air Conditioning & Heating Specialists
783-7062
1250 S. 3rd Ave.
ROC # K-39-277132

Kids Eat Free!!!
Mon-Thur 3pm-11pm
with this coupon & each adult meal purchase
Penny's Diner
OPEN 24 HOURS
1731 S. Sunridge Dr.
Yuma, Az 85365
(928) 539-9000
ext 401
00001306

Affidavit of Publication

STATE OF ARIZONA

COUNTY OF YUMA

CITY OF YUMA

I, Darlene Firestone being duly sworn on oath now and during all times herein stated, have been the publisher (or authorized representative of Publisher) and designated agent of the publication known as,

Bajo EL SoL ("Publication"), a newspaper of general circulation in the county of Yuma, State of Arizona, by Newspapers of Southwestern Arizona, Inc.,

And having full knowledge of the facts herein stated as follows:

The advertisement for YPG Public Notice ("Ad/Advertiser") was published to the Publication's full circulation as requested by Advertiser on the:
23rd Day of August, 2013.

By: [signature]

Subscribed and sworn to before me
This 23rd day of August, 2013.

Virgen P. Perez
Notary Public

Notary Seal:

OFFICIAL SEAL
VIRGEN P. PEREZ
Commission # 163644
Notary Public - State of Arizona
YUMA COUNTY
My Comm. Expires May 10, 2017

Affidavit of Publication

STATE OF ARIZONA

COUNTY OF YUMA

CITY OF YUMA

I, Darlene Firestone being duly sworn on oath now and during all times herein stated, have been the publisher (or authorized representative of Publisher) and designated agent of the publication known as,

Yuma Sun ("Publication"), a newspaper of general circulation in the county of Yuma, State of Arizona, by Newspapers of Southwestern Arizona, Inc.,

And having full knowledge of the facts herein stated as follows:

The advertisement for YPG Public Notice ("Ad/Advertiser") was published to the Publication's full circulation as requested by Advertiser on the:
23rd Day of August, 2013.

By: [signature]

Subscribed and sworn to before me
This 23rd day of August, 2013.

Virgen P. Perez
Notary Public

Notary Seal:

OFFICIAL SEAL
VIRGEN P. PEREZ
Commission # 163644
Notary Public - State of Arizona
YUMA COUNTY
My Comm. Expires May 10, 2017

Welcome to the Yuma Proving Ground

OPEN HOUSE

Public Meeting

Please sign in and take your time to view the informational exhibits.
Staff (with name tags) are available to answer your questions.

We appreciate your valuable time spent with us this evening.
YOUR OPINIONS ARE IMPORTANT.
Please complete a comment card before you leave to help guide the final decision on this proposed project.

For more information or to express your opinions on this project, please contact:
Sergio Obregon
National Environmental Policy Act Coordinator
U.S. Army Garrison Yuma Proving Ground
IMYM-PWE
301 C Street, Yuma, Arizona 85365-9498
email: usarmy.ypg.imcom.mbx.nepa@mail.mil
By phone contact **Chuck Wullenjohn** at (928) 328-6189 from 6:30 AM to 5:00 PM, Monday through Thursday.

What is an Environmental Impact Statement (EIS)?

*The **National Environmental Policy Act** requires federal agencies to prepare an **EIS** to assess the environmental impacts of federal actions that could significantly affect the human environment.**

***The human environment includes…** Land, Air, Water, Living Organisms, and Cultural Resources.*

NEPA requires federal agencies to consider the social and environmental impacts of federal projects. It also requires that the public be allowed to participate in the decision making process.

NEPA allows for multiple levels of analysis with an EIS being the most detailed.

*An EIS document describes the effects from the proposed federal action as well as those from alternative actions that were considered. It also presents information on mitigation to reduce any impacts.**

** **An Impact is…** A change or consequence that results from an activity; it can be positive, negative or both. It may be mitigated to lessen or remove the impact.*

Why Have a Public Meeting?

Public Meetings provide the opportunity for the public and government agencies to gather information and provide formal oral or written comments on-the-record. Comments received during the public meeting will be included in the official public record along with an official response to each comment.

How Do I Submit Comments?

Comments can be provided in person to the court reporter or in writing via the comment forms provided at this meeting. During the public review period, which ends October 7, 2013, additional comments can be submitted via mail or email to:

Comments can be submitted to:
Sergio Obregon
National Environmental Policy Act Coordinator
U.S. Army Garrison Yuma Proving Ground
IMYM-PWE
301 C Street, Yuma, Arizona 85365-9498
email:usarmy.ypg.imcom.mbx.nepa@mail.mil

What is the Next Step?

After the public review period, YPG will consider the public and agency input and prepare the Final PEIS. The Final PEIS and all comments and responses on the Draft PEIS will be made available to the public.

What Will This DPEIS Address?

What Will This DPEIS Address?

This Draft Programmatic Environmental Impact Statement (DPEIS) will address implementation of multiple projects, which include:

- Construction and demolition of facilities and infrastructure
- Changes to testing and training activities
- Changes to testing and training areas

The DPEIS addresses two types of actions:

- Short-term, well-defined actions that would be implemented without additional NEPA analysis once a decision is made
- Long-term, less well-defined actions that would occur later in time and would receive additional site-specific NEPA analysis prior to project implementation

Why is This a Programmatic EIS?

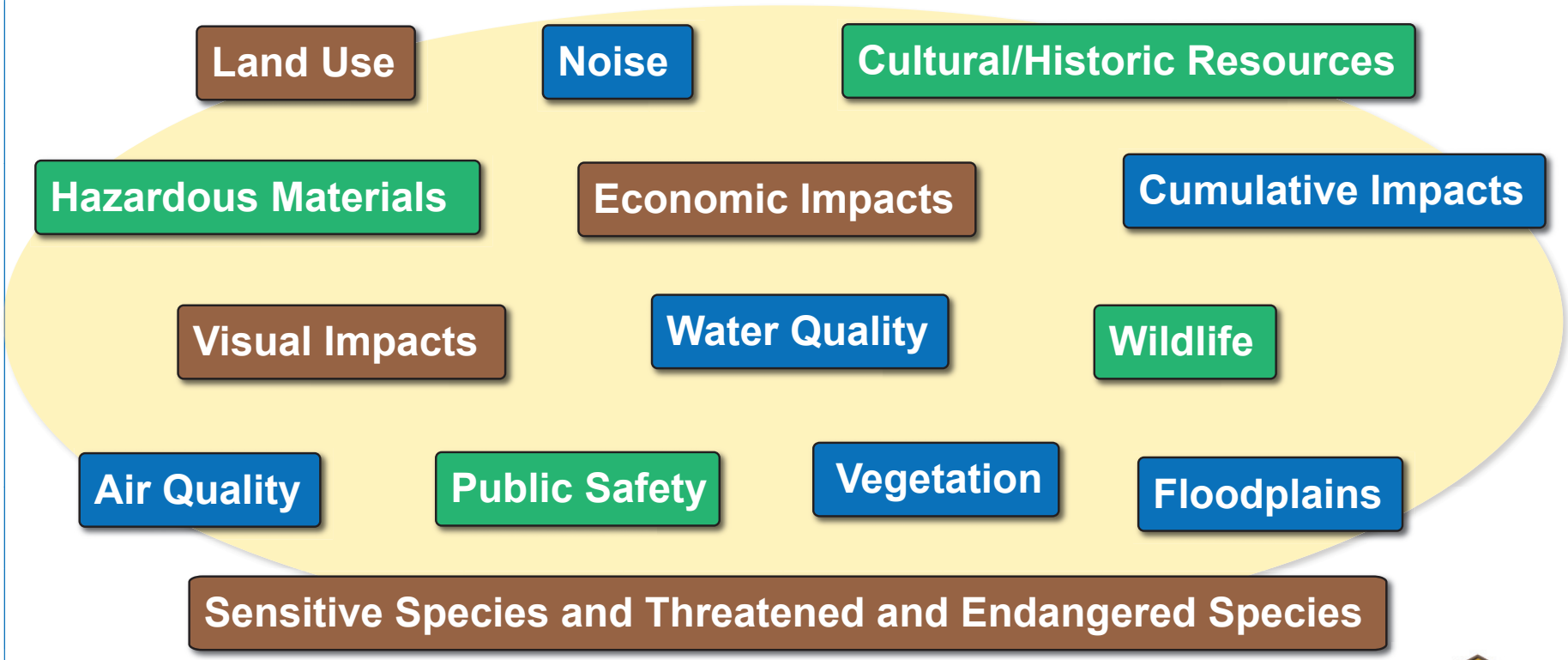
This is a programmatic EIS because some activities are evaluated broadly and will require additional focused NEPA analysis prior to implementation.

The broad analysis in this document will form the basis for subsequent NEPA analysis through a process called tiering.

NEPA and Social, Economic, and Environmental Issues

Because this is a federal action, the Yuma Proving Ground Programmatic EIS will consider the potential impacts of considered alternatives. YPG will avoid, minimize, and mitigate potential adverse impacts to the extent practicable.

Typical resource areas evaluated include:



Schedule and Opportunities for Public Comment

National Environmental Policy Act (NEPA)

Federal Agency Action is Determined to Require Environmental Review

Completed

Environmental Impact Statement

Notice of Intent
Spring 2011

Scoping
June 2011

Draft PEIS
Fall 2011 - Summer 2013

EPA Filing Federal Register Notice for Draft PEIS
August 2013

We Are Here

Public and Agency Review (Draft PEIS)
Fall 2013

Opportunity for Public Review of Draft PEIS (Public Hearing)

Final PEIS
Winter 2013

Ongoing Opportunity for Public Involvement

Public and Agency Review
EPA Filing Federal Register Notice
(Final PEIS)
Spring 2014

Opportunity for Public Review of Final PEIS

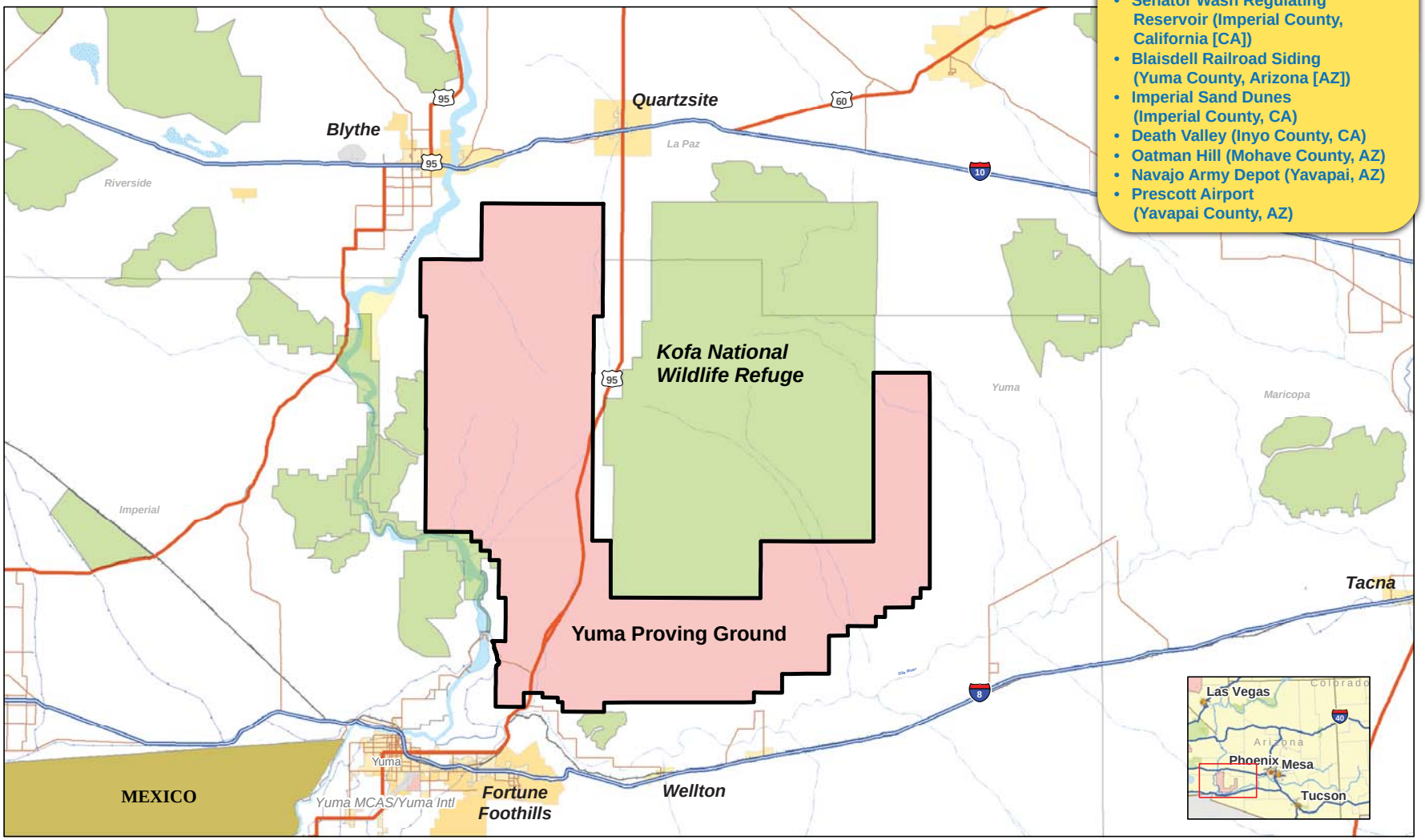
Agency Decision

Decision Document Issued
(Record of Decision)
Summer 2014

Implementation Begins

Project Location

For Planning Purposes Only



Off-post locations not included in this Programmatic EIS

- Senator Wash Regulating Reservoir (Imperial County, California [CA])
- Blaisdell Railroad Siding (Yuma County, Arizona [AZ])
- Imperial Sand Dunes (Imperial County, CA)
- Death Valley (Inyo County, CA)
- Oatman Hill (Mohave County, AZ)
- Navajo Army Depot (Yavapai, AZ)
- Prescott Airport (Yavapai County, AZ)

Limited Access Highway
Highway
Major Road
Federal Conservation Area
Range Area

N

0 10 20 Miles

Proposed Action

Activities Under Consideration

Under the Proposed Action, YPG would continue to operate as a multipurpose installation that serves a broad customer base. Activities anticipated at YPG include:

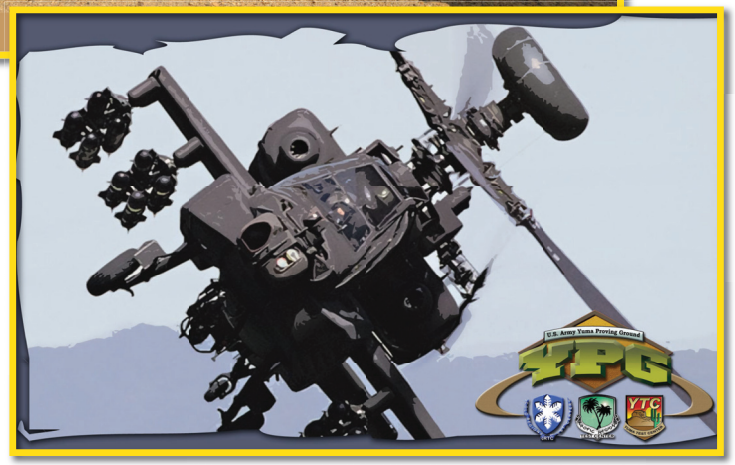
1. New Construction and Demolition of Facilities and Infrastructure
    - Buildings
    - Runways/Helipads
    - Utilities

2. Modified/Increased Testing
    - New sensors and systems
    - Increased range and power of weapons
    - Improvements in vehicle systems
    - Combat vehicles

3. Ongoing/New Training

4. Weapons Firing/Impact Areas
    - Small Arms/Inert
    - High Explosive
    - Gun Positions





Purpose and Need

Purpose of the Proposed Action

The purpose of the Proposed Action is to enable YPG to continue to meet its military mission by providing adequate facilities and infrastructure for:

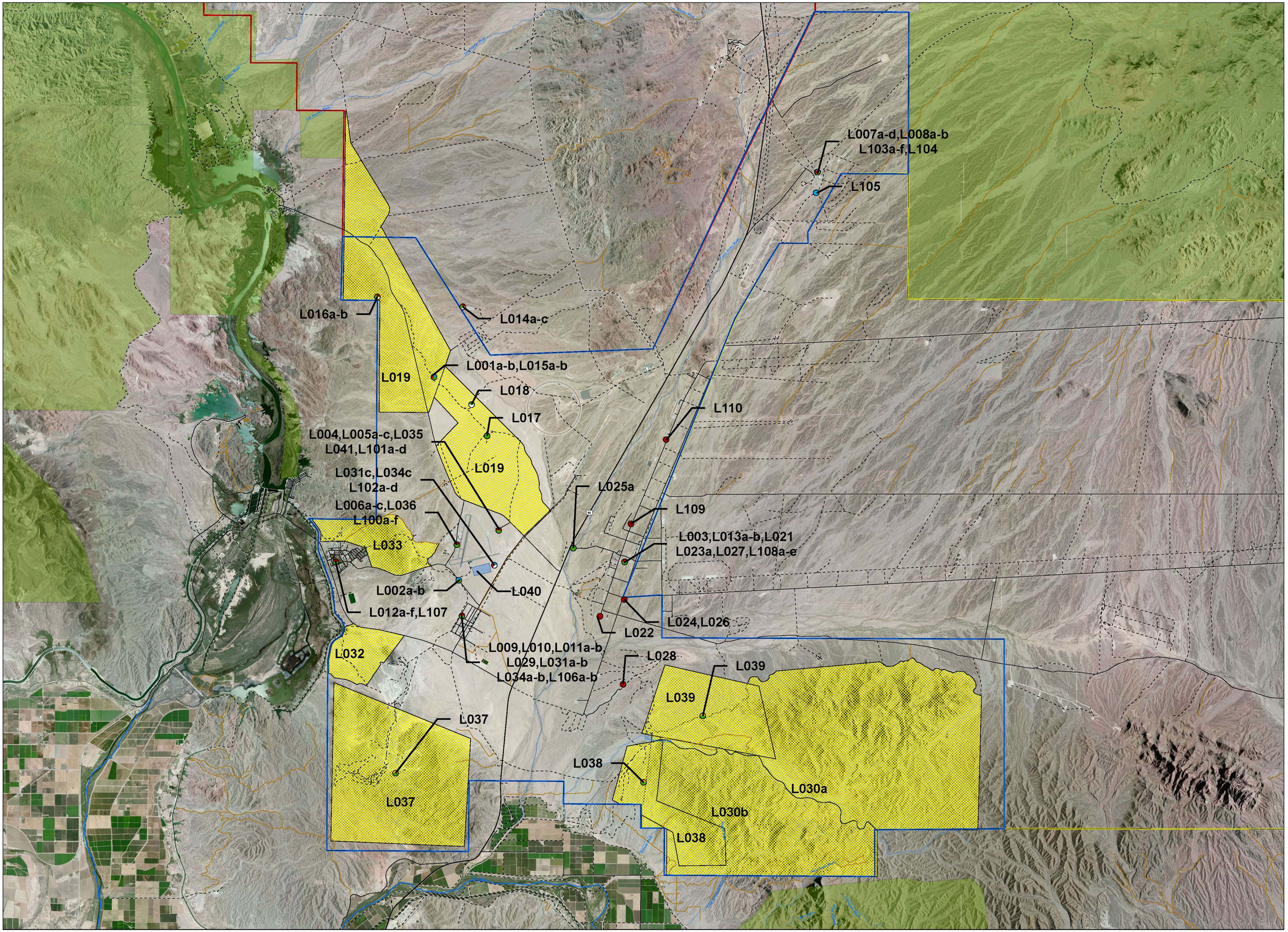
- Testing military ground and aerial vehicle systems
- Testing weapons, ammunition, sensors, and guidance systems
- Providing realistic military training
- Providing for private industry partnerships





Need for the Proposed Action

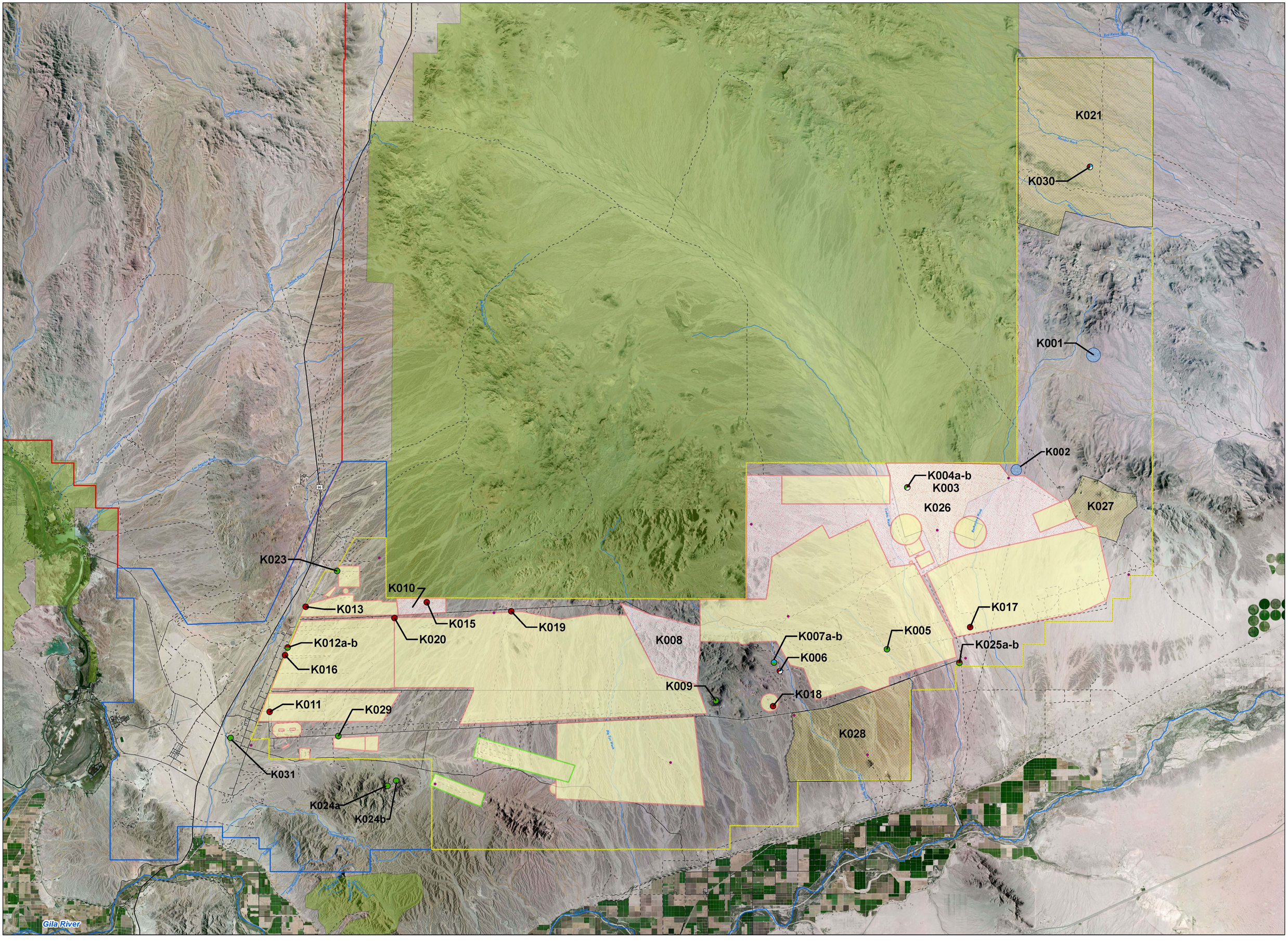
The Proposed Action would ensure the readiness of U.S. forces and materiel to meet the demands of hot arid environment theaters around the world. The project would allow YPG to maintain a facility capable of state of the art testing of military ground and aerial vehicle systems, weapons, munitions, sensors, and guidance systems; to provide realistic training; and to allow flexibility to enter into Army/private industry projects.



Imagery Source:
Bing Maps Aerial Imagery

Proposed Action Activities - Laguna Region

C061
C003a
C002f
C002a
C003a,C042a
C043a,C044a
C003b,C042b,
C043b,C044b
C004a-b
C003a
C003b
C002d
C003a
C062
C011
C063
C003c
C003c,C042c,
C043c,C044c
C040
C012a-b
C010,C046a-c
C033a-b
C005a-b
C008a-b
C002e
C009
C065b
C002c
C065c
C065a
C006
C007a-b
C045
C065d
C060
C002b
C066b
C066a
Prospect
Square
C036
C013
C054
C014a-b
C064
C052
C048
C035
C020a-b
C016
C053
C055,C059
C019
C018
C017a-b
C050a
C058
C021a-e,C022a-e
C049
C041
C050b
C056
C023a-d
C027a-b
C034b,C038,C039
C026a-c
C029a-b
C024a-b
C025a-b
C034a
C057
C031
C037,C051
C001
C030a-b
C001
Imagery Source:
Bing Maps Aerial Imagery 2010
N
0
2
4
Miles
Proposed Action Activities - Cibola Region



Imagery Source:
Bing Maps Aerial Imagery

Proposed Action Activities - Kofa Region

Legend for Yuma Proposed Action Maps

Proposed Actions



Mounted Maneuvers / Vehicle Testing

Runway / Helipad Expansion or Construction

Munitions Firing Support

Building Construction

Infrastructure Construction

Dismounted Maneuvers

Unmanned Aerial Vehicle Launch and Recovery

Proposed Impact Area (High Explosive)

Proposed Impact Area (Inert)

Existing Impact Area (High Explosive)

Existing Impact Area (Inert)

Proposed Drop Zone

Proposed Dismounted Maneuver Area

Sensor Site

Temporary Gun Position

TABLE 1
Proposed Action Activities – Laguna Region [a]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
			Short Term Projects		
L001	L001-a: Construct building, concrete pad, shade structure, and install solar lights at K-9 Village L001-b: Install hard power/fiber, and communication service at K-9 Village.	L002	L002-a: Construct Runway 18/36 extension, and realign Barranca Road at Laguna Army Airfield (LAAF) L002-b: Install hard power at LAAF.	L003	Construct outdoor eating area at the Roadrunner Café.
L004	Construct office building next to Building 2968.	L005	L005-a: Construct medium and large storage buildings next to Building 2970. L005-b: Construct 2 office buildings next to Building 2970. L005-c: Construct Air Delivery Guided Test Facility next to Building 2970.	L006	L006-a: Construct Flight Detachment Maintenance Building L006-b: Construct Wild Horse Café L006-c: Construct antiterrorism/force protection (AT/FP) parking improvements.
L007	L007-a: Construct helicopter parking at Castle Dome Heliport (CDH) L007-b: Construct unmanned aircraft system (UAS) parking, UAS storage facility, and UAS maintenance hangar at CDH L007-c: Construct privately owned vehicle parking at CDH L007-d: Relocate C-130 CALA to CDH.	L008	L008-a: Construct access control point (ACP) at CDH L008-b: Construct roadway drainage improvements at CDH.	L009	Construct warehouse at Yuma Test Center (YTC)
L010	Construct Instrumentation Development Facility at YTC.	L011	L011-a: Construct tracked vehicle trail at YTC L011-b: Construct office at YTC.	L012	L012-a: Construct hotel at the Main Administrative Area (MAA) L012-b: Construct Emergency Operations Center (EOC) at MAA L012-c: Construct addition to youth services center at MAA L012-d: Construct ACP improvements at MAA L012-e: Construct child development center for school-aged services L012-f: Construct outdoor eating area at Coyote Lanes bowling alley.

TABLE 1
Proposed Action Activities – Laguna Region [a]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
L013	L013-a: Construct additional fencing and support facilities to the Threat Systems and Target Simulations Buildings 3572 and 3574 L013-b: Install hard power, fiber, and phone service to the Threat Systems and Target Simulations Buildings 3572 and 3574.	L014	L014-a: Construct aircraft shelter, command and control building, and clear a UAS launch/recovery area at Comanche Flats L014-b: Construct multiple buildings, concrete pad, water tank, POL storage area, and graded parking area at Comanche Flats L014-c: Install hard power/fiber and communication service at Comanche Flats.	L015	L015-a: Repair landing pad and construct building at K-9 Village L015-b: Install hard power, fiber, and communication service at K-9 Village.
L016	L016-a: Construct building, concrete or asphalt pad, shade structure, and install solar lights at Site 2 L016-b: Install hard power, fiber, and communication service at Site 2.	L017	Construct ground control stations for UAS operations at Telemetry (TM) Site 4.	L018	Construct concrete or asphalt pad and sensor tower east of existing sensor test building at Sidewinder Sensor Site.
L019	Expand and combine West LA Light Maneuver Training Area (LTA), K-9 Village LTA, Site 2 LTA, and Site 4 LTA.	L020	Upgrade equipment at Tire X-Ray Facility (Building 2310).[a]	L021	Construct solar chamber at Climatic Simulation Facilities (Building 3527).
L022	Relocate dust chamber from Building 3352 to near Buildings 3357 and 3494 (Rough Handling).	L023	L023-a: Improve ACP at the Kofa cantonment L023-b: Construct joint wash rack for tracked and government owned vehicles (GOVs) at the Kofa cantonment L023-c: Construct electric substation protection and electronics expansion at the Kofa cantonment L023-d: Construct Howitzer Support\ Acceptance Facility at the Kofa cantonment L023-e: Construct open storage facility at the Kofa cantonment.	L024	Relocate Semi-trailer Delivery Safe Haven.
L025	L025-a: Construct Aberdeen Road flood upgrades L025-b: Construct range road improvements.	L026	Construct munitions treatment facility.	L027	Construct gun storage facility at the Kofa cantonment.

TABLE 1
Proposed Action Activities – Laguna Region [a]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
L028	Construct five ammunition magazines near the Kofa cantonment.	L029	Construct optical maintenance facility, graded parking area with power pole farm, and perimeter fencing centered at YTC.	L030	L030: Expand LTA to support operational testing and dismounted maneuvers at Muggins/Middle East: L030-a: 16,640 ac L030-b: 6,331 ac
L031	L031: Construct MFFS Dining Facility (DFAC) (one option to be selected): L031-a:Location Option 1 L031-b: Location Option 2 L031-c: Location Option 3	L032	Expand Bravo LTA.	L033	Expand Hill 630 LTA
L034	L034: Construct MFFS Ready Room (one option to be selected): L034-a: Location Option 1 L034-b: Location Option 2 L034-c: Location Option 3	L035	Construct Armament Test Operations and Analysis Facility.	L036	Construct Shower Facility at LAAF Forward Operating Base area.
L037	Construct vehicle test course.	L038	Construct vehicle test course.	L039	Construct vehicle test course
L040	Construct drop zone near LAAF (DZ) (984-foot [ft] x 1,969-ft)	L041	Construct air delivery storage and laboratory facility behind Building 2970	L042	Upgrade facility to an office and hangar in Building 3025[a]
			Long-Term Projects		
L100	L100-a: Construct addition to Building 3021 L100-b: Construct Future Combat Systems (FCS) Rotary Class IV hangars, and FCS large Class IV hangar west of LAAF L100-c: Construct large transient UAS hangar with pad access west of LAAF L100-d: Construct aviation growth hangar L100-e: Construct administrative support building to the west of LAAF L100-f: Construct U.S. Army Special Operations Command Tactical Hangar at LAAF.	L101	L101-a: Construct motor pool to the north of LAAF L101-b: Construct addition to ammunition building rigging bay to the north of LAAF L101-c: Construct access from Ocotillo Road and ammunition building access road improvements to the north of LAAF L101-d: Construct storage yard improvements to the north of LAAF.	L102	L102-a: Construct new MFFS Terminal at LAAF/MAA L102-b: Construct consolidated rigger facility at LAAF/MAA L102-c: Construct UAS airfield, hangars, taxiways, and UAS flight test area and other supporting infrastructure at LAAF/MAA L102-d: Construct CASA Transport Aircraft Hangar at LAAF/MAA.

TABLE 1
Proposed Action Activities – Laguna Region [a]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
L103	L103-a: Construct fire station at CDH L103-b: Construct fuel point at CDH L103-c: Construct C-130 parking at CDH L103-d: Construct hot cargo refueling area at CDH L103-e: Construct dining facility at CDH L103-f: Construct airship hangar at CDH.	L104	Construct water and wastewater treatment facilities at CDH.	L105	Construct crosswind runway at CDH.
L106	L106-a: Construct 4 administrative support buildings at YTC L106-b: Construct Installation Logistics Complex at YTC.	L107	Construct improvements to Cox Field, AT/FP, and Garrison headquarters, and convert Street D to pedestrian walkway.	L108	L108-a: Improve truck ACP at the Kofa cantonment L108-b: Expand range communication at the Kofa cantonment L108-c: Expand sand blasting at the Kofa cantonment L108-d: Consolidate optics at the Kofa cantonment L108-e: Construct second GOV and tracked vehicle maintenance facility at the Kofa cantonment.
L109	Construct wax plant expansion at the Kofa cantonment.	L110	Construct additional ammunition plant similar to Building 3482 and air-conditioned chamber near the Kofa cantonment.	L111	Upgrade equipment and electrical supply at Physical Test Facility (Buildings 3490 and 3130).[a]
L112	Upgrade equipment in vibration test facilities (Buildings 3496, 3495, and 3594)[a]	L113	Upgrade equipment at radiography facility (Building 3493)[a]		

[a] Work that would occur within existing buildings is not identified on maps because there would be no environmental impacts.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2
Proposed Action Activities – Cibola Region [a,b,c]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
	Short Term Projects				
C001	Construct vehicle test course.	C002	C002-a: Construct South Urban DZ (1,640-ft radius) south of Urban DZ, C002-b: Construct Tomahawk Circular DZ 769 (2,297-ft radius), C002-c: Construct Tombstone DZ (984-ft radius), C002-d: Construct Village Circular DZ (984-ft radius), C002-e: Construct Abken DZ (1,640-ft radius), C002-f: Construct Urban Circular Joint Precision Airdrop System DZ (984-ft radius).	C003	C003-a: Establish small arms impact areas for inert munitions at (Joint Experimentation Range Complex) JERC I. Small arms impact area would use collection boxes for fired ammunition and would be cleaned between tests. C003-b: Establish small arms impact areas for inert munitions at JERC II. Small arms impact area would use collection boxes for fired ammunition and would be cleaned between tests. C003-c: Establish small arms impact areas for inert munitions at JERC III. Small arms impact area would use collection boxes for fired ammunition and would be cleaned between tests.
C004	C004-a: Construct facilities at Gauna Peak C004-b: Install hard power/fiber and communication service at Gauna Peak.	C005	C005-a: Construct building at Site 18 C005-b: Install hard power, water, sewer and communication service at Site 18.	C006	Establish Phoenix West Impact Area.
C007	C007-a: Construct runway extension, aircraft shelter, and POL storage at Phoenix UAS site C007-b: Install hard power/fiber and communication service at Phoenix UAS site.	C008	C008-a: Construct building at Site 16 C008-b: Install hard power, water, sewer, and communication service at Site 16.	C009	Establish North UAS Impact Area.

TABLE 2
Proposed Action Activities – Cibola Region [a,b,c]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
C010	Construct aircraft shelter, POL storage, and graded parking lot at North Unmanned Aerial Vehicle (UAV) complex.	C011	Establish La Posa West Impact Area.	C012	C012-a: Construct building and concrete pad at Persistent Surveillance Systems Test Area (west of La Posa DZ) C012-b: Install hard power/fiber at Persistent Surveillance Systems Test Area (west of La Posa DZ).
C013	Install hard power/fiber and communication service at Electronic Common Use Test area.	C014	C014-a: Install shade structure to Stinger Pole Target Area C014-b: Install hard power to Stinger Pole Target Area.	C015	Construct Intelligence, Surveillance, and Reconnaissance/Electro-optical (ISR/EO) Ground Truth Reference Sites at: C015-a: Yuma Wash centered at (33.156, -114.485) C015-b: Middle Mountain Road centered at (33.063, -114.358) C015-c: Mule Wash centered at (33.432, -114.503) C015-d: Centered at (33.446, -114.471) C015-e: Centered at (33.477, -114.286) C015-f: Centered at (33.444, -114.325) C015-g: Centered at (33.448, -114.275) C015-h: Centered at (33.421, -114.279) C015-i: Centered at (33.408, -225.360) C015-j: Centered at (33.389, -114.303) C015-k: Centered at (33.387, -114.366) C015-l: Centered at (33.347, -114.286) C015-m: Centered at (33.297, -114.395) C015-n: Centered at (33.165, -114.480) C015-o: Centered at (33.122, -114.299) C015-p: Centered at (33.090, -114.447) C015-q: Centered at (33.081, -114.353)

TABLE 2
Proposed Action Activities – Cibola Region [a,b,c]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
					C015-r: Centered at (33.967, -114.422)
C016	Rebuild target for long-range missile firing at Maverick Target.	C017	C017-a: Construct building, bomb-proof shelter, shade structure, concrete or asphalt pad, and sensor tower at camera mount (CM) 4 C017-b: Install phone service at CM 4.	C018	Construct landing pad at CM 1.
C019	Construct building and concrete pad at Z-12.	C020	C020-a: Construct sensor tower, buildings, and concrete pad at Site 9 C020-b: Install hard power and communication service at Site 9.	C021	C021-a: Construct secure building with reinforced concrete floors and ramp to building centered at (-114.356, 33.077) C021-b: Construct multiple buildings, water tank, POL storage area, and graded parking centered at (-114.356, 33.077) C021-c: Construct aircraft shelter centered at (-114.356, 33.077) C021-d: Clear a launch/recovery area centered at (-114.356, 33.077) C021-e: Install hard power/fiber and communication service centered at (-114.356, 33.077).
C022	C022-a: Construct building, concrete slab, walkways, and fencing centered at (-114.36, 33.074) C022-b: Construct aircraft shelter centered at (-114.36, 33.074) C022-c: Construct POL storage centered at (-114.36, 33.074) C022-d: Relocate meteorological tower centered at (-114.36, 33.074) C022-e: Construct runway expansion and taxiway centered at (-114.36, 33.074).	C023	C023-a: Construct multiple buildings, water tank, POL storage area, and graded parking centered at (-114.363, 33.051) C023-b: Construct aircraft shelter centered at (-114.363, 33.051) C023-c: Clear a launch/recovery area centered at (-114.363, 33.051) C023-d: Install hard power/fiber and communication service centered at (-114.363, 33.051)	C024	C024-a: Construct shelter, concrete pad, graded parking area near Inverted Range Control Center (IRCC) Tank Maintenance and Storage Ramada C024-b: Install fence and solar lights around IRCC Tank Maintenance and Storage Ramada compound.

TABLE 2
Proposed Action Activities – Cibola Region [a,b,c]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
C025	C025-a: Construct runway, taxiway, aircraft shelter, and building adjacent to existing helicopter pad at IRCC C025-b: Install hard power/fiber adjacent to existing helicopter pad at IRCC.	C026	C026-a: Construct ramp to existing building, rollup door to existing building, and install solar lights at Site 10 Missile Test Facility C026-b: Construct concrete landing pad at Site 10 Missile Test Facility C026-c: Install hard power/fiber at Site 10 Missile Test Facility.	C027	C027-a: Expand flat area on top of hill, and construct facility, concrete pad, and sensor tower at Site 12. C027-b: Construct road leading from the sensor building on the top of the hill at Site 12A down to the Persistent Threat Detection System Site.
	C028 [c]	C029	C029-a: Construct buildings and concrete pad at Aerostat Mooring Site C029-b: Install generators and hard power/fiber at Aerostat Mooring Site.	C030	C030-a: Construct aircraft shelter, multiple buildings, water tank, POL storage area, graded parking area, and clear a launch/recovery area east of Rocket Alley C030-b: Install hard power/fiber and communication service east of Rocket Alley.
C031	Utilize Site 6 as a meteorological station.	C032	Renovate Large Multi-Purpose Environmental Chamber (Building 6015).[a]	C033	C033-a: Construct aircraft shelter, multiple buildings, concrete pad, water tank, POL storage area, graded parking area and clear a launch/recovery area at C-17 C033-b: Install hard power/fiber and communication service at C-17.
C034	C034-a: Expand size of Graze Range Impact Areas by consolidating 7 individual impact areas into a single larger area C034-b: Install hard power to Graze Range.	C035	Expand Combined Live Fire Exercise Range at OP-9 by consolidating 2 designated impact areas and Prospect Square.	C036	Increase use of Prospect Square for bombing or aircraft gunnery.
C037	Install hard power to 40-foot (ft) drop tower.	C038	Construct MEDEVAC pad at Castle Dome Annex (CDA)	C039	Construct air-conditioned storage facility at CDA.
C040	Install hard power to Cibola Region North Range.	C041	Expand Light Maneuver Training Area (LTA) to support operational testing and dismounted maneuver training at Middle Mountain.	C042	C042-a: Install relocatable instrumentation trailers along all JERC I roads. Instrumentation trailers would be moved to accommodate specific

TABLE 2
Proposed Action Activities – Cibola Region [a,b,c]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
					testing requirements. Each 20-foot instrumentation trailer requires a staging area with a 20-foot radius. C042-b: Install relocatable instrumentation trailer along all JERC II roads with the same properties as described for C042-a. C042-c: Install relocatable instrumentation trailer along all JERC III roads with the same properties as described for C042-a.
C043	C043-a: Temporarily bury simulated missiles, explosives, etc. off all JERC I roads for sensor testing. Locations for temporary burials would vary and be determined by specific testing requirements. C043-b: Temporarily bury simulated missiles, explosives, etc. off all JERC II roads for sensor testing. Locations for temporary burials would vary and be determined by specific testing requirements. C043-c: Temporarily bury simulated missiles, explosives, etc. off all JERC III roads for sensor testing. Locations for temporary burials would vary and be determined by specific testing requirements.	C044	C044-a: Clear medical evacuation (MEDEVAC) helicopter landing pad at JERC I for evacuations. C044-b: Clear MEDEVAC helicopter landing pad at JERC II for evacuations. C044-c: Clear MEDEVAC helicopter landing pad at JERC III for evacuations.	C045	Construct MFFS Forward Staging Area.
C046	North UAV Compound Expansion C046-a: Construct concrete pad C046-b: Grade project area and install fencing C046-c: Construct	C047	Create 23 new Transient Gun Positions (TGPs) at: C047-a: Rocket Alley C047-b: CM9 East C047-c: Cibola Target Boundary GP C047-d: Site 16	C048	Install hard power to Detection and Recognition Target Array target in the Cibola Range.

TABLE 2
Proposed Action Activities – Cibola Region [a,b,c]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
	asphalt taxiway		C047-e: CM9 West C047-f: C17 North and South C047-g: Mound C Archer GP C047-h: Mound C GP C047-i: CM1 West C047-j: La Posa DZ C047-k: Site 8 GP C047-l: West Target Road GP C047-m: BM1072 C047-n: Excalibur SW GP C047-o: LADZ GP C047-p: Site 18 GP C047-q: 2.75 Rocket GP C047-r: Ehrenberg GP C047-s: DFR GP C047-t: La Posa South DZ C047-u: Water Tank GP C047-v: LA DZ East C047-w: C17 North M777LWH GP		
C049	Install acoustic and seismic sensor at Horizontal Impact Area.	C050	C050-a: Construct building at Simulated Minefield Site to support UAS operations C050-b: Install hard power, water, sewer, and communication service at Simulated Minefield Site.	C051	Install shade structure at Lightweight Shock Facility.
C052	Establish CM 7 Impact Area.	C053	Establish CM 4 North Impact Area.	C054	Construct Yuma Wash ECUT expansion
C055	Establish Multi-Purpose North Impact Area.	C056	Establish Multi-Purpose South Impact Area.	C057	Expand Rocket Alley Impact Area.
C058	Establish Aerial Weapons Impact Area.	C059	Establish East Target Road Impact Area.	C060	Create LTA to support operational testing and dismounted maneuver training at TOW Town.
C061	Create LTA to support operational testing and dismounted maneuver training at JERC I/Saderville.	C062	Create LTA to support operational testing and dismounted maneuver training at JERC II.	C063	Create LTA to support operational testing and dismounted maneuver training at JERC III.

TABLE 2
Proposed Action Activities – Cibola Region [a,b,c]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
C064	Create LTA to support operational testing and dismounted maneuver training at Yuma Wash.	C065	C065: Create LRA Impact Area C065-a: LRA Impact Area 1 C065-b: LRA Impact Area 2 C065-c: LRA Impact Area 3 C065-d: LRA Impact Area 4	C066	C066-a: Construct aerial cable drop site for drop testing in mountains north of Prospect Square. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, 328-ft radius target area C066-b: Construct an approximately 2.5-mile access trail to the target area in mountains north of Prospect Square.

[a] Measurements are approximate.

[b] Work that would occur within existing buildings is not identified on maps because there would be no environmental impacts

[c] The project proposed as C028 has been removed from direct analysis in this document. Due to a time critical need for implementation, this activity was analyzed through a separate and specific NEPA document. This activity is considered in the analysis of cumulative impacts in this document.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 3
Proposed Action Activities – Kofa Region [a]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
			Short-Term Projects		
K001	Construct a 1,640-ft radius DZ for personnel and cargo drops in southern portion of East Arm.	K002	Construct 1,250-ft radius DZ for personnel and cargo drops northeast of East Smart Weapons Test Range (SWTR) Impact Area.	K003	Expand munitions impact area from north boundary of Echo and Foxtrot to north boundary of contaminated area (Advanced Munitions Range).
K004	K004-a: Construct aircraft shelter, multiple buildings, water tank, POL storage area, graded parking area, and clear a launch/recovery area at SWTR K004-b: Install hard power/fiber and communication service at SWTR.	K005	Install hard power/fiber and communication service at Tower L.	K006	Install launch/recovery systems and a ground control station trailer at Tower 48.
K007	K007-a: Construct runway west of S-15 Command and Control Shelter. K007-b: Install hard power/fiber and communication service west of S-15 Command and Control Shelter.	K008	Expand munitions impact area to encompass area between Impact Areas Delta and Echo.	K009	Install fiber and permanent Improved Vehicle Tracking System (IVTS) and telemetry relays at Windy Hill.
K010	Expand munitions impact area north of North Boundary Road between GP (gun position) 21A and Impact Area Alpha (Advanced Munitions Range).	K011	Renovate site and construct new control room and firing chamber at GP 5.	K012	K012-a: Construct two permanent reinforced concrete buildings to house personnel, equipment and ammunition, and new access road at GP 18 K012-b: Install hard power and communication services at GP 18.
K013	Construct permanent reinforced concrete building and additional building to house weapons GP 21.	K014	Construct ISR/EO Ground Truth Reference Sites at: K014-a: centered at (32.846, -114.336) K014-b: centered at (32.967, -114.239) K014-c: centered at (32.932, -114.151) K014-d: centered at (32.822, -114.196) K014-e: centered at (32.990, -113.955) K014-f: centered at (32.930, -113.926) K014-g: centered at (32.836, -114.016)	K015	Construct permanent building at GP 21A.

TABLE 3
Proposed Action Activities – Kofa Region [a]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
			K014-h: centered at (32.867, -113.922) K014-i: centered at (32.841, -113.866) K014-j: centered at (32.986, -113.812) K014-k: centered at (32.904, -113.791) K014-l: centered at (32.020, -113.758) K014-m: centered at (32.957, -113.666)		
K016	Construct permanent building at GP 17A.	K017	Construct permanent building at GP on Growl Road in southeast corner of Echo Munitions Impact Area.	K018	Construct permanent reinforced concrete building at GP Splinter.
K019	Construct permanent reinforced concrete building at GP 19.1.	K020	Construct permanent reinforced concrete building at GP 11.1.	K021	Create LTA to support operational testing and dismounted maneuver training at East Arm.
K022	Establish up to 12 TGPs within Alpha, Bravo, Charlie, Delta, Echo or Foxtrot munitions impact areas on Kofa Firing Range annually.	K023	Install hard power and communication services to Hazard Classification Deflagration test area.	K024	K024-a: Construct aerial cable drop site for drop testing in mountains south of Pole Line Road. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, 328-ft target area K024-b: Construct an approximately 0.6-mile access trail to the target area in mountains south of Pole Line Road.
K025	K025-a: Construct East Kofa Operations Center which includes a small building complex, perimeter fencing, vehicle maintenance area, storage areas, tactical vehicle wash rack, and 40-ton crane K025-b: Install hard power, communication, water well, and septic system at East Kofa Operations Center.	K026	Expand LTA to support operational testing and dismounted maneuver training at SWTR.	K027	Create LTA to support operational testing and dismounted maneuver training at Tower 71.
K028	Create LTA to support operational testing and dismounted maneuver training	K029	Extend water line from Countermine Test and Training Range to Bldg	K030	Construct runway, taxiway, aircraft shelter, command and control

TABLE 3
Proposed Action Activities – Kofa Region [a]
Yuma Proving Ground

ID	Description	ID	Description	ID	Description
	at SCAM Flats.		3970 and Bldg 3971. Install fire suppression system in Bldg 3971.		room, simulator training room, class room, maintenance area, POL storage area, graded area for parking, concrete or asphalt pad, and clear area for UAS launch/recovery at East Arm.
K031	Construct lagoon for Kofa Sewage Lagoon Expansion.				

[a] Measurements are approximate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

Natural Resources







Source: AZGFD









Cultural Resources

Why do we need a Section 106 Programmatic Agreement (PA)?

To address potential effects on historic properties from:

1) the Army's routine, ongoing operations and maintenance activities at YPG.
2) the PEIS proposed projects, some of which currently lack specific details.

What is the relationship between the PA and PEIS?

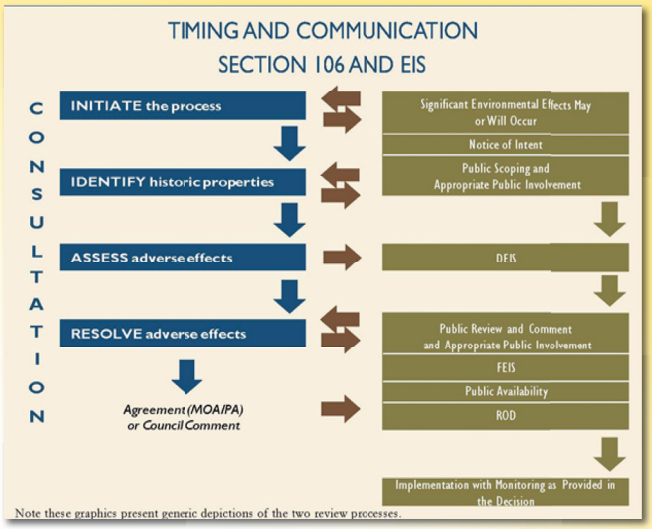
- NEPA and National Historic Preservation Act (NHPA) are independent regulations but work in coordination with each other.
- NEPA PEIS concludes with a signed ROD; Section 106 concludes with an executed PA.
- Agencies must complete NEPA and Section 106 reviews before making a formal decision.

What are the requirements of the PA?

– Cultural resources surveys will be done in those areas where undertakings are proposed and funded.
– Some lands at YPG will require no further cultural resources survey.
– YPG, in consultation with the SHPO and tribes, will define those lands.
– YPG will consult with tribes and communities to identify potential Traditional Cultural Properties.
– All undertakings with a finding of "No Historic Properties Affected" will require no further review.
– For undertakings that may affect historic properties, YPG will consult further with the SHPO and tribes.

How will compliance with the PA be monitored?

– YPG will submit an Annual Report to SHPO and other consulting parties.
– Consulting parties will have an annual meeting to discuss the successes, shortcomings, and general implementation of the PA.



What happens if a cultural resource is discovered during a project?

– The YPG Cultural Resources Manager, under the authority of the Garrison Manager, can temporarily stop the work.
– YPG has developed a Standard Operating Procedure (SOP 5) that gives the specific steps to be taken.
– If YPG determines that the cultural resource is significant, YPG will notify the SHPO.
– If the site may have significance for tribes, they will be notified and consulted.
– If human remains are identified, the Garrison Manager will be contacted.
– If the remains appear to be Native American, YPG will comply with the Native American Graves Protection and Repatriation Act.
– If the remains are not Native American, YPG will notify SHPO and try to identify descendants or other interested parties.
– YPG will develop a plan for the respectful treatment and disposition of the remains.

AFFIDAVIT OF COURT REPORTER

In the matter of:

UNITED STATES ARMY GARRISON YUMA PROVING GROUND PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT RESULTING FROM IMPLEMENTATION OF THE REAL PROPERTY MASTER PLAN AT YUMA PROVING GROUND NORTHEAST OF YUMA, ARIZONA.

STATE OF ARIZONA)
) ss.
COUNTY OF YUMA)

I, AMY S. RICHARDSON, Certified Reporter No. 50329 for the State of Arizona, do hereby certify:

1. That on September 24, 2013, from 2:00 p.m. to 5:00 p.m., and then from 6:00 p.m. to 8:00 p.m., I was present at the public meeting held at the YPG Desert Breeze Travel Camp Community Center, Building 6, Yuma, Arizona, and that no public comment was received;

2. That on September 25, 2013, from 6:00 p.m. to 8:00 p.m., I was present at the public meeting held at the Yuma Main Library, 2951 South 21st Drive, Yuma, Arizona, and that no public comment was received;

DATED at Yuma, Arizona this 1st day of October, 2013.

Amy S. Richardson

AMY S. RICHARDSON
Arizona Certified
Reporter No. 50329

YUMA COURT REPORTERS, LLC
301 South 2nd Avenue, Suite 3
Yuma, Arizona 85364
(928) 782-7591
yumacourtreporters.com

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

SEP 26 2013

Sergio Obregon
National Environmental Policy Act Coordinator
U.S. Army Garrison Yuma Proving Ground
IMWE-YMA-PWE
301 C Street
Yuma, Arizona 85365-9498

Subject: Draft Programmatic Environmental Impact Statement of Activities and Operations at Yuma Proving Ground, Yuma County, Arizona (CEQ # 20130240)

Dear Mr. Obregon:

The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The Draft Programmatic Environmental Impact Statement assesses the impacts from the continuation of ongoing activities at Yuma Proving Ground, and implementation of new facilities, infrastructure, and programs to meet anticipated future needs. The range of alternatives includes the No Action Alternative, which continues current operations, and the Proposed Action Alternative, which expands activities. The Proposed Action is comprised of 138 discrete short-term projects and 14 discrete long-term projects. The DPEIS indicates that the Army may choose a subset of construction, testing, and training projects for implementation, and the subset would be clearly identified in the Record of Decision. The DPEIS also indicates that for certain short-term projects, project-level analysis under NEPA is provided and subsequent NEPA analysis would not be needed. Other projects are analyzed at a programmatic-level and would require subsequent, site-specific NEPA analysis.

We have rated the DPEIS as Environmental Concerns – Insufficient Information (EC-2) (see enclosed EPA Rating Definitions) because (1) actions that the Army intends for the DPEIS to analyze at the project level, rather than the programmatic level, are not well defined, and it is therefore unclear whether an appropriate level of assessment has been completed, and (2) potential increases in testing and training activities that could result from expansions in capacity under the Proposed Action are not disclosed, making it difficult to gauge the intensity of impacts. We are also concerned with potential impacts to fire risk, hazardous materials, aquatic resources, air quality, and wildlife. Recommendations to address these issues are provided in our attached detailed comments.

We appreciate the opportunity to review this DPEIS, and are available to discuss our comments. If you have any questions, please contact me at 415-972-3521, or contact Jen Blonn, the lead reviewer for this project. Ms. Blonn can be reached at 415-972-3855 or blonn.jennifer@epa.gov.

Sincerely,

SEP 2 6 2012

Kathleen Martyn Goforth, Manager
Environmental Review Office (CED-2)

Enclosures: Summary of the EPA Rating System
EPA Detailed Comments

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, “Policy and Procedures for the Review of Federal Actions Impacting the Environment.”

U.S. EPA DETAILED COMMENTS ON THE DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT OF ACTIVITIES AND OPERATIONS AT YUMA PROVING GROUND, YUMA COUNTY, ARIZONA, SEPTEMBER 26, 2013

Scope of Analysis

The Draft Programmatic Environmental Impact Statement states that three types of activities are included within the Proposed Action: (1) short-term, well-defined, activities at known locations that could be implemented without additional analysis under the National Environmental Policy Act, (2) short-term, well-defined activities for which locations are not known that would receive additional NEPA analysis prior to implementation, and (3) long-term, less well-defined activities that would receive additional NEPA analysis prior to implementation. From EPA's review of the DPEIS, is appears that most actions were analyzed at a programmatic level. It is unclear which actions the Army intended to analyze at the project level within the DPEIS.

Recommendations for the Final Environmental Impact Statement:

- Augment the descriptions of proposed activities in tables 2-1 to 2-3 to clearly indicate whether the Army intends for the DPEIS to include a project or programmatic level NEPA assessment of impacts.
- Ensure that the FEIS contains a robust NEPA analysis, with comprehensive, site-specific disclosure of direct, indirect, and cumulative impacts, for any activities that the Army intends to move forward without subsequent NEPA analysis. Quantitative data should be used to gauge the intensity of anticipated impacts to the extent possible.

Testing & Training Increases

The activities included in the Proposed Action appear to greatly expand the capacity for testing and training activities at Yuma Proving Ground. For example, extending runways, constructing new vehicle test courses, constructing new drop zones, expanding munitions impact areas, and establishing new gun positions, among other activities, would enable increased testing and training activities. In addition, the DPEIS frequently references increases in testing and training. It is, however, unclear exactly what this entails. The DPEIS does not indicate the degree to which specific testing and training may increase. Without this information, the intensity of potential impacts cannot be adequately understood, planned for, and mitigated. Page 3-88 indicates that, "No new employees are anticipated to relocate to the area as a result of the Proposed Action." It is unclear how the apparent proposed increase in capacity for testing and training could be fully utilized without an increase in population.

Recommendations for the FEIS:

- Augment the description of the Proposed Action in Section 2 to provide quantitative measures of the degree to which specific testing and training activities could increase. For example, disclose the anticipated increase in frequency (as a number or percentage) of flights, munitions fired, training exercises, and other activities that could be supported by the Proposed Action.
- Consider presenting a range of potential increases in testing and training activities (such as various percentages of increase from the current baseline) that could meet future needs.

- Augment Section 3 to disclose direct, indirect, and cumulative impacts from the specific increases in testing and training that would be likely to result from implementation of the Proposed Action.
- Discuss the potential for increases in testing and training activities under the Proposed Action to induce population increases on or near YPG, disclose any potential associated environmental impacts (such as increased water demand), and identify measures that could mitigate those impacts.

Fire Prevention & Management

The Proposed Action and the No Action alternatives include military testing and training activities that have ignition as a by-product. The DPEIS discloses that such activities have the potential to create wildfires. As explained in the DPEIS, a 2005 wildfire that originated on YPG burned more than 30,000 acres, including 26,000 acres in the neighboring Kofa National Wildlife Refuge. Vegetation clearing and other ground disturbance provide conditions favorable to establishment of exotic invasive species, which increase fuel loads and carry fires well, resulting in larger and more intense wildfires (page 3-41). The Proposed Action increases disturbance on up to 88,120 acres in the Cibola Region and 83,182 acres in the Kofa Region for unmanned aircraft system launch/recovery, transient gun positions, construction and utility installation, dismounted maneuver areas, vehicle test courses, and munitions impact areas (page 3-43). In addition, the DPEIS indicates that, in the event that a wildfire develops in the Kofa or Cibola Regions, fire suppression would not be undertaken in many zones due to potential danger from unexploded ordnance.

We understand that efforts are underway to reduce the fire risk posed by exotic invasive species. The DPEIS explains that, "[a] program to establish exclusion, monitoring, and eradication of all invasive plants on YPG is in the beginning stages," and an Invasive Species Management Plan is expected to be finalized in 2013 (page 3-132). EPA is concerned, however, that the DPEIS does not commit to implement wildfire mitigation measures prior to undertaking actions that could increase wildfire risk. In addition, we are concerned that eradication of invasive species is not always a realistic goal; management to control invasive species may be more appropriate. We also note that both eradication and control programs would likely involve increases in pesticide use, and potential increases do not appear to be discussed.

Recommendations for the FEIS:

- To the extent possible, provide quantitative measures and qualitative discussion of the increased risk of fires that could result from specific increases in testing and training under the Proposed Action. For example, analyze the degree to which specific increases in ignition sources and impacted land acreages translate into potential increases in fire risk. Include measures to avoid, minimize, and mitigate risk from specific testing and training activities.
- Describe how fire prevention and management is considered in the siting of testing and training activities, and include a map with high-risk fire areas overlaid with proposed activities.
- Provide additional information on the Invasive Species Management Plan, including strategies for the proposed eradication of invasive species and any potential increases in

pesticide use. Consider whether a goal of management, rather than eradication, may be appropriate.

- Commit to implement measures to avoid, minimize, and mitigate fires *before* implementing expanded or new activities that would increase fire risk, such as increasing personnel tasked with spotting fires during training exercises.
- Commit to target areas already populated with invasive species, where consistent with project objectives, when determining the locations for projects that require vegetation to be cleared, and implement measures to prevent the spread of invasive species during land clearing activities.
- Describe any increased fire risks that YPG could experience due to changing climate conditions, and explain how such risks would be addressed.

Contamination

Several removal and remedial actions have already taken place on site, and "[d]ata indicate that other sites on YPG warrant remedial response and ongoing studies at these sites will be used to determine an appropriate strategy" (page 3-48). The Proposed Action does not discuss whether lessons learned from historic contamination have informed future plans to avoid, minimize, and mitigate soil and water contamination.

The DPEIS suggests that contaminants are not migrating off-site or into groundwater. Preventive measures are highlighted, such as the regular collection of spent depleted uranium rounds, and use of a catchment structure with an evaporative lagoon sized to accommodate a 100-year flood. Similarly, DPEIS indicates that munitions constituents of concern, including cadmium, mercury, arsenic, chromium, copper, lead, and zinc, do not migrate beyond designated impact areas. While supporting studies are cited, the DPEIS does not include sufficient information, such as a summary of studies, recent data, and future projections. It is unclear, from the DPEIS, whether current protections are sufficient for current, or future, conditions. Increases in testing and training activities would necessitate increases in use of hazardous materials, which would increase the potential for contaminants to accumulate in soils, infiltrate groundwater, flow into washes or off-site via stormwater, or be accidentally spilled.

Recommendations for FEIS:

- Provide quantitative measures and qualitative discussion of the potential increase in the release of contamination into soil and groundwater that could result from specific increases in testing and training under the Proposed Action. Include measures to monitor and mitigate impacts from specific testing and training activities. To clarify potential risks, we recommend providing a table with (1) actions that generate contaminants, (2) specific contaminants of concern, (3) mitigation measures, and (4) monitoring actions.
- Provide maps that depict areas of known contamination as well as locations of past and planned cleanups in order to better disclose existing conditions that would be impacted and likely cumulative impacts.
- Augment the discussion of cleanups on page 3-48 to describe how lessons learned from historic contamination have informed future plans to avoid, minimize, and mitigate soil and water contamination.
- Clearly describe, through discussion and maps, plans and locations for sampling to help ensure that contaminants do not migrate into the groundwater or off-site.

- Ensure that likely future changes in precipitation under climate change scenarios are considered in an evaluation of whether a 100-year flood sized evaporative lagoon would continue to be appropriate for the depleted uranium catchment structure.

Aquatic Resources

Stormwater
YPG contains numerous desert washes onsite that remain dry most of the year, and can experience flash flooding during heavy rains. Surface drainage from the western portion of the site flows into the Colorado River, and drainage from the central and eastern regions flows into the Gila River (page 3-149). Both rivers are listed on the Arizona 2006/2008 List of Impaired Waters (3-150).

The DEIS indicates that water arriving in both rivers during flood events is "typically good quality," (3-150) and that the Proposed Action would not result in further degradation (3-157). Documentation to support these conclusions is not provided. Further, activities under the Proposed Action would disturb thousands of acres of desert habitat and add hundreds of acres of impervious surfaces, which could increase runoff. Expanded use of drop zones, potential increases in frequency of fires, expanded vehicle testing activities, and increased munitions impacts, among other new and expanded activities, could decrease the quality of stormwater.

Recommendations for the FEIS:
- Site transient gun positions, and other facilities and activities that would disturb vegetation, away from washes.
- Clearly define plans to regularly monitor stormwater quality.
- Include the Stormwater Pollution Prevention Plan as an appendix to the FEIS since measures contained within it will largely influence the intensity of impacts.

Groundwater Demand
Page 3-35 states that the proposed water treatment plant would increase demand for groundwater, but any subsidence associated with the increased withdrawal would be minor to moderate and no surface fissures would result. Water demand would also increase from development of a new well. Increased demand for groundwater is not estimated, and it is, therefore, unclear how conclusions regarding the intensity of impacts were reached.

Recommendations for the FEIS:
- Provide quantitative measures of projected increases in demand for groundwater, and explain how results were calculated.
- Commit to implement water conservation measures in buildings and operations. Guidance on water efficient products for use in buildings is available at http://www.epa.gov/watersense/, and recycled water can be used for vehicle washing and other maintenance activities.
- Clearly define plans to regularly monitor groundwater. Include a map depicting sampling wells overlaid with potential contaminant sources.

Clean Water Act Section 404
The DEIS states that a CWA 404 permit would be required for proposed improvements to Aberdeen Road in the Castle Dome Wash between U.S. Highway 95 and the Kofa Cantonment (page 3-158). The acreage of potential fill into Waters of the U.S. is not provided, nor is information on compliance with the CWA Section 404(b)(1) Guidelines.

Recommendations for the FEIS:

- Disclose whether any projects within the Proposed Action alternative, aside from the Aberdeen Road improvements, would require a CWA 404 permit.
- Clarify whether the Army intends to complete subsequent NEPA analysis for projects within the Proposed Action that would require a CWA 404 permit.
- If this DPEIS is intended to provide project-level analysis of any action that would require a CWA 404 permit, then the FEIS should include a detailed evaluation of the project alternatives in order to demonstrate the project's compliance with the 404(b)(1) Guidelines. The alternatives analysis should demonstrate that the proposed project is avoiding and minimizing damage to waters to the maximum extent practicable.

Air Quality
The southwest corner of the Laguna Region of the YPG is a nonattainment area (moderate) for the 24-hour National Ambient Air Quality Standard for PM10. The project area is in attainment for all other criteria pollutants. Appendix D includes a General Conformity Record of Non-Applicability, which addresses specific, and very limited, construction activities. Operational emissions from use of new facilities, including indirect emissions from traffic, testing, and training activities, do not appear to be included.

Page 3-14 explains that, "aircraft operations may increase under the Proposed Action and there would likely be a trend to use larger [unmanned aircraft systems]. Either of these could result in an increase in aircraft emissions during testing and training." Similarly, expanded and new vehicle test courses would likely lead to increased vehicle emissions, and expanded and new drop zone and munitions impact areas would likely further lead to increased emissions. In order to understand the intensity of increased air emissions, information is needed on the degree to which operational activities could increase at YPG.

Recommendations for the FEIS:

- Ensure that all applicable projects, and their associated direct and indirect impacts, are included in the general conformity review provided in Appendix D.
- Provide quantitative measures and qualitative descriptions of the air emissions that could result from specific increases in testing and training under the Proposed Action. Identify measures to avoid, minimize, and mitigate air emissions impacts from specific testing and training activities.
- Commit to minimize construction air emissions through cleaner diesel technologies, anti-idling policies, and other best practices. See EPA's cleaner diesel website for information on specific best practices (http://www.epa.gov/diesel/), and specify, in the FEIS, which strategies would be implemented.

- Ensure that activities that create air emissions are scheduled with consideration of temperature inversions that occur on YPG due to topography (as described in Appendix C, Section E-1, Question 4).

Valley Fever

The Centers for Disease Control and Prevention's website explains that, "valley fever is caused by Coccidioides, a fungus that lives in the soil in the southwestern United States...inhaling the airborne fungal spores can cause an infection." Exposure can cause flu-like symptoms, or, in a very small proportion of people, the infection can spread from the lungs to the rest of the body and cause more severe conditions, even death. Based on the CDC's website, it appears that YPG is in a region where valley fever is mildly endemic. For more information, please see: http://www.cdc.gov/features/valleyfever/. Ground disturbing activities can release spores into the air, creating an exposure risk via inhalation. The DPEIS does not discuss potential impacts related to valley fever.

Recommendations for the FEIS:

- Discuss the potential valley fever risk under the No Action and Proposed Action alternatives. If appropriate, include measures to avoid, minimize, and mitigate impacts, including outreach to ensure YPG personnel are aware of risks, symptoms, and treatments.

Wildlife

The Sonoran desert tortoise is a candidate for listing under the Endangered Species Act, and inhabits the YPG. In addition, Sonoran pronghorn is endangered under the ESA, and an experimental population established through captive breeding was released into the neighboring Kofa National Wildlife Refuge in 2013 and is expected to inhabit YPG (page 3-110). The DPEIS explains that direct impacts to threatened and endangered species would result from displacement or incidental mortality, and indirect impacts would result from disturbance that leads to nest/den abandonment, loss of habitat, or disruption of migratory pathways (page 3-114). Impacts would be avoided, minimized, and mitigated through site selection of military activities, relocation of species, and procedures established in the Integrated Natural Resource Management Plan. The role of U.S. Fish and Wildlife Service and Arizona Game and Fish Department in addressing impacts to species is not discussed. Their expertise could help to minimize impacts.

Recommendations for the FEIS:

- Coordinate with FWS to ensure compliance with the Endangered Species Act, and with FWS and AGFD on best practices to minimize impacts to wildlife. Document this coordination in the FEIS.
- Include maps that depict key wildlife habitats and corridors on YPG in order to disclose potential impacts and inform decisions on siting facilities and activities.
- Include the Integrated Natural Resource Management Plan as an appendix to the FEIS since measures contained within it will largely influence the intensity of impacts.
- If this DPEIS is intended to provide project-level analysis of any action that would impact wildlife, then the FEIS should include more detailed information on the location of impacts and the number of individuals that would likely be taken or disturbed.

Renewable Energy

EPA is pleased to see that the Army is considering development of a commercial scale solar renewable energy project on YPG, which is currently going through a separate NEPA process. In order to protect pristine lands and minimize environmental impacts, EPA's Re-Powering America initiative encourages renewable energy development on current and formerly contaminated lands.

Recommendations for the FEIS:

- Consider siting the proposed solar energy project on a current or formerly contaminated site within YPG, which may have limited other uses due to past activities. Resources are available on EPA's Re-Powering America website at: http://www.epa.gov/oswercpa/.

Responses to EPA comments dated September 26, 2013 on YPG DPEIS

Scope of Analysis

Comment 1: **Augment descriptions of proposed activities in table 2-1 and 2-3 to clearly indicate whether the Army intends for the DPEIS to include a project or programmatic level NEPA assessment of impacts.**

Response: Tables 2-1 through 2-3 have been revised as Tables 2-1 through 2-6, which provide separate listing of programmatic projects and detailed analysis of projects by region.

Comment 2: **Ensure that FEIS contains a robust NEPA analysis with comprehensive site specific disclosure of direct, indirect, and cumulative impacts, for any activities that the Army intends to move forward without subsequent NEPA analysis. Quantitative data should be used to gauge the intensity of anticipated impacts to the extent possible.**

Response: The analysis in the body of the FPEIS focuses on the programmatic portion of the Proposed Action. An appendix (Appendix C) has been added to the FPEIS that provides site-specific analysis of direct and indirect impacts for projects considered in detail. No additional detail regarding cumulative impacts was provided, beyond that already included in the DPEIS, as this discussion was comprehensive.

Testing and Training Increases

Comment 3: **Augment the description on the Proposed Action in section 2 to provide quantitative measures of the degree to which specific testing and training activities could increase. For example disclose the anticipated increase in frequency (as a number or a percentage) of flights, munitions fired, training exercises, and other activities that could be supported by the Proposed Action.**

Response: Description has been revised to reflect that the proposed action would increase the capability for conducting testing and training by increasing the number/size of ranges and/or facilities that can be used, but that actual use would be within historical levels (see comment 4).

Comment 4: **Consider presenting a range of potential increases in testing and training activities (such as various percentages of increases from the current baseline) that could meet future needs.**

Response: Historical data from the recent peak usage period (simultaneous conflicts in Iraq and Afghanistan) and minimal use years for are provided to bracket the maximum and baseline levels of activity. Text was added to FPEIS identifying these historical maxima and minima for vehicles, munitions, troops, and aircraft (manned and unmanned). Because the historical maxima exceeded ability of current ranges/facilities, the proposed action would expand ranges/facilities

to accommodate the historical maxima. The impacts analysis has been clarified to indicate that it is based on future use being within identified historical limits.

Comment 5: **Augment section 3 to disclose direct, indirect, and cumulative impacts from the specific increases in testing and training that would result from the implementation of the Proposed Action.**

Response: Section 3 of the FPEIS focuses on the programmatic analysis of direct, indirect, and cumulative impacts. A new appendix (Appendix C) has been added that provides the specific analysis of direct and indirect impacts for projects considered in detail. No change to the cumulative impacts discussion beyond that provided for the programmatic analysis has been made.

Comment 6: **Discuss the potential for increases in testing and training activities under the Proposed Action to induce population increases on or near YPG, disclose any potential associated environmental impacts (such as increased water demand), and to identify measures that could mitigate those impacts.**

Response: FPEIS sections 3.5.4.2 and 3.20.2.2 address water demand. As noted in the DPEIS, there would be no increase in personnel assigned to YPG, so no permanent increase in water demand would occur. Because no permanent jobs would be created, no induced growth would be expected. Section 3.20.2.2 identifies that increases in water demand would be temporary to support construction or short-term training and would not require mitigation beyond water conservation measures already implemented on YPG.

Fire Prevention and Management

Comment 7: **To the extent possible, provide quantitative measures and qualitative discussions of the increased risk of fires that could result from specific increases in testing and training under the Proposed Action. For example analyze the degree to which specific increases in ignition sources and impacted land acreages translate into potential increases in fire risk. Include measures to avoid, minimize, and mitigate risk from specific testing and training activities.**

Response: The potential for wildfire on YPG is largely driven by precipitation and is independent of military activities on YPG. In years of above normal rainfall, the density and cover of annual plants (both native and exotic) increases, resulting in increased fuel load and greater potential for wildfire. YPG has developed a Geographic Information System Fire Risk Model to predict wildfire risk and behavior based on fuel loads and short-term climatic conditions. Text on this model and how it is used were added to the FPEIS discussion of wildfire. See also response to comment 8.

Comment 8: **Describe how fire prevention and management is considered in the siting of testing and training activities, and include a map of high risk fire areas overlaid with proposed activities.**

Response: Following the King Valley wildfire in 2005, YPG developed a Memorandum of Understanding with BLM and USFWS to specify how fires would be reported and combated on federal lands in the area. The MOU established reporting protocols, chains of command, and safety measures related to fighting wildfires across federal lands boundaries. No changes in the procedures specified in the MOU are proposed. Text discussing the MOU has been added to the FPEIS.
Wildfire risk varies from year to year throughout YPG, depending on localized rainfall conditions. In addition, wildfire risk within a given year varies among different areas on YPG, due to the size of the installation, the annual widespread scatter among rainfall events across this large area, and variation in such localized rainfall from year to year. However, an installation-wide map of fire risk was not added because it would be quickly out of date and would change yearly based on rainfall conditions. Because the proposed activities would be implemented over a period of years, a map of current conditions would have little relevance to conditions at the time of project implementation. Instead text was added explaining the YPG fire model and how it is used to manage fire risk on the installation. A figure was created comparing relative fire risk of a representative area on YPG based on model output for two historical years.

Comment 9: **Provide any additional information on Invasive Species Management Plan, including strategies of the proposed eradication of invasive species and any potential increases in pesticide use. Consider a goal of management rather than eradication, may be appropriate.**

Response: The Invasive Species Management Plan is not a component of the proposed action, but is being developed separately by YPG. The goal on YPG is control and eradication with eradication being preferred for small areas of invasive species that are not well-established and control of the more well-established species. However, until the plan is finalized, it is not appropriate to speculate on specifics it may contain. No additional information added to the FPEIS. Text was added to the vegetation discussion (Section 3.18.2) discussing control measures in the INRMP, especially for buffelgrass.

Comment 10: **Commit to implement measures to avoid, minimize, and mitigate fires before implementing or expanded or new activities that would increase fire risk, such as increasing personnel tasked with spotting fires during training exercises.**

Response: As noted previously in responses 7 and 8, fire risk is largely independent of activities undertaken on YPG and is dependent on fuel load, which is a function of precipitation and growth of annual plant species. Following the King Valley wildfire in 2005, YPG developed a Memorandum of Understanding with BLM and USFWS to specify how fires would be reported and combated on federal lands in the area. The MOU established reporting protocols, chains of command, and safety measures related to fighting wildfires across federal lands boundaries. No

changes in the procedures specified in the MOU are proposed. Text discussing the MOU has been added to the FPEIS in Sections 3.7.1 and 3.7.2.4 and in Appendix G.

Comment 11: **Commit to target areas already populated with invasive species, where consistent with project objectives, when determining the locations for projects that require vegetation to be cleared and implement measures to prevent the spread of invasive species during land clearing activities.**

Response: The primary factor that determines where vegetation clearing activities would be sited is mission needs (such as an impact area *x* kilometers from a firing point, a sensor test range *x* kilometers from nearest electromagnetic interference, etc.). Selection of and subsequent clearing of land populated with invasive species is done when these areas are consistent with project objectives.

Section 3.18.2.4 (Vegetation) discusses plans to minimize impacts to vegetation, including spread of invasive exotic species, in addition to the YPG ITAM program.

Contamination

Comment 12: **While supporting studies on contamination at YPG are cited, the DPEIS does not include data such as summary of studies, recent data, and future projections. It is unclear, from the DPEIS, whether current projections are sufficient for current, or future, conditions.**

Response: Areas that are being addressed through the Installation Restoration Program would not be impacted by the proposed activities. A discussion of the regular contaminant monitoring of ranges conducted by the U.S. Army Center for Health Promotion and Preventative Medicine has been added to Section 3.9.1.4. No evidence of contamination movement to groundwater from surface activities on YPG has been discovered. Monitoring is conducted every 5 years moving forward, with the most recent sampling (the third sampling event) completed in 2012. The reports are provided in the Administrative Record.

All range areas were evaluated in the initial evaluation and subsequent evaluations have focused on active ranges. The new or expanded munitions impact areas will be added to the U.S. Army Center for Health Promotion and Preventative Medicine monitoring evaluations. Because there would be no changes to the types of munitions fired, it is expected that this monitoring will continue on the regular intervals.

Comment 13: **Provide measures and qualitative discussion of potential increase in the release of contamination to soil and groundwater that could result from specific increases in testing and training activities under the Proposed Action. Include measures to monitor and mitigate impacts from specific testing and training activities. To clarify potential risk,**

we recommend providing a table with actions that (1) generate contaminants, (2) specific contaminant of concern, (3) mitigation measures and, (4) monitoring actions.

Response: A discussion of the findings of the U.S. Army Center for Health Promotion and Preventative Medicine studies conducted on YPG ranges (every 5 years, most recently completed in 2012) has been added to the FPEIS. Based on these findings, where no evidence of contamination movement to groundwater from surface activities on YPG has been discovered, no risk of future contamination is expected. No table was added because the COCs are munitions constituents and there is no contamination at present from these COCs. Monitoring, as discussed in Section 3.9.1.4 and Appendix G, will continue every five years and should evidence be detected, appropriate mitigation measures would be developed and implemented at that time.

Comment 14: **Provide maps that depict areas of known contamination as well as past and planned cleanups in order to better disclose existing conditions that would likely be impacted and likely cumulative impacts.**

Response: Figure 3-3 has been added to depict IRP sites on YPG. The IRP sites are the known areas of contamination. Only one proposed project would potentially cross an IRP site and that project (an electrical transmission line extension) is not sufficiently designed for detailed analysis in the FPEIS. The project will be subjected to further NEPA analysis prior to implementation that will address potential impacts to the IRP site and the associated contamination if the final design crosses the IRP site. No changes to areas of contamination would result from the proposed activities and no cumulative impacts would result with regard to existing areas of contamination.

Comment 15: **Augment the discussion of cleanups on page 3-48 to describe how lessons learned from historic contamination have informed future plans to avoid, minimize, and mitigate soil and water contamination.**

Response: Historical contamination has resulted from isolated events (leaking storage tanks, landfills, etc.) and has not resulted from testing and training activities. Knowledge gained from responses to historical contamination has been applied to develop Standard Operating Procedures (SOPs), a Spill Prevention, Control, and Countermeasures Plan (SPCCP) and an Installation Spill Contingency Plan (ISCP). These items were included in the DPEIS and implementation of these SOPs as well as the SPCCP and ISCP is required for activities proposed in the FPEIS. The required implementation of these measures should limit the risk of future accidental releases and subsequent contamination. The U.S. Army Center for Health Promotion and Preventative Medicine conducts studies on YPG ranges every 5 years, most recently completed in 2012, to detect possible contamination and migration of potential contaminants from munitions constituents. These studies will be continued under the Preferred Alternative in the FPEIS.

Comment 16: **Clearly describe, through discussions and maps, plans and locations for sampling to help ensure that contaminants do not migrate into the groundwater or off-site.**

Response: A new Figure 3-3 has been added that depicts sampling locations for monitoring wells. A discussion of the U.S. Army Center for Health Promotion and Preventative Medicine sampling (conducted every 5 years) to test for potential range contamination has been added to the FPEIS.

Comment 17: **Ensure that likely future changes in precipitation under climate change are considered in an evaluation of whether or not a 100-year flood sized evaporative lagoon would continue to be appropriate for the depleted uranium catchment structure.**

Response: A discussion of anticipated climate change impacts in southern Arizona has been added to the discussion of the No Action Alternative regarding the DU evaporative lagoon (Section 3.7.2.2). As no change in use of the DU impact area would occur under the proposed action, no change to the discussion of impacts under the proposed action was made.

Aquatic Resources

Stormwater:

Comment 18: **Site transient gun positions, and other facilities and activities that would disturb vegetation away from washes.**

Response: The locations of TGPs are determined by mission needs – to provide adequate support to meet testing and training needs at specific locations. As the materiel and equipment used at transient gun positions would be subject to damage or loss in the event of a flash flood, these locations avoid washes to the extent practicable, but it is not always possible to avoid these areas.

Comment 19: **Clearly define plans to monitor stormwater quality.**

Response: Construction stormwater monitoring would be specified in the project-specific Construction Stormwater Pollution Prevention Plans that would be developed and implemented. Specifics of such monitoring are not known at this time.

Comment 20: **Include the Stormwater Pollution Prevention Plan as an appendix to the *FEIS* since measures contained within in it will largely influence the intensity of impacts.**

Response 20: SWPPP will be retained as a reference located in the Administrative Record. The measures identified from the SWPPP apply equally to the no action alternative and the proposed action and already are being implemented on YPG. Due to the size of the document and that it contains substantial information unrelated to the proposed action, the SWPPP will be retained as a reference and included in the Administrative Record but will not be added as an appendix.

Groundwater

Comment 21: **Provide quantitative measures for increases in demand for groundwater, and explain how results were calculated**

Response 21: Groundwater demand is discussed in section 3.5 of the FPEIS and further discussed in section 3.20.2.2. As noted in the DPEIS, there would be no increase in personnel assigned to YPG, so no permanent increase in water demand, including water derived from groundwater, would occur. Any increases in water demand would be temporary to support construction or short-term training and would not require mitigation beyond water conservation measures already implemented on YPG.

Comment 22: **Commit to implement water conservation measures in buildings and operations. Guidance for water efficient products for use in buildings is available at *www.epa.gov/watersense/*, and recycled water can be used for vehicle washing and other maintenance activities.**

Response 22: YPG has a commitment as an installation to conserve water. Water conservation commitments relevant to the proposed action are addressed in Section 3.5.1.2 (Utilities – Water).

Comment 23: **Clearly define all plans to regularly monitor groundwater. Include a map depicting sampling wells overlaid with potential contaminant sources.**

Response 23: Ground water sampling addressed in Section 3.9 (Hazardous Materials/Hazardous Waste). A map of IRP sites and monitoring wells has been added as Figure 3-3.

Clean Water Act Section 404

Comment 24: **Disclose any projects that occur within the Proposed Action alternative, aside from the Aberdeen road improvements, would require a CWA 404 permit.**

Response 24: As was stated in the DPEIS section 3.20.2.3, only the Aberdeen Road flood improvements would require a CWA 404 permit. No changes to the FPEIS were made in response to this comment.

Comment 25: **Clarify whether the Army intends to complete subsequent NEPA analysis for projects within Proposed Action that would require a CWA 404 permit.**

Response 25: As was stated in the DPEIS Section 3.20.2.3, only the Aberdeen Road flood improvements would require a CWA 404 permit. CWA permitting would be completed for this activity, but additional NEPA analysis by YPG is not anticipated.

Comment 26: **If DPEIS is intended to provide project-level analysis of any action that would require a CWA Section 404 permit, then the FEIS should include a detailed evaluation of the project alternatives in order to demonstrate the project's compliance with**

the 404(b)(1) guidelines. The alternatives analysis should demonstrate the proposed project is avoiding and minimizing damage to waters to maximum extent possible.

Response 26: Only one proposed activity would require a CWA Section 404 permit (flood improvements on Aberdeen Road leading into Kofa cantonment). Because this project has not been designed, it is not possible at this time to provide this detailed analysis for CWA Section 4040(b)(1). However, that is not necessary for completing the NEPA analysis on the action. As the project is to improve an existing low water crossing that floods excessively and creates a safety hazard, the project is water-dependant and impacts are unavoidable. The water is a large wash extending southward from the Kofa Mountains and must be crossed to access the Kofa cantonment. Therefore, avoiding the water is not an option. Alternatives would be limited to different approaches to improve the crossing, which will not be developed until the engineering/design phase is initiated. Alternatives will consider ways to minimize impacts. The FPEIS does specify that the CWA permit must be obtained in advance of the work and that the work must comply with the conditions of the permit. The FPEIS makes the logical NEPA conclusion that, based on compliance with the CWA permit, the impacts to the water would be minor and not significant. No changes were made to the FPEIS based on this comment.

Air Quality

Comment 27: **Ensure that all applicable projects and their associated direct and indirect impacts are included in the general conformity review provided in Appendix E.**

Response 27: All applicable projects were included in the conformity review in the DPEIS. No additional projects have been added to the conformity review. Impacts are discussed in the FPEIS in section 3.2.2.2.

Comment 28: **Provide Quantitative measures and qualitative descriptions of the air emissions that could result from specific increases in testing and training under the Proposed Action. Identify measures to avoid, minimize, and mitigate air emissions impacts from specific testing and training activities.**

Response 28: Air emission calculations are provided in Appendix D. These were required for the portion of YPG that is in non-attainment. These results were then extrapolated to address potential air quality impacts from activities outside the non-attainment area.

Comment 29: **Commit to minimize construction emissions through cleaner diesel technologies, anti-idling policies and other best practices. See EPA cleaner diesel website for information on specific best practices (http://www.epa.gov/diesel/) and specify, in the FEIS, which strategies would be implemented.**

Response 29: Air quality issues on YPG and in the surrounding area, including the designation of a portion of the region as a non-attainment area for PM10, are primarily the result of wind-

blown dust, not fine particulates generated as combustion byproducts. Tilled farmland is the primary contributor to dust, but natural wind events and military activities on YPG also contribute. Appropriate mitigation for dust suppression practices are discussed in 3.2.2.3 and 3.2.2.4.

Comment 30: **Ensure that activities that create air emissions are scheduled with consideration with temperature inversions that occur on YPG due to topography (as described in Appendix C, Section E-1, Question 4).**

Response 30: Air inversions are natural occurrences and do not result because of military activities on YPG. Inversion layers can be daily occurrences. They tend to develop overnight as a result of cool air settling between mountainous areas and then dissipate with the warming of the sun. Text was added to the air quality section (Section 3.2.2.2) discussing inversion layers and how operations are scheduled to minimize activities during inversion conditions.

Valley Fever

Comment 31: **Discuss potential valley fever risk under No Action and Proposed Action Alternatives. If appropriate, include measures to avoid, minimize, and mitigate impact, including outreach to ensure YPG personnel are always aware of risks, symptoms and treatments.**

Response 31: Valley fever has been added to FPEIS in sections 3.13.2.2 and 3.13.2.3

Wildlife

Comment 32: **Coordinate with USFWS to ensure compliance with the Endangered Species Act, and with FWS and AGFD on best practices to minimize impacts to wildlife. Document this coordinated in the *FEIS*.**

Response 32: Coordination has been maintained with USFWS and AGFD throughout the EIS process from initial scoping to current. Documentation of the coordination is provided in Appendix A, as indicated in the FPEIS.

Comment 33: **Include maps that depict key wildlife habitats and corridors on YPG in order to disclose potential impacts and inform decisions on siting facilities and activities.**

Response 33: Figures 3-5 through 3-11 were added to illustrate habitat for selected species. Corridors are direct paths between identified habitats across the desert.

Comment 34: **Include the Integrated Natural Resources Plan as an appendix to the FEIS since measures contained within it will largely influence the intensity of impacts.**

Response 34: The measures identified from the INRMP apply equally to the no action alternative and the proposed action and already are being implemented on YPG. Due to the size of the document and that it contains substantial information unrelated to the proposed action, the INRMP will be retained as a reference and included in the Administrative Record but will not be added as an appendix.

Comment 35: **If this DPEIS project is intended to provide project level analysis of any action that would impact wildlife, then the FEIS should include more detailed information of the location impacts and the number of individuals that would likely be taken or disturbed.**

Response 35: Because wildlife on YPG are widely scattered, it is not possible to accurately predict specific impacts such as number of animals disturbed. Project level analysis is described in Appendix C under "Activities Considered in Detailed" Projected impacts are discussed. The analysis does identify measures to reduce the potential for wildlife disturbance and specifies measures to avoid sensitive life history areas, such as lambing areas for bighorn sheep.

Renewable Energy

Comment 36: **Consider siting the proposed solar energy project on a current or formerly contaminated site on YPG, which may have limited other uses due to past activities.**

Response 36: This comment does not apply to the proposed action evaluated in this FPEIS. The solar energy project is not a component of the proposed action and the analysis of the proposed action will not influence siting criteria for such a project, beyond potential incompatible land use due to military activities implemented as a result of this action.

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION IV, 9140 E. 28TH ST., YUMA, AZ 85365

GOVERNOR
JANICE K. BREWER
COMMISSIONERS
VICE CHAIRMAN, J.W. HARRIS, TUCSON
ROBERT E. MANSELL, WINSLOW
KURT R. DAVIS, PHOENIX
EDWARD "PAT" MADDEN, FLAGSTAFF
DIRECTOR
LARRY D. VOYLES
DEPUTY DIRECTOR
TY E. GRAY

October 2, 2013

Sergio Obregon
NEPA Coordinator
U.S. Army Garrison YPG
IMWE-YMA-PWE, 301 C Street
Yuma, AZ 85365-9498

Re: Draft Programmatic Environmental Impact Statement for Activities and Operations at Yuma Proving Ground, Arizona

Dear Mr. Obregon:

The Arizona Game and Fish Department (Department) has reviewed the August 2013 United States Army Garrison Yuma Proving Ground Draft Programmatic Environmental Impact Statement (DPEIS) for Activities and Operations at Yuma Proving Ground. The Department appreciates the ongoing partnership with the Department of the Army (Army) in managing the ecological health of natural resources found on the U.S. Army Yuma Proving Ground (YPG). Given the project description and our understanding of planned activities, we are providing the following comments for your consideration.

Project Description

The DPEIS analyzes construction, testing, and training activities and presents the direct, indirect, and cumulative effects of the Proposed Action to continue ongoing activities and to implement new facilities, infrastructure, and programs to meet anticipated future needs and maintain YPG as a multi-purpose installation. The proposed action would also support cross-functional training allowed by the Department of Defense. The DPEIS will support development of a future Real Property Master Plan (RPMP) at YPG by providing a basis for the Visioning Plan and by providing a programmatic framework for the Capital Investment Strategy and the Area Development Plans. The analysis in the EIS will also support the alternatives analysis for the RPMP.

General Comments

As we understand from the DPEIS, the Army is planning new construction and associated demolition to meet future training and testing activities occurring on YPG. It is anticipated that YPG an area rich in biodiversity will continue to lose habitat as it expands its testing and training activities. The Department, by and through the Arizona Game and Fish Commission has jurisdictional authority (*A.R.S. 17*) for management of the states wildlife resources and seeks adequate compensation for habitat losses resulting from activities on YPG. As mentioned in the YPG Integrated Natural Resource Management Plan (2012), 185 mesquite bosques were surveyed on YPG ranging in size from 0.5 to 40 acres. Mesquite bosques provide excellent habitat for mammals are only second to cottonwood-willow forests for supporting high densities of breeding birds in the southwest (Stromberg 1993). A significant number

of bosques identified on YPG developed as a result of soil disturbance and not through natural means. Department personnel believe this can be replicated and would provide a cheap and effective opportunity to compensate for the loss of habitat from military activities. We would like to discuss this further with YPG personnel.

It is anticipated that increased testing and training may conflict with recreational hunting. The Department requests advanced notification and coordination if planned activities are expected to impact recreational hunting.

The Department would like to be included as a partner agency on environmental compliance and other natural resource related issues concerning projects identified within the DPEIS. Due to the nature of activities on YPG we believe early coordination will help provide adequate review while helping resolve and avoid conflicts and reduce impacts to wildlife.

Specific Comments

3.16.1.2: Western Yellow Bat – Change the second to last sentence to the following.

A western yellow bat was tentatively identified during mist net surveys in Vinegaroon Wash (YPG, 2012b), *and one western yellow bat was captured by AGFD at Lake Alex*. Suitable roosting habitat for this species is not present on YPG, but the species may forage on YPG or occur as a transient.

3.18.1: Existing Conditions – Change the second sentence in the eighth paragraph to the following.

The main non-native plants of concern are considered exotic invasive plants and include buffelgrass, Athel tamarisk (Tamarix aphylla), salt cedar (Tamarix spp. and hybrids), ~~Mediterranean and~~ Arabian grass (Schismus arabicus), Mediterranean grass, Sahara mustard, and puncturevine (Tribulus terrestris).

Table G-1: Define HS, SR, and WSC.

Thank you for the opportunity to review and provide comments on this Draft Programmatic Environmental Impact Statement. If you have any questions, please contact me at 928-341-4069 or tbommarito@azgfd.gov.

Sincerely,

Tab Bommarito

Tab Bommarito
Habitat Specialist
Region IV, Yuma

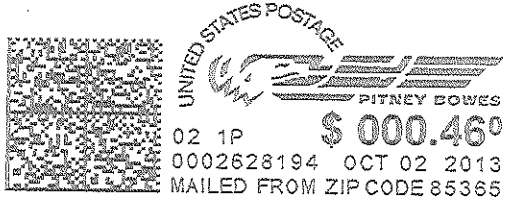
cc: Pat Barber, Regional Supervisor, Region IV
Joyce Francis, Chief, Habitat Branch
Bill Knowles, Habitat Program Manager, Region IV
Laura Canaca, PEP Supervisor, Habitat Branch

AGFD # M13-08164748

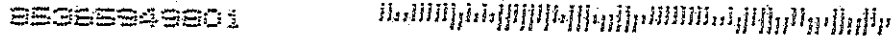
Stromberg, J.C., S.D. Wilkins, and J.A. Tress. 1993 Vegetation-hydrology models: Implications for management of *Prosopis velutina* (*Velvet Mesquite*) riparian ecosystems. Ecological Applications. 3:307-314

U.S. Army Garrison Yuma Proving Ground Yuma, Arizona (YPG). 2012b. Integrated Natural Resources Management Plan and Environmental Assessment. June 2012.

ARIZONA GAME & FISH DEPARTMENT
Region IV
9140 E. 28th St.
Yuma, AZ 85365



Sergio Obregon
NEPA Coordinator
U.S. Army Garrison YPG
IMWE-YMA-PWE, 301 C Street
Yuma, AZ 85365-9498



From: Fernandez, Erin [mailto:erin_fernandez@fws.gov]
Sent: Wednesday, October 23, 2013 3:49 PM

To: Steward, Daniel M CIV (US)
Subject: concurrence with March 4, 2013 species list

Hi Daniel,
I apologize if I didn't send my response previously to your request for concurrence on your March 4, 2013 species list. Regarding the list, I offer a couple of minor suggestions as follows:

1) "Antelocapra" should be spelled Antilocapra.
2) It should be clarified that Sonoran pronghorn occurring on YPG are part of the 10(j) population (this is stated on page 2 of the letter, but it should be clarified in the table; SPH are currently listed as endangered in the table).
3) As you are aware, SPH currently occur on YPG (page 2 states that they may move onto YPG; but that is because the letter was written before SPH were documented on YPG).
4) On page 2, second paragraph, just to clarify, YPG is not required to consult or conference with us on the 10(j) population of SPH on YPG. If YPG actions affect SPH on Kofa NWR (like overflights or the like), YPG would be required to consult with us as SPH are treated as threatened on Kofa.

Other than these minor points, I concur with your species list.

Thank you and please let me know if you have any questions or need further information from us.

Erin

Erin Fernandez
Fish and Wildlife Biologist/Mexico Program Coordinator U.S. Fish and Wildlife Service Arizona Ecological Services Office
201 North Bonita Avenue, Suite 141
Tucson, Arizona 85745
(520) 670-6150, extension 238
(520) 670-6155 (fax)
http://www.fws.gov/southwest/es/arizona/

Classification: UNCLASSIFIED
Caveats: NONE

Responses to comments in email from Erin Fernandez/USFWS dated 10/23/2013

Comment 1: **"Antelocapra" should be spelled Antilocapra.**

Response 1: Genus name for Sonoran pronghorn was corrected throughout document.

Comment 2: It should be clarified that Sonoran pronghorn occurring on YPG are part of the 10(j) population (this is stated on page 2 of the letter, but it should be clarified in the table; SPH are currently listed as endangered in the table).

Response 2: Text was clarified as noted in comment at section 3.16.1.1.

Comment 3: As you are aware, SPH currently occur on YPG (page 2 states that they may move onto YPG; but that is because the letter was written before SPH were documented on YPG).

Response 3: Document revised to indicate Sonoran pronghorn are now known to occur on YPG at section 3.16.1.1.

Comment 4: On page 2, second paragraph, just to clarify, YPG is not required to consult or conference with us on the 10(j) population of SPH on YPG. If YPG actions affect SPH on Kofa NWR (like overflights or the like), YPG would be required to consult with us as SPH are treated as threatened on Kofa.

Response 4: Text was revised to accurately reflect consultation with USFWS required for actions that would affect Sonoran pronghorn on Kofa NWR. Under section 10(j)(2)(C)(i) of the Endangered Species Act, the population is to be treated as a species proposed to be listed when it leaves the NWR. For this reason, the Army is conferring about the Sonoran pronghorn on YPG.

Responses to comments in letter from Kofa NWR/USFWS

General Comment: **The DEIS lists 31 "short-term" projects proposed for the YPG Kofa Region. Our comments and concerns are specifically directed at the activities proposed for this area. We do not address the proposed activities for the YPG Laguna or the Cibola Regions.**

General Comment Response: The responses below focus on the Kofa Region. Please note the following general item that will apply to multiple comment responses:
The PEIS has been modified to reflect a preferred alternative that would reduce the size of the proposed munitions impact area adjacent to the Kofa NWR such that the munitions impact area would be limited by a 1-km setback from the edge of the southern boundary of the NWR and a 500-m setback from the eastern boundary of the NWR.

Comment 1: **Land Use**

Comment 1a: **The proposed clearing of land for the construction of new facilities and other associated military activities would total over 500 acres and result in the elimination of virtually all wildlife and wildlife habitat values associated with said land.**

Response 1a: Land converted to buildings and infrastructure would be lost as habitat for wildlife and vegetation. These losses are documented under the discussions of these resources. As the amount of land that would be lost from construction of buildings and infrastructure is much less than one-tenth of one percent of the land area of YPG and because much of this land is in proximity to developed or heavily used areas, this loss of habitat would not be significant.

Comment 1b: **The DEIS states that the proposed projects do not change the land use designation for the YPG Kofa Region (range/open land). This statement is misleading. While the land use designation may not change, the proposed activities do change the use of the land, and the impacts-both on the YPG Kofa Region and the Refuge-would be *significant and long term*. The proposed expansion of the munitions firing range (29,757 acres) would be especially significant, bringing the munitions impact area up to the very border of the Refuge. Expanded munitions testing would destroy native habitat over the long-term and cause increased mortality of native wildlife, both in the short- and long-term.**

Response 1b: YPG disagrees that the statement is misleading. No land use changes would occur – the range/open land category on YPG is designated for support of the military mission and that would not change and there would not be significant and long term impacts to land use. That there would be no impacts to land use does not imply that there would be no impacts to other resources. The impacts from the changes in activities on other resources noted in the comment, which are not land use changes, are documented in the PEIS under appropriate areas and are not addressed under land use.

*Comment 1c:***Habitat would be destroyed through:(1) blasting the surface of the ground; (2) destroying native vegetation; (3) contributing to the establishment of invasive noxious weeds in the disturbed soils; and (4) by introducing pollutants into the landscape from exploded munitions, vehicle emissions and petroleum products from military vehicles. Increased mortality to native wildlife would result**

from both direct and indirect causes, including (I) mortality by live fire; (2) decreased survival from nutritional stress and less time spent foraging; and (3) depressed reproductive fitness-also a result of being on a lowered nutritional plane; (4) potential higher predation levels, (5) autoimmune compromise (higher incidence of disease).

Response 1c: The habitat that would be lost or altered as a result of the proposed action is documented in the PEIS along with the potential impacts of the changes to habitat on other resources.

Comment 1d: **Instances of over-fire and munitions landing/detonating on the Refuge have been documented in the past and will likely increase if the munitions testing area is expanded as proposed. In addition, range fires have been started on the Refuge by munitions testing, as documented in comments by the previous Kofa NWR Manager in the YPG Excalibur Limited User Test Program Environmental Assessment. Munitions testing caused a range fire-the King Valley Wildland Fire-that burned 29,000 acres on the Refuge and 3000 acres on YPG in 2005. Fires in desert environments are especially damaging because of the fragile nature of desert vegetation. It can take decades for slow-growing, non-fire adapted plants to reestablish in this arid landscape.**

Response 1d: Firing over the Kofa NWR should not increase in the future. One program that historically fired over the refuge has been relocated and no longer fires over the refuge. The only portion of Kofa NWR that currently experiences over-firing is the extreme southern portion west of King Valley, which may experience over-firing from four existing firing positions. There would be no changes to firing from these four firing positions under the proposed action. The proposed changes to munitions firing would not include firing over the refuge.
Because the number of rounds fired on YPG would remain within historical annual usage rates, no change in wildfire risk as a result of munitions firing would be expected. Wildfire varies across YPG, and primarily is driven by localized precipitation, vegetation growth, and site-specific humidity and moisture conditions rather than to specific testing and training events, including munitions firing, on YPG. Since the King Valley Wildland Fire fire, YPG has implemented procedures to minimize the potential for such an event to recur, as discussed in Section 3.7.1 and in Appendix G.

Comment 1e: **The DEIS also states that" ... all future uses of munitions impact areas would be precluded if unexploded ordinance and other munitions components that could cause contamination are not removed ... " This statement indicates that the land use is likely to change.**

Response 1e: Commenter misinterpreted the statement quoted from the document to infer future land use change is likely. The statement that unexploded munitions would preclude other uses of the land unless cleaned up does not imply that other uses are likely or even considered, it merely identifies that other uses would not be possible without clean up. No changes to the document were made.

Comment 2: **Noise**

Comment 2a: **The Arizona Wilderness Act of 1990 (Act) established the Kofa NWR Wilderness Area, Trigo Mountain Wilderness, Imperial NWR Wilderness Area and Muggins Mountain Wilderness Area. According to the DEIS, the Act does not preclude low-level over flights by military aircraft and states**

that" ... the ability to see or hear non-wilderness activities or uses from areas within a wilderness does not preclude such activities or uses up to the boundary of a wilderness area ... " This may be true, but these are noise-receptor sensitive areas established to preserve the inherent wild values of the lands contained therein, and thus should be considered when, as proposed in the DEIS, noise levels from increased munitions testing and training are expected to double.

Response 2a: Comment is inaccurate in stating noise levels are expected to double. PEIS analysis used a doubling of current noise levels (an increase of 3 dBA) as a conservative estimate of the changes that would result. Actual change in noise levels would be less than doubling of current noise levels. The analysis based on a doubling of current noise levels did not identify any significant impacts.

Comment 2b: **Individuals engaging in outdoor recreational activities would be negatively affected by increased noise levels from expanded munitions testing. The constant barrage of munitions exploding in the distance, while recreating on the Refuge, is an unsettling experience and disturbs the solitude many come seeking at Kofa NWR. Wildlife would be displaced at least temporarily, or in some cases permanently, if the disturbance is as great as proposed in the DEIS.**

There is no "constant barrage" of munitions testing – individual rounds are fired and observation/results of each individual round are recorded. The number of rounds fired will not change from historical levels, but rounds would be fired into more areas on YPG compared to recent use. Recreational users on Kofa NWR would likely not perceive any difference from current YPG munitions noise, as it would require an approximate eight-fold increase in noise levels (10dBA) would be perceived as a doubling of noise levels by recreational users. See section 3.11.2.3.

Comment 2c: **One topic not discussed in the DEIS is the increasing use of drones to conduct surveillance and other activities over Kofa NWR. Drones can be encountered on virtually any given day on the Refuge. The growing use of drones should be addressed in the DEIS due to their effects on refuge wildlife, visitors and wilderness values.**

Response 2c: Army use of unmanned aerial systems (which is presumably what commenter is referring to as "drones") is discussed in the PEIS. The Department of Homeland Security aerostat, which is airborne above the southwestern part of the refuge most of the time is not under control of YPG and is not addressed in the PEIS. Due to altitude of flights over YPG Kofa NWR, no significant noise impacts would result.

Operation of unmanned aerial systems (what the commenter refers to as drones) would be expected to decrease in proximity to the Kofa NWR as new launch/recovery areas for these systems would be developed in the Cibola region.

Further, the operation of unmanned aerial systems, as well as other military flights in airspace over the refuge and wilderness area, is consistent with the airspace designation and with the Act creating the wilderness area. USFWS should be alerting visitors to the designated military airspace above the refuge, including the wilderness area, such that visitors encountering overflights would be aware of the possibility in advance.

Comment 3: **Safety and Recreation**

Comment 3a: **Expanding military munitions testing and training to the boundary of Kofa (and beyond in the event that over-fire occurs) is a great safety concern for Refuge staff and visitors. The decision to allow YPG to use one-fourth of the Refuge as a barrier for artillery testing may have been appropriate in 1958, but this decision needs to be reevaluated in light of the greatly increased human population in the Yuma area and subsequent use of Kofa NWR for outdoor recreation. This has become a significant safety concern for the Refuge and needs to be addressed by the YPG in the DEIS.**

Response 3a: Errant rounds cannot be controlled. This is the basis for the Department of Interior granting 171,000 acres of artillery buffer on Kofa NWR to YPG. While there would be no change in the number of rounds fired on YPG compared to historical levels, the risk of errant rounds would remain. It does not seem prudent consider removal of the artillery buffer area given that there are other outdoor recreational opportunities in the region.

Comment 3b: **In the *Memorandum of Understanding between the Department of Defense and Department of Interior relating to Kofa NWR and BLM Administered Lands* (MOU), Military Liaison Officers are required to contact the Kofa NWR Refuge Manager and provide live firing schedules and digital cartographic information within five working days of tests. We believe Military Liaison Officers fail to make notifications on these activities based on Refuge staff reports of munitions testing occurring on the YPG Kofa Region, yet no prior contact has been received from YPG. We encourage YPG to adhere to the stipulations in the MOU. Should the proposed expansions proceed, it is imperative that notifications are reinitiated as a minimum safety precaution for Refuge staff and the 60,000+ annual visitors that camp, hike or hunt on the Refuge.**

Response 3b: The MOU requires YPG notify the refuge prior to firing over the refuge. YPG no longer fires over Kofa NWR for routine testing. Should a test require firing over the refuge, Kofa NWR would be notified in accordance with the MOU in advance of the firing.

Comment 3c: **The Refuge Manager is ultimately responsible for the safety of visitors recreating on the Refuge. Staff performing field functions, including Law Enforcement personnel, Biologists and Refuge Volunteers, as well as employees at the SW Arizona National Wildlife Refuge Complex/Kofa NWR headquarters could be info1med of military operations on the YPG and relay that information to the public to (I) help ensure their safety and (2) let them know what to expect in terms of a wilderness experience when visiting the Refuge. This process may help alleviate some of the complaints received from the public about the high levels of noise experienced on the Refuge from military testing because the public would be informed before traveling to the Refuge to hunt, hike or camp.**

Response 3c: Military testing occurs throughout the week on YPG in the Kofa region. USFWS should inform all visitors to the refuge that noise from military testing will likely be encountered, as there is no time when such noise would not be likely.

Comment 3d: **The MOU also requires Refuge personnel to contact YPG for permission to conduct aerial wildlife surveys or other research or maintenance activities over most of the Refuge. Receiving permission from the YPG is an onerous process and results in a loss of valuable staff time, and occasionally causes lost windows of opportunity to conduct important work because of events such as**

bad weather days, availability of pilots or aircraft, or urgent change of schedules with partners such as the Arizona Game and Fish Department. In order for the FWS to meet Refuge specific goals and objectives and fulfill the mission of the National Wildlife Refuge System, including projects with cooperating partners, it is essential that permission to conduct aerial activities on Kofa NWR remain obtainable and accessible. With the proposed expansion of military operations on the YPG Kofa Region, scheduling of flights with YPG would likely become more restrictive and constrained.

With the increased operations of military aircraft on and in close proximity to Kofa NWR, we are concerned with an increased potential of collisions between military aircraft and aircraft conducting wildlife surveys. The MOU requires YPG to maintain a minimum altitude of 1500 feet above ground level over most of the Refuge when conducting military operations, with the exception of the airspace over the southern portion of the Refuge designated R-2307, where there is no limit. Refuge personnel conducting low level aerial surveys, research or maintenance activities may be more likely to encounter military aircraft, particularly if the Refuge is not notified of military activities. The result could be disastrous.

Response 3d: There would be no change to the process for airspace management as a result of the action analyzed in the PEIS. As all flights (military, private, and USFWS) in the restricted airspace over Kofa NWR must be scheduled and cleared through air traffic control. There should be no potential for aerial collisions as long as USFWS obtains proper clearance for its flights.

Comment 4: **Wildlife**

Comment 4a: **The DEIS states that the greatest impacts to wildlife on the YPG Kofa Region would be " ... minor due to on-going disturbance and the level of human activity ... " and indirect, i.e., from the loss of habitat. Concerning effects to desert bighorn sheep, the DEIS states that new and expanded testing and training areas would largely be outside of habitats preferred by sheep and thus impacts would be expected to be minor and short-term. The cumulative effects analysis in the DEIS is in disagreement with the environmental effects presented, which states that the incremental habitat loss to native wildlife species would be moderate.**

Response 4a: There is no disagreement in the analysis presented in the PEIS. The commenter inappropriately references a specific unknown possibility to create the illusion of a disagreement. In the discussion of cumulative impacts, the following statement is made:

"The size of a solar development on YPG lands has not been determined, and the sites under consideration range from several hundred acres to approximately 8,900 ac (B&V, 2011; USAEC, 2012). Development of a renewable solar electric generation facility would result in removal of up to approximately 8,900 ac of desert scrub habitat. There likely would be moderate incremental cumulative impacts to wildlife species that utilize this habitat when this loss is combined with other projects on YPG that would remove desert scrub habitat."

Whether a solar facility, if one would even be constructed, would impact this acreage is unknown and it is the size of the solar facility, not the actions analyzed under the proposed action/preferred alternative that would drive cumulative impacts to a moderate intensity.

Comment 4b: **We disagree with both the environmental and cumulative effects analyses presented in the DEIS. We believe that the impacts to wildlife from habitat loss on the YPG Kofa Region and the disturbance to wildlife from increased human activity, including noise, would be long-term and significant on both the YPG and the Refuge. For instance, desert bighorn sheep historically traversed large areas of open range to colonize and establish new populations in other mountain ranges; or to reproduce with other herds located there. The use of corridors such as these served to increase genetic variability and resulted in improved vigor and productivity in the herds. Without intact corridors connecting adjacent mountain ranges, desert bighorn sheep populations could become genetically weak and compromised leading to further decline.**

Response 4b: USFWS provides no basis for asserting travel corridors would be eliminated or that environmental and cumulative effects to wildlife on the refuge and on YPG would be significant and long term. YPG feels the impacts to wildlife are appropriately assessed.
Bighorn sheep routinely move across active firing ranges and munitions impact areas at present with no detriment noted. Individuals of the experimental Sonoran pronghorn population have traversed an active and heavily used munitions impact area in the eastern Kofa Firing Range area without incident. As wildlife cross active munitions impact areas at present, there is no reason to anticipate that there would be any changes to this under the proposed action. There would be no increase in the number of rounds fired compared to historical levels, just an increase in the areas where they may be fired. Because there would be no change in the number of rounds fired on YPG compared to historical firing levels, the new or expanded munitions impact areas will allow for less intense use of current munitions impact areas and could lead to improved habitat for wildlife.

Comment 5: **Threatened and Endangered Species**

Comment 5a: **We disagree with the statement in the DEIS that the incremental loss of habitat on the YPG would contribute to minor cumulative impacts to potential T &E species over both the short-and long-term. The Refuge is bounded on three sides by the YPG, where high levels of human development and activity already occur. As indicated above, the gradual clearing of land to build facilities, runways and other forms of infrastructure necessary for munitions testing and training on the YPG, as well as the expansion of a firing range impact zone, is gradually isolating the Refuge making it an "island". If the proposed action were implemented, it could eliminate important habitat corridors between the Refuge and other areas of native wildlife habitat beyond YPG boundaries.**

Response 5a: Animal species on Kofa NWR, including the experimental population of Sonoran pronghorn, regularly cross portions of YPG that receive substantial human use, including active munitions impact areas. These wildlife corridors are in use with the current level of military activity and anticipated future use of munitions will remain with historical levels. Wildlife, including listed species would be expected to continue to cross the installation. The proposed conversion of land to impervious

surfaces represents less than one-tenth of the land area of YPG. The proposed activities would not isolate the refuge from the perspective of animal species.

Comment 5b: **A project aimed at helping recover the endangered Sonoran pronghorn was initiated on the Refuge in 2011. In December 2011 and 2012, animals from the Cabeza Prieta NWR captive breeding program were relocated to Kofa NWR. Some were placed in a holding facility for breeding and others to allow for acclimation to their new environment prior to release into the wild. The herd was classified as a "non-essential experimental population" outside of the Refuge boundary under the Endangered Species Act (ESA) in order to allow for greater management flexibility by the FWS. However, Sonoran pronghorn within the Refuge are listed as Threatened and, therefore, activities occurring on the YPG Kofa Region that negatively affect this species must be considered in the DEIS.**

The DEIS states that impacts to Sonoran pronghorn would be expected to be minor and longterm on the YPG. The DEIS goes on to say, however, that if the Sonoran pronghorn population is reclassified from a non-essential experimental population to either threatened or endangered under the ESA, YPG would re-evaluate implementation of the proposed project at the current site. Interestingly, in contrast to what the DEIS prognosticates-that the Sonoran pronghorn would likely avoid areas where human activity is occurring, including the YPG Kofa Region the first Sonoran pronghorn that were released from the Refuge holding facility on January 2013 traveled to the southeastern corner of the Refuge and then across the YPG East Kofa Region munitions impact zone. They were last seen south of the YPG Kofa Region near Welton. (See enclosure.) More recently, three Sonoran pronghorn were seen near a pond on the YPG Kofa Region where the expanded munitions impact zone is proposed.

Because the Sonoran pronghorn on the Refuge would likely be negatively affected by the increased activities and operations on the YPG, and because the animals appear to have a preference for the area south of the Refuge on the YPG Kofa Region, it seems prudent for the military to consider alternative options for expanding activities and operations to other areas of YPG than at the current proposed location.

Response 5b: YPG entered consultation with USFWS regarding potential impacts of the proposed activities proposed in to Sonoran pronghorn. The results of that consultation, including any biological opinion issued by USFWS will be incorporated into the final PEIS. The pronghorns that enter YPG are no longer considered threatened, and YPG is conferring about the effects on them.

Comment 5c: **The DEIS recognizes that the proposed activities in the YPG East Kofa Region could impact a large area of potential Sonoran desert tortoise habitat and, in areas of high quality habitat, surveys would need to be conducted to determine extent of use. The YPG would plan to capture and relocate tortoises to other areas if found within the proposed project area. We applaud the YPG's intention to save individual tortoises, but we do not consider the relocation of animals behind a barrier fence, as proposed in the DEIS, to be an adequate mitigation measure for a species that is a candidate for listing under the ESA (75FR78094). We believe that the threat to Sonoran desert tortoises and their habitat would be significant and long-term on the YPG Kofa Region, as well as the**

Refuge. The continued, deliberate loss of habitat for a species already seriously threatened by human activity and development is neither acceptable nor justifiable.

Response 5c: This comment requires clarification of a couple of issues:
Most of the area in the East Kofa Region within potential desert tortoise habitat would be used for dismounted troop maneuvers, which would not adversely affect the habitat or the tortoises. The loss of habitat in this region would be minimal.
2) There is no intent to relocate tortoise into a fenced enclosure from a proposed project area. Rather tortoise would be relocated from work areas to suitable habitat and the work area would be fenced to prevent reentry and subsequent incidental impacts. This approach is consistent with the Arizona Interagency Desert Tortoise Team guidelines and any relocated tortoise would remain free living.

The PEIS specifies measures YPG implements, including review of all proposed activities in potential desert tortoise habitat, to minimize the potential for impacts. Further the PEIS identifies that should the Sonoran Desert tortoise be listed, YPG would consult with the USFWS regarding actions that could impact the tortoise. With the conservation measures proposed, YPG considers the analysis of potential impacts to the Sonoran desert tortoise to be appropriate as written.

Comment 6: **Vegetation**

We generally disagree with the DEIS analysis that the cumulative effect of incremental vegetation removal and habitat loss from all proposed activities would be moderate. Between clearing hundreds of acres of land for the construction of buildings, runways, etc., and the destruction of thousands of acres of range/open land by munitions testing, we believe that the cumulative impacts will be significant and long-term.

Response 6: The hundreds of acres of land cleared for buildings and other impervious surfaces (runways, etc) would be less than one-tenth of one percent of the land on YPG. Establishment of new or expanded munitions impact areas would not result in destruction of thousands of acres of range/open land. Existing munitions impact areas retain normal desert vegetation, as most of the impact area is buffer to allow appropriate safety. As there would be no increase in the number of rounds fired compared to historical levels, the new and expanded munitions impact areas would allow for less intense use of any specific area, which would benefit vegetation. The impacts to vegetation are appropriately assessed as moderate.

Comment 7: **Visual Resources**

Comment 7a: **We disagree that the dust and obscurants caused by testing and training (ordnance exploding, machine gun and canon fire, heavy equipment operation, including tanks and other armored vehicles, etc.) would be temporary. We consider this a long-term effect because it would be an on-going, re-occurring practice.**

Response 7a: The PEIS acknowledges that military activities that generate dust (primarily vehicle testing and training activities) are recurring events. YPG considers the individual events to be separated in time and space sufficiently to warrant a temporary designation with regard duration of impacts.

Comment 7b: **In addition, the increased noise pollution during munitions testing, as well as the buzzing of drones conducting low level flights around the Castle Dome and Kofa Mountains would have an overall moderate to significant impact on the aesthetics of the Refuge Wilderness.**

Response 7b: There is no basis for stating there would be increased noise pollution from munitions testing as there would be no increase in the number of rounds fired compared to historical levels. Noise levels associated with munitions testing would not change.
Operation of unmanned aerial systems (what the commenter refers to as drones) would be expected to decrease in proximity to the Kofa NWR as new launch/recovery areas for these systems would be developed in the Cibola region. Aesthetic impacts are appropriately assessed as minor.

Comment 8: **Summary**

We suggest that the YPG consider additional action alternatives than just the proposed action for the YPG Kofa Region. The YPG is owner to a vast amount of land in southern Arizona where munitions testing and training could be conducted and result in far less impact to the Refuge. Kofa NWR is a unique wilderness refuge where over 60,000 visitors per year come to experience nature and enjoy outdoor recreational activities in an untrammeled desert environment. The wildlife and wildlife habitat contained therein, and habitat corridors that the YPG Kofa Region serves to provide between the Refuge and other important wildlife habitat areas are equally important to the survival of the plants and animals living there.

Response 8: YPG has limited options in locating munitions impact areas for artillery testing, as the firing distances on these munitions increases with technological advances. Ballistic testing of long-range artillery is not compatible with the testing conducted in the Cibola Region, so relocating these test procedures to Cibola is not possible. An alternative to the proposed munitions impact area would be to resume firing over the refuge into the East Arm of the YPG Kofa region, but this is not considered feasible.

Responses to comments in letter from Arizona Game and Fish department dated October 3, 2013

The general comments provided by AGFD are noted and YPG will continue to work with the department on these issues, as requested. No changes to the PEIS were made as a result of the general comments.

Specific Comments

Comment 1: 3.16.1.2: Western Yellow Bat - Change the second to last sentence to the following.

A western yellow bat was tentatively identified during mist net surveys in Vinegaroon Wash (YPG, 2012b), and one western yellow bat was captured by AGFD at Lake Alex. Suitable roosting habitat for this species is not present on YPG, but the species may forage on YPG or occur as a transient.

Response 1: Section 3.16.1.2: Text regarding the western yellow bat was revised as indicated by the commenter.

Comment 2: 3.18.1: Existing Conditions-Change the second sentence in the eighth paragraph to the following.

The main non-native plants of concern are considered exotic invasive plants and include buffelgrass, Athel tamarisk (Tamarix aphylla), salt cedar (Tamarix spp. and hybrids), ~~Mediterranean and~~ Arabian grass (Schismus arabicus), Mediterranean grass, Sahara mustard, and puncturevine (Tribulus terrestris).

Response 2: Section 3.18.1: Text revised as indicated by the commenter.

Comment 3: Table G-1: Define HS, SR, and WSC.

Response 3: Table G-1 – definitions were added.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

KOFA NATIONAL WILDLIFE REFUGE
9300 E 28th St
Yuma, Arizona 85365
Ph: (928) 345-4951
Fax: (928) 783-8611
Email: greg_risdahl@fws.gov

Sergio Obregon
NEPA Coordinator
Department of the Army
United States Army Yuma Proving Ground
301 C Street
Yuma, AZ 85365-9498

Dear Mr. Obregon:

Thank you for the opportunity to review the *Draft Programmatic Environmental Impact Statement for Activities and Operations at Yuma Proving Ground, Arizona* (DEIS) dated August 2013. We have a number of concerns over the proposed infrastructure and runway construction, and expansion of munitions testing and training on the Yuma Proving Ground (YPG) and how the proposed activities will affect Kofa National Wildlife Refuge (Refuge/NWR).

The DEIS lists 31 "short-term" projects proposed for the YPG Kofa Region. Our comments and concerns are specifically directed at the activities proposed for this area. We do not address the proposed activities for the YPG Laguna or the Cibola Regions. Impacts to several categories of environmental consequences are summarized below, including: land use; noise; safety; recreation; wildlife; threatened and endangered species; vegetation; and visual resources.

Land Use

The YPG Kofa Region is used primarily for weapons and munitions testing and training. Most of the YPG's 400 firing positions are in the Kofa Region and are concentrated along the north eastern side of the Kofa Firing Front. The munitions impact areas include a Nuclear Regulatory Commission licensed Depleted Uranium impact area.

Under the Proposed Action within the YPG Kofa Region:

- 29,757 acres of range/open land would be converted to munitions impact areas, and
- 51,180 acres of range/open land would be converted to dismounted maneuver areas

Proposed construction activities in the YPG Kofa Region would result in clearing approximately 240 acres of desert habitat for the East Kofa Operations Center. All vegetation would be removed from this acreage. Specifically:

- 54 acres of range/open land would be converted to impervious surfaces
- 156 acres of range/open land would be converted to a launch/recovery area
- 30 acres of range/open land would be converted to transient gun positions (TGP)
- 10 acres of range/open land would be converted to institutional use

Additional acres of desert habitat that would be cleared include:

- 2.7 acres of range/open land for utilities placement
- 305 acres of range/open land for drop zone construction
- 26.1 acres of range/open land to institutional use (Project K030—runway, taxiway, aircraft shelter, command center, classrooms, storage, parking, etc.)

The proposed clearing of land for the construction of new facilities and other associated military activities would total over 500 acres and result in the elimination of virtually all wildlife and wildlife habitat values associated with said land.

The DEIS states that the proposed projects do not change the land use designation for the YPG Kofa Region (range/open land). This statement is misleading. While the land use designation may not change, the proposed activities do change the use of the land, and the impacts—both on the YPG Kofa Region and the Refuge—would be *significant* and *long term*. The proposed expansion of the munitions firing range (29,757 acres) would be especially significant, bringing the munitions impact area up to the very border of the Refuge. Expanded munitions testing would destroy native habitat over the long-term and cause increased mortality of native wildlife, both in the short- and long-term.

Habitat would be destroyed through: (1) blasting the surface of the ground; (2) destroying native vegetation; (3) contributing to the establishment of invasive noxious weeds in the disturbed soils; and (4) by introducing pollutants into the landscape from exploded munitions, vehicle emissions and petroleum products from military vehicles. Increased mortality to native wildlife would result from both direct and indirect causes, including (1) mortality by live fire; (2) decreased survival from nutritional stress and less time spent foraging; and (3) depressed reproductive fitness—also a result of being on a lowered nutritional plane; (4) potential higher predation levels, (5) autoimmune compromise (higher incidence of disease).

Instances of over-fire and munitions landing/detonating on the Refuge have been documented in the past and will likely increase if the munitions testing area is expanded as proposed. In addition, range fires have been started on the Refuge by munitions testing, as documented in comments by the previous Kofa NWR Manager in the *YPG Excalibur Limited User Test Program Environmental Assessment*. Munitions testing caused a range fire—the *King Valley Wildland Fire*—that burned 29,000 acres on the Refuge and 3000 acres on YPG in 2005. Fires in desert environments are especially damaging because of the fragile nature of desert vegetation. It can take decades for slow-growing, non-fire adapted plants to reestablish in this arid landscape.

The DEIS also states that "...all future uses of munitions impact areas would be precluded if unexploded ordinance and other munitions components that could cause contamination are not removed..." This statement indicates that the land use *is* likely to change.

Noise

The Arizona Wilderness Act of 1990 (Act) established the Kofa NWR Wilderness Area, Trigo Mountain Wilderness, Imperial NWR Wilderness Area and Muggins Mountain Wilderness Area. According to the DEIS, the Act does not preclude low-level over flights by military aircraft and states that "...the ability to see or hear non-wilderness activities or uses from areas within a wilderness does not preclude such activities or uses up to the boundary of a wilderness area..." This may be true, but these are noise-receptor sensitive areas established to preserve the inherent wild values of the lands contained therein, and thus should be considered when, as proposed in the DEIS, noise levels from increased munitions testing and training are expected to *double.*

Individuals engaging in outdoor recreational activities would be negatively affected by increased noise levels from expanded munitions testing. The constant barrage of munitions exploding in the distance, while recreating on the Refuge, is an unsettling experience and disturbs the solitude many come seeking at Kofa NWR. Wildlife would be displaced at least temporarily, or in some cases permanently, if the disturbance is as great as proposed in the DEIS.

One topic not discussed in the DEIS is the increasing use of drones to conduct surveillance and other activities over Kofa NWR. Drones can be encountered on virtually any given day on the Refuge. The growing use of drones should be addressed in the DEIS due to their effects on refuge wildlife, visitors and wilderness values.

Safety and Recreation

Expanding military munitions testing and training to the boundary of Kofa (and beyond in the event that over-fire occurs) is a great safety concern for Refuge staff and visitors. The decision to allow YPG to use one-fourth of the Refuge as a barrier for artillery testing may have been appropriate in 1958, but this decision needs to be reevaluated in light of the greatly increased human population in the Yuma area and subsequent use of Kofa NWR for outdoor recreation. This has become a significant safety concern for the Refuge and needs to be addressed by the YPG in the DEIS.

According to the DEIS, the Secretary of the Interior signed a letter dated December 3, 1958 that granted the YPG to use 171,000 acres of Kofa NWR as an artillery buffer zone. In 1960 the U.S. Census estimated the population in Yuma County to be 46,235. By 2010 the population in the County had grown to 195,751 permanent residents; 93,064 of which lived in the City of Yuma; i.e., the population of Yuma County quadrupled during the intervening 60 years. In addition, it is estimated that the City of Yuma doubles its population each winter to nearly 200,000 people during the months October through May when the 'Snowbirds' come from northern states and Canadian provinces to spend the mild winters. One result of the increased population to Yuma is that the visitation rate on Kofa NWR has dramatically increased to over 65,000 visitors annually (Table 1). Put another way, more people visit Kofa NWR today than lived in all of Yuma County in 1958.

Table 1. Population growth in Yuma County and the visitation rate on Kofa National Wildlife Refuge, 1950-2010.

Year	Yuma County Population	Kofa NWR Visitation
2010	195,751	67,171
2000	160,026	52,846
1990	106,895	27,295 (1993*)
1980	90,554	NA
1970	60,827	NA
1960	46,235	NA
1950	28,006	NA

*Extensive collection of visitor use on Kofa NWR began in 1993

In the *Memorandum of Understanding between the Department of Defense and Department of Interior relating to Kofa NWR and BLM Administered Lands* (MOU), Military Liaison Officers are required to contact the Kofa NWR Refuge Manager and provide live firing schedules and digital cartographic information within five working days of tests. We believe Military Liaison Officers fail to make notifications on these activities based on Refuge staff reports of munitions testing occurring on the YPG Kofa Region, yet no prior contact has been received from YPG. We encourage YPG to adhere to the stipulations in the MOU. Should the proposed expansions proceed, it is imperative that notifications are reinitiated as a minimum safety precaution for Refuge staff and the 60,000+ annual visitors that camp, hike or hunt on the Refuge.

The Refuge Manager is ultimately responsible for the safety of visitors recreating on the Refuge. Staff performing field functions, including Law Enforcement personnel, Biologists and Refuge Volunteers, as well as employees at the SW Arizona National Wildlife Refuge Complex/Kofa NWR headquarters could be informed of military operations on the YPG and relay that information to the public to (1) help ensure their safety and (2) let them know what to expect in terms of a wilderness experience when visiting the Refuge. This process may help alleviate some of the complaints received from the public about the high levels of noise experienced on the Refuge from military testing because the public would be informed *before* traveling to the Refuge to hunt, hike or camp.

The MOU also requires Refuge personnel to contact YPG for permission to conduct aerial wildlife surveys or other research or maintenance activities over most of the Refuge. Receiving permission from the YPG is an onerous process and results in a loss of valuable staff time, and occasionally causes lost windows of opportunity to conduct important work because of events such as bad weather days, availability of pilots or aircraft, or urgent change of schedules with partners such as the Arizona Game and Fish Department. In order for the FWS to meet Refuge-specific goals and objectives and fulfill the mission of the National Wildlife Refuge System, including projects with cooperating partners, it is essential that permission to conduct aerial activities on Kofa NWR remain obtainable and accessible. With the proposed expansion of military operations on the YPG Kofa Region, scheduling of flights with YPG would likely become more restrictive and constrained.

With the increased operations of military aircraft on and in close proximity to Kofa NWR, we are concerned with an increased potential of collisions between military aircraft and aircraft conducting wildlife surveys. The MOU requires YPG to maintain a minimum altitude of 1500 feet above ground level over most of the Refuge when conducting military operations, with the exception of the airspace over the southern portion of the Refuge designated R-2307, where there is no limit. Refuge personnel conducting low level aerial surveys, research or maintenance activities may be more likely to encounter military aircraft, particularly if the Refuge is not notified of military activities. The result could be disastrous.

Wildlife

Kofa NWR was established in 1939 to conserve and protect native wildlife and their habitats, especially desert bighorn sheep, and has been used as a seed source to reestablish previously extirpated desert bighorn sheep populations throughout the southwestern United States. From approximately 2000 through 2006, the desert bighorn sheep population on the Refuge declined from approximately 800 to 400 animals. The definitive cause(s) of the population decline is not fully understood. We are conducting monitoring and research to investigate potential causes, but any activity that could further decrease sheep survival, directly or indirectly, must be carefully considered.

The DEIS states that the greatest impacts to wildlife on the YPG Kofa Region would be "...minor due to on-going disturbance and the level of human activity..." and indirect, i.e., from the loss of habitat. Concerning effects to desert bighorn sheep, the DEIS states that new and expanded testing and training areas would largely be outside of habitats preferred by sheep and thus impacts would be expected to be *minor and short-term*. The cumulative effects analysis in the DEIS is in disagreement with the environmental effects presented, which states that the incremental habitat loss to native wildlife species would be *moderate*.

We disagree with both the environmental and cumulative effects analyses presented in the DEIS. We believe that the impacts to wildlife from habitat loss on the YPG Kofa Region and the disturbance to wildlife from increased human activity, including noise, would be *long-term* and *significant* on both the YPG and the Refuge. For instance, desert bighorn sheep historically traversed large areas of open range to colonize and establish new populations in other mountain ranges; or to reproduce with other herds located there. The use of corridors such as these served to increase genetic variability and resulted in improved vigor and productivity in the herds. Without intact corridors connecting adjacent mountain ranges, desert bighorn sheep populations could become genetically weak and compromised leading to further decline.

Threatened and Endangered Species (T&E)

We disagree with the statement in the DEIS that the incremental loss of habitat on the YPG would contribute to minor cumulative impacts to potential T&E species over both the short-and long-term. The Refuge is bounded on three sides by the YPG, where high levels of human development and activity already occur. As indicated above, the gradual clearing of land to build facilities, runways and other forms of infrastructure necessary for munitions testing and training on the YPG, as well as the expansion of a firing range impact zone, is gradually isolating the Refuge making it an "island". If the proposed action were implemented, it could eliminate

important habitat corridors between the Refuge and other areas of native wildlife habitat beyond YPG boundaries.

A project aimed at helping recover the endangered Sonoran pronghorn was initiated on the Refuge in 2011. In December 2011 and 2012, animals from the Cabeza Prieta NWR captive breeding program were relocated to Kofa NWR. Some were placed in a holding facility for breeding and others to allow for acclimation to their new environment prior to release into the wild. The herd was classified as a "non-essential experimental population" outside of the Refuge boundary under the Endangered Species Act (ESA) in order to allow for greater management flexibility by the FWS. However, Sonoran pronghorn within the Refuge are listed as Threatened and, therefore, activities occurring on the YPG Kofa Region that negatively affect this species must be considered in the DEIS.

The DEIS states that impacts to Sonoran pronghorn would be expected to be *minor* and *long-term* on the YPG. The DEIS goes on to say, however, that if the Sonoran pronghorn population is reclassified from a non-essential experimental population to either threatened or endangered under the ESA, YPG would re-evaluate implementation of the proposed project at the current site. Interestingly, in contrast to what the DEIS prognosticates—that the Sonoran pronghorn would likely avoid areas where human activity is occurring, including the YPG Kofa Region—the first Sonoran pronghorn that were released from the Refuge holding facility on January 2013 traveled to the southeastern corner of the Refuge and then across the YPG East Kofa Region munitions impact zone. They were last seen south of the YPG Kofa Region near Welton. (See enclosure.) More recently, three Sonoran pronghorn were seen near a pond on the YPG Kofa Region where the expanded munitions impact zone is proposed.

Because the Sonoran pronghorn on the Refuge would likely be negatively affected by the increased activities and operations on the YPG, and because the animals appear to have a preference for the area south of the Refuge on the YPG Kofa Region, it seems prudent for the military to consider alternative options for expanding activities and operations to other areas of YPG than at the current proposed location.

The DEIS recognizes that the proposed activities in the YPG East Kofa Region could impact a large area of potential Sonoran desert tortoise habitat and, in areas of high quality habitat, surveys would need to be conducted to determine extent of use. The YPG would plan to capture and relocate tortoises to other areas if found within the proposed project area. We applaud the YPG's intention to save individual tortoises, but we do not consider the relocation of animals behind a barrier fence, as proposed in the DEIS, to be an adequate mitigation measure for a species that is a candidate for listing under the ESA (75FR78094). We believe that the threat to Sonoran desert tortoises and their habitat would be *significant and long-term* on the YPG Kofa Region, as well as the Refuge. The continued, deliberate loss of habitat for a species already seriously threatened by human activity and development is neither acceptable nor justifiable.

Vegetation

We generally disagree with the DEIS analysis that the cumulative effect of incremental vegetation removal and habitat loss from all proposed activities would be *moderate*. Between clearing hundreds of acres of land for the construction of buildings, runways, etc., and the

destruction of thousands of acres of range/open land by munitions testing, we believe that the cumulative impacts will be significant and long-term.

Visual Resources
The effect on visual resources was briefly covered in the DEIS. It noted the following:

- Temporary minor impacts from construction-related airborne dust
- Recurring temporary minor impacts from dust and other obscurants caused by testing and training
- Potential long-term minor impacts from increased use of lighter-than-air unmanned aerial systems
- Potential minor long-term impacts from appearance of buildings

We disagree that the dust and obscurants caused by testing and training (ordnance exploding, machine gun and canon fire, heavy equipment operation, including tanks and other armored vehicles, etc.) would be *temporary*. We consider this a *long-term* effect because it would be an on-going, re-occurring practice. In addition, the increased noise pollution during munitions testing, as well as the buzzing of drones conducting low level flights around the Castle Dome and Kofa Mountains would have an overall *moderate* to *significant* impact on the aesthetics of the Refuge Wilderness.

Summary
We suggest that the YPG consider additional action alternatives than just the proposed action for the YPG Kofa Region. The YPG is owner to a vast amount of land in southern Arizona where munitions testing and training could be conducted and result in far less impact to the Refuge. Kofa NWR is a unique wilderness refuge where over 60,000 visitors per year come to experience nature and enjoy outdoor recreational activities in an untrammeled desert environment. The wildlife and wildlife habitat contained therein, and habitat corridors that the YPG Kofa Region serves to provide between the Refuge and other important wildlife habitat areas are equally important to the survival of the plants and animals living there.

Thank you again for the opportunity to comment on the *Draft Programmatic Environmental Impact Statement for Activities and Operations at Yuma Proving Ground, Arizona*. If you have any questions, please feel free to contact me at (928) 345-4915, or by email at greg_risdahl@fws.gov if you have any questions or wish to discuss any comments in detail.

Sincerely,

Gregory S. Risdahl

Gregory S. Risdahl
Kofa National Wildlife Refuge Manager

Enc. Sonoran pronghorn satellite telemetry location data


95
8
4.25
8.5
17 Miles

From: Steward, Daniel M CIV (US) [mailto:daniel.m.steward.civ@mail.mil]
Sent: Wednesday, January 08, 2014 4:38 PM
To: Fernandez, Erin
Cc: Greg Risdahl; Christa Weise; Obregon, Sergio CIV (US); Ruerup, Charles F Jr CIV (US); Reaves, Richard/ATL
Subject: RE: YPG PEIS and section 7 consultation (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Hi Erin,

Thanks for the update. We will be sending the initiation letter and BE soon. I will let you know if there is anything else I need to finish up the document.

Daniel Steward
Environmental Sciences, Wildlife Biologist U.S. Army Garrison Yuma IMYM-PWE
301 C. Street, Bldg. 307
Yuma, AZ 85365-9498
Voice: (928)328-2125
Fax: (928)328-6696

-----Original Message-----
From: Fernandez, Erin [mailto:erin_fernandez@fws.gov]
Sent: Wednesday, January 08, 2014 11:57 AM
To: Steward, Daniel M CIV (US)
Cc: Greg Risdahl; Christa Weise
Subject: YPG PEIS and section 7 consultation

Hi Daniel,
I just wanted to let you know that I had a chance to speak with Jean Calhoun about our call on Monday and she is agreement with the recommendation I made on the phone for formal consultation to address the potential effects to Sonoran pronghorn on Kofa NWR as a result of fire started by YPG activities on YPG. We both agree the potential effects to SPH on Kofa from fire (and fire fighting activities) are neither discountable or insignificant and that therefore formal consultation would be prudent and provide YPG the best coverage for your proposed action. Please let me know if you have any questions.
Thanks so much!
Erin

Erin Fernandez
Fish and Wildlife Biologist/Mexico Program Coordinator U.S. Fish and Wildlife Service Arizona Ecological Services Office
201 North Bonita Avenue, Suite 141
Tucson, Arizona 85745
(520) 670-6150, extension 238
(520) 670-6155 (fax)
http://www.fws.gov/southwest/es/arizona/

Classification: UNCLASSIFIED
Caveats: NONE

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, YUMA
301 C STREET
YUMA AZ 85365-9498

REPLY TO
ATTENTION OF

March 25, 2014

Environmental Sciences Division

Jean Calhoun
United States Fish and Wildlife Service
Arizona Ecological Services Office
201 North Bonita Avenue, Suite 141
Tucson, Arizona 85745

Dear Ms. Calhoun:

The purpose of this letter is to request formal consultation of the potential impacts to Sonoran pronghorn on the Kofa National Wildlife Refuge (KNWR) and conference the impacts to the Sonoran pronghorn on United States Army Garrison Yuma Proving Ground (USAG YPG) from the current and future activities on USAG YPG.

U.S. Army Garrison Yuma Proving Ground (USAG YPG) is preparing a Programmatic Environmental Impact Statement (PEIS) which assesses the potential impacts associated with activities and operations at Yuma Proving Ground (YPG). Enclosed is a Biological Evaluation (BE) to support our request to initiate formal consultation under Section 7(a)(2) of the Endangered Species Act (ESA). You may also refer to the enclosed Draft PEIS for additional information about the proposed action.

Sonoran pronghorn (*Antilocapra americana sonoriensis*) were released on Kofa National Wildlife Refuge (KNWR) as part of a nonessential experimental population under section 10(j) of the Endangered Species Act. Sonoran pronghorn are found on USAG YPG and on KNWR. For Section 7 consultation purposes, given ESA Section 10(j)(2)(C)(i), we understand the population of Sonoran pronghorn on USAG YPG shall be treated as a species proposed to be listed. We understand each member of the population on KNWR shall be treated as a threatened species.

We have met informally with your staff and KNWR staff to share information on USAG YPG's general impacts to pronghorn and specifically to address impacts to visual, auditory functions, impacts from munitions, and impacts from fire to pronghorn on USAG YPG and on KNWR. Based on these discussions and as described in the enclosed BE, we have determined the proposed action may affect, and is likely to adversely affect Sonoran Pronghorn. We have also determined the action is not likely to jeopardize the continued existence of Sonoran pronghorn. Therefore, we request initiation of formal consultation under Section 7 of the ESA for the population on KNWR and request your concurrence with our jeopardy determination for the population outside of KNWR. We request to conduct the conference in accordance with the provisions of 50 CFR 402.10(d) and (e). No critical habitat has been established for this species so no analysis of critical habitat is necessary.

In order to meet the timeframes associated with the PEIS, we request expedited review for this consultation. The installation Wildlife Biologist, Daniel Steward, will be the primary point of contact for this consultation. He can be reached at daniel.m.steward.civ@mail.mil or (928) 328-2125.

Sincerely,

Richard T. Martin
Garrison Manager

Enclosure

Biological Evaluation of the Effect of Continued Operations at Yuma Proving Grounds on a Nonessential Experimental Sonoran Pronghorn Population Released on Kofa National Wildlife Refuge

Introduction

The purpose of this Biological Evaluation is to review impacts of current and future military activities and operations on the US Army Garrison Yuma Proving Grounds (YPG) in sufficient detail to determine to what extent the proposed action may affect the federally endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*). In addition, the following information is provided to comply with statutory requirements to use the best scientific and commercial information available when assessing the risks posed to listed and/or proposed species by proposed federal actions. Critical Habitat is not designated for Sonoran pronghorn; therefore it will not be a component of this analysis. This initiation package is prepared in accordance with legal requirements set forth under regulations implementing Section 7 of the Endangered Species Act (50 CFR 402; 16 U.S.C. 1536 (c)).

Sonoran pronghorn were released on the Kofa National Wildlife Refuge (KNWR) as part of a nonessential experimental population under section 10 (j) of the Endangered Species Act. For the purposes of Section 7 consultation, according to 50 CFR part 17.83, a nonessential experimental population must be treated as a species proposed for listing, unless it occurs on National Wildlife Refuge or National Park lands in which it is treated as a threatened species. Because YPG is located directly adjacent to the Kofa National Wildlife Refuge (KNWR), and the pronghorn is found within the Action Area, the Army must consult on potential affects to the pronghorn within KNWR and confer on any actions likely to jeopardize the species outside the refuge.

Description of the Proposed Action

YPG's proposed action includes current and future military activities and operations at YPG. This includes current and future construction, testing, and training activities as well as continued operations and maintenance of the range and facilities.

The Action Area includes all of YPG and KNWR as there may be direct or indirect affects to pronghorn on the refuge.

YPG covers over 838,000 acres located in Yuma and La Paz Counties in the southwest corner of Arizona about 25 miles north of the city of Yuma. The KNWR is nested within the "U" shape of the YPG borders. Imperial National Wildlife Refuge (INWR) shares a boundary on the southwest of YPG. Much of the boundary is also managed by the Bureau of Land Management.

YPG is divided into 3 regions: Cibola, Laguna, and Kofa (Figure 1). The ranges within the 3 regions are used for:

- testing and evaluation of weapons, ammunition, explosive ordnance, and related items
- air cargo delivery, testing of precision guided and non-precision guided cargo and personnel parachute systems, airdrop certification of equipment and ammunition, certification of aircraft for airdrop operations, external transportability testing, and general Soldier systems testing.
- development and performance testing of aircraft armament components and systems

- Testing of computers, software, communications (wireless and wired), networks, data, sensors (radar, electro-optical, infrared, laser, seismic, acoustic, biometrics, hyperspectral, signal detection, etc.), and sensor platforms (aerostats, airships, aircraft, vehicles, towers, etc.).
- Use of Unmanned Aerial Systems (UAS) includes the GCS, UAV, launch/recovery systems, and other ancillary equipment. UAS testing includes rotary wing, fixed wing, high altitude long endurance, medium altitude long endurance, high speed jet, and transitional vertical take-off and landing airships.
- Combat and automotive systems testing including the testing and evaluation of wheeled and tracked vehicles, direct fire programs, combat vehicle weapons systems and related munitions, target acquisition systems, vehicle components, communication systems, and related items including fire control systems, fuels, lubricants, and other automotive chemical products.
- Counter Improvised Explosive Devices (IED) Testing which involves the use of large complexes of buildings, roads, bridges and overpasses, and other infrastructure that replicate typical urban settings and overseas combat areas. Much of this activity revolves around electronic warfare.
- Training and operational testing where troops use various weapons, munitions, vehicles, aircraft, and systems under tactical conditions and includes both vehicle-mounted training and dismounted training.

YPG and the U.S. Army Corps of Engineers, Mobile District has prepared a Draft Programmatic Environmental Impact Statement (DPEIS) to assess the potential impacts associated with current and future military activities and operations at YPG. This DPEIS analyzes construction, testing, and training activities and presents the direct, indirect, and cumulative effects of the Proposed Action to continue ongoing activities and to implement new facilities, infrastructure, and programs to meet anticipated future needs and maintain YPG as a multi-purpose installation that serves a broad customer base. The proposed action would also support cross-functional training allowed by the Department of Defense. The DPEIS will support development of a future Real Property Master Plan (RPMP) at YPG by providing a basis for the Visioning Plan and by providing a programmatic framework for the Capital Investment Strategy and the Area Development Plans. The analysis in the EIS also will support the alternatives analysis for the RPMP. Activities anticipated on YPG include construction and demolition of facilities and infrastructure and changes to current types and levels of testing and training. The DPEIS addresses the following types of activities:

- Short-term, well-defined activities at known locations that could be implemented without additional National Environmental Policy Act of 1969 (NEPA) [42 United States Code (U.S.C.) 4321-4347] analysis once a decision is made.
- Short-term, well-defined activities for which locations are not known or for which additional information regarding site-specific implementation must be developed that would receive additional site-specific NEPA analysis prior to project implementation.
- Long-term, less well-defined activities that would occur later in time and would receive additional site-specific NEPA analysis prior to project implementation.

The EIS examines the sum of the activities that will occur or are likely to occur on YPG for the next several years. It is not always possible to predict accurately specific projects in specific years, but the Army is confident about the types of activities that will occur and the general technology trends that will establish the testing and training workloads in coming years; therefore, the Army is adopting a programmatic approach to this analysis to comply with NEPA and set the framework for future tiered documents if required. The analysis focuses on the anticipated impacts of categories of actions on the natural and human environment. Accordingly, the analysis examines military testing activities, military training activities, construction, and demolition, as appropriate for each activity.

The proposed action is to continue military testing, training, construction, and demolition operations as described in Section 2.1 and 2.3.3 of the Draft PEIS. YPG operations also include maintenance of facilities, roads, utilities and other infrastructure. Specific future activities are provided in the table in Appendix 1, and Figures 7, 8 and 9 provide maps that depict the geographic locations of these activities.

There is restricted military airspace over most of YPG. This restricted military airspace also extends over most of the KNWR (Figure 2). The majority of YPG restricted airspace is used for test missions; however, the U.S. Department of Justice operates a Special Use Airspace (R-2309), which restricts military mission access as well as commercial use. Outside of the Department of Justice Special Use Airspace, the restricted airspace on YPG is prioritized for testing and training conducted at the installation. YPG restricted airspace allows testing of UASs and weapons systems, such as mortars and rockets, without risk to non-military aircraft. Secondary priority for use of this restricted airspace is for other military users. This airspace occasionally used for other non-testing/training purposes such as aerial surveys for wildlife, reconnaissance or transportation of people or equipment.

One of the proposed activities addressed in the EIS is an expansion of the existing 110,000 acres of impact areas on the Kofa Range by 24,309 acres. Much of this expansion would occur in the King Valley region which is contiguous with Sonoran pronghorn habitat on the KNWR. The purpose of expansion of these impact areas is to add flexibility for target locations and reduce scheduling conflicts between firing programs. Expansion is also intended to minimize the likelihood that any munitions land outside of an impact area.

Description of Listed Species

Sonoran Pronghorn (*Antilocapra americana sonoriensis*) is a subspecies of the American pronghorn. The species exhibits conspicuous white areas on the rump, face, and belly, and also white bands on the throat. The hooves have 2 toes and lack the dewclaw that is common to most ungulates. Males are distinguished from females by the presence of pronged horns and a black cheek patch. The Sonoran pronghorn is the smallest subspecies of pronghorn with an average height of 3 feet and weight between 75 and 130 lbs. It is also generally paler in coloration than the other subspecies. (AZGFD HDMS)

The Sonoran pronghorn was originally listed as threatened with extinction under the Endangered Species Preservation Act of 1966 on February 24, 1967. With the passage of the ESA, this subspecies was listed as endangered. The FWS designated a nonessential experimental population of Sonoran pronghorn in the region between Interstate 8 and 10.

No designated critical habitat has been established for Sonoran pronghorn.

Life History

Sonoran pronghorn inhabit one of the hottest and driest portions of the Sonoran Desert. They forage on a large variety of perennial and annual plant species (Hughes and Smith 1990, Hervert *et al.* 1997b, U.S. Fish and Wildlife Service 1998). During drought years, Hughes and Smith (1990) reported cacti were the major dietary component (44 percent). Consumption of cacti, especially chain fruit cholla (*Cylindropuntia fulgida*, Pinkava 1999), provides a source of water during hot, dry conditions (Hervert *et al.* 1997b). Other important plant species in the diet of the pronghorn include carelessweed (*Amaranthus palmeri*), ragweed (*Ambrosia* sp.), locoweed (*Astragalus* sp.), brome (*Bromus* sp.), and broom snakeweed (*Gutierrezia sarothrae*) (U.S. Fish and Wildlife Service 1998). Pronghorn will move in response to spatial limitations in forage availability (Hervert *et al.* 1997a). Water intake from forage is not adequate to meet minimum water requirements (Fox *et al.* 2000), hence pronghorn need and readily use both natural and artificial water sources (Morgart *et al.* 2005).

Sonoran pronghorn rut during July-September, and does have been observed with newborn fawns from February through May. Parturition corresponds with annual spring forage abundance. Fawning has not yet been documented for the newly released pronghorn on KNWR. Does usually have twins, and fawns suckle for about two months. Does gather with fawns, and the fawns sometimes form nursery groups (U.S. Fish and Wildlife Service 1998). Sonoran pronghorn form small herds of up to 21 animals (Wright and deVos 1986).

Species Habitat and Occurrence

Historic records show the range of Sonoran Pronghorn ranged northward near present day Interstate 10 south to Keno Bay and Hermosillo, Sonora Mexico. It ranged west to the Imperial Valley, California and Baja California, Mexico. It also ranged East to the Baboquivari Mountains and the Santa Cruz river in Arizona (Figure 3). In the1800s, habitat alteration due to fencing and livestock, coupled with unregulated hunting and drought lead to massive declines in pronghorn (USFWS 2010).

The current distribution of Sonoran pronghorn encompasses about 4,210 square miles, or about 7.6 percent of its historic range. The current distribution includes about 2,750 square miles in the United States and another 1,460 square miles in Mexico. In the U.S., Sonoran pronghorn are known to inhabit the the region southeast of YPG on Barry M. Goldwater Range (BMGR), Cabeza Prieta National Wildlife Refuge (CPNWR), Organ Pipe Cactus National Monument and northwestern Sonora Mexico. The closest natural population of Sonoran pronghorn is on the BMGR, which is across I-8 and approximately 10 miles south of YPG. The interstate highway and the extensive farming along the Gila River Valley effectively prevent movement of this population onto YPG. The FWS maintains semi-captive breeding pens for Sonoran pronghorn in KNWR and CPNWR. The FWS released pronghorn from these pens into King Valley on KNWR in 2013 and 2014. Some of these pronghorn are observed periodically on the east Kofa range on YPG.

Flat to rolling topography is the preferred habitat for the species, which includes broad intermountain alluvial valleys with creosote bush-bursage and paloverde-mixed cacti associations (YPG, 2012). Within its current range, the Sonoran pronghorn generally prefers creosote bush-bursage, paloverde-mixed cacti, and ephemeral wash habitats. According to a model by USFWS, more than 55 percent of YPG (approximately 757 square miles) is potentially suitable habitat for this species (USFWS, 2009). Generally, bajadas are fawning areas and sandy dune areas provide food on a seasonal basis. Cacti, forbs, and shrubs are important food plants for the Sonoran pronghorns and the fruit of chain-fruit cholla (*Cylindropuntia fulgida*) can be consumed to provide a water source (USFWS, 2009).

In 2010 the FWS designated the Sonoran pronghorn as a nonessential experimental population, as defined under section 10(j) of the ESA within a portion of their historic range. This area is located north of Interstate 8 and south of Interstate 10 and encompasses all of YPG (USFWS 2011). Nine pronghorn were released into the KNWR in the King Valley area by the FWS in January 2013 in an attempt to establish additional Sonoran pronghorn populations within this portion of its historic range. From the 2013 release, 3 pronghorn died, 2 returned to the release pen, and 1 is unaccounted for (Bright 2013). Three of the remaining pronghorns are observed regularly on the eastern portion of the Kofa range on YPG. In January 2014, 23 additional pronghorn were released onto KNWR within King Valley.

The pronghorn on YPG have been observed using a man-made pond (SWTR pond) on the eastern portion of the Kofa range which is located toward the southern end of King Valley. This pond is maintained to supply water for dust suppression or construction and maintenance activities on YPG. It is not fenced and is frequented by deer, horses, coyotes and other wildlife. Camera traps detected the pronghorn using this facility multiple times in June, August and September of 2013. No observations of pronghorn occurred in

July and October 2013 due to camera failures. Normal dispersal of the nonessential experimental population of Sonoran pronghorn will likely result in additional animals occurring on YPG. As their population increases so will pronghorn encounters on YPG.

Explanation of Effects

The effects of YPG activities on pronghorn on KNWR can be separated into effects of visual and audio disturbance, munitions impacts, and wildfire.

Overview- Visual and Audio Effects

It has been well documented that human presence in wildlands can disturb animals, causing them to unnecessarily expend energy avoiding people, thereby potentially reducing reproductive success (e.g., Manville 1983, van Dyke et al. 1986, Goodrich & Berger 1994, Primm 1996; as cited by Kerley et al. 2002) or increasing the likelihood of fatal encounters with humans (Kasworm & Manley 1990, Saberwal et al. 1994, Khramtsov 1995, Mattson et al. 1996; as cited by Kerley et al. 2002). Range abandonment has been documented in response to human disturbance (Jorgenson 1988), and investigators have shown that heart rate increases in wildlife in response to auditory or visual disturbance in the absence of overt behavioral changes (Thompson et al. 1968, Cherkovich and Tatoyan 1973, Moen et al. 1978).

Studies of captive pronghorn, other than the Sonoran subspecies, have shown that they are sensitive to disturbance such as human presence and vehicular noise. Human traffic, such as a person walking or running past pronghorn in an enclosed pen, a motorcycle driving past, a truck driving past, a truck blowing its horn while driving past, or a person entering a holding pen, caused an increased heart-rate response in American pronghorn in half-acre holding pens (Workman et al. 1992). The highest heart rates occurred in female pronghorn in response to a person entering a holding pen, or a truck driving past while sounding the horn. The lowest heart rates occurred when a motorcycle or truck was driven past their pen. Pronghorn were more sensitive to helicopters, particularly those flying at low levels or hovering, than fixed wing aircraft. Luz and Smith (1976) observed pronghorn reactions to overhead helicopter flights which suggested mild disturbance (muscle tensing and interruption of grazing) by helicopter noise levels at approximately 60 dBA and strong reaction (running) at approximately 77 dBA.

A pronghorn can canter effortlessly at 25 mph, gallop without straining at 44 mph, and run flat out at speeds of 55-62 mph (Byers 1997). During an aerial reconnaissance, one herd of Sonoran pronghorn was observed 12 miles away from the initial observation location 1.5 hours later (Wright and deVos 1986). Hughes and Smith (1990) found that Sonoran pronghorn immediately ran 1,310-1,650 feet from a vehicle, and that military low-level flights (<500 feet AGL) over three pronghorn caused them to move about 330 feet from their original location. Krausman et al. (2001, 2004) examined effects of military aircraft and ground-based activities on Sonoran pronghorn at the North and South Tactical Ranges (TACs) on the BMGR and concluded that military activities, both ground-based and aerial, were associated with some changes in behavior (e.g., from standing to trotting or running, or bedded to standing) but the authors found that the movements in response to military activities were not distinguishable from movements by control animals that were not exposed to military activities. They concluded that these changes were not likely to be detrimental to the animals. However, sightings of Sonoran pronghorn were biased towards disturbed habitats on the TACs and other areas of military activities, which also corresponded to areas of favorable ephemeral forage production (Krausman et al. 2005a). No conclusions could be drawn about effects of military activities on fawns due to poor fawn productivity during the Krausman et al. (2001 and 2004) study. Krausman et al. (2001 and 2004) did not address the pronghorn's response to low-level helicopter flights.

During times of drought, disturbances that cause pronghorn to startle and run would energetically have a more significant effect. Such energetic expenditures, particularly during times of stress, may lead to lower reproductive output and/or survival of individual animals (Geist 1971). Landon et al. (2003) evaluated whether Sonoran pronghorn used areas, as defined by noise levels produced by military aircraft, in proportion to their availability on the BMGR. In general, they found that Sonoran pronghorn used the lowest noise level area more than the higher noise level areas. However, as Krausman et al. (2005a) point out, they did not consider habitat in their analysis. Krausman et al. (2005a) examined Sonoran pronghorn habitat use on landscapes disturbed by military activities. Although they did not consider noise levels in their analysis, they found that pronghorn on North TAC and South TAC used areas that are continually disturbed by military activities (i.e., mock airfields, high-explosive hills, and other targets) more than expected by chance. They conclude that this is likely because these disturbed areas provide favorable forage.

Overview-Munitions Effects

Direct death or injury to pronghorn could occur as a result of ordnance deliveries, live rounds, or pronghorn encountering unexploded ordinance on YPG. All munitions firing or ordinance deliveries would occur on YPG and not within KNWR. The impact area boundary within potential pronghorn habitat is located approximately 1 kilometer south of the KNWR boundary. YPG carefully plans each shot on the range with consideration of the gun position, from which ordinance is fired, to the target or impact area. Test directors take into account the capabilities and past performance of the ordinance and blast radius to develop a surface-danger-zone in-which the munitions could inadvertently land. Range control coordinates these firing programs to ensure that the surface danger-zones remain on YPG or within previously established buffer zones. The likelihood of ordinance landing within the refuge is extremely low.

BMGR is an active military installation used by the United States Air Force and Marine Corps which is located south of YPG. The BMGR has a long history of military activity including munitions impacts across numerous targets in pronghorn habitat. On BMGR, vegetation or soil disturbance has been shown to increase forage and lengthen the green-up period for forage plants on in some areas (Hervert personal communication 2014). This, as well as water collecting in bomb craters on BMGR may account for pronghorn frequenting disturbed areas, including targets on the range. While the occurrence of deep craters (enough to hold water) is not common on YPG, there is soil and vegetation disturbance from ordinance impacts, target construction, fires and temporary gun positions. Resulting changes to vegetation structure may improve forage quality for pronghorn at times; however, reduction in cover may make lambs more susceptible to predation (Hervert pers comm 2014).

Based on Krausman (2005) no effects were detected to the hearing ability of mule deer living near high ordnance delivery activities at ETAC on BMGR. We do not anticipate the hearing of Sonoran pronghorn will be greatly affected on YPG or KNWR.

Overview-Fire Effects

Firing and detonation of ordinance including high explosives, illumination and incendiary rounds present a danger of fire ignition of near gun positions and impact areas. Fire risk varies by ammunition type and how it is used (e.g. air bursts vs. ground). Construction or maintenance activities such as welding or cutting steel may also generate sparks and present an ignition source. Natural ignition sources such as lightning may also result in fire.

Fire risk on YPG varies greatly depending on precipitation (YPG 2012). Fuels modeling conducted by Kaya and Associates (2012) indicated that during typical dry years, the areas with the highest fuel loading are mesquite bosques and areas that contain creosote mixed with trees such as ironwood and paloverde. During wet periods the highest loading tends to be located in floodplains due to precipitation running

from the mountain highlands and other areas with higher elevations and eventually settling into the low elevation floodplains (Kaya 2012). Large seasonal grasses or other annual vegetation quickly emerges and subsequently dries out, leaving fuel for wildfire.

Most fires on YPG are very small and isolated due to the sparse nature of fuels in this region. From 2003 to present, there were an estimated 26 fire starts on YPG and a total of 3,170 acres burned on YPG. Of that total, 3,000 acres was from 1 event, the King Valley Fire (Bailey 2014). The King Valley Fire is the only major documented fire originating on YPG in over 70 years of military testing and training activities.

The winter and spring of 2004/2005 were very wet, resulting in some of the highest productivity of cool season annual plants in recent memory. As these annual plants dried out, they created fuel for wildfire (USFWS 2010). In September 2005, the King Valley Fire ignited due to munitions impact on YPG. The fire burned 3,000 acres on YPG and 26,000 acres on KNWR for a total of about 29,000 acres. The King Valley Fire was carried by dry annual plants left from the wet winter in, particular, dried Indian wheat (*Plantago insularis*) and Mediterranean grass (*Schismus barbatus)* along with other species. Cured herbaceous vegetation carried the fire over the terraces between the ephemeral washes and also along the washes where it provided ladder fuels to the denser woody vegetation (USFWS 2006).

Most Sonoran Desert trees, shrubs, and cacti are poorly adapted to fire (Brown and Minnich 1986, Schwalbe *et al.* 2000, Alford and Brock 2002). If areas burn repeatedly, permanent changes are likely in the flora. Even in the best scenario it is likely to be many years before trees once again provide thermal cover in wash communities and cholla recover to a point that they are useful forage plants for pronghorn. Luke AFB noted that, from 2007 to 2010 pronghorn were attracted to the burned areas, which often supported better growth of annual plants and forbs than adjacent unburned areas (USFWS 2010). However, in the long term and if these areas continue to burn, removal of thermal cover (trees) and cholla, which they depend on in drought, would likely adversely affect pronghorn and probably limit the use of these areas to wetter and cooler periods and seasons.

While wildfire can have an adverse affect to Sonoran pronghorn, the occurrence of large wildfires spreading to the KNWR are very rare. This type of fire event is only made possible by exceptional amounts of precipitation. Furthermore, YPG has adopted more effective communication protocols in responding to fires to further reduce their potential spread.

Impacts to Pronghorn on YPG (Outside KNWR)

The nonessential experimental population, released on KNWR, will likely continue to move onto portions of YPG concurrent with implementation of Proposed Action components. Expanded testing and training activities would be ongoing and the experimental population of Sonoran pronghorn would likely be affected both directly and indirectly by human presence on the range, vehicle traffic, noise from munitions firing and impact, and aircraft noise.

Direct impacts to Pronghorn on YPG may include vehicle strikes along roads, becoming tangled in communication wire or fencing, or being injured by running into infrastructure such as buildings, towers trenches etc. Animals could also be injured or killed by munitions strike or explosions from live ordinance on the ground.

Indirect impacts could include visual or auditory disturbance by human activity or munitions testing. These disturbances could affect habitat utilization by occasionally frightening pronghorn from food or

water sources. These impacts to behavior can impact the nutrition and body condition of the animals and could reduce survival rates, particularly in times of drought.

Other indirect impacts may include habitat alteration due to fire. If wildfires occur due to YPG activities, short term impacts from loss of foraging area could occur. However long-term impacts may be beneficial in that forage quality may be enhanced. Reductions density of large perennial plants due to wildfire may be favored by pronghorn; however, the reduction in cover may increase fawn mortality due to predators (Hervert pers comm. 2014)

Impacts to Pronghorn on KNWR

Impacts to pronghorn from YPG activities on KNWR include indirect impacts from visual and auditory disturbance by aircraft flying over the refuge, munitions being detonated near the refuge boundary, or human presence near the boundary of the refuge. Wildfire may also directly or indirectly affect pronghorn on the refuge in the event that wildfire encroached from YPG onto the refuge.

YPG conducts flights over the refuge daily within airspace R-2307, R-2308A, R-2308b, and R-2308C. Almost all of the military use of this airspace occurs between 8,000 and 32,000 ft above ground level (AGL) (Franklin 2013). The lower limit to YPG airspace above the refuge is 1,500 feet AGL, however, the YPG Operational Noise Management Plan (ONMP) identifies KNWR and Imperial National Wildlife Refuge (INWR) as areas where pilots are recommended to remain at least 2,000 feet AGL. Aircraft would not be hovering in one area, but passing by, which would reduce disturbance. Due to the high altitudes of YPG aircraft above the refuge, pronghorn reactions are unlikely to be significant.

There have been past incidents of munitions being fired over KNWR, and there were instances where munitions actually landed on the refuge. These incidents have been reviewed by YPG and the practice of firing over the refuge has been discontinued. While YPG does not fire into or over the KNWR, the estimated safety fans do occasionally cross the boundary to the southwest of King Valley, outside of pronghorn habitat. The algorithm used to establish the dimensions for the safety fan uses a 1/1,000,000 probability of munitions landing outside the fan. Instances of munitions landing outside the fan or on the refuge are extremely rare (YPG Range Control). Due to the locations of the targets and gun positions as well as safety planning for firing programs, it is highly unlikely that pronghorn would be directly injured or killed by munitions.

Noise from munitions fired on YPG can be heard off the installation but the intensity of the sound decreases with distance. The noise contour figures from the Installation Operational Noise Management Plan indicate that the portion of KNWR that is suitable habitat for Sonoran Pronghorn (i.e. King Valley) is located outside the 57-63 CDNL contour (Figure 6). This means that the magnitude of sound experienced by any pronghorn on the refuge would be less than 57 decibels for most actual explosions within the impact area on YPG. For comparison, normal conversation between two people three feet apart is approximately 60-65dB. Explosions from munitions testing and training on YPG in the Castle Dome Mountains along the western and southern boundary of KNWR would be audible to pronghorn in portions of the area they may occupy but would likely not be heard in the vicinity of the breeding pens (USFWS, 2009). Because munitions testing and training is relatively constant in this area, the noise from these events would likely be perceived as part of the background noise and would not affect pronghorn except in immediate proximity to a detonation.

Wildfire presents the most substantial threat to Sonoran Pronghorn on KNWR. Fires may affect vegetation composition, cover and forage quality. Wildfire may temporarily reduce forage for pronghorn but over the long term provide increases in annual forbs and lengthen the green-up period (Hervert pers.

Comm. 2014). Wildfire may present danger to lambs if they are too young to flee the oncoming fire. While wildfire can have an adverse affect to Sonoran pronghorn, the occurrence of large wildfires spreading to the KNWR are very rare. This type of fire event is only made possible by exceptional amounts of precipitation and resulting vegetation growth. Furthermore, YPG has adopted more effective communication protocols in responding to fires in hopes to further reduce their spread.

Cumulative Effects

Cumulative effects are those effects of future nonfederal (i.e., state, tribal, local, or private) actions that are reasonably certain to occur in the project area. Future federal actions unrelated to the proposed project are not considered here because they require separate consultation pursuant to Section 7 of the Endangered Species Act (USFWS and National Marine Fisheries Service 1998).

The assessment of cumulative impacts for Sonoran pronghorn includes lands north of Interstate 8 and South of interstate 10

Most lands within the current range of the Sonoran pronghorn are managed by Federal agencies, and as such, any of their actions would be subject to Section 7 consultation. Within the current SPH range there are small parcels of State lands and private lands near the towns of Ajo and Why, AZ, north of the BMGR from Dateland, AZ to SR 85, and from the Mohawk Mountains to Tacna, AZ. Continuing rural and agricultural development, recreation, vehicle use, grazing, and other activities on private and State lands adversely affect pronghorn and their habitat. These activities on State and private lands and along the Mexican border and the effects of these activities are expected to continue into the foreseeable future

Conservation Measures

- Notify USFWS and AGFD within three working days if Sonoran pronghorn are observed on YPG that are injured, sick or dead.
- Coordinate range access for FWS and AZGFD as appropriate for capture of sick or injured pronghorn as well as recovery of dead individuals if necessary. Coordination will involve adherence to range safety and security procedures.
- Avoid placing activities in proximity to artificial water sources to the extent such action is consistent with the military mission.
- YPG will adhere to the terms of the Memorandum of Understanding between the KNWR, INWR, BLM, and YPG which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands. (Appendix 2)
- In the event future actions on YPG have the potential to affect Sonoran pronghorn on KNWR, YPG will consult with the Fish and Wildlife Service as appropriate.

Effect Determination

Section 10 (j) of the ESA states that for purposes of section 7 consultation, nonessential experimental populations must be treated as proposed species unless they are located on a National Wildlife Refuge, in which case they must be treated as a threatened species. 50 CFR part 402.10 requires federal agencies to confer with the FWS on activities that may jeopardize proposed species. Consultation is required for any federal action that may affect a listed species.

The 10 (j) nonessential experimental population designation for the Sonoran pronghorn results in differing levels of consultation for on and off national wildlife refuge lands. For this reason, YPG is making separate determinations of affects on YPG and on Kofa National Wildlife Refuge.

Critical habitat has not been designated for Sonoran pronghorn and since this is a nonessential experimental population, designation of critical habitat on YPG or KNWR is unlikely.

Sonoran Pronghorn on YPG

Based on the analysis in this Biological Evaluation, YPG makes the determination **May affect, and Likely to Adversely Affect** Sonoran pronghorn on YPG**.** This determination is based on human disturbance, habitat modification, and the remote possibility of injury or mortality due to munitions delivery, collision with vehicles, or increased vulnerability to predation.

YPG determines the proposed action is **Not Likely to Jeopardize** the continued existence of Sonoran pronghorn. This population is considered nonessential experimental under 10(j) of the ESA, and adverse impacts to individuals within this population would not appreciably reduce the likelihood of the recovery of the Sonoran Pronghorn. Furthermore, impacts from YPG activities would be contained to the action area and cannot effect other populations of pronghorn at CPNWR, BMGR, or Mexico. YPG seeks FWS concurrence with this determination.

Sonoran Pronghorn on KNWR.

YPG makes the determination **May affect, Likely to Adversely Affect** the Sonoran pronghorn on KNWR due to very intermittent visual and auditory disturbance to animals near the installation boundary and the very low potential of wildfire spreading onto the refuge and temporarily reducing forage and cover. YPG requests initiation of Formal consultation under section 7 of the Endangered Species Act.

The magnitude and intensity of impacts of YPG activities on KNWR are much lower than that on YPG. Any effect to pronghorn on the refuge would be limited to intermittent visual and auditory disturbance to animals that are located near the boundary. The magnitude of this disturbance would be further reduced by distance to the actual activity. Flights over the refuge are conducted at 1,500 feet or above and in most cases over 8,000 feet; reducing the auditory and visual impacts to pronghorn as well. Firing programs are not firing over pronghorn habitat on the refuge which reduces the likelihood of munitions landing in the refuge.

Wildfire poses a potential risk to Sonoran pronghorn habitat on KNWR. A short term adverse affect would be temporary displacement of pronghorn from forage in burned areas. Long term impacts could include reduction in perennial vegetation that provides forage and cover as well as increased predation to fawns due to the lack of cover. The fuel loading in this area of the Sonoran Desert is typically low, and the occurrences of wildfires spreading onto KNWR are very rare. With increased rainfall, increased fuel loading and fire risk have been observed; however, a large wildfire event is only made possible by exceptional amounts of precipitation and the long term trend in the desert southwest is less rainfall. Furthermore, YPG has adopted more effective communication protocols in responding to fires to further reduce their potential spread by ensuring a faster response by firefighting resources.

Literature Cited

Bright, J.L. 2013, Sonoran Pronghorn Monthly Update, October 4, 2013

Arizona Interagency Desert Tortoise Team, 2008, (AIDTT) Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat.

AZGFD, HDMS. Arizona Game and Fish Department, Heritage Data Management System

U.S. Army Garrison Yuma Proving Ground Yuma, Arizona (YPG). 2012. Integrated Natural Resources Management Plan and Environmental Assessment. June 2012.

U.S. Army Garrison Yuma Proving Ground Yuma, Arizona (YPG). 2011. Installation Operational Noise Management Plan. September 2011.

U.S. Army Garrison Yuma Proving Ground Yuma, Arizona (YPG). 2013. Laguna Army Airfield Operations Manual. October 2013.

Kerley, L. L., J. M. Goodrich, E. N. Smirnov, D. G. Miquelle, H.B. Quigley, and M.G. Hornocker. Effects of roads and human disturbance on Amur tigers. Conservation Biology 16(1):97-108

Jorgenson, J.T. Environmental impact of the 1988 winter Olympics on bighorn sheep of Mt. Allan. Biennial Symposium of the Northern Wild Sheep and Goat Council 6:121-134.

Thompson, R.D., C.V. Grant, E.W. Pearson, and G.W. Corner. 1968. Cardiac response of starlings to sound: effects of lighting and grouping. American Journal of Physiology 214:41-44.

Workman, G.D., T.D. Bunch, J.W. Call, F.C. Evans, L.S. Neilson, and E.M. Rawlings. 1992. Sonic boom and other disturbance impacts on pronghorn antelope (Antilocapra americana). Report to the U.S. Air Force, Hill Air Force Base, UT.

Luz, G.A., and J.B. Smith. 1976. Reactions of pronghorn antelope to helicopter overflight. Journal of Acoustical Society of America 59(6): 1514-1515.

Cherkovich, G.M., and S.K. Tatoyan. 1973. Heart rate (radiotelemetric registration) in macaques and baboons according to dominant-submissive rank in a group. Folia Primatol 20:265-273.

Moen, A.N., M.A. DellaFera, A.L. Hiller, and B.A. Buxton. 1978. Heart rates of white-tailed deer fawns in response to recorded wolf howls. Canadian Journal of Zoology 56:1207-1210.

Wright, R.L. and J.C. deVos. 1986. Final report on Sonoran pronghorn status in Arizona. Contract No. F0260483MS143, Arizona Game and Fish Department, Phoenix, AZ

Hughes, K.S., and N.S. Smith. 1990. Sonoran pronghorn use of habitat in Southwest Arizona. Report to Cabeza Prieta National Wildlife Refuge, Ajo, AZ.

Krausman, P.R., L.K. Harris, C.L. Blasch, K.K.G. Koenen, and J. Francine. 2004. Effects of military operations on behavior and hearing of endangered Sonoran pronghorn. Wildlife Monographs 157:1-41.

Krausman, P.R., L.K. Harris, S.H. Haas, K.K.G. Koenen, P. Devers, D. Bunting, and M. Barb. 2005a. Sonoran pronghorn habitat us on landscapes disturbed by military activities. Wildlife Society Bulletin 33(1):16-33.

Krausman, P.R., J.R. Morgart, L.K. Harris, C.S. O'Brian, J.W. Cain III, and S.S. Rosenstock. 2005b. Introduction: management for the survival of Sonoran pronghorn in the United States. Wildlife Society Bulletin 33(1):5-7.

Krausman, P.R., L.K. Harris, and J. Francine. 2001. Long-term study of the noise effects of military overflights on the Sonoran pronghorn, Barry M. Goldwater Range, Luke Air Force Base, Arizona. U.S. Air Force Contract F41624-98-C-8020-P00003.

Landon, D.M., P.R. Krausman, K.K.G. Koenen, and L.K. Harris. Pronghorn use of areas with varying sound pressure levels. The Southwestern Naturalist 48(4):725-728.

Geist, V. 1971. A behavioral approach to the management of wild ungulates. In E. Duffey and A.S. Watts, eds., The Scientific Management of Animal and Plant Communities for Conservation. Symposium of the British Ecological Society No. 11. Blackwell Science Publications, Oxford, U.K.

U.S. Fish and Wildlife Service (USFWS). 2009. Draft Environmental Assessment for the Reestablishment of Sonoran Pronghorn. U.S. Fish and Wildlife Service Region 2. 1 October 2009.

U.S. Fish and Wildlife Service (USFWS). 2010. Reinitiation of Formal Section 7 consultation on Military Training on the Barry M. Goldwater Range East, Maricopa, Pima, and Yuma Counties, Arizona.

U.S. Fish and Wildlife Service (USFWS). 2011 Federal Register. Endangered and Threatened Wildlife and Plants; Establishment of a Nonessential Experimental Population of Sonoran Pronghorn in Southwestern Arizona. Final Rule. Vol 76, No. 87. May 5, 2011.

YPG Range Control. 2013. Personal Communication with Darrell Williams of YPG range control December 2013

Franklin, Pat. Air Operations Branch Chief. 2013 Personal Communication

Bailey, Jack. Fire Protection Specialist. 2014 Personal Communication via email January 20, 2014.

Figure 1. Map of YPG

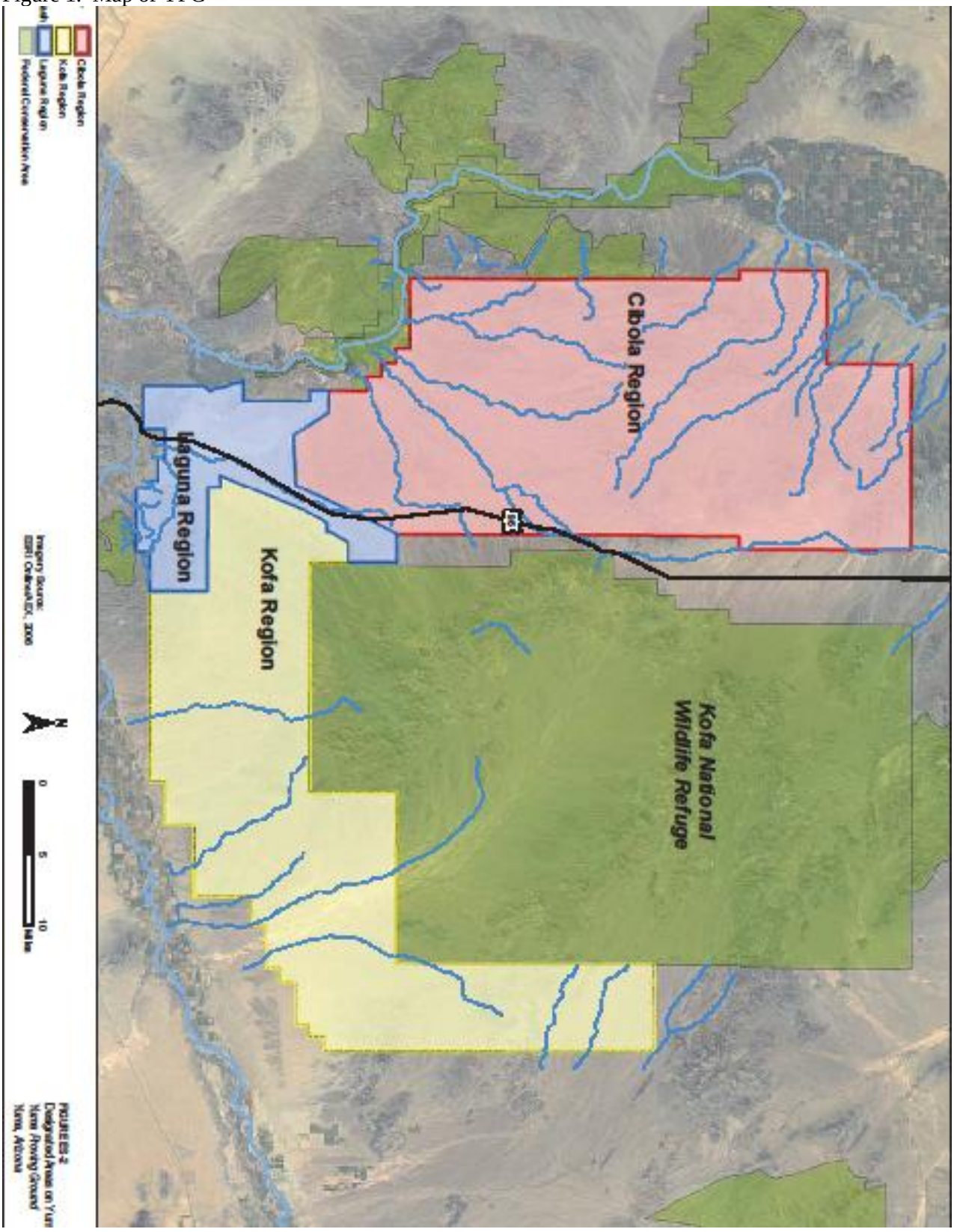
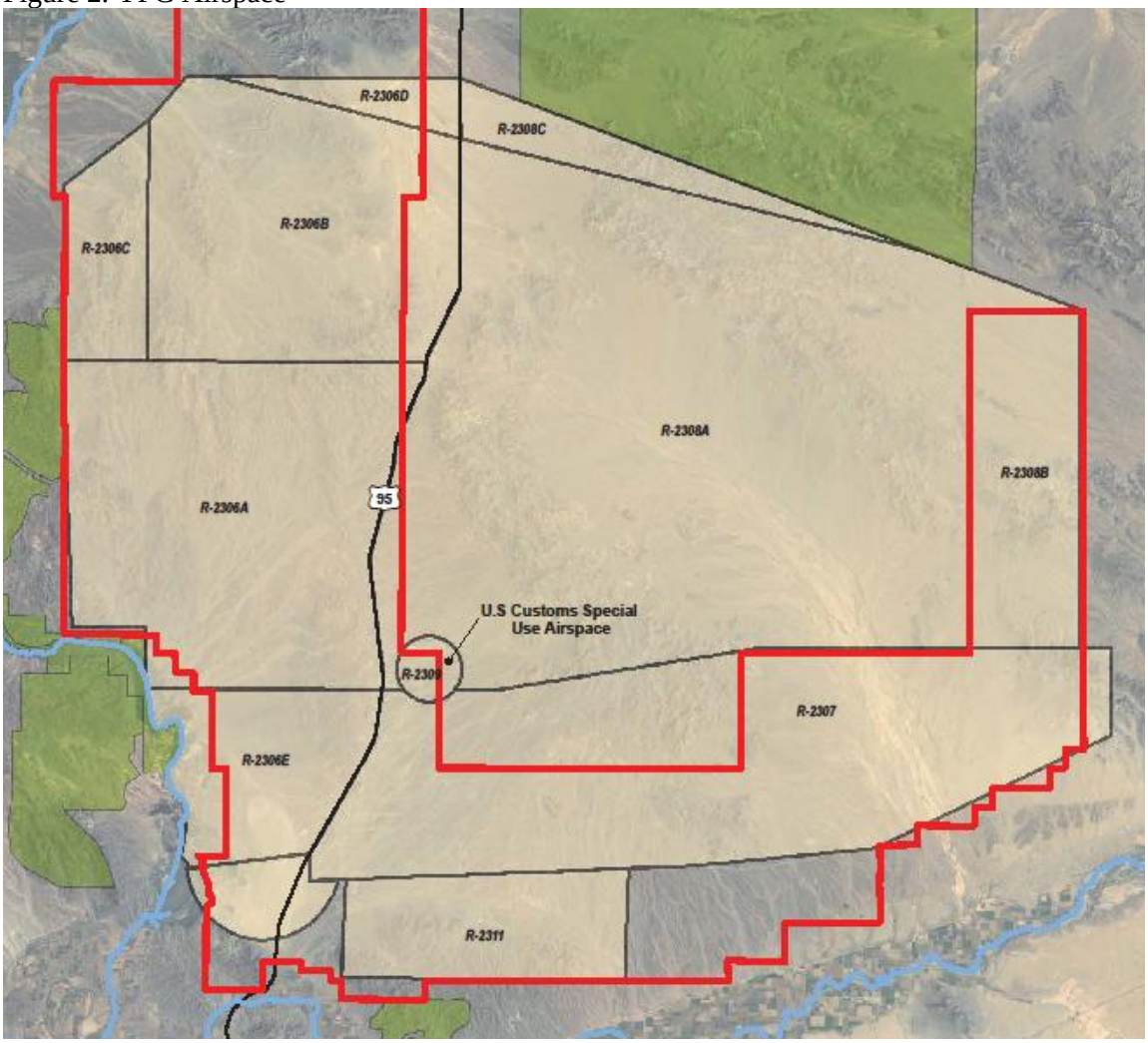


Figure 2. YPG Airspace



Description of Airspace

R-2306A	Covers the southern part of the Cibola Region from the surface to 80,000 ft
R-2306B	North of R-2306A in the Cibola Region, from the surface to 80,000 ft
R-2306C	West of R-3206B in the Cibola Region, from the surface to 17,000 ft
R-2306D	North of R-2306B in the Cibola Region, from the surface to 23,000 ft
R-2306E	South of R-2306A in the Cibola and Laguna Regions, from the surface to 80,000 ft
R2307	Laguna and Kofa Regions west of US 95 and north of Pole Line Road, from the surface to unlimited. Also includes the southern portion of the Kofa NWR
R2308A	Kofa NWR from 1,500 ft above ground level (AGL) to 80,000 ft
R2308B	West of R-2308A in East Arm, from the surface to 80,000 ft
R2308C	North of R-2308A in Kofa NWR from 1,500 ft AGL to 23,000 ft
R-2309	Department of Justice Special Use Airspace. 1.5-mile radius from the surface to 15,000 ft,north of CDH
R-2311	Eastern Kofa Region south of Pole Line Road from the surface to 3,500 ft
R-2306-F	Proposed at Laguna Airfield from the surface to 3,500 ft

While some airspace in R2307 is from the surface, the YPG Installation Operational Noise Management Plan recommends aerial operations be conducted above 2,000 feet AGL over Kofa National Wildlife Refuge.

Figure 3. Map of the historic and current ranges of the Sonoran pronghorn.

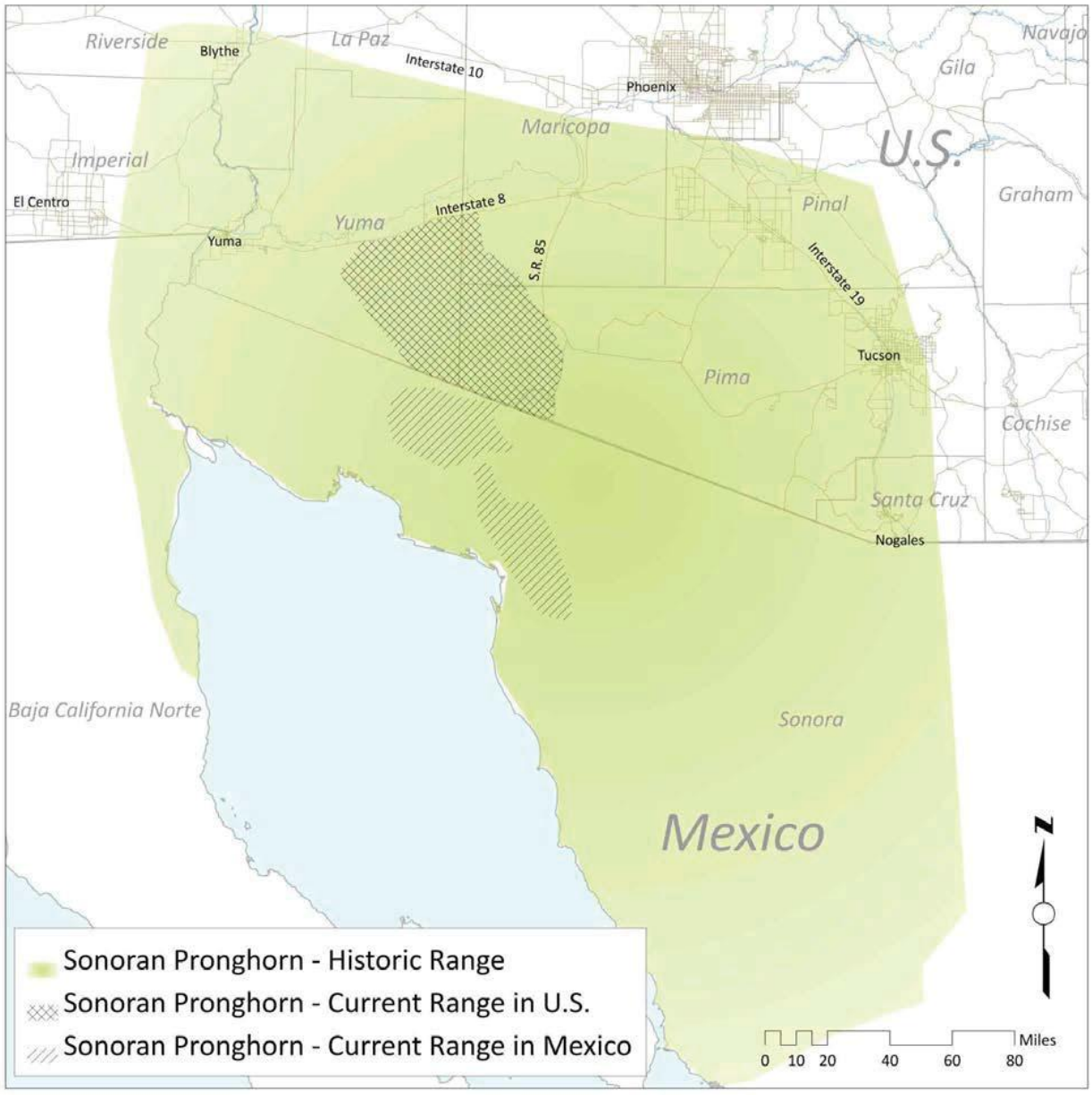


Figure 4. 10(j) Nonessential Experimental Population Area

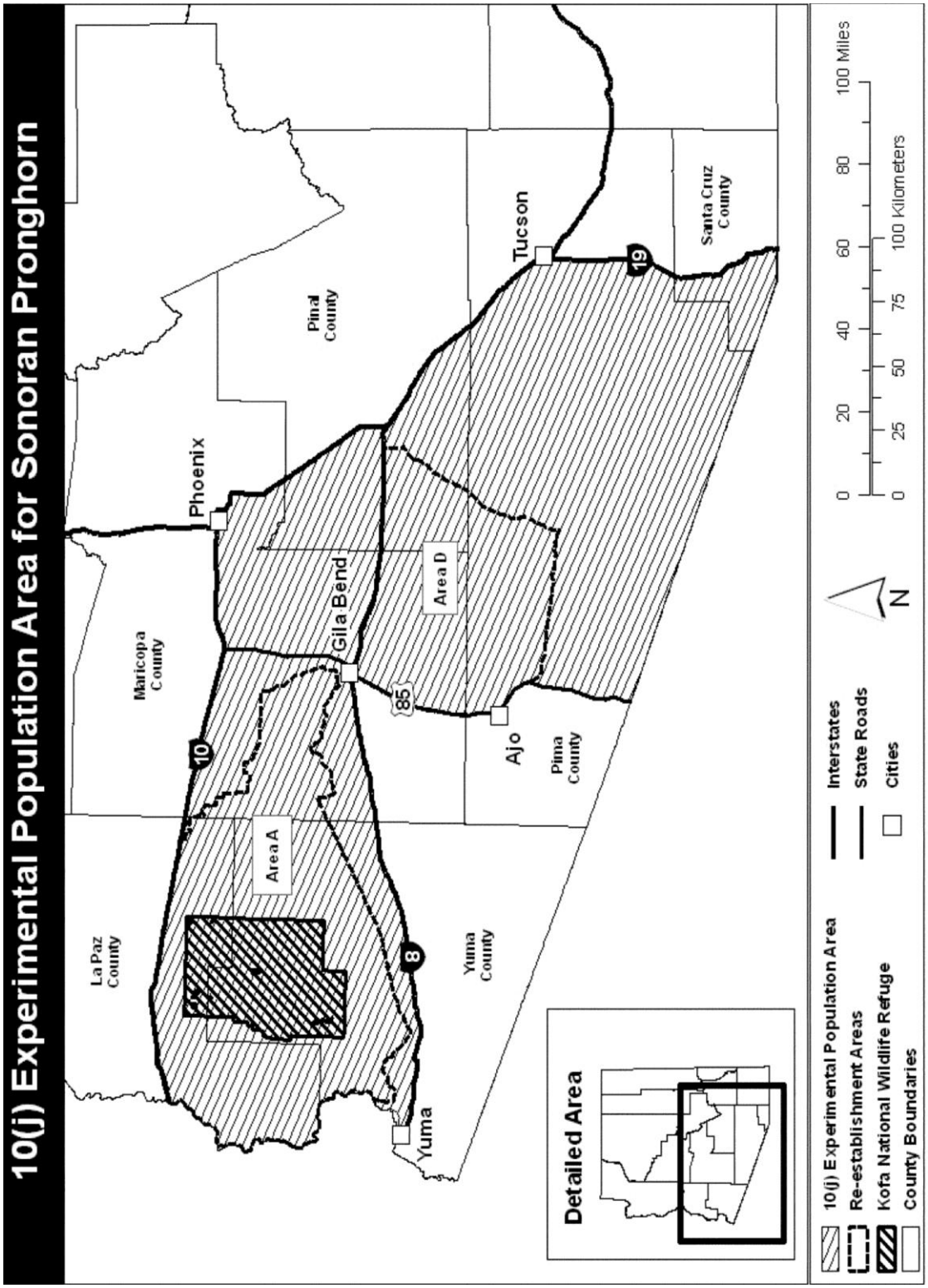


Figure 5. Pronghorn Locations. The extent of the Kofa pronghorn range is based on telemetry data and is likely to change as pronghorn continue to disburse and new data comes in.

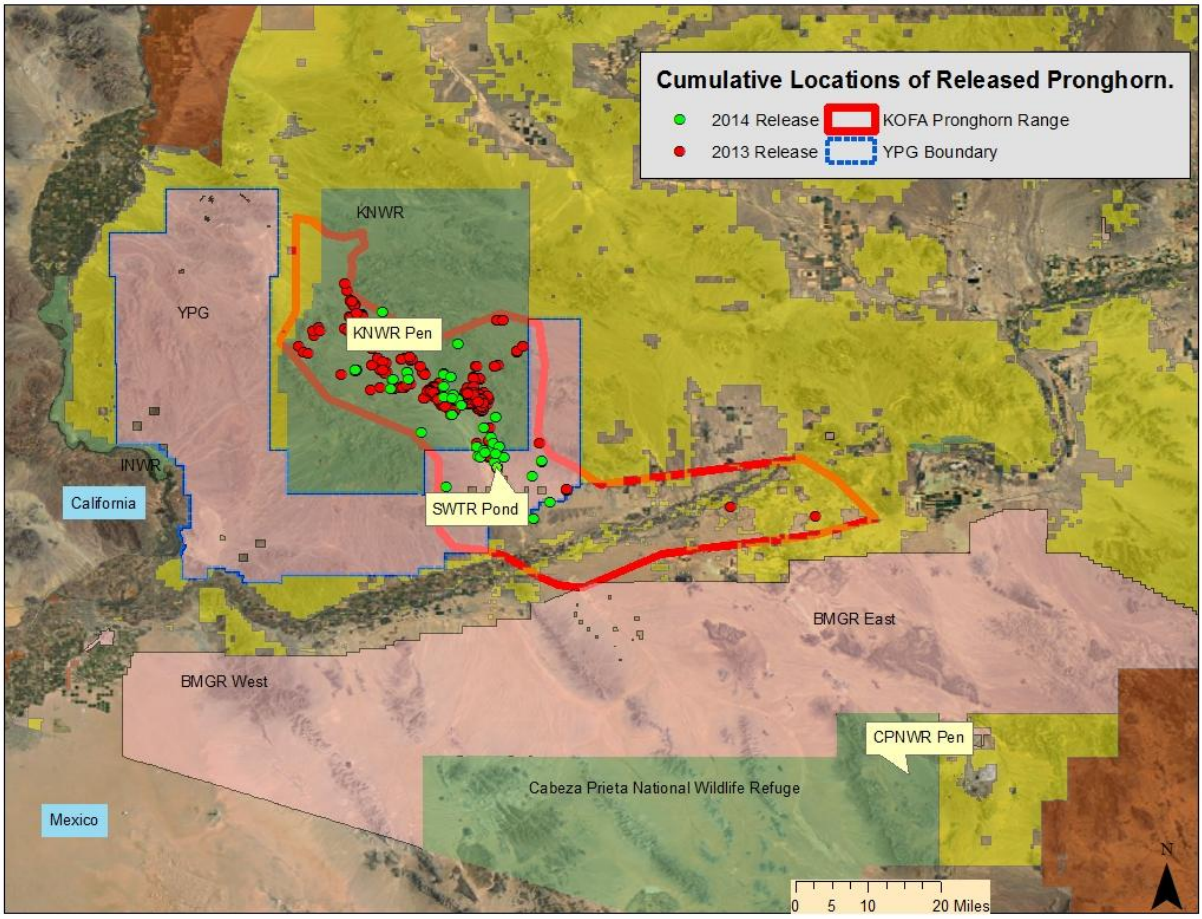


Figure 6. Large Caliber Noise Contour from the YPG Operational Noise Management Plan

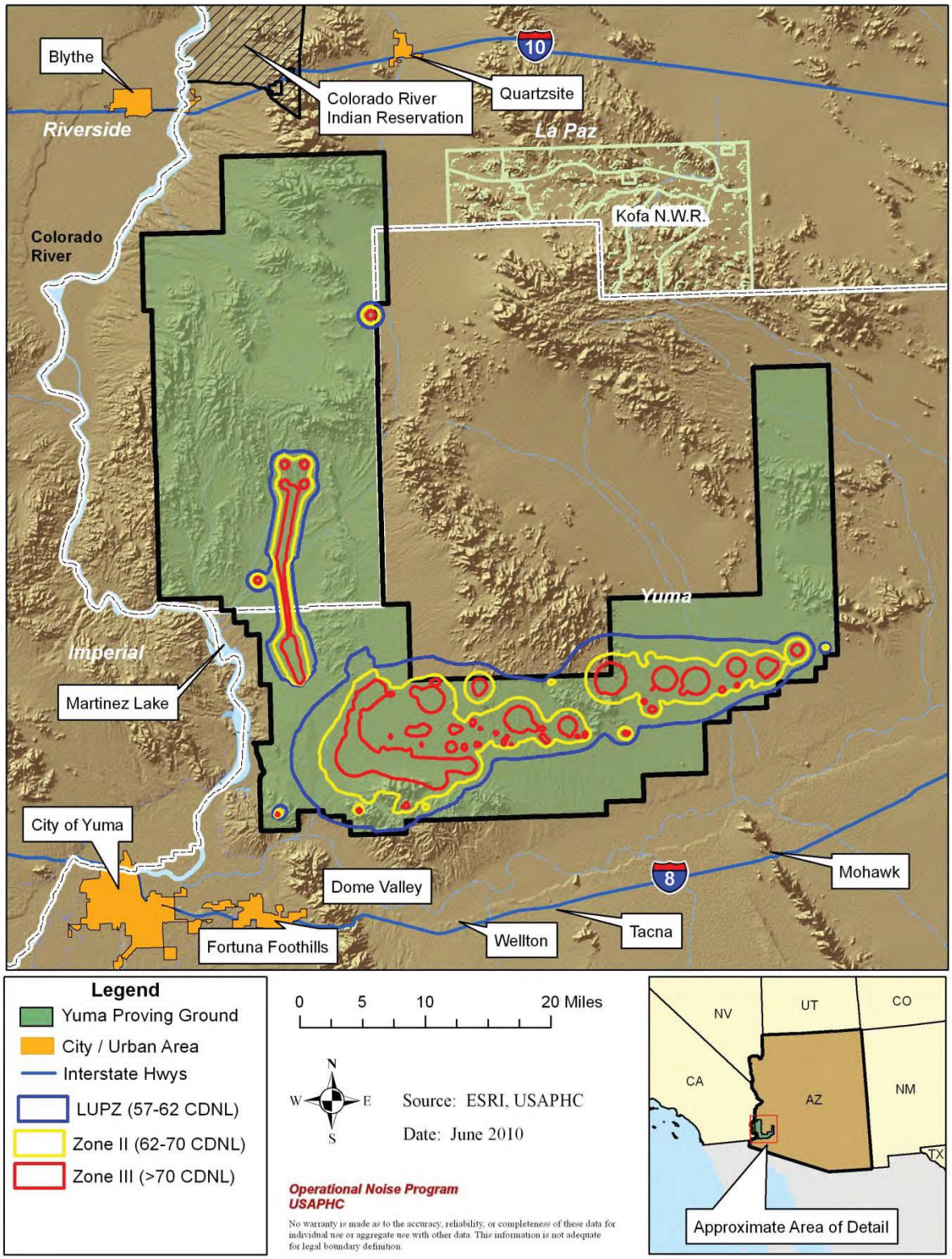


Figure 7. Map of the Proposed Action in the Laguna Region

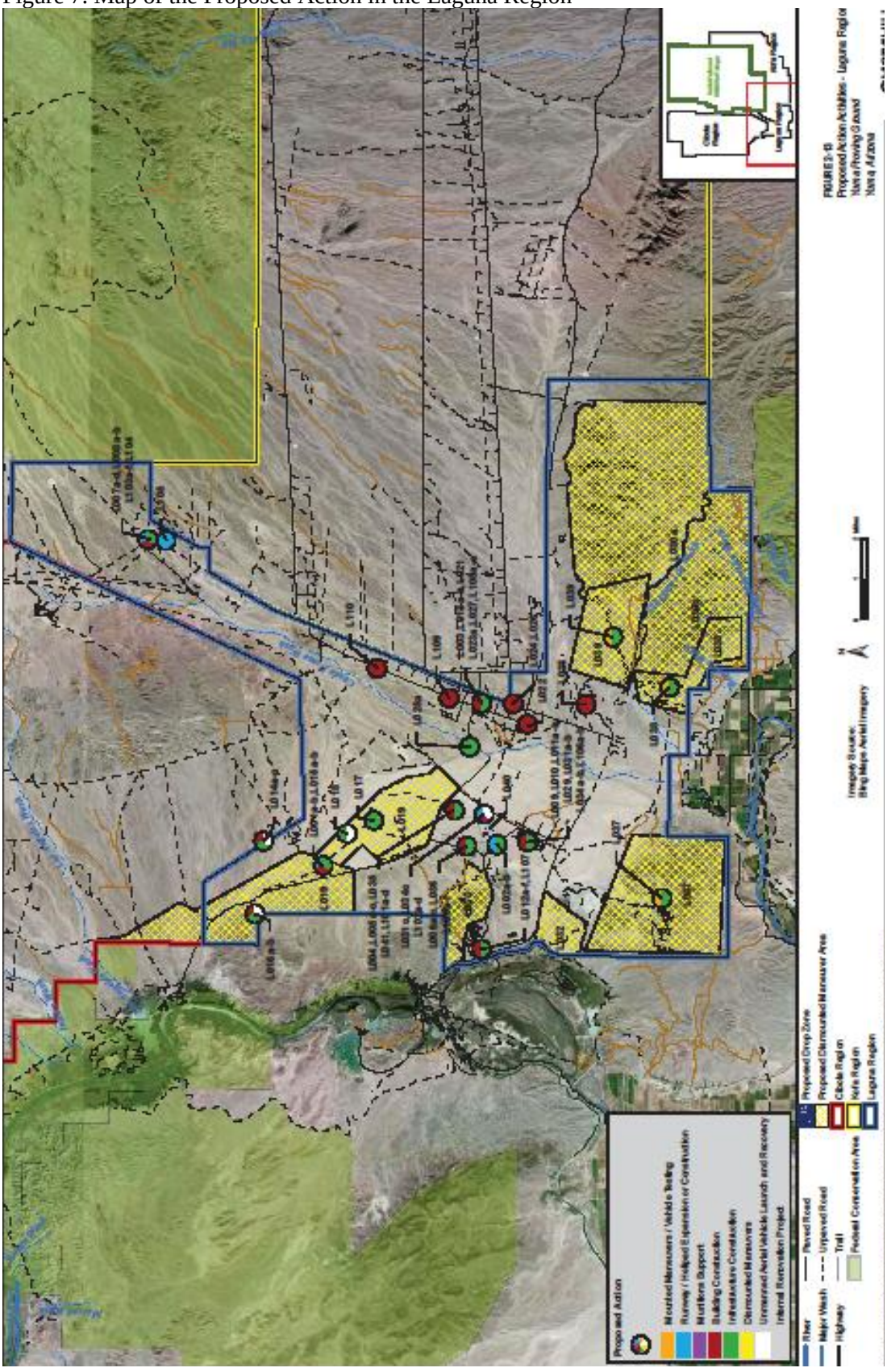


Figure 8. Map of the Proposed Action in the Cibola Region

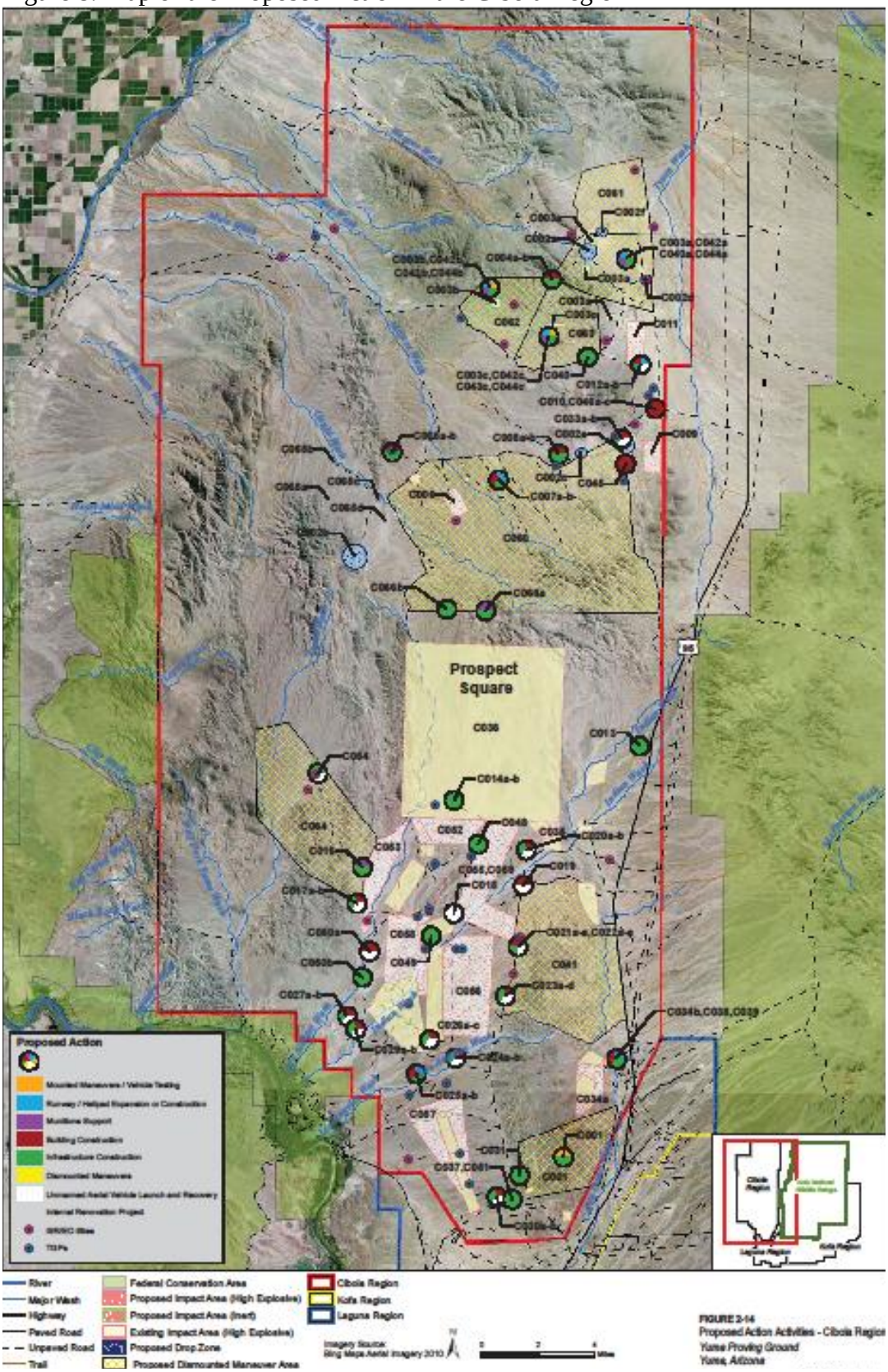
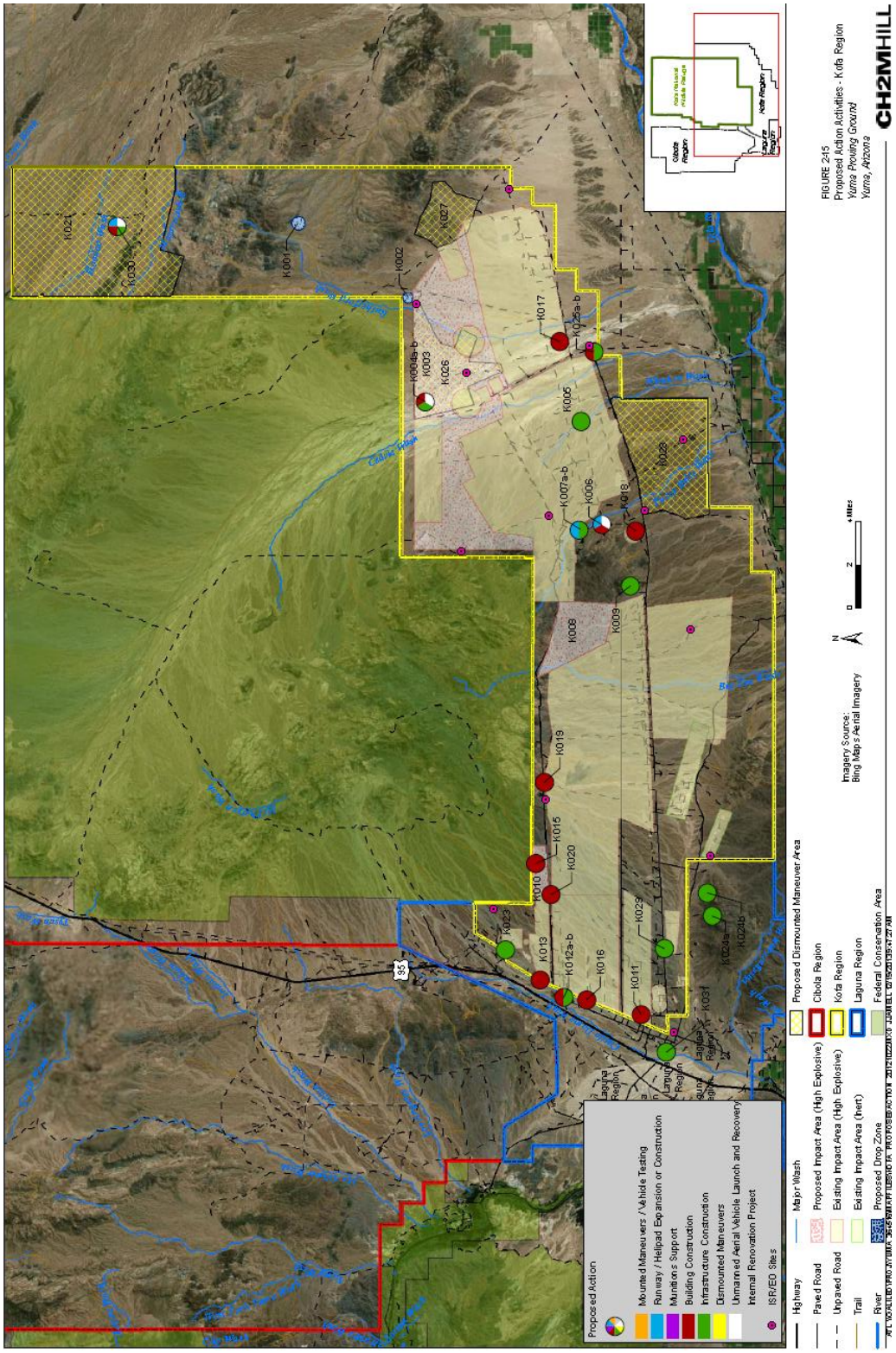


Figure 9. Map of the Proposed Action in the Kofa Region (note the boundary of the impact area was reduced from what was shown in the draft EIS.



Appendix 1. Table of Proposed Action Activities

TABLE 2-1
Proposed Action Activities Analyzed in Detail – Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L001-a	Construct building, concrete pad, shade structure, and solar lights at K-9 Village.	Minor construction-related soil and vegetation disturbance at K-9 Village (building 900 square feet [ft^2], concrete pad 40,000 ft^2, shade structure 400 ft^2). Minor construction-related air emissions. Potential for increased stormwater runoff from increased impervious area. Work within existing urban combat training area would have temporary displacement of nearby wildlife with no population-level impacts. Safety benefit from shade to reduce heat stress.
L002-a	Construct Runway 18/36 extension, and realign Barranca Road at LAAF.	Construction-related soil and vegetation disturbance (2,000-ft runway extension 2.75 ac, realignment of Barranca Road 3.37 ac). Minor construction-related air emissions. Temporary disruption of on-post traffic. Potential for increased stormwater runoff from increased impervious area. Work within this high human activity area would have temporary displacement of nearby wildlife with no population-level impacts.
L003	Construct outdoor eating area at the Roadrunner Café.	Minor construction-related soil and vegetation disturbance (840 ft^2). Minor construction-related air emissions. Potential for increased stormwater runoff from increased impervious area.
L004	Construct office building next to Building 2968.	Construction-related soil disturbance in previously disturbed area (office building 4,000 ft^2). Construction-related emissions. Potential for increased stormwater runoff from increased impervious area. Cantonment area work would not have detectable impacts on wildlife.
L005	L005-a: Construct medium and large storage buildings. L005-b: Construct 2 office buildings. L005-c: Construct Air Delivery Guided Test Facility next to Building 2970.	Construction-related soil disturbance in previously disturbed area (medium storage building 7,200 ft^2, large storage building 9,600 ft^2, 2 office buildings totaling 4,000 ft^2, and Air Delivery Guided Test Facility 35,900 ft^2). Construction-related emissions. Increased impervious area.
L006	L006-a: Construct Flight Detachment Maintenance Building. L006-b: Construct Wild Horse Café. L006-c: Construct antiterrorism/force protection (AT/FP) parking improvements.	Construction-related soil disturbance in previously disturbed area (Flight Detachment Maintenance Building 18,000 ft^2, Wild Horse Café 3,200 ft^2, and parking improvements 101,560 ft^2 in previously disturbed area). Construction-related emissions. Increased impervious area.

TABLE 2-1
Proposed Action Activities Analyzed in Detail – Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L007	L007-a: Construct helicopter parking at CDH. L007-b: Construct UAS parking, UAS storage facility, and UAS maintenance hangar at CDH. L007-c: Construct privately owned vehicle (POV) parking at CDH. L007-d: Relocate C-130 CALA to CDH.	Construction-related soil and vegetation disturbance (helicopter and UAS parking 61,000 ft^2, POV parking 77,000 ft^2, UAS storage facility 14,400 ft^2, UAS maintenance hangar 43,500 ft^2, C-130 CALA relocation 240,200 ft^2). Construction-related emissions. Increased impervious area.
L008-a	Construct access control point (ACP) at CDH.	Construction-related soil and vegetation disturbance (improved ACP 19,500 ft^2. Construction-related emissions.
L009	Construct warehouse at YTC.	Construction-related soil and vegetation disturbance (warehouse 7,750 ft^2). Construction-related emissions. Increased impervious area.
L010	Construct Instrumentation Development Facility at YTC.	Construction-related soil and vegetation disturbance (Instrumentation Development Facility 32,500 ft^2). Construction-related emissions. Increased impervious area.
L011	L011-a: Construct tracked vehicle trail at YTC. L011-b: Construct office at YTC.	Construction-related soil and vegetation disturbance (tracked vehicle trail 45,000 ft^2, office 400 ft^2). Construction-related emissions. Increased impervious area.
L012	L012-a: Construct hotel at the MAA. L012-b: Construct Emergency Operations Center (EOC) at MAA. L012-c: Construct addition to youth services center at MAA. L012-d: Construct ACP improvements at MAA. L012-e: Construct child development center for school-aged services at MAA. L012-f: Construct outdoor eating area at Coyote Lanes bowling alley.	Construction-related soil and vegetation disturbance (hotel 15,000 ft^2, EOC 6,600 ft^2, youth services center 16,150 ft^2, and ACP improvements 19,500 ft^2, child development center 59,261 ft^2, outdoor eating area 3,169 ft^2). Construction-related emissions. Increased impervious area.
L013-a	L013-a: Construct additional fencing and support facilities at the Threat Systems and Target Simulations Buildings 3572 and 3574.	Construction-related soil and vegetation disturbance (fencing 1,420 ft^2, support facilities 50,000 ft^2).
L014	L014-a: Construct aircraft shelter, command and control building, and clear a UAS launch/recovery area at Comanche Flats. L014-b: Construct multiple buildings, concrete pad, water tank, POL storage area, and graded parking area at Comanche Flats.	Construction-related soil and vegetation disturbance (aircraft shelter 52,500 ft^2, command and control building 2,000 ft^2, UAS launch/recovery area - clearing vegetation 162 ac and adding 282,600 ft^2 of aggregate base coat (ABC) in center of area, office building 600 ft^2, maintenance building 900 ft^2, pad 1,000 ft^2, water tank 30,000 gallons 1,000 ft^2, POL storage 900 ft^2, graded parking 7,500 ft^2). Construction-related emissions. Increased impervious area.
L015-a	Repair landing pad and construct building at K-9 Village.	Construction-related soil and vegetation disturbance (repair landing pad 90,000 ft^2, building 2,500 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-1
Proposed Action Activities Analyzed in Detail – Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L016-a	Construct building, concrete or asphalt pad, shade structure, and install solar lights at Site 2.	Construction-related soil and vegetation disturbance at site (building 900 ft^2, pad 40,000 ft^2, shade structure 400 ft^2). Construction-related emissions. Increased impervious area.
L017	Construct GCSs for UAS operations at tracking mount (TM) Site 4.	Construction-related soil and vegetation disturbance (GCSs 2,500 ft^2).
L018	Construct concrete or asphalt pad and sensor tower east of existing sensor test building at Sidewinder Sensor Site.	Construction-related soil and vegetation disturbance (pad 900 ft^2 and 65-ft to 130-ft sensor tower 100 ft^2). Increased impervious area.
L019	Expand and combine West LA LTA, K-9 Village LTA, Site 2 LTA, and Site 4 LTA.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (6,521 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers.
L020	Upgrade equipment at Tire X-Ray Facility (Building 2310).	None, impacts confined to interior of existing facility.
L021	Construct solar chamber at Climatic Simulation Facilities (Building 3527).	Construction-related soil disturbance in previously disturbed area (solar chamber 15,000 ft^2). Construction-related emissions. Increased impervious area.
L022	Relocate dust chamber from Building 3352 to near Buildings 3357 and 3494 (Rough Handling).	Construction-related soil disturbance in previously disturbed area (dust chamber 15,000 ft^2). Construction-related emissions. Increased impervious area.
L023	L023-a: Improve ACP at the Kofa cantonment. L023-b: Construct joint wash rack for tracked and government owned vehicles (GOVs) at the Kofa cantonment. L023-c: Construct electric substation protection and electronics expansion at the Kofa cantonment. L023-d: Construct Howitzer Support\Acceptance Facility at the Kofa cantonment. L023-e: Construct open storage facility at the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (ACP improvements 19,500 ft^2, joint wash rack 900 ft^2, electronics expansion 10,500 ft^2, Howitzer Support\Acceptance Facility 22,500 ft^2, storage facility 70,000 ft^2). Construction-related emissions. Increased impervious area.
L024	Relocate Semi-trailer Delivery Safe Haven.	Construction-related soil disturbance in previously disturbed area (11,000 ft^2). Construction-related emissions. Increased impervious area.
L025	L025-a: Construct Aberdeen Road flood upgrades. L025-b: Construct range road improvements.	Construction-related soil disturbance in previously disturbed area (Aberdeen Road flood upgrades 0.5 mile, range road improvements 31.5 miles). Construction-related emissions. Increased impervious area. Improved traffic flow. Improved safety.
L026	Construct munitions treatment facility.	Construction-related soil disturbance in previously disturbed area (60,000 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-1
Proposed Action Activities Analyzed in Detail – Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]
L027	Construct gun storage facility at the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (22,000 ft^2). Construction-related emissions. Increased impervious area.
L028	Construct five ammunition magazines near the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (4,000 ft^2 each totaling approximately 22,000 ft^2). Construction-related emissions. Increased impervious area.
L029	Construct optical maintenance facility, graded parking area with power pole farm, and perimeter fencing.	Construction-related soil and vegetation disturbance (building 7,500 ft^2, parking area 90,342 ft^2, fencing 2,400 ft^2). Construction-related emissions. Increased impervious area.
L030	L030: Expand LTA to support operational testing and dismounted maneuvers at Muggins/Middle East (only one alternative would be selected): L030-a: 16,640 ac L030-b: 6,331 ac	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (up to 16,640 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers,
L031	L031: Construct MFFS Dining Facility (DFAC) (only one option to be selected): L031-a: at Location Option 1 L031-b: at Location Option 2 L031-c: at Location Option 3	Construction-related soil and vegetation disturbance (building 48,979 ft^2). Construction-related emissions. Increased impervious area.
L032	Expand Bravo LTA.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (828 ac).
L033	Expand Hill 630 LTA.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (1,141 ac).
L034	L034: Construct MFFS Ready Room (only one option to be selected): L034-a: at Location Option 1 L034-b: at Location Option 2 L034-c: at Location Option 3	Construction-related soil and vegetation disturbance (48,979 ft^2). Construction-related emissions. Increased impervious area.
L035	Construct Armament Test Operations and Analysis Facility.	Construction-related soil and vegetation disturbance (60,000 ft^2). Construction-related emissions. Increased impervious area.
L036	Construct Shower Facility at LAAF FOB area.	Construction-related soil and vegetation disturbance. Construction-related emissions. Increased impervious area.
L040	Construct DZ near LAAF (984 ft x 1,969 ft).	Construction-related soil and vegetation disturbance (44.5 ac). Construction-related emissions.
L041	Construct air delivery storage and laboratory facility behind Building 2970.	Construction-related soil and vegetation disturbance (up to 14,851 ft^2). Construction-related emissions. Increased impervious area.
L042	Upgrade facility to an office and hangar in Building 3025.	None, all work confined to interior remodeling of existing facilities.

[a] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.
[b] Measurements are approximate.
[c] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

TABLE 2-1
Proposed Action Activities Analyzed in Detail – Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Impacts [b, c]

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-2
Proposed Action Activities Analyzed Programmatically– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Principal Impacts [b, c]
L001-b	Install hard power/fiber, communication service at K-9 Village southern area.	Construction-related soil and vegetation disturbance along utility lines (4,395 ft^2). Construction-related emissions. Increased impervious area. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L002-b	Install hard power at LAAF.	Construction-related soil and vegetation disturbance along utility lines 12,500 ft^2). Construction-related emissions. Temporary disruption of on-post traffic. Increased impervious area.
L008-b	Construct roadway drainage improvements at CDH.	Construction-related soil and vegetation disturbance from roadway drainage improvements 370,000 ft^2). Construction-related emissions.
L013-b	Install hard power, fiber, and phone service to the Threat Systems and Target Simulations Buildings 3572 and 3574.	Construction-related soil and vegetation disturbance along utility lines 100 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L014-c	Install hard power/fiber and communication service at Comanche Flats.	Construction-related soil and vegetation disturbance along utility lines (7,560 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L015-b	Install hard power, fiber, and communication service at K-9 Village northern area.	Construction-related soil and vegetation disturbance along utility lines (2,962 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L016-b	Install hard power, fiber, and communication service at Site 2.	Construction-related soil and vegetation disturbance along utility lines (250 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
L037	Construct vehicle test course.	Construction-related soil and vegetation disturbance (up to 5,171 ac). Construction-related emissions.
L038	Construct vehicle test course.	Construction-related soil and vegetation disturbance (up to 1,550 ac). Construction-related emissions.

TABLE 2-2
Proposed Action Activities Analyzed Programmatically– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Principal Impacts [b, c]
L039	Construct vehicle test course.	Construction-related soil and vegetation disturbance (up to 2,318 ac). Construction-related emissions.
L100	L100-a: Construct addition to Building 3021. L100-b: Construct Future Combat Systems (FCS) Rotary Class IV hangars, and FCS. large Class IV hangar to the west of LAAF L100-c: Construct large transient UAS hangar with pad access west of LAAF. L100-d: Construct aviation growth hangar at LAAF. L100-e: Construct administrative support building to the west of LAAF. L100-f: Construct U.S. Army Special Operations Command (USASOC) Tactical Hangar at LAAF.	Construction-related soil disturbance in previously disturbed area (addition to Building 3021 5,972 ft^2, FCS Rotary Class IV hangars totaling 17,600 ft^2; FCS large Class IV hangar 5,972 ft^2; UAS hangar 6,200 ft^2, aviation growth hangar 20,250 ft^2, administrative support building 38,500 ft^2, USASOC Tactical Hangar 67,774 ft^2). Construction-related emissions. Increased impervious area.
L101	L101-a: Construct motor pool to the north of LAAF. L101-b: Construct addition to ammunition building rigging bay to the north of LAAF. L101-c: Construct access from Ocotillo Road and ammunition building access road improvements to the north of LAAF. L101-d: Construct storage yard improvements to the north of LAAF.	Construction-related soil disturbance in previously disturbed area (motor pool 26,300 ft^2, addition to rigging bay 10,200 ft^2, access from Ocotillo Road 5,600 ft in length [180,000 ft^2], access road improvements 700 ft in length), storage yard improvements 60,500 ft^2. Construction-related emissions. Increased impervious area.
L102	L102-a: Construct new MFFS Terminal at LAAF/MAA. L102-b: Construct consolidated rigger facility at LAAF/MAA. L102-c: Construct UAS airfield, hangars, taxiways, and UAS flight test area and other supporting infrastructure at LAAF/MAA. L102-d: Construct CASA Transport Aircraft Hangar at LAAF/MAA.	Construction-related soil disturbance in previously disturbed area (MFFS Terminal 28,000 ft^2, consolidated rigger facility 15,500 ft^2, UAS taxiways 2,000 ft in length [120,000 ft^2], UAV airfield and hangars 403,250 ft^2, UAV flight test area and other supporting infrastructure 76,000 ft^2), CASA Transport Aircraft Hangar 153,858 ft^2. Construction-related emissions. Increased impervious area.
L103	L103-a: Construct fire station at CDH. L103-b: Construct fuel point at CDH. L103-c: Construct C-130 parking at CDH. L103-d: Construct hot cargo refueling area at CDH. L103-e: Construct dining facility at CDH. L103-f: Construct airship hangar at CDH.	Construction-related soil disturbance in previously disturbed area (Fire station, fuel point, and C-130 parking, totaling 410,000 ft^2, hot cargo refueling area 240,200 ft^2, dining facility 4,800 ft^2, and airship hangar 1,683,500 ft^2). Construction-related emissions. Increased impervious area. Improved safety.
L104	Construct water treatment facility and a wastewater evaporative pond at CDH.	Construction-related soil and vegetation disturbance (77,100 ft^2). Construction-related emissions. Increased impervious area.
L105	Construct crosswind runway at CDH.	Construction-related soil disturbance in previously disturbed area (6,000 ft in length [300,000 ft^2]). Construction-related emissions. Increased impervious area.

TABLE 2-2
Proposed Action Activities Analyzed Programmatically– Laguna Region
Yuma Proving Ground

Identifier	Proposed Activities [a]	Potential Principal Impacts [b, c]
L106	L106-a: Construct 4 administrative support buildings. L106-b: Construct Installation Logistics Complex.	Construction-related soil disturbance in previously disturbed area (4 administrative support buildings totaling 44,465 ft^2, Installation Logistics Complex 76,833 ft^2). Construction-related emissions. Increased impervious area.
L107	Construct improvements to Cox Field, AT/FP, and Garrison headquarters, and convert Street D to pedestrian walkway.	Construction-related soil disturbance in previously disturbed area (Cox Field 343,500 ft^2, AT/FP 12,000 ft^2, Garrison headquarters 17,200 ft^2, Street D 6,900 ft^2). Short-term on-post traffic disruption. Construction-related emissions. Increased impervious area.
L108	L108-a: Improve truck ACP at the Kofa cantonment. L108-b: Expand range communication at the Kofa cantonment. L108-c: Expand sand blasting at the Kofa cantonment. L108-d: Consolidate optics at the Kofa cantonment. L108-e: Construct second GOV and tracked vehicle maintenance facility at the Kofa cantonment.	Construction-related soil and vegetation disturbance (truck ACP 12,000 ft^2, range communication 20,000 ft^2, sand blasting 44,000 ft^2, optics 370,000 ft^2, second maintenance facility 122,230 ft^2). Construction-related emissions. Increased impervious area.
L109	Construct wax plant expansion at the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (40,500 ft^2). Increased impervious area.
L110	Construct additional ammunition plant similar to Building 3482 and air-conditioned chamber near the Kofa cantonment.	Construction-related soil disturbance in previously disturbed area (ammunition plant 150,000 ft^2 and air-conditioned chamber 40,000 ft^2). Construction-related emissions. Increased impervious area.
L111	Upgrade equipment and electrical supply at Physical Test Facility (Buildings 3490 and 3130).	None, all work confined to interior remodeling of existing facilities.
L112	Upgrade equipment in vibration test facilities (Buildings 3496, 3495, and 3594).	None, all work confined to interior remodeling of existing facilities.
L113	Upgrade equipment at radiography facility (Building 3493).	None, all work confined to interior remodeling of existing facilities.

[a] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.
[b] Measurements are approximate.
[c] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-3
Proposed Action Activities Analyzed in Detail – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C002	Construct new DZs: C002-a - South Urban DZ (1,640-ft radius) south of Urban DZ. C002-b - Tomahawk Circular DZ 769 (2,297-ft radius). C002-c - Tombstone DZ (984-ft radius). C002-d - Village Circular DZ (984-ft radius). C002-e - Abken DZ (1,640-ft radius). C002-f - Urban Circular Joint Precision Airdrop System (JPADS) DZ (984-ft radius).	Activity-related soil and vegetation disturbance (South Urban DZ 194 ac, Tomahawk Circular DZ 380 ac, Tombstone DZ 70 ac, Village Circular DZ 70 ac, Abken DZ 194 ac, and Urban Circular JPADS DZ 70 ac).
C003	C003-a - Establish small arms impact areas for inert munitions at JERC I. C003-b - Establish small arms impact areas for inert munitions at JERC II. C003-c - Establish small arms impact areas for inert munitions at JERC III.	Inert fire weapons use at JERC I: impact areas 62 ac, 62 ac, and 15 ac; JERC II 62 ac; and JERC III 50 ac. These small arms impact areas would use collection boxes for fired ammunition and would be cleaned between tests. Potential air emissions from obscurants.
C004-a	Construct facilities at Gauna Peak.	Construction-related soil and vegetation disturbance at site (facilities 2,500 ft^2). Construction-related emissions. Increased impervious area.
C005-a	Construct building at Site 18.	Construction-related soil and vegetation disturbance at site (building 1,600 ft^2). Construction-related emissions. Increased impervious area.
C006	Establish Phoenix West Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (262 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants.
C007-a	Construct runway extension, aircraft shelter, and POL storage at Phoenix UAS site.	Construction-related soil and vegetation disturbance (runway extension 75,000 ft^2, aircraft shelter 8,000 ft^2, POL storage 900 ft^2. Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C008-a	Construct building at Site 16.	Construction-related soil and vegetation disturbance at site (building 1,600 ft^2). Construction-related emissions. Increased impervious area.
C009	Establish North UAS Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (275 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants.
C010	Construct aircraft shelter, POL storage, and graded parking lot at North UAV complex.	Construction-related soil and vegetation disturbance (aircraft shelter 43,500 ft^2, POL storage 900 ft^2, and parking lot 7,500 ft^2). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.

TABLE 2-3
Proposed Action Activities Analyzed in Detail – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C011	Establish La Posa West Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (395 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants.
C012-a	Construct building and concrete pad at PSS Test Area (west of La Posa DZ).	Construction-related soil and vegetation disturbance at site (building 2,500 ft^2, pad 5,000 ft^2).
C014	C014-a: Install shade structure at Stinger Pole Target Area.	Minimal soil and vegetation disturbance to place support poles (shade structure 400 ft^2).
C015	Construct Intelligence, Surveillance, and Reconnaissance/Electro-optical (ISR/EO) Ground Truth Reference Sites at: C015-a: Yuma Wash (33.156, -114.485) C015-b: Middle Mountain Road (33.063, -114.358) C015-c: Mule Wash (33.432, -114.503) C015-d: (33.446, -114.471) C015-e: (33.477, -114.286) C015-f: (33.444, -114.325) C015-g: (33.448, -114.275) C015-h: (33.421, -114.279) C015-i: (33.408, -225.360) C015-j: (33.389, -114.303) C015-k: (33.387, -114.366) C015-l: (33.347, -114.286) C015-m: (33.297, -114.395) C015-n: (33.165, -114.480) C015-o: (33.122, -114.299) C015-p: (33.090, -114.447) C015-q: (33.081, -114.353) C015-r: (33.967, -114.422)	Construction-related soil and vegetation disturbance (each site - 2,000 ft^2).
C016	Rebuild target for long-range missile firing at Maverick Target.	None – existing target to be rebuilt.
C017-a	Construct building, bomb-proof shelter, shade structure, concrete or asphalt pad, and sensor tower at camera mount (CM) 4.	Construction-related soil and vegetation disturbance at site (building 1,500 ft^2, bomb-proof shelter 2,000 ft^2, shade structure 400 ft^2, pad 40,000 ft^2, and 65-ft to 130-ft sensor tower 100 ft^2). Construction-related emissions. Increased impervious area.
C018	Construct landing pad at CM 1.	Construction-related soil and vegetation disturbance (pad 90,000 ft^2). Increased impervious area.
C019	Construct building and concrete pad at Z-12.	Construction-related soil and vegetation disturbance (building 2,000 ft^2 and pad 90,000 ft^2). Construction-related emissions. Increased impervious area.
C020-a	Construct sensor tower, buildings, air-conditioning, and concrete pad at Site 9.	Construction-related soil and vegetation disturbance at site (sensor tower 65-ft to 130-ft tall 100 ft^2, buildings 2,000 ft^2, air-conditioned facility 1,000 ft^2, pad 40,000 ft^2). Increased impervious area.

TABLE 2-3
Proposed Action Activities Analyzed in Detail – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C021 (activities centered at -114.356, 33.077)	C021-a: Construct secure building with reinforced concrete floors and ramp to building. C021-b: Construct multiple buildings, water tank, POL storage area, and graded parking. C021-c: Construct aircraft shelter. C021-d: Clear launch/recovery area.	Construction-related soil and vegetation disturbance (total area for C021-a through C021-d: 193,284 ft^2). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C022 (activities centered at -114.36, 33.074)	C022-a: Construct building, concrete slab, walkways, and fencing. C022-b: Construct aircraft shelter. C022-c: Construct POL storage. C022-d: Relocate meteorological tower. C022-e: Construct runway expansion and taxiway.	Construction-related soil and vegetation disturbance at site (command and control room 2,000 ft^2, walkways 1,800 ft^2, 10,000 ft^2 concrete slab, aircraft shelter 12,000 ft^2, POL storage area 900 ft^2, meteorological tower 100 ft^2, runway expansion 725,000 ft^2, and taxiway 400,000 ft^2). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C023 (activities centered at -114.363, 33.051)	C023-a: Construct multiple buildings, water tank, POL storage area, and graded parking. C023-b: Construct aircraft shelter. C023-c: Clear a launch/recovery area.	Construction-related soil and vegetation disturbance (multiple buildings 2,500 ft^2 each, 30,000 gal water tank 1,000 ft^2, POL storage area 900 ft^2, graded parking area 7,500 ft^2, aircraft shelter 43,500 ft^2, and launch/recovery area 22.8 ac]. Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C024	C024-a: construct aircraft shelter, concrete pad, graded parking area near Inverted Range Control Center (IRCC) Tank Maintenance and Storage Ramada. C024-b: fence and install solar lights, around IRCC Tank Maintenance and Storage Ramada compound.	Construction-related soil and vegetation disturbance (shelter 1,600 ft^2, pad 90,000 ft^2, graded parking area 250,000 ft^2, and fence 4,000 ft^2). Construction-related emissions. Increased impervious area. Reduced long-term use of fossil fuels by using solar lights.
C025-a	Construct runway, taxiway, aircraft shelter, and building at IRCC.	Construction-related soil and vegetation disturbance at site (runway 27.5 ac, taxiway 14 ac, aircraft shelter 12,000 ft^2, and building 2,000 ft^2). Construction-related emissions. Increased impervious area.
C026	C026-a: Construct ramp to existing building, and rollup door to existing building, and install solar lights at Site 10 Missile Test Facility. C026-b: Construct concrete landing pad.	Construction-related soil and vegetation disturbance at site (ramp 500 ft^2 and landing pad 90,000 ft^2). Increased impervious area. Reduced long-term use of fossil fuels by using solar lights.
C027	C027-a: Expand flat area on top of hill, and construct facility, concrete pad, and sensor tower at Site 12. C027-b: Construct road leading from the sensor building on the top of the hill at Site 12A down to the Persistent Threat Detection System (PTDS) Site.	Construction-related soil and vegetation disturbance (total area for C027-a: 10.2 ac and for road 34,850 ft^2). Increased impervious area.
C029-a	Construct buildings and concrete pad at Aerostat Mooring Site.	Construction-related soil and vegetation disturbance at site (buildings 2,000 ft^2, pad 10,000 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-3
Proposed Action Activities Analyzed in Detail – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C030-a	Construct aircraft shelter, multiple buildings, water tank, POL storage area, and graded parking area, and clear a launch/recovery area east of Rocket Alley.	Construction-related soil and vegetation disturbance at site (aircraft shelter 52,500 ft, command and control building 2,000 ft^2, office building 600 ft^2, maintenance building 900 ft^2, water tank 30,000 gallons 1,000 ft^2, POL storage area 900 ft^2, graded parking area 7,500 ft^2, and UAS launch/recovery area clearing vegetation of 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C031	Utilize Site 6 as a meteorological station.	None, existing disturbed area.
C032	Renovate Large Multi-Purpose Environmental Chamber (Building 6015).	None, action limited to renovation within existing building footprint.
C033-a	Construct aircraft shelter, multiple buildings, concrete pad, water tank, POL storage area, and graded parking area, and clear a launch/recovery area at C-17.	Construction-related soil and vegetation disturbance at site (aircraft shelter 52,500 ft^2, command and control building 2,000 ft^2, office building 600 ft^2, maintenance building 900 ft^2, pad 5,000 ft^2, 30,000-gallon water tank 1,000 ft^2, POL storage 900 ft^2, graded parking area 7,500 ft^2, and UAS launch/recovery area clearing vegetation of 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area. Reduced potential for POL spills.
C034-a	Expand size of Graze Range Impact Areas by consolidating 7 individual impact areas into a single larger area.	Long-term soil and vegetation disturbance from testing and training activities (527 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants.
C035	Expand Combined Live Fire Exercise Range at OP-9 by consolidating 2 designated impact areas and Prospect Square.	Long-term soil and vegetation disturbance from testing and training activities (200 ac). Inert and explosive fire weapons use. Potential air emissions from obscurants.
C036	Increase use of Prospect Square for bombing or aircraft gunnery.	None, inert and explosive fire weapons use is authorized for this area.
C038	Construct medical evacuation (MEDEVAC) pad.	Construction-related soil and vegetation disturbance at site (MEDEVAC pad 1,000 ft^2). Increased impervious area.
C039	Construct air-conditioned storage facility at Castle Dome Annex (CDA).	Construction-related soil and vegetation disturbance at site (8,000 ft^2). Construction-related emissions. Increased impervious area.
C041	Expand LTA to support operational testing and dismounted maneuver training at Middle Mountain.	Long-term soils disturbance from dismounted maneuver activities (11,230 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers,
C043	Temporarily bury simulated missiles, explosives, etc. off roads for sensor testing. Locations for temporary burials would vary and be determined by specific testing requirements. Locations include: C043-a - All JERC I roads.	Long-term soil and vegetation disturbance from recurring testing activities. Disturbances would be episodic and may be separately widely in space or time.

TABLE 2-3
Proposed Action Activities Analyzed in Detail – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
	C043-b - All JERC II roads. C043-c – All JERC III roads.	
C044	C044-a -Clear MEDEVAC helicopter landing pad at JERC I for evacuations. C044-b -Clear MEDEVAC helicopter landing pad at JERC II for evacuations. C044-c -Clear MEDEVAC helicopter landing pad at JERC III for evacuations.	Construction-related soil and vegetation disturbance (2,500 ft^2 each).
C046	Expand North UAV Compound C046-a: Construct concrete pad. C046-b: Grade project area and install fencing. C046-c: Construct asphalt taxiway.	Construction-related soil and vegetation disturbance for pad (23,808 ft^2), project area and fencing (25,704 ft^2), and taxiway (62,500 ft^2). Increased impervious area.
C047	Create 23 TGPs at: C047-a: Rocket Alley C047-b: CM9 East C047-c: Cibola Target Boundary GP C047-d: Site 16 C047-e: CM9 West C047-f: C17 (North and South) C047-g: Mound C Archer GP C047-h: Mound C GP C047-i: CM1 West C047-j: La Posa DZ C047-k: Site 8 GP C047-l: West Target Road GP C047-m: BM1072 C047-n: Excalibur SW GP C047-o: LADZ GP C047-p: Site 18 GP C047-q: 2.75 Rocket GP C047-r: Ehrenberg GP C047-s: DFR GP C047-t: La Posa South DZ C047-u: Water Tank GP C047-v: LA DZ East C047-w: C17 North M777LWH GP.	Soil and vegetation disturbance (up to 2.2 ac at each site). Any weapons fire would be directed into existing authorized impact areas.
C049	Install acoustic and seismic sensor at Horizontal Impact Area.	Very minor construction-related soil and vegetation disturbance.
C050-a	C050-a: Construct building and UAS launch/recovery site at Simulated Minefield Site to support UAS operations.	Construction-related soil and vegetation disturbance at site (building 1,600 ft^2 and UAS launch/recovery site - vegetation clearing 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area.
C051	Install shade structure at Lightweight Shock Facility.	Construction-related soil and vegetation disturbance (400 ft^2).
C052	Establish CM 7 Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (1,270 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.

TABLE 2-3
Proposed Action Activities Analyzed in Detail – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
C053	Establish CM 4 North Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (1,510 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C054	Construct Yuma Wash ECUT expansion.	Construction-related soil and vegetation disturbance (78,400 ft^2).
C055	Establish Multi-Purpose North Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (567 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C056	Establish Multi-Purpose South Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (3,823 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C057	Expand Rocket Alley Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (2,127 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C058	Establish Aerial Weapons Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (2,452 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C059	Establish East Target Road Impact Area.	Long-term soil and vegetation disturbance from testing and training activities (2,531 ac). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C061	Create LTA to support operational testing and dismounted maneuver training at JERC I/ Saderville.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (8,437 ac). Note, additional NEPA analysis would be required for any bivouac areas. The detailed analysis only addresses dismounted maneuvers,
C062	Create LTA to support operational testing and dismounted maneuver training at JERC II.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (3,503 ac). Note, additional NEPA analysis would be required for any bivouac areas. The detailed analysis only addresses dismounted maneuvers,
C063	Create LTA to support operational testing and dismounted maneuver training at JERC III.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (4,312 ac). Note, additional NEPA analysis would be required for any bivouac areas. The detailed analysis only addresses dismounted maneuvers,
C065	C065: Create LRA Impact Areas: C065-a: LRA Impact Area 1 C065-b: LRA Impact Area 2 C065-c: LRA Impact Area 3 C065-d: LRA Impact Area 4	Long-term soil and vegetation disturbance from testing and training activities (9.9 ac for each site). Inert and explosive weapons fire use. Potential air emissions from obscurants.
C066	C066-a: Construct aerial cable drop site for drop testing in mountains north of Prospect Square. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, 328-ft target area. C066-b: Construct an approximately 2.5-	Vegetation and soil disturbance to create a passable access path to the proposed location. Terrain at this location would require cost-prohibitive road work to create a passable access path. In addition, this location has airspace conflicts with Aviation and Air Delivery test missions. Construction-related soil and vegetation disturbance (2 cable sites [each 11,065 ft^2], target area [87,855 ft^2], and access

TABLE 2-3
Proposed Action Activities Analyzed in Detail – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Impacts [c, d]
	mile access trail to the target area in mountains north of Prospect Square.	trail [3 ac]).

[a] The project originally proposed as C028 has been removed from direct analysis in this document. Due to a time critical need for implementation, this activity was analyzed through a separate and specific NEPA document. This activity is considered in the analysis of cumulative impacts in this document.
[b] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.
[c] Measurements are approximate.
[d] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-4
Proposed Action Activities Analyzed Programmatically – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]
C001	Construct vehicle test course.	Construction-related soil and vegetation disturbance (up to 4,644 ac). Construction-related emissions.
C004-b	Install hard power/fiber and communication service at Gauna Peak.	Construction-related soil and vegetation disturbance along utility lines (5,848 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C005-b	Install hard power, water, sewer, and communication service at Site 18.	Construction-related soil and vegetation disturbance along utility lines (87,990 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C007-b	Install hard power/fiber and communication service at Phoenix UAS site.	Construction-related soil and vegetation disturbance along utility lines (26,870 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C008-b	Install hard power, water, sewer, and communication service at Site 16.	Construction-related soil and vegetation disturbance along utility lines (1,050 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C012-b	Install hard power/fiber at PSS Test Area (west of La Posa DZ).	Construction-related soil and vegetation disturbance along utility lines (31,090 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C013	Install hard power/fiber and communication service at Electronic Common Use Test (ECUT) area.	Construction-related soil and vegetation disturbance along utility lines (47,970 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.

TABLE 2-4
Proposed Action Activities Analyzed Programmatically – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]
C014-b	Install hard power to Stinger Pole Target Area.	Minimal soil and vegetation disturbance along utility lines (2.68 ac). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C017-b	Install phone service at CM 4.	Construction-related soil and vegetation disturbance along utility lines (9,575 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C020-b	Install hard power and communication service at Site 9.	Construction-related soil and vegetation disturbance along utility lines (7,880 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C021-e	Install hard power/fiber and communication service centered at (-114.356, 33.077).	Construction-related soil and vegetation disturbance along utility lines (1,810 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C023-d	Install hard power/fiber and communication service centered at (-114.363, 33.051).	Construction-related soil and vegetation disturbance along utility lines (216 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C025-b	Install hard power/fiber adjacent to existing helicopter pad at IRCC.	Construction-related soil and vegetation disturbance along utility lines (1,245 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C026-c	Install hard power/fiber at Site 10 Missile Test Facility.	Construction-related soil and vegetation disturbance along utility lines (1,670 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C029-b	Install generators and hard power/fiber at Aerostat Mooring Site.	Construction-related soil and vegetation disturbance along utility lines (12,220 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C030-b	Install hard power/fiber and communication service east of Rocket Alley.	Construction-related soil and vegetation disturbance along utility lines (13,500 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C033-b	Install hard power/fiber and communication service at C-17.	Construction-related soil and vegetation disturbance along utility lines (1,418 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.

TABLE 2-4
Proposed Action Activities Analyzed Programmatically – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]
C034-b	Install hard power to Graze Range.	Construction-related soil and vegetation disturbance along utility lines (10,123 ft^2). Construction related air emissions Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C037	Install hard power to 40-ft drop tower.	Construction-related soil and vegetation disturbance along utility lines (3,444 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C040	Install hard power to the Cibola Region North Range.	Construction-related soil and vegetation disturbance along utility lines (3.59 ac). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C042-a	Install relocatable instrumentation sites along all JERC I roads. Instrumentation sites would be moved to accommodate specific testing requirements. Each 20-ft instrumentation trailer requires a staging area with a 20-ft radius.	Soil and vegetation disturbance (less than 0.5 ac per site).
C042-b	Install relocatable instrumentation sites along all JERC II roads. Instrumentation sites would be moved to accommodate specific testing requirements. Each 20-ft instrumentation trailer requires a staging area with a 20-ft radius.	Soil and vegetation disturbance (less than 0.5 ac per site).
C042-c	Install relocatable instrumentation sites along all JERC III roads. Instrumentation sites would be moved to accommodate specific testing requirements. Each 20-ft instrumentation trailer requires a staging area with a 20-ft radius.	Soil and vegetation disturbance (less than 0.5 ac per site).
C045	Construct MFFS Forward Staging Area.	Construction-related soil and vegetation disturbance (50 ac). Increased impervious area.
C048	Install hard power to Detection and Recognition Target Array (DET/REC) target in the Cibola Range.	Construction-related soil and vegetation disturbance along utility lines (163,310 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C050-b	Install hard power, water, sewer, and communication service at Simulated Minefield Site.	Construction-related soil and vegetation disturbance along utility lines (5,619 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
C060	Create LTA to support operational testing and dismounted maneuver training at TOW Town.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (29,010 ac).
C064	Create LTA to support operational testing and dismounted maneuver training at Yuma Wash.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (9,907 ac).

[a] The project originally proposed as C028 has been removed from direct analysis in this document. Due to a time critical need for implementation, this activity was analyzed through a separate and specific NEPA document. This

TABLE 2-4
Proposed Action Activities Analyzed Programmatically – Cibola Region [a]
Yuma Proving Ground

Identifier	Proposed Activities [b]	Potential Principal Impacts [c, d]

[a] activity is considered in the analysis of cumulative impacts in this document.
[b] Work proposed within existing buildings is not shown on maps because there would be no environmental impacts.
[c] Measurements are approximate.
[d] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-5
Proposed Action Activities Analyzed in Detail – Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Impacts [a, b]
K001	Construct a 1,640-ft radius DZ for personnel and cargo drops in southern portion of East Arm.	Activity-related soil and vegetation disturbance at site (194 ac).
K002	Construct 1,250-ft radius DZ for personnel and cargo drops northeast of East Smart Weapons Test Range (SWTR) Impact Area.	Activity-related soil and vegetation disturbance at site (113 ac) and associated utility lines (0.37 ac).
K003	Expand munitions impact area from north boundary of Echo and Foxtrot to north boundary of contaminated area (Advanced Munitions Range).	Long-term soil and vegetation disturbance from inert and explosive munitions impact (24,309 ac).
K004-a	Construct aircraft shelter, multiple buildings, water tank, POL storage area, and graded parking area, and clear a launch/recovery area at SWTR.	Construction-related soil and vegetation disturbance at site (aircraft shelter 52,500 ft^2, command and control building 2,000 ft^2, office building 600 ft^2, maintenance building 900 ft^2, 30,000-gallon water tank 1,000 ft^2, POL storage area 900 ft^2, graded parking area 7,500 ft^2, and UAS launch/recovery area - vegetation clearing of 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area.
K006	Install launch/recovery systems and a GCS trailer at Tower 48.	Construction-related soil and vegetation disturbance (1,200 ft^2).
K007-a	Construct runway west of S-15 Command and Control Shelter K007-b: Install hard power/fiber and communication service west of S-15 Command and Control Shelter.	Construction-related soil and vegetation disturbance at site (runway 302,800 ft^2) and along utility lines (7,658 ft^2). Construction-related emissions. Increased impervious area. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
K008	Expand munitions impact area to encompass area between Impact Areas Delta and Echo.	Long-term soil and vegetation disturbance from inert and explosive munitions impact (4,467 ac).
K009	Install fiber and permanent Improved Vehicle Tracking System (IVTS) and telemetry relays at Windy Hill.	Construction-related soil and vegetation disturbance at site and associated utility lines (3,950 ft^2).

TABLE 2-5

Proposed Action Activities Analyzed in Detail – Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Impacts [a, b]
K010	Expand munitions impact area north of North Boundary Road between GP 21A and Impact Area Alpha (Advanced Munitions Range).	Long-term soil and vegetation disturbance (980 ac) from inert and explosive munitions impact.
K011	Renovate site and construct new control room and firing chamber at GP 5.	Construction-related soil and vegetation disturbance (1,500 ft^2). Construction-related emissions. Increased impervious area.
K012-a	Construct two permanent reinforced concrete buildings to house personnel, equipment, and ammunition, and new access road at GP 18.	Construction-related soil and vegetation disturbance (7,190 ft^2) Construction-related emissions. Increased impervious area.
K013	Construct permanent reinforced concrete building and additional building to house weapons at GP 21.	Construction-related soil and vegetation disturbance (buildings 3,600 ft^2 each). Construction-related emissions. Increased impervious area.
K014	Construct ISR/EO Ground Truth Reference Sites at: K014-a: (32.846, -114.336) K014-b: (32.967, -114.239) K014-c: (32.932, -114.151) K014-d: (32.822, -114.196) K014-e: (32.990, -113.955) K014-f: (32.930, -113.926) K014-g: (32.836, -114.016) K014-h: (32.867, -113.922) K014-i: (32.841, -113.866) K014-j: (32.986, -113.812) K014-k: (32.904, -113.791) K014-l: (32.020, -113.758) K014-m: (32.957, -113.666)	Construction-related soil and vegetation disturbance (each: 2,500 ft^2).
K015	Construct permanent building at GP 21A.	Construction-related soil and vegetation disturbance at previously disturbed site (3,600 ft^2). Construction-related emissions. Increased impervious area.
K016	Construct permanent building at GP 17A.	Construction-related soil and vegetation disturbance at previously disturbed site (3,000 ft^2). Construction-related emissions. Increased impervious area.
K017	Construct permanent building at GP on Growl Road in southeast corner of Echo Munitions Impact Area.	Construction-related soil and vegetation disturbance at previously disturbed site (3,000 ft^2). Construction-related emissions. Increased impervious area.
K018	Construct permanent reinforced concrete building at GP Splinter.	Construction-related soil and vegetation disturbance (3,000 ft^2). Construction-related emissions. Increased impervious area.
K019	Construct permanent reinforced concrete building at GP 19.1.	Construction-related soil and vegetation disturbance (3,000 ft^2). Construction-related emissions. Increased impervious area.

TABLE 2-5

Proposed Action Activities Analyzed in Detail – Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Impacts [a, b]
K020	Construct permanent reinforced concrete building at GP 11.1.	Construction-related soil and vegetation disturbance. (3,000 ft^2). Construction-related emissions. Increased impervious area.
K024	K024-a: Construct aerial cable drop site for drop testing in mountains south of Pole Line Road. Activity includes two cables suspended between mountain peaks, winches and pulleys for each cable, 328-ft target area. K024-b: Construct an approximately 0.6-mile access trail to the target area in mountains south of Pole Line Road.	Construction-related soil and vegetation disturbance (2 cable sites [each 11,065 ft^2], target area [87,855 ft^2], and access trail [0.75 ac]).
K026	Expand LTA to support operational testing and dismounted maneuver training at SWTR.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (8,840 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers,
K030	Construct runway, taxiway, aircraft shelter, command and control room, simulator training room, classroom, maintenance area, POL storage area, graded area for parking, concrete or asphalt pad, clear area for GCSs, and clear area for UAS launch/recovery at East Arm.	Construction-related soil and vegetation disturbance at site (and taxiway 3,400,000, aircraft shelter 12,000 ft^2, command and control room 2,000 ft^2, simulator training room 1,600 ft^2, classroom 2,000 ft^2, maintenance area 2,000 ft^2, POL storage area 900 ft^2, graded area for parking 7,500 ft^2, pad 250,000 ft^2, clear area for GCSs 30,000 ft^2 and clear area for UAS launch/recovery 30,000 ft^2). Construction-related emissions. Increased impervious area.
K031	Construct lagoon for Kofa Sewage Lagoon Expansion.	Construction-related soil and vegetation disturbance at site (sewage lagoon 146,545 ft^2). Construction-related emissions.

[a] Measurements are approximate.
[b] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

TABLE 2-6

Proposed Action Activities Analyzed Programmatically – Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Principal Impacts [a, b]
K004-b	Install hard power/fiber and communication service at SWTR.	Construction-related soil and vegetation disturbance along utility lines (3,883 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
K005	Install hard power/fiber and communication service at Tower L.	Construction-related soil and vegetation disturbance along utility lines (450 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.

TABLE 2-6

Proposed Action Activities Analyzed Programmatically – Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Principal Impacts [a, b]
K007-b	Install hard power/fiber and communication service west of S-15 Command and Control Shelter.	Construction-related soil and vegetation disturbance along utility lines (7,658 ft^2). Construction-related emissions. Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power.
K009	Install fiber and permanent Improved Vehicle Tracking System (IVTS) and telemetry relays at Windy Hill.	Construction-related soil and vegetation disturbance at site and associated utility lines (3,950 ft^2).
K012-b	Install hard power and communication services at GP 18.	Construction-related soil and vegetation disturbance along utility lines (530 ft^2). Construction-related emissions.
K021	Create LTA to support operational training and dismounted maneuver training at East Arm.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (28,233 ac).
K023	Install hard power and communication services to Hazard Classification Deflagration test area.	Construction-related soil and vegetation disturbance along utility lines 11,230 ft^2). Long-term reduction in fossil fuel use and air emissions from replacement of generators with hard power. Construction-related emissions.
K025	K025-a: Construct East Kofa Operations Center, including a small building complex, water well, septic system, perimeter fencing, vehicle maintenance area, storage areas, tactical vehicle wash rack, and 40-ton crane. K025-b: Install hard power and, communication service at East Kofa Operations Center.	Construction-related soil and vegetation disturbance (10 ac) and 1,370 ft^2 for utilities.
K027	Create LTA to support operational testing and dismounted maneuver training at Tower 71.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (3,446 ac).
K028	Create LTA to support operational testing and dismounted maneuver training at SCAM Flats.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (12,660 ac).
K029	Extend water line from Countermine Test and Training Range to Bldg 3970 and Bldg 3971. Install fire suppression system in Bldg 3971.	Construction-related soil and vegetation disturbance (33,010 ft^2).

[a] Measurements are approximate.
[b] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

Appendix 2. Memorandum of Understanding between U.S. Department of Interior Fish and Wildlife Service Kofa and Imperial National Wildlife Refuges, Bureau of Land Management, and Department of Army Yuma Proving Ground.

MEMORANDUM OF UNDERSTANDING

Between

U.S. Department of the Interior
Fish & Wildlife Service
Kofa, Imperial and Cibola National Wildlife Refuges

U.S. Department of the Interior
Bureau of Land Management
Lower Colorado River District, Yuma Field Office

and

U.S. Department of Defense
Department of the Army
Yuma Proving Ground

I. INTRODUCTION

A. This Memorandum of Understanding ("MOU") provides procedures and guidance for cooperation and collaboration on wildland fire issues on certain Federal lands. The United States Department of the Interior (DOI), the U.S. Fish and Wildlife Service, Kofa, Imperial, and Cibola National Wildlife Refuges (hereafter referred to as "USFWS"); DOI, Bureau of Land Management, Lower Colorado River District, Yuma Field Office (hereafter referred to as "BLM"); and the United States Department of Defense, Department of the Army, Yuma Proving Ground (hereafter identified as YPG); the USFWS, BLM, and YPG are jointly hereafter referred to as "the Parties."

B. The Parties have a common goal to minimize the impacts of wildland fire on the desert landscape. The mission of YPG is extremely sensitive and the BLM and USFWS recognize the importance of security procedures and policy. The USFWS refuges are exceptionally sensitive to wildfires due to the potential destruction of important wildlife habitat. BLM lands and their multiple resources are also extremely sensitive to the destruction of wildfires.

C. The Parties all have fire organizations specifically designed to support their host agency's mission. Regardless of jurisdiction, cooperative efforts already exist between the Parties' fire organizations to cross-train when applicable and provide a mutually beneficial service as outlined in the Federal Wildland Fire Policy.

D. Safety of firefighters, military personnel, and the public is the number one priority for all actions related to the implementation of this MOU.

II. BACKGROUND – STATEMENT OF MUTUAL BENEFIT

A. Wildfires in southwestern Arizona are a rare event. However, periods of unusually high rainfall, coupled with introduced species, can produce a serious fire threat and pose a major risk to native plants and animals in the desert environment. Additionally, smoke from wildfires and suppression action may hamper vital national security activities on the YPG.

B. It is in the best interest of all Parties to minimize the threat from wildfires and take immediate suppression action, following the agreed upon protocols and safety concerns established in this MOU.

III. PURPOSES

The purposes of this MOU are:

A. To establish a framework of cooperation and coordination for the suppression of wildfires occurring on, or adjacent to, lands administered by the Parties.

B. To outline the authority and general responsibilities of each Party and provide an Annual Operating Plan (Appendix B) to define the specific operating procedures.

C. To establish agreed-upon protocol and procedures to minimize the threat from wildfires, to provide immediate suppression actions, and to provide for safe, efficient, and effective operations.

D. To document established security and safety protocols to be followed for wildland fire suppression.

IV. AUTHORITY

A. The authorities of the USFWS to enter into this MOU include, but are not limited to:

1. National Wildlife Refuge System Act of 1966; 16 U.S.C 668dd-668ee.

2. DOI Departmental Manual, Part 620: Wildland Fire Management.

3. USFWS Fire Management Handbook.

4. Fish and Wildlife Coordination Act; 16 U.S.C. 661-666(c).

5. Fish and Wildlife Act of 1956; 16 U.S.C 742(f), et seq.

6. Endangered Species Act of 1973; 16 U.S.C. 1531, et seq.

7. Reciprocal Fire Protection Act; 42 U.S.C. 1856.

B. The authorities of the BLM to enter into this MOU include, but are not limited to:

1. Federal Land Policy and Management Act (FLPMA): Preservation and Protection of BLM Lands; 43 U.S.C. 1701-52.

2. DOI Departmental Manual, Part 620: Wildland Fire Management.

3. National Wildlife System Administration Act of 1966: Interagency Agreements; 42 U.S.C. 668dd.

4. Reciprocal Fire Protection Act; 42 U.S.C. 1856.

5. Federal Grant and Cooperative Act OF 1977; 31 U.S.C. 6301-6308.

C. The authorities of the YPG to enter into this MOU include, but are not limited to:

1. Department of Defense (DoD) Instruction 6055.6 DoD Fire Protection Program, October 10, 2000 – E2.5.21.1, E2.5.21.2, 2000.

2. Army Regulation 420–90, 10 October 1997, Fire and Emergency Services, Chapters 2-4.

3. Reciprocal Fire Protection Act of 1995: Reciprocal Fire Protection Agreements; 42 U.S.C.1856a-d, 42 U.S.C. 2210, 42 U.S.C. Chapter 15a.

V. AGENCY CONTACT INFORMATION

The Parties will designate principal contacts and general wildfire contact information as specified in Appendix A to this MOU. The Parties may change their contacts at any time by providing a revised Appendix A to the other Parties.

VI. RESPONSIBILITIES

A. The USFWS and BLM individually and jointly agree to:

1. Notify the appropriate fire contact at YPG of any possibly wildland fire on or near YPG.

2. Recognize that access through UPG lands is at the discretion of YPG. Access is to be considered a rare and infrequent event and limited to mission critical traffic.

3. Follow all procedures as outlined by YPG base security personnel prior to entering YPG lands and adhere to the direction of base police and range control procedures, fire department personnel, and technical specialists concerning airspace coordination, sensitive material, unexploded ordnance, and vehicle and foot traffic while on YPG lands.

4. Provide assistance to YPG Fire Department for wildland fire suppression as requested, subject to USFWS and BLM firefighting resource availability.

5. Follow all DOI, National Wildfire Coordinating Group (NWCG), BLM and USFWS regulations regarding firefighting strategy, tactics, and safety while on YPG lands.

6. Utilize Arizona Interagency Fire Center (AIFC) and/or BLM fire dispatch offices to coordinate any and all aviation requests through YPG. In addition, radio communications are considered mission critical for all firefighting resources and AIFC and/or BLM will be the primary contact for all firefighting personnel while on YPG lands.

B. The YPG agrees to:

1. Provide 24 hour contact numbers for YPG Fire (928-328-2316) and Range Control (CIBOLA: (928) 328-2047; KOFA: (928) 328-3333) to coordinate suppression action on or near YPG lands.

2. Notify AIFC and Yuma dispatch of any wildfires that originate on YPG lands and coordinate with the responsible dispatch office to ensure effective airspace de-confliction.

3. Recognize radio communications as mission critical for all firefighting resources and recognize AIFC and/or BLM fire dispatch office as the primary contact for all firefighting personnel while on YPG lands.

4. Provide clear and concise security and safety protocols for USFWS and BLM fire personnel to follow while on YPG lands. These protocols are contained in the Annual Operating Plan attached to the MOU as Appendix B.

5. Adhere to NWCG guidelines for wildland firefighting while on USFWS and/or BLM lands or when assisting USFWS and/or BLM personnel on a wildland fire within YPG boundaries when USFWS and/or BLM have been requested to manage an incident.

   a. The NWCG Wildland Fire Qualifications System Guide, 310-1, identifies fitness levels for specific positions and assures that all firefighters have the appropriate qualifications to suppress wildfires.

6. Respond to wildfires, when available and as requested, on USFWS and/or BLM land with qualified individuals that meet the minimum NWCG standards for wildland firefighting.

   a. Ensure that response is in accordance with the applicable USFWS and/or BLM fire management plan in effect and mindful of the various sensitive Resources managed by USFWS and/or BLM.

C. The Parties agree to:

1. Recognize assisting agencies that have been requested to respond to wildfires (i.e., Bureau of Indian Affairs and other fire entities) as "cooperators" to this MOU.

2. Adhere to the security and safety protocols contained in the Annual Operating Plan (Appendix B).

3. Adhere to NWCG and the *Interagency Standards for Fire and Fire Aviation Operations* (commonly referred to as the "Red Book") guidelines for wildland Firefighting.

4. Jointly review, update, and approve the Annual Operating Plan (Appendix B) by December 1st of each calendar year this MOU is in effect. The Annual Operating Plan may be amended after a major incident as a part of a joint Debriefing and review.

5. Share expertise, training, and information on such items as prevention, investigation, safety, and training.

VII. IMPLEMENTATION, AMENDMENT, AND TERMINATION

A. This MOU is effective upon signature by the final approving official indicated below.

B. This MOU will remain in force for a period five years from the date of execution and will expire five years from the effective date unless terminated, extended, or renewed in writing.

C. This MOU will be reviewed annually during a pre-determined annual meeting of the Parties' fire personnel no later than December 1st of each calendar year. Subsequent amendments must be through written agreement of all signatories and copies must be provided to all Parties.

D. This MOU may be terminated prior to the expiration date by providing 60 day written notice of termination to all other Parties.

VIII. FUNDING

A. Subject to the availability of funds and necessary authorization therefore, each Party hereto agrees to fund their own expenses associated with the implementation of this MOU. This MOU does not obligate any funds.

B. Any endeavor involving reimbursement or payment of funds among the Parties will be handled in accordance with applicable laws, regulations, and procedures. Such endeavors will be documented by separate agreements or other procurement instruments that shall be made in writing, authorized by appropriate statutory authority, and signed by the appropriate warranted contracting officer. This MOU does not provide such authority.

IX. LIABILITIES/WAIVERS

Each Party waives all claims against every other Party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of the MOU unless gross negligence on any part of any Party is determined.

X. SIGNATURES

All signatories have delegated authority to enter into this MOU. The Parties hereto have executed this MOU on the dates shown below.

U.S. Fish and Wildlife Service:

J. Paul Cornes, Kofa NWR, Refuge Manager
Authorized to sign for Cibola and Imperial NWR

Date July 21, 2006

Bureau of Land Management:

Rebecca Heick, Yuma Field Office Manager

Date July 21, 2006

U.S. Army Garrison:

Carol L. Coleman, Garrison Manager

Date Aug 1, 06

U.S. Army, Yuma Proving Ground:

Stephen D. Kreider, Col., FA, Commanding

Date Aug 2, 2006

APPENDIX A
Agency Contact Information

U.S. Fish and Wildlife Service:

Principal Contact: USFWS, Arizona Fire District
Butch Wilson, Fire Management Officer
P.O. Box 109
Sasabe, Arizona 85633
Office: 520-823-4251, ext. 104
Cell: 520-349-1095

Wildfire Contact (**Fire on/threatening USFWS**):
Arizona Interagency Fire Center (State Fire Dispatch)
AZ State Fire Management Facility
2901 w. Pinnacle Peak Road
Phoenix, Arizona 85027-1002
1-800-309-7081

Bureau of Land Management

Principal Contact: BLM, Yuma Field Office
Rebecca Heick, Yuma Field Office Manager
2555 Gila Ridge Road
Yuma, Arizona 85365
Office: 928-317-3201

Wildfire Contact (**Fire on/threatening BLM**):
Yuma BLM Fire Dispatch
2555 Gila Ridge Road
Yuma, Arizona 85365
Office: 928-317-8656

U.S. Department of the Army, Yuma Proving Ground:

Principal Contact: U.S. Army Garrison Yuma Proving Ground
Ann Marie Scheie, Management Analyst
301 C Street
Yuma, Arizona 85365
Office: 928-328-2074

Wildfire Contact (**Fire on/threatening YPG**):
U.S. Army Garrison, Yuma Proving Ground
Fire Department
301 C Street
Yuma, Arizona 85365
Office: 928-328-2074

APPENDIX B
Annual Operating Plan

This Annual Operating Plan (AOP) is established to support the operational aspects of the approved Memorandum of Understanding (MOU). The AOP will provide specific procedures which will provide for safe, efficient, and effective operations between the Parties to the MOU. As required by the MOU, the AOP will be reviewed and approved by December 1st of each calendar year and may be amended after a major incident.

I. Mutual Aid

The Parties recognize that there may be times when USFWS, BLM, or YPG is involved in emergency or mission critical operations and unable to provide mutual aid. In this case other cooperators (i.e., Bureau of Indian Affairs and other fire entities) may be contacted for assistance.

II. Command Structure

A. Unified command should be used, as appropriate, whenever military and public lands are involved, unless one or more of the Parties requests a single agency Incident Commander (IC). If there is a question about jurisdiction, fire managers shall mutually decide and agree on the command structure as soon as they arrive on scene. Once the decision is made, the incident organization in use shall be relayed to all units on the incident as well as to the dispatch centers.

B. In all cases, the identity of the IC must be made known to all fireline and support personnel.

III. Communications

A. In mutual aid situations the common radio frequency will be Arizona Mutual Aid. It is critical for operational safety that all department/agencies resources establish this common communication frequency as soon as they arrive on scene. Clear text communication should be used during interagency operations.

B. When civilian firefighting air resources are requested to assist in suppression operations in restricted/regulated air space, the responsible dispatch center will contact YPG Range Control prior to launching aircraft to the incident. YPG Range Control and the dispatch center will coordinate air space use and aircraft flight following.

C. Aircraft will establish communication with YPG Range Control to ensure flight plans are authorized prior to entering the air space.

Frequency Identifier	Band Width	TX	TXCG	RX	RXCG
Arizona Mutual Aid	Wideband	154.280		154.280	
Range Control	VHF – Primary	119.0		119.0	
Range Control	UHF West of Kofa Range	248.4		248.4	
Range Control	UHG East of Kofa Range	230.2		230.2	

IV. Boundaries

A. USFWS/BLM resources will not enter onto military lands under the jurisdiction of YPG (hereafter referred to as "YPG lands") for the purpose of wildland fire suppression unless specifically requested and escorted by authorized YPG personnel. The USFWS/BLM fully recognizes the requirement to maintain base security and the concern of unexploded ordnance (UXO) within the boundaries of YPG. All Fire suppression activities on YPG lands will be coordinated through the UPG Fire Department.

B. When YPG resources initially attach or suppress fires on public lands, the responding resources will adhere to land management policies and procedures established in the applicable fire management plan of the jurisdictional agency.

C. The majority of the USFWS Wildlife Refuges and BLM lands adjacent to YPG lands are protected as wilderness or special management areas that limit or restrict off road travel entirely. Responding YPG resources will contact the appropriate dispatch center to obtain suppression guidelines prior to engaging in off road suppression activities.

D. The USFWS/BLM may request access to YPG lands in an effort to assess and evaluated potential threats of fires burning near the boundary with public lands. Access shall be at the full discretion of authorized YPG personnel.

V. Time/Duration

When fires occur solely on public or YPG lands and are not considered a mutual threat, during the first 24 hours of an incident, the responding and requesting resources are in a non-reimbursable state.

VI. Qualifications/Minimum Requirements

A. The USFWS/BLM, under direction provided by the National Wildfire Coordinating Group (NWCG) in a memorandum dated March 22, 2004, agrees to accept YPG's standards for fire personnel qualifications and equipment during initial attack. Once jurisdiction is clearly established, the standards of the jurisdictional agency shall prevail.

B. USFWS/BLM subscribes to the NWCG standards and shall also adhere to NWCG standards regardless of jurisdictional boundaries.

C. When conducting firefighting operations under the YPG Incident Command System (ICS) or on YPG lands, a USFWS/BLM liaison will be assigned to the YPG ICS to ensure applicable agency policies and standards are adhered to. This shall be reciprocated when YPG resources are conducting operations under USFWS/BLM ICS on public lands.

D. When an incident escapes initial attack and converts to extended attack on public lands, all personnel and equipment assigned to the incident shall be required to meet NWCG standards.

VII. Reimbursement/Compensation

The MOU does not authorize the exchange of funds. Costs associated with implementing the MOU may be abridged or negated through joint operations and planning between the Parties. Generally, reimbursement/compensation will, subject to the availability of funds, be negotiated on a case-by-case basis. The appropriate separate authorizing instrument shall be executed to authorize any exchange of funds between the Parties. The type of instrument used shall be determined by the Procurement Officer or other authorized official for the agency initiating the reimbursement/compensation.

VIII. Cooperation

A. An "After Action Review" (AAR) will be conducted within seven (7) days post incident. The AAR is a tool intended for post-evaluation of the incident in order to sustain strengths and improve weaknesses. This process shall not be interpreted as an investigational review.

B. The AAR shall be conducted at the field and departmental level. The IC shall conduct a review in the field with the operational resources and as scheduled with the departments/agencies representatives. The IC will be responsible for facilitating, scheduling and contacting each Party to conduct the AAR.

C. The following organizational entities shall be represented during an AAR:

YPG-Range Control
YPG-Wildlife
YPG-Fire Department
BLM-Yuma Field Office
USFWS-AZ Fire District

D. In an effort to standardize training and meet NWCG fire fighting standards, YPG shall annually submit a list of wildland fire training needs. When capable, USFWS/BLM will facilitate the delivery of NWCG 100-200 level courses to meet these needs. The USFWS will be the primary contact agency in coordinating training agendas.

IX. Dispatch Centers

Dispatch centers shall ensure all resources know the name of the assigned IC and announce all changes in incident command.

A. **To contact/request USFWS fire resources:**

Arizona Interagency Fire Center (State Fire Dispatch)
AZ State Fire Management Facility
2901 W. Pinnacle Peak Road
Phoenix, Arizona 85027-1002
1-800-309-7081

B. **To contact/request BLM fire resources:**

Bureau of Land Management, Yuma Field Office
Yuma BLM Fire Dispatch
2555 Gila Ridge Road
Yuma, Arizona 86406
928-317-8656

C. **To contact/request YPG fire resources:**

U.S. Army Garrison, Yuma Proving Ground
Fire Department
301 C Street
Yuma, Arizona 85365
928-328-2117

United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer to:
AESO/SE
02EAAZ00-2014-F-0161

September 9, 2014

Mr. Gordon Rogers
Garrison Manager
Department of the Army
U.S. Army Installation Management Command
Headquarters, United States Army Garrison, Yuma
Yuma, Arizona 85365-9498

RE: Formal Section 7 Consultation on Activities and Operations at the United States Army Garrison Yuma Proving Ground, Yuma and La Paz Counties, Arizona

Dear Mr. Rogers:

This letter is in response to your March 25, 2014, request for formal consultation for Activities and Operations at the United States Army Garrison Yuma Proving Ground (YPG), Yuma and La Paz Counties, Arizona. Your request was received by us on March 25, 2014, and was made pursuant to section 7 of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 *et seq*.). At issue are the impacts to Sonoran pronghorn (*Antilocapra americana sonoriensis*). YPG is located within the nonessential experimental population (or 10(j)) range of the Sonoran pronghorn, and therefore, for section 7 consultation purposes, the population of Sonoran pronghorn on YPG is treated as a species proposed to be listed. YPG is adjacent to Kofa National Wildlife Refuge (NWR), where Sonoran pronghorn are treated as a threatened species for section 7 purposes. Accordingly, you specifically requested formal consultation for effects to Sonoran pronghorn on Kofa NWR from the proposed action, as well as our concurrence with your determination that the proposed action will not jeopardize the continued existence of Sonoran pronghorn[1].

[1] From USFWS 2011 (Final rule for the establishment of a nonessential experimental population of Sonoran Pronghorn in southwestern Arizona): When nonessential experimental populations (NEP) are located outside a NWR or National Park Service unit, for the purposes of section 7 we treat the population as proposed for listing and only two provisions of section 7 apply—section 7(a)(1) and section 7(a)(4). In these instances, NEPs provide additional flexibility because Federal agencies are not required to consult with us under section 7(a)(2). Section 7(a)(4) requires Federal agencies to confer (rather than consult) with the USFWS on actions that are likely to jeopardize the continued existence of a species proposed to be listed. The results of a conference are in the form of conservation recommendations that are optional as the agencies carry out, fund, or authorize activities. Because the nonessential experimental population is, by definition, not essential to the continued existence of the species then the effects of proposed actions on the NEP will generally not rise to the level of jeopardizing the continued

This biological opinion is based on the project proposal, literature, telephone conversations, field investigations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the Sonoran pronghorn, effects of military activities and operations on this species, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

CONSULTATION HISTORY

- November, 2013: You contacted us to inform us of your proposed action and to discuss potential effects to Sonoran pronghorn.
- January 6, 2014: We had a conference call with you and Kofa NWR to discuss the proposed action and its potential effects to Sonoran pronghorn on Kofa NWR.
- March 25, 2014: We received your request for formal consultation.
- November 2013 to April 2014: Our office regularly corresponded regarding the proposed action.
- May 19, 2014: We sent you the draft biological opinion.
- June 11, 2014: You sent us your comments on the draft biological opinion.
- June 12, 2014: We sent you a revised draft biological opinion with changes made based on your June, 11, 2014 comments and a subsequent conversation with you.
- June 23 to August 27, 2014: Our offices and Kofa NWR had a number of communications regarding the firing of munitions over Kofa NWR.
- August 21, 2014: You sent us your final comments on the draft biological opinion, including comments clarifying the issue regarding firing over Kofa NWR.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

A complete description of the proposed action is found in your March 2014 Biological Evaluation (BE) for Continued Operations at YPG and August 2013 Draft Programmatic Environmental Impact Statement (DPEIS) to assess the potential impacts associated with current and future military activities and operations at YPG. The proposed action includes current and future military activities and operations at YPG that will or are likely to occur over the next 10 to 20 years, including military testing and training activities, current and future construction and demolition, as well as continued operations and maintenance of the range and facilities, including roads, utilities, and other infrastructure. Much of the proposed action has no effect on Sonoran pronghorn on Kofa NWR, primarily due to the distance of the

---

existence of the species. As a result, a formal conference will likely never be required for Sonoran pronghorn established within the nonessential experimental population area. Nonetheless, some agencies voluntarily confer with the Service on actions that may affect a proposed species.

activities from Kofa NWR. Therefore, these activities will not be described in this section or analyzed in the effects of the action section. The activities of concern for this consultation include those that occur on the Kofa range of YPG (see range descriptions below) (Figure 1), due to the proximity of the Kofa range to Kofa NWR where Sonoran pronghorn are treated as a threatened species for section 7 purposes. The primary activities of concern, which will be described in this section and analyzed in the effects of the action section, include air operations over the Kofa range and NWR; air delivery; firing and impact of munitions; munitions demolition; use and expansion of light training areas; and maintenance of range infrastructure.

YPG covers over 838,000 acres located in Yuma and La Paz Counties in the southwest corner of Arizona about 25 miles north of the city of Yuma. The Kofa NWR is nested within the "U" shape of the YPG borders. YPG is divided into three regions: Cibola, Laguna, and Kofa (Figure 1). The ranges within the three regions are used for:

- Testing and evaluation of weapons, ammunition, explosive ordnance, and related items;
- Air cargo delivery, testing of precision guided and non-precision guided cargo and personnel parachute systems, airdrop certification of equipment and ammunition, certification of aircraft for airdrop operations, external transportability testing, and general Soldier systems testing;
- Development and performance testing of aircraft armament components and systems;
- Testing of computers, software, communications (wireless and wired), networks, data, sensors (radar, electro-optical, infrared, laser, seismic, acoustic, biometrics, hyperspectral, signal detection, etc.), and sensor platforms (aerostats, airships, aircraft, vehicles, towers, etc.);
- Use of Unmanned Aerial Systems (UAS) includes the Ground Control Station (GCS), UAS, launch/recovery systems, and other ancillary equipment. UAS testing includes rotary wing, fixed wing, high altitude long endurance, medium altitude long endurance, high speed jet, and transitional vertical take-off and landing airships;
- Combat and automotive systems testing including the testing and evaluation of wheeled and tracked vehicles, direct fire programs, combat vehicle weapons systems and related munitions, target acquisition systems, vehicle components, communication systems, and related items including fire control systems, fuels, lubricants, and other automotive chemical products;
- Counter Improvised Explosive Devices (IED) Testing which involves the use of large complexes of buildings, roads, bridges and overpasses, and other infrastructure that replicate typical urban settings and overseas combat areas. Much of this activity revolves around electronic warfare; and
- Training and operational testing where troops use various weapons, munitions, vehicles, aircraft, and systems under tactical conditions and includes both vehicle-mounted training and dismounted training.

In addition to ongoing activities, which are described in greater detail below, Table 2.5 of the BE includes an entire list of 31 new activities (and their corresponding reference number) that occur on the Kofa range. Of these, there are four new activities that may affect Sonoran pronghorn on Kofa NWR due their proximity to the refuge; these are included in the following table and described in greater detail below (and analyzed in the effects of the action section). Additionally, their location (using the reference number) is depicted on Figures 2a and 2b in the Tables and Figures section below.

EXCERPT FROM TABLE 2-5 OF THE BE. FOUR ACTIVITIES (OF 31) THAT MAY AFFECT SONORAN PRONGHORN ON KOFA NWR DUE TO THEIR PROXIMITY TO KOFA NWR.
Proposed Action Activities Analyzed in Detail – Kofa Region
Yuma Proving Ground

Identifier	Proposed Activities	Potential Impacts [a, b]
K002	Construct 1,250-ft radius dropzone for personnel and cargo drops northeast of East Smart Weapons Test Range (SWTR) Impact Area.	Activity-related soil and vegetation disturbance at site (113 ac) and associated utility lines (0.37 ac).
K003	Expand munitions impact area from north boundary of Echo and Foxtrot to north boundary of contaminated area (Advanced Munitions Range).	Long-term soil and vegetation disturbance from inert and explosive munitions impact (24,309 ac).
K004-a	Construct aircraft shelter, multiple buildings, water tank, POL storage area, and graded parking area, and clear a launch/recovery area at SWTR.	Construction-related soil and vegetation disturbance at site (aircraft shelter 52,500 ft^2, command and control building 2,000 ft^2, office building 600 ft^2, maintenance building 900 ft^2, 30,000-gallon water tank 1,000 ft^2, POL storage area 900 ft^2, graded parking area 7,500 ft^2, and UAS launch/recovery area - vegetation clearing of 162 ac and adding 282,600 ft^2 of ABC in center of area). Construction-related emissions. Increased impervious area.
K026	Expand light maneuver training area to support operational testing and dismounted maneuver training at SWTR.	Vegetation and soil disturbance from dismounted maneuvers and bivouacs (8,840 ac). Note, additional NEPA analysis would be required for any new bivouac areas. The detailed analysis only addresses dismounted maneuvers.

[a] Measurements are approximate.
[b] Measures to eliminate or reduce potential impacts are discussed in text under each resource, as appropriate.

Note: Some project identifiers in maps represent unrelated activities that are grouped due to geographical proximity. Those that include a letter with the identifier are considered independent activities. Graphic representation on maps may be larger or smaller than the project area.

Military Testing and Training

Aerial operations

Airspace and flights

There is restricted military airspace over most of YPG and Kofa NWR (Figure 3). The majority of YPG restricted airspace is used for test missions; however, the U.S. Department of Justice operates a Special Use Airspace (R-2309), which restricts military mission access as well as commercial use. Outside of the Department of Justice Special Use Airspace, the restricted airspace on YPG is prioritized for testing and training conducted at the installation. YPG restricted airspace allows testing of UASs and weapons systems, such as mortars and rockets. Secondary priority for use of this restricted airspace is for other military users. This airspace is also occasionally used for other non-testing and training purposes such as aerial surveys for wildlife, reconnaissance, or transportation of people or equipment. Aircraft used in YPG airspace includes a variety of fixed wing aircraft from small UAS to large cargo planes used for air delivery. Helicopters are typically active in R-2306A and R-2306B, which are several miles from Sonoran pronghorn habitat, although as explained below, helicopters may occasionally be used in areas where pronghorn occur or may occur. Aircraft do not hover in one area over the refuge, but pass by, which reduces disturbance to wildlife.

YPG conducts flights over the refuge daily within airspace R-2307, R-2308A, R-2308B, and R-2308C (Figure 3). Airspace **R-2308A** is primarily over the Kofa NWR and covers all of the King Valley area within the refuge. The lower limit of this airspace is 1,500 feet above ground level (AGL); however, the YPG Operational Noise Management Plan (ONMP) identifies Kofa NWR as an area where pilots are recommended to remain at least 2,000 feet AGL. That said, flights this low are extremely rare and almost all of the military use of this airspace occurs between 8,000 and 32,000 feet AGL. Military use of helicopters is very rare within R-2308A (the primary airspace over Kofa NWR), but may occasionally occur.

Airspace R-2307 covers the YPG Kofa Firing Range and the southern portion of the Kofa NWR and ranges from surface to unlimited altitude. Fixed wing flights very rarely occur at low levels; however, helicopters may occasionally fly at low levels in R-2307. Helicopters will be used to locate people on Kofa NWR (primarily in R-2307) where large portions of an SDZ overlap the refuge (see details in the *Munitions* section below).

Aerial delivery

Aerial delivery includes air cargo delivery, testing of precision guided and non-precision guided cargo and personnel parachute systems, airdrop certification of equipment and ammunition, certification of aircraft for airdrop operations, external transportability testing, and general soldier systems testing. Aerial delivery is only conducted in drop zones (DZ). Restricted airspace over the DZs is controlled by YPG. Testing consists of airdrops of personnel, equipment, and ammunition. Most airdrop testing and training is done during the day, with occasional night operations.

Drop Zones are equipped with instrumentation necessary for tracking dropped loads from the aircraft to the ground. Instrumentation such as radars or optical sensors, some of which may be truck mounted or hard mounted, is placed outside the DZs for safety purposes but can be placed near the Kofa NWR boundary. Once cargo or personnel have landed they are picked up by vehicles driving across the DZ, sometimes cross country. The type of vehicle used to recover loads varies greatly depending on the size of cargo dropped and can range from small utility vehicles to large heavy hauling trucks. There are currently no DZs in or near Sonoran pronghorn habitat near Kofa NWR; however, a new DZ is proposed for construction in the King Valley near Kofa NWR (identifier K002, Figure 2a and 2b). See more information about the proposed DZ below under the section on Facilities Construction, Operation, and Maintenance.

Ground-based operations

Munitions

All munitions firing and ordnance deliveries occur on YPG and not within Kofa NWR. The impact area boundary within potential pronghorn habitat is located approximately one kilometer south of the Kofa NWR boundary (Figure 2a and 2b). Rounds are fired from established gun positions that are either permanent or temporary and there are numerous gun positions across YPG, including within the impact areas.

YPG carefully plans each shot on the range with consideration of the gun position from which ordnance is fired to the target or impact area. Test directors take into account the capabilities and past performance of the ordnance and blast radius to develop a SDZ (also called a safety fan) in which the munitions could inadvertently land. Range control coordinates these firing programs to ensure that the SDZs remain on YPG or within previously established buffer zones on Kofa NWR. The algorithm used to establish the dimensions for the SDZ uses a 1/1,000,000 probability of munitions landing outside the fan. Currently between about 940,000 to 1,620,000 rounds, including small arms, are fired annually on YPG. The

number of artillery rounds is between, 210,000 and 420,000 rounds per year depending on the demand for testing.

A letter dated December 3, 1958, from the Secretary of the Interior granted permission to YPG to use 171,000 ac of Kofa NWR as an artillery fire buffer zone. This buffer zone allows munitions to be fired over, but not into Kofa NWR. Instances of munitions landing outside the SDZ or safety fan or on the refuge are extremely rare; however, there have been past incidents of munitions being fired over Kofa NWR and landing on the refuge. To provide safety to people and natural resources, use of this buffer area will be in accordance with stipulations provided by the 1958 permission letter. Any firing program that involves SDZs on or munitions fired over Kofa NWR will require extensive coordination with the refuge. YPG will verify there are no people in the portion of an SDZ extending into the Kofa NWR primarily by visual or electronic means. Helicopters, however, will be used to locate people only where large portions of an SDZ overlap Kofa NWR (primarily in R-2307).

In the rare event that munitions fall onto Kofa NWR, YPG will coordinate with the refuge to remediate the impacts as soon as possible. Additionally, YPG will ensure impacts to Sonoran pronghorn are avoided to the extent possible. Due to the locations of the targets and gun positions as well as safety planning for firing programs, it is highly unlikely that pronghorn would be directly injured or killed by munitions.

Each round fired on YPG is carefully tracked and if ordnance lands outside the authorized area, including Kofa NWR, it is removed or destroyed. YPG also recovers or destroys unexploded ordnance that fall outside of authorized areas or that may pose a threat to people on the range. Also, some munitions testing require that each piece of ordnance be recovered for further testing. Field crews may use trucks, all-terrain vehicles, or heavy equipment to access and remove ordnance. If an item is too dangerous to move, it may be detonated in place.

In addition to ongoing munitions testing, the proposed action includes expanding the munitions impact area from the northern boundary of existing impact areas Echo and Foxtrot to the northern boundary of the Ramsdell Ranch impact area and the area previously contaminated by unexploded ordnance (identifier K003; Figure 2a and 2b), which is about one kilometer south of the Kofa NWR southern boundary. Expanding the available munitions impact area will not result in increased frequency of munitions firing; however, it will result in additional impacted areas on YPG. In other words, munitions firing is dependent on the demand for testing, not on the area available for testing. Targets may be placed within the expanded impact area and some tests may require that ordnance be recovered for further testing. Also some tests require temporary gun positions or temporary observation points be established inside the impact area.

Noise from munitions fired on YPG can be heard off the installation, but the intensity of the sound decreases with distance. The noise contour figures from the Installation ONMP indicate that the portion of Kofa NWR that is suitable habitat for Sonoran Pronghorn (i.e. King Valley) is located outside the 57-63 C-Weighted Day-Night Level (CDNL) contour (Figure 4). This means that the magnitude of sound experienced by any pronghorn on the refuge would be less than 57 decibels (dB) for most actual explosions within the impact area on YPG. For comparison, normal conversation between two people three feet apart is approximately 60-65 dB. Explosions from munitions testing and training on YPG in the Castle Dome Mountains along the western and southern boundary of Kofa NWR would be audible to pronghorn in portions of the area they occupy. Because munitions testing and training is relatively constant in this area, the noise from these events may be perceived by Sonoran pronghorn as part of the background noise.

Munitions testing can occasionally result in wildfire occurring on the Kofa range, and in rare instances, on Kofa NWR. Most fires on YPG are very small and isolated due to the sparse nature of fuels in this region. From 2003 to present, there were an estimated 26 fire starts on YPG and a total of 3,170 acres burned on YPG. Of that total, 3,000 acres was from one event, the King Valley Fire in September 2005. The King Valley Fire, ignited due to munitions impact on YPG, is the only major documented fire originating on YPG in over 70 years of military testing and training activities. In addition to burning 3,000 acres on YPG, it burned 26,000 acres on Kofa NWR for a total of about 29,000 acres. The King Valley Fire was carried by dry annual plants left from the wet winter, in particular, dried Indian wheat (*Plantago insularis*) and Mediterranean grass (*Schismus barbatus)*, along with other species. Cured herbaceous vegetation carried the fire over the terraces between the ephemeral washes and also along the washes where it provided ladder fuels to the denser woody vegetation. Although this type of fire is very rare, YPG has adopted more effective communication protocols in responding to fires in effort to reduce the spread of such wildfires.

Light Training Area
Light maneuver training areas (LTAs) are for dismounted training with vehicle use restricted to existing improved roads and both maintained and unmaintained unimproved roads. Only incidental off-road vehicle operation related to troop or equipment drop-off or pick-up occurs. Training is conducted in designated areas in all three regions of YPG, including the Kofa region. In most areas, training is limited to company-level (approximately 120 troops) or smaller units.

Training activities in LTAs may include bivouacs, which are located near roads to provide ease of access for troops and portable toilets. However, no new bivouac areas are proposed in the expanded portion of the LTA. Any new proposed bivouac areas would require additional environmental compliance. During bivouacs, no digging or other ground intrusive activities occur and typically previously disturbed areas are selected. Trailer-mounted 60-kilowatt generators may be used during training.

Part of the proposed action includes expansion of an LTA (identifier K026) to support operational testing and dismounted maneuver training at Smart Weapons Test Range (SWTR). Expanding the LTA will result in impacts to vegetation on YPG from human activity and staging of equipment.

Electronic Warfare/Communication/Sensor Testing
YPG conducts testing for a variety of electronic systems including radars, Counter-IED systems, communications devices, and optical sensors. Testing of these items usually involves personnel carrying devices across a test area, or vehicles equipped with the devices driving along an established road to specific test areas. Sometimes temporary antennas may be erected as part of a test. In some tests, a person or vehicle will serve as a target for detection by test devices. This type of testing is likely to occur anywhere on YPG and results very little ground disturbance.

Observation Points
Observation points are used to observe various types of testing on YPG. These points are scattered throughout YPG and are subject to routine access by people and vehicles. Some observation points may include minor structures for housing observers and/or equipment. The closest mapped observation point to the southern boundary of Kofa NWR is 3.4 kilometers to the south; however, observations of testing may be made from anywhere on YPG.

Facilities and Roads Construction, Operation, and Maintenance

The proposed action includes expansion of the existing 110,000 acres of impact areas on the Kofa range by 24,309 acres. Much of this expansion will occur in the King Valley region which is contiguous with Sonoran pronghorn habitat on the Kofa NWR. The purpose of expansion of these impact areas is to add flexibility for target locations and reduce scheduling conflicts between firing programs. Expansion is also intended to minimize the likelihood that any munitions land outside of an impact area.

The proposed action also includes construction of a 1,250-ft radius drop zone (DZ) for personnel and cargo drops northeast of East Smart Weapons Test Range (SWTR) Impact Area (identifier K002; Figures 2a and 2b). Development of this site will include construction of utility lines and testing instrumentation to track dropped loads. The new site will be impacted by vehicles traveling across the DZ to recover dropped items or personnel. See the aerial delivery section above for information on use of DZs.

Also proposed are construction of an aircraft shelter, multiple buildings, a water tank, storage area for petroleum products, and graded parking area, as well as clearing of a launch/recovery area at SWTR (identifier K004-a, Figure 2a and 2b). These activities will occur in an area where current human activity is high and will not be in immediate proximity to the water tank used by pronghorn on YPG. Although the exact location of the construction is not known, they may be within a few kilometers of the southern boundary of Kofa NWR.

Maintenance of range infrastructure such as observation points, utilities, and roads occurs throughout YPG. Observation point maintenance activities are implemented as the need is identified; however, the closest mapped observation point to the southern boundary of Kofa NWR is 3.4 kilometers. Routine maintenance and replacement of existing utility systems (fiber optics, power, water, etc.) is conducted on YPG. Some of these utilities reach within a kilometer of Kofa NWR in Sonoran pronghorn habitat. Unless placed within an existing utility corridor, any new utility line route would require additional environmental compliance. Routine road maintenance on the Kofa range is conducted as the need is identified. The closest this maintenance occurs to Sonoran pronghorn habitat on the Kofa NWR is about 700 meters. Construction of any new roads would require additional environmental compliance. Maintenance of infrastructure may involve different types of vehicles and equipment accessing the various sites.

Conservation Measures

YPG will implement the following conservation measures for Sonoran pronghorn:

1. Implement the 2014 Final Incident Response Protocol for Sonoran Pronghorn, which includes: a) notifying USFWS and other appropriate parties as outlined in the protocol as soon as possible if Sonoran pronghorn are observed on YPG that are injured, sick or dead; and b) coordinating range access for USFWS and AZGFD as appropriate for capture of sick or injured pronghorn, as well as recovery of dead individuals if necessary. Coordination will involve adherence to range safety and security procedures.
2. Avoid placing activities in proximity to artificial water sources (suitable for Sonoran pronghorn) to the extent that such action is consistent with the military mission.
3. YPG will adhere to the terms of the Memorandum of Understanding between the Kofa NWR, Imperial NWR, Bureau of Land Management, and YPG which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands.

Additionally, in the event future actions on YPG have the potential to affect Sonoran pronghorn on Kofa NWR, YPG will consult with the USFWS as appropriate.

STATUS OF THE SPECIES - SONORAN PRONGHORN

A. Legal Status

The Sonoran subspecies of pronghorn (*Antilocapra americana sonoriensis*) was first described by Goldman (1945) and is the smallest of the four subspecies of pronghorn (Nowak and Paradiso 1983, Brown and Ockenfels 2007). The subspecies was listed throughout its range as endangered on March 11, 1967 (32 FR 4001) under the Endangered Species Preservation Act of October 15, 1966 without critical habitat. Four sub-populations of the Sonoran pronghorn are extant: 1) a U.S. sub-population in southwestern Arizona on Cabeza Prieta National Wildlife Refuge (CPNWR), Organ Pipe Cactus National Monument (OPCNM), Bureau of Land Management (BLM) – Ajo Block, and Barry M. Goldwater Range (BMGR) (endangered population), 2) a sub-population in southwestern Arizona on Kofa NWR, YPG, and surrounding areas (nonessential experimental 10(j) population) (established in 2013), 3) a sub-population in the Pinacate Region of northwestern Sonora, and 4) a sub-population on the Gulf of California west and north of Caborca, Sonora. The four sub-populations are predominantly geographically isolated due to barriers such as roads and fences.

The 1982 Sonoran Pronghorn Recovery Plan (U.S. Fish and Wildlife Service 1982) was revised in 1998 (U.S. Fish and Wildlife Service 1998). The recovery criteria presented in the revised plan entailed the establishment of a population of 300 adult pronghorn in one self-sustaining population for a minimum of five years, as well as the establishment of at least one other self-sustaining population in the U.S. to reclassify the subspecies to threatened. Actions identified as necessary to achieve these goals include the following: 1) enhance present sub-populations of pronghorn by providing supplemental forage and/or water; 2) determine habitat needs and protect present range; 3) investigate and address potential barriers to expansion of presently used range and investigate, evaluate, and prioritize present and potential future reintroduction sites within historical range; 4) establish and monitor a new, separate herd(s) to guard against catastrophes decimating the core population, and investigate captive breeding; 5) continue monitoring sub-populations and maintain a protocol for a repeatable and comparable survey technique; and 6) examine additional specimen evidence available to assist in verification of taxonomic status. In 2001 a supplement and amendment to the 1998 Final Revised Sonoran Pronghorn Recovery Plan was prepared (U.S. Fish and Wildlife Service 2001). We concluded that data do not yet exist to support establishing delisting criteria. Tasks necessary to accomplish reclassification to threatened status (as outlined in the 1998 plan) should provide the information necessary to determine if and when delisting will be possible and what the criteria should be.

The U.S. Fish and Wildlife Service (USFWS) and the Sonoran Pronghorn Recovery Team (Team) are currently revising the Sonoran Pronghorn Recovery Plan. The revised plan will address Sonoran pronghorn populations both in Mexico and the U.S. and will be finalized in 2015.

B. Life History and Habitat

Sonoran pronghorn inhabit one of the hottest and driest portions of the Sonoran Desert. They forage on a large variety of perennial and annual plant species (Hughes and Smith 1990, Hervert *et al.* 1997b, U.S. Fish and Wildlife Service 1998). During drought years, Hughes and Smith (1990) reported cacti were the major dietary component (44 percent). Consumption of cacti, especially chain fruit cholla

(*Cylindropuntia fulgida*, Pinkava 1999), provides a source of water during hot, dry conditions (Hervert *et al.* 1997b). Other important plant species in the diet of the pronghorn include pigweed (*Amaranthus palmeri*), ragweed (*Ambrosia* sp.), locoweed (*Astragalus* sp.), brome (*Bromus* sp.), and snakeweed (*Gutierrezia sarothrae*) (U.S. Fish and Wildlife Service 1998). Pronghorn will move in response to spatial limitations in forage availability (Hervert *et al.* 1997a). Water intake from forage is not adequate to meet minimum water requirements (Fox *et al.* 2000), hence pronghorn need and readily use both natural and artificial water sources (Morgart *et al.* 2005).

Sonoran pronghorn rut during July-September, and does have been observed with newborn fawns from February through May. Parturition corresponds with annual spring forage abundance. Within the endangered Arizona pronghorn range, fawning may occur throughout the range. Does usually have twins, and fawns suckle for about two months. Does gather with fawns, and fawns sometimes form nursery groups (U.S. Fish and Wildlife Service 1998). Sonoran pronghorn form small herds of up to 21 animals (Wright and deVos 1986).

Telemetry locations of 35 Sonoran pronghorn within the endangered Arizona range demonstrated that during 1995-2002, pronghorn used creosote/bursage and palo verde/mixed cactus vegetation associations less than expected or equal to availability. Pronghorn use of palo verde/chain fruit cholla associations and desert washes occurred more than expected. However, during the cool and wet winter on 1997-1998, pronghorn (also in the Arizona endangered range) were found in creosote/bursage associations more than expected (Hervert *et al.* 2005). In contrast, during 1983-1991, pronghorn used creosote/bursage and palo verde mixed cacti associations more than expected (deVos and Miller 2005). Differences between these study results may be due in part to differences in precipitation and forage patterns between these periods. The earlier period was wetter with greater forage availability in flats and valleys where creosote/bursage associations predominate. In the endangered Arizona pronghorn range, in wet winters and early spring pronghorn are often found in flats and valleys, such as Pinta Sands, the Mohawk Dunes west of the Mohawk Mountains, and the west side of the Aguila Mountains. In late spring and summer, pronghorn then move from the flats and valleys upslope into bajadas and often south or southeast where palo verde associations, chain fruit cholla, and washes are more common. Movements are most likely motivated by the need for thermal cover provided by leguminous trees and water available in succulent chain fruit cholla (Hervert *et al.* 1997b). Home range size of Sonoran pronghorn in the endangered Arizona range during 1995-2002 ranged from 16.6 to 1,109 mi^2, with an average of 197 $\pm$ 257 mi^2 (Hervert *et al.* 2005).

From 1995-2002, adult mortality rates varied from 11-83%. Adults were killed by coyotes, bobcats, mountain lions, capturing efforts, drought, and unknown causes (Bright and Hervert 2005). However, during 1983-1991, apparently a more favorable period for pronghorn during which the population grew significantly, mean annual survival of females and males was 96% $\pm$ 0.04 and 92% $\pm$ 0.04 (deVos and Miller 2005). Disease may affect mortality, but has not been thoroughly investigated (Bright and Hervert 2005). Hervert *et al.* (2000) found that the number of fawns surviving until the first summer rains was significantly correlated to the amount of preceding winter rainfall, and negatively correlated to the number of days without rain between the last winter rain and the first summer rain. Drought may be a major factor in the survival of adults and fawns (Bright and Hervert 2005). Three radio-collared pronghorn died in July and August of 2002 with no obvious cause of death. Given that 2002 was one of the driest years on record, the proximate causes of these mortalities were likely heat stress and/or malnutrition resulting from inadequate forage conditions due to drought.

C. Distribution and Abundance

United States

Endangered Wild Population

Historically, the Sonoran pronghorn ranged in the U.S. from approximately the Santa Cruz River in the east, to the Gila Bend and Kofa Mountains to the north, and to Imperial Valley, California, to the west (Mearns 1907, Nelson 1925, Monson 1968, Wright and deVos 1986, Paradiso and Nowak 1971; Figure 5). Bright *et al.* (2001) defined the present U.S. range of the Sonoran pronghorn as bordered by Interstate 8 to the north, the International Border to the south, the Copper and Cabeza mountains to the west, and SR 85 to the east (see Figure 6). This area encompasses 2,508 mi^2 (Bright *et al.* 2001).

While Mearns (1907) suggested that pronghorn may have been common in some areas in the late 1800s, evidence suggests that the sub-population declined dramatically in the early 20th century. Sub-population estimates for Arizona, which only began in 1925, have never shown the pronghorn to be abundant (Table 1). Repeatable, systematic surveys were not conducted in Arizona until 1992. Since 1992, Sonoran pronghorn in the United States have been surveyed biennially (Bright *et al.* 1999, 2001) using aerial line transects (Johnson *et al.* 1991). Sub-population estimates from these transects have been derived using three different estimators (Table 2). Table 2 presents observation data from transects and compares estimates derived from the different population models from 1992 through 2006, plus other estimates 2008 to 2012. The sightability model population estimates from 1992 to 2000 showed a 45 percent decrease in sub-population size (Table 2). The estimates indicate a steady decline in sub-population size, with the exception of the 1994 survey. The 1994 estimate may be somewhat inflated due to inconsistencies in survey timing (U.S. Fish and Wildlife Service 1998, Bright *et al.* 2001).

High fawn mortality in 1995 and 1996 and the death of half (8 of 16) of the adult, radio-collared pronghorn during the 13 months preceding the December 1996 survey corresponded to five consecutive six-month seasons of below normal precipitation (summer 1994 through summer 1996) throughout most of the Sonoran pronghorn range, which likely contributed, in part, to observed mortality (Bright *et al.* 2001, Hervert *et al.* 1997b). Mortality of Sonoran pronghorn in 2002 was exceptionally high (Bright and Hervert 2005). At the start of the year, seven radio-collared Sonoran pronghorn were at large in the U.S. sub-population. By December 2002, all but one of these had died. For most, drought stress was considered to be the proximate cause. For those animals that may have succumbed to predation, it was suspected that drought stress was again a factor, by making the animal more vulnerable to predation, due to an emaciated physical condition and being forced into predator habitats by drought. The 2002 drought was one of the driest on record. As an example, annual rainfall at the OPCNM visitor center was only 2.54 inches in 2002 (Tim Tibbitts, Organ Pipe Cactus National Monument, personal communication 2002); average annual rainfall for the visitor center is 9.2 inches (Brown 1982). The November/December 2002 population survey revealed the U.S. sub-population had declined to the lowest level ever recorded. A total of 18 pronghorn were observed, in three groups (8, 9, and 1). The sightability model resulted in a population estimate of 21 animals, or a 79% decline from 2000. Also, very few fawns survived in 2002 to replace these dying adults.

Although drought was likely the proximate cause of the dramatic decline of the U.S. endangered sub-population in 2002, anthropogenic factors almost certainly contributed to or exacerbated the effects of the drought. Historically, pronghorn likely moved to wetted areas and foraged along the Río Sonoyta, Sonora, and the Gila and probably Colorado rivers during drought. These areas are no longer accessible

to the U.S. population due to fences, Interstate 8, Mexico Highway 2, and other barriers. The rate of decline in the U.S. sub-population from 2000-2002 (79 percent) was also much greater than that observed in either the sub-population southeast of Highway 8 (18 percent decline) or the El Pinacate sub-population (26 percent) during the same period (see discussion of Mexican sub-populations in the next section). Observations of forage availability suggest the El Pinacate sub-population experienced the same severe drought that occurred on the Arizona side (T. Tibbitts, J. Morgart, personal communication 2003). Yet that sub-population fared much better than its U.S. counterpart. The high level of human activities and disturbance on the U.S. side, particularly in regard to cross-border violator (CBV) traffic, smugglers, and required law enforcement response, as compared to what occurs in the El Pinacate area, was a likely contributing factor in the differing rates of decline observed north and south of the border.

The December 2004, 2006, 2008, 2010, and 2012 aerial surveys resulted in an estimated 58, 58, 68, 85, and 159, respectively, pronghorn in the U.S. endangered population (Tables 1 and 2), a substantial increase brought on by the implementation of ongoing recovery measures and improved range conditions since 2002. The 2006, 2008, and 2012 estimates included a number of captive-born individuals that were newly released into the wild (see below for more information on the captive breeding programs). During the 2008 and 2010 surveys, observers noted a skewed sex ratio (approximately 2:1) with more males than females; this affects the rate at which the population may increase.

Since 2002, when the Sonoran pronghorn population in Arizona declined to about 21 animals, recovery efforts of the Team and its partners have helped the wild population in Arizona increase nearly eight-fold. Key recovery actions include implementing captive breeding, waters, and supplement feeding programs, as well as operating forage enhancement plots. Although the U.S. Sonoran pronghorn population has increased significantly, until the most recent survey of 2012, the increase was not as great as the Team had predicted given the adequate to favorable range conditions since 2002, as well as the previously mentioned recovery efforts. Some members of the Team believe that this slow pronghorn population growth (caused by low fawn recruitment) is likely correlated with high CBV and U.S. Border Patrol (USBP) activity within the pronghorn range. Strong evidence of this correlation has been seen during the biennial aerial surveys where, since 2000, off-road vehicle tracks have been seen progressively increasing in extent and density, throughout the endangered pronghorn's U.S. range (electronic mail from Tim Tibbitts, Organ Pipe Cactus National Monument and member of the Sonoran Pronghorn Recovery Team, September 21, 2009). Between 2010 and 2012, the wild pronghorn population benefitted from better than average rainfall during 2011 and 2012 which resulted in a robust fawn crop of 78 fawns per 100 does during 2012.

In addition to the endangered population described above, a wild population is currently being reestablished at the Kofa NWR as an experimental, nonessential population under section 10(j) of the Act (see more detailed information below).

Semi-captive Breeding Facilities and 10(j) Wild Population

As part of a comprehensive emergency recovery program, a total of 11 adult pronghorn (10 females and one male) were initially captured (from Sonora and Arizona) and placed into a semi-captive breeding pen at CPNWR in 2004. The breeding program has been very successful and there are currently (as of January 2014) 61 pronghorn in the enclosure at CPNWR. Since establishing the program, about 19 pronghorn older than current year have died in the pen due to various causes, including one confirmed case of epizootic hemorrhagic disease, two from malnutrition prior to the introduction of alfalfa hay in the pen, two from bobcat predation, one from entanglement in the fence, and two from capture operations. Eight deaths were from unknown causes and although disease was suspected, it could not be confirmed.

Sonoran pronghorn have been released from the pen every year since 2006. As of January 2014, about 100 individuals have been released into the endangered population, many of which are known to still be alive.

The objective is to produce at least 20 fawns each year to be released into the current U.S. population, and to establish additional U.S. populations at Kofa NWR and BMGR East, east of Highway 85. The additional populations are being established as experimental, nonessential populations under section 10(j) of the Act. A final Environmental Assessment and final 10(j) rule (USFWS 2011) were published in April and May, 2011, respectively. See Figure 7 for a map of 10(j) Nonessential Experimental Population area for Sonoran pronghorn in southwestern Arizona. In December 2011, 13 Sonoran pronghorn were moved from the CPNWR breeding pen to the newly built breeding pen in the King Valley on Kofa NWR. One of the animals died due to capture myopathy and one died of unknown causes, leaving 11 (9 does and 2 bucks) in the pen for breeding purposes. In December 2012, 11 additional pronghorn were moved to the Kofa NWR from the CPWNR breeding pen, including two replacement breeder does for the Kofa breeding pen and nine pronghorn (three does and six bucks) for release into the wild. In September 2012, one adult doe was killed by a bobcat in the Kofa breeding pen. In December 2013, 16 additional pronghorn were moved to the Kofa NWR from the CPNWR, all of which were for release into the wild (one doe, however, had to be moved back into the breeding pen). As of February 2014, the Kofa pen contains 17 pronghorn.

Sonoran pronghorn have now been released in the King Valley on Kofa NWR in January 2013 (nine animals) and January 2014 (24 animals, including 9 from the Kofa pen and 15 from the CPNWR pen). Of the nine released in 2013, five are known to still be alive, one is unaccounted for. Three of these (two does and a buck) have been documented using a water source on the Yuma Proving Ground; most recently, in January 2014, they were documented near the Neversweat Mountains in King Valley. Two bucks released in 2013 were recaptured in the Kofa breeding pen because their collars prematurely failed and there was no way to track them. One of them was re-released in 2014. All 24 of the animals released in 2014 are still alive and nine wild-born fawns were documented in April. Therefore, in total there should be 27 wild adult pronghorn and nine fawns in the 10(j) population, as of April 2014.

Mexico

Historically, Sonoran pronghorn ranged in Sonora from the Arizona border south to Hermosillo and Kino Bay, west to at least the Sierra del Rosario, and east to the area south of the Baboquivari Valley on the Tohono O'odham Nation (Nelson 1925, Carr 1974, Monson 1968). The distribution in Baja California is less clear, but observations by Mearns (1907) indicate they occurred in the Colorado Desert west of the Colorado River, as well. Sonoran pronghorn are currently extant in two sub-populations in Mexico, including: (1) Pinacate sub-population west of Highway 8 near the Pinacate Lava flow; and (2) north and west of Caborca and southeast of Highway 8.

Sub-populations of Sonoran pronghorn in Sonora had not been thoroughly surveyed until the December 2000 surveys (Bright *et al.* 2001), at which time 346 pronghorn were estimated to occur in Sonora. Although the 1993 estimate was approximate, survey results suggested a decline in the sub-populations of 16 percent from 1993 to 2000 (Table 3). Since 2000, the two Mexico sub-populations have been resurveyed biennially, with the exception of the winters of 2004/05 and 2005/06, when they were surveyed both years, and the winter of 2013/2014 when the Pinacate sub-population could not be surveyed. In December 2002, a total (both El Pinacate and southeast of Highway 8) of 214 pronghorn in 32 groups were seen for a tentative population estimate of 280, indicating further decline. Only 19 pronghorn were observed in the Pinacate area for an estimate of 25, which is a decline of 26% from the 2000 estimate. Surveys conducted in December 2004 and February 2005 demonstrated that the

population southeast of Highway 8 increased to 625 (439 observed), while the Pinacate population increased to 59 (30 observed) (684 total estimated, 469 total observed). In 2004, several capture-related mortalities occurred in Sonora associated with efforts to capture pronghorn to stock the breeding pen in Arizona. Since then, capture protocols were examined and improved. In January 2006, surveys indicated that pronghorn numbers remained relatively steady with an estimated total of 634 (486 observed) individuals (combined for both populations). Nine of these were captured, of which five were fitted with radio-collars and released and four were transferred to the semi-captive breeding facility in the U.S.

In December 2007, surveys indicated pronghorn numbers declined with an estimated total of 404 (360 observed) individuals combined for both populations (including 354 pronghorn [325 observed] in the area southeast of Mexico Highway 8 and 50 [35 observed] to the west of the highway). Of these pronghorn, four pronghorn (three does and 1 buck) from the Pinacate Biosphere Reserve were captured and fitted with GPS radio collars. The male was found dead during a subsequent telemetry flight; his death was likely capture-related as his temperature rose dangerously high during the collaring effort. The decrease in Sonoran pronghorn population in Sonora from 2006 to 2007 is likely attributable, at least in part, to drought conditions in the pronghorn range in Mexico. During the aerial surveys, observers noted many extremely dry areas and some areas where the vegetation appeared dead in the pronghorn range. Additionally, an increasing number of fences and mine expansion within the range of the southeastern pronghorn population may be adversely affecting this population. In December 2009, surveys indicated pronghorn numbers increased somewhat with an estimated total of 482 (311 observed) individuals combined for both populations (including 381 pronghorn [258 observed] in the area southeast of Mexico Highway 8 and 101 [53 observed] to the west of the highway). In December 2011, surveys indicated pronghorn numbers drastically decreased with an estimated total of 241 (197 observed) individuals combined for both populations (including 189 pronghorn [167 observed] in the area southeast of Mexico Highway 8 and 52 [30 observed] to the west of the highway). In December 2013, surveys could not be conducted for the Sonoran pronghorn population west Mexico Highway 8 (Pinacate region) due to aircraft shortage; however, surveys of the population in the area southeast of Mexico Highway 8 indicated pronghorn numbers increased since 2011, with an estimated total of 434 (372 observed) (Table 3).

D. Threats

Barriers that Limit Distribution and Movement
Highways, fences, railroads, developed areas, and irrigation canals can block access to essential forage or water resources. Brown and Ockenfels (2007) report that numerous railroads and highways bisect what was former contiguous pronghorn habitat, often dividing these rangelands into parcels too small to support, viable, long-term populations of pronghorn in Arizona. Furthermore, they state railroads and paved highways are especially restrictive, as in addition to acting as intimidating barriers in their own right, they are often fenced on both sides of the right-of-way.

Highways 2 and 8 in Sonora, and SR 85 between Gila Bend and Lukeville, Arizona support a considerable amount of fast-moving vehicular traffic, are fenced in some areas, and are likely a substantial barrier to Sonoran pronghorn (one pen-raised radio-collared male crossed SR 85 and Mexican Highway 2; however, this is considered highly unusual). Interstate 8, the Wellton-Mohawk and Palomas Canals, agriculture, a railroad, and associated fences and human disturbance near the Gila River act as barriers for northward movement of pronghorn.

Canals have been the cause of six pronghorn deaths since 2008. Three pen-raised pronghorn drowned in the Palomas Canal in 2008, one pen-raised pronghorn drowned in the Wellton Canal in 2010, and two pen-raised pronghorn (part of the 10(j) population) died due to falling in the Wellton-Mohawk Canal in 2013 (specifically, one drowned and one died within days after being rescued from the canal).

De-watering of reaches of the Río Sonoyta and lower Gila River has also caused significant loss of habitat and loss of access to water (Wright and deVos 1986). Agricultural, urban, and commercial development at Sonoyta, Puerto Peñasco, and San Luis Río Colorado, Sonora; in the Mexicali Valley, Baja California; and at Ajo, Yuma, and along the Gila River, Arizona, have further removed habitat and created barriers to movement.

Vehicular Collision with Sonoran Pronghorn
Although vehicle collisions with Sonoran pronghorn are rare, it has been documented. An adult male pronghorn was struck and killed by a vehicle near kilometer post 29 on Mexico Highway 8 in July of 1996 (USFWS 2002). National Park Service records include a Sonoran pronghorn found dead just east of SR 85 along Ajo Mountain Drive in 1972. It was suspected to have been struck and killed by a vehicle (electronic mail from Tim Tibbitts, OPCNM, September 1, 2011). In 2003/2004 John Hervert (AGFD) investigated a Sonoran pronghorn mortality found a few hundred feet from Interstate 8. It had a broken leg, and so vehicle collision was suspected. In 2013, a doe was found dead east of Tacna on private property; based on initial examination it appears she may have been hit by a vehicle along a high speed dirt road. We are trying to open a USFWS investigation so that the animal can be sent to our forensics lab for further investigation.

Human-caused Disturbance
A variety of human activities occur throughout the range of the pronghorn that have the potential to disturb pronghorn or its habitat, including livestock grazing in the U.S. and Mexico; military activities; recreation; poaching and hunting; clearing of desert scrub and planting of buffelgrass (*Pennisetum ciliare*) in Sonora; gold mining southeast of Sonoyta, dewatering and development along the Gila River and Río Sonoyta; CBV activity across the international border and associated required law enforcement response; and roads, fences, canals, and other artificial barriers.

Of the aforementioned human activities, in the U.S. range of the pronghorn, CBV activity and required law enforcement response is the most significant current source of disturbance to Sonoran pronghorn and its habitat. As a result of increased presence of the USBP in more developed areas, CBV traffic has shifted into remote desert areas, such as CPNWR, OPCNM, and BMGR (Klein 2000). In 2001, estimates of CBVs reached 1,000 per night in OPCNM alone (Organ Pipe Cactus National Monument 2001), and an estimated 150,000 people entered the monument illegally from Mexico (Milstead and Barns 2002). Apprehensions of CBVs in the USBP Tucson Sector-Ajo Station's Area of Responsibility peaked to 22,504 in 2006. However, after construction of the border vehicle fences on OPCNM in 2006 and CPNWR in 2009, apprehensions declined to 17,385 in Fiscal Year 2011. Illegal drive-throughs in particular declined after the construction of the fences. Since the SBI*net* towers and infrastructure became operational in late 2010 in the Ajo Station's Area of Responsibility, the number of apprehensions has increased. This increase is believed to be attributable to increased CBV activity, as well as increased USBP effort, tactical infrastructure, and technology in the area which have improved USBP's ability to detect and apprehend CBVs (personal communication with USBP, September 1, 2011).

In fiscal year 2005, the Yuma Sector of the USBP apprehended record numbers of CBVs, and from October 1, 2005 to May 2006, 96,000 arrests were made, which was a 13% increase over the same time

period in 2005 (Gerstenzang 2006). The Wellton Station of the Yuma USBP Sector made 2,080 apprehensions in fiscal year 2005 and 3,339 apprehensions from October 2005 to February 2006 (personal communication with USBP, February 10, 2006). USBP officials have indicated, however, that apprehensions in recent years have dramatically declined in the Yuma Sector, particularly in the western portions of the sector, due to USBP presence at Camp Grip, increased numbers of agents, and recently completed tactical infrastructure.

Both CBV and USBP activities have resulted in increased human presence in and widespread degradation of Sonoran pronghorn habitat. Much of the CBV traffic travels through the southern passes of the Growler Mountains that lead either through or by all of the forage enhancements and the captive rearing pen in the Child's Valley, with potential to impact these recovery projects and use of the area by pronghorn (personal communication with Curtis McCasland, CPNWR, 2007).

There is anecdotal evidence that pronghorn are avoiding areas of high CBV traffic and law enforcement activities (personal communication with Curtis McCasland, CPNWR, 2007). This may be especially true during periods of poor range conditions. For example, according to Customs and Border Protection (CBP) records, a drag road adjacent to the current Granite Forage Enhancement Plot (FEP) in the Wellton Station Area of Responsibility was created in 1996 and has been in use since before the FEP was installed. However, at the time the FEP was being planned, this was only a two-track trail with little use (electronic mail communication with John Hervert, AGFD, October 3, 2012). Wellton Station has confirmed that USBP use of this drag road has increased in recent years in response to an increase in illegal activities in the area. In spring of 2009, AGFD reported that they believe that three does with fawns abandoned the Granite Forage Enhancement Plot (FEP) due to the high amount of USBP activity at the site (electronic mail from John Hervert, AGFD, September 16, 2009). The does were later observed at OPCNM; however, the fawns died (electronic mail from John Hervert, AGFD, September 16, 2009). Instances such as these are more likely to occur during periods of poor range conditions and the impacts are likely exacerbated, regardless of the source of disturbance or impact on the pronghorn.

The Camp Grip Forward Operating Base (FOB), located within the current range of the pronghorn, was established in 2005. In 2011, USFWS completed an analysis of whether the Camp Grip FOB resulted in impacts on Sonoran pronghorn movement patterns. USFWS analyzed available AGFD Sonoran pronghorn location data from radio-collared animals and results of this analysis were inconclusive as to whether Camp Grip had any impact on Sonoran pronghorn movement; however, documenting pronghorn movement can be difficult, particularly when only a very small portion of the wild population is radio-collared. These inconclusive results were also in part due to the many complex factors involving Sonoran pronghorn movement, including artificial feeding and watering of the animals across the species' range. Initial data from radio-collared pronghorn locations appeared to indicate a potential reduction in use of areas in the vicinity of Camp Grip (electronic mail from Mark Sturm, OPCNM, August 31, 2011). Data from 2012 have shown several occurrences of pronghorn in the vicinity of Camp Grip. This may be due to the increased number of pen-reared pronghorn that have been released and that have been exposed on a more regular basis to human activity at the pens (electronic mail from Jim Atkinson, CPNWR, October 5, 2012). Data also indicate a northerly shift in habitat use since Ajo-1 SBInet implementation, which coincides with a documented increase in impacts. This result is despite the presence of abundant and good habitat conditions in areas nearer the border during 2011.

Another FOB, the Bates Well FOB, was exclusively occupied by USBP from 2005 to 2011. During the operation of the FOB, no pronghorn were documented entering the Valley of the Ajo through the Bates Well pronghorn migration corridor. The establishment of the FOB coincides with a drastic decline in pronghorn (attributable to drought and an increase in border activity); therefore, changes in use of Bates

Well area by pronghorn may be in part due to decreased population size, however the increased human presence at Bates Well, particularly during the fawning period, may have acted to prevent Sonoran pronghorn movements through the area and into the Valley of the Ajo. Even as the pronghorn population increased, they continued to avoid the Bates Well migration corridor while the Bates Well FOB was still in operation. Considering the sensitivity of pronghorn to human activity, it is likely that pronghorn avoided use of the area due to the high level of human activity currently associated with the site. During 2011, the USBP relocated the Bates Well FOB to a new site in the far western portion of the OPCNM along the ECDD at the CPNWR boundary. The new FOB is centrally located within the southern Growler Valley, an area that pronghorn generally avoid during the summer months. Since the Bates Well FOB was relocated, a holding pen for pronghorn releases was constructed near the site and in 2012 released pronghorn moved from that location back into the Valley of the Ajo.

While specific studies related to the physiological effects of disturbance on Sonoran pronghorn are extremely limited, some information regarding how these effects are manifest in other wildlife may be helpful in assessing the potential effects to pronghorn. Physiological effects of noise on wildlife can include stresses to neural, endocrine, digestive, cardiovascular, and immune systems as well as reproductive function, causing changes such as increased blood pressure, available glucose, and blood levels of corticosteroids (Manci et al. 1988, Kaseloo and Tyson 2004, Keay et al. 2006). However, available research evaluating physiological impacts of human stressors on wild animal populations also indicates that the responses of species are variable (Manci et al. 1988, Larkin 1996, Radle 1998, Krausman et al. 1998, Kaseloo and Tyson 2004, Stankowich 2008). We believe that, given the information in the above studies, it is possible that Sonoran pronghorn could have a physiological stress response to disturbance without showing an overt behavioral response. To have a population effect, behavioral and physiological responses to disturbance must ultimately affect survival and productivity, and to date, no research efforts have supported or refuted population level impacts on pronghorn from physiological stress. At some point, increased energetic costs resulting from a stress-related increase in metabolic rate, reduced foraging efficiency due to interrupted feeding, and alarm and flight responses could jeopardize survival and productivity if the disturbance is stressful enough and chronic (Bright and Hervert 2005, deVos and Miller 2005).

It has been well documented that human presence in wildlands can disturb animals, causing them to unnecessarily expend energy avoiding people, thereby potentially reducing reproductive success (e.g., Manville 1983, van Dyke *et al*. 1986, Goodrich & Berger 1994, Primm 1996; as cited by Kerley *et al*. 2002) or increasing the likelihood of fatal encounters with humans (Kasworm & Manley 1990, Saberwal *et al*. 1994, Khramtsov 1995, Mattson et al. 1996; as cited by Kerley *et al*. 2002). Range abandonment has been documented in response to human disturbance (Jorgenson 1988), and investigators have shown that heart rate increases in wildlife in response to auditory or visual disturbance in the absence of overt behavioral changes (Thompson *et al.* 1968, Cherkovich and Tatoyan 1973, Moen *et al.* 1978).

Studies of captive pronghorn, other than the Sonoran subspecies, have shown that they are sensitive to disturbance such as human presence and vehicular noise. Human traffic, such as a person walking or running past pronghorn in an enclosed pen, a motorcycle driving past, a truck driving past, a truck blowing its horn while driving past, or a person entering a holding pen, caused an increased heart-rate response in American pronghorn in half-acre holding pens (Workman *et al.* 1992). The highest heart rates occurred in female pronghorn in response to a person entering a holding pen, or a truck driving past while sounding the horn. The lowest heart rates occurred when a motorcycle or truck was driven past their pen. Pronghorn were more sensitive to helicopters, particularly those flying at low levels or hovering, than fixed wing aircraft. Luz and Smith (1976) observed pronghorn reactions to overhead helicopter flights

which suggested mild disturbance (muscle tensing and interruption of grazing) by helicopter noise levels at approximately 60 dBA and strong reaction (running) at approximately 77 dBA.

Disturbances that cause pronghorn to startle and run would energetically have a more significant effect during times of drought. Such energetic expenditures, particularly during times of stress, may lead to lower reproductive output and/or survival of individual animals (Geist 1971). Landon et al. (2003) evaluated whether Sonoran pronghorn used areas, as defined by noise levels produced by military aircraft, in proportion to their availability on the BMGR. Using 15% of the Arizona Sonoran pronghorn population, they studied pronghorn use of areas with varying sound pressure (ambient sound) levels and found that pronghorn did not use the areas with different ambient sound levels in proportion to their availability. In general, they found that Sonoran pronghorn select areas with the lower noise levels and avoid areas with the higher noise levels; however, they did not consider habitat in their analysis. Whether pronghorn avoid these areas because of the noise or because of some other human-related factor is unknown; however, the various potential factors (i.e. noise levels, human presence, reduced vegetation or cover, disturbance) are interrelated. Hughes and Smith (1990) found that Sonoran pronghorn immediately ran 1,310- 1,650 feet from a vehicle, and that military low-level flights (less than 500 feet above the ground) over three pronghorn caused them to move about 330 feet from their original location.

Krausman et al. (2001, 2004, 2005) examined effects of military aircraft and ground-based activities on Sonoran pronghorn at the North and South tactical ranges (TACs) on the BMGR and concluded that military activities, both ground-based and aerial, were associated with some changes in behavior (e.g., from standing to trotting or running, or bedded to standing). In response to stimuli, on days without stimuli, pronghorn foraged more and bedded less than on days with stimuli; the opposite was true for fawns (Krausman et al. 2001). Krausman et al. (2001) only considered a change in behavior to trotting or running in response to stimuli as biologically significant. Eighty-seven (4.1%) of the 2,128 events with ground-based stimuli resulted in pronghorn changing their behavior to trotting or running; often moving > 10 m (Krausman et al. 2004). Pronghorn tend to exhibit a predator response to human activities, but can habituate to chronic human disturbance in some instances (Krausman et al. 2004). The authors concluded that these changes were not likely to be detrimental to the animals; however, sightings of Sonoran pronghorn were biased towards disturbed habitats on the TACs and other areas of military activities, which also corresponded to areas of favorable ephemeral forage production (Krausman et al. 2005). No specific conclusions could be drawn about effects of military activities on fawns during the Krausman et al. study, but the data suggests that fawns and their mothers may be more sensitive to anthropogenic stimuli than other pronghorn (Krausman et al. 2004). In general, the study did not detect differences in the behavior of pronghorn with and without anthropogenic stimuli; however, Krausman et al. (2004) recommends that all ground stimuli and activities that alerts or startles females and their fawns should be terminated. However, the long-term behavioral and physiological effects of military activities have not been quantified (Krausman et al. 2004).

Staff at OPCNM (2013) documented that during their typical morning activity period (post-sunrise), pronghorn on OPCNM experienced some form of potential disturbance once every 4 hours 10 minutes. Actual disturbance responses took place once every 6 hours 15 minutes. Potential disturbance events resulted in the pronghorn running, about once every 8 hours 20 minutes. Helicopter overflights took place once every 6 hours 15 minutes; one out of four overflights resulted in pronghorn running, and one in four resulted in vigilance (standing, alert, watching disturbance source). Vehicles approaching within one mile occurred once every 12 hours 30 minutes. Half of these resulted in pronghorn running, but for the other half, the driver was contacted by radio and advised to drive slowly (<10 mph) past the observation area. These observations only represent pronghorn and human activity in the first 3 hours after sunrise, in a specific area of OPCNM. Types and intensities of activities likely vary through the 24-hour cycle, and

across the landscape. These observations led to speculation that the levels of illegal border-related traffic in the area, and interdiction efforts, may have been sufficient to inhibit use of the area and 3-Jack Tank by Sonoran pronghorn.

Habitat Disturbance

A number of threats, including livestock grazing, mining, and off-road vehicle and pedestrian activity can alter or destroy Sonoran pronghorn habitat. Livestock grazing has the potential to significantly alter pronghorn habitat and behavior (Leftwich and Simpson 1978, Kindschy *et al.* 1982, Yoakum *et al.* 1996). Overgrazing well into the 19th century by Spaniards and their descendants caused widespread habitat changes throughout much of the Sonoran Desert, particularly in more settled areas such as central Sonora, Mexico (Sheridan 2000). The effects of cattle grazing are largely historical; cattle were removed from OPCNM, CPNWR, and the BMGR in 1979, 1983, and 1986, respectively (U.S. Fish and Wildlife Service 1998, Rutman 1997). In 2004, the BLM closed the Cameron Allotment on the borders of CPNWR and OPCNM, but grazing still occurs in the nearby Childs and Coyote Flat allotments near Ajo. In Sonora, livestock grazing occurs at Pozo Nuevo and at Ejido Puerto Peñasco, but cattle typically stay close to feed and water except in seasons with abundant annual growth when cattle range widely in the Pinacate region.

Mining occurred historically throughout much of the U.S. range of the pronghorn, but it is currently not a significant threat to Sonoran pronghorn in the U.S. During recent pronghorn surveys in Mexico, increasing effects from gold mining activities were noted in habitats used by the sub-population located southeast of Highway 8.

As discussed above, CBV activities and required USBP response have resulted in increased human presence in remote areas and widespread habitat degradation. Prior to the completion of the vehicle fences on OPCNM and CPNWR (construction was started on these fences in late 2003 and 2007 and completed 2006 and 2009, respectively), CBVs frequently crossed the border in vehicles and created countless illegal routes, many of which were continuously used both by CBVs and responding USBP agents. Subsequent to the construction of the vehicle fences on OPCNM and CPNWR, CBV vehicular traffic was significantly reduced (there are occasional breaches in the fence; however, this CBV vehicular activity represents a fraction of that prior to the presence of the fences). NPS notes that CBV vehicle activity has decreased at OPCNM since about 2004 (electronic mail, Tim Tibbitts, OPCNM, 2009 and 2011); however, the number of off-road tracks, and new unauthorized vehicle routes (UVR) in OPCNM continues to increase (electronic mail, Tim Tibbitts, OPCNM, September 1, 2011). Decreased CBV vehicle traffic in pronghorn habitat as a result of the fences has alleviated the adverse effects of this traffic on pronghorn and their habitat. USBP, however, continues to respond (by vehicle, horseback, foot, and aircraft) to ongoing CBV activity in these areas. Frequently, this required response involves driving off of authorized roads which, when conducted in pronghorn habitat, results in significant degradation of pronghorn habitat and disturbance to pronghorn as discussed above. For instance, all the valleys at CPNWR and OPCNM are now criss-crossed with a network of unauthorized vehicle routes and trails, even though those areas are designated as Wilderness. A mapping effort conducted by CPNWR showed almost 8,000 miles of unauthorized routes as of 2008. A mapping effort conducted by OPCNM documented the following number of miles on each land management unit from 2008 to 2010: 7876.2 on CPNWR, 1209.8 on OPCNM, and 240.9 on the BLM Ajo Block. Unauthorized route creation continues to occur on all three of these important pronghorn areas. The proliferation of unauthorized vehicle routes is a major impact on multiple resources, and provides an index of the level of human activity currently taking place in pronghorn habitat.

A cooperative effort was completed recently by CBP, USFWS, NPS, and BLM to map and mark roads within the range of the Sonoran pronghorn to indicate those roads that are open for use by these agencies,

and roads that are closed to vehicle traffic. It is hoped that this effort will reduce the use of unauthorized and the associated impacts to Sonoran pronghorn. To date, it does not appear that the map is functioning as intended.

Fire

The winter and spring of 2004/2005 were very wet, resulting in some of the highest productivity of cool season annual plants in recent memory. As these annual plants dried out, they created fuel for wildfire. In 2005, Mediterranean grass combined with high densities of the native wooly plantain (*Plantago ovata*) and other species created fuels adequate to carry fire. Military training, such as strafing and bombing in the tactical ranges, as well as fires set by CBVs, provided the ignition sources. Exact numbers are unknown; however, in 2005 roughly 7,500 acres of pronghorn habitat burned on the CPNWR (personal communication with Curtis McCasland, CPNWR, February 15, 2006) and more than 63,000 acres burned on the BMGR-East during that time. Approximately 29,260 acres of pronghorn habitat burned as a result of these fires.

Most Sonoran Desert trees, shrubs, and cacti are poorly adapted to fire (Brown and Minnich 1986, Schwalbe *et al.* 2000, Alford and Brock 2002). If areas burn repeatedly, permanent changes are likely in the flora. Even in the best scenario it is likely to be many years before trees once again provide thermal cover in wash communities and cholla recover to a point that they are useful forage plants for pronghorn. This said, from 2007 to 2010 pronghorn were attracted to the burned areas, which often supported better growth of annual plants and forbs than adjacent unburned areas. However, in the long term and if these areas continue to burn, removal of thermal cover (trees) and chain fruit cholla, which they depend on in drought, would likely adversely affect pronghorn and probably limit the use of these areas to wetter and cooler periods and seasons.

Drought and Climate Change

As discussed, drought may be a major factor in the survival of adults and fawns (Bright and Hervert 2005), and the major decline in 2002 was driven by drought. Mean annual temperatures rose 1.8-3.6 ^{0}F in the American Southwest from 1970-2004, that trend is accelerating, and is predicted to continue through the 21st century and beyond (Intergovernmental Panel on Climate Change 2007). Most of the observed increases in globally averaged temperatures since the mid-20th century are very likely due to the observed increases in anthropogenic greenhouse gas concentrations (Intergovernmental Panel on Climate Change 2007). In the Sonoran Desert, anthropogenic climate change is causing warming trends in winter and spring, decreased frequency of freezing temperatures, lengthening of the freeze-free season, and increased minimum temperatures in winter, which will likely cause changes in vegetation communities (Weiss and Overpeck 2005). These increases in temperature are predicted to be accompanied by a more arid climate in the Southwest (Seager *et al.* 2007, Intergovernmental Panel on Climate Change 2007). As a result, the Sonoran pronghorn is expected to be confronted with more frequent drought, which increases the importance of recovery actions, such as forage enhancement plots and water developments, which can offset the effects of drought. Bright and Hervert (2005) indicated that periods of drought may force Sonoran pronghorn to use areas of available forage where predators may be more effective. Thus, climate change and drought may also exacerbate the effects of predation on the Sonoran pronghorn population and management actions should be focused in areas where predation is likely to be less successful.

Historically, pronghorn populations must have weathered severe droughts in the Sonoran Desert, including many that were more severe and longer term than what has occurred recently. Given that pronghorn populations survived the droughts of the 1890s, 1950s, 1970s, and others before those, it is unreasonable to solely attribute declines in the U.S. pronghorn population to drought. OPCNM (2001) concluded, “If (individual) recent dry years have had an impact on Sonoran pronghorn, it is most likely

because in recent decades Sonoran pronghorn have much more limited options for coping with even brief moderate drought. Because of restrictions on their movements and range, and increasing human presence within their range, pronghorn are less able to employ their nomadic strategy in search of relief. It is not that drought itself is an impact, but possibly that drought has *become* an impact, due to other factors confounding the species' normal ecological strategy."

Small Population Size and Random Changes in Demographics
In populations of fewer than 100 pronghorn, population viability declines at an increasingly steep rate. To maintain genetic diversity over the long term, a population of at least 500 is desirable (Defenders of Wildlife 1998). At an estimated 21 pronghorn in 2002, the U.S. wild endangered population was critically endangered and likely experienced a substantial loss of genetic diversity resulting from the 2002 bottleneck. At an estimated 159 pronghorn in 2013, the U.S. wild endangered population has dramatically increased but is still below desired numbers. At an estimated 25 pronghorn in 2002 and 52 pronghorn in 2011, the Pinacate population is also well below desired numbers. At an estimated 434 pronghorn in 2013, the third population (southeast of Highway 8) is much closer to, but still below the desired size to maintain genetic diversity. Loss of the U.S. population would dramatically reduce our ability to manage or recover this subspecies. Populations at low levels may experience random variations in sex ratios, age distributions, and birth and death rates among individuals, which can cause fluctuations in population size and possibly extinction (Richter-Dyn and Goel 1972). In very sparse populations, males may have trouble finding females, reducing productivity (Ehrlich and Roughgarden 1987). Small populations are also sensitive to variations in natural processes, such as drought and predation (Hecht and Nickerson 1999).

Disease
Sonoran pronghorn can potentially be infected by a variety of viral and bacterial diseases, as well as parasites. Epizootic hemorrhagic disease and Bluetongue virus are the most common cause of disease caused die-off in wild pronghorn (Brown and Ockenfels 2007). Blood testing has shown pronghorn exposure to these diseases by increases in antibody titers over time. The diseases relevant to pronghorn can be transmitted indirectly through vectors, such as infected midges or ticks, or directly via aerosolized or direct contact of infected fluids or tissues. Diseases that potentially infect pronghorn are all serious diseases of cattle, which can act as vectors. Cattle within the current range of the pronghorn have not been tested for these diseases.

E. Recovery Actions

A number of critically important recovery projects have been implemented in an attempt to reverse the decline of the U.S. endangered population of the Sonoran pronghorn. These projects are designed to increase availability of green forage and water during dry periods and to offset to some extent the effects of drought and barriers that prevent pronghorn from accessing greenbelts and water, such as the Gila River and Río Sonoyta. Many developed and nine emergency water sources (six on CPNWR, one on OPCNM, and two on BMGR West) have been constructed in recent years throughout the range of the U.S. endangered population. Additionally, within the past two years, three permanent catchments for Sonoran pronghorn were constructed in the non-wilderness portion of CPNWR (one) and the BMGR East (two). Additionally, one existing water (Sierra Pinta # 3) within the refuge was recently redeveloped resulting in increased storage capacity from 1,800 gallons to over 10,000 gallons. In 2015, one new water for Sonoran pronghorn within the refuge will be constructed (Agua Dulce # 2) and one existing water (Fawn Hills) will be redeveloped to increase storage. Five forage enhancement plots, each consisting of a well, pump, pipelines and irrigation lines, have been developed to irrigate the desert and produce forage for pronghorn. Additionally, starting in 2009, temporary, experimental feed and water stations were placed strategically within the South TAC to enhance pronghorn fawn survival and recruitment during

periods of prolonged drought. The primary purpose was to draw pronghorn away from active military targets as an offset to the target closure distances that were in place at that time. These stations were heavily used by pronghorn during times with poor range conditions brought on by drought.

Plots and waters located in areas with little human activity and better range conditions appear to be more effective (i.e., contribute to fawn and adult survival to a greater degree) than those located in areas of high human activity and poor range condition (i.e., experiencing drought) (personal communication with John Hervert, AGFD, September 16, 2009). Therefore, to ensure success of these measures, it is critical that human activity is avoided or significantly minimized near the plots and waters.

A semi-captive breeding facility at CPNWR was first stocked with pronghorn in 2004; as of January 2014, it contains 61 pronghorn. As described above, these facilities are being used to augment the current U.S. population and the new population north of I-8, as well as to establish additional herds elsewhere within suitable portions of historical range in Arizona and potentially in southeastern California. These crucial projects, which are helping pull the U.S. population back from the brink of extinction, have been cooperative efforts among many agencies and organizations, including USFWS, AZGFD, MCAS-Yuma, Luke Air Force Base (LAFB), OPCNM, CBP, Arizona Desert Bighorn Sheep Society, Arizona Antelope Foundation, the Yuma Rod and Gun Club, the University of Arizona, the Los Angeles and Phoenix Zoos, and others.

ENVIRONMENTAL BASELINE – SONORAN PRONGHORN

The environmental baseline includes past and present impacts of all Federal, state, or private actions in the action area; the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation; and the impact of state and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform from which to assess the effects of the action now under consultation.

A. Action Area

The “action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. For the purposes of this consultation, as described in the BE, the action area includes all of YPG and Kofa NWR. The 10(j) population on YPG, Kofa NWR, and surrounding areas is separated from the endangered U.S. population by Interstate 8 and extensive farming along the Gila River Valley.

Management of the action area is entirely by Federal agencies. The YPG encompasses over 838,000 acres and is managed by U.S. Army Garrison YPG for military testing and training. Kofa NWR encompasses 665,400 acres and is managed by the USFWS for desert bighorn sheep and other native wildlife and their habitat.

B. Terrain, Vegetation Communities, and Climate in the Action Area

The action area is included in the Lower Colorado River Valley Subdivision of the Sonoran Desertscrub Biome. The typical plant species that inhabit the action area include microphyllous trees like western honey mesquite (*Prosopis glandulosa*), ironwood (*Olneya tesota*), foothill and blue palo verde (*Parkinsonia microphylla* and *P. floridum*), and smoketree (*Psorothamnus spinosa*). In dryer and more barren areas the more common desert pavement plants are creosotebush (*Larrea tridentata*), white

bursage (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), teddy bear cholla (*Cylindropuntia bigelovii*), and saguaro (*Carnegiea gigantea*).

Vegetation on YPG is adapted to the hot, arid environment, where summer daytime temperatures can exceed 120 degrees Fahrenheit (Spellenberg, 2003). Open plains are sparsely covered with drought-tolerant shrubs, grasses, and cacti. The most common plant species on YPG is creosote bush, which occurs over large areas or mixed with combinations of ocotillo, white bursage, teddy bear cholla cactus, and foothill palo verde trees, depending on landscape position.

Areas of sandy soil support big galleta communities that include foothills palo verde, honey mesquite, or bursage. The hillsides of YPG typically support brittlebush and other plants including various cacti (such as saguaro, cholla, and prickly pear). Saguaro cacti on YPG are less numerous and more scattered than in the eastern Sonoran Desert. The foothills and mountainous areas typically support a mixed shrub community. The desert washes typically support a variety of woody plants, including palo verde, ironwood, smoketree, mesquite, and catclaw acacia (*Senegalia greggii*). Larger washes support bosques of smoketree, mesquite, ironwood, and palo verde.

At YPG, vegetation density noticeably decreases downstream of bajadas heavily impacted by military training, testing, and infrastructure. Bajadas are typically covered with well-developed desert pavement. Vegetation densities on YPG are also decreasing in first order rills downstream from unimpacted areas, indicating that natural desert conditions may be changing. Therefore, changes in desert vegetation are likely due to natural and anthropogenic forces (McDonald et al., 2004).

Non-native invasive species occur on YPG, including buffelgrass, Athel tamarisk (*Tamarix aphylla*), salt cedar (*Tamarix* spp. and hybrids), Mediterranean and Arabian grass (*Schismus arabicus*), Mediterranean grass, Sahara mustard, and puncturevine (*Tribulus terrestris*). Although buffelgrass only occurs in a few scattered locations, its potential for spread in favorable rainfall years and for carrying ecosystem-changing fires make it YPG's current weed of greatest concern. These invasive grasses and Sahara mustard increase fuel loads and carry fire well, resulting in larger and more intense wildfires. Sahara mustard skeletons blow in the wind and may pile up along fence lines in masses up to 10 feet high. According to YPG, Sahara mustard is considered the most detrimental non-native species on YPG due to its impact on wildlife, native plants, and potentially the mission of YPG (YPG 2014). Many native vegetation species are poorly adapted to fire and the intense wildfires can result in drastic changes to the vegetation.

Climate is characterized by extreme aridity, mild winters, and hot summers. Approximately 2.7 inches of precipitation fall annually at Yuma, with slightly more than half of this occurring in the winter months (Brown 1982). On YPG precipitation rarely exceeds the amount required to infiltrate below surface horizons, and runoff from adjacent piedmonts, especially along channels, is needed to augment the moisture plants receive from other sources.

C. Status of the Sonoran Pronghorn in the Action Area

Distribution, Abundance, and Life History

The life history of Sonoran pronghorn in the action area is the same as that described above in the Status of the Species for the U.S. sub-population. Sonoran pronghorn historically occurred in valleys around the lower Gila river, likely including the King Valley within Kofa NWR until the early 1800's or early 1900's, although little information population size and specific areas used exists (Brown and Ockenfels 2007, Brown 2008). As described in detail above in the Status of the Species, as of April 2014, there are 27 wild adult pronghorn and nine fawns in the 10(j) population (herein referred to as the Kofa

population). Based on telemetry locations in 2013 and 2014, Sonoran pronghorn are primarily using the King Valley of Kofa NWR, as well as the southern part of the King Valley on YPG (Figure 8). There are a number of pronghorn detections in other areas, including to the east and southeast of YPG. The Sonoran pronghorn distribution on YPG, Kofa NWR, and surrounding areas is likely to change as pronghorn continue to become established and more telemetry data is collected.

The pronghorn on YPG have been observed using man-made ponds (SWTR pond and Ivan's Well) on the eastern portion of the Kofa range which is located toward the southern end of King Valley. These ponds are maintained to supply water for dust suppression or construction and maintenance activities on YPG. They are not fenced and are frequented by deer, horses, coyotes and other wildlife. Camera traps detected the pronghorn using the SWTR facility multiple times in June, August and September of 2013. No observations of pronghorn occurred in July and October 2013 due to camera failures. Pronghorn were first observed on Ivan's well in March and April 2014.

We are only beginning to gather data on distribution and habitat use of the Kofa population of Sonoran pronghorn. However, based on Sonoran pronghorn habitat use patterns on Cabeza Prieta, and the limited historical records on Kofa NWR and YPG, we anticipate they will use the lowland desert habitat in the valley bottom and lower bajadas within King Valley (U.S. Fish and Wildlife Service 1998 and 2001). According to a model by USFWS, there are 7,405 square miles of potential habitat for Sonoran pronghorn within the nonessential experimental population area A (Figure 7)(USFWS 2010). According to this same model, about 58 percent of YPG (approximately 757 square miles) is potentially suitable habitat for Sonoran pronghorn (USFWS 2010).

D. Past and Ongoing Non-Federal Actions in the Action Area

The Status of the Species section describes a variety of human activities that have affected the Sonoran pronghorn since initiation of livestock grazing over 300 years ago (Officer 1993). Many non-Federal activities that have affected the pronghorn are historical in nature, and pronghorn have been all but extirpated from private, state, and Tribal lands. As explained in the Status of the Species, highways, fences, railroads, developed areas, and irrigation canals can block access to essential forage or water resources. Highways and railroads can also lead to vehicular and train collisions with Sonoran pronghorn. Additionally, canals can lead to Sonoran pronghorn drowning.

E. Past and Ongoing Federal Actions in the Action Area

Because the action area is comprised of Federal lands, most activities that affect the Kofa pronghorn population or their habitat are Federal actions. The primary Federal agencies involved in activities in the action area include the YPG and Kofa NWR. No formal section 7 consultations have been completed within the action area, although we anticipate formally consulting with Kofa NWR in the near future on activities on Kofa NWR that may affect Sonoran pronghorn. Because the 10(j) population is treated as a species proposed to be listed for section 7 consultation purposes, only actions affecting pronghorn on Kofa NWR need to undergo section 7 consultation.

EFFECTS OF THE PROPOSED ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Effects of ongoing and proposed activities on Sonoran pronghorn on Kofa NWR can generally be segregated into effects of aerial operations and effects of ground-based operations. In response to military overflights, pronghorn may exhibit a startle response or may flush from cover (Krausman *et al.* 2001, Hughes and Smith 1990, Workman *et al.* 1992, Luz and Smith 1976). Pronghorn may alter use of areas to avoid aircraft noise or disturbance (Bleich *et al.* 1990, Krausman *et al.* 1986), or may exhibit other physiological or behavioral responses that could be detrimental (Bowles 1995, Norrix *et al.* 1995, Stockwell and Bateman 1987, Berger *et al.* 1983). Ground-based activities can destroy or degrade forage and cover, and result in behavioral or physiological changes that may be detrimental (Geist 1971, Freddy *et al.* 1986, Workman *et al.* 1992).

The Sonoran pronghorn is sensitive to human presence. Krausman *et al*. (2001) reported that Sonoran pronghorn reacted to ground disturbances (vehicles or people on foot) with a change in behavior 37 percent of the time, resulting in the animals running or trotting away 2.6 percent of the time. The effects of disturbance from vehicular use of roads on Sonoran pronghorn were a more significant impact than disturbance from aircraft (helicopter, jet, and fixed wing) (Krausman *et al*. 2001). Wright and deVos (1986) noted that Sonoran pronghorn exhibit "a heightened response to human traffic" as compared to other subspecies of pronghorn. They noted that "once aware of an observer, Sonoran pronghorn are quick to leave the area. One herd was observed 1.5 hours later 11 miles north of the initial observation in October 1984. Other pronghorn have run until out of the observer's sight when disturbed." Hughes and Smith (1990) noted that on all but one occasion, Sonoran pronghorn ran from the observer's vehicle and continued to run until they were out of sight. Krausman *et al*. (2001) documented 149 direct overflights and 263 other overflights (in which the aircraft passed ≥328 feet to the side of the animal). Pronghorn changed their behavior (e.g., from standing to trotting or running, or bedded to standing) 39 and 35 percent of the time during direct and other overflights, respectively.

Staff at OPCNM (2013) documented that during their typical morning activity period (post-sunrise), pronghorn on OPCNM experienced some form of potential disturbance once every 4 hours 10 minutes. Actual disturbance responses took place once every 6 hours 15 minutes. Potential disturbance events resulted in the pronghorn running, about once every 8 hours 20 minutes. Helicopter overflights took place once every 6 hours 15 minutes; one out of four overflights resulted in pronghorn running, and one in four resulted in vigilance (standing, alert, watching disturbance source). Vehicles approaching within one mile occurred once every 12 hours 30 minutes. Half of these resulted in pronghorn running, but for the other half, the driver was contacted by radio and advised to drive slowly (<10 mph) past the observation area.

Preliminary information from a study on the effects of human disturbance on Sonoran pronghorn indicates that pronghorn consistently exhibit visual responses to human activity, particularly vehicles traveling on a road within several kilometers. Although some instances have been noted where a pronghorn did not exhibit a visual response (for example, one buck did not appear disturbed by three

vehicles driving at least 25 miles per hour about 1.5 kilometers away); most observations indicate that pronghorn exhibit a spectrum of responses, from standing vigilant to running from the stimulus. For example, eight Sonoran pronghorn were observed running a short distance and then vigilant towards utility vehicle noise 3.4 kilometers away. Another eight Sonoran pronghorn were observed running from several trucks traveling fast (> 25 mph). Pronghorn were initially vigilant when the vehicles were 1.3 kilometers away but soon started running, travelling over 3.6 kilometers in under five minutes until they were out of sight of the observers (email from Stephanie Doerries, University of Arizona, May 7, 2014).

Disturbance and flight of ungulates are known to result in a variety of physiological effects that are adverse, including elevated metabolism, lowered body weight, reduced fetus survival, and withdrawal from suitable habitat (Geist 1971, Harlow *et al*. 1987). Frequent disturbance imposes a burden on the energy and nutrient supply of animals (Geist 1971), which may be exacerbated in harsh environments such as those occupied by Sonoran pronghorn. Human presence may cause Sonoran pronghorn to move from an area, thereby denying pronghorn access to that specific site for what may be crucial ecological functions (e.g. foraging, bedding, seeking thermal shelter, seeking mates, seeking fawning sites, seeking areas of relative safety from predators). Causing pronghorn to move also increases their physiological demands by expending calories and metabolic water. These may be critical stressors in seasonal hot-dry periods and in extended periods of low forage availability. Disturbance may also lead to mortality. Causing a pronghorn to be alarmed or agitated, or to flee from a disturbance, may also make it vulnerable to predator attack. This is especially true for fawns and females during the fawning season. Krausman *et al*. (2001) found that fawns and their mothers were more sensitive to human disturbance than other life stages of Sonoran pronghorn.

Adverse effects to Sonoran pronghorn on Kofa NWR from YPG activities include visual and auditory disturbance by aircraft flying over the refuge, munitions being detonated near the refuge boundary, or human and vehicular presence near the boundary of the refuge. Wildfire may also directly or indirectly affect Sonoran pronghorn on the refuge in the event that wildfire encroaches from YPG onto the refuge.

Effects of Aerial Operations

Aircraft overflights of Kofa NWR may cause intermittent visual and auditory disturbance of Sonoran pronghorn. Most fixed wing aircraft flights in the airspace above Kofa NWR in the King Valley Area (**R-2308A**) occur between 8,000 and 32,000 feet AGL; due to their high altitude (noise from the aircraft is significantly reduced by the time it reaches the ground) these flights are not expected to disturb pronghorn. The lower limit of YPG airspace within R-2308A on Kofa NWR is 1,500 feet AGL; however, the YPG ONMP recommends that pilots remain at least 2,000 feet AGL. Currently, flights very rarely fly this low over Kofa NWR. Although noise from these lower level flights is not completely attenuated by the time it reaches the ground, it is reduced to the point of background noise and therefore not expected to elicit substantial reactions from Sonoran pronghorn. Furthermore, aircraft do not hover over the refuge, but pass by. This helps reduce potential auditory and visual disturbance to pronghorn as well. The potential effects of helicopter use in R-2308A are discussed below.

Airspace **R-2307** covers the YPG Kofa Firing Range and the southern portion of the Kofa NWR and ranges from surface to unlimited altitude. Specifically, airspace R-2307 overlaps the refuge along the southern portion of the Castle Dome Mountains, west of King Valley. The rough terrain of the mountains reduces the quality of habitat for pronghorn; however, pronghorn could pass through the valleys or occupy the foothills and valleys at the base of the mountains. Although low level flights may disturb pronghorn occurring in airspace R-2307 over the refuge, because fixed wing flights seldom occur at low

levels, we anticipate disturbance from these flights will be a rare event. The potential effects of helicopter use in R-2307 are discussed below.

Helicopters use, particularly low level flights, in R-2307 and R-2308 over Kofa NWR have higher potential to disturb pronghorn than fixed wing flights due to their rotor noise, hovering, and low flight capabilities. Low level helicopter flights in R-2308 and R-2307 over the Kofa NWR are rare; however, helicopters used in conducting safety sweeps of the refuge (primarily in R-2307) will likely be flown at low altitudes. These flights may startle pronghorn and cause them to flee. However, because these sweeps 1) will occur mostly over mountainous terrain where habitat is less desirable for pronghorn, and 2) are anticipated to infrequently occur, we anticipate that disturbance from these flights should be rare.

Operation of existing drop zones on the Cibola range should have no impact to Sonoran pronghorn on Kofa NWR due to their distance from the refuge. However, operation of the new drop zone in the King Valley near Kofa NWR (identifier K002, Figure 2a and 2b) may disturb pronghorn on Kofa NWR due to its proximity to the refuge. Flights associated with aerial delivery at the new drop zone should have minimal effects on pronghorn behavior due to the elevation of the flights, as explained above. Vehicles (ranging from utility vehicles to flatbed trucks or truck mounted cranes) associated with load recovery and placement and pick up of instrumentation at or near the new drop zone may intermittently disturb and cause behavioral changes in Sonoran pronghorn on Kofa NWR.

Effects of Ground-based Operations

Effects of Munitions

A number of ground-based activities, including munitions firing and YPG response to munitions that accidentally land on Kofa NWR, may injure/kill or disturb Sonoran pronghorn or may degrade their habitat on Kofa NWR. Munitions firing or ordnance deliveries could injure or kill Sonoran pronghorn on Kofa NWR; however, this is highly unlikely as all munitions firing or ordnance deliveries occur on YPG (not within Kofa NWR) and the impact area boundary within potential pronghorn habitat is located about one kilometer south of the Kofa NWR boundary. SDZs occasionally encroach onto Kofa NWR and munitions may be fired over parts of the refuge following the conditions established for the buffer area. However, YPG carefully plans each shot on the range with consideration of the gun position from which ordnance is fired to the target or impact area. Test directors take into account the capabilities and past performance of the ordnance and blast radius to develop a SDZ in which the munitions could inadvertently land. As a result of these precautions, the likelihood of ordnance landing within the refuge is low and the likelihood of munitions hitting and injuring or killing Sonoran pronghorn is even lower given that they regularly move and are not fixed on the landscape.

In the rare event that munitions fall onto Kofa NWR (the algorithm used to establish the dimensions for the safety fan uses a 1/1,000,000 probability of munitions landing outside the fan), YPG will coordinate with Kofa NWR to remediate the impacts as soon as possible. YPG's remediation response, which would involve personnel and vehicles, could disturb Sonoran pronghorn depending on where the munitions fall and the access route taken to reach the munitions; however, the potential disturbance should not only be a rare occurrence, but it should also be relatively brief. The remediation response could also result in minor degradation of Sonoran pronghorn habitat depending on where the munitions fall. YPG is committed to ensuring that impacts to Sonoran pronghorn are avoided to the extent possible.

Munitions firing may cause auditory disturbance to Sonoran pronghorn on the refuge. Explosions from munitions testing and training on YPG in the Castle Dome Mountains along the western and southern boundary of Kofa NWR would be audible to pronghorn in portions of the area they may occupy. Because

munitions testing and training is relatively constant in this area and because noise is reduced by the time it reaches Kofa NWR, Sonoran pronghorn likely become habituated to such noise and are less likely to exhibit startle responses as a result of it. That said, no pronghorn observations have been made in the southern end of the refuge during munitions training and testing, so their responses and reactions are unknown at this time.

Expansion of the munitions impact area from northern boundary of existing impact areas Echo and Foxtrot to the northern boundary of the Ramsdell Ranch impact area and the area previously contaminated by unexploded ordnance (identifier K003; Figure 2a and 2b), which is about one kilometer south of the Kofa NWR southern boundary, may cause increased visual and auditory disturbance to Sonoran pronghorn on Kofa NWR. Expanding the available munitions impact area will not result in increased frequency of munitions firing, however, it will result in addition impacted areas on YPG. Additionally, there will be an increase in the area available for people to enter and use for target placements, establishment of temporary gun positions or observation points, impact testing, and ordnance recovery purposes (people enter impact areas per mission requirements). Increases in human activity in the expanded impact area may occur if there are increases in demand for testing.

While munitions firing can cause habitat degradation in the impact zone, it is highly unlikely that Sonoran pronghorn habitat on Kofa NWR will be impacted by munitions due to the very small risk of munitions landing on the refuge. That said, munitions firing could degrade Sonoran pronghorn habitat on Kofa NWR as a result of fire starting on YPG (from munitions) and spreading to the refuge. Most fires on YPG are very small and isolated due to the sparse nature of fuels in this region. From 2003 to present, there were an estimated 26 fire starts on YPG and a total of 3,170 acres burned on YPG. Of that total, 3,000 acres was from one event, the King Valley Fire in September 2005. The King Valley Fire, ignited due to munitions impact on YPG, is the only major documented fire originating on YPG in over 70 years of military testing and training activities. In addition to burning 3,000 acres on YPG, it burned 26,000 acres on Kofa NWR for a total of about 29,000 acres. This type of fire event is only made possible by exceptional amounts of precipitation and resulting vegetation growth. Although this type of fire is rare, in the event that one occurs again during the life of the proposed action, a significant amount of Sonoran pronghorn could be temporarily impacted by such an event. Fires may affect vegetation composition, as well as temporarily reduce cover and forage quantity and quality. Reduced cover could lead to increased predation of fawns. Additionally, wildfire may temporarily displace Sonoran pronghorn and could injure or kill fawns if they are too young to flee the oncoming fire. Although fire can cause many temporary adverse effects to Sonoran pronghorn habitat, over a longer time period, fire can cause increases in annual forbs and lengthen the green-up period which is beneficial to Sonoran pronghorn. To reduce the risk of wildfires spreading, since the 2005 King Valley Fire, YPG has adopted more effective communication protocols in responding to fires.

Effects of Light Training Areas

Expansion of an LTA (identifier K026, Figures 2 a and 2b) to support operational testing and dismounted maneuver training at Smart Weapons Test Range (SWTR) may disturb Sonoran pronghorn on Kofa NWR due to the proximity of the expansion to the refuge. Human activities (up to 120 troops may train at an LTA), vehicles, generators, and staging of equipment associated with training activities at the expanded LTA may result in visual and auditory disturbance of pronghorn on Kofa NWR possibly causing them to startle or run.

Effects of Electronic Warfare/Communication/Sensor Testing and Observation Points

Testing of electronics systems and use of observation points may intermittently disturb Sonoran pronghorn on Kofa NWR. People and vehicles associated with these activities, should they occur near or

adjacent to the refuge may cause pronghorn to startle or run; however, we do not anticipate that these activities will occur frequently near the Kofa NWR boundary.

Effects of Facilities Construction, Operation, and Maintenance

Construction activities, including vehicular and equipment access and human activity, associated with new utility lines and testing instrumentation near the new drop zone northeast of East Smart Weapons Test Range (SWTR) Impact Area (identifier K002; Figure 2a and 2b) may temporarily disturb Sonoran pronghorn on Kofa NWR due to their proximity to the refuge. Testing instrumentation will likely only take a couple of days to establish; however, it is not known how long utility line construction will take. Establishing the drop zone itself requires no construction. Disturbance associated with operation of the drop zone will be ongoing and is discussed in the Effects of Aerial Operations section above. Construction and operation of an aircraft shelter, multiple buildings, water tank, storage area for petroleum products, and graded parking area, as well as clearing of a launch/recovery area at SWTR (identifier K004-a, Figure 2a and 2b) may also disturb Sonoran pronghorn on Kofa NWR due to their possible proximity to the refuge (the exact location of the construction is not currently known, but may be within a few kilometers of the southern boundary of Kofa NWR). According to the BE, the construction will occur in an area where current human activity is already high, so activities associated with the construction and operations of these facilities may not have a significantly greater effect on Sonoran pronghorn on Kofa NWR than existing activities at the site. The additional effect is difficult to quantify because background levels of human activity at the site as well as increases in the amount of human activity associated with construction and operations of the new facilities were not provided in the BE. Overall, given that construction and operation of the facilities will not occur adjacent to Kofa NWR, it is unlikely that these activities will significantly alter Sonoran pronghorn behavior on the refuge.

Maintenance of range infrastructure such as observation points, utilities, and roads occurs throughout YPG and may disturb Sonoran pronghorn on Kofa NWR due to the proximity of some of these maintenance activities to Kofa NWR. Human and vehicular activities associated with routine maintenance of roads and utilities in particular have the greatest likelihood of visually or auditorily disturbing pronghorn due to the proximity of some roads and utilities to Kofa NWR. Such disturbance will be intermittent but continuous for the life of the project.

Effects to Sonoran Pronghorn Recovery with the Project

As stated in the “Status of the Species” section above, current downlisting criteria for Sonoran pronghorn are: 1) the establishment of a population of 300 adult pronghorn in one self-sustaining population for a minimum of five years; and 2) the establishment of at least one other self-sustaining population in the U.S. Currently, there are no delisting criteria. The proposed action will not affect the first downlisting criteria because the effects of the project do not extend into the endangered Sonoran pronghorn range, the population with the downlisting requirement of 300 adult pronghorn. The proposed action may affect the second downlisting criteria. For example, activities on YPG may disturb, injure, or kill pronghorn, as well as degrade their habitat. YPG activities with such an effect could limit the establishment of Sonoran pronghorn in certain areas of the nonessential experimental population or 10(j) boundary, particularly on YPG. That said, the Sonoran Pronghorn Recovery Team was aware of these activities when planning for the establishment of a second pronghorn population in Arizona and ranked the area (Area A, see Figure 7 and USFWS 2010 and 2011) as the highest priority area to establish a second viable Sonoran pronghorn population in Arizona. Although the proposed action may affect establishment of a second Arizona pronghorn population, we do not anticipate it will preclude the second recovery criteria due to the availability of potential Sonoran pronghorn not impacted or minimally impacted by YPG activities within

Area A of the nonessential experimental population boundaries. In other words, it is highly likely that a self-sustaining Sonoran pronghorn population will be established on Kofa NWR and surrounding areas even with the impacts of the proposed action. As such, we do not anticipate that the proposed action will preclude downlisting of Sonoran pronghorn. Because delisting recovery have not been established, it is difficult to analyze the potential impacts of the proposed action on Sonoran pronghorn recovery (delisting). However, because YPG activities should have no effect to Sonoran pronghorn within Area A outside of YPG and Kofa NWR and only minimal effects to Sonoran pronghorn on Kofa NWR, it is our opinion that recovery of Sonoran pronghorn will not be precluded by the proposed action.

CUMULATIVE EFFECTS - SONORAN PRONGHORN

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The lands within the action area are managed by Federal agencies (YPG and Kofa NWR); thus, most activities that could potentially affect pronghorn on Kofa NWR are Federal activities that are subject to section 7 consultation. The effects of these Federal activities are not considered cumulative effects.

CONCLUSIONS - SONORAN PRONGHORN

After reviewing the current status of the Sonoran pronghorn, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the Sonoran pronghorn. No critical habitat has been designated for this species; therefore, none will be affected. Our conclusion is based on the following:

1. No Sonoran pronghorn in the endangered U.S. population will be affected by the proposed action.

2. Activities on YPG and their effects to Sonoran pronghorn off of Kofa NWR were not analyzed in this biological opinion; however, they were discussed by our offices. Because the Kofa Sonoran pronghorn population is a nonessential experimental population, by definition, it is not essential to the continued existence of the species. We have therefore determined that effects of the proposed action will not jeopardize the continued existence of the species.

3. No Sonoran pronghorn habitat on Kofa NWR will be intentionally impacted as a result of activities occurring on YPG. Fire starting on YPG as a result of munitions firing and spreading onto Kofa NWR could occur but this would be considered a rare event and YPG has adopted more effective communication protocols in responding to fires to prevent their spread.

4. Although we anticipate the proposed action may result in some disturbance to Sonoran pronghorn on Kofa NWR, the number of pronghorn that may potentially be disturbed is relatively small in comparison to the estimated number of Sonoran pronghorn throughout their range. The number of wild Sonoran pronghorn throughout their range is about 681 (the number of wild Sonoran pronghorn in Arizona is about 175). It is difficult to estimate how many Sonoran pronghorn on Kofa NWR may be disturbed by the proposed action, but even if all 36 were disturbed, this would represent 5 percent of the Sonoran pronghorn throughout their range. It is anticipated that the population on Kofa NWR will continue to increase; therefore this percentage is also likely to increase.

5. Measures included in the proposed action will help reduce disturbance to Sonoran pronghorn and their habitat, as well as the risk of injury or death of Sonoran pronghorn on Kofa NWR from project-related activities. These measures include flight limits of 1,500 feet AGL over the King Valley portion of the Kofa NWR, improved communications protocol for fire, and munitions impact areas being located approximately one kilometer away from the boundary of Kofa NWR in the King Valley Area.

6. As explained above, we do not anticipate that downlisting of Sonoran pronghorn will be precluded by the proposed action. No delisting criteria have been established, therefore, it is difficult to analyze the potential impacts of the proposed action on Sonoran pronghorn recovery (delisting). However, as explained above, because YPG activities should have no effect to Sonoran pronghorn within Area A outside of YPG and Kofa NWR and only minimal effects to Sonoran pronghorn on Kofa NWR, it is our opinion that recovery of Sonoran pronghorn will not be precluded by the proposed action.

7. Although populations throughout the species' range continue to be at risk, the proposed project will not have an appreciable impact on the population at the rangewide scale. Thus, the proposed action is not expected, directly or indirectly, to reduce appreciably the likelihood of both survival and recovery of the Sonoran pronghorn in the wild by reducing the reproduction, numbers, or distribution of the species.

8. Recovery is the process that stops the decline of an endangered or threatened species by removing or reducing threats. Recovery ensures the long-term survival of the species in the wild. At that point, the species is recovered, and protection of the ESA is no longer necessary. The aforementioned effects will not appreciably reduce the likelihood of recovery of the Sonoran pronghorn.

The adverse effects that do occur in the action area do not reach the scale where recovery of the species would be significantly delayed or precluded. The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT – SONORAN PRONGHORN

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). "Harass" is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3). "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Amount or Extent of Take Anticipated – Sonoran pronghorn

We anticipate the proposed action will result in incidental take of a total of four Sonoran pronghorn on Kofa NWR over the life of the project (10-20 years). More specifically, we anticipate the following:

1) Incidental take of two Sonoran pronghorn fawns on Kofa NWR in the form of directly mortality or injury due to fire on the refuge that starts from activities carried out or authorized by YPG, like munitions training and testing. Fire may consume or injure fawns that are too young to flee from oncoming fire; and

2) Incidental take of two Sonoran pronghorn of any age on Kofa NWR in the form of harm due to significant habitat modification or degradation on the refuge from fire that starts from activities carried out or authorized by YPG, like munitions training and testing, that result in death or injury by significantly impairing behavioral patterns, including breeding, feeding, or sheltering.

We anticipate the above anticipated incidental take will be difficult to detect because: 1) dead or impaired individual Sonoran pronghorn are very difficult to find unless they are radio-collared; 2) the status of the species is changing over time through immigration, emigration, and natural loss; and, 3) the species ranges over a relatively large area, and thus the same individual can be difficult to re-detect unless it is radio-collared or ear-tagged. However, monitoring and reporting requirements will allow us to assess the effects of proposed project activities on Sonoran pronghorn. In addition, YPG will report to us any mortality or injury of Sonoran pronghorn due to activities carried out or authorized by YPG.

The amount of anticipated incidental take will have been exceeded, triggering a requirement for reinitiation (50 CFR §402.16) if:

1) More than two fires greater than 10 acres each occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG over the life of the project.

Take of Sonoran pronghorn on YPG that is incidental to, and not the purpose of, carrying out any otherwise lawful activity is authorized under the special rule § 17.84 in the Final 10(j) rule (USFWS 2011), provided that such taking is reported as soon as possible. Otherwise lawful activities are any activities in compliance with applicable land management regulations, hunting regulations, tribal law, and all other applicable law and regulations, and include, but are not limited to, military training and testing, border security and enforcement carried out by Federal law enforcement officials (e.g., U.S. Customs and Border Protection), agriculture, rural and urban development, livestock grazing, camping, hiking, hunting, recreational vehicle use, sightseeing, nature or scientific study, rockhounding, and geocaching, where such activities are permitted.

Effect of the Take

We conclude that this level of anticipated take is not likely to result in jeopardy to the Sonoran pronghorn, for the effects are not expected to appreciably reduce the survival and recovery of the species for the reasons stated in the Conclusions section.

Reasonable and Prudent Measures

The USFWS believes the following Reasonable and Prudent measures are necessary and appropriate to minimize take of Sonoran pronghorn:

1) Monitor environmental conditions on the Kofa Range;

2) Decrease the risk of fire on Kofa NWR from activities carried out or authorized by YPG; and

3) Report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, YPG must comply with the following Terms and Conditions, which implement the Reasonable and Prudent Measures described above and outline required reporting and monitoring requirements. These Terms and Conditions are non-discretionary.

1) The following Term and Condition implements Reasonable and Prudent Measure Number 1:

    a. YPG shall monitor environmental conditions on the Kofa Range, including weather patterns (e.g., temperature, precipitation, humidity) and status of fuels (e.g., distribution and density of annual vegetation or any other vegetation that is capable of carrying fire across the landscape).

2) The following Term and Condition implements Reasonable and Prudent Measure Number 2:

    a. YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire department with wildland firefighting capabilities. Additionally, YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire station on the Kofa Firing Range (KFR) to provide rapid response on the Kofa Range in the event of fire. If the fire department and/or fire station are discontinued at any time in the future, YPG shall notify FWS-AESO and Kofa NWR, and this Term and Condition may need to be reevaluated.

    b. Should YPG detect exceptional fuel conditions that are conducive to carrying fire, then YPG shall increase fire readiness by 1) providing additional fire briefings to test officers to stress the importance of initial fire spotting and early notification, and 2) subject to availability of funds, maintain fire break infrastructure where such infrastructure is compatible with the military mission (as determined by the Senior Commander) and pronghorn conservation (as determined through coordination with Kofa NWR and FWS-AESO) and is anticipated to reduce the risk of fire spreading to Kofa NWR (as determined by local firefighting agencies).

3) The following Term and Condition implements Reasonable and Prudent Measure Number 3:

    a. YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to FWS-AESO and Kofa NWR as soon as possible. The report (can be in the form of an email) will, at a minimum, include the date(s), acreage, and location(s) of the fire(s), as well as number of pronghorn in the

vicinity of the fire, if known. YPG shall also immediately notify Kofa NWR once aware that a fire has or may encroach onto the refuge.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. YPG must immediately provide an explanation of the causes of the taking and review with the FWS-AESO the need for possible modification of the reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

Upon finding a dead or injured threatened or endangered animal, initial notification must be made to the USFWS's Division of Law Enforcement, 2450 West Broadway, Mesa, Arizona (480-967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition.

In accordance with the Final 10(j) rule (USFWS 2011), any incidental take of Sonoran pronghorn must be reported as soon as possible by calling the USFWS, Arizona Ecological Services Office, 201 N Bonita Avenue, Suite 141, Tucson, AZ 85745 (520/670–6150), or the Cabeza Prieta National Wildlife Refuge, 1611 North Second Avenue, Ajo, AZ 85321 (520/387–6483). Upon contact, a determination will be made as to the disposition of any live or dead specimens.

In addition to the above, the 2014 Final Incident Response Protocol for Sonoran pronghorn will be followed.

CONSERVATION RECOMMENDATIONS – SONORAN PRONGHORN

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We recommend implementing the following actions:

1. Continue to participate on the Sonoran Pronghorn Recovery Team as staffing and funding permit.

2. Participate in the implementation of the Sonoran Pronghorn Recovery Plan, including providing or pursuing financial support, subject to the availability of funds, to implement recovery actions on YPG that are identified by the Sonoran Pronghorn Recovery Team as military mission allows.

3. Avoid and minimize adverse effects to Sonoran pronghorn from military and other activities on YPG to the extent practicable.

In order for the USFWS to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the USFWS requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the (request/reinitiation request). As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Thank you for your cooperation and assistance throughout this consultation process. Any questions or comments should be directed to Erin Fernandez (520) 670-6150 (x238) or Jean Calhoun (x223). Please refer to the consultation number, 02EAAZ00-2014-F-0161 in future correspondence concerning this project.

Sincerely,

/ s / Scott Richardson for
Steven L. Spangle
Field Supervisor

cc (hard copy):
Field Supervisor, Fish and Wildlife Service, Tucson, AZ (2 copies)
Jean Calhoun, Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

cc (electronic copy):
Greg Risdahl, Refuge Manager, Kofa National Wildlife Refuge, Ajo, AZ
James Atkinson, Cabeza Prieta National Wildlife Refuge, Ajo, AZ
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ, pep@azgfd.gov
Regional Supervisor, Arizona Game and Fish Department, Yuma, AZ (Attn: John Hervert)
Raul Vega, Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ

filename: Final YPG BO September 9, 2014.ef.docx

LITERATURE CITED

Alford, E.J., and J.H. Brock. 2002. Effects of fire on Sonoran Desert plant communities. Page 20 *in* W.L. Halvorson and B.S. Gebow (eds.), Creative Cooperation in Resource Management: Fourth Conference on Research and Management in the Southwestern Deserts, extended abstracts. USGS Sonoran Desert Field Station, University of Arizona, Tucson, AZ.

Bright, J.L., and J.J. Hervert. 2005. Adult and fawn mortality of Sonoran pronghorn. Wildlife Society Bulletin 33(1):43-50.

Bright, J.L., J.J. Hervert, L.A. Piest, R.S. Henry, and M. T. Brown. 1999. Sonoran pronghorn 1998 aerial survey summary. Nongame and Endangered Wildlife Program Technical Report No. 152. Arizona Game and Fish Department, Phoenix, AZ.

Bright, J.L., J.J. Hervert, and M.T. Brown. 2001. Sonoran pronghorn 2000 aerial survey summary. Technical Report No. 180. Arizona Game and Fish Department, Phoenix, AZ.

Brown, D.E. 1982. Biotic communities of the American Southwest – United States and Mexico. Desert Plants 4(1-4):1-342.

Brown, D. E. and R. A. Ockenfels. 2007. Arizona's Pronghorn Antelope, A Conservation Legacy. Arizona Antelope Foundation. 190 pp.

Brown, D.E., and R.A. Minnich. 1986. Fire and changes in creosote bush scrub of the western Sonoran Desert, California. American Midland Naturalist 116(2):411-422.

Carr, J.N.. 1974. Complete report-Endangered species investigation. Sonoran pronghorn. Arizona Game and Fish Department, Phoenix, AZ.

Cherkovich, G.M., and S.K. Tatoyan. 1973. Heart rate (radiotelemetric registration) in macaques and baboons according to dominant-submissive rank in a group. Folia Primatol 20:265-273.

Defenders of Wildlife. 1998. Population viability analysis workshop for the endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*) in the United States. Defenders of Wildlife unpublished manuscript, Washington, D.C.

deVos, J.C., and W.H. Miller. 2005. Habitat use and survival of Sonoran pronghorn in years with above-average rainfall. Wildlife Society Bulletin 33(1):35-42.

Ehrlich, P.R., and J. Roughgarden. 1987. The Science of Ecology. MacMillan Publishing Co., New York, N.Y.

Esque, T.C., and C.R. Schwalbe. 2002. Alien annual grasses and their relationships to fire and biotic change in Sonoran desertscrub. Pages 165-194 in B. Tellman (ed.), Invasive Exotic Species in the Sonoran Region. University of Arizona Press and the Arizona-Sonora Desert Museum, Tucson, Arizona.

Fox, L.M., P.R. Krausman, M.L. Morrison, and R.M. Kattnig. 2000. Water and nutrient content of forage in Sonoran pronghorn habitat, Arizona. California Fish and Game 86(4): 216-232.

Geist, V. 1971. A behavioral approach to the management of wild ungulates. *In* E. Duffey and A.S. Watts, eds., The Scientific Management of Animal and Plant Communities for Conservation. Symposium of the British Ecological Society No. 11. Blackwell Science Publications, Oxford, U.K.

Gerstenzang, J. 2006. Bush visits border, urges Senate action. Los Angeles Times, May 19, 2006.

Goldman, E.A. 1945. A new pronghorn from Sonora. Proceedings of the Biological Society, Washington 58:3-4.

Hecht, A. and P.R. Nickerson. 1999. The need for predator management in conservation of some vulnerable species. Endangered Species Update 16:114-118.

Hervert, J.J., J.L. Bright, M.T. Brown, L.A. Piest, and R.S. Henry. 2000. Sonoran pronghorn population monitoring: 1994-1998. Nongame and Endangered Wildlife Program Technical Report No. 162. Arizona Game and Fish Department, Phoenix, AZ.

Hervert, J.J. J.L. Bright, R.S. Henry, L.A. Piest, and M.T. Brown. 2005. Home-range and habitat-use patterns of Sonoran pronghorn in Arizona. Wildlife Society Bulletin 33(1):8-15.

Hervert, J.J., L.A. Piest, R.S. Henry, and M.T. Brown. 1997a. Sonoran pronghorn 1996 aerial survey summary. Nongame and Endangered Wildlife Program Technical Report No. 124. Arizona Game and Fish Department, Phoenix, AZ.

Hervert, J.J., L.A. Piest, W. Ballard, R.S. Henry, M.T. Brown, and S. Boe. 1997b. Sonoran pronghorn population monitoring: progress report. Nongame and Endange red Wildlife Program Technical Report No. 126. Arizona Game and Fish Department, Phoenix, AZ.

Hughes, K.S., and N.S. Smith. 1990. Sonoran pronghorn use of habitat in Southwest Arizona. Report to Cabeza Prieta National Wildlife Refuge, Ajo, AZ.

Intergovernmental Panel on Climate Change. 2007. Summary for policymakers of the synthesis report of the IPCC fourth assessment report. Draft copy, 16 November 2007.

Johnson, B.K., F.G. Lindzey, and R.J. Guenzel. 1991. Use of aerial line transect surveys to estimate pronghorn populations in Wyoming. Wildlife Society Bulletin 19:315-321.

Jorgenson, J.T. Environmental impact of the 1988 winter Olympics on bighorn sheep of Mt. Allan. Biennial Symposium of the Northern Wild Sheep and Goat Council 6:121-134.

Kerley, L. L., J. M. Goodrich, E. N. Smirnov, D. G. Miquelle, H.B. Quigley, and M.G. Hornocker. Effects of roads and human disturbance on Amur tigers. Conservation Biology 16(1):97-108.

Kindschy, R.R., C. Sundstrom, and J.D. Yoakum 1982. Wildlife habitats in managed rangelands - the Great Basin of southeastern Oregon: pronghorn. General Technical Report PNW-145. U.S. Department of Agriculture, Northwest Forest and Range Experimental Station, Portland, OR.

Klein, K. 2000. Mass smugglings of immigrants on the increase. March 13, Desert Sun, Palm Springs, www.thedesertsun.online.com.

Krausman, P.R., L.K. Harris, C.L. Blasch, K.K.G. Koenen, and J. Francine. 2004. Effects of military operations on behavior and hearing of endangered Sonoran pronghorn. Wildlife Monographs 157:1-41.

Krausman, P.R., L.K. Harris, S.H. Haas, K.K.G. Koenen, P. Devers, D. Bunting, and M. Barb. 2005. Sonoran pronghorn habitat us on landscapes disturbed by military activities. Wildlife Society Bulletin 33(1):16-33.

Krausman, P.R., L.K. Harris, and J. Francine. 2001. Long-term study of the noise effects of military overflights on the Sonoran pronghorn, Barry M. Goldwater Range, Luke Air Force Base, Arizona. U.S. Air Force Contract F41624-98-C-8020-P00003.

Landon, D.M., P.R. Krausman, K.K.G. Koenen, and L.K. Harris. 2003. Pronghorn use of areas with varying sound pressure levels. The Southwestern Naturalist 48(4):725-728.

Leftwich, T.J., and C.D. Simpson. 1978. The impact of domestic livestock and farming on Texas pronghorn. Pronghorn Antelope Workshop Proceedings 8:307-320.

Luz, G.A., and J.B. Smith. 1976. Reactions of pronghorn antelope to helicopter overflight. Journal of Acoustical Society of America 59(6): 1514-1515.

Mearns, E.A. 1907. Mammals of the Mexican boundary of the United States, Part 1. Bulletin of the U.S. National Museum 56:XVT530.

McDonald E., E. Hamerlynck, J. McAuliffe, and T. Caldwell. 2004. Analysis of desert shrubs along first-order channels on desert piedmonts: possible indicators of ecosystem condition and historic variation. Strategic Environmental Research and Development Program. Desert Research Institute.

Milstead, B, and B. Barns. 2002. Life on the border: monitoring the effects of border-crossing and law enforcement on natural resources. W.L. Halvorson and B.S. Gebow, eds., Meeting resource management information needs: fourth conference on research and resource management in the southwestern deserts, extended abstracts. USGS Sonoran Desert Field Station, University of Arizona, Tucson: 87-88.

Moen, A.N., M.A. DellaFera, A.L. Hiller, and B.A. Buxton. 1978. Heart rates of white-tailed deer fawns in response to recorded wolf howls. Canadian Journal of Zoology 56:1207-1210.

Monson, G. 1968. The desert pronghorn. *In* Desert Bighorn Council Transactions. Las Vegas, NV.

Morgart, J.R., J.J. Hervert, P.R. Krausman, J.L. Bright, and R.S. Henry. 2005. Sonoran pronghorn use of anthropogenic and natural waters. Wildlife Society Bulletin 33(1):51-60.

Nelson, F.W. 1925. Status of the pronghorn antelope, 1922-1924. U.S. Department of Agriculture Bulletin No. 1346.

Nowak, R.M., and J.L. Paradiso. 1983. Walker's mammals of the world. 4th Ed. Vol. II. Johns Hopkins University. Press, Baltimore, MD.

Officer, J.E. 1993. Kino and agriculture in the Pimeria Alta. Journal of Arizona History 34:287-306.

Organ Pipe Cactus National Monument. 2001. Draft supplemental environmental impact statement, re-analysis of cumulative impacts on the Sonoran pronghorn. Organ Pipe Cactus National Monument, Ajo, AZ.

_____. 2013. Threatened, endangered and sensitive species: Annual summary of activities. Resources Management Division, Organ Pipe Cactus National Monument, Ajo, Arizona. 35 pp.

Paradiso, J.L., and R.M. Nowak. 1971. Taxonomic status of the Sonoran pronghorn. Journal of Mammalogy 52(4):855-858.

Richter-Dyn, N., and N.S. Goel. 1972. On the extinction of a colonizing species. Theoretical Population Biology 3:406-433.

Rutman, S. 1997. Dirt is not cheap: livestock grazing and a legacy of accelerated soil erosion on Organ Pipe Cactus National Monument, Arizona. *In* J. M. Feller and D. S. Strouse, eds., Environmental, economic, and legal issues related to rangeland water developments. The Center for the Study of Law, Science and Technology, Arizona State University, Tempe, AZ.

Schwalbe, C.R., T.C. Esque, P.J. Anning, and W.L. Halvorson. 2000. Exotic grasses, long-lived species, and managing desert landscapes: a case history at Saguaro National Park. Page 87 *in* W.L. Halvorson and B.S. Gebow (eds), Creative Cooperation in Resource Management: Third Conference on Research and Management in the Southwestern Deserts, extended abstracts. USGS Sonoran Desert Field Station, University of Arizona, Tucson, AZ.

Seager, R., M. Ting, T. Held, Y. Kushnir, J. Lu, G. Vecchi, H. Huang, N. Harrnik, A. Leetmaa, N. Lau, C. Li, J. Velez, and N. Naik. 2007. Model projections of an imminent transition to a more arid climate in southwestern North America. Science 316:1181-1184.

Sheridan, T.E. 2000. Human ecology of the Sonoran Desert. *In* S.J. Phillips and P.W. Comus, eds., A natural history of the Sonoran Desert. Arizona-Sonora Desert Museum Press, Tucson, AZ.

Thompson, R.D., C.V. Grant, E.W. Pearson, and G.W. Corner. 1968. Cardiac response of starlings to sound: effects of lighting and grouping. American Journal of Physiology 214:41-44.

U.S. Fish and Wildlife Service. 1982. Sonoran pronghorn recovery plan. U.S. Fish and Wildlife Service, Region 2, Albuquerque, NM. U.S. Fish and Wildlife Service.

_____. 1998. Final revised Sonoran pronghorn recovery plan. U.S. Fish and Wildlife Service, Albuquerque, NM.

_____. 2001. Recovery criteria and estimates of time for recovery actions for the Sonoran pronghorn: a supplement and amendment to the 1998 final revised Sonoran pronghorn recovery plan. U.S. Fish and Wildlife Service, Albuquerque, NM.

_____. 2010. Final Environmental Assessment for the Reestablishment of Sonoran Pronghorn. U.S. Fish and Wildlife Service Region 2. 21 September 2010.

_____. 2011. Endangered and threatened wildlife and plants; final rule for the establishment of a nonessential experimental population of Sonoran Pronghorn in southwestern Arizona. Federal Register 76(87): 25593-25611.

Weiss, J.L., and J.T. Overpeck. 2005. Is the Sonoran Desert losing its cool? Global Change Biology 11:2065-2077.

Workman, G.D., T.D. Bunch, J.W. Call, F.C. Evans, L.S. Neilson, and E.M. Rawlings. 1992. Sonic boom and other disturbance impacts on pronghorn antelope (*Antilocapra americana*). Report to the U.S. Air Force, Hill Air Force Base, UT.

Wright, R.L. and J.C. deVos. 1986. Final report on Sonoran pronghorn status in Arizona. Contract No. F0260483MS143, Arizona Game and Fish Department, Phoenix, AZ

Yoakum, J.D., B.W. O'Gara, and V.W. Howard, Jr. 1996. Pronghorn on western rangelands. *In* P.R. Krausman, ed., Rangeland wildlife. The Society for Range Management, Denver, CO.

Yuma Proving Ground. 2014. Biological Evaluation of the Effect of Continued Operations at Yuma Proving Grounds on a Nonessential Experimental Sonoran Pronghorn Population Released on Kofa National Wildlife Refuge.

TABLES AND FIGURES

Table 1. A summary of population estimates from literature and field surveys for Sonoran pronghorn in the U.S.

Date	Population estimate (95 percent CI[a])	Source
1925	105	Nelson 1925
1941[b]	60	Nicol 1941
1957	<1,000	Halloran 1957
1968	50	Monson 1968
1968-1974	50 - 150	Carr 1974
1981	100 - 150	Arizona Game and Fish Department 1981
1984	85 - 100	Arizona Game and Fish Department 1986
1992	179 (145-234)	Bright et al. 1999
1994	282 (205-489)	Bright et al. 1999
1996	130 (114-154)	Bright et al. 1999
1998	142 (125-167)	Bright et al. 1999
2000	99 (69-392)	Bright et al. 2001
2002	21 (18-33)	Bright and Hervert 2003
2004	58 (40-175)	Bright and Hervert 2005
2006	68 (52-116)	Unpublished data
2008	68[c]	Unpublished data
2010	85	Unpublished data
2012	159	Unpublished data

[a] Confidence interval; there is only a 5 percent chance that the population total falls outside of this range.
[b] Population estimate for southwestern Arizona, excluding Organ Pipe Cactus National Monument.

Table 2. Comparison of endangered Sonoran pronghorn population surveys in the U.S., 1992-2012.

	Pronghorn observed		Population estimates			
Date	On transect	Total observed	Density estimate using DISTANCE (95 percent CI[a])	Lincoln-Peterson (95 percent CI)	Sightability model (95 percent CI)	Other estimate
Dec 92	99	121	246 (103-584)	---	179 (145-234)	
Mar 94	100	109	184 (100-334)	---	282 (205-489)	
Dec 96	71	82 (95[b])	216 (82-579)	162 (4-324)	130 (114-154)	
Dec 98	74	86 (98[b])	---	172 (23-321)	142 (125-167)	
Dec 00	67	69[b]	N/A	N/A	99 (69-392)	
Dec 02	18	18	N/A	N/A	21 (18-33)[c]	
Dec 04	39	51	N/A	N/A	58	
Dec 06	51	59	N/A	N/A	68 (52-116)	
Dec 08	N/A	N/A	N/A	N/A	N/A	68 [d]
Dec 10	N/A	N/A	N/A	N/A	N/A	85
Dec 12	N/A	N/A	N/A	N/A	N/A	159

[a] Confidence interval; there is only a 5 percent chance that the population total falls outside of this range.

[b] Includes animals missed on survey, but located using radio telemetry.

[c] Jill Bright, Arizona Game and Fish Department, pers. comm. 2003

[d] Due to poor visibility and low pronghorn sighting rate (some radio-collared pronghorn were detected from their transmitter signals but not seen during the surveys) caused by inclement weather during the surveys and having do resurvey some areas during better weather, the usual survey estimator was not used because it would have lacked accuracy. The estimate of 68 was based on individual seen and missed on the survey and on several recent telemetry flights.

Table 3. Comparison of Sonoran pronghorn population surveys in Mexico, 2000-2009.

Date	Pronghorn observed			Population estimate		
	West of Highway 8 (Mexico)	Southeast of Highway 8 (Mexico)	Total	West of Highway 8 (Mexico)	Southeast of Highway 8 (Mexico)	Total
Dec 2000						346
Dec 2002			214			280
Dec 2004 Feb 2005	30	439	469	59	625	684
Jan 2006			486			634
Dec 2007	35	325	360	50	354	404
Dec 2009	53	258	311	101	381	482
Dec 2011	30	167	197	52	189	241
Dec 2013	--	372	372	--	434	434

Figure 1. Map of YPG ranges and Kofa NWR, southwestern Arizona (from the BE).

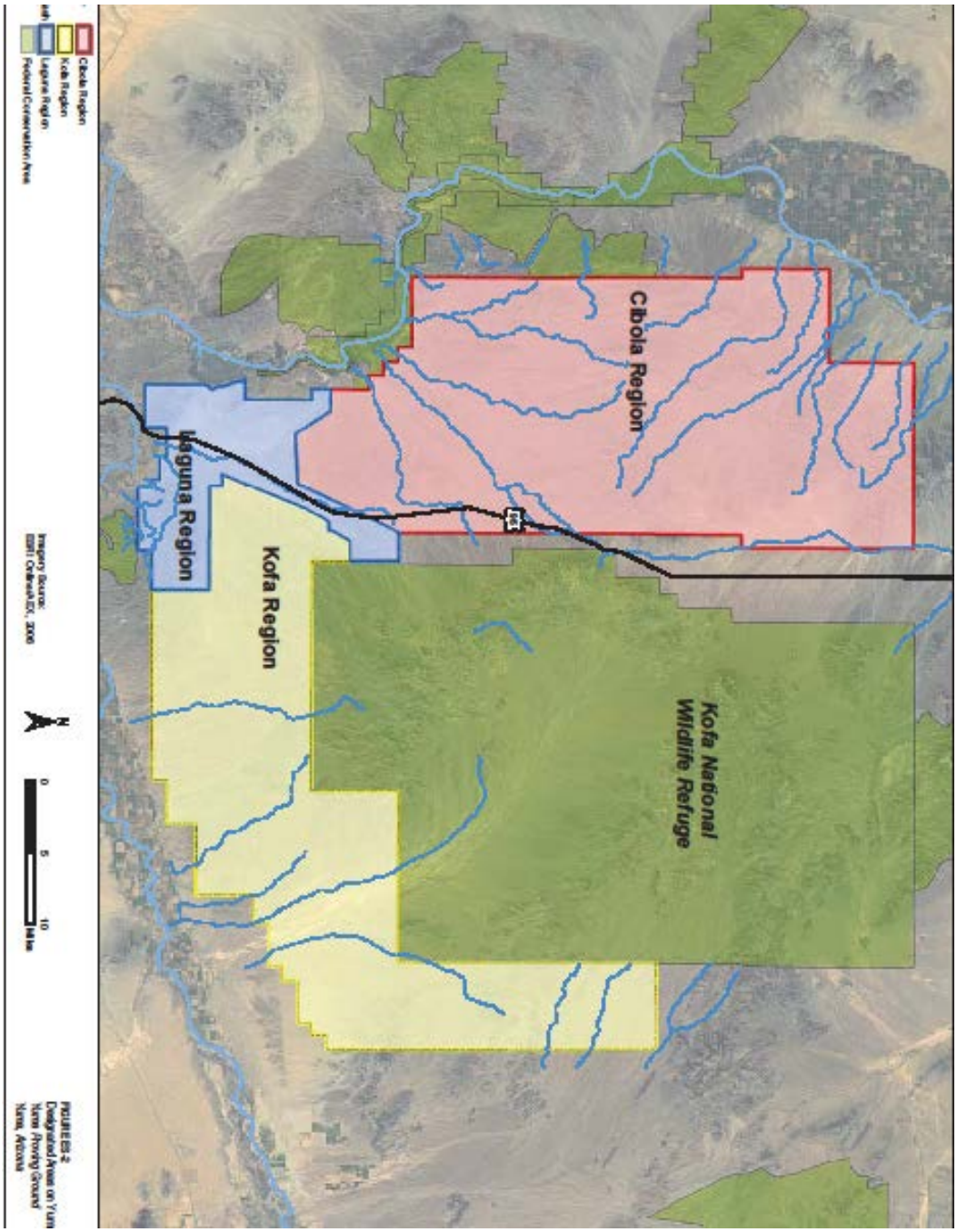


Figure 2a. Map of the Proposed Action in the Kofa Region of YPG (note the boundary of the impact area was reduced from what was shown in the draft EIS) (from BE).

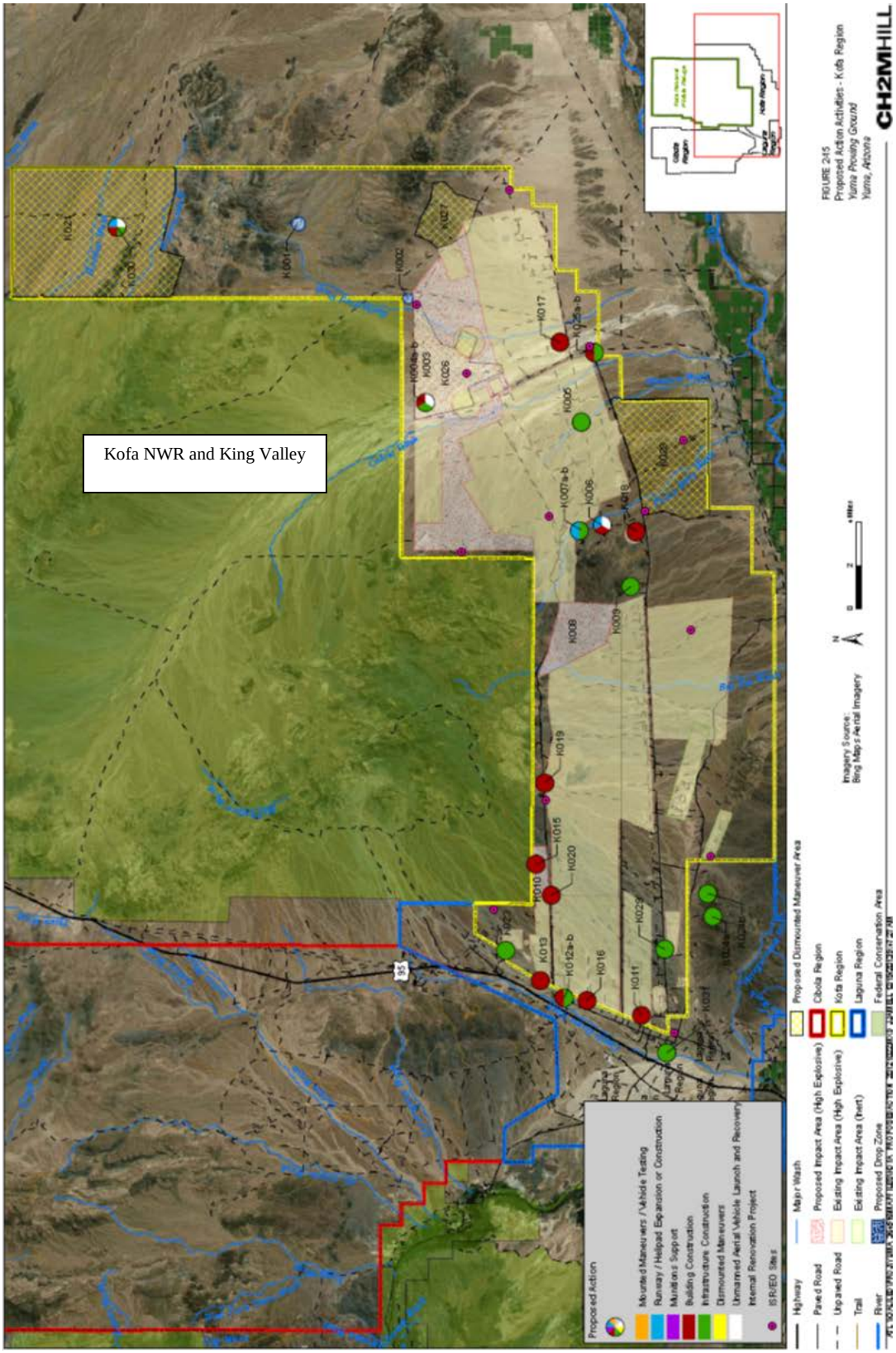


Figure 2b. Enlarged view of the Proposed Action in the Kofa Region of YPG near the Kofa NWR boundary.

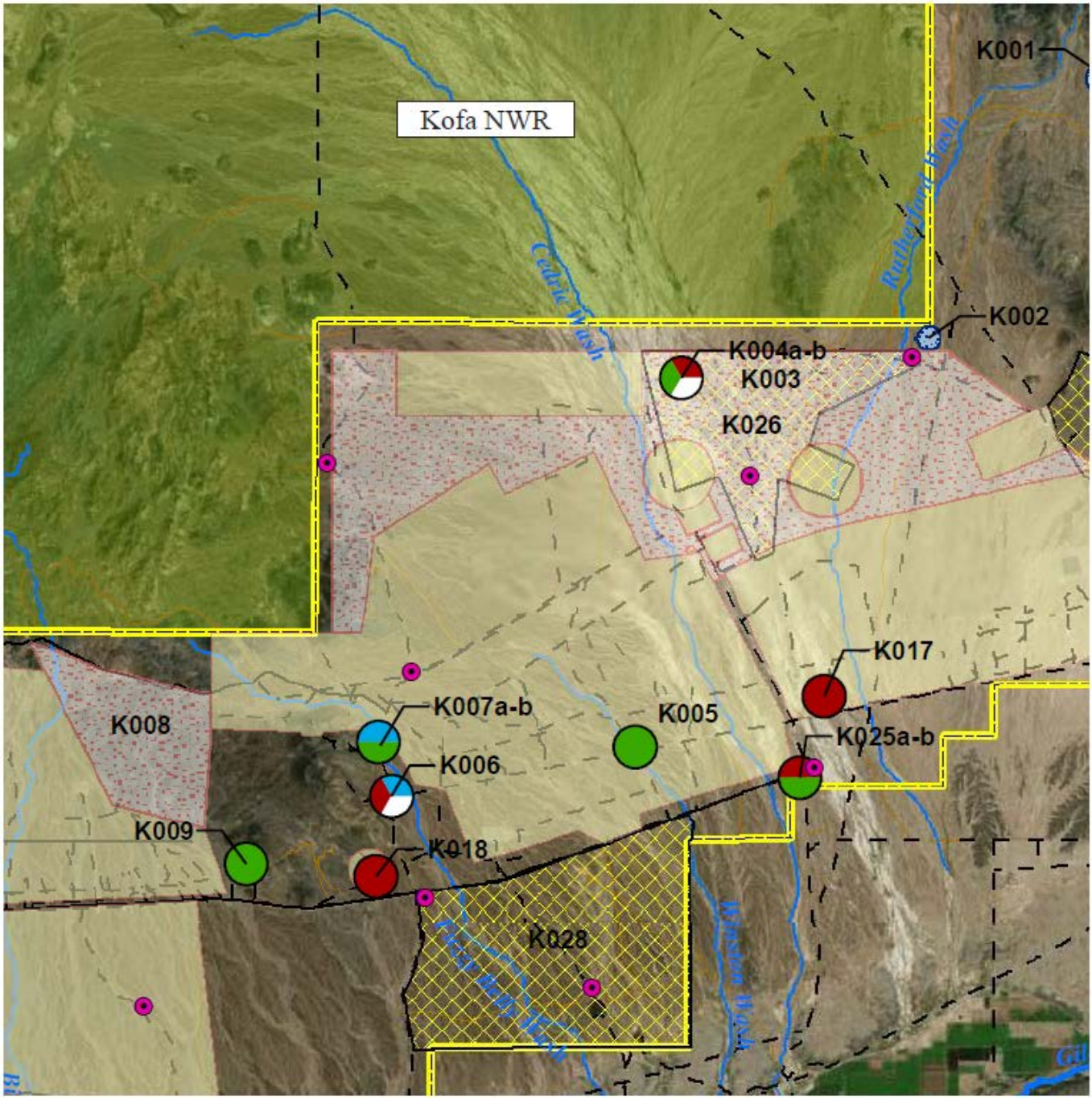
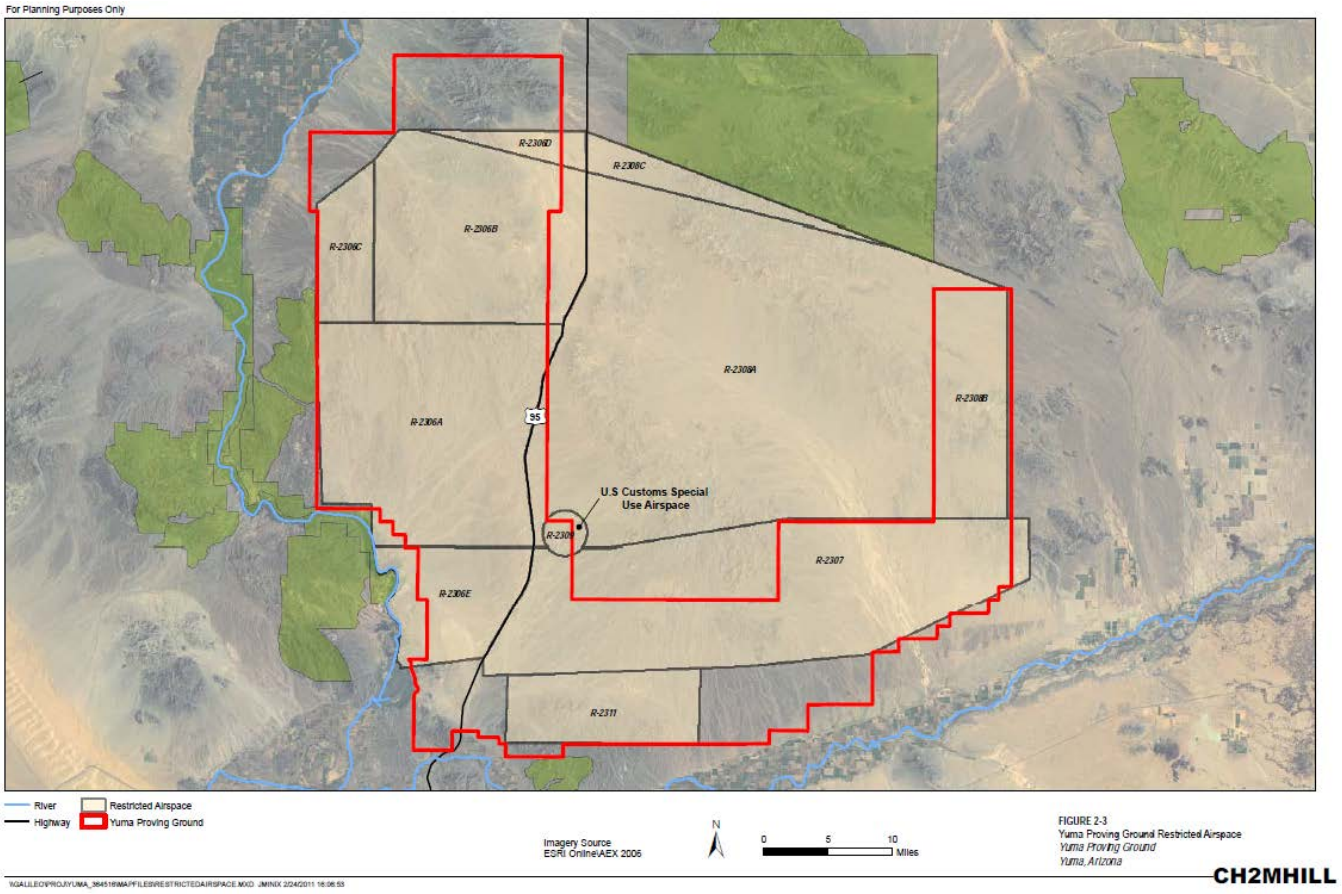


Figure 3. YPG Airspace.



Description of Airspace

R-2306A	Covers the southern part of the Cibola Region from the surface to 80,000 ft
R-2306B	North of R-2306A in the Cibola Region, from the surface to 80,000 ft
R-2306C	West of R-3206B in the Cibola Region, from the surface to 40,000 ft
R-2306D	North of R-2306B in the Cibola Region, from the surface to 23,000 ft
R-2306E	South of R-2306A in the Cibola and Laguna Regions, from the surface to 80,000 ft
R-2307	Laguna and Kofa Regions east of US 95 and north of Pole Line Road, from the surface to unlimited. Also includes the southern portion of the Kofa NWR
R-2308A	Kofa NWR from 1,500 ft above ground level (AGL) to 80,000 ft
R-2308B	East of R-2308A in East Arm, from the surface to 80,000 ft
R2308C	North of R-2308A in Kofa NWR from 1,500 ft AGL to 23,000 ft
R-2309	Department of Justice Special Use Airspace. 1.5-mile radius from the surface to 15,000 ft,north of CDH
R-2311	Eastern Kofa Region south of Pole Line Road from the surface to 3,500 ft
R-2306F	Proposed at Laguna Airfield from the surface to 1,700 ft

Figure 4. Large Caliber Noise Contour from the YPG Operational Noise Management Plan.

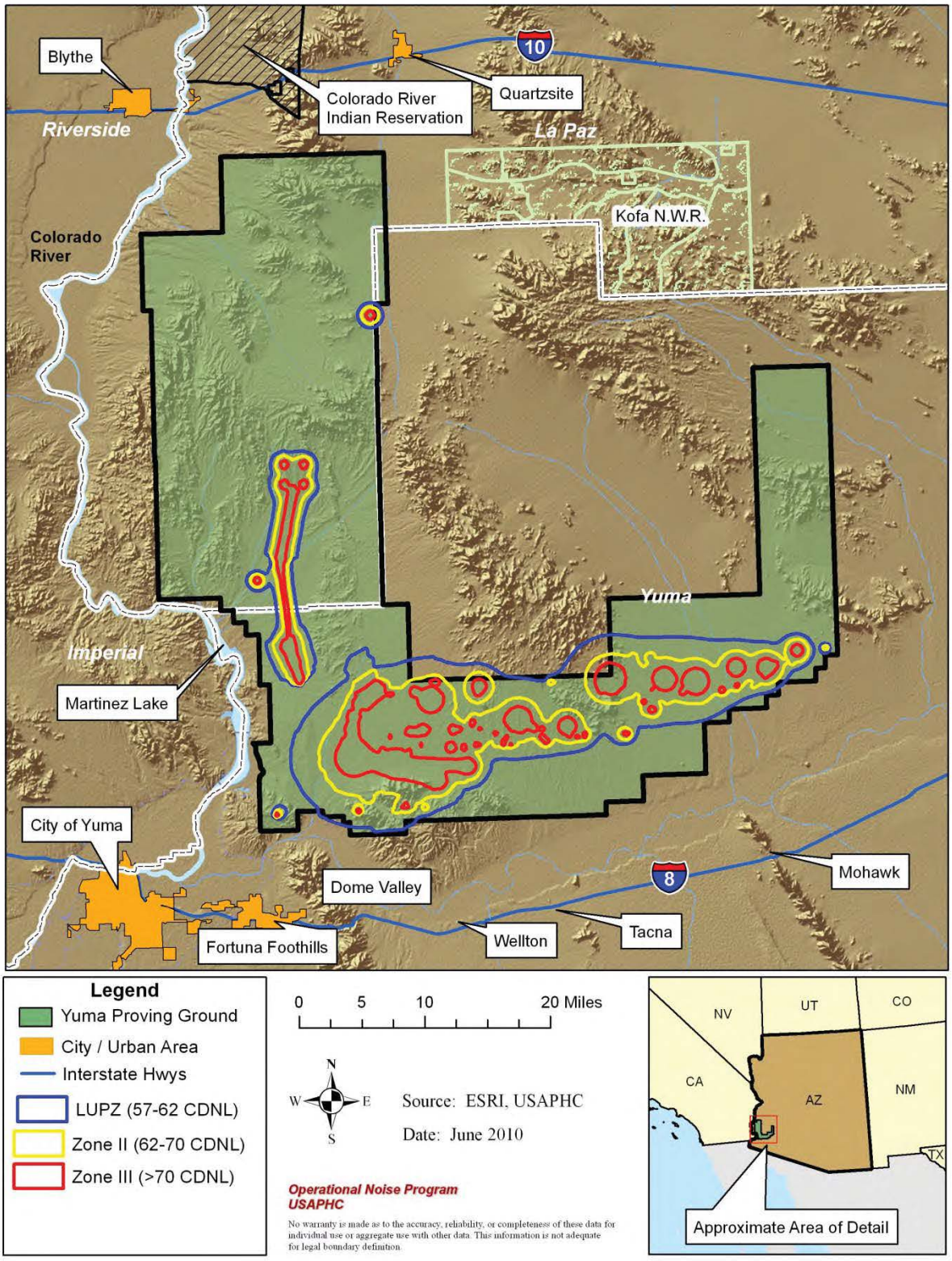


Figure 5. Historical range of Sonoran pronghorn in the Unites States and Mexico.



Figure 6. Endangered Sonoran pronghorn range in southwestern Arizona, United States.

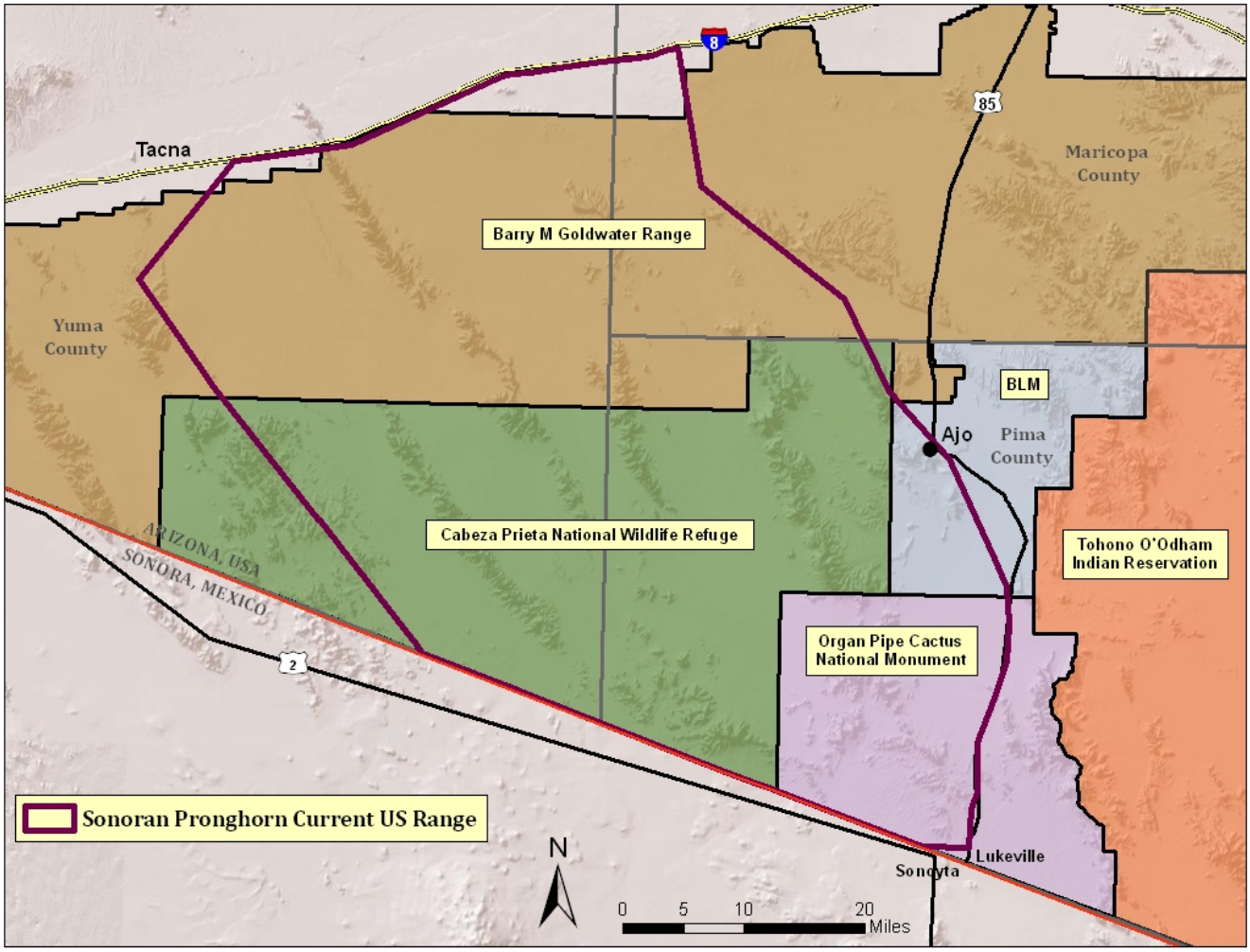


Figure 7. 10(j) Nonessential Experimental Population area for Sonoran pronghorn in southwestern Arizona, United States.

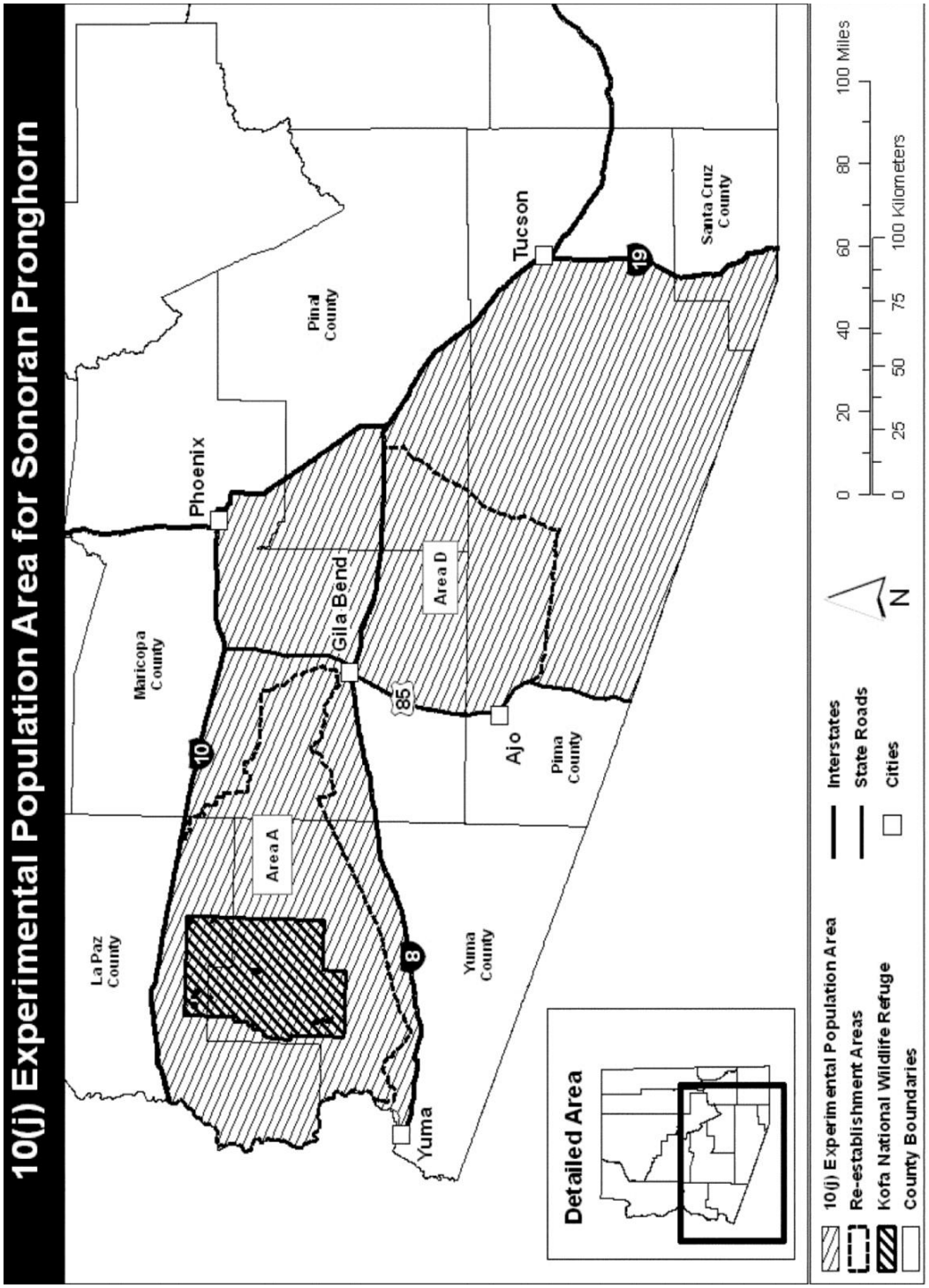
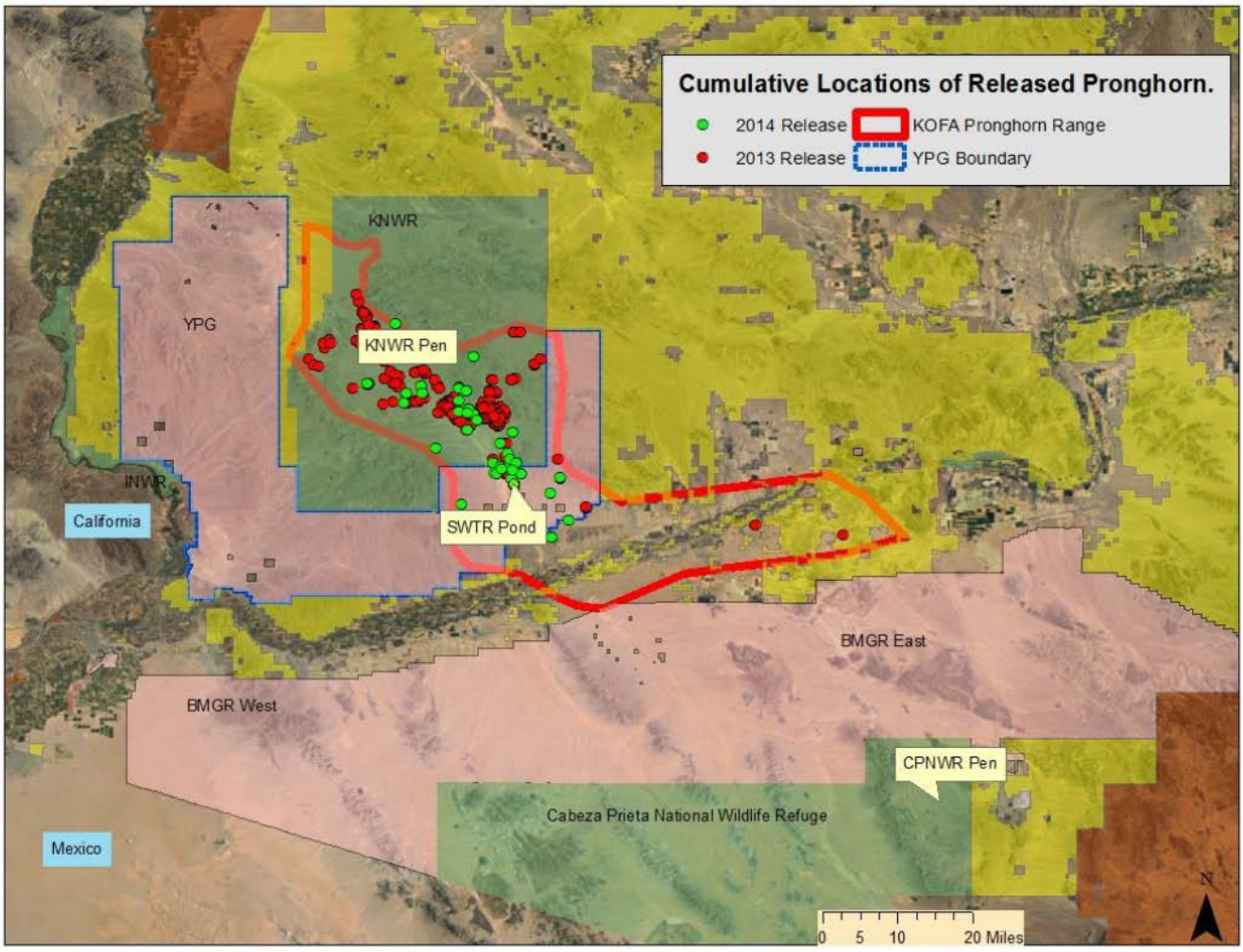


Figure 8. Sonoran pronghorn locations on YPG, Kofa NWR, and surrounding areas (note: the extent of the pronghorn range is based on telemetry data and is likely to change as pronghorn continue to disburse and new data is collected). Map is from the YPG BE (Figure 5).



AFFP

final draft Programmatic Agree

Affidavit of Publication

STATE OF ARIZONA }
COUNTY OF YUMA } SS

Joni Brooks or Kathy White, being duly sworn, says:

That she is Publisher or Business Manager of the Yuma Sun, a daily newspaper of general circulation, printed and published in Yuma, Yuma County, Arizona; that the *publication*, a copy of which is attached hereto, was published in the said newspaper on the following dates:

March 23, 2014

That said newspaper was regularly issued and circulated on those dates.
SIGNED:

Publisher or Business Manager

Subscribed to and sworn to me this 23rd day of March 2014.

G. KAY PAIZ
Notary Public - State of Arizona
YUMA COUNTY
My Commission Expires
August 1, 2017

G. Kay Paiz, Notary, Yuma County, Arizona

My commission expires: August 01, 2017

00004351 00026327 9283286253

USA YUMA PROVING GROUND
USA YUMA PROVING GROUND
NWR C, 301 C. ST, BUILDING 105
YUMA, AZ 85365

PUBLIC NOTICE

The United States Army Garrison Yuma Proving Ground (USAG YPG) announces the availability of a final draft Programmatic Agreement (PA) in accordance with Section 106 of the National Historic Preservation Act.

The final draft Section 106 PA addresses an ongoing program of operations and maintenance at YPG, as well as the activities considered in the draft final Programmatic Environmental Impact Statement (PEIS) for Activities and Operations at Yuma Proving Ground. USAG YPG determined that the development of a PA, in accordance with 36 Code of Federal Regulations § 800.14(b)(1)(ii) and (iv), is warranted because specific details on some projects are unknown and the effects on historic properties cannot be fully determined prior to their approval, and because of the routine nature of many actions that are part of the ongoing management and operation of YPG. The final draft Section 106 PA has been developed through consultation with the Advisory Council on Historic Preservation, the Arizona State Historic Preservation Officer, and federally recognized tribes in the region, and is being made available for review to provide members of the public with the opportunity to express their views on resolving adverse effects to historic properties that could result from the activities and operations at YPG.

The final draft Section 106 PA will be available for review at the Yuma County Library, Main Branch, 2951 S. 21st Drive, the Foothills Branch Library, 13226 S Frontage Rd, Yuma, AZ, and the YPG Post Library from March 25 through May 12, 2014. The public comment period for the final draft Section 106 PA is March 25 through May 12, 2014. The documents also can be viewed at the following website: http://www.yuma.army.mil/mhub_documents.shtml.

For questions concerning the final draft Section 106 PA, please contact Ms. Meg McDonald, U.S. Army Garrison Yuma Proving Ground, Cultural Resources Manager, IMYM–PWE, Yuma, AZ 85365-9498. Written comments may be mailed to Ms. McDonald at the above address or emailed to alison.m.mcdonald.civ@mail.mil

Daily March 23, 2014 - 00026327

Preserving America's Heritage

November 18, 2014

Mr. Gordon K. Rogers
Garrison Manager
U.S. Army Installation Management Command
Headquarters, U.S. Army Garrison Command, Yuma
301 C Street
Yuma, AZ 85365-9498

Ref: ***Development of an Operational Activities Section 106 Programmatic Agreement***
Yuma Proving Ground
La Paz and Yuma Counties, Arizona

Dear Mr. Rogers:

Enclosed is your copy of the fully executed Programmatic Agreement for the referenced project. By carrying out the terms of the agreement, you will fulfill your responsibilities under Section 106 of the National Historic Preservation Act and the regulations of the Advisory Council on Historic Preservation (ACHP). An original agreement will remain on file at our office.

If we can be of further assistance in the implementation of this Agreement, please contact Ms. Katharine R. Kerr at (202) 517-0216 or via e-mail at kkerr@achp.gov.

Sincerely,

Caroline D. Hall
Assistant Director
Office of Federal Agency Programs
Federal Property Management Section

Programmatic Agreement (attachment for this letter) is located in Appendix F.

Appendix B
Activities Conducted Under the No Action Alternative

TABLE B-1
No Action Alternative Activities in the Laguna Region
Yuma Proving Ground

Activity Area	Activities [a]
Training Drop Zones (DZs)	
Phillips Drop Zone (DZ) 751	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing
Phillips Reverse DZ 752	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing
Cox Field DZ 396	Air Delivery System/Airdrop: Manned airdrops only, parachute training for Golden Knights, and MFFS
Unmanned Aircraft Systems (UAS) and Aviation Test Facilities	
CDH	Manned aircraft systems and UAS testing and training
Laguna Army Airfield	Manned aircraft operations (testing and training), UAS performance testing and training
Cobra Flats Helipad	Aircraft Systems testing; Forward Area Arming and Refuel Point (FARP); Military Training Area Complex: MWD obedience and explosives scent training, mounted and dismounted patrolling, land navigation, tactical military exercises, bivouac shelter, communications training, physical fitness training, tactical vehicle driver training on existing trails, airmobile training, limited demolitions/explosives/pyrotechnics training, field fortifications/fighting positions training, and tactical vehicle maintenance
K-9 Village and West LA Village	UAS performance testing, Intelligence; Surveillance and Reconnaissance: sensor testing; Light Maneuver Training Area (LTA) for dismounted patrolling; on- and off-road wheeled vehicle maneuver; military working dog training; land navigation; bivouac and base camps set-up and operation; Military Operations in Urban Terrain testing and training; and field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices
Site 2	UAS performance testing; Intelligence; Surveillance and Reconnaissance: sensor testing; Light Maneuver Training Area (LTA) for dismounted patrolling; on- and off-road wheeled vehicle maneuver; land navigation; Military Training Area Complex: military working dog obedience and explosives scent training, mounted and dismounted patrolling, land navigation, tactical military exercises, bivouac shelter, communications training, physical fitness training, tactical vehicle driver training on existing trails, airmobile training, limited demolitions/explosives/pyrotechnics training, field fortifications/fighting positions training, helicopter rearming and refueling, and tactical vehicle maintenance; and field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices
Contraves C Contraves D	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing and optical tracking; Aircraft Systems: laser testing/training and optical tracking; Telemetry Receiver/Transmitter stations, Radar System operations
Vehicle Test Courses	
Hot Weather Test Complex	Testing of vehicle system Level and driveline components and of stability, handling, response and control Research, Development, Test, and Evaluation (RDTE) for performance and reliability testing of military wheeled and tracked vehicles, sensors, and equipment
Joint Use Test Complex	Vehicle performance and reliability testing
Laguna Paved (Paved	RDTE for performance and reliability testing of military vehicles, sensors, and

TABLE B-1
No Action Alternative Activities in the Laguna Region
Yuma Proving Ground

Activity Area	Activities [a]
Dynamometer Course)	equipment
Ride Dynamics	RDTE for performance and reliability testing of suspension on military wheeled and tracked vehicles
Mud Dynamometer Course	RDTE of military wheeled and tracked vehicles and assessment of mud terrain for mobility and performance
Laguna Road Mud	RDTE of performance and reliability testing military wheeled and tracked vehicles and assessment of mud terrain for mobility and performance
Laguna Level Gravel	RDTE for performance and reliability testing of military vehicles, sensors, and equipment
Laguna Level Trails West	RDTE for performance and reliability testing of military vehicles, sensors, and equipment
Laguna Level Trails East	RDTE for performance and reliability testing of military vehicles, sensors, and equipment
Laguna Hilly Trails	RDTE for performance and reliability testing of military vehicles, sensors, and equipment
Kofa Level Gravel	RDTE for performance and reliability testing of military vehicles, sensors, and equipment
Muggins Dust Course	RDTE for performance and reliability testing of military vehicles, sensors, and equipment
Middle East Course	RDTE for performance and reliability testing of military vehicles, sensors, and equipment; driver/convoy training
Patton Level Gravel	RDTE for performance and reliability testing of military vehicles, sensors, and equipment
Paved Longitudinal Grade and Side Slopes	RDTE of performance and reliability testing of wheeled and tracked military vehicles
Patton Hilly Gravel	RDTE of performance and reliability testing of military vehicles, sensors, and equipment
Patton Hilly Trail	RDTE of performance and reliability testing of military vehicles, sensors, and equipment
Patton Level Trail	RDTE of performance and reliability testing of military vehicles, sensors, and equipment
Sand Dynomometer Course	RDTE of performance and reliability testing wheeled and tracked military vehicles; assessment of soft sand terrain for mobility and performance
Sand Slopes	RDTE of performance and reliability testing wheeled and tracked military vehicles; assessment of soft sand terrain for mobility and performance
Vapor Lock Wash	RDTE of performance and reliability testing of military vehicles, sensors, and equipment
Patton Wash	RDTE of performance and reliability testing wheeled vehicles; assessment of fluid-transport systems using water only

TABLE B-1
No Action Alternative Activities in the Laguna Region
Yuma Proving Ground

Activity Area	Activities [a]
Patton Off-Road	RDTE of performance and reliability testing for high mobility/harsh terrain wheeled vehicles
Fording Basin	RDTE of performance and reliability testing of wheeled and tracked military vehicles; driver/convoy training
Muggins Mesa Area	RDTE of performance and reliability testing of military vehicles, sensors, and equipment
2% Sustained Speed Slope (U.S. Highway 95 [US 95])	RDTE of performance and reliability testing of wheeled and tracked military vehicles
1-5% Sustained Speed Slope (Martinez Lake Road)	RDTE of performance and reliability testing of wheeled and tracked military vehicles
Ride Dynamics (RMS, Pothole, Bump)	RDTE of performance and reliability testing of wheeled and tracked military vehicles
Fuel Transfer Area	RDTE of performance and reliability testing of vehicles and equipment for fuel transfer rate, fuel transport, and fluid transport
Airfield Delivery Loading Ramp	RDTE of performance and reliability testing of wheeled and tracked military vehicles; assessment of ride handling, and air transportability of vehicle
Curb Impact Course	RDTE of performance and reliability testing of wheeled and tracked military vehicles; assessment of urban terrain/rubble mobility/performance
C-130 Air Transportability Testbed	RDTE; assessment of air transportability of military vehicles and Military equipment
Urban Rubble	RDTE of performance and reliability testing wheeled and tracked military vehicles; assessment of urban terrain/rubble mobility/performance
Vertical Steps	RDTE of performance and reliability testing of wheeled and tracked vehicles; assessment of mobility/performance
Winch Test/Tiedown Facility	RDTE of military equipment, assessment of winch performance and tie-down fixtures
Bridging Devices	RDTE of military bridge-laying equipment, assessment of reliability and performance
V-Ditch and Obstacle Area	RDTE of wheeled vehicles and tracked vehicles; assessment of mobility/performance
Tilt Table	RDTE of wheeled vehicles and tracked vehicles; assessment of safety and stability
Roll-on/Roll-off Ramps	RDTE and assessment of transportability of military vehicles and Military equipment
Military Operations on Urban Terrain (MOUT)	RDTE of wheeled vehicles; assessment of mobility/performance in urban terrain
Operational Training and Testing	
Site 4	LTA for dismounted patrolling; wheeled vehicle maneuver (on- and off-road); military working dog training; land navigation; bivouac and base camps; Military

TABLE B-1
No Action Alternative Activities in the Laguna Region
Yuma Proving Ground

Activity Area	Activities [a]
	Operations in Urban Terrain; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Hill 630 Area and Training Area Bravo	LTA for dismounted patrolling; wheeled vehicle maneuver (on- and off-road); military working dog training; land navigation; bivouac and base camps; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
FOB Site	Base Camp Operations consisting of troop holding (bivouac); administrative functions; ammunition holding; fueling operations; motor pool operations; maintenance operations; food service operations; communications sites; mounted or dismounted security patrols; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training services; miscellaneous training
CALA Pad	Training for aircraft (fixed and rotary wing) refueling operations; aircraft armament arming and operations, fuel, and ordnance holding areas; dismounted and mounted security patrols bivouac and base camps; mission support vehicle traffic; communications sites; air traffic control operations; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Coyote Den	Military Training Area Complex: military working dog obedience and explosives scent training, mounted and dismounted patrolling, land navigation, tactical military exercises, bivouac shelter, communications training, physical fitness training, tactical vehicle driver training on existing trails, airmobile training, limited demolitions/explosives/pyrotechnics training, field fortifications/fighting positions training, helicopter rearming and refueling, and tactical vehicle maintenance
IRCC Tank Maintenance and Storage Ramada	Tactical vehicle staging area; maintenance operations
Geodetic GNSS/GPS Reference Station Network (GRSN)—North UAV (see locations in Cibola and Kofa)	GPS Receiver locations
Existing Road Infrastructure in Laguna Range	Equipment moving logistics, moving targets, and sensor arrays
Middle East Course/Muggins Mountain	LTA for dismounted patrolling; wheeled vehicle maneuver (on- and off-road); military working dog training; land navigation; bivouac and base camps; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Radar Site 3	Mine and demolition charge testing, fire control; direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; nonlethal weapons; smoke and obscurants: effectiveness and generation; Intelligence, Surveillance and Reconnaissance: temporary sensor positions, surveillance systems
Meteorological and Simulations Facilities, Various Locations	Mission support: real-time meteorological data

[a] Throughout the YPG Ranges there are numerous fixed sites that are used for a variety of purposes. Some were originally designed to support radar or optical instrumentation, camera sites, pads for equipment emplacement, landing pads, observation posts for visual observers, firing points, GPs, and impact areas. All of these sites also are used, as needed, to support UAS testing, to include temporary installation and employment of UAS launch/recovery systems, GCSs, command and control infrastructure, and refueling operations. UAS testing may include optical tracking (ground or aerial), laser rangefinder, and laser designator operations. Tests are conducted at these areas on ground- or tower-mounted sensors, balloon- or aerostat-mounted sensors, electro-optical sensors, infrared sensors, radar sensors, and unattended ground sensors, as well as wireless communications. These areas are also used for establishment of temporary firing positions to conduct ground weapons firing into approved impact areas, including small arms, shoulder-fired arms, mortars, rockets, RPGs, AT-4 LAWs, and other direct fire weapons.

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
Munitions Impact Areas/Munitions Support/UAS	
Prospect Square	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; Air/Missile Defense Systems; Bombing
Rocket and Gun Horizontal (CRV-7)	Direct-fire systems: rockets, guns, small arms, munitions performance and acceptance, fire control; Indirect fire systems: mortars, artillery, guided munitions, weapons systems; rocket and gun integration on manned and UAS platforms; flares and nonlethal weapons
North Pad	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; aircraft armaments and armament system integration rotary—firing; Training activities; UAS performance; Intelligence, Surveillance and Reconnaissance sensor testing
Rocket Alley	Aircraft armaments and armament systems integration firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; rocket integration on UAS platforms
Site 6A	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing
Site 7B	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing
Site 9	Aircraft armaments and armament systems integration firing; Direct fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons, UAS performance testing and training
Site 10	Aircraft armaments and armament systems integration firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons, UAS performance testing and training
Site 10 Missile Test Facility	Surveillance and Reconnaissance: sensor testing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons
Site 12	Surveillance and Reconnaissance: sensor testing, UAS performance testing and training

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
Site 12A	UAS performance; Surveillance and Reconnaissance: sensor testing; direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance
Site 14	Aircraft armaments and armament systems integration firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons
Red Hill Road (Errant Hellfire Target)	Aircraft armaments and armament systems integration firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons
Middle Mountain	Aircraft armaments and armament systems integration firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons; UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing
South Pad	Aircraft armaments and armament systems integration firing and rotary—firing; direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons; training activities; UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing
West Gun	Aircraft armaments and armament systems integration rotary-firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons; UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing
Moving Target Indicator (MTI) Road (includes West Target Road)	Aircraft armaments and armament systems integration rotary—firing; direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons; UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
CM 4 and CM 5.5	Aircraft armaments and armament systems integration firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons; smoke and obscurants: effectiveness and generation; Aircraft Systems: laser testing; UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing
CM 1	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; Air/Missile Defense Systems; Aircraft Systems: laser testing; UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing
OP-9 Combined Arms Live Fire Exercise (CALFEX) Range	Aircraft armaments and armament systems integration firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; line-of-sight missiles; nonlethal weapons; smoke and obscurants: effectiveness and generation; live fire training activities
North Pad Crew Served Weapon (CSW) Range	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; line-of-sight missiles; nonlethal weapons; smoke and obscurants: effectiveness and generation; live fire training activities
Graze Multi-Purpose Range Complex (MPRC)	Aircraft armaments and armament systems integration rotary-firing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; nonlethal weapons; smoke and obscurants: effectiveness and generation; live fire training activities; one sub-range within the Graze MPRC, Grenade and Light Demo Range, is used for limited explosive containing munitions
Long Range Artillery Impact Areas (LRA 5—LRA 7)	Aircraft armaments and armament systems integration firing; Mine and demolition charge testing, fire control; direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; nonlethal weapons; smoke and obscurants: effectiveness and generation; Intelligence, Surveillance and Reconnaissance: temporary sensor positions, surveillance systems
Long Range Munitions	Indirect Fire Systems: mortars, artillery, long range precision guided munitions, weapons systems, munitions performance and acceptance; nonlethal weapons; smoke and obscurants: effectiveness and generation; aircraft armaments and armament systems integration firing; gun positions: fixed sites with some level of permanent infrastructure used for munitions performance and acceptance. The gun positions would also support test associated data collection and instrumentation activities.

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
Convoy Live Fire Range	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; Training for mounted multiple vehicle gunnery (various caliber)—including smoke, riot control agents, and pyrotechnics; vehicle maneuver on roads and trails within Prospect Square Impact Area; live fire training activities
Stinger Pole Target Range	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; Training for firing of man portable and vehicle mounted air defense missiles and machine guns from stationary and moving positions; launch and recover drone target aircraft; bivouac and base camps; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Cibola Direct Fire Range	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Ammunition RDTE; Weapon Systems RDTE; small arms; Indirect-fire Systems, mortars, artillery, guided munitions; weapons systems; munitions performance and acceptance
Moving Target Range	Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance
Gauna Peak	UAS—Weapons Integration, performance; Intelligence, Surveillance and Reconnaissance: sensor testing, laser testing
Horizontal Impact Area	Intelligence, Surveillance and Reconnaissance: sensor testing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance
Compact Automatic Centroid Tracking Instrumentation System (CACTIS) Target Board	Intelligence, Surveillance and Reconnaissance: sensor testing
Maverick Target	Intelligence, Surveillance and Reconnaissance: sensor testing, target acquisition [Currently Destroyed]
Detection and Recognition Target Arrays (DET/REC)	Intelligence, Surveillance and Reconnaissance: sensor testing, target acquisition
Near Bar/Far Bar Radar Test Area	Intelligence, Surveillance, and Reconnaissance: sensor testing and optical tracking, target acquisition architectures
MPS-25 Radar	Air Delivery System/Airdrop: manned drop testing and equipment drop testing
GBOSS	Intelligence, Surveillance and Reconnaissance: sensor testing, target acquisition

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
IDAS Sensor Site	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing and optical tracking; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance
Persistent Surveillance System Test Area (west of La Posa DZ)	Intelligence, Surveillance and Reconnaissance: sensor testing; Direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance
Sidewinder Sensor Site	Intelligence, Surveillance and Reconnaissance: sensor testing
Satellite Reference Station 1	Intelligence, Surveillance and Reconnaissance: sensor testing; UAS performance
Satellite Reference Station 2	Intelligence, Surveillance and Reconnaissance: sensor testing; UAS performance
Drop Zones	
Mohave Circular DZ 147	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing; Explosive drops
Robby\La Posa DZ 1053	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing
Sidewinder Circular DZ 090	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing; UAS performance, operations; Intelligence, Surveillance and Reconnaissance: sensor testing; helicopter assault operations; dismounted patrolling using blanks, simulated munitions, smoke, pyrotechnics, riot control agents and other training devices; wheeled vehicle operations (on- and off-road)
Corral Circular DZ 392	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing; Explosive drops
Ironwood Circular DZ	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing; Explosive drops (licensed for DU drops)
Los Angeles Circular DZ 1128	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing; Helicopter assault operations; UAS operations; dismounted patrolling using blanks, simulated munitions, smoke, pyrotechnics, riot control agents and other training devices; wheeled vehicle operations (on-and off-road)
Tyson DZ	Air Delivery System/Airdrop: manned drop testing, operational testing/training, and equipment drop testing
Tyson Dirt Landing Zone	Fixed and rotary wing assault training

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
	UAS and Aviation Facilities
C-17 Landing Strip	UAS: weapons integration, performance; electronic countermeasures: IEDs; Direct Fire Systems (Nonmissile/Rocket): munitions performance and acceptance; Indirect Fire Systems: mortars, weapons systems, munitions performance and acceptance; Fixed and rotary wing assault training; Intelligence, Surveillance and Reconnaissance: sensor testing
Site 8 UAV Complex	UAS: weapons integration, performance; Intelligence, Surveillance and Reconnaissance: long-range sensor testing, munitions firing support; direct Fire Systems (Nonmissile/Rocket): munitions performance and acceptance; Aircraft Systems: FARP; Indirect Fire Weapons Systems: mortars, munitions performance and acceptance; UAS/UAV training operations
Site 8A	UAS testing; Intelligence, Surveillance and Reconnaissance: munitions firing support
Joint UAS Facility (North UAV Complex)	UAS: weapons integration, performance; Intelligence, Surveillance and Reconnaissance: long-range sensor testing, munitions firing support, aerostat emplacement; direct Fire Systems (Nonmissile/Rocket): munitions performance and acceptance; Aircraft Systems: FARP; Indirect Fire Weapons Systems: mortars, munitions performance and acceptance; UAS/UAV training operations; direct and indirect weapons firing, and small arms
4-K Helipad	UAS performance; Intelligence, Surveillance and Reconnaissance: long-range sensor testing; FARP; Training for FARP
IRCC Helipad	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing; FARP; direct and indirect weapons firing, lasing, and small arms
Airborne Detection Area	Engineering Equipment: mine detection and neutralization capabilities; demolition/munitions; Training for FARP
Comanche Flats (Helipad)	UAS performance; Lot Acceptance Testing; Training for FARP, fuel and ordnance holding areas: dismounted and mounted security patrols; mission support vehicle traffic; communications sites; air traffic control operations; Military Training Area Complex: MWD obedience and explosives scent training, mounted and dismounted patrolling, land navigation, tactical military exercises, bivouac shelter, communications training, physical fitness training, tactical vehicle driver training on existing trails, airmobile training, limited demolitions/explosives/pyrotechnics training, field fortifications/fighting positions training, and tactical vehicle maintenance; Field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training; direct and indirect weapons firing, missiles, rockets, guns, and small arms
40-ft Dropsite	Impact Performance Testing: drop testing of munitions from heights of up to 40-ft
Site 10 Missile Test Facility	UAS: weapons integration, performance; Intelligence, Surveillance and Reconnaissance: long-range sensor testing, munitions firing support; direct Fire Systems (Nonmissile/Rocket): munitions performance and acceptance; Aircraft Systems: FARP; Indirect Fire Weapons Systems: mortars, artillery, guided munitions, munitions performance and acceptance; UAS/UAV training operations

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
ECUT Pad	Intelligence; Surveillance and Reconnaissance: aerostat platform and sensor technology testing and training; Electromagnetic Counter Measure Device (ECMD) testing and training, Naval Air Systems Command—Skybus program
Alpha Pad (PGSS Site) Bravo Pad (PGSS Site) Charlie Pad (PGSS Site) RUS Pad (PTDS Site) OP Puma Pad West II Pad LA Pad	Intelligence; Surveillance and Reconnaissance: aerostat platform and sensor technology testing and training
Z-12	Mine and demolition charge testing, fire control; direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, weapons systems, munitions performance and acceptance; supports ground and aerial firing in conjunction with Middle Mountain Road Impact Area; nonlethal weapons; smoke and obscurants: effectiveness and generation; Intelligence, Surveillance and Reconnaissance: temporary sensor positions, surveillance systems; UAS: weapons integration, performance; Intelligence, Surveillance and Reconnaissance: long-range sensor testing, munitions firing support; direct Fire Systems (Nonmissile/Rocket): munitions performance and acceptance; Aircraft Systems: FARP; Indirect Fire Weapons Systems: mortars, artillery, guided munitions, munitions performance and acceptance; UAS/UAV testing and training operations
Site 16	UAS performance testing: Intelligence Surveillance and Reconnaissance sensor testing and laser testing
Site 18	UAS performance testing: Intelligence Surveillance and Reconnaissance sensor testing
Site 9	Aircraft armaments and armament systems integration firing; Direct fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; missiles/rockets: line-of-sight missiles; nonlethal weapons, UAS performance testing and training
Engineering Common Use Test (ECUT) area	UAS: weapons integration and performance, ECMD testing and training
Simulated Minefield	UAS: weapons integration and performance; Intelligence, Surveillance and Reconnaissance: sensor testing
Aerostat Mooring Site	Intelligence, Surveillance and Reconnaissance: sensor testing, weapons integration
Phoenix UAS Site	UAS: weapons integration, performance; Intelligence, Surveillance and Reconnaissance: long-range sensor testing, munitions firing support; direct Fire Systems (Nonmissile/Rocket): munitions performance and acceptance; Aircraft Systems: FARP; Indirect Fire Weapons Systems: mortars, artillery, guided munitions, munitions performance and acceptance; testing and training

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
Vehicle Test Courses	
Cibola Lake Mud Course	RDTE of wheeled and tracked vehicles, assessment of mud terrain for mobility and performance
Rock Ledge Course	RDTE of performance and reliability testing of vehicles, sensors, and equipment; driver/convoy training
Cibola Mile Post 72 Dust Course	RDTE of performance testing of wheeled and tracked military vehicles: equipment in a heavy sand/dust environment; assessment of weapon system performance
Desert March	RDTE of performance and reliability testing of vehicles, sensors, and equipment; driver/convoy training
BTE Course	Light Maneuver Area for training of dismounted patrolling, wheeled vehicle maneuver (on- and off-road), military working dog, land navigation, bivouac and base camps; Field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Phoenix Site (straight test road with facility)	Automotive vehicles: performance and reliability testing
Tire Bruise and US 95 (from Imperial Dam Road, guns, to MP 92)	RDTE of wheeled vehicles: assessment of wheel/tire performance on rough terrain
JERC Sites	
JERC I	UAS performance; Engineering Equipment: mine detection and neutralization capabilities, demolition/munitions; Electronic countermeasures: IEDs; Intelligence, Surveillance and Reconnaissance: target acquisition architectures (sensors/radars), sensor testing and optical tracking; Aircraft Systems: laser testing/training and optical tracking; Automotive Vehicles: system level and driveline components, electrical system/software performance, stability, handling, response & control, turret and weapons system; Light Maneuver Area for dismounted patrolling, wheeled vehicle maneuver (on and off road), military working dog training, land navigation, bivouac and base camps; Field Training Exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Joint Test Tunnels Range (JTTR)—located within JERC I	Intelligence, Surveillance and Reconnaissance: target acquisition architectures (sensors/radars); unmanned ground vehicles
JERC II	UAS performance; Extreme natural environments; Intelligence, Surveillance and Reconnaissance: target acquisition architectures (sensors/radars), sensor testing and optical tracking; Aircraft Systems: laser testing/training and optical tracking; Light Maneuver Area for dismounted patrolling, wheeled vehicle maneuver (on-road), military working dog training, land navigation, bivouac and base camps; Field Training Exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
JERC III	UAS performance; Intelligence, Surveillance and Reconnaissance: target acquisition architectures (sensors/radars), sensor testing and optical tracking; Aircraft Systems: laser testing/training and optical tracking ; Engineering Equipment: mine detection and neutralization capabilities, demolition/munitions; Electronic countermeasures: IEDs; extreme natural environments; Light Maneuver Area for dismounted patrolling, wheeled vehicle maneuver (on-road), military working dog training, land navigation, bivouac and base camps, field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Gun Positions/Operational Training and Testing	
Middle Mountains	Light Maneuver Area for dismounted patrolling, wheeled vehicle maneuver (on- and off-road); military working dog training; land navigation; bivouac and base camps; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; miscellaneous training
Castle Dome FOB Site	Base Camp Operations consisting of troop holding (bivouac); administrative functions; ammunition holding; fueling operations; motor pool operations; maintenance operations; food service operations; communications sites; mounted or dismounted security patrols; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training services); miscellaneous training
Geodetic GNSS/GPS Reference Station Network (GRSN)—Sub-Station F, Building 2067, Building 3699 (see locations in Laguna and Kofa)	GPS Receiver locations
Existing Road Infrastructure in Cibola Range	Equipment moving logistics, moving targets, and sensor arrays
Firefinder Compound, Radar Site 1, Radar Site 2, Radar Site 3, and the Counter-Fire Compound	Base stations for testing counter-battery radar systems; include hard power; instrumentation shelters; telecommunications infrastructure; concrete pads for the radar systems and associated work areas
Meteorological and Simulations Facilities, Various Locations	Mission support: real-time meteorological data
Large Multi Purpose Environmental Chamber (LMPEC)	Environmental chambers are used to expose vehicles and equipment to extreme temperatures and varying levels of humidity

TABLE B-2
No Action Alternative Activities in the Cibola Region
Yuma Proving Ground

Activity Area	Activities [a, b]
CM 9 East GP Cibola Target Boundary GP Site 16 GP CM 9 West GP C17 North GP C17 South (South) GP Mound C GP CM 1 West GP La Posa DZ GP Mound C Archer GP Site 8 GP West Target Road GP BM1072 GP Excalibur SW GP LADZ GP Site 18 GP Rocket Alley Excalibur GP LADZ East GP SW GP (~CM3)	Indirect Fire Systems: Fixed sites with some level of permanent infrastructure used for munitions performance and acceptance; ammunition and weapons systems RDTE, Indirect-Fire systems such as artillery, howitzers, and mortars. Direct fire systems, tanks, infantry fighting vehicles, armored personnel carriers, with medium and large caliber weapons and missiles. Rockets (foreign and domestic), missiles, surveillance systems and Radar systems may also be utilized. The areas also support test associated data collection and instrumentation activities.

[a] Throughout the YPG Ranges there are numerous fixed sites that are used for a variety of purposes. Some were originally designed to support radar or optical instrumentation, camera sites, pads for equipment emplacement, landing pads, observation posts for visual observers, firing points, GPs, and impact areas. All of these sites also are used, as needed, to support UAS testing, to include temporary installation and employment of UAS launch/recovery systems, GCSs, command and control infrastructure, and refueling operations. UAS testing may include optical tracking (ground or aerial), laser rangefinder, and laser designator operations. Tests are conducted at these areas on ground- or tower-mounted sensors, balloon- or aerostat-mounted sensors, electro-optical sensors, infrared sensors, radar sensors, and unattended ground sensors, as well as wireless communications. These areas are also used for establishment of temporary firing positions to conduct ground weapons firing into approved impact areas, including small arms, shoulder-fired arms, mortars, rockets, RPGs, AT-4 LAWs, and other direct fire weapons.
[b] Not all Activity Areas appearing in the table appear on the Existing Activities Figures.

TABLE B-3
No Action Alternative Activities in the Kofa Region
Yuma Proving Ground

Activity Area	Activities [a,b, c]
Munitions Impact Areas	
Alpha Impact Area Bravo Impact Area Charlie Impact Area Delta Impact Area Echo Impact Area Foxtrot Impact Area Splinter Impact Area Ramsdell Ranch Impact Area East Smart Weapons Test Range-(SWTR) Impact Area West SWTR Impact Area East Impact Area	Multi-purpose, multi-use impact areas used to support diverse test activities that require the firing of air-to-ground, ground-to-ground, ground-to-air munitions, projectiles, missiles, mortar cartridges, mines, demolition charges, flares, or the dispensing of chaff or other countermeasures. Weapon systems can vary from man-fired to large caliber. Munition types can vary and can include HE, illumination, smoke training-practice, white phosphorous, red phosphorous, submunitions, inert fill, DU (in DU licensed area). Munitions fired into these areas can be ballistic or guided when fired/released. Weapons used against targets at this site are ground fired/launched, or aerially fired/launched. When required, targets are used during testing, ranging from vehicles (stationary and/or moving) to targets constructed of common construction materials (metal, wood, masonry, etc.). Unimproved gun positions and sensor/instrumentation sites are established/used within these areas as required. The sites support testing of items such as, but not limited to mines, munitions, submunitions, surveillance systems, demolition charges, howitzers, artillery systems, tanks, mortars, trucks (military and commercial), radar systems, detectors (vehicle mounted, manned, unmanned, remotely operated), networked sensor and weapon systems, combat vehicles, etc. Final hazard classification and Insensitive Munition testing is also conducted and can include tests such as bullet impact, fast cookoff, sympathetic detonation, fragment impact, shaped charge impact, arena detonation, etc. The areas also support test associated data collection and instrumentation activities. Mobility and limited maneuver is also conducted and can involve military convoys, "shoot and scoot" scenarios, forward observation operations, lasing, rangefinding, etc.
Pyrotechnics Evaluation Range Impact Demo Site Sonoran Demolition Range Big Bird Impact Sparker Impact Height of Bursting Scoring Impact Zulu Impact South Improved Conventional Munitions Impact Brez Impact XM785 HE Impact M509 Impact Mullins Impact Lima Impact XM753 Impact Extended HE Short Impact Extended HE Long Impact Romeo Impact Adam Impact Eve Impact M753 Impact Cain Field Impact Brown Field Impact M785 Impact	Smaller, more specialized, multi-use impact areas used to support test activities as described for the larger multi-use impact areas.

TABLE B-3
No Action Alternative Activities in the Kofa Region
Yuma Proving Ground

Activity Area	Activities [a,b, c]
Variable Time Impact Jammer Impact East Impact Kruger Impact Ramsdell Ranch Impact Excalibur Target Array	
Sonoran Deflagration Site (SDS) /Kofa Deflagration Site (KADS)	Specialized impact area where munitions cook-offs are conducted to determine munition stability exposure to fire
Gun Positions, Developmental Test and Demonstration/Experimentation Areas	
Mine Countermine and Demolitions (MCD)	Engineering Equipment: testing, mines, mine detection and neutralization capabilities, demolition/munitions.
Mine Field Area (Old Mine)	Engineering Equipment: Munitions performance and acceptance, outdoor long term storage evaluations of munitions and equipment
Counter-mine Test and Training Range (includes R2311)	Engineering Equipment: mine detection and neutralization capabilities, demolition/munitions; Electronic countermeasures: IEDs; UAS performance
Unexploded Ordnance (UXO) Detection Range	Engineering Equipment: mine detection and neutralization capabilities, demolition/munitions; Electronic countermeasures: IEDs
Combat Systems Firing Range	Direct fire systems, tanks, infantry fighting vehicles, armored personnel carriers, medium and large caliber weapons. Direct fire munitions performance and acceptance, fire control. Indirect fire systems, mortars, artillery, howitzers medium and large caliber weapons. Indirect fire performance and acceptance, fire control. Aircraft Armaments, inert fire only. Reliability and performance testing of combat vehicles, c4ISR sensors, counter-IED systems and training devices, laser rangefinder, far target locators, RDTE, performance and reliability testing of wheeled and tracked vehicles, suspensions and fire control. Training for tank tables, infantry squad battle course, scout squad attack course, infantry platoon battle course, firing and crew certification of attack helicopters.
Combat Systems Maneuver Range	Direct Fire Systems: Off and on road maneuvers of tracked and wheeled combat vehicles, inert fire only, Infantry/Cavalry Unit Training (Up to 160 Soldiers, 24 Combat Vehicles; Maximum 12 Active at One Time, and 15 Support Vehicles); Company on Company Exercises (Double Cavalry Unit Training); infantry/cavalry bivouac; night testing; use of smoke and obscurants; RDTE of weapon systems/vehicles in operational maneuver environment
Red Bluff Firing Range	Same uses as Combat Systems Firing Range
White Phosphorous Detonation Area	Demolition, testing and detonation of White Phosphorous munitions
SPH Maneuver Area	Indirect Fire Systems: combat vehicle system operation, firing, and or driving for testing or operational testing to support system evaluations. Maneuver Area for combat wheeled or tracked vehicles, maneuver (on-road); field training exercises; miscellaneous training; Indirect Fire Systems: mortars, weapons systems, munitions performance and acceptance

TABLE B-3
No Action Alternative Activities in the Kofa Region
Yuma Proving Ground

Activity Area	Activities [a,b, c]
GP 26500R GP 4221Z GP 3835Z GP 21A GP 21 GP 19.1 GP 15 GP 13A GP 12 GP 8 GP 5 GP 4 GP 2	Indirect Fire Systems: Fixed sites with some level of permanent infrastructure used for munitions performance and acceptance; ammunition and weapons systems RDTE, Indirect-Fire systems such as artillery, howitzers, and mortars. Direct fire systems, tanks, infantry fighting vehicles, armored personnel carriers, with medium and large caliber weapons and missiles. Rockets (foreign and domestic), missiles, surveillance systems and Radar systems may also be utilized. The areas also support test associated data collection and instrumentation activities.
GP 17A GP 20	Indirect & Direct Fire Systems: Munitions performance and acceptance; Ammunition and Weapons Systems RDTE, Indirect-Fire systems such as artillery, howitzers, and mortars. Direct fire systems, tanks, infantry fighting vehicles, armored personnel carriers, medium and large caliber weapons. Ground fired rockets and missiles surveillance systems and Radar systems. Includes use of DU firing into Licensed DU impact area.
Unimproved GPs	Indirect Fire Systems: Various throughout KFR, sites used to support, tests on an as needed basis such as munitions performance and acceptance; Ammunition and Weapons Systems RDTE, Indirect-Fire systems such as artillery, howitzers, and mortars. Direct fire systems, tanks, infantry fighting vehicles, armored personnel carriers, medium and large caliber weapons. Ground fired rockets and missiles surveillance systems and Radar systems. The areas also support test associated data collection and instrumentation activities
Observation Towers, Observation Points, Bunkers	Indirect Fire Systems: Various throughout KFR, sites used to support, test on an as needed basis such as munitions performance and acceptance; Ammunition and Weapons Systems RDTE, Indirect-Fire systems such as artillery, howitzers, and mortars. Direct fire systems, tanks, infantry fighting vehicles, armored personnel carriers, medium and large caliber weapons. Ground fired rockets and missiles surveillance systems and Radar systems. The areas also support test associated data collection and instrumentation activities
Crusader Complex	Indirect Fire Systems: Fixed Site with multiple buildings primarily used to support test operations occurring at GP 3835Z and GP 4221Z. The areas also support test associated data collection and instrumentation activities
Airborne Detection Ranges	Engineering Equipment: Area designated for surveillance and sensor system RDTE. Surveillance and sensor systems can be ground based (vehicle mounted, handheld, etc.) or air based (fixed wing, rotary wing or aerostat). Targets and clutter are emplaced and surveyed throughout the areas as required.
SWTR	Engineering Equipment: Munitions performance and acceptance; Ammunition and Weapons Systems RDTE. Ground launched scatterable munitions, vehicle engagements, ground sensors, combat vehicle test lanes for tactical vehicle engagements.

TABLE B-3
No Action Alternative Activities in the Kofa Region
Yuma Proving Ground

Activity Area	Activities [a,b,c]
Twin Peaks/North Boundary Road	Direct Fire Systems: RDTE of combat vehicles; C4ISR, sensors, and training devices; laser rangefinders and far-target locators
S-15/CRAM area Radar Site 1 Radar Site 2 Radar Site 3 Firefinder Compound Counter-fire Compound	Mine and demolition charge testing, fire control; direct-fire Systems (nonmissile/rocket): munitions performance and acceptance, shoulder-fired weapons (nonmissile/rocket), small arms systems, fire control; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance; nonlethal weapons; smoke and obscurants: effectiveness and generation; Intelligence, Surveillance and Reconnaissance: temporary sensor positions, surveillance systems
Vehicle Test Courses	
Middle East Course	RDTE of performance and reliability testing of vehicles; driver/convoy training
Kofa Dust Course	RDTE of performance and reliability testing of wheeled and tracked military vehicles and equipment in a heavy sand/dust environment
Pole Line Road and Firing Front Road (between GP 15 and GP 20)	RDTE of performance and reliability testing of vehicles, sensors, and equipment
Combat Systems Firing Range Bump Course	RDTE performance testing of suspension and fire control systems for wheeled and tracked military vehicles
UAS and Aviation Facilities	
Contraves D Contraves E Contraves F Contraves G Contraves H Contraves I Contraves J Hog Hill	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing and optical tracking; Aircraft Systems: laser testing/training and optical tracking; Telemetry Receiver/Transmitter stations, Radar System operations
Tower 48	Used as radar, sensor, relay, telecom and data transmittal sites to host and support testing and operation of various intercept weapon systems that are networked together with a variety of sensors designed to work as a system. Rotary wing aircraft refueling operations; UAS performance
Tower 49	UAS performance
Tower L	UAS performance
Tower 31	Meteorology station, Intelligence, Surveillance and Reconnaissance: instrumentation test support
Tower M	Meteorology station, Intelligence, Surveillance and Reconnaissance: instrumentation test support
Twin Peaks	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing and optical tracking; Aircraft Systems: laser testing/training and optical tracking; Telemetry Receiver/Transmitter stations, Radar System operations

TABLE B-3
No Action Alternative Activities in the Kofa Region
Yuma Proving Ground

Activity Area	Activities [a,b, c]
Windy Hill	UAS performance; Intelligence, Surveillance and Reconnaissance: sensor testing and optical tracking; Aircraft Systems: laser testing/training and optical tracking; Telemetry Receiver/Transmitter stations, Radar System operations; Forward Observer operations
Operational Testing and Training	
SWTR Site Muggins Mountains (Middle East Course) Tower 71 Scams Flats	Light Maneuver Area for dismounted patrolling; wheeled vehicle maneuver (on- and off-road); military working dog training; land navigation; bivouac and base camps; field training exercises using blanks, simulated munitions, smoke, pyrotechnics, riot control agents, and other training devices; -miscellaneous training
Echo Pad Delta Pad SWTR Pad	Intelligence; Surveillance and Reconnaissance: aerostat platform and sensor technology testing and training
Howitzer Movement Area	Maneuver Area for combat wheeled or tracked vehicles, maneuver (on-road); field training exercises; miscellaneous training; Indirect Fire Systems: mortars, artillery, guided munitions, weapons systems, munitions performance and acceptance
East Impact (in addition to impact area)	Training for demolitions, rapid runway repair, and airfield damage repair; small arms training; bivouac and base camp training; mounted and dismounted security patrols; field training exercises using blanks, simulated munitions, smoke pyrotechnics, riot control agents, and other training devices; miscellaneous training; Rotary wing aircraft refueling operations
Geodetic GNSS/GPS Reference Station Network (GRSN)—East Kofa (see locations in Laguna and Cibola)	GPS Receiver locations
Existing Road Infrastructure in Kofa Range	Equipment moving logistics, moving targets, vehicle convoy, and sensor arrays
Meteorological and Simulations Facilities, Various Locations	Mission support: real-time meteorological data
Other Test Support Areas	
Ammunition Preparation Facilities	Indirect & Direct Fire Systems: permanent facilities for assembly, inspection, preparation and staging of munitions.
Environmental Simulation Facilities	Indirect & Direct Fire Systems: various facilities, munition RDTE for subjecting munitions to a variety of simulated mechanical and environmental conditions (vibration, climatic, drop, GP5, LMPEC, x-ray, etc.)
Ammunition Storage Facilities	Array of ammunition storage magazines and associated security and logistic infrastructure

[a] Throughout the YPG Ranges there are numerous fixed sites that are used for a variety of purposes. Some were originally designed to support radar or optical instrumentation, camera sites, pads for equipment emplacement, landing pads, observation posts for visual observers, firing points, GPs, and impact areas. All of these sites are also used, as needed, to support conduct of UAS testing, to include temporary installation and employment of UAS launch/recovery systems, GCS, command and control infrastructure, and refueling operations. Testing includes optical tracking (ground or aerial), laser range finder and laser designator

operations. Sensor tests are conducted at these areas to include ground or tower mounted, balloon or aerostat mounted electro-optical, infrared, radar, unattended ground sensors and wireless communications. These areas are also used for establishment of temporary firing positions to conduct ground weapons firing into approved impact areas, including small arms, shoulder-fired, mortars, rockets, RPGs, AT-4 LAW, and other direct fire weapons.

[b] Described impact areas not appearing on maps are part of larger consolidated impact area.

[c] Not all Activity Areas appearing in the table appear on the Existing Activities Figures.

ATTACHMENT 1
Established Gun Positions on Yuma Proving Ground
Yuma Proving Ground

10000R BG PT
1010 MVT
10335 VT
10500 VT
10670Z
10712R
10712R BG PT
10966 R
10976VT
11567 VT
11582per
11742CR
11978 VT
1198 MVT
12294 L
12308 CR
12404 VT
12530 R
12708ER
13154 VT
13250 VT
13393L
13433r
13616 VT
13933 L
14378R
14398 R
14433 VT
14471wr
14700 CC VT
14776 Brown
14847R
14956 EVE BG PT
15666 R
15670 BREZ
15670b
16000 VT
16307R
16307R BG PT
16373 Per
16373PER
16600mullins
16703 CR
16806L
16900L
17.1 MFCS GP
17024 VT
17100vt
17500 L
17665R
18.8 Cibola
183 MVT
18500 L
18643 VT
18643VT BG PT
18700 CR
19.1 South
19500 VT
19896 PER
19896per
1n
1s
2
20.5 OP T-Bar
20040 VT
20230 CR
2049MVT
21176L
21345 R
21a
2376 VT
2490 R
24909 R
25044 R
25044R BG PT
25153R BG PT
26274 VT
26428 VT
26500 R
26900 VT
27353R (27535R)
27925VT
28427 VT
2900 J
29978 VT
2n
2s
30.1
30656R
30926 R
31299j
32026 R
3292 VT
3320 MVT
33598EVE BG PT
3427 VT
350 MVT
3835 Z
3880 VT
3n
3s
4
4008 MVT
4150 ADAM
4150adam
4221Z
425 MVT
425Alt
4400EVE
45666r
4736mullins
4800 J
4850 East Roar
4870 VT
4997 Cain
5
CFC 500N
5500c
5700MVT
5800 J

6010 VT
6111 VT
6500 East Roar
6500 J
6500 VT
6600W ROAR
660Z BG PT
6638 MVT
7016 VT
7045 MVT
7313 VT
7313vt
7393R
7393R BG PT
753 MVT
7676 VT
7701 VT
8
803
8500c-1
8624 VT
8976 VT
9102 BREZ
9102 BREZ BG MON
9300 VT
944 VT
9500 J
9500 JAM
9514 R
9704 VT
9704mvt
9807Z
9939 L
Alt 20
ALT 20 TBAR
ARTHUR2
BG 4413 PETE
BG 4413 PETE (Duplicate)
BG MON @ SAD 9
BG MON GP 10
BG MON GP 2
BG PT OP 27.1
BG PT OP23.1
Big Bird
BM R14.8A
BOP @ ICM
BOP GP
Bunker B T-Bar
Bunker L
Bunker N FF
Bunker O
C17 North (M777 LWH)
C-17 XM982
CFC 1
CFC 1.5K
CFC 1K
CFC 2
CFC 3
CFC 4
CFC 5
CFC 500W
CFC 6.2
CFC 6.8
CFC 7.5
CFC 8
CFC 9
CINCO[5]
CM1 West Gun
CM-9
CM9 Excalibur
CM9 South GP (Paladin)
Contraves J
CSFR
DFII
Dragon Fire T-Bar
East TV
EM Gun
FF 10670Z
FF 14 ALT
FF 14.1
FF 14.1
FF 14398R
FF 14ALT
FF 16806L
FF 16900L
FF 17
FF 18400 L
FF 18400 L
FF 19.1
FF 19.1 T-BAR
FF 24B
FF 29
FF 2ALT
FF 34
FF 34 T-BAR
FF 5676Z
FF 6387Z
FF 6950
FF 7 TBAR
FF 70L
FF 7680Z
FF 8.0B
FF 9807Z
FF BUNKER B
FF Bunker M
FF GP 12294L
FF GP 14.8
FF GP 15738L
FF GP 1582E
FF GP 16307L
FF GP 17500L
FF GP 18500L
FF GP 2490R
FF GP 30926R
FF GP 52
FF GP 75L
FF GP 9939L
FF GP-12
FF GP-13
FF GP-14
FF GP-15
FF GP-16
FF GP-18
FF GP-19
FF GP-19.1
FF GP-2
FF GP-20
FF GP-21
FF GP-22

FF GP-23
FF GP-24
FF GP-25
FF GP-26
FF GP-28
FF GP-3
FF GP-6
FF GP-7
FF Radar Site 1
FF Radar Site 2
FF Radar Site 3
FF SITE 2N
FF SITE 2S
FF SITE 2S
FF14.8
FF-14378 R
FF-1582 E
FF-19
FF-24B
FF-25
FF-3B
FF-52
FF60L
FF-6950Z
FF-7680 Z
FFCP Q36C
FF-GP-100L
FF-GP-100L
FF-GP-5
FF-GP-70L
FF-GP-75L
FF-GP-80L
FF-GP-80L
FF-GP-85L
FF-GP-90L
FF-GP-90L
GO—1
GO—2
GP 1 DISC
GP 10 16IN
GP 10 VERT.
GP 12
GP 13A
GP 14
GP 15
GP 17A
GP 18.8
GP 19
GP 19.1
GP 2
GP 2 (NEW MAIN FRONT)
GP 20
GP 21
GP 23.1
GP 26.2
GP 26.2
GP 27.1
GP 3 (NEW MAIN FRONT)
GP 30.1
GP 4
GP 4 (NEW MAIN FRONT)
GP 4.3k
GP 4.7
GP 5
GP 8
GP 802
GP 8500CL
GP 9175CL
GP 9175CL
GP ICM
GP-1
GP-1
GP14 BG PT
GP15 1K
GP-15 1K
GP-15 IP(1985)
GP18.1
gp1k
GP-20 DISK
GP-21A
GP-22 (FF)
GP-22.1
GP-22.1
GP-23
GP29.1
GP-4 BG MON (1985)
GP-4 LAV DISK (1985)
GP6.8
GP-6.8
gp6k
GP8.9
GP-8.9
GP802
Graze Range
Graze Range (Duplicate)
Hard Mount Red Bluff
Hex 11.1
icm
ICM N
Imp R PK Nail
ktm3
ktm4
LADZ Gun Position
La Posa DZ West Gun
La Posa DZ Gun (south)
LCMR 1.1K
LCMR 2.3K
LCMR 2k
LCMR 3K
LCMR 4.3K
LCMR 5K
LCMR-3
LP7
LPWS 3
LPWS1
LPWS2
LPWS4
LWT 2 FF
LWT 4 C HUB
LWT 4 FF
LWT 5 FF HUB
LWT 5 FF HUB
LWT1
LWT-3
LWT-4-C
LWT-6
mcd
MCD MICLIC
MFP4

MLRS
MON 14776 BRN
MON 17286R
MON 3427VT
MON 4997 CAIN
MON 8976VT
MON GP 23
MON GP 6
MON GP23
Mound C Archer GP
Mound C GP
NE GP C 17 South Gun (Pal)
North GP (BM 1072 GP)
North Pad
OP 12.4
OP 20.5
OP 64 Rufus 1
OP 64 Rufus 2
OP ELMO
OP PAT
OP SPIKE
OP64 (CFC compound)
PGK VERTICAL GUN
PGK VERTICAL GUN
PGMM C Hub
PLR 30.75
POT 8
POT-6
POT-9
POT-9
Primo Point
PVT3 GP
R-6 BG PT
R-7
RAMSDELLS RANCH BG PT
RBIS 2K
RBIS 4K
reg1
reg4
rkt alley
Rocket Alley GP
ROCKET ALLEY GP MON
S Gun Position
S10
S-10
S-15
S-15 West
S-15 West (Duplicate)
SAD 11
sad 20
SAD 5
SAD-11
SAD-7
SAD7 BG PT
SE Gun Position
Site 10
Site 16 GP
Site-16
Site8 Gun Position
South Pad
South S-15 (Welton Kofa/G
Splinter
SW Gun Position
T-4B Control
T-5.9
T-58
T-63
Target Boundary West Gun
T-L
TOW 2B
TOWER 21
Tower 26B
Tropical Fruit
WEST GUN POSITION MONUMEN
WINDY 21.1
WK 3
WK 4
WK1
WK2
XM982 21.1 (7393R)
XM982 8K (south Ramsdell)
XM982 Tower 30 (14378R)
Z12 P-1
Z12 P2
Z12 P3
Z12 P4
Z12 P5
Z12 P6
HH 26K
HH 27K
HH 29K
HH 30K
MM 23K
MM 24K
MM 25K
MM 26K
MM 27K
MM 28K
MM 29K
MM 30K
MM 31K
MM 33K
MM 34K
MM 35K
MM 36K
MM 37K
MM 38K
RH 20K
RH 21K
RH 22K
RH 23K
RH 24K
RH 25K
SW 44K
SW 45K
TB 20K
TB 21K
W TB 21K
W TB 23K
W TB 24K
JERC1 GP
JERC2 GP
CB 26K
CB 28K
CB 29K
CB 30K
CB 31K
CB 32K

CB 33K
Chem Test 43K
RKT Alley 41K
SITE 13 25K
RKT ALLEY
48 Km GP
Ehrenberg GP
19.7km GP
WRAITH
DFR GP
DFR 2
36km GP
36 Km & 25.4 Km GP
37km GP
27.7km GP
OP CUB
OP GRIZ

Appendix C
Detailed Project-Specific Impacts Analysis

Contents

Acronyms and Abbreviations C-2
1.0 Introduction C-4
2.0 Activities with No Environmental Impacts C-5
2.1 Activity Description C-5
2.2 Potential Impacts C-5
3.0 Small Construction Activities C-6
3.1 Activity Description C-6
3.2 Potential Impacts C-12
4.0 Large Construction Activities C-27
4.1 Activity Description C-27
4.2 Potential Impacts C-28
5.0 Activities that Create New Drop Zones C-44
5.1 Activity Description C-44
5.2 Potential Impacts C-44
6.0 Activities that Create or Expand LTAs C-54
6.1 Activity Description C-54
6.2 Potential Impacts C-55
7.0 Activities that Create or Expand Munitions Impact Areas C-61
7.1 Activity Description C-62
7.2 Potential Impacts C-63
8.0 Transportation Activities C-77
8.1 Activity Description C-77
8.2 Potential Impacts C-78

Acronyms and Abbreviations

ABC	aggregate base coat
ACP	access control point
ac	acre
BLM	Bureau of Land Management
BMP	best management practice
CDA	Castle Dome Annex
CDH	Castle Dome Heliport
CM	camera mount
dBA	A-weighted decibel
DFAC	Dining Facility
DoDI	Department of Defense Instruction
DZ	drop zone
EISA	Energy Independence and Security Act of 2007
ESA	Endangered Species Act
ft	foot
ft^2	square feet
GCS	ground control station
GP	gun position
INRMP	Integrated Natural Resources Management Plan
IRCC	Inverted Range Control Center
IRP	Installation Restoration Program
ISR/EO	intelligence, surveillance, and reconnaissance/electro-optical
ITAM	Integrated Training Area Management
JPADS	Joint Precision Airdrop System
JERC	Joint Experimentation Range Complex
KFR	Kofa Firing Range
LAAF	Laguna Army Airfield
LRA	Long Range Artillery
LTA	Light Maneuver Training Area

MAA	Main Administrative Area
MCOC	munitions constituent of concern
MEDEVAC	medical evacuation
MFFS	Military Freefall School
MOU	Memorandum of Understanding
NWR	National Wildlife Refuge
PEIS	Programmatic Environmental Impact Statement for Activities and Operations at Yuma Proving Ground, Arizona
POL	petroleum, oil, and lubricants
POV	privately owned vehicle
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
RONA	Record of Non-applicability
SOTACC	Special Operations Terminal Attack Controller Course
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SWPPP	Stormwater Pollution Prevention Plan
SWTR	Smart Weapons Test Range
TEMO	Training Exercise Management Office
TGP	transient gun position
UAS	unmanned aircraft system
UAV	unmanned aerial vehicle
US 95	U.S. Highway 95
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance
YPG	Yuma Proving Ground
YTC	Yuma Test Center

1.0 Introduction

The following sections provide a description of activity-specific impacts that would be anticipated from each proposed activity analyzed in detail in the Draft Final *Programmatic Environmental Impact Statement for Activities and Operations at Yuma Proving Ground, Arizona* (FPEIS). The discussion of impacts is limited to those resource areas where potential adverse impacts could occur.

Each specific activity is discussed separately, with breakouts for activities with multiple sub-components (such as L001-a and L001-b). The discussion encompasses direct and indirect impacts that would be expected from implementation of the activity. Significance criteria used to evaluate potential impacts are the same as described for each resource area in Section 3 of the FPEIS. Refer to the FPEIS for the discussion of cumulative impacts.

The activities are organized by categories reflective of the types of impacts that would result. Categories of projects include:

- Activities with no environmental impacts
- Small construction activities
- Large construction activities
- Activities that create drop zones (DZs)
- Activities that create or expand Light Maneuver Training Areas (LTAs)
- Activities that create or expand munitions impact areas
- Transportation activities

Potential impacts to resources are discussed in general terms where the expected impacts would be comparable among the proposed activities in the group, and further activity-specific impacts are discussed, as appropriate, where the resources at the proposed location would result in site-specific impacts.

For five of the resource areas, there is no potential for adverse impacts, so there is no discussion of the following:

- Airspace Management—no component of the Proposed Action would affect Airspace Management on Yuma Proving Ground (YPG).
- Environmental Justice and Protection of Children—no component of the Proposed Action would result in adverse impacts regarding Environmental Justice or Protection of Children.
- Fisheries Resources—there are no fisheries resources on YPG, so this area is not addressed.
- Geologic Resources—no component of the Proposed Action would result in adverse impacts regarding geologic resources.
- Socioeconomics—individual components of the Proposed Action would have minor temporary benefits to the local economy from construction-related activities and there would be no adverse impacts to Socioeconomics.

Because the yearly fluctuations in the frequency, intensity, or duration of training events (as discussed in Sections 2.1.2 and 2.3.3.8 of the FPEIS), would be within the maximum and minimum levels observed historically and because there would be no change in the number of personnel assigned to YPG, there would be no impacts to resources as a result of increases in demand based on the number of persons on YPG. This was addressed in the FPEIS and is not further discussed.

In addition, construction-related safety is not discussed. The potential for construction-related safety issues is essentially the same across all construction activities and was discussed in the FPEIS, along with appropriate safety measures to be implemented.

Also, potential impacts to Cultural Resources are not discussed. Proposed activities would be coordinated with Cultural Resources Management on YPG to avoid known cultural resources to the extent practicable and, if avoidance is not possible, to determine whether additional survey, consultation, and/or mitigation is warranted. Due to the size of YPG, the installation has not been surveyed for cultural resources, except as required for specific projects. Additional surveys are completed for project-specific needs as funding is available. The Programmatic Agreement (PA) discussed in the FPEIS directs how proposed activities would be coordinated with regard to cultural resources.

The potential for climate change to combine with specific activities and impact resources is not discussed. The FPEIS addresses the issue of climate change and any impacts would be at a larger scale than specific activities.

2.0 Activities with No Environmental Impacts

Six of the proposed activities would not be expected to have any environmental impacts. These activities are identified below, followed by the justification for the determination of no potential environmental impacts.

2.1 Activity Description

L020: Activity L042 consists of upgrading equipment at the Tire X-Ray Facility (Building 2310).

L042: Activity L042 consists of upgrading an existing facility (Building 3025) to an office and hangar.

C016: C016 includes use of Site 6, a previously disturbed and used site, as a meteorological station.

C031: C031 includes rebuilding the target for long-range missile firing at Maverick Target.

C032: C032 includes renovation of the Large Multi-Purpose Environmental Chamber (Building 6015).

C036: C032 would increase use of Prospect Square for bombing or aircraft gunnery.

2.2 Potential Impacts

Activities L020 and C032 would be limited to interior renovations of existing buildings. There would be no changes to the amount of use these building receive following renovations.

L042 would be limited to interior renovations, but the facility would see increased use after construction. However, the existing function and users would be relocated from elsewhere on YPG and there would be no increase in use relative to current use on the installation.

C016 would convert an existing disturbed site to another use with no additional ground disturbance. There would be no appreciable change in use of this site following the conversion, as one use would be replaced by another.

C031 would rebuild an existing target structure. There would be no change in use of the target structure following rebuilding and no new ground disturbance would result from the rebuilding.

C036 would increase the use of an existing munitions impact area for bombing or aircraft gunnery. Prospect Square is used extensively for these purposes and has been used for these purposes historically. Prospect Square is already highly disturbed, so increasing the use of the impact area would not be expected to create additional environmental impacts.

3.0 Small Construction Activities

Small construction activities involve the construction of buildings, parking areas, shade structures, and other activities where the total area of disturbance is less than 5 acres (ac). This category is the largest grouping of proposed activities.

3.1 Activity Description

L001-a: L001-a would construct a building totaling 900 square ft [ft^2]), concrete pad (40,000 ft^2), shade structure, and solar-powered lights at the K-9 Village LTA.

L003: L003 would construct an outdoor eating area at the Roadrunner Café (840 ft^2).

L004: L004 would construct an office building (4,000 ft^2) next to Building 2968.

L005-a: L005-a would construct one medium (7,200 ft^2) and one large (9,600 ft^2) storage building.

L005-b: L005-b would construct two office buildings (total 4,000 ft^2).

L005-c: L005-c would construct an Air Delivery Guided Test Facility (35,900 ft^2) next to Building 2970.

L006-a: L006-a would construct a Flight Detachment Maintenance Building (18,000 ft^2).

L006-b: L006-b would construct the Wild Horse Café (3,200 ft^2).

L006-c: L006-c would construct antiterrorism/force protection (AT/FP) parking improvements (101,560 ft^2).

L007-a: L007-a would construct helicopter parking and unmanned aircraft system (UAS) parking at Castle Dome Heliport (CDH) (61,000 ft^2).

L007-b: L007-b would construct a UAS storage facility (14,400 ft^2), and a UAS maintenance hangar (43,500 ft^2) at CDH.

L007-c: L007-c would construct privately owned vehicle (POV) parking (77,000 ft^2) at CDH.

L009: L009 would construct a warehouse (7,750 ft^2) at Yuma Test Center (YTC).

L010: L010 would construct an Instrumentation Development Facility (32,500 ft²) at YTC.

L011-b: L011-b would construct an office (400 ft²) at YTC.

L012-a: L012-a would construct a hotel (15,000 ft²) at the Main Administrative Area (MAA).

L012-b: L012-b would construct an Emergency Operations Center (6,600 ft²) at MAA.

L012-c: L012-c would construct an addition to the youth services center (16,150 ft²) at MAA.

L012-e: L012-e would construct a child development center (59,261 ft²) for school-aged services at MAA.

L012-f: L012-f would construct an outdoor eating area (3,169 ft²) at Coyote Lanes bowling alley.

L013-a: L013-a would construct additional fencing (1,420 ft²) and support facilities (50,000 ft²) at the Threat Systems and Target Simulations Buildings 3572 and 3574.

L014-b: L014-b would construct multiple buildings (office building 600 ft²; maintenance building 900 ft²); concrete pad (1,000 ft²); water tank (30,000 gallons, 1,000 ft²): petroleum oil and lubricant (POL) storage area (900 ft²); and graded parking area (7,500 ft²) at Comanche Flats.

L015-a: L015-a would repair the landing pad (90,000 ft²) and construct a building (2,500 ft²) at K-9 Village.

L016-a: L016-a would construct a building (900 ft²), concrete or asphalt pad (40,000 ft²), shade structure (400 ft²), and installation of solar lights at Site 2.

L017: L017 would construct ground control stations (GCSs) (2,500 ft²) for UAS operations at telemetry Site 4.

L018: L018 would construct a concrete or asphalt pad (900 ft²) and sensor tower (65-ft to 130-ft tower, 100 ft²) east of the existing sensor test building at Sidewinder Sensor Site.

L021: L021 would construct a solar chamber (solar chamber 15,000 ft²) at Climatic Simulation Facilities (Building 3527).

L022: L022 would relocate the dust chamber (15,000 ft²) from Building 3352 to area near Buildings 3357 and 3494 (Rough Handling).

L023-b: L023-b would construct a joint wash rack (900 ft²) for tracked and government-owned vehicles at the Kofa cantonment.

L023-c: L023-c would construct electric substation protection and electronics expansion (10,500 ft²) at the Kofa cantonment.

L023-d: L023-d would construct a Howitzer Support/Acceptance Facility (22,500 ft²) at the Kofa cantonment.

L023-e: L023-e would construct an open storage facility (70,000 ft²) at the Kofa cantonment.

L024: L024 would relocate the Semi-trailer Delivery Safe Haven (11,000 ft²).

L026: L026 would construct a munitions treatment facility (60,000 ft²).

L027: L027 would construct a gun storage facility (22,000 ft²) at the Kofa cantonment.

L028: L028 would construct five ammunition magazines (4,400 ft² each totaling approximately 22,000 ft²) near the Kofa cantonment.

L029: L029 would construct an optical maintenance facility (7,500 ft²), a graded parking area with a power pole farm (90,342 ft²), and perimeter fencing (2,400 ft²).

L031-a: L031-a would construct a Military Free Fall School (MFFS) Dining Facility (DFAC) (building 48,979 ft²). Three sites are under consideration and L034-a is Option 1. Only one of the options will be selected.

L031-b: L031-b would construct a MFFS DFAC (building 48,979 ft²). Three sites are under consideration and L034-b is Option 2. Only one of the options will be selected.

L031-c: L031-c would construct an MFFS DFAC (building 48,979 ft²). Three sites are under consideration and L034-c is Option 3. Only one of the options will be selected.

L034-a: L034-a would construct is the construction of a MFFS Ready Room (48,979 ft²). Three sites are under consideration and L034-a is Option 1. Only one of the options will be selected.

L034-b: L034-b would construct an MFFS Ready Room (48,979 ft²). Three sites are under consideration and L034-b is Option 2. Only one of the options will be selected.

L034-c: L034-c would construct an MFFS Ready Room (48,979 ft²). Three sites are under consideration and L034-c is Option 3. Only one of the options will be selected.

L035: L035 would construct an Armament Test Operations and Analysis Facility (60,000 ft²).

L036: L036 would construct a shower facility (250 ft²) at Laguna Army Airfield (LAAF) Forward Operating Base area.

L041: L041 would construct an air delivery storage and laboratory facility (up to 14,851 ft²) behind Building 2970.

C004-a: C004-a would construct and operate facilities (2,500 ft²) at Gauna Peak.

C005-a: C005-a would construct a building (1,600 ft²) at Site 18.

C007-a: C007-a would construct a runway extension (75,000 ft²), aircraft shelter (8,000), and POL storage (900 ft²) at Phoenix UAS site.

C008-a: C008-a would construct a building (1,600 ft²) at Site 16.

C010: C010 would construct an aircraft shelter (43,500 ft²), POL storage (900 ft²), and graded parking lot (7,500 ft²) at North unmanned aerial vehicle (UAV) Complex.

C012-a: C012-a would construct a building (2,500 ft²) and concrete pad (5,000 ft²) at Persistent Surveillance Systems Test Area (west of La Posa DZ).

C014-a: C014-a would install a shade structure (400 ft²) at Stinger Pole Target Area.

C015-a: C015-a would construct intelligence, surveillance, and reconnaissance/electro-optical (ISR/EO) Ground Truth Reference Sites at Yuma Wash (2,000 ft²).

C015-b: C015-b would construct ISR/EO Ground Truth Reference Sites at Middle Mountain Road (2,000 ft²).

C015-c: C015-c would construct ISR/EO Ground Truth Reference Sites at Mule Wash (2,000 ft²).

C015-d: C015-d would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.446, longitude -114.471 (2,000 ft²).

C015-e: C015-e would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.477, longitude -114.286 (2,000 ft^2).

C015-f: C015-f would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.444, longitude -114.325 (2,000 ft^2).

C015-g: C015-g would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.448, longitude -114.275 (2,000 ft^2).

C015-h: C015-h would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.421, longitude -114.279 (2,000 ft^2).

C015-i: C015-i would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.408, longitude -114.360 (2,000 ft^2).

C015-j: C015-j would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.389, longitude -114.303 (2,000 ft^2).

C015-k: C015-k would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.387, longitude -114.366 (2,000 ft^2).

C015-l: C015-l would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.347, longitude -114.286 (2,000 ft^2).

C015-m: C015-m would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.297, longitude -114.395 (2,000 ft^2).

C015-n: C015-n would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.165, longitude -114.480 (2,000 ft^2).

C015-o: C015-o would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.122, longitude -114.299 (2,000 ft^2).

C015-p: C015-p would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.090, longitude -114.447 (2,000 ft^2).

C015-q: C015-q would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.081, longitude -114.353 (2,000 ft^2).

C015-r: C015-r would construct ISR/EO Ground Truth Reference Sites centered at latitude 33.967, longitude -114.422 (2,000 ft^2).

C017-a: C017-a would construct a building (1,500 ft^2), bomb-proof shelter (2,000 ft^2), shade structure (400 ft^2), concrete or asphalt pad (40,000 ft^2), and sensor tower (100 ft^2) at camera mount (CM) 4.

C018: C018 would construct a landing pad (90,000 ft^2) at CM 1.

C019: C019 would construct a building (2,000 ft^2) and concrete pad (90,000 ft^2) at Z-12.

C020-a: C020 would construct a sensor tower (65 ft to 130 ft tall, 100 ft^2), buildings (total of 2,000 ft^2), an air-conditioned facility (1,000 ft^2), and concrete pad (40,000 ft^2) at Site 9.

C024-b: C024-b would construct a fence and install solar lights (4,000 ft^2) around the Inverted Range Control Center (IRCC) Tank Maintenance and Storage Ramada.

C026-a: C026-a would construct a ramp (500 ft^2) and a rollup door to an existing building, and install solar lights at Site 10 Missile Test Facility.

C026-b: C026-b would construct a concrete landing pad (90,000 ft²)

C029-a: C029-a would construct buildings (2,000 ft²) and a concrete pad (10,000 ft²) at Aerostat Mooring Site.

C038: C038 would construct a medical evacuation (MEDEVAC) pad (1,000 ft²).

C039: C039 would construct an air-conditioned storage facility (8,000 ft²) at Castle Dome Annex (CDA).

C043-a: C043-a would include temporary burial of missiles, explosives, and other items that may be concealed in this manner for sensor testing along all Joint Experimentation Range Complex (JERC) I roads, as needed to support testing. Specific locations for temporary burials would vary depending on specific testing requirements.

C043-b: C043-b includes temporary burial of missiles, explosives, and other items that may be concealed in this manner for sensor testing along all JERC II roads, as needed to support testing. Specific locations for temporary burials would vary depending on specific testing requirements.

C043-c: C043-c includes temporary burial of missiles, explosives, and other items that may be concealed in this manner for sensor testing along all JERC III roads, as needed to support testing. Specific locations for temporary burials would vary depending on specific testing requirements.

C044-a: C044-a would clear a MEDEVAC helicopter landing pad at JERC I for evacuations (2,500 ft²).

C044-b: C044-a would clear a MEDEVAC helicopter landing pad at JERC II for evacuations (2,500 ft²).

C044-c: C044-a would clear a MEDEVAC helicopter landing pad at JERC III for evacuations (2,500 ft²).

C046-a through C046-c: C046-a through C046-c would expand the North UAV Compound through construction of a concrete pad (23,808 ft²), grading the expansion area and installing fencing around it (25,704 ft²), and constructing a new asphalt taxiway (62,500 ft²).

C047-a: C047-a would create a transient gun position (TGP) (up to 2.2 ac) at Rocket Alley

C047-b: C047-b would create a TGP (up to 2.2 ac) at CM 9 East.

C047-c: C047-c would create a TGP (up to 2.2 ac) at the Cibola Target Boundary Gun Position (GP).

C047-d: C047-d would create a TGP (up to 2.2 ac) at Site 16.

C047-e: C047-e would create a TGP (up to 2.2 ac) at CM 9 West.

C047-f: C047-f would create a TGP (up to 2.2 ac) at C17 (North and South).

C047-g: C047-g would create a TGP (up to 2.2 ac) at Mound C Archer GP.

C047-h: C047-h would create a TGP (up to 2.2 ac) at Mound C GP.

C047-i: C047-i would create a TGP (up to 2.2 ac) at CM 1 West.

C047-j: C047-j would create a TGP (up to 2.2 ac) at La Posa DZ.

C047-k: C047-k would create a TGP (up to 2.2 ac) at Site 8 GP.

C047-l: C047-l would create a TGP (up to 2.2 ac) at West Target Road GP.

C047-m: C047-m would create a TGP (up to 2.2 ac) at BM1072.

C047-n: C047-n would create a TGP (up to 2.2 ac) at Excalibur SW GP.

C047-o: C047-o would create a TGP (up to 2.2 ac) at LA DZ GP.

C047-p: C047-p would create a TGP (up to 2.2 ac) at Site 18 GP.

C047-q: C047-q would create a TGP (up to 2.2 ac) at 2.75 Rocket GP.

C047-r: C047-r would create a TGP (up to 2.2 ac) at Ehrenberg GP.

C047-s: C047-s would create a TGP (up to 2.2 ac) at DFR GP.

C047-t: C047-t would create a TGP (up to 2.2 ac) at La Posa South DZ.

C047-u: C047-u would create a TGP (up to 2.2 ac) at Water Tank GP.

C047-v: C047-v would create a TGP (up to 2.2 ac) at LA DZ East.

C047-w: C047-w would create a TGP (up to 2.2 ac) at C17 North M777LWH GP.

C049: C049 would install acoustic and seismic sensors at Horizontal Impact Area.

C051: C051 would install a shade structure (400 ft^2) at Lightweight Shock Facility.

C054: C054 would construct an expansion (78,400 ft^2) of the Yuma Wash Electronic Common Use Test site.

K006: K006 would install a UAS launch/recovery system and a GCS trailer (1,200 ft^2) at Tower 48.

K011: K011 would renovate GP5 and would construct a new control room and firing chamber (1,500 ft^2) at GP 5.

K012-a: K012-a would construct two permanent reinforced concrete buildings (7,190 ft^2) to house personnel, equipment, and ammunition, and new access road at GP 18.

K013: K013 would construct a permanent reinforced concrete building (3,600 ft^2) and additional building (3,600 ft^2) to house weapons at GP 21.

K014-a: K014-a would construct an ISR/EO Ground Truth Reference site (2,500 ft^2) centered at latitude 32.846, longitude -114.336.

K014-b: K014-b would construct an ISR/EO Ground Truth Reference site (2,500 ft^2) centered at latitude 32.967, longitude -114.239.

K014-c: K014-c would construct an ISR/EO Ground Truth Reference site (2,500 ft^2) centered at latitude 32.932, longitude -114.151.

K014-d: K014-d would construct an ISR/EO Ground Truth Reference site (2,500 ft^2) centered at latitude 32.822, longitude -114.196.

K014-e: K014-e would construct an ISR/EO Ground Truth Reference site (2,500 ft^2) centered at latitude 32.990, longitude -113.955.

K014-f: K014-f would construct an ISR/EO Ground Truth Reference site (2,500 ft^2) centered at latitude 32.930, longitude -113.926.

K014-g: K014-g would construct an ISR/EO Ground Truth Reference site (2,500 ft²) centered at latitude 32.836, longitude -114.016.

K014-h: K014-h would construct an ISR/EO Ground Truth Reference site (2,500 ft²) centered at latitude 32.867, longitude -113.922.

K014-i: K014-i would construct an ISR/EO Ground Truth Reference site (2,500 ft²) centered at latitude 32.841, longitude -113.866.

K014-j: K014-j would construct an ISR/EO Ground Truth Reference site (2,500 ft²) centered at latitude 32.986, longitude -113.812.

K014-k: K014-k would construct an ISR/EO Ground Truth Reference site (2,500 ft²) centered at latitude 32.904, longitude -113.791.

K014-l: K014-l would construct an ISR/EO Ground Truth Reference site (2,500 ft²) centered at latitude 32.020, longitude -113.758.

K014-m: K014-m would construct an ISR/EO Ground Truth Reference site (2,500 ft²) centered at latitude 32.957, longitude -113.666.

K015: K015 would construct a permanent building (3,000 ft²) at GP 21A.

K016: K016 would construct a permanent building (3,000 ft²) at GP 17A.

K017: K017 would construct a permanent building (3,000 ft²) at GP on Growl Road in southeast corner of Echo Munitions Impact Area.

K018: K018 would construct a permanent reinforced concrete building (3,000 ft²) at GP Splinter.

K019: K019 would construct a permanent reinforced concrete building (3,000 ft²) at GP 19.1.

K020: K020 would construct a permanent reinforced concrete building (3,000 ft²) at GP 11.1.

K031: K031 would construct a lagoon (146,545 ft²) for the Kofa Sewage Lagoon Expansion.

3.2 Potential Impacts

Specific discussions of impacts to Energy/Utilities, Land Use, Noise, Safety, and Traffic/ Transportation are not provided. There are no proposed activities in this category with unique impacts to these resources and no mitigation is required for impacts to these resources. The discussion of these resources provided in the body of the FPEIS adequately describes the potential for impacts to these resources from implementation of small construction activities.

3.2.1 Air Quality

There would be minor temporary emissions from construction equipment and potential for fugitive dust during construction. There would be minor temporary emissions from construction equipment and potential for fugitive dust during construction. YPG would encourage use of best management practices (BMPs) during construction to reduce or eliminate fugitive dust emissions. In areas with disturbed and unstable highly erodible soils, BMPs would also be applied when practicable during military operations. BMPs that could be implemented include the following:

- *Application of Dust Suppressants.* Where appropriate, dust suppressants or liquid surfactants would be applied to areas where dust could be disturbed by construction or traffic.

- *Sprinkling/Irrigation*. Sprinkling the ground surface with water until it is moist can be used to control dust on haul roads and other traffic routes. This practice can be applied to almost any site. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways, which ultimately could increase the dust problem. Mechanical removal of mud from tires would be implemented if necessary.
- *Vegetative Cover*. In areas not expected to accommodate vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetation provides coverage to surface soils and decreases wind velocity at the ground surface, thus reducing the potential for dust to become airborne.
- *Mulch*. Mulching can be a quick and effective means of dust control for recently disturbed areas.

Six small construction activities (L009, L010, L011-b, L029, L031, and L034) would occur within the portion of the Laguna Region that is within a designated non-attainment area and were included in the emissions analysis to support the Record of Non-applicability (RONA) for General Conformity developed for projects in the non-attainment area. The RONA analysis determined that these six small construction activities, when combined with eight other small construction activities (otherwise analyzed programmatically in the FPEIS), one large construction project, a new vehicle test course, an expanded LTA, a new DZ, a new tracked vehicle trail in YTC, and the LAAF runway expansion/relocation of Barranca Road, would not have a significant effect on air quality in the non-attainment area.

The remaining small construction activities that are outside the designated non-attainment area would have disturbance and emission generating potential comparable to the activity-specific range of emissions associated with the six activities analyzed in detail for the RONA. None of the proposed small construction activities would have more than minor, temporary adverse impacts to air quality.

There would be a slight long-term reduction in fossil fuel emissions relative to the No Action Alternative due to the use of new solar-powered lights rather than generator-powered lights at several locations where small construction activities would be implemented. There would be no significant adverse impacts to air quality.

3.2.2 Fire Management

Small construction activities would have the potential for increased ignition of wildfires due to operation of construction equipment. Vegetation removal during site preparation would minimize this risk by reducing the fuel load in the area where construction equipment would be operated. In the Laguna Region, any wildfire that would start would be promptly suppressed, resulting in a very low potential for wildfire escape from small construction activities in the Laguna Region. Replacement of generator-powered lights with new solar-powered lights at several locations would remove potential ignition sources during testing and training activities at those locations.

Small construction activities generally would result in very limited to no potential for the spread of invasive exotic plant species that could increase fuel loads and lead to more intense wildfires in the future. Small construction activities typically would result in complete cover of disturbed areas with impervious surfaces or maintained landscaping/cleared ground in areas

not covered by impervious surfaces. Any impacts to activities or safety from wildfire as a result of the implementation of small construction activities would be negligible to minor.

Operations at newly constructed facilities would not be expected to greatly contribute to wildfire potential. Most operations would entail either work in buildings or data collection from newly installed sensors that would not have potential to ignite or spread wildfire. Proposed TGPs would be maintained free of encroaching vegetation, minimizing the potential for firing actions to ignite wildfire, and only low fuel loads (that would typically not carry a fire) would be kept in the TGPs. As firing actions would be directed into established munitions impact areas, there would be no increase in wildfire potential. Burial of missiles, explosives, and other items for sensor testing along JERC roads (C043-a through C043-c) could result in wildfire ignition should inadvertent detonation of buried items occur. However, any fires that develop from these activities would be suppressed by onsite personnel or reported to Range Control for appropriate fire control response.

Wildfires that ignite on YPG have the potential to spread beyond the installation boundaries onto adjoining lands. Similarly, fires that begin on adjoining lands could spread onto YPG. YPG has developed a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) and the Bureau of Land Management (BLM) that establishes guidance for cooperation and collaboration on wildland fire issues on YPG and the surrounding Federal lands. The MOU recognizes a common goal among the signatories to minimize the impacts of wildland fire on the desert landscape and establishes fire suppression and safety protocols for cooperative efforts to suppress desert wildfires. YPG would continue to cooperate with other Federal agencies per the MOU to combat wildfires in the region.

3.2.3 Hazardous Materials/Hazardous Waste

No more than minor adverse impacts to hazardous materials and hazardous wastes would be expected from small construction activities. Construction areas would have the potential for stormwater runoff to transport minor quantities of hazardous materials should a spill occur. Standard construction BMPs, as discussed in the FPEIS, and procedures in the activity-specific Construction Stormwater Pollution Prevention Plan (SWPPP), which would be consistent with the Installation Spill Prevention, Control, and Countermeasures Plan (SPCCP) and the Installation Spill Contingency Plan (ISCP), would be implemented to minimize the potential for accidental release of hazardous materials to the environment and subsequent offsite transport.

Three small construction activities would result in creation of POL storage areas, which would reduce the risk of spills reaching offsite waters and be beneficial for hazardous materials use on YPG.

Impervious area would increase and would create the potential for increased stormwater runoff, which could transport minor quantities of hazardous materials should a spill occur during operation. As discussed below under Water Resources, there would be only minor potential from increased runoff during operations due to implementation of appropriate post-construction stormwater BMPs, as discussed in the FPEIS.

Impacts would likely be minor. Of the proposed small construction activities, 53 would have no potential for hazardous materials impacts during operation or would result in relocation of existing activities with no change from the current use/risk of hazardous materials (Table C-1).

TABLE C-1
Potential for Hazardous Materials Impacts from Proposed Small Construction Projects
Yuma Proving Ground

Potential for Hazardous Materials Impacts during Operation	Small Construction Activities
No potential for impacts or no change from current uses of hazardous materials.	C014-a, C015-a through C015-r, C024-b, C026-a, C038, C044-a through C044-c, C049, C051, K014-a through K014-m, K031, L001, L005-a, L006-c, L007-c, L009, L022, L023-e, L024, L036
Potential for small spills of cleaning materials/solvents during cleaning/maintenance of constructed facility.	C005-a, C008-a, C017-a, C039, K015, K016, K017, K018, K019, K020, L003, L004, L005-b, L005-c, L006-b, L011-b, L012-a, L012-b, L0012-c, L012-e, L012-f, L013-a, L015-a, L027, L031, L034, L041
Potential for spills of POLs during operations and for small spills of cleaning materials/solvents during cleaning/maintenance of constructed facility.	C004-a, C007-a, C010, C012-a, C018, C019, C020-a, C026-b, C029-a, C046, C047-a through C047-w, C050-a, C054, K006, K011, K013, L006-a, L007-b, L010, L014-b, L016-a, L017, L018, L021, L023-b, L023-c, L023-d, L029
Potential for leaks of POLs from parked aircraft.	L007-a
Potential for munitions constituents of concern (MCOCs) during operations and for small spills of cleaning materials/solvents during cleaning/maintenance of constructed facility.	K012-a, L0026, L0028, L0035
Potential for MCOCs during operations and for small leaks from vehicles during testing/training events.	C043-a, C043-b, C043-c

One small construction activity (L024) would benefit from relocation of the semi-truck safe haven away from areas where people congregate. This would reduce the potential for exposure to hazardous materials on trucks waiting to make deliveries. For those activities where an existing activity would be relocated, any spills would be localized and would be cleaned up immediately. L007-c would create new POV parking at CDH and the potential for impacts from hazardous materials would be limited to leaks of POLs from parked vehicles, which would not change from the current conditions where POVs are parked on undeveloped ground.

Twenty-seven small construction activities would have potential operational hazardous materials impacts limited to localized spills of solvents or other chemicals only during cleaning and facility maintenance activities (Table C-1). Any spills would be localized and would be cleaned up immediately.

There are 49 small construction activities that would have the potential for spills of POLs when using vehicles for testing and training activities or when performing maintenance on military vehicles and equipment (Table C-1). These activities also involve the potential for localized spills f of solvents during cleaning and facility maintenance. Any spills would be localized and would be cleaned up immediately.

The potential for impacts from hazardous materials at L007-a would be limited to leaks of POLs from parked aircraft. Any spills would be localized and would be cleaned up immediately.

There are seven proposed small construction activities that would create areas or facilities where explosives would be stored or used (Table C-1). The risk of exposure to MCOCs would exist at these locations in addition to the potential for leaks from vehicles and spills during cleaning or maintenance. Operations at these sites would have the potential for contamination from MCOCs should releases occur. For proposed activities C043-a, C043-b, and C043-c, the risk would be minimal, as explosives would be buried for sensor testing and removed afterwards. No intentional detonation would occur and any releases would be localized and cleaned up immediately. There would be potential for accidental release of MCOCs:

- During operation of the ammunition storage building that would be constructed as part of K012-a.
- During munitions treatment activities at L026.
- From the ammunition magazine at L028.
- From Armament Test Operations and Analysis activities at L035.

Any releases during operations at these sites would be localized and cleaned up immediately.

All proposed TGPs would have the potential for accidental release of MCOCs because live ammunition or munitions would be transported to these sites and weapons would be fired from these sites. Any releases during operations at these sites would be localized and cleaned up immediately. New TGPs would be added to the regular range assessments conducted under Department of Defense Instruction (DoDI) 4715.14. Should migration of MCOCs from any of the new TGPs be indicated, YPG would implement appropriate measures to protect human health and the environment.

Operations, including testing and training, would comply with BMPs identified in the SPCCP and ISCP. Further, YPG would implement appropriate control and containment measures to minimize the potential for contamination or exposure to hazardous materials. The Installation SPCCP and the Installation ISCP would be implemented to minimize the potential for accidental release of hazardous materials to the environment and subsequent offsite transport.

3.2.4 Recreation

Small construction activities would not affect off-post recreational opportunities. Two small construction activities (L016-a and C047-r) are proposed in areas where there could be conflicts with recreational hunting.

C047-r would result in potential impacts with hunting in a small portion of the Cibola Hunting Area. Establishment of the TGP would likely be completed in a few days. The physical presence of the TGP would not adversely affect hunting, but testing or training events requiring use of this TGP that would occur during hunting season would require suspension of public hunting in that area for the duration of the activities. The establishment of multiple new TGPs should provide flexibility in scheduling events at TGPs, which should allow YPG to avoid or minimize the potential for conflicts with hunting at C047-r. Any impacts on public hunting would be expected to be minor.

L016-a, which would be implemented at Site 2, would result in potential public hunting conflicts in the Martinez Hunting Area. If construction of this activity were to occur during hunting season, public hunting would be suspended until the construction is complete. Some land currently available for hunting would be converted to buildings and pads, but the amount

of converted land would be minor. Should training events be scheduled in this area during hunting season, public hunting would be suspended for the duration of the training activities. The proposed establishment of multiple new LTAs would allow YPG flexibility to schedule training to minimize conflicts with hunting at Site 2. Any impacts on public hunting would be expected to be minor.

L012-c would provide long-term recreational benefits for children by enlarging the Youth Center. Minor temporary disruptions of recreational activities at the center could occur during construction, but any adverse impacts would be minor and temporary.

No other proposed small construction activities have potential to adversely affect recreational opportunities on YPG.

3.2.5 Soils

Proposed small construction activities would involve soil disturbance during site preparation and during construction activities. Soils on YPG are of two broad types: highly erodible and not highly erodible. The FPEIS (Section 3.15.2.3) provides an adequate analysis of impacts to soils that are not highly erodible, and this analysis focuses on potential impacts to highly erodible soils as a result of proposed small construction activities. A large portion of land suitable for development on YPG occurs in areas with highly erodible soils because these areas tend to be more level, where sediments have been deposited over time. There are four highly erodible soils complexes on YPG, as discussed in the FPEIS.

Highly erodible soils are more susceptible to erosion when disturbed. Impacts to highly erodible soils could occur during construction activities. Site-specific construction BMPs would be used to stabilize disturbed soils, which would minimize the potential for soil erosion from stormwater runoff and wind erosion. Construction BMPs would comply with the 2005 Arizona Department of Transportation *Erosion and Pollution Control Manual*. BMPs that could be used include, but would not be limited to:

- Preservation of existing vegetation, if practicable, to provide natural protection against soil erosion.
- Mulch applied over disturbed soil to prevent erosion during and following precipitation events.
- Slope protection measures to minimize erosion from disturbed slopes, which could include one or more of geotextiles, vegetation, and mulch.
- Silt fencing to provide a barrier to sediment movement from disturbed areas.

Additional BMPs would be implemented to minimize the potential for increased wind erosion during construction, which could include but would not be limited to:

- Wet suppression to prevent wind erosion and dust generation would be applied at least daily but not in excessive amounts.
- Chemical dust suppression using appropriate chemicals based on the soil type, temperature, humidity, and wind velocity.
- Gravel applied to disturbed soils to prevent wind erosion.
- Covering of construction stockpiles with tarps and canvases.

The Arizona Department of Environmental Quality requires a construction general stormwater permit through the Arizona Pollutant Discharge Elimination System for discharges from individual and unrelated construction activities. Because all proposed small construction activities would be less than 5 ac and would be more than 0.25 mile from an impaired or outstanding Arizona water, these activities may qualify for waiver options if they are determined to have an erosivity value of less than 5, as calculated by the Arizona Smart Notice of Intent system. Small construction activities that meet the waiver requirements would be required to comply with the conditions of the Arizona Pollutant Discharge Elimination System permit. Proposed small construction activities that are interrelated and dependent would be considered components of a common plan of development, and the interrelated construction activities would be grouped into one single Arizona Pollutant Discharge Elimination System Construction General Permit that would address all construction-related impacts, including specific construction activities that would disturb less than 1 ac of ground.

If a construction general stormwater permit is required, standard construction BMPs would be coupled with the implementation of a Construction SWPPP to stabilize disturbed soils and minimize the potential for indirect impacts to water resources. Following the completion of construction, a site would be stabilized to minimize the potential for erosion from post-construction stormwater runoff. Small construction activities that would create new structures with a footprint of more than 5,000 ft^2 would be compliant with Section 438 of the Energy Independence and Security Act of 2007 (EISA) and the *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)*. Under EISA, federal facilities with a footprint that exceeds 5,000 ft^2 must use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow. EISA compliance would minimize the potential for post-construction stormwater scour to affect onsite and off-site soils, and any impacts to highly erodible soils from post-construction stormwater runoff would be expected to be negligible to minor.

Many proposed small construction activities would impact highly erodible soils, and implementation of the proposed small construction projects would impact a total of 76.35 ac of highly erodible soils. Small construction activities in the Laguna Region would impact 21.88 ac of highly erodible soils; 53.01 ac of highly erodible soils in the Cibola Region would be impacted; and 1.46 ac of highly erodible soils in the Kofa Region would be impacted. Table C-2 identifies the small construction activities that would impact highly erodible soils, the specific soil types that would be impacted, and the acreage of impacts by soil types.

TABLE C-2
Proposed Small Construction Activities in Areas with Highly Erodible Soils
Yuma Proving Ground

Small Construction Activities	Highly Erodible Soil Type	Total Acreage of Disturbance
L003, L007-a through L007-c, L013-a, L021, L023-b through L023-e, L024, L026, L027, L028, C005-a, C007-a, C012-a, C015-b through C015-d, C015-f through C015-j, C015-l, C015-o through C015-p, C018, C019, C024-b, C026-a, C026-b, C029-a, C038, C039, C043-b, C043-c, C044-b, C047-b, C047-c, C047-e, C047-g through C047-j, C047-l, C047-n through C047-w, C049, C051, K006, K011, K012a-, K013, K014a through K014-i, K014-l, K015, K016, K020	Cristobal-Gunsight Complex	60.64
C010, C015-g through C015-h, C043-a, C044-a, C046-a through C046-c, K014-j through K014-k, K017	Gilman-Harqua-Glenbar Complex	4.11
L004, L005-a through L005-c, L006-a through L006-c, L009, L010, L011b, L017, L018, L029, L031-a through L031-c, L034-a through L034-c, L035, L036, L041	Superstition-Rositas Complex	11.49
C015-e, K014-m	Tucson-Tremant-Antho Complex	0.11

Most impacts to highly erodible soils would occur in the Cristobal-Gunsight complex, which is a common soil type found throughout YPG.

It is not possible to avoid highly erodible soils due to the occurrence of these soils in level areas, where small construction projects would typically be located. The largest contiguous area that would be disturbed by small construction activities would be 2.3 ac, and the majority of small construction activity areas would be less than 0.5 ac. Additionally, small construction activities would be highly dispersed in space and time. Soil erosion potential would be considered in designing facilities at these sites and appropriate site-specific BMPs would be developed and implemented to minimize the potential for erosion during and following small construction activities. With implementation of appropriate site-specific BMPs, impacts to highly erodible soils during construction would be expected to be minor.

Where soils that are susceptible to wind erosion are disturbed, there would be potential to create dust and contribute to particulate matter less than or equal to 10 micrometers in diameter (PM_{10}) that could affect air quality. Potential air quality impacts were discussed in Section 3.2.1.

3.2.6 Threatened or Endangered Species and Species of Concern

Proposed small construction activities would not be expected to have impacts to three of the threatened, endangered, or sensitive (TES) species that occur on YPG, including desert rosy boa (*Lichanura trivirgatagracia*), Mojave fringe-toed lizard (*Uma scoparia*), and Parish's onion (*Allium parishii*). YPG lacks quality potentially suitable habitat for the desert rosy boa due to the lack of intermittent or permanent streams with associated riparian areas. The poor to marginal potentially suitable habitat that does occur on YPG is not within or adjacent to any proposed small construction activities. The Mohave fringe-toed lizard occurs on YPG only in sand dune habitat in the northwestern portion of the Cibola Region. This area would not be impacted by any proposed small construction activities. Parish's onion occurs in the Kofa National Wildlife

Refuge (NWR) near the boundary of YPG and could occur on YPG in areas near the refuge. No impacts from small construction activities would occur near the boundary with the Kofa NWR. Because there would be no potential for impacts to these species or their habitats, they are not further discussed.

Small construction activities that are proposed outside of cantonment areas would have the potential to impact other TES species that occur on YPG or their habitats. Direct impacts to TES species could result through displacement, injury, or mortality from construction and operation activities. Indirect impacts to species could result from disturbance associated with construction and operation activities that lead to nest/den abandonment, loss or alteration of habitat, or disruption of migratory pathways. TES species also could experience habitat loss or degradation from the introduction or spread of exotic invasive plant species. All proposed construction activities would involve soil disturbance that would create the potential for the establishment or spread of exotic invasive plant species that could directly outcompete native species or displace food plants. In addition, growth of exotic invasive vegetation could increase fuel load and the potential for the spread of wildfire following abnormally wet years, which could cause mortality, disruption of reproduction, or loss of habitat for TES species. Because TES species would not occur in cantonment areas, small construction activities in cantonment areas would not affect TES species except through the potential for introduction or spread of exotic invasive plant species. The following sections discuss the potential for small construction activities to affect TES species on YPG.

Small construction activities would not cause the loss of any wildlife water tanks that are used by TES species. Because these water tanks would be unaffected by small construction activities, there would be no induced behavioral changes in TES species using water tanks.

The Sonoran desert tortoise (*Gopherus morafkai*) has been observed in low numbers on YPG. The USFWS has identified much of YPG as primary desert tortoise habitat, but the animals may also occur in other areas on YPG. Four small construction activities (C004-a, C005-a, C010, C046-a) are proposed in areas identified as primary Sonoran desert tortoise habitat on YPG. These activities would alter or eliminate potential habitat for the species on 1.83 ac. Other small construction activities that occur outside of cantonment areas could impact the Sonoran desert tortoise through displacement, incidental mortality, or loss or alteration of habitat. The density of Sonoran desert tortoise on YPG is low, so any impacts would be expected to be minor. Because the area identified as primary Sonoran desert tortoise habitat on YPG is very large relative to the area that would be impacted by proposed small construction activities, and because the impacts from small construction activities would be limited in area, impacts to this species from lost habitat due to construction activities would be long-term and minor. There would be potential for incidental mortality during small construction activities. YPG will continue to implement those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with the military mission. With implementation of these guidelines, the potential for incidental mortality or injury would be negligible to minor. Should the Sonoran desert tortoise be listed under the Endangered Species Act (ESA), activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted prior to any land-disturbing activities.

Proposed small construction activity K017 would occur in or near an area of known Sonoran pronghorn (*Antelocapra americana* ssp. *sonoriensis*) activity. Sonoran pronghorn would likely avoid the area during construction. No mortality of individuals would be expected from implementation of proposed activity K017. Impacts during construction would be temporary and would end when construction is complete. There could be a minor loss of potential habitat (approximately 3,000 ft^2) from construction of the building. Proposed small construction activities would not impact the Sonoran pronghorn on the Kofa NWR, as no small construction activities are proposed near the boundary with Kofa NWR.

Small construction activities outside of cantonment areas and TGPs could occur in potentially suitable habitat for the banded Gila monster (*Heloderma suspectum cinctum*). Construction and vegetation clearing on YPG could negatively impact this species through loss of habitat. Because this species is slow-moving, and would tend to hide rather than flee from human disturbance, direct impacts could result from earth-moving activities. It is possible that TGPs could be placed in areas where the banded Gila monster would occur, but other small construction activities that would erect buildings down-range would not be sited in the habitats preferred by the banded Gila monster because these rocky areas would require greater efforts to prepare for construction. Operation of TGPs would not be expected to impact the banded Gila monster beyond causing it to hide among rocks, as the animals would not likely use the areas from which guns would be fired. Impacts would be minor and long-term.

Potential foraging and nesting habitat for the loggerhead shrike (*Lanius ludovicianus*) would be reduced through clearing associated with construction and establishment of proposed TGPs and other down-range proposed small construction activities. Due to the mobility of the species, incidental mortality would not occur as long as nests were avoided. Shrikes would likely relocate away from disturbance-causing activities unless already nesting in an area. YPG could delay construction of TGPs and other down-range small construction activities to avoid potential conflicts with nesting loggerhead shrike. Loggerhead shrike may use new TGPs after construction, and this could result in interaction with testing or training activities. Operational activities would not be expected to impact the loggerhead shrike beyond temporary displacement, as the animals relocate away from human activity. Establishment and operation of new TGPs could have a minor long-term negative impact on loggerhead shrike.

Proposed TGPs and other down-range small construction activities could be placed in areas where the western burrowing owl (*Athene cunicularia hypugaea*) would occur. Animals would likely temporarily relocate from the areas of active construction, but could resume use of these areas after construction is complete. Should a western burrowing owl be determined to be using a burrow or nesting within or immediately adjacent to the construction area of a proposed TGP, YPG could take measures to relocate the owls from the area prior to construction or to delay construction until after the young had fledged. Western burrowing owls may use new TGPs after construction, and this could result in interaction with testing or training activities. Operational activities would not be expected to impact the western burrowing owl beyond temporary displacement, as the animals move away from the human activity. Establishment and operation of new TGPs could have a negligible to minor long-term negative impact on western burrowing owls.

The California leaf-nosed bat (*Macrotus californicus*) and cave myotis (*Myotis velifer*) are known to forage and roost on YPG. It is likely that the pocketed free-tailed bat (*Nyctinomops femorosaccus*) also forages and roosts on YPG. These species roost in caves and mines, which

would not be impacted by small construction activities. There would be no indirect impacts to these bat species through loss or degradation of roosting habitat. The western yellow bat (*Lasiurus xanthinus*) and the spotted bat (*Euderma maculatum*) may occur as transients or migrants on YPG, but would not roost on the installation. Potential foraging habitat for these five bat species would be reduced through vegetation clearing associated with preparation for small construction activities. Because the amount of clearing would be minor relative to the total foraging habitat available on YPG and the surrounding lands, any indirect impacts to bats from loss of foraging habitat would be long-term and minor. Because bats are highly mobile, these animals would be expected to relocate from areas of human activity. The yellow bat and the spotted bat do not roost or reproduce on YPG, and the other three sensitive bat species would not roost in areas where large construction projects would occur. Therefore, sensitive bat species would not occur in construction areas during the daytime when clearing and construction would occur, and no direct impacts to sensitive bat species would be expected from small construction activities.

Wild horses and wild burros (*Equus* spp.) use habitat throughout YPG, and it is unlikely that proposed small construction activities would have more than negligible impacts. Animals may be temporarily displaced by construction activities, but vegetation clearing to establish a TGP would not be done if wild horses or burros were present. Proposed TGP sites and other down-range small construction activities would avoid locations where wild horses or burros are known to congregate. It is possible that wild horses and burros could occur as transients at proposed TGP sites during operations. If encountered, work would be delayed until the animals had left the area. Any impacts would be minor and temporary.

Other plant species of concern on YPG include the desert barrel cactus (*Ferocactus cylindraceus*), straw-top cholla (*Cylindropuntia echinocarpa*), saguaro cactus (*Carnegiea gigantea*), and ocotillo (*Fouquieria splendens*), all of which occur scattered throughout YPG. Small construction activities could impact these species through vegetation clearing associated with creation of TGPs or during site preparation for other small construction activities. Plants would be salvaged where practicable and relocated to other suitable habitat on YPG. There would be minor long-term impacts to these species as a result of the small construction activities.

A plant identified as the endangered Nichol Turk's head (*Echinocactus horizonthalonius* var. *nicholii*) was photographed on YPG in 1995, but voucher specimens were not collected or recorded and the plant has not been observed subsequent to the initial report. This report may have resulted from observation of an atypical small specimen of another barrel cactus. At present, USFWS does not recognize Nichol Turk's head as occurring in Yuma or La Paz Counties, with its distribution restricted to three populations in Arizona in Pinal and Pima Counties. Because the initial report has not been confirmed, and because the USFWS considers YPG outside the range for the species, the Nichol Turk's head would not occur on YPG and potential impacts to this species are not addressed.

3.2.7 Vegetation

The potential for small construction activities to affect vegetation through changes in wildfire frequency or intensity was discussed in Section 3.2.2 and is not further discussed here.

Small construction activities would result in soil disturbance that could promote establishment or spread of invasive exotic plant species, which could alter plant community composition. Because most disturbed areas resulting from construction activities would be covered with

buildings or other impervious surfaces, the potential for introduction or spread of invasive exotic plant species would be minor. The areas developed for small construction activities would be subject to maintenance activities implemented to control nuisance plants and animals, which would further reduce the potential for impacts to native vegetation as a result of growth of invasive exotic plant species following small construction activities.

All proposed small construction activities could create short-term construction runoff. During construction, appropriate BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils from stormwater runoff.

There are 66 proposed small construction activities that would result in permanent increased impervious surface area, including 13 small construction activities where there would be no direct impacts to vegetation because the construction would occur in previously disturbed areas (Table C-3). There would be potential for increased runoff from new impervious area. Without appropriate control measures, increased runoff could result in increased erosion, which could then remove native vegetation through scour. The potential loss of vegetation through scour from erosive water flow could extend off-post and affect vegetation on adjacent downslope land. Operation of facilities constructed under small construction activities would result in an increase in impervious area on YPG, concentrated primarily in cantonment areas where the existing impervious area is extensive. Small construction activities that would create new structures with a footprint of more than 5,000 ft^2 would be compliant with Section 438 of EISA and the *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)*. Under EISA, federal facilities with a footprint that exceeds 5,000 ft^2 must use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow. With EISA compliance, any indirect impacts to vegetation from post-construction stormwater runoff during operation of facilities would be negligible.

TABLE C-3
Potential for Impacts to Vegetation from Proposed Small Construction Projects
Yuma Proving Ground

Potential Impact to Vegetation	Small Construction Activities
Potential for increased runoff from increase in impervious area in previously disturbed areas that would not have direct impacts to vegetation; EISA compliance would make impacts negligible.	L021, L022, L023-b, L023-c, L023-d, L023-e, L024, L026, L027, L028, K015, K016, and K017
Potential for increased runoff from increase in impervious area; EISA compliance would make impacts negligible. Permanent, moderate impacts to habitat/vegetation loss from construction of permanent structures, paved runways, and parking areas.	L001-a, L003, L004, L005-b, L005-c, L006-a through L006-c, L007-a through L007-c, L009, L010, L011-b, L012-a through L012-e, L013-a, L014-b, L015-a, L016-a, L017, L018, L029, L031-a through L031-c, L035, L036, L041, C004-a, C005-a, C007-a, C008-a, C010, C012-a, C017-a, C018, C019, C020-a, C024-b, C026-a, C026-b, C029-a, C038, C039, C046-a, K006, K011, K012-a, K013, K018, and K019.
Long-term, moderate impacts to vegetation only from initial vegetation clearing, including establishment of TGPs.	C014-a, C015-a through C015-r, C043-a, C043-b, C044-a through C044-c, C049, C051, C054, K014-a through K014-m, C047-a through C047-w

There are 59 proposed small construction activities, including 23 proposed TGPs in the Cibola Region, that would result in clearing of desert vegetation in previously undisturbed areas, but would not entail construction of permanent structures or increased impervious area (Table C-3). These activities would not result in elimination of any native species or specific habitat types from YPG because, although the impacts would be permanent, the impacts would be minor due to the small area relative to the size of YPG.

Small construction activities that result in new permanent structures or impervious areas, such as parking areas, also would experience loss of vegetation from within the larger construction area that would not be converted to buildings or impervious surfaces because the disturbed area would exceed the footprint of any structures/facilities built. Because of the slow recovery of desert vegetation following disturbance, this vegetation loss would be long-term. These long-term impacts would be minor, however, because the amount of vegetation that would be disturbed would be much less than 1 percent of the area of YPG. Approximately 50.6 ac of desert vegetation on YPG would experience these long-term impacts within the timeframe for recovery.

If a construction site is dominated by exotic invasive vegetation, clearing for small construction activities would be a minor benefit to desert vegetation.

3.2.8 Visual Resources

During construction, small construction activities would result in an altered view of the immediate construction area. Small construction activities within cantonment areas away from public roads would not result in impacts to visual resources because, although the activities may be visible to public passers-by, the distance of the construction from the public road and the surrounding development would make the construction site blend into the background. After construction is completed, the new structures will be similar in appearance to existing structures

There are five TGPs (C047-d, C047-f, C047-j, C047-t, and C047-w) that could be visible to passers-by on Cibola Lake Road. There would be temporary negative impacts from the presence of construction equipment during establishment of the TGPs. Once established, with the distance from Cibola Lake Road and intervening desert scrub vegetation, the TGPs would blend into the desert and would not constitute any more than a negligible impact to visual resources.

There are 19 small construction activities, other than establishment of TGPs, that would be in proximity to US 95, Imperial Dam Road, Martinez Lake Road, or Cibola Lake Road and that would be visible to the public using those roads (Table C-4). These small construction activities would have the potential for impacts to visual resources during construction or operation. New buildings would be designed to blend with the existing visual landscape by using consistent architectural themes in accordance with the YPG Installation Design Guide to minimize the potential for long-term impacts to visual resources.

TABLE C-4
Potential for Impacts to Visual Resources from Proposed Small Construction Projects
Yuma Proving Ground

Activities	Potential for Impacts to Visual Resources during Construction and Operation
L001-a, L004, L015-a, L016-a, L035, L041, C008-a, C010, C012,	Potential for minor temporary impacts to visual resources as viewed by the public from Martinez Lake Road. New structures would be compatible with existing buildings/ development in the area and there would be no long-term impact to visual resources.

TABLE C-4
Potential for Impacts to Visual Resources from Proposed Small Construction Projects
Yuma Proving Ground

Activities	Potential for Impacts to Visual Resources during Construction and Operation
C046-a through C046-c	
C038, C039, K012-a, K013, K016	Potential for minor temporary impacts to visual resources as viewed by the public from US 95. New structures would be compatible with existing buildings/ development in the area and there would be no long-term impact to visual resources.
K011	This activity is renovation of an existing structure. Presence of construction equipment could be a minor temporary impact to visual resources. No long-term impacts to visual resources would result.
K031	Potential for minor temporary impacts to visual resources as viewed by the public from US 95. Once complete, new lagoon would not be visible to persons traveling on US 95.

3.2.9 Water Resources

There would be no direct impacts to surface water resources from small construction activities, as no proposed small construction activities would occur in or immediately adjacent to surface waters. All small construction activities would have the potential for indirect impacts to surface water resources as a result of construction stormwater runoff transporting sediments or vehicle fluids to receiving waters. Standard construction BMPs, as discussed in the FPEIS, would be implemented to minimize the potential for transport of materials to offsite surface waters.

Small construction activities may have minor temporary impacts on groundwater. Dust suppression may be necessary during construction and may be accomplished by wetting exposed soils to prevent dust generation. This would result in an increased demand for groundwater during construction. Because small construction activities would occur across YPG and be separated in time, this increased demand at any point in time would be minor. No long-term impacts to groundwater from dust suppression activities during implementation of small construction activities would be expected.

Operation of facilities constructed under small construction activities would result in an increase in impervious area on YPG, concentrated primarily in cantonment areas where the existing impervious area is high. Small construction activities that would create new structures with a footprint of more than 5,000 ft^2 would be compliant with Section 438 of EISA and the *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)*. Under EISA, federal facilities with a footprint that exceeds 5,000 ft^2 must use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow. With EISA compliance, any impacts from stormwater runoff during operation of facilities would be negligible.

Because the Proposed Action would not result in a permanent increase in personnel assigned to or working at YPG, no long-term impacts to regional groundwater would be expected from operation of facilities built through small construction activities.

3.2.10 Wildlife

This section addresses the potential impact of small construction activities on wildlife resources. Construction activities outside of cantonment areas would have the potential to impact wildlife

or their habitat. Direct impacts to wildlife could result from displacement, nest/den abandonment, reduced health from increased stress, or incidental mortality. Indirect impacts to wildlife could result from disturbance that results in reduced foraging time, loss of habitat, or disruption of migratory pathways. Most wildlife habitat on YPG would remain intact and would continue to sustain wildlife populations. Indirect impacts also could result from introduction or spread of exotic invasive plant species that would result in habitat degradation. Disruption of normal activity patterns and loss of habitat would be the primary impacts to wildlife. Limited incidental mortality would likely occur, but would be less than significant at the population level.

All proposed construction activities would involve soil disturbance and create the potential for the establishment or spread of exotic invasive plant species that could reduce habitat quality or increase fuel load and the potential risk of wildfire. The potential for impacts from wildfire was discussed in Section 3.2.2. Because most disturbed ground resulting from small construction activities would be converted to some form of impervious surfaces and routine maintenance activities to control nuisance vegetation would be implemented, any indirect impacts to wildlife from the introduction or spread of invasive exotic plant species would be minor.

Small construction activities would not cause the loss of any water tanks that are used by wildlife species. Because these water tanks would be unaffected by proposed small construction activities, there would be no induced behavioral changes in wildlife species using water tanks.

All proposed small construction activities would occur within established Arizona Game and Fish Department Game Management Units (Units 41, 43A, and 43B). Some small construction activities would be in areas where game animals would occur. Temporary displacement of game animals from the vicinity of the activity would be expected, but no long-term impacts would result. Small construction activities would not be located in or near areas where game animals would birth or rear young. Any impacts to game species or game management would be negligible.

There are 47 proposed small construction projects that would be in cantonment areas or other previously disturbed areas (Table C-5). Because there typically is only minimal use of these areas by wildlife and because the species using these areas typically would be acclimatized to human activity, these 47 small construction activities would have no more than negligible to minor impacts to wildlife on YPG.

TABLE C-5
Potential Wildlife Impacts from Proposed Small Construction Projects
Yuma Proving Ground

Impacts from Proposed Projects to Wildlife	Small Construction Activities
Negligible to minor impacts to wildlife due to habitat alteration and displacement in previously disturbed areas with limited habitat value.	L001a, L003, L004, L005-a through L005-c, L006-a through L006-c, L007-a through L007-c, L009, L010, L011-b, L012-a through L012-f, L013, L014-b, L015-a, L016-a, L017, L018, L021, L022, L023-b through L023-e, L024, L026, L027, L028, L029, L031-a through L031-c, L034-a through L034-c, L035, L036, L041, C014-a, K011, K013, K015, K016, K017
Minor long-term impacts due to loss or alteration of nesting/foraging habitat	C015-a through C015-r, C017-a, C018, C019, C020-a, C024-b, C026-b, C029-a, C038, C039, C043-a through C043-c, C044-a through C044-c, C046-a through C046-c, C047-a through C047-w, K006, K014, K018, K019, K020, and K031

There are 74 proposed small construction projects that would eliminate or permanently alter up to 63 ac of potential habitat for wildlife species in areas that have not been previously disturbed (Table C-5). Because the potential wildlife habitat on YPG and the adjacent land is very large and the impacts from small construction activities would be minor, indirect impacts to wildlife from loss habitat due to small construction activities would be long-term and minor. Through implementation of its Integrated Natural Resources Management Plan (INRMP), YPG would use adaptive management to maintain wildlife habitat to the extent practicable. Construction of these activities would cause wildlife to relocate from the vicinity or otherwise avoid the human activity. For more mobile animals, such as birds and larger mammals, this impact would be negligible to minor unless it also resulted in abandonment of nests, dens, or young. Animals that tend to hide rather than flee from human activity would be more likely to suffer incidental mortality from construction activities, as they may not leave areas where site preparation, including earthmoving, would occur. Incidental mortality could occur, but no loss of wildlife species on YPG would result. Because wildlife densities are generally low across YPG, any impact would be short-term and minor.

Small construction activities C005-a and C044 are the only small construction activities proposed within identified desert bighorn sheep habitat. Neither of these activities would be located in an area where lambing would occur. Desert bighorn sheep would likely avoid the areas during construction. Small construction activity C005-a would be in an area that already receives human use and once construction is complete, it is expected that desert bighorn sheep would return to using the area comparable to how it was used prior to construction because any additional activity would be within the newly constructed building. No substantial change in desert bighorn sheep use of the area around C044 would be expected because use of the MEDEVAC helicopter pad would be infrequent. During helicopter evacuations, desert bighorn sheep would avoid the area. Any impacts would be minor.

4.0 Large Construction Activities

Large construction activities involve the construction of buildings, aviation support infrastructure, parking areas, and other construction activities where the total area of disturbance is greater than 5 ac.

4.1 Activity Description

L007-d: L007-d would relocate the C-130 Combat Aircraft Loading Area (240,200 ft^2) to CDH.

L014-a: L014-a would construct an aircraft shelter (52,500 ft^2) and command and control building (2,000 ft^2), and would clear a UAS launch/recovery area (162 ac with 282,600 ft^2 of aggregate base coat [ABC] in center of area) at Comanche Flats.

C021-a through C021-d: C021-a through C021-d would construct a secure building with reinforced concrete floors and ramp, multiple buildings, water tank, POL storage area, graded parking, and an aircraft shelter, and would create a UAS launch/recovery site (total disturbance 193,284 ft^2) in an area centered at latitude 33.077, longitude -114.356. This proposed UAS launch/ recovery site would not have ABC placed in the center.

C022-a through C022-e: C022-a through C022-e are grouped because the projects are inter-related and would be implemented in the same area, centered at latitude 33.074, longitude -114.36. These activities would construct a command and control room (2,000 ft^2), concrete slab (10,000 ft^2), walkways (1,800 ft^2), an aircraft shelter (12,000 ft^2), a POL storage area (900 ft^2), a

runway expansion (725,000 ft²), taxiway (400,000 ft²), and fencing. In addition, the meteorological tower (100 ft²) at this site would be relocated to accommodate the planned construction.

C023-a through C023-c: C023-a through C023-c are grouped because the projects are inter-related and would be implemented in the same area, centered at latitude 33.051, longitude -114.363. These activities would construct up to five buildings (2,500 ft² each), a water tank (30,000 gallons, 1,000 ft²), a POL storage area (900 ft²), graded parking (7,500 ft²), and an aircraft shelter (43,500 ft²). In addition, a UAS launch/recovery area (22.8 ac) would be established.

C024-a: C024-a would construct an aircraft shelter (1,600 ft²), concrete pad (90,000 ft²), and graded parking area (250,000 ft²) near the IRCC Tank Maintenance and Storage Ramada.

C025-a: C025-a would construct a runway (27.5 ac), taxiway (14 ac), aircraft shelter (12,000 ft²), and a building (2,000 ft²) at IRCC.

C027-a: C027-a would expand the previously created flat area on top of a hill and construct a facility, concrete pad, and sensor tower (total of 10.2 ac) at Site 12.

C030-a: C030-a would construct an aircraft shelter, command and control building (2,000 ft²), office building (600 ft²), maintenance building (900 ft²), water tank (30,000 gallons, 1,000 ft²), POL storage area (900 ft²), and graded parking area (7,500 ft²), and would clear a UAS launch/recovery site east of Rocket Alley (162 ac with 282,600 ft² of ABC placed in the center of the site).

C033-a: C033-a would construct an aircraft shelter (52,500 ft²), control building (2,000 ft²), office building (600 ft²), maintenance building (900 ft²), concrete pad (5,000 ft²), water tank (30,000 gallons, 1,000 ft²), POL storage area (900 ft²), and graded parking area (7,500 ft²), and would clear a launch/recovery site (162 ac with 282,600 ft² of ABC placed in the center of the site) at C-17.

C050-a: C050-a would construct a building (1,600 ft²) and UAS launch/recovery site (162 ac with 282,600 ft² of ABC placed at center) at the Simulated Minefield Site to support UAS operations.

K004-a: K004-a would construct an aircraft shelter (52,000 ft²), a command and control building (2,000 ft²), an office building (600 ft²), a maintenance building (900 ft²), a water tank (30,000 gallons, 1,000 ft²), a POL storage area (900 ft²), and a graded parking area (7,500 ft²), and would clear a UAS launch/recovery area (162 ac with 282,600 ft² of ABC in the center of area) at Smart Weapons Test Range (SWTR).

K007-a: K007-a would construct a runway (302,800 ft²) west of the S-15 command and control shelter.

K030: K030 would construct a runway and taxiway (3,400,000 ft²), aircraft shelter (12,000 ft²), command and control room (2,000 ft²), simulator training room (1,600 ft²), classroom (2,000 ft²), maintenance area (2,000 ft²), POL storage area (900 ft²), graded area for parking (7,500 ft²), and concrete or asphalt pad (250,000 ft²). Additionally, K030 would clear areas for GCSs (30,000 ft²) and for a UAS launch/recovery site (30,000 ft²) at East Arm.

4.2 Potential Impacts

Specific discussions of impacts to Energy/Utilities, Noise, Safety, and Traffic/Transportation are not provided. There are no proposed activities in this category with unique impacts to these

resources and no mitigation is required for impacts to these resources. The discussion of these resources provided in the body of the FPEIS adequately describes the potential for impacts to these resources from implementation of large construction activities.

4.2.1 Air Quality

None of the proposed large construction activities would occur within the designated non-attainment area. The proposed large construction activities would be spread across space and time, which would minimize the potential for cumulative impacts during construction. The general air quality analysis provided in the body of the FPEIS provides an adequate discussion of potential air quality impacts (fugitive dust, combustion emissions) from implementing large construction activities and identifies appropriate mitigation measures. BMPs, as described in the FPEIS, would be implemented to minimize fugitive dust generation during construction.

None of the large construction activities analyzed in detail would benefit air quality on YPG, but in conjunction with other proposed activities that would install solar-powered lighting or replace the use of diesel-powered generators with transmission line-delivered electricity, there would likely be positive cumulative impacts to air quality from reduced use of fossil fuels and reduced combustion emissions.

4.2.2 Fire Management

Large construction activities would have the potential for increased ignition of wildfires due to operation of construction equipment. Vegetation removal during site preparation would minimize this risk by reducing the fuel load in the area where construction equipment would be operated. In the Laguna Region, any wildfire that would start would be promptly suppressed, resulting in a very low potential for wildfire escape from large construction activities in the Laguna Region.

Large construction activities could result in potential for the spread of invasive exotic plant species due to the presence of large areas of disturbed soil during construction. Increased invasive exotic plant species could increase fuel loads and lead to more intense wildfires. Large construction activities typically would result in partial cover of disturbed areas with impervious surfaces or maintained landscaping/cleared ground in areas not covered by impervious surfaces. Any impacts to activities or safety from wildfire as a result of the implementation of large construction activities would be negligible to minor.

One proposed large construction activity (K030) would be in the remote northern portion of the East Arm of the Kofa Region. Because of the remote location, response to wildfires in this area would be slow and there would be a greater likelihood of spread under appropriate conditions. There would be potential for moderate impacts from wildfires in this area. Should a wildfire start that could not be suppressed by onsite personnel, safe evacuation of personnel would be the first priority and the wildfire would be reported to Range Control for an appropriate fire control response. Use of the facilities constructed under K030 in the northern portion of the East Arm would result in increased potential for wildfire ignition in northern Kofa due to operation of vehicles as staff report for and depart from work and from testing activities in an area not currently used for these purposes. Travel would be limited to existing established routes to minimize the potential for vehicle-related ignitions. Any impact on fire management from operations would be minor.

Wildfires that ignite on YPG have the potential to spread beyond the installation boundaries onto adjoining lands. Similarly, fires that begin on adjoining lands could spread onto YPG. YPG

has developed an MOU with the USFWS and BLM that establishes guidance for cooperation and collaboration on wildland fire issues on YPG and the surrounding Federal lands. The MOU recognizes a common goal among the signatories to minimize the impacts of wildland fire on the desert landscape and establishes fire suppression and safety protocols for cooperative efforts to suppress desert wildfires. YPG would continue to cooperate with other Federal agencies per the MOU to combat wildfires in the region.

4.2.3 Hazardous Materials/Hazardous Waste

No more than minor adverse impacts to hazardous materials and hazardous wastes would be expected from large construction activities. Construction areas would have the potential for stormwater runoff to transport minor quantities of hazardous materials should a spill occur. Standard construction BMPs, as discussed in the FPEIS, and procedures in the activity-specific SWPPPs consistent with the Installation SPCCP and ISCP, would be implemented to minimize the potential for accidental release of hazardous materials to the environment and subsequent offsite transport.

Seven large construction activities would result in creation of POL storage areas, which would reduce the risk of spills reaching offsite waters during operations and would be beneficial for hazardous materials use on YPG.

Impervious area would increase and would create the potential for increased stormwater runoff, which could transport minor quantities of hazardous materials should a spill occur during operation. As discussed below under Water Resources, there would be only minor potential from increased runoff during operations due to implementation of appropriate post-construction stormwater BMPs, as discussed in the FPEIS.

Impacts would likely be minor. Of the proposed large construction activities, L007-d would relocate an existing activity from LAAF to CDH and would not change the current use/risk of hazardous materials (Table C-6). Any spills or releases would be localized and would be cleaned up immediately.

There are two large construction activities (C024-a and C027-a) that would have the potential for spills of POLs from equipment or vehicles during testing and training activities or when conducting maintenance on military vehicles and equipment. These activities also would have the potential for localized spills of solvents or other chemicals during cleaning and facility maintenance activities (Table C-6). Any spills would be localized and would be cleaned up immediately.

TABLE C-6
Potential for Hazardous Materials Impacts from Proposed Large Construction Projects
Yuma Proving Ground

Potential for Hazardous Materials Impacts during Operation	Large Construction Activities
No change from current use of hazardous materials.	L007-d
Potential for spills of POLs from equipment or vehicles during operations and for small spills of cleaning materials/solvents during cleaning/maintenance of constructed facility.	C024-a, C027-a
Potential for spills of POLs from equipment or	L014-a, C021-a through C021-d, C022-a through C022-

TABLE C-6
Potential for Hazardous Materials Impacts from Proposed Large Construction Projects
Yuma Proving Ground

Potential for Hazardous Materials Impacts during Operation	Large Construction Activities
parked vehicles during operations and for small spills of cleaning materials/solvents during cleaning/maintenance of constructed facility. Potential for MCOCs from operation of aircraft and UAS should armed systems be deployed.	e, C023-a through C023-d, C025-a, C030-a, C033-a, C050-a, K004-a, K007-a, K030

There are 11 large construction activities that would construct new runways or UAS launch/recovery areas. Should armed aircraft be operated from these new facilities, there would be potential for release of MCOCs during testing or training events (Table C-6). The risk of exposure to MCOCs would exist at these locations in addition to the potential for leaks of POL spills from vehicles during operations and the potential for spills during cleaning or maintenance. No intentional detonation would occur, and any MCOC releases would be localized and cleaned up immediately.

Operations, including testing and training, would comply with BMPs identified in the SPCCP and ISCP. Further, YPG would implement appropriate control and containment measures to minimize the potential for contamination or exposure to hazardous materials. The Installation SPCCP and the Installation ISCP would be implemented to minimize the potential for accidental release of hazardous materials to the environment and subsequent offsite transport.

4.2.4 Land Use

Land use impacts from proposed large construction activities would be minor to moderate and separated in time and space. Impacts of specific projects are discussed below. This section addresses impacts to land use only. Potential impacts to biological resources (vegetation, wildlife, and sensitive species) are discussed in Sections 1.4.2.6, 1.4.2.7, and 1.4.2.10, respectively.

Proposed activity L007-d would relocate the C-130 Combat Aircraft Loading Area to CDH. Approximately 5.5 ac (240,200 ft²) of desert scrub habitat would be converted to pavement. Additional land would be required to accommodate stormwater management at the site. The area that would be used is within the established airfield maintenance area for CDH, an area designated to support military air operations. Because the area would continue to support military air operations, impacts to land use from relocation of the C-130 Combat Aircraft Loading Area to CDH would be minor.

Proposed activity L014-a would convert approximately 7.7 ac of desert scrub habitat to impervious surfaces to construct an aircraft shelter, to construct a command and control building, and to place ABC in the center of a UAS launch/recovery area. In addition, woody desert vegetation would be cleared from an additional approximately 157 ac of desert scrub habitat to establish the UAS launch/recovery area. All proposed construction would occur at Comanche Flats, an established testing area on YPG that supports military activities. Because the area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activities C021-a through C021-d would convert approximately 0.6 ac of desert scrub habitat to impervious surfaces to construct multiple buildings, a water tank, and an aircraft shelter. In addition, approximately 0.2 ac of desert scrub habitat would be cleared and graded to construct a parking area and approximately 3.6 ac of desert scrub habitat would be cleared of woody vegetation to establish a UAS launch/recovery site with no ABC in the center. Because the area is designated to support military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activities C022-a through C022-e would convert approximately 26 ac of desert scrub habitat to impervious surfaces to construct multiple buildings, walkways, and a runway/taxiway. Because the area is designated to support military activities and is designated as Range/Open Land, which is compatible with proposed testing and training activities, and because the entire area would be converted to impervious surfaces, impacts to land use would be moderate.

Proposed activities C023-a through C023-c would convert approximately 2 ac of desert scrub habitat to impervious surfaces to construct multiple buildings and an aircraft shelter. Approximately 0.2 ac of desert scrub habitat would be cleared and graded to construct a parking area. In addition, a UAS launch/recovery area of approximately 22.8 ac would be established by removing all woody vegetation from the area. Because the area is designated to support military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activity C024-a would convert approximately 2.1 ac of desert scrub habitat to impervious surfaces to construct an aircraft shelter and concrete pad. In addition, approximately 5.75 ac of desert scrub habitat would be graded to create a parking area. Proposed activity C024-a would be implemented near the IRCC Tank Maintenance and Storage Ramada, an area that already supports military activities. Because the area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activity C025-a would convert approximately 41.8 ac of desert scrub habitat to impervious area to construct a runway/taxiway, an aircraft shelter, and a building at the IRCC. Because this area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the entire area would be converted to impervious surfaces, impacts to land use would be minor to moderate.

Proposed activity C027-a would expand a previously created flat area on top of a hill and would construct a facility, concrete pad, and sensor tower at Site 12, which is used to support military activities. Approximately 10.2 ac of desert scrub habitat would be converted to a mix of impervious and cleared pervious surfaces. Because the area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because only a portion of the area would be converted to impervious surfaces, impacts to land use would be minor to moderate.

Proposed activity C030-a would convert approximately 7.7 ac of desert scrub habitat to impervious surfaces to construct an aircraft shelter and a command and control building, and to

place ABC in the center of a UAS launch/recovery area. In addition, woody desert vegetation would be cleared from an additional approximately 157 ac of desert scrub habitat to establish the UAS launch/recovery area. All proposed construction would occur at Rocket Alley, an established testing area on YPG that supports military activities. Because the area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activity C033-a would convert approximately 7.7 ac of desert scrub habitat to impervious surfaces to construct an aircraft shelter and a command and control building, and to place ABC in the center of a UAS launch/recovery area. In addition, woody desert vegetation would be cleared from an additional approximately 157 ac of desert scrub habitat to establish the UAS launch/recovery area. All proposed construction would occur at Site C-17, an established testing area on YPG that supports military activities. Because the area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activity C050-a would convert approximately 7.7 ac of desert scrub habitat to impervious surfaces to construct an aircraft shelter and a command and control building, and to place ABC in the center of a UAS launch/recovery area. In addition, woody desert vegetation would be cleared from an additional approximately 157 ac of desert scrub habitat to establish the UAS launch/recovery area. All proposed construction would occur at the Simulated Minefield Site, an established testing area on YPG that supports military activities. Because the area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activity K004-a would convert approximately 7.7 ac of desert scrub habitat to impervious surfaces to construct an aircraft shelter and a command and control building, and to place ABC in the center of a UAS launch/recovery area. In addition, woody desert vegetation would be cleared from an additional approximately 157 ac of desert scrub habitat to establish the UAS launch/recovery area. All proposed construction would occur at SWTR, an established testing area on YPG that supports military activities. Because the area already supports military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activity K007-a would convert approximately 7 ac of desert scrub habitat to impervious surfaces to construct a runway west of the S-15 command and control shelter. Because the area already is designated to support military activities and is designated as Range/Open Land, which is compatible with proposed testing and training, and because the area of new impervious surfaces would be relatively small, impacts to land use would be minor.

Proposed activity K030 would convert approximately 13.1 ac of desert scrub habitat to impervious surfaces to construct a runway/taxiway, an aircraft shelter, buildings, and a concrete/asphalt pad. Approximately 0.2 ac of desert scrub habitat would be cleared and graded to establish a parking area. Additionally, approximately 1.4 ac of desert scrub habitat would be cleared to establish areas for GCSs and a UAS launch/recovery site. This activity would convert approximately 15 ac of land that is designated as Range/Open Land to

Institutional use. Because the activities are proposed in the East Arm of the Kofa Region, which is designated to support military activities but where no buildings or impervious surfaces occur, the impacts to land use would be moderate.

4.2.5 Soils

Proposed large construction activities would involve soil disturbance during site preparation and during construction activities. Soils on YPG are of two broad types: highly erodible and not highly erodible. The FPEIS (Section 3.15.2.3) provides an adequate analysis of impacts to soils that are not highly erodible, and this analysis focuses on potential impacts to highly erodible soils as a result of proposed small construction activities. A large portion of land suitable for development on YPG occurs in areas with highly erodible soils because these areas tend to be the flatter areas where sediments have been deposited over time. There are four highly erodible soils complexes on YPG (Cristobal-Gunsight complex, Gilman-Harqua-Glenbar complex, Superstition-Rositas complex, and Tucson-Tremant-Antho complex), as discussed in the FPEIS. Highly erodible soils that would be impacted by large construction activities include the Cristobal-Gunsight complex and the Gilman-Harqua-Glenbar complex

Proposed large construction activities K030, C021-a through C021-d, and C027–a would not impact highly erodible soils because no highly erodible soils occur in the proposed construction area for these activities. All other proposed large construction activities would have the potential to impact highly erodible soils.

Soils impacts from large construction activities would include direct impacts from site preparation and development of structures and infrastructure, including airfield infrastructure, and indirect impacts from soil erosion as a result of scour from stormwater runoff, either during construction or during operations after construction is complete. Highly erodible soils are more susceptible to erosion when disturbed and erosion could occur during site preparation and other construction activities. Site-specific construction BMPs, as discussed in Section 3.2.5 for small construction activities, would be used to stabilize disturbed soils, which would minimize the potential for soil erosion from stormwater runoff and wind erosion. Construction BMPs would comply with the 2005 Arizona Department of Transportation *Erosion and Pollution Control Manual*.

Because all large construction activities would exceed 5 ac, an Arizona Department of Environmental Quality construction stormwater permit through the Arizona Pollutant Discharge Elimination System would be required. Each proposed large construction activity would develop and implement a Construction SWPPP to stabilize disturbed soils and minimize the potential for indirect impacts to water resources. Following the completion of construction, a site would be stabilized to minimize the potential for erosion from post-construction stormwater runoff. Large construction activities that would create new structures with a footprint of more than 5,000 ft^2 would be compliant with Section 438 of the EISA and the *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)*. These large construction activities would use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow. EISA compliance would minimize the potential for post-construction stormwater scour to affect onsite and offsite soils and any impacts to highly erodible soils from post-construction stormwater runoff would be expected to be negligible to minor.

Where soils that are susceptible to wind erosion are disturbed, there would be potential to create dust and contribute to PM_{10} that could affect air quality. Potential air quality impacts, including mitigation measures to suppress dust generation, were discussed in Section 4.2.1.

It is not possible to locate large construction activities such that highly erodible soils are avoided completely due to the prevalence of these soils on level areas on YPG. During site selection and site design, soil erosion potential would be considered and specific site designs would minimize overlay with highly erodible soils to the extent practicable.

Large construction activities would disturb up to 694.09 ac of highly erodible soils. The Cristobal-Gunsight complex makes up approximately 70 percent of the highly erodible soils that would be impacted by large construction activities, with the Gilman-Harqua-Glenbar complex making up the remainder. There would be up to 11.32 ac of highly erodible soils impacted in the Laguna Region by large construction activities. There would be impacts on up to 513.82 ac of highly erodible soils from large construction activities in the Cibola Region. Approximately 168.95 ac of highly erodible soils would be impacted in the Kofa Region by large construction activities. The potential impacts to highly erodible soils by large construction activity are discussed below.

Large construction activity L007-d would impact 5.51 ac of highly erodible soils through construction of a C-130 Combat Aircraft Loading Area. Impacts to soils from this large construction activity would mainly occur during site preparation and construction. Any operational impacts would be negligible because the area would be converted to impervious surface with appropriate stormwater controls to maintain site hydrology after construction. Direct impacts to highly erodible soils would be expected to be minor due to the relatively small area of highly erodible soils that would be impacted and the implementation of appropriate construction BMPs.

Large construction activity L014-a would disturb 162 ac, but only 5.81 ac of highly erodible soils occur within the larger area, and they occur around the periphery of the 162-ac area that would be cleared of woody vegetation. No grading or impervious surfaces would occur on these soils, and the clearing of woody vegetation would be minimally intrusive on soils. Direct impacts to soils from establishment of the UAS launch/recovery area would be negligible to minor. No soil stabilization would be conducted after woody vegetation removal, and there could be potential for long-term erosion. However, because site runoff characteristics would be essentially unchanged and because of the generally level site topography, the potential for long-term erosion of these soils would be minor. Because the highly erodible soils are around the periphery of the proposed DZ and not in the target area, no operational impacts from drop tests or cargo retrieval would be expected. There are large UAS launch/recovery areas, such as the one proposed at L014-a, that are in use on YPG and no erosion issues have been identified from historical use. Long-term impacts to highly erodible soils from large construction activity L014-a would be expected to be similar to those in existing UAS launch/recovery areas and would likely be negligible to minor.

Large construction activities C022-a through C022-e would develop a complex to support aerial activities and would impact up to 22.4 ac of highly erodible soils. Impacts to highly erodible soils would mainly occur during site preparation and construction. Construction stormwater BMPs would be implemented to minimize the potential for erosion from scour during construction. Any operational impacts would be negligible because the area would be converted to impervious surfaces (buildings, runway, and taxiways) with appropriate

stormwater controls to maintain site hydrology after construction. Direct impacts to highly erodible soils would be expected to be minor due to the relatively small area of highly erodible soils that would be impacted and the implementation of appropriate construction BMPs. Any impacts during operation would be expected to be negligible as a result of the stormwater controls that would be in place.

Proposed activities C023-a through C023-c would develop a small UAS launch/recovery area that would cover 22.8 ac of highly erodible soils. Approximately 0.125 ac would be converted to impervious cover as buildings and a water tank. Construction stormwater BMPs would be implemented to minimize the potential for erosion from scour during construction. Appropriate stormwater controls to maintain site hydrology after construction would be implemented. Approximately 0.17 ac would be converted to a graded parking area that would not be paved. Site grading for the pervious graded parking area would promote infiltration and prevent runoff, which would prevent scour impacts to highly erodible soils during use of the parking area. No construction would occur on the remaining acreage, but woody vegetation would be removed from the remainder of the 22.8-ac area. No direct impacts to highly erodible soils would be expected from vegetation clearing, although stormwater infiltration and runoff may change on the area cleared of woody vegetation, which could result in impacts to highly erodible soils from scour and erosion during and following precipitation events. The level topography of the site would minimize runoff and promote infiltration. Direct impacts to highly erodible soils would be expected to be minor due to the relatively small area of highly erodible soils that would be impacted and the implementation of appropriate construction BMPs. Impacts to highly erodible soils during operation would be expected to be negligible due to the small area of the site and because UAS operations would be minimally intrusive with regard to soils.

The construction area for proposed activity C024-a would include 7.84 ac of highly erodible soils. There would be 5.74 ac of highly erodible soils converted to a graded parking area that would not be paved. Site grading for the pervious graded parking area would promote infiltration and prevent runoff, which would prevent scour impacts to highly erodible soils during use of the parking area. The other 2.1 ac of highly erodible soils would be converted to impervious surfaces with appropriate stormwater controls to maintain site hydrology after construction. Construction stormwater BMPs would be implemented to minimize the potential for erosion from scour during construction. Direct impacts to highly erodible soils would be expected to be minor due to the relatively small area of highly erodible soils that would be impacted and the implementation of appropriate construction BMPs. Any impacts during operation would be expected to be negligible as a result of the stormwater controls that would be in place.

The construction area for proposed activity C025-a would include 41.82 ac of highly erodible soils, with most impacts (41.5 ac) associated with construction of a runway and taxiway. Construction stormwater BMPs would be implemented to minimize the potential for erosion from scour during construction. Appropriate stormwater controls to maintain site hydrology after construction would be implemented. Direct impacts to highly erodible soils would be expected to be minor due to the relatively small area of highly erodible soils that would be impacted and the implementation of appropriate construction BMPs. Any impacts during operation would be expected to be negligible as a result of the stormwater controls that would be in place.

Proposed Activity C030-a would clear 162 ac of woody vegetation to establish a UAS launch/recovery area. The entire 162-ac area would cover highly erodible soils. Approximately 6.5 ac of highly erodible soils would be covered with ABC for a landing area. This area would be partially pervious, and would not be subject to further impacts after construction is complete. Approximately 0.125 ac would be converted to impervious cover as buildings and a water tank. Construction stormwater BMPs would be implemented to minimize the potential for erosion from scour during construction. Appropriate stormwater controls to maintain site hydrology after construction would be implemented. Approximately 0.17 ac would be converted to a graded parking area that would not be paved. Site grading for the pervious graded parking area would promote infiltration and prevent runoff, which would prevent scour impacts to highly erodible soils during use of the parking area. No construction would occur on the remaining acreage, but woody vegetation would be removed from the remainder of the 162-ac area. No direct impacts to highly erodible soils would be expected from vegetation clearing, although stormwater infiltration and runoff may change on the area cleared of woody vegetation, which could result in impacts to highly erodible soils from scour and erosion during and following precipitation events. The generally level topography of the site would minimize runoff and promote infiltration. UAS launch/recovery activities would occur mainly within the 6.5-ac area covered with ABC and the buildings, with human activity occurring on the remainder of the area only infrequently, and this activity would be minimally intrusive on soils. Long-term impacts to highly erodible soils associated from use of the proposed UAS launch/recovery area would be expected to be similar to those of existing UAS launch/recovery areas, which have not exhibited long-term erosion issues. Direct impacts to highly erodible soils during construction would be expected to be minor to moderate due to the implementation of appropriate construction BMPs. Any impacts during operation would be expected to be negligible as a result of the stormwater controls that would be in place and the infrequent disturbance of the undeveloped portion of the UAS launch/recovery area.

Proposed activity C033-a would establish a UAS launch/recovery area with supporting facilities that would have the same configuration as proposed activity C030-a. Almost all (152.17 ac) of the 162-ac area would cover highly erodible soils. The potential for impacts to highly erodible soils would be comparable to that discussed for proposed activity C030-a and the measures implemented to avoid or minimize the potential for impacts would be the same as discussed for proposed activity C030-a.

Proposed activity C050-a would establish a UAS launch/recovery area with supporting facilities that would have the same configuration as proposed activity C030-a. Highly erodible soils cover 103.25 ac of the 162-ac site. The potential for impacts to highly erodible soils would be comparable to that discussed for proposed activity C030-a, except that the potential for operational impacts would be slightly less due to the lesser amount of highly erodible soils, and the measures implemented to avoid or minimize the potential for impacts would be the same as discussed for proposed activity C030-a.

Proposed activity K004-a would establish a UAS launch/recovery area with supporting facilities that would have the same configuration as proposed activity C030-a. The entire 162-ac area that would be developed into a UAS launch recovery area would cover highly erodible soils. The potential for impacts to highly erodible soils and the measures implemented to avoid or minimize the potential for impacts would be the same as discussed for proposed activity C030-a.

The construction area for proposed activity K007-a would include 6.95 ac of highly erodible soils that would be converted to impervious surfaces for construction of a runway and a command and control shelter. Construction stormwater BMPs would be implemented to minimize the potential for erosion from scour during construction. Appropriate stormwater controls to maintain site hydrology after construction would also be implemented. Direct impacts to highly erodible soils would be expected to be minor due to the relatively small area of highly erodible soils that would be impacted and the implementation of appropriate construction BMPs. Any impacts during operation would be expected to be negligible as a result of the stormwater controls that would be in place.

4.2.6 Threatened or Endangered Species and Species of Concern

Proposed large construction activities would not be expected to have impacts to three of the TES species that occur on YPG, including desert rosy boa, Mojave fringe-toed lizard, and Parish's onion. YPG lacks quality potentially suitable habitat for the desert rosy boa due to the lack of intermittent or permanent streams with associated riparian areas. The poor to marginal potentially suitable habitat that does occur on YPG is not within or adjacent to any proposed large construction activities. The Mohave fringe-toed lizard occurs on YPG only in sand dune habitat in the northwestern portion of the Cibola Region. This area would not be impacted by any proposed large construction activities. Parish's onion occurs in the Kofa NWR near the boundary of YPG and could occur on YPG in areas near the refuge. No impacts from large construction activities would occur near the boundary with the Kofa NWR. Because there would be no potential for impacts to these species or their habitats, they are not further discussed. As noted in the discussion of small construction activities, potential impacts to the Nichol Turk's head are not addressed because the species would not occur on YPG.

Large construction activities that are proposed outside of cantonment areas would have the potential to impact other TES species that occur on YPG or their habitats. Direct impacts to TES species could result through displacement, injury, or mortality from construction and operation activities. Indirect impacts to species could result from disturbance associated with construction and operation activities that lead to nest/den abandonment, loss or alteration of habitat, or disruption of migratory pathways. TES species also could experience habitat loss or degradation from the introduction or spread of exotic invasive plant species. All proposed construction activities would involve soil disturbance that would create the potential for the establishment or spread of exotic invasive plant species that could directly outcompete native species or displace food plants. In addition, growth of exotic invasive vegetation could increase fuel load and the potential for the spread of wildfire following abnormally wet years, which could cause mortality, disruption of reproduction, or loss of habitat for TES species. The following sections discuss the potential for impacts to TES species on YPG from large construction activities that would occur in areas where TES species may occur.

Large construction activities would not cause the loss of any water tanks that are used by TES species. Because these water tanks would be unaffected by large construction activities, there would be no induced behavioral changes in TES species using water tanks.

The Sonoran desert tortoise has been observed in low numbers on YPG. The USFWS has identified much of YPG as primary desert tortoise habitat, but the animals may occur in other areas on YPG. Two large construction activities (C033-a and K030) are proposed within areas identified as primary Sonoran desert tortoise habitat on YPG. These activities would alter or eliminate potential habitat on up to 94 ac for the species. Because the area identified as primary

Sonoran desert tortoise habitat on YPG and the adjacent land is very large and the impacts from large construction activities would be minor, impacts to Sonoran desert tortoise from reduction of habitat within the area identified as primary Sonoran desert tortoise habitat would be long-term and minor. Other large construction activities could impact the Sonoran desert tortoise through displacement, incidental mortality, or loss or alteration of habitat. The density of Sonoran desert tortoise on YPG is low, so any impacts would be expected to be minor. Impacts to Sonoran desert tortoise from loss habitat due to construction activities would be long-term and minor, because the area identified as primary Sonoran desert tortoise habitat on YPG is very large relative to the area that would be impacted by proposed large construction activities and because the impacts of other large construction activities would be separated in space and time. There would be potential for incidental mortality during large construction activities. YPG will continue to implement those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with the military mission. With implementation of these guidelines, the potential for incidental mortality or injury would be negligible to minor. Should the Sonoran desert tortoise be listed under the ESA, activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted prior to any land-disturbing activities.

Proposed large construction activity K030 would occur in or near an area of known Sonoran pronghorn activity. Sonoran pronghorn would likely avoid the area during construction. No mortality of individuals would be expected from implementation of proposed activity K030. Impacts resulting from a disruption of normal behavior patterns during construction would be temporary and would end when construction is complete. There would be a minor loss of up to 86 ac of potential Sonoran pronghorn habitat from construction of the new runway, aircraft shelter, parking area, concrete or asphalt pad, two UAS launch/recovery sites, and associated buildings. Impacts from habitat loss would long-term and minor.

All large construction activities would occur outside of cantonment areas in potentially suitable habitat for the banded Gila monster. Construction and vegetation clearing on YPG could negatively impact this species through loss of habitat. Because this species is slow-moving, and would tend to hide rather than flee from human disturbance, direct impacts could result from earth-moving activities. Buildings and permanent impervious areas would be sited, to the extent practicable, to avoid impacts to the habitats preferred by the banded Gila monster because these rocky areas would require greater efforts to prepare for construction. Operation of facilities developed through large construction projects would not be expected to impact the banded Gila monster beyond causing it to hide, as the animals would likely avoid the areas of human disturbance. Impacts resulting from habitat loss would be long-term and minor. Direct impacts resulting from incidental mortality related to construction activities would be expected to be minor due to the low probability of occurrence.

Potential foraging and nesting habitat for the loggerhead shrike could be reduced through vegetation clearing associated with site preparation and construction activities. Due to the mobility of the species, incidental mortality would be unlikely if nests are avoided. Shrikes would likely relocate away from disturbance-causing activities unless already nesting in an area. Any impacts to the loggerhead shrike would be long-term and minor due to reduction in potential foraging and nesting habitat. YPG could delay construction to avoid potential conflicts with nesting loggerhead shrike. Loggerhead shrike may use the areas in and around large construction activities after construction is complete and this could result in interaction with

testing or training activities. Operational activities would not be expected to impact the loggerhead shrike beyond temporary displacement, as the animals move away from human activity. Operations conducted after completion of the large construction activities could have a minor long-term negative impact on loggerhead shrike.

All proposed large construction activities would be in areas where the western burrowing owl could occur. However, there are no large construction activities proposed in the grasslands along the lower Colorado and Gila Rivers, which provide large amounts of preferred habitat for this species. Western burrowing owls would likely temporarily relocate from areas of active construction, but could resume use of these areas after construction is complete. Should a western burrowing owl be determined to be using a burrow or nesting within or immediately adjacent to a large construction area, YPG could take measures to relocate the owls from the area prior to construction or to delay construction until after the young had fledged. Western burrowing owls may use the area around large construction activities after construction, and this could result in interaction with testing or training activities. Operational activities would not be expected to impact the western burrowing owl beyond temporary displacement, as the animals would move away from the human activity. Any long-term impacts would result from a reduction in potential nesting and foraging habitat and would be negligible to minor.

Bat species of concern, including the California leaf-nosed bat, cave myotis, and the pocketed free-tailed bat, may forage and roost on YPG. These species roost in caves and mines, which would not be impacted by large construction activities. There would be no indirect impacts to these bat species through loss or degradation of roosting habitat. The western yellow bat and the spotted bat may occur as transients or migrants on YPG, but would not roost on the installation. Potential foraging habitat for these five bat species would be reduced through vegetation clearing associated with site preparation for large construction activities. Because the amount of clearing would be minor relative to the total foraging habitat available on YPG and the surrounding lands, any indirect impacts to bats from loss of foraging habitat would be minor. Because bats are highly mobile, these animals would be expected to relocate from areas of human activity. The yellow bat and the spotted bat do not roost or reproduce on YPG, and the other three sensitive bat species would not roost in areas where large construction projects would occur. Therefore, sensitive bat species would not occur in construction areas during the daytime when clearing and construction would occur, and no direct impacts to sensitive bat species would be expected from large construction activities.

Wild horses and burros use habitat throughout YPG and it is unlikely that proposed large construction activities would have more than negligible impacts. Animals may be temporarily displaced by site preparation and other construction activities, but these animals would be expected to leave areas where construction is occurring and resume use of any suitable habitat near construction sites once construction is complete. Any impacts from construction would be temporary and minor. It is also possible that wild horses and burros could occur as transients at large construction activity sites during operations. If encountered, work would be delayed until the animals had left the area. Any impacts would be minor and temporary.

Other plant species of concern on YPG include the desert barrel cactus, straw-top cholla, saguaro cactus, and ocotillo, all of which occur scattered throughout YPG. Small construction activities could impact these species through vegetation clearing associated with creation of TGPs or during site preparation for other large construction activities. Plants would be salvaged

where practicable and relocated to other suitable habitat on YPG. There would be minor long-term impacts to these species as a result of the large construction activities.

4.2.7 Vegetation

The potential for large construction activities to affect vegetation through changes in wildfire frequency or intensity was discussed in Section 4.2.2 and is not further discussed here.

All proposed large construction activities could create short-term construction runoff. During construction, appropriate BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of erosion of exposed disturbed soils from stormwater runoff.

Implementation of the proposed large construction activities would result in clearing of up to 966 ac of desert scrub vegetation in areas not previously disturbed by construction or other activities on YPG. These activities would not result in elimination of any native species or specific habitat types from YPG because, although the impacts would be permanent, the impacts would be minor due to the small area relative to the size of YPG.

Large construction activities that result in new permanent structures or impervious areas also would experience loss of vegetation from within the larger construction area that would not be converted to buildings or impervious surfaces because the disturbed area would exceed the footprint of any structures/facilities built. Because of the slow recovery of desert vegetation following disturbance, this vegetation loss would be long-term. These long-term impacts would be minor, however, because the amount of vegetation that would be disturbed would be much less than 1 percent of the area of YPG.

Proposed large construction activities would result in up to 176 ac of permanent increased impervious surface area. In addition to increased permanent impervious surface area from construction of buildings, landing pads, and parking areas, 39 ac would be converted to impervious surface as UAS launch/recovery areas composed of ABC. There would be potential for increased runoff from new impervious areas. Without appropriate control measures, increased runoff could result in increased erosion, which could then remove native vegetation through scour. The potential loss of vegetation through scour from erosive water flow could extend off-post and affect vegetation on adjacent downstream properties. Large construction activities would be compliant with Section 438 of the EISA and the *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)*. Under EISA, federal facilities with a footprint that exceeds 5,000 ft^2 must use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow. With EISA compliance, any indirect impacts to vegetation from post-construction stormwater runoff during operation of facilities would be negligible.

Some clearing for large construction activities could be beneficial. If a site or substantial portion of a site is dominated by exotic invasive vegetation, clearing of the area would be a minor benefit to desert vegetation.

4.2.8 Visual Resources

All of the proposed large construction activities would occur in areas remote from public viewing. Because these activities would not be visible to the general public, implementation of large construction activities would not be considered an impact to visual resources. New

buildings would be designed to blend with the existing visual landscape by using consistent architectural themes in accordance with the YPG Installation Design Guide to minimize the potential for long-term impacts to visual resources.

4.2.9 Water Resources

There would be no direst impacts to surface water resources from large construction activities, as no proposed large construction activities would occur in or immediately adjacent to surface waters. All large construction activities would have the potential for indirect impacts to surface water resources as a result of construction stormwater runoff transporting sediments or vehicle fluids to receiving waters. Standard construction BMPs, as discussed in the FPEIS, would be implemented to minimize the potential for transport of materials to offsite surface waters.

Large construction activities may have minor temporary impacts on groundwater. Dust suppression may be necessary during construction and may be accomplished by wetting exposed soils to prevent dust generation. This would result in an increased demand for groundwater during construction. Because large construction activities would occur across YPG and be separated in time, this increased demand at any point in time would be minor. No long-term impacts to groundwater from dust suppression activities during implementation of large construction activities would be expected.

Operation of facilities constructed under large construction activities would result in an increase in impervious area on YPG, concentrated primarily in cantonment areas where the existing impervious area is extensive. Small construction activities that would create new structures with a footprint of more than 5,000 ft^2 would be compliant with Section 438 of the EISA and the *DoD Policy on Implementing Section 438 of the Energy Independence and Security Act (EISA)*. Under EISA, federal facilities with a footprint that exceeds 5,000 ft^2 must use site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow. With EISA compliance, any impacts from stormwater runoff during operation of facilities would be negligible.

Because the Proposed Action would not result in a permanent increase in personnel assigned to or working at YPG, no long-term impacts to regional groundwater would be expected from operation of facilities built through large construction activities. Proposed activity K030 would create a new demand on groundwater in the northern portion of the East Arm of the Kofa Region. Because there would be no increase in permanent personnel on YPG, the baseline demand for groundwater consumption at the proposed facility would be relocated from another part of YPG and would not constitute a new demand on regional groundwater.

4.2.10 Wildlife

This section addresses the potential impact of large construction activities on wildlife resources. There would be potential for impacts to wildlife and/or their habitat. Direct impacts to wildlife could result from displacement, nest/den abandonment, reduced health from increased stress, or incidental mortality. Indirect impacts to wildlife could result from disturbance that results in reduced foraging time, loss of habitat, or disruption of migratory pathways. Most wildlife habitat on YPG would remain intact and would continue to sustain wildlife populations. Indirect impacts also could result from introduction or spread of exotic invasive plant species that would result in habitat degradation. Disruption of normal activity patterns and loss of

habitat would be the primary impacts to wildlife. Limited incidental mortality would likely occur, but would be less than significant at the population level.

All proposed construction activities would involve soil disturbance and create the potential for the establishment or spread of exotic invasive plant species that could reduce habitat quality or increase fuel load and the potential risk of wildfire. The potential for impacts from wildfire was discussed in Section 4.2.2. Encroachment by exotic invasive plants can eliminate food resources and structural habitat used by native wildlife. Native wildlife species are not adapted to these non-native plants and may not be capable of using them for food or habitat. Exotic invasive plant species typically consume more water than native vegetation and can reduce available surface or shallow groundwater. The reduction in available water can lead to water stress in wildlife and ultimately to mortality and reduction of population viability. Most ground disturbed during large construction activities either would be converted to some form of impervious surfaces, where routine maintenance activities to control nuisance vegetation would be implemented, or would experience relatively minor disturbance, such as removal of woody vegetation only. The YPG INRMP includes measures to control invasive exotic plant species and will be implemented on areas where large construction activities would occur. Therefore, the potential for large construction activities to contribute to the establishment or spread of exotic invasive plant species would be minor and any indirect impacts to wildlife from the introduction or spread of invasive exotic plant species would be minor.

Large construction activities would not cause the loss of any water tanks that are used by wildlife species. Because these water tanks would be unaffected by large construction activities, there would be no induced behavioral changes in wildlife species using water tanks.

All proposed large construction activities would occur within established Arizona Game and Fish Department Game Management Units (Units 41, 43A, and 43B). Some large construction activities would be in areas where game animals would occur. Temporary displacement of game animals from the vicinity of the activity would be expected, but no long-term impacts would result. Large construction activities would not be located in or near areas where game animals would birth or rear young. Any impacts to game species or game management would be negligible.

Large construction activities would occur in areas with habitat capable of supporting various wildlife species. Proposed large construction activities would eliminate or permanently alter up to 176 ac of wildlife habitat. Because the potential wildlife habitat on YPG and the adjacent land is very large and the impacts from proposed large construction activities would be much less than 1 percent of the available wildlife habitat, it is likely that indirect impacts to wildlife from habitat loss or alteration as a result of large construction activities would be long-term and negligible to minor. Through implementation of its INRMP, YPG would use adaptive management to maintain wildlife habitat to the extent practicable.

These activities would cause wildlife to relocate from the vicinity or otherwise avoid the human activity. For more mobile animals, such as birds and larger mammals, this impact would be negligible to minor unless it also resulted in abandonment of nests, dens, or young. Animals that tend to hide rather than flee from human activity would be more likely to suffer incidental mortality from construction activities, as they may not leave areas where site preparation, including earthmoving, would occur. Incidental mortality could occur, but no loss of wildlife species on YPG would result. Because wildlife densities are generally low across YPG, any impact would be short-term and minor.

No large construction activities would occur in areas that have been identified as desert bighorn sheep habitat. No impacts to desert bighorn sheep or their habitat would be expected from proposed large construction activities.

5.0 Activities that Create New Drop Zones

Airdrop operations use designated DZs for personnel drops and to test material and munitions transport reliability under parachute drop delivery. Unless specifically designated for personnel only or otherwise restricted for specific uses, any DZ may be used to test any material or munitions. This may result in the need for detonation-in-place of unexploded rounds that cannot be safely removed following a test.

5.1 Activity Description

L040: L040 includes construction and operation of a DZ near LAAF (984 feet [ft] x 1,969 ft, 44.5 ac).

C002-a: C002-a includes construction and operation of the South Urban DZ (1,640-ft radius, 194 ac) south of Urban DZ.

C002-b: C002-b includes construction and operation of the Tomahawk Circular DZ 769 (2,297-ft radius, 380 ac).

C002-c: C002-c includes construction and operation of the Tombstone DZ (984-ft radius, 70 ac).

C002-d: C002-d includes construction and operation of the Village Circular DZ (984-ft radius, 70 ac).

C002-e: C002-e includes construction and operation of the Abken DZ (1,640-ft radius, 194 ac).

C002-f: C002-f includes construction and operation of the Urban Circular Joint Precision Airdrop System (JPADS) DZ (984-ft radius, 70 ac).

K001: K001 includes construction and operation of a 1,640-ft radius (194-ac) DZ for personnel and cargo drops in the southern portion of East Arm. Generators would be used to provide power, as needed, to support use of this DZ.

K002-a: This activity includes construction and operation of a 1,250-ft radius (113-ac) DZ for personnel and cargo drops northeast of East SWTR Impact Area.

5.2 Potential Impacts

Specific discussions of impacts to Air Quality, Energy/Utilities and Traffic/Transportation are not provided. There are no proposed activities in this category with unique impacts to these resources and no mitigation is required for impacts to these resources. The discussion of these resources provided in the body of the FPEIS adequately describes the potential for impacts to these resources from establishment of new DZs.

5.2.1 Fire Management

YPG would create 1,329.5 ac of new DZs, including 44.5 ac in the Laguna Region, 978 ac in the Cibola Region, and 307 ac in the Kofa Region. None of these DZs have unique potential for impacts to fire management and this impacts discussion applies to all proposed DZs.

Equipment operated for clearing to establish DZs could provide an ignition source for a wildfire. Fires that start during clearing would be suppressed by onsite personnel, and the

potential for spread beyond the immediate area would be very low. The potential for ignition during clearing to establish DZs would be temporary, and no long-term negative impacts to fire management would result from establishment of new DZs.

Heavy equipment, which would be used to retrieve dropped cargo, also could ignite a wildfire. As with clearing activities, any fires that ignite would be suppressed by onsite personnel and no long-term negative impacts to fire management would result.

Should generators be used to power sensors or monitoring equipment to support drop activities, the operation of the generator could potentially ignite a wildfire. To minimize this potential, during set-up of the generator, the immediate area of the generator would be cleared of fuel that could carry a fire. Any fires that ignite would be suppressed by onsite personnel, and no long-term negative impacts to fire management would result.

When DZ testing or training events involve munitions, explosives, or combustible materials in proximity to metal (such as containers or drop platforms) that could spark, it is possible that a wildfire could start from the drop activity. Many new DZs would be in remote areas, and the time required to respond to a fire from a dropped cargo load would result in potential for spread of a wildfire prior to the start of control efforts. YPG will use its Geographic Information System model to predict fire risk and to schedule DZ testing and training events that would create new fire risks in areas where the fire risk is not high. The development of new DZs under the Proposed Action would result in greater ability to implement certain activities that involve new fire risks in areas where the fire risk is low, which should result in a long-term reduction in wildfire risk on YPG.

Wildfires that ignite on YPG have the potential to spread beyond the installation boundaries onto adjoining lands. Similarly, fires that begin on adjoining lands could spread onto YPG. YPG has developed an MOU with the USFWS and BLM that establishes guidance for cooperation and collaboration on wildland fire issues on YPG and the surrounding Federal lands. The MOU recognizes a common goal among the signatories to minimize the impacts of wildland fire on the desert landscape and establishes fire suppression and safety protocols for cooperative efforts to suppress desert wildfires. YPG would continue to cooperate with other Federal agencies per the MOU to combat wildfires in the region.

5.2.2 Hazardous Materials/Hazardous Waste

All activities that would create DZs would have potential for impacts from hazardous materials. No more than minor adverse impacts to hazardous materials and hazardous wastes would be expected from creation of DZs. Construction of cleared central areas and access would have the potential for stormwater runoff to transport minor quantities of hazardous materials should a spill occur. Standard construction BMPs, as discussed in the FPEIS, and procedures in the activity-specific SWPPPs consistent with the Installation SPCCP and ISCP, would be implemented to minimize the potential for accidental release of hazardous materials to the environment and subsequent offsite transport.

Heavy equipment, which would be used to retrieve dropped cargo, could have leaks of POLs during retrieval actions. Any spills would be localized and would be cleaned up immediately.

Live munitions or other potentially explosive or hazardous material may be dropped to test transport capability, which could result in contamination by MCOCs. In addition, it may be necessary to use donor munitions to destroy unexploded rounds through detonation-in-place if

such items could not be safely recovered. No intentional detonation would occur during drop testing, and any releases would be localized and cleaned up immediately.

New DZs where live munitions or other potentially explosive materials are used for drop tests would be added to the regular range assessments conducted under DoDI 4715.14. Should migration of MCOCs from any of the new DZs be indicated, YPG would implement appropriate measures to protect human health and the environment.

5.2.3 Land Use

All proposed DZs would be in areas that are designated to support military activities, and the operation of DZs would be consistent with that designation. There would be vegetation clearing in the target area in the center of the DZ and along access routes to retrieve dropped cargo. Because the areas where DZs are proposed are designated to support military activities and are designated as Range/Open Land, which is compatible with proposed testing and training, and because the no new impervious surfaces would be created, impacts to land use would be negligible to minor.

The establishment and use of the proposed new DZs would not preclude future conversion of these areas to other military uses. No long-term impacts to land use would result.

5.2.4 Noise

There would be minor noise associated with vegetation clearing to establish the target areas in the center of the DZs and to establish access routes to retrieve dropped cargo. This noise would be temporary and would end once the areas are established. The proposed DZs would be in remote areas that lack sensitive receptors or in proximity to LAAF, where a high noise environment already exists. Construction workers would be required to wear appropriate hearing protection, and YPG employees would be instructed on proper noise safety procedures in and around construction sites.

Operations conducted at DZs would generate aircraft noise and noise associated with retrieval of dropped cargo. These noises would be episodic, as operations at new DZs would occur only as scheduled and there would be no sensitive receptors to this noise.

Any impacts from noise during establishment and operation of new DZs would be expected to be negligible to minor.

5.2.5 Safety

Operation of new DZs would not directly increase safety risks on YPG. Use of any of the new DZ areas, including vehicle use to retrieve dropped cargo from the new DZs, would not be expected to change the rate of safety-related incidents on YPG. There could be an increase in the number of safety-related incidents during a specific period because more activities could be scheduled simultaneously. Because the YPG Safety Program would be implemented, safety issues from incidents related to increased activity would be expected to be minor.

Testing at the DZs that would be created by Projects K001 and K002-a would result in personnel operating in very remote areas. Personnel working at these sites would coordinate with Range Control for access, and any serious injuries would require use of helicopters for evacuation. Because of the coordination with Range Control and the availability of helicopter evacuation, no adverse safety impacts would be expected from operational activities in these remote areas in the Kofa Region.

Use of new DZ areas could increase the risk of wildfire on YPG through exposure of new areas to potential ignition sources. Potential wildfire impacts were discussed in Section 5.2.1.

5.2.6 Soils

Soils on YPG are of two broad types: highly erodible and not highly erodible. The FPEIS (Section 3.15.2.3) provides an adequate analysis of impacts to soils that are not highly erodible, and this analysis focuses on potential impacts to highly erodible soils as a result of proposed DZs. Proposed DZs would impact soils in all four highly erodible soils complexes that occur on YPG (Cristobal-Gunsight complex, Gilman-Harqua-Glenbar complex, Superstition-Rositas complex, Tucson-Tremant-Antho complex), as discussed in the FPEIS. Slightly over half of the highly erodible soils that would occur within proposed DZs would be in the Cristobal-Gunsight complex, and the highly erodible soil type least impacted by proposed DZ s would be the Superstition-Rositas complex. At least a portion of each proposed DZ would be within an area containing highly erodible soils, and the proposed DZs would include a total of approximately 936.68 ac of highly erodible soils.

Proposed activity L040 would create a 44.5-ac DZ that would be on Superstition-Rositas complex soils. Impacts would be expected to be minor, with minimal soil disturbance during clearing of woody vegetation from the DZ and the very short access route to retrieve dropped cargo. Impacts would be expected to be limited to establishment of the DZs, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils.

Proposed activity C002-a would create a 194-ac DZ that would be entirely on highly erodible soils, including 67.16 ac of Cristobal-Gunsight complex soils, 18.69 ac of Gilman-Harqua-Glenbar complex soils, and 108.15 ac of Tucson-Tremant-Antho complex soils. Impacts from establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZs, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the size of this DZ and the need for an access route to retrieve cargo drops, impacts to highly erodible soils would likely be minor to moderate.

Proposed C002-b would create a 380-ac DZ that would include 121 ac of highly erodible Cristobal-Gunsight complex soils in the eastern portion of the area. Impacts from establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZ, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the acreage of highly erodible soils within this proposed DZ and the need for an access route to retrieve cargo drops, impacts to highly erodible soils would likely be minor to moderate.

Proposed activity C002-c would create a 70-ac DZ that would include 20.06 ac of Cristobal-Gunsight complex soils and 23.72 ac of Tucson-Tremant-Antho complex soils. Impacts from

establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZ, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the small size of the proposed DZ and the limited acreage of highly erodible soils it would contain, impacts to highly erodible soils would likely be minor.

Proposed activity C002-d would create a 70-ac DZ that would consist entirely of highly erodible Gilman-Harqua-Glenbar complex soils. Approximately 10.4 ac of this proposed DZ has been developed or disturbed with buildings, roads, and other infrastructure. Impacts from establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZ, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the small size of the DZ and the existence of roads for access to retrieve dropped cargo, impacts to highly erodible soils would likely be minor.

Proposed activity C002-e would create a 194-ac DZ that would include 33.26 ac of Cristobal-Gunsight complex soils and 109.68 ac of Gilman-Harqua-Glenbar complex soils. Approximately 22.5 ac of the DZ has been cleared for previous training and testing activities and an additional 28.61 ac have been disturbed by previous activities but not entirely cleared. Impacts from establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZ, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the acreage of highly erodible soils within this proposed DZ and the need for an access route to retrieve cargo drops, impacts to highly erodible soils would likely be minor to moderate.

Proposed activity C002-f would create a 70-ac DZ on the JERC I Range that would be on highly erodible Gilman-Harqua-Glenbar complex soils. The southern portion of the proposed DZ, covering approximately 44.71 ac, is disturbed and includes an existing mock training village with a nearby mock four-leaf clover interstate exchange and other roads to provide real-life encounter simulation. Impacts from establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZ, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the small size of this DZ and the existing roads to provide access route to retrieve cargo drops, impacts to highly erodible soils would likely be minor.

Proposed activity K001 would create a 194-ac DZ that would include 149.92 ac of highly erodible Cristobal-Gunsight complex soils. None of the area within the proposed DZ has been disturbed. Impacts from establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZ, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the acreage of highly erodible soils within this proposed DZ and the need for an access route to retrieve cargo drops, impacts to highly erodible soils would likely be minor to moderate.

Proposed activity K002-a would create a 113-ac DZ on mostly highly erodible soils, including 95.84 ac of Cristobal-Gunsight complex soils and 4.7 ac of Tucson-Tremant-Antho complex soils. Impacts from establishment of the DZ would be expected to be minor, limited to clearing of woody vegetation from the central target areas and from other areas as necessary to create access routes to retrieve dropped cargo. Most of the area within the DZ would be undisturbed. Impacts would be expected to be limited to establishment of the DZ, and operational impacts would be expected to be negligible. Operations at existing DZs that contain highly erodible soils have not resulted in erosion impacts to these soils, and drops and cargo retrieval would be minimally intrusive to soils. Due to the acreage of highly erodible soils within this proposed DZ and the need for an access route to retrieve cargo drops, impacts to highly erodible soils would likely be minor to moderate.

The Arizona Department of Environmental Quality requires a construction general stormwater permit through the Arizona Pollutant Discharge Elimination System for discharges from individual and unrelated construction activities. It the cargo retrieval route that would be established for a proposed DZ would entail more than 1 ac of soils disturbance, this permit would be required. Because these routes would be less than 5 ac and would be more than 0.25 mile from an impaired or outstanding Arizona water, they may qualify for waiver options if they are determined to have an erosivity value of less than 5, as calculated by the Arizona Smart Notice of Intent system. Proposed DZs that meet the waiver requirements would be required to comply with the conditions of the Arizona Pollutant Discharge Elimination System permit.

Construction and clearing would be spread through time and space and would be limited in extent. Impacts from proposed DZs would be expected to be minor to moderate.

5.2.7 Threatened or Endangered Species and Species of Concern

Proposed DZs would not have impacts to the desert rosy boa or to the Mojave fringe-toed lizard. Potential habitat for the desert rosy boa is considered marginal on YPG, due to the lack of intermittent or permanent streams with riparian areas. The Mohave fringe-toed lizard occurs on YPG only in a sand dune area in the northwestern portion of the Cibola Region, where no new DZs are proposed. Because there would be no potential for impacts to these species or their habitats, they are not further discussed. As noted under small construction activities, potential impacts to the Nichol Turk's head are not addressed because the species would not occur on YPG.

Proposed establishment and operation of DZs would not cause the loss of any water tanks that are used by TES animal species. Because these water tanks would be unaffected by

establishment and operation of proposed DZs, there would be no induced behavioral changes in TES species using water tanks.

In the Cibola Region, up to 980 ac identified as primary Sonoran desert tortoise habitat would be included within six proposed DZs (C002-a through C002-f). Additionally, K001 (a 194-ac DZ proposed in the eastern Kofa Region) would include some land identified as primary Sonoran desert tortoise habitat. Because the area identified as primary Sonoran desert tortoise habitat on YPG and the surrounding Federal lands is very large and only minimal vegetation clearing would occur to establish DZs, the indirect impacts from the establishment and operation of DZs to Sonoran desert tortoise would be long-term and minor from reduction or alteration of habitat. YPG will implement those portions of the Arizona Interagency Desert Tortoise Team *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* that are consistent with the military mission. Should the Sonoran desert tortoise be listed under the ESA, activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted prior to any land-disturbing activities.

Sonoran pronghorn have not been observed west of US 95. No impacts to this species from proposed new DZs in the Cibola Region or the Laguna Region, all of which would be west of US 95, would be expected.

DZs K001 (194-ac DZ) and K002-a (113-ac DZ) would be near or within King Valley and the Kofa NWR, where Sonoran pronghorn occur. Establishment of these two DZs would result in limited vegetation clearing for the central target area and for access to retrieve dropped cargo. Impacts to Sonoran pronghorn habitat would be minor because the amount of clearing would be minimal within the larger area used by the pronghorn. Operation of DZs would not further alter Sonoran pronghorn habitat. Any indirect impacts to Sonoran pronghorn from establishment and operation of DZs would be negligible to minor.

Establishment and operation of DZs would not be expected to cause incidental mortality of Sonoran pronghorn, and direct impacts would likely be limited to disruption of normal behavior and temporary displacements. Sonoran pronghorn would be expected to move away from vegetation clearing activity during the establishment of DZs and cargo retrieval routes. If animals are in the area at the time of a drop test, they would likely move away from a cargo landing site due to the immediate disturbance. Additionally, pronghorn would likely move away from areas where personnel were being dropped or move from the vicinity of cargo retrieval actions, as the animals would likely avoid the human activity. It is very unlikely that Sonoran pronghorn would be present at K001 and K002-a during every testing or training event scheduled there, but they could occur there at times when testing and training are scheduled. Any direct impacts to Sonoran pronghorn would be expected to be short-term and minor, but these short-term impacts could recur through time as testing and training events are scheduled at these two DZs.

All proposed DZs would be located in potentially suitable habitat for the banded Gila monster. Any vegetation clearing associated with establishment of DZs on YPG could have negative indirect impacts on this species through loss or alteration of habitat. Because the vegetation clearing required to establish DZs would be limited to the central target area and access routes to retrieve dropped cargo and because target areas in new DZs would avoid the rocky areas where the banded Gila monster would typically occur, any impacts to banded Gila monster habitat would be long-term and minor. The amount of clearing would be minimal within the

larger area potentially used by the banded Gila monster. Operation of DZs would not be expected to impact the banded Gila monster beyond causing it to hide if an animal was near a personnel drop or cargo retrieval activity. Incidental mortality would not be expected to occur, as the animals would likely avoid personnel and vehicle traffic. Direct impacts to banded Gila monster from operation of DZs would be short-term and negligible, but would recur through time as testing and training events are scheduled among the new DZs.

Potential foraging and nesting habitat for the loggerhead shrike could be reduced through vegetation clearing associated with DZs. Shrikes would likely relocate away from disturbance-causing activities unless already nesting in an area. In areas of high quality nesting habitat for the loggerhead shrike, surveys would be conducted to determine whether the species is nesting. If an activity could not be relocated from the nesting area, it would be delayed until after young have fledged to avoid impacts to the species. Indirect impacts would be long-term and moderate due to the slow rate of regrowth by desert vegetation. Direct impacts to shrike would be short-term and negligible to minor as a result of displacement, as a result of either establishment or operation of new DZs.

Proposed activity K002 would establish a new 113-ac DZ adjacent to the southeastern corner of Kofa NWR in an area where Parish's onion could occur. Vegetation clearing to establish the target area of the DZ and access routes for retrieval of dropped cargo could impact this species. The area would be surveyed for Parish's onion prior to clearing, and any plants identified would be avoided or salvaged and relocated to other suitable habitat on YPG if avoidance is not possible. Because it is likely that any occurrences could be avoided and because the underground bulbs of onions typically are well-suited to transplant, any impacts would be expected to be negligible. Operations conducted at this DZ would not be expected to impact Parish's onion because no further vegetation disturbance would occur.

All proposed DZs would be in areas where the western burrowing owl could occur. However, there are no DZs proposed in the grasslands around the lower Colorado and Gila Rivers, which provide large amounts of preferred habitat for this species. Clearing to establish the DZs and the cargo retrieval access routes would result in a reduction in potential habitat for this species. Any indirect impacts to the western burrowing owl that would result from a reduction in potential nesting and foraging habitat would be long-term and negligible to minor because of the higher quality habitat available outside the installation boundaries. Should the western burrowing owl be documented within a proposed DZ site, measures would be taken to relocate animals from the area prior to clearing to establish the DZ, unless the owls already were nesting. If nesting is documented within a proposed DZ clearing area (central target area or retrieval access route), clearing would be delayed until the young had fledged. With implementation of these management measures, any direct impacts to the western burrowing owl would be negligible.

Bat species of concern, including the California leaf-nosed bat, cave myotis, and the pocketed free-tailed bat, may forage and roost on YPG. These species roost in caves and mines, which would not be impacted by establishment and operation of the proposed DZs. There would be no indirect impacts to these bat species through loss or degradation of roosting habitat. The western yellow bat and the spotted bat may occur as transients or migrants on YPG, but would not roost on the installation. Potential foraging habitat for these five bat species would be reduced through vegetation clearing associated with establishment of proposed DZs and cargo retrieval access routes. Because the amount of clearing would be minor relative to the total

foraging habitat available on YPG and the surrounding lands, any indirect impacts to bats from loss of foraging habitat would be minor. Because no bats would roost in target areas of the proposed DZs and because bats are highly mobile and would be expected to relocate from areas of human activity, no direct impacts to bat species would be expected from the establishment and operation of new DZs.

Wild horses and burros use habitat throughout YPG, and establishment of the proposed DZs would reduce habitat as a result of clearing central target areas and dropped cargo retrieval routes. Because the amount of clearing would be small relative to the amount of habitat available on YPG and its surrounding lands, any indirect impacts to wild horses and burros as a result of habitat loss would be minor. Animals may be temporarily displaced the vegetation clearing or during operations when dropped cargo retrieval is conducted, but these animals would be expected to resume use of any suitable habitat once human activity is completed. Any direct impacts would be temporary and negligible to minor, but these types of impacts would recur through time if the animals happen to be near an area where a drop and cargo retrieval is scheduled.

Plant species of concern, including the desert barrel cactus, straw-top cholla, saguaro cactus, and ocotillo, occur scattered throughout YPG and these species could be impacted by vegetation clearing associated with establishment of proposed DZs. Plants would be salvaged where practicable and relocated to other suitable habitat on YPG. Because the amount of land that would be cleared is small and these species are uncommon on YPG, any impacts from construction and operation of the proposed DZs would be expected to be minor and long-term.

5.2.8 Vegetation

The potential for establishment and operation of new DZs to affect vegetation through changes in wildfire frequency or intensity was discussed in Section 5.2.1 and is not further discussed here.

Proposed expansion or creation of DZs would result in disturbance of up to 1,330 ac on YPG. DZs would not be entirely cleared of vegetation, but target areas in the center of the DZ and access routes to retrieve dropped cargo would be cleared. Additional potential for disturbance would occur during testing and training activities. No new impervious area would be created from establishment of new DZs, and there would be no potential for indirect impacts to vegetation from scour associated with stormwater runoff.

Disturbance to vegetation during operations could result from dropping of objects onto the ground by parachute, incidental drag of payloads by winds, and payload retrieval by vehicles. Due to the slow growth of desert vegetation, impacts would be long-term. No species would be lost from YPG and no specific habitat type would be eliminated. There could be increased potential for invasion by herbaceous exotic invasive species as a result of repeated testing and training activities. The development and use of exotic invasive plant species control methods through continued implementation of the INRMP would minimize the potential for spread of the exotic invasive plants into disturbed areas. The establishment of new DZs would allow testing and training in DZs to be spread across more sites and could reduce the intensity of use of any one DZ, which could benefit vegetation by reducing the intensity or frequency of vegetation impacts on specific DZs. The impacts to vegetation from testing and training activities would be long-term and minor.

5.2.9 Visual Resources

There would be scattered landscape disturbance from clearing to establish new DZs. However, the disturbance would be away from potential viewers. Disturbance would be limited to clearing the target area in the center of the DZ, which would have minimal impact on aesthetics and visual resources when viewed from outside the DZ. Because the new DZs would not be noticeable to the public, creation of new DZs would not be considered an impact to visual resources.

Proposed activity L040 would create a new DZ near LAAF where aircraft using this DZ would be visible from Martinez Lake Road. Because this DZ would be in an area that already experiences substantial air traffic, any impacts to visual resources from use of this new DZ would be negligible to minor.

Proposed activities C002-a, C002-c, C002-d, C002-e, and C002-f would create new DZs within 5 miles of US 95 or Cibola Lake Road. Aircraft using these new DZs may be visible to receptors on these roads. This portion of YPG already receives some use by aircraft, but additional aircraft using the new DZs may be perceived as a minor negative impact on visual resources.

Proposed activity C002-b would create a new DZ in a remote part of the Cibola Region, where there would be no potential public viewers during operations. Because there would be no public viewers, use of the new DZ created by proposed activity C002-b would not be considered an impact to visual resources.

Proposed activities K001 and K002-a would create new DZs in remote parts of the Kofa Region, where there would be no potential public viewers during operations. Because there would be no public viewers, use of the new DZs created by proposed activities K001 and K002-a would not be considered an impact to visual resources.

5.2.10 Water Resources

Establishment and operation of DZ would not impact groundwater resources.

No direct impacts to surface water resources would result from establishment of new DZs. No impervious surfaces would be created from establishment and operation of DZs. Indirect impacts to surface water resources could occur because establishment of DZs would result in removal of woody vegetation in the target areas in the center of the DZs and along access routes to retrieve dropped cargo. Removal of woody vegetation could result in increased stormwater runoff. Proposed DZs range in size from 44.5 ac to 380 ac, but the central areas that would be cleared of woody vegetation would be relatively small and herbaceous vegetation would not be cleared. Any changes in stormwater runoff would be small, and negligible to minor indirect impacts to surface waters would be expected.

5.2.11 Wildlife

Proposed DZs would be within areas that may be used by wildlife. Vegetation clearing to establish the central target areas and to create access routes to retrieve dropped cargo could cause negative indirect impacts to wildlife through loss of habitat. Because the amount of clearing for any one proposed DZ would be relatively small compared to the available habitat on YPG, any indirect impacts to wildlife from loss of habitat to create DZs would be expected to be minor. No operational indirect impacts from habitat loss would occur.

There would be temporary displacement and disruption of activity patterns from establishment of new DZs and then through time as testing and training events are conducted in these new DZs. Wildlife would likely move away from vegetation clearing activity during the establishment of DZs and cargo retrieval routes. If animals are in the area at the time of a drop test, they would likely move away from a cargo landing site due to the immediate disturbance. Additionally, wildlife would likely move away from areas where personnel were being dropped or move from the vicinity of cargo retrieval actions as the animals would likely avoid the human activity. Establishment and operation of DZs would not be expected to cause injury or incidental mortality of wildlife, and no species would be extirpated from YPG. Direct impacts related to injury or incidental mortality would be expected to be negligible, and impacts associated with temporary displacement or disruption of activity patterns would be minor and would recur through time.

Proposed establishment and operation of DZs would not cause the loss of any water tanks that are used by wildlife species. Because these water tanks would be unaffected by establishment and operation of proposed DZs, there would be no induced behavioral changes in animal species using water tanks.

Proposed DZs C002-a, C002-b, C002-c, and K001 would be located near desert bighorn sheep habitat, but would not be within areas used for lambing. Desert bighorn sheep would avoid these areas during clearing to establish the center target area and the access routes to retrieve dropped cargo. It also is likely that desert bighorn sheep would move away from these areas during operations when cargo retrieval is occurring. No incidental mortality would occur and any impacts to desert bighorn sheep would be negligible to minor.

6.0 Activities that Create or Expand LTAs

Activities that create new or expand existing LTAs would not involve construction and would have no construction-related impacts; all impacts would be from operations. New LTAs would not include bivouac areas, and expanded LTAs would not include new bivouac areas. Additional National Environmental Policy Act analysis would be required for any new bivouac areas. The detailed analysis addresses only dismounted maneuvers.

6.1 Activity Description

L019: L019 would expand West LA LTA, K-9 Village LTA, Site 2 LTA, and Site 4 LTA by making the intervening areas (6,521 ac) an LTA.

L032: L032 would expand the Bravo LTA (828 ac).

L033: L033 would expand the Hill 630 LTA (1,141 ac).

L030-a: L030-a would expand an existing LTA to support operational testing and dismounted maneuvers at Muggins/Middle East (up to 16,640 ac). L030-a is analyzed in detail, but this activity was not selected as a component of the Preferred Alternative.

L030-b: L030-b would expand an existing LTA to support operational testing and dismounted maneuvers at Muggins/Middle East (up to 6,331 ac).

C041: C041 would expand an LTA (11,230 ac) to support operational testing and dismounted maneuver training at Middle Mountain.

C061: C061 would create an LTA to support operational testing and dismounted maneuver training at JERC I/Saderville (8,437 ac).

C062: C062 would create an LTA to support operational testing and dismounted maneuver training at JERC II (3,503 ac).

C063: C063 would create an LTA to support operational testing and dismounted maneuver training at JERC III (4,312 ac).

K026: K026 would expand an LTA (8,840 ac proposed, 7,014 ac selected under the Preferred Alternative) to support operational testing and dismounted maneuver training at SWTR.

6.2 Potential Impacts

Specific discussions of impacts to Air Quality, Energy/Utilities, Land Use, Noise, Traffic/Transportation, Vegetation, Visual Resources, and Water Resources are not provided. There are no proposed activities in this category with unique impacts to these resources and no mitigation is required for impacts to these resources. The discussion of these resources provided in the body of the FPEIS adequately describes the potential for impacts to these resources from establishment and use of new or expanded LTAs.

The YPG Environmental Awareness program developed instructions for units training on YPG that include proper procedures and avoidance measures to be implemented during ground-based training activities to minimize potential impacts to areas of aesthetic and visual value. Continued implementation of the Integrated Training Area Management program would maintain or rehabilitate testing and training areas to maintain conditions that realistically simulate conditions in other desert regions. Terrain impacts to washes could also be repaired to reduce negative visual impacts.

6.2.1 Fire Management

Implementation of the Proposed Action would convert up to 61,452 ac of land to new or expanded LTAs. However, the Preferred Alternative would convert only 49,317 ac to new or expanded LTAs. There is overlap among the proposed new or expanded LTAs and other activities (proposed DZs, proposed munitions impact areas, proposed vehicle test courses) but, because these areas would not be used for multiple types of activities simultaneously, the potential for multiple uses would not be expected to create synergistic impacts to fire management. The potential for these other activities to affect fire management is discussed in other sections and only the potential for the establishment and operation of LTAs to affect fire management is discussed here.

Because new LTAs would not include bivouac areas and expanded LTAs would not include new bivouac areas, the establishment of new or expanded LTAs would not result in disturbance to vegetation or create any ignition sources. Therefore, establishment of new or expanded LTAs has no potential to affect fire management.

Use of LTAs would be limited to dismounted maneuvers, with military personnel transported to and from LTAs by vehicles. Vehicles used for this purpose would have the potential to ignite wildfires, but any fires that ignite would be suppressed by onsite personnel and no long-term negative impacts to fire management would result.

Dismounted maneuvers conducted in new or expanded LTAs would have the potential to ignite wildfires. Activities that involve the use of pyrotechnics or live fire where the items are

delivered distant from the Soldiers could start a fire that could become established before it could be suppressed by onsite personnel. Should this occur, military personnel would evacuate the area and the fire would be reported to Range Control for initiation of appropriate fire suppression efforts.

Many new LTAs would be in remote areas, and the time required to respond to a wildfire would result in potential for spread of a wildfire prior to the start of control efforts. The creation of new and expanded LTAs would provide greater flexibility for YPG to use its Geographic Information System model to predict fire risk and to schedule LTA testing and training events in areas where the fire risk is not high, which should result in a long-term reduction in wildfire risk on YPG.

Wildfires that ignite on YPG have the potential to spread beyond the installation boundaries onto adjoining lands. Similarly, fires that begin on adjoining lands could spread onto YPG. YPG has developed an MOU with the USFWS and BLM that establishes guidance for cooperation and collaboration on wildland fire issues on YPG and the surrounding Federal lands. The MOU recognizes a common goal among the signatories to minimize the impacts of wildland fire on the desert landscape and establishes fire suppression and safety protocols for cooperative efforts to suppress desert wildfires. YPG would continue to cooperate with other Federal agencies per the MOU to combat wildfires in the region.

6.2.2 Hazardous Materials/Hazardous Waste

Creation or expansion of LTAs would not require construction, and no ground clearing or grubbing would occur. As a result, there would be no construction-related impacts from hazardous materials.

Proposed activity L019 would expand and combine multiple LTAs that would encompass Installation Restoration Program (IRP) Site YPG-127 (refer to Figure 3-3 in the FPEIS). Proposed activity L033 would expand the Hill 630 LTA to encompass IRP sites YPG-002 and YPG-141 (refer to Figure 3-3 in the FPEIS). These expanded LTAs would be used for dismounted maneuvers only, with no associated ground disturbance. Therefore, personnel would not be exposed to contaminants from the known IRP sites during operation of the expanded LTAs. No other proposed new or expanded LTAs would be in proximity to known IRP sites.

Testing and training activities in new or expanded LTAs could impact soils and groundwater as a result of contamination from spills of POLs and use of munitions or explosives. Activities would comply with the BMPs identified in the SPCCP and ISCP to minimize the potential for contamination. New and expanded LTAs would be added to the regular range assessments conducted under DoDI 4715.14. Should migration of MCOCs from any of the new or expanded LTAs be indicated, YPG would implement appropriate measures to protect human health and the environment.

6.2.3 Safety

Personnel participating in dismounted maneuver training and operational testing in the proposed LTAs at SWTR (K026) would have to cross the KFR to reach the LTA. SWTR is a multi-purpose area and use of this LTA would be coordinated with UAS launch/recovery and munitions firing into the SWTR munitions impact area. Because of the collocation with a munitions impact area, dismounted maneuvers would be limited to established roads and trails unless unexploded ordnance (UXO) clearance is conducted prior to use. All movement to and from the proposed dismounted maneuver areas and proposed UAS launch/recovery sites

would be coordinated through Range Control to avoid conflicts with munitions testing. Because of the coordination with Range Control and because dismounted maneuvers would be limited to established roads and trails, no adverse safety impacts would be expected from operations.

Activities conducted at LTAs established by K026, L030-a/b, C060, C061, C062, and C063 would result in personnel operating in very remote areas with limited access. Coordination with Range Control would be required for any activities conducted in these areas, and any serious injuries would require use of helicopters for evacuation. These proposed LTAs contain areas where UXO may be present. Dismounted maneuvers would be limited to established roads and trails in these areas unless UXO clearance is conducted prior to use. Because of the coordination with Range Control and the availability of helicopter evacuation, no adverse safety impacts would be expected from operational activities in these remote areas in the Kofa Region.

Use of new or expanded LTAs, including vehicle use to access the LTAs, would not be expected to change the rate of safety-related incidents on YPG. There could be an increase in the number of safety-related incidents during a specific period because more activities could be scheduled simultaneously. However, because the YPG Safety Program would be implemented, safety issues from incidents related to increased activity would be expected to be minor.

Use of new or expanded LTAs could increase the risk of wildfire on YPG through exposure of new areas to potential ignition sources. Wildfire impacts were discussed in Section 6.2.1.

6.2.4 Soils

Soils on YPG are of two broad types: highly erodible and not highly erodible. The FPEIS (Section 3.15.2.3) provides an adequate analysis of impacts to soils that are not highly erodible, and this analysis focuses on potential impacts to highly erodible soils as a result of proposed new or expanded LTAs. There are four highly erodible soils complexes that occur on YPG (Cristobal-Gunsight complex, Gilman-Harqua-Glenbar complex, Superstition-Rositas complex, Tucson-Tremant-Antho complex), as discussed in the FPEIS, that may be impacted by proposed new or expanded LTAs.

Proposed new or expanded LTAs would be used for dismounted troop maneuvers, with minor vehicle use at drop-off/pick-up locations. No bivouac areas would be established and no vegetation clearing or ground disturbance would result. Dismounted maneuvers would be dispersed and would not create defined pathways. Only negligible to minor soil disturbance would be expected from dismounted maneuvers, but these impacts would recur through time, whenever a particular LTA was scheduled for use. The creation of new and expanded LTAs would be expected to have a long-term beneficial impact on soils on YPG as dismounted maneuvers could be spread over a larger area, reducing the potential for negative impacts on any one LTA. The increase in available LTA area would allow for areas exhibiting unsustainable use or other degradation to rehabilitate.

The condition of LTAs on YPG would be monitored and maintained by the Integrated Training Area Management (ITAM) program. Areas identified as having erosion issues would be stabilized and/or restored to the extent practicable to minimize erosion and to maintain a natural landscape typical of a real battlefield.

Proposed new or expanded LTAs L033, L031a, L031b, C041, and C063 would cover up to 39,654 ac in mountainous areas of YPG where highly erodible soils do not occur. No impacts to highly erodible soils would result from establishment and use of these LTAs. Proposed LTAs L032 and

C062 would occur in areas with highly erodible soils, while L019, C061, and K026 would occur in areas almost entirely dominated by highly erodible soils.

Proposed activity L019 would establish a 6,521-ac LTA in an area where the predominant soil type consists of the highly erodible Superstition-Rositas complex soil. Approximately 218 ac of Cristobal-Gunsight complex soils and 2,648 ac of Superstition-Rositas complex soils would be subject to dismounted maneuvers if L019 is implemented. Portions of the area encompassed by L019 are developed and used as training areas, including dismounted maneuver training (K-9 Village, West LA, Site 2, and Site 4). Areas within L019 previously used for training have not exhibited significant amounts of erosion, and the expansion of these areas would result in more dispersed activity that would be less likely to cause impacts to highly erodible soils than current uses. Because dismounted maneuvers would be dispersed movement and the ITAM program would continue to be implemented, impacts to highly erodible soils from use of the LTA established by L019 would be negligible to minor and long-term.

Proposed activity L032 would create an 828-ac LTA that would include 94.83 ac of Cristobal-Gunsight complex soils and 269.66 ac of Superstition-Rositas complex soils. The remaining 463.51 ac of the LTA would cover soils that are not highly erodible. The area includes roads that would be used to drop off and pick up military personnel. This area lacks any previous development and is mostly undisturbed. Because dismounted maneuvers would be dispersed and the ITAM program would continue to be implemented, impacts to highly erodible soils from use of the LTA established by L032 would be minor and long-term.

Proposed activity C061 would create an 8,437-ac LTA that would include 1,063.41 ac of Cristobal-Gunsight complex soils, 3,946.7 ac of Gilman-Harqua-Glenbar complex soils, and 3,019.54 ac of Tucson-Tremant-Antho complex soils. There are only 407.35 ac of the proposed LTA that would not be highly erodible soils. This area is within the JERC I Range, which includes areas already developed and used for testing and training and roads that would be used to drop off and pick up military personnel. Because dismounted maneuvers would be dispersed and the ITAM program would continue to be implemented, impacts to highly erodible soils from use of the LTA established by L0C061 would be minor and long-term.

Proposed activity C062 would create a 3,503-ac LTA that would include 986.35 ac of Cristobal-Gunsight complex soils. The remaining 2,516.65 ac of this proposed LTA do not have highly erodible soils. This area is within the JERC II Range, which includes areas already developed and used for testing and training and roads that would be used to drop off and pick up military personnel. Because dismounted maneuvers would be dispersed and the ITAM program would continue to be implemented, impacts to highly erodible soils from use of the LTA established by C062 would be minor and long-term.

Proposed activity K026 would establish a 7,014-ac LTA under the Preferred Alternative that would consist almost entirely of highly erodible soils, including 861.23 ac of Cristobal-Gunsight complex soils, 4,756.46 ac of Gilman-Harqua-Glenbar complex soils, and 1,373.30 ac of Tucson-Tremant-Antho complex soils. Only 23.01 ac within this proposed LTA would not consist of highly erodible soils. The area is mostly undisturbed, but contains roads that would be used to drop off and pick up military personnel using the LTA. Because dismounted maneuvers would be dispersed movement and the ITAM program would continue to be implemented, impacts to highly erodible soils from use of the LTA established by K026 would be minor and long-term. As proposed, K026 would encompass 8,840 ac, including a larger area of highly erodible soils. Impacts would be similar to those described for the Preferred Alternative, but would occur over

a larger area. The area proposed for an LTA under K026 also is proposed for use as a munitions impact area. If the area is used as a munitions impact area, then dismounted maneuvers would be limited to existing roads and trails and other areas free of potential UXO unless UXO clearance is conducted prior to use. If dismounted maneuvers are limited to existing roads and trails, the potential impacts to highly erodible soils from use of the LTA would be negligible.

6.2.5 Threatened or Endangered Species and Species of Concern

Proposed new or expanded LTAs would not have impacts to the desert rosy boa or to the Mojave fringe-toed lizard. Potential habitat for the desert rosy boa is considered marginal on YPG, due to the lack of intermittent or permanent streams with riparian areas. The Mohave fringe-toed lizard occurs on YPG only in a sand dune area in the northwestern portion of the Cibola Region, where no new or expanded LTS are proposed. Because there would be no potential for impacts to these species or their habitats, they are not further discussed. As noted under small construction activities, potential impacts to the Nichol Turk's head are not addressed because the species would not occur on YPG.

Proposed new or expanded LTAs would not cause the loss of any water tanks that are used by TES species. Because these water tanks would be unaffected by establishment or operation of new or expanded LTAs, there would be no induced behavioral changes in TES species using water tanks.

Proposed activities LTAs C061, C062, and C063 would be established on up to 16,252 ac of land identified as primary Sonoran desert tortoise habitat. Because no vegetation clearing would occur, there would be no impact to the habitat and no indirect impacts to the species would be expected from the establishment of these three LTAs. LTA activities would be limited to dismounted maneuvers, so no impacts to Sonoran desert tortoise other than temporary avoidance of human activity would be expected during operations conducted on these three LTAs, and no injury or mortality would be expected. Because Sonoran desert tortoise are known to occur in low numbers outside of the area identified as Sonoran desert tortoise habitat, it is possible that operations conducted at other proposed LTAs could cause temporary avoidance of human activity by the tortoise. These direct impacts would be negligible to minor. Should the Sonoran desert tortoise be listed under the ESA, activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted prior to any land-disturbing activities.

The proposed expansion of LTA K026 would be near the Kofa NWR, where Sonoran pronghorn are known to occur. No other proposed new or expanded LTAs would be in or near areas where Sonoran pronghorn are known or likely to occur. Establishment of the LTA for K026 would not impact potential habitat for the species and no indirect impacts to the Sonoran pronghorn would be expected. Human activity during operations would likely cause any pronghorn present to relocate from the area. No incidental mortality of the Sonoran pronghorn would be expected from operations on the K026 LTA. Any impacts would be long-term and negligible to minor as a result of disruption to normal behavior patterns. YPG would consult with USFWS under Section 7 of the ESA regarding activities with potential to impact Sonoran pronghorn on the Kofa NWR. Should the status of Sonoran pronghorn released in the Kofa NWR be reclassified under the ESA with regard to activities on YPG, YPG would re-evaluate any projects proposed for implementation in portions of the installation where the Sonoran

pronghorn might occur and would consult appropriately with USFWS prior to any activities that could impact the species.

All proposed LTA creation or expansion activities would occur in potentially suitable habitat for the banded Gila monster. Because expansion or creation of LTAs would not result in vegetation clearing or earth disturbance, indirect impacts to banded Gila monster from habitat loss would not be expected. Because the banded Gila monster hides from threats, it is likely that this animal would retreat into areas among rocks or crevices when testing or training activities were ongoing. Direct impacts, including incidental mortality, would be unlikely during testing and training activities. Any impacts to the banded Gila monster would be expected to be negligible to minor.

Loggerhead shrike, western burrowing owl, and bat species of concern use habitat throughout YPG. Operations on new or expanded LTAs would not degrade or cause the loss of habitat used by these species. No indirect impacts to the loggerhead shrike, western burrowing owl, or bat species of concern from habitat alteration would be expected. It is likely that loggerhead shrike and western burrowing owl would relocate from areas during troop activities, but they would be expected to resume normal use of these areas when testing and training events were not ongoing. Testing and training activities conducted on the proposed new or expanded LTAs would not result in military personnel entering mine or cave habitats where bat species may roost. Night maneuvers and activities conducted near dawn and dusk could cause foraging bats to move to areas away from the military personnel. Bats would be expected to resume normal use of these areas when testing and training events were not ongoing. No incidental mortality of loggerhead shrike, western burrowing owl, or bat species of concern would result. Any impacts to these species would be limited to temporary displacement during testing and training activities and would be negligible to minor.

Past and ongoing testing and training on YPG do not appear to have negatively impacted wild horse and burro populations. These animals are very mobile and able to relocate from areas where disturbance occurs and resume normal use of these areas once human activity has ended. No incidental mortality of these species would be expected. These animals use habitat throughout YPG and it is unlikely that use of new or expanded LTAs would have other than negligible to minor impacts to wild horses and burros as a result of temporary displacement.

Proposed activity K026 would create an 8,840-ac LTA expansion near the boundary of Kofa NWR (7,014 ac under the Preferred Alternative), an area where Parish's onion could occur. No vegetation clearing would occur and testing and training activities would be limited to dismounted maneuvers, with vehicles limited to roads/trails and pull-off for dropping off or picking up military personnel. Any impacts during operations on the 8,840-ac expanded LTA would likely be limited to loss of aboveground leaves. The underground bulbs of onions would not be impacted by these activities, and the plants could regrow during favorable periods. Any impacts would be expected to be negligible to minor. Under the Preferred Alternative (7,014-ac LTA), the boundary of the expanded LTA would remain 1 km (0.62 mile) from the Kofa NWR boundary. With this separation from the refuge, Parish's onion would not be expected to occur in the LTA, and no impacts to the species would result under the Preferred Alternative.

Other plant species of concern, including the desert barrel cactus, straw-top cholla, saguaro cactus, and ocotillo, occur scattered throughout YPG, but the potential for negative impacts to these species as a result of dismounted maneuvers in new or expanded LTAs would be minimal. Each of these species is armed with thorns or spines that could cause injury to military

personnel. As such, these plants would be avoided during dismounted maneuvers to the extent possible. Because accidental contact with these species cannot be completely avoided, there would be negligible to minor long-term impacts to these plant species of concern as a result of the creation and use of new or expanded LTAs. The condition of LTAs on YPG would be monitored and maintained by the ITAM program. Areas identified as being degraded would be rehabilitated to maintain a natural landscape typical of a real battlefield and the new or expanded LTAs would allow these dismounted maneuvers to be spread over a larger area, reducing the potential for impacts to vegetation on any given LTA. With continued implementation of the ITAM program, impacts to plant species of concern from establishment and use of new or expanded LTAs would be negligible to minor and long-term.

6.2.6 Wildlife

Proposed new or expanded LTAs would be established in areas that may be used by wildlife. Because no vegetation clearing or earth disturbance would occur to establish the LTAs, potential impacts to wildlife habitat would be negligible. Indirect impacts to wildlife as a result of habitat alteration would be negligible. Direct impacts resulting from injury or incidental mortality related to testing and training activities conducted on LTAs would be expected to be negligible to minor, as wildlife would be expected to temporarily relocate from areas of human activity or move to hiding refugia while military personnel were moving through an area. Normal use of the LTAs would resume once a testing or training event was complete.

Proposed establishment and expansion of LTAs would not cause the loss of any water tanks that are used by wildlife species. Because these water tanks would be unaffected by establishment and operation of proposed LTAs, there would be no induced behavioral changes in animal species using water tanks.

LTAs that would be established by proposed activities L019 and L032 would not include any mountainous areas. Use of the mountainous portions of the other new or expanded LTAs could result in disturbance of desert bighorn sheep. If such disturbance were to occur in lambing areas during the lambing period, mortality or abandonment of young could result. The Training Exercise Management Office (TEMO) would coordinate with YPG Natural Resources staff prior to scheduling testing or training events in areas where desert bighorn sheep lambing could occur during the time of year that lambing would occur. During other times of the year or in areas where lambing would not occur, dismounted maneuvers in new or expanded LTAs would have no more than minor impacts on desert bighorn sheep as a result of temporary displacement. The selection of L030-b rather than L030-a under the Preferred Alternative eliminates approximately 10,000 ac of mountainous potential desert bighorn sheep habitat from areas included in proposed LTAs, which reduces the potential for disturbance of bighorn sheep from activities in new or expanded LTAs.

7.0 Activities that Create or Expand Munitions Impact Areas

Munitions impact areas, including small arms ranges, may be established for inert munitions, explosive munitions, or a combination of both. Munitions impact areas may be limited to certain classes of munitions or be capable of accommodating all types of munitions. Munitions impact areas include target areas and surrounding land to accommodate most misfires and overshoots. Small arms ranges may include catchboxes to contain spent ammunition.

7.1 Activity Description

C003-a: C003-a would include establishment and operation of three small arms impact areas for inert munitions at JERC I. Two of the impact areas would be 62 ac, and the third would be 15 ac. These impact areas would include catchboxes to allow collection of spent rounds after testing or training events.

C003-b: C003-b would include establishment and operation of a small arms impact area (62 ac) for inert munitions at JERC II. This impact area would include catchboxes to allow collection of spent rounds after testing or training events.

C003-c: C003-c would establish a small arms impact area (50 ac) for inert munitions at JERC III. This impact area would include catchboxes to allow collection of spent rounds after testing or training events.

C006: C006 would establish the Phoenix West Impact Area (262 ac) for inert and explosive munitions.

C009: C009 would establish the North UAS Impact Area (275 ac) for inert and explosive munitions.

C011: C011 would establish the La Posa West Impact Area (395 ac) for inert and explosive munitions.

C034-a: C034-a would expand the size of Graze Range Impact Areas by consolidating 7 individual impact areas into a single larger area (626 ac, 616 ac under the Preferred Alternative).

C035: C035 would expand the Combined Live Fire Exercise Range at OP-9 by consolidating 2 designated impact areas and Prospect Square (200 ac).

C052: C052 would establish the CM 7 Impact Area (1,270 ac) for inert and explosive munitions.

C053: C053 would establish the CM 4 North Impact Area (1,510 ac) for inert and explosive munitions.

C055: C055 would establish the Multi-Purpose North Impact Area (567 ac) for inert and explosive munitions.

C056: C056 would establish the Multi-Purpose South Impact Area (3,823 ac) for inert and explosive munitions.

C057: C057 would expand the Rocket Alley Impact Area (2,127 ac) for inert and explosive munitions.

C058: C058 would establish the Aerial Weapons Impact Area (2,452 ac) for inert and explosive munitions.

C059: C059 would establish the East Target Road Impact Area (2,531 ac) for inert and explosive munitions.

C065-a: C065-a would create long range artillery (LRA) Impact Area 1 (9.9 ac).

C065-b: C065-b would create LRA Impact Area 2 (9.9 ac).

C065-c: C065-c would create LRA Impact Area 3 (9.9 ac).

C065-d: C065-d would create LRA Impact Area 4 (9.9 ac).

C066-a/b: C066-a would construct an aerial cable drop site (two cable sites [each 11,065 ft²] and target area [87,855 ft²]) for drop testing in mountains north of Prospect Square. Live munitions may be drop-tested at this facility, so the target area would be designated as a munitions impact area for explosive munitions. This activity would include two cables suspended between mountain peaks, winches and pulleys for each cable, and a 328-ft-diameter target area. C066-b would construct an approximately 2.5-mile (3-ac) access trail to the aerial cable drop site target area. Worker and supply access for construction of the mountain-top sites would be by helicopter for construction. Testers and test items would be transported to the site by helicopter during operations. C066 is analyzed in detail, but was not selected as a component of the Preferred Alternative.

K003: K003 would expand a munitions impact area (24,309 ac proposed, 21,377 ac selected under Preferred Alternative) from the north boundary of Echo and Foxtrot to the north boundary of the contaminated area (Advanced Munitions Range).

K008: K008 would expand a munitions impact area (4,467 ac) to encompass the area between Impact Areas Delta and Echo.

K010: K010 would expand a munitions impact area (980 ac) north of North Boundary Road between GP 21A and Impact Area Alpha (Advanced Munitions Range).

K024-a/b: K024-a would construct an aerial cable drop site (two cable sites [each 11,065 ft²] and target area [87,855 ft²]) for drop testing in mountains south of Pole Line Road. Live munitions may be drop-tested at this facility, so the target area would be designated as a munitions impact area for explosive munitions. This activity would include two cables suspended between mountain peaks, winches and pulleys for each cable, and a 328-ft-diameter target area. K024-b-b would construct an approximately 0.6-mile (0.75-ac) access trail to the target area in mountains south of Pole Line Road. Worker and supply access for construction of the mountain-top sites would be by helicopter for construction. Testers and test items would be transported to the site by helicopter during operations.

7.2 Potential Impacts

Specific discussions of impacts to Energy/Utilities and Traffic/Transportation are not provided. There would be no impacts to these resources from creation or expansion of munitions impact areas and no mitigation is required. No discussion of potential impacts to Air Quality is provided. The discussion of Air Quality impacts provided in the body of the FPEIS adequately describes the potential for impacts to this resource from implementation of activities that create or expand munitions impact areas.

7.2.1 Fire Management

Approximately 16,310 ac in the Cibola Region and approximately 26,824 ac in the Kofa Region would be converted to new or expanded munitions impact areas. The fluctuations in the levels of munitions testing and training over the past decade on YPG provide baseline and maximum levels of munitions use in testing and training. Under the Proposed Action, annual firing of munitions would remain within the upper and lower bounds seen historically, but there would be new or expanded munitions impact areas which would increase the areas where munitions may be fired. Because the number of rounds fired would be within the historical range, no change in the frequency of wildfire ignition from munitions testing and training would be expected compared to the No Action Alternative.

Live-fire provides potential ignition sources and the potential for ignition is frequently down-range in very remote areas. Even in areas where UXO is not a concern and fire suppression can be implemented, the time required to respond creates the potential for substantial spread of a wildfire prior to the start of control efforts. YPG would use its Geographic Information System model to predict fire risk and behavior on the installation. The development of new or expanded munitions impact areas under the Proposed Action would result in greater ability to implement certain activities that involve new fire risks in areas where the fire risk is low, which should result in a long-term reduction in wildfire risk on YPG.

The potential for wildfire that ignites as a result of use of new or expanded munitions impact areas that would be established under proposed activities K003, K008, and K010 to impact protected species on YPG or the adjacent Kofa NWR is discussed in Section 7.2.7.

Expanded and new munitions impact areas would not create any new areas that would become off-limits to firefighting as a result of UXO contamination. The proposed new and expanded munitions impact areas already contain UXO from historical activities.

Wildfires that ignite on YPG have the potential to spread beyond the installation boundaries onto adjoining lands. Similarly, fires that begin on adjoining lands could spread onto YPG. YPG has developed an MOU with the USFWS and BLM that establishes guidance for cooperation and collaboration on wildland fire issues on YPG and the surrounding Federal lands. The MOU recognizes a common goal among the signatories to minimize the impacts of wildland fire on the desert landscape and establishes fire suppression and safety protocols for cooperative efforts to suppress desert wildfires. YPG would continue to cooperate with other Federal agencies per the MOU to combat wildfires in the region.

7.2.2 Hazardous Materials/Hazardous Waste

Creation or expansion of munitions impact areas would not require construction and no ground clearing or grubbing would occur. As a result, there would be no construction-related impacts from hazardous materials.

All new or expanded munitions impact areas would have the potential for UXO and the potential for metals or MCOCs from misfires, incomplete detonations, and inert rounds to alter growing conditions or to migrate from the site. New or expanded munitions impact areas would be regularly checked for UXO, which could remain following testing or training events. Any such items would be removed or detonated in place with donor explosives. New and expanded munitions impact areas would be added to the regular range assessments conducted under DoDI 4715.14. Should migration of MCOCs from any of the new or expanded munitions impact areas be indicated, YPG would implement appropriate measures to protect human health and the environment.

7.2.3 Land Use

Approximately 16,310 ac in the Cibola Region and approximately 26,824 ac in the Kofa Region would be converted to new or expanded munitions impact areas. These areas already support military activities and are designated as Range/Open Land, which is compatible with proposed testing and training. No change in designated land use would occur.

Because activities that would be used to create or expand munitions impact areas would be implemented on land that already contains historical UXO, no new land use constraints would be created. Any munitions impact areas would have to be cleared of potential UXO and MCOCs

prior to being converted to another land use. Any impacts on land use from creation of new or expanded munitions impact areas would be negligible to minor.

7.2.4 Noise

There would be no noise associated with establishment of new or expanded munitions impact areas. Operations conducted at new or expanded munitions impact areas would generate noise as a result of the flight of large rounds, the detonation of explosive rounds, and the impact of inert rounds with the surface. These noises would be episodic, as operations at new or expanded munitions impact areas would occur only as scheduled and would not be continuous.

Use of the new or expanded munitions impact areas would be ongoing, but would be spread over a larger area than is currently used for these testing and training activities. This would likely result in reduced impacts within any one munitions impact area, with lesser impacts spread over additional areas. The noise from explosions from munitions testing and training would be audible to wildlife for several miles from a munitions impact area. However, beyond the immediate blast area, the noise would likely be perceived as background noise due to the frequency of this type of testing and training on YPG. Because there would be no increase in the number of HE rounds fired compared to historical levels, just an increase in the areas authorized for impacts from fired munitions, no appreciable change in the noise environment would be expected and any noise impacts to wildlife from munitions testing and training would be expected to be negligible.

Operations using explosive munitions at new or expanded munitions impact areas in the Kofa Region would produce noise that would extend onto the Kofa NWR for up to several miles. Because the expected fluctuations in testing and training would be within the historical limits that have been documented, no increase in the number of events on munitions impact areas that cause noise on Kofa NWR would be expected. The locations from which this noise originates would increase, but the number or rounds fired would stay within historical levels.

At present, noise from firing into munitions impact areas is between 57 and 62 decibels at the points where it enters the Kofa NWR, and this noise would naturally attenuate with distance. The gradual natural attenuation of noise over distance results in this noise being audible for several miles within the refuge, which typically lacks other sources of noise. This noise level is comparable to the 60-dBA (A-weighted decibel) of a normal conversation and is not normally a noise level that would disturb receptors. Wilderness area users frequently seek solitude in wilderness areas and the continual noticeable noise from explosions, while not loud, could disrupt the solitude experience. However, because of the location of the wilderness area in the Kofa NWR, adjacent to an active military test range, and because of the designation of much of that wilderness area as a buffer for military artillery testing, users of the wilderness area on Kofa NWR would not have an expectation of quietude and the noise from artillery testing would be no more than a minor impact to the recreation experience. Because there would be no increase in the number of HE rounds fired compared to historical levels, there would be no change in the noise environment on Kofa NWR as a result of using the proposed new munitions impact areas.

7.2.5 Safety

Use of new or expanded munitions impact areas, including increased vehicle use to access these new areas, would not be expected to change the rate of safety-related incidents on YPG. There could be an increase in the number of safety-related incidents during a specific period because

more activities could be scheduled simultaneously. However, because the YPG Safety Program would be implemented, safety issues from incidents related to increased activity would be expected to be minor.

New and expanded impact areas could increase the risk of wildfire on YPG through exposure of new areas to potential ignition sources. The potential impacts of wildfire were discussed in Section 7.2.1.

7.2.6 Soils

Proposed transportation activities would involve soil disturbance during site preparation and during construction activities. Soils on YPG are of two broad types: highly erodible and not highly erodible. The FPEIS (Section 3.15.2.3) provides an adequate analysis of impacts to soils that are not highly erodible, and this analysis focuses on potential impacts to highly erodible soils as a result of proposed new or expanded munitions impact areas. There are four highly erodible soils complexes on YPG, as discussed in the FPEIS.

No impact to highly erodible soils would occur in the Laguna Region because all proposed new or expanded munitions impact areas would be in the Cibola and Kofa Regions. Proposed new or expanded munitions impact areas in the Cibola Region would include 8,558.37 ac of highly erodible soils and there would be 19,003.64 ac of highly erodible soils within proposed new or expanded munitions areas in the Kofa Region. Some of the area that would be included in the proposed new and expanded munitions impact areas is within mountainous portions of YPG, where highly erodible soils typically do not occur. Selection of mountainous areas for inclusion reduces the amount of highly erodible soils in munitions impact areas. Proposed munitions impact areas C006, C034a, C035, C065a, C065c, C065d, C066-a, and C066-b lack highly erodible soils and would not have impacts on these soils.

No clearing or grading would occur in proposed new or expanded munitions impact areas. Direct impacts to highly erodible soils would be limited to dispersed disturbance from impacts from explosive munitions. Indirect impacts could result from scour associated with stormwater runoff, from wildfires ignited by firing actions, and from accumulation of metals and MCOCs in soils.

Explosive munitions that are fired for air burst would not have direct impacts on soils. Ground burst munitions would disturb soils at the point of detonation and could remove vegetation from an area. Ground bursts could create craters rather than general soils disturbance. Cratered soils may have reduced stormwater runoff due to the capacity of craters to retain water. Existing munitions impact areas, including the Direct Fire Range, Site 10, Rocket and Gun Horizontal Impact Area (CRV-7), and Rocket Alley, are in the south Cibola Region and contain extensive amounts of highly erodible Cristobal-Gunsight complex soils. These soils have not experienced severe impacts during historical use of these munitions impact areas. Impacts to highly erodible soils in new or expanded munitions impact areas would be expected to be comparable to these historical impacts. While munitions impact areas are not actively maintained due to the safety risks associated with UXO and MCOCs, impacts to highly erodible soils from live fire activities in proposed new or expanded munitions impact areas are expected to be minor to moderate based on historical use of other munitions impact areas. New or expanded munitions impact areas located on level ground would typically have minor impacts on highly erodible soils, because any cratering would tend to retain water and reduce runoff. New or expanded munitions impact areas in areas with greater topographic relief could have an

increased potential for erosion from runoff-associated scour, which would be expected to have minor to moderate impacts on highly erodible soils.

Firing of tracer rounds and explosive rounds could contribute to wildfires, which could further contribute to the erosion of highly erodible soils by increased stormwater scour following loss of vegetation. Impacts associated with wildland fires are discussed in Section 7.2.1.

Metals and MCOCs could accumulate in soils and either alter growing conditions or migrate offsite. The potential for metals and MCOCs to alter growing conditions or migrate from the site was discussed in Section 7.2.2.

Where soils that are susceptible to wind erosion are disturbed, there would be potential to create dust and contribute to PM_{10} that could affect air quality. Potential air quality impacts were discussed in Section 3.2.2.

The three small LTAs that would be created by proposed activity C003-a would include 95.5 ac of Cristobal-Gunsight complex soils, 7.21 ac of Gilman-Harqua-Glenbar complex soils, and 35.82 ac of Tucson-Tremant-Antho complex soils. These munitions impact areas would be on predominantly level ground, which would limit stormwater runoff and reduce potential impacts. Cratering from ground detonations would tend to retain water and further reduce runoff. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion and comparable long-term erosion would be expected on expected these small munitions impact areas. Because the munitions impact areas would be predominantly on level ground, because historical use of munitions impact areas has not tended to develop erosion problems in highly erodible soils, and because the area of potential impacts would be relatively small, impacts to highly erodible soils from proposed activity C003-a would be expected to be minor.

Proposed activity C003-b would establish a 62-ac small arms impact area on the JERC II Range that would include 52.52 ac of highly erodible Cristobal-Gunsight complex soils. C003-b would be on generally level ground, which would limit stormwater runoff and promote infiltration. In this impact area, rounds would be fired into catchboxes rather than into the landscape. Because of the small size of the munitions impact area and because catchboxes would be used, impacts to highly erodible soils would be expected to be negligible.

Proposed activity C003-c would establish a 50-ac small arms impact area on the JERC III Range that would include 34.77 ac of highly erodible Cristobal-Gunsight complex soils. C003-c would be in an area with substantial topographic relief where the potential for impacts of stormwater runoff on highly erodible soils would likely be greater due to increased runoff velocities and potential for scouring. However, in this impact area, rounds would be fired into catchboxes rather than into the landscape. Because of the small size of the munitions impact area and because catchboxes would be used, the steeper topography would not be expected to result in increased indirect impacts from stormwater runoff and impacts to highly erodible soils would be expected to be negligible.

Proposed activity C009 would create a 275-ac munitions impact area that would be entirely on highly erodible Gilman-Harqua-Glenbar complex soils. C009 would be in an area that is mostly level, which would promote infiltration and reduce runoff potential. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, and long-term impacts to highly erodible soils would be expected to be comparable to those seen on

existing munitions impact areas. Because historical use of munitions impact areas has not tended to develop erosion problems in highly erodible soils, and because the area of potential impacts would be relatively small, impacts to highly erodible soils from proposed activity C009 would be expected to be minor.

Proposed activity C011 would create a 395-ac munitions impact area on highly erodible soils that would include 202.99 ac of Cristobal-Gunsight complex soils and 192.01 ac of Gilman-Harqua-Glenbar complex soils. C011 would be in an area that is mostly level, which would promote infiltration and reduce runoff potential. Large parts of the northern portion of the area have been cleared of vegetation as a result of unrelated activities. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, and long-term impacts to highly erodible soils would be expected to be comparable to those seen on existing munitions impact areas. The proposed munitions impact area is relatively small and on level ground, and the area was already disturbed. Therefore, impacts to highly erodible soils from the proposed activity C011 would be expected to be minor.

Proposed activity C053 would create a 1,510-ac munitions impact area that would include 493.18 ac of highly erodible Cristobal-Gunsight complex soils, approximately one-third of the site. Portions of the munitions impact area would be in areas with greater topographic relief and the potential for stormwater runoff to erode sensitive soils would be greater in those areas. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep terrain compared to existing munitions impact areas and greater impacts would be possible. Due to the topographic relief and the size of the proposed munitions impact area, impacts to highly erodible soils would be expected to be minor to moderate.

Proposed activity C056 would create a 3,823-ac munitions impact area that would include 2,854.78 ac of highly erodible Cristobal-Gunsight complex soils. Approximately 25 percent of the munitions impact area would not contain highly erodible soils. Portions of the proposed munitions impact area have been disturbed from unrelated previous activities and there are several trails and roads through the area. Portions of the area have greater topographic relief and the potential for stormwater runoff to erode sensitive soils would be greater in those areas. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep terrain compared to existing munitions impact areas and greater impacts would be possible. Due to the topographic relief and the size of the proposed munitions impact area, impacts to highly erodible soils would be expected to be minor to moderate.

Proposed activity C057 would create a 2,127-ac munitions impact area that would include 1,251.27 ac (approximately 60 percent) of the highly erodible Cristobal-Gunsight complex soils. Very little disturbance has occurred in the area, limited to a few established roads and off-road trails. Portions of the area have greater topographic relief and the potential for stormwater runoff to erode sensitive soils would be greater in those areas. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep

terrain compared to existing munitions impact areas and greater impacts would be possible. Due to the topographic relief and the size of the proposed munitions impact area, impacts to highly erodible soils would be expected to be minor to moderate.

Proposed activity C058 would create a 2,452-ac munitions impact area that would contain 1,772.79 ac (approximately 72 percent) of Cristobal-Gunsight complex soils. Substantial soil disturbance and extensive vegetation removal have occurred within the area from unrelated previous activities, including clearing and grading of a 45-ac rectangular area. The proposed munitions impact area is generally flat, but includes small areas with greater topographic relief where the potential for stormwater runoff to erode sensitive soils would be greater. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep terrain compared to existing munitions impact areas and greater impacts would be possible. Due to the topographic relief and the size of the proposed munitions impact area, impacts to highly erodible soils would be expected to be minor to moderate.

Proposed activity C059 would create a 2,531-ac munitions impact area with 1,071.22 ac (approximately 42 percent) of Cristobal-Gunsight complex soils. The area is mostly undisturbed, but has scattered, very small highly used areas plus several established roads and trails. The area where highly erodible soils occur is generally flat, but includes small areas with greater topographic relief where the potential for stormwater runoff to erode sensitive soils would be greater. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep terrain compared to existing munitions impact areas and greater impacts would be possible. Due to the topographic relief and the size of the proposed munitions impact area, impacts to highly erodible soils would be expected to be minor to moderate.

Proposed activity C065-b would impact up to 6.8 ac of Cristobal-Gunsight complex soils and the remaining 3.1 ac lack highly erodible soils. The area includes two roads. There is considerable topographic relief that would have a greater potential for erosion impacts from stormwater runoff. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep terrain compared to existing munitions impact areas and greater impacts would be possible. While the topography would tend to result in greater erosion impacts to highly erodible soils, due to the very small size of the proposed munitions impact area and the small acreage of highly erodible soils, any impacts to highly erodible soils would be minor.

Under the Preferred Alternative, proposed activity K003 would create a 21,377-ac munitions impact area that would include 6,466.02 ac of Cristobal-Gunsight complex soils, 8,284.63 ac of Gilman-Harqua-Glenbar complex soils, and 3,249.17 ac of Tucson-Tremant-Antho complex soils. Only 3,377.18 ac (approximately 16 percent) of the proposed munitions impact area does not contain highly erodible soils. The area is mostly undisturbed, though there are some roads within the proposed boundaries that are used for testing and training and small separated areas of development, primarily in the central portion of the proposed munitions impact area. The

area is mostly level, but there are areas with greater topographic relief in the western and eastern portions of K003 that could result in an increased potential for erosion from stormwater runoff. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep terrain compared to existing munitions impact areas and greater impacts would be possible. Due to the topographic relief and the size of the proposed munitions impact area, impacts to highly erodible soils would be expected to be minor to moderate. As proposed, the munitions impact area would include an additional 2,204.1 ac of highly erodible soils. The potential for impacts to highly erodible soils would be greater for the originally proposed munitions impact area compared to the smaller area selected for implementation under the Preferred Alternative.

Proposed activity K008 would create a munitions impact area that would include 342.11 ac of Cristobal-Gunsight complex soils, less than 10 percent of the proposed impact area. Most of the proposed munitions impact area would be within a mountainous area that lacks highly erodible soils. The highly erodible soils would be limited to areas between mountains, which have varying amounts of topographic relief. In steeper areas with highly erodible soils, there would be an increased potential for erosion from stormwater runoff and scour. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion, but the topography of this proposed munitions impact area would include a greater amount of steep terrain compared to existing munitions impact areas and greater impacts would be possible. Due to the topographic relief and the size of the proposed munitions impact area, impacts to highly erodible soils would be expected to be minor to moderate.

Proposed activity K010 would create a munitions impact area that would include 660.8 ac of Cristobal-Gunsight complex soils with 319.2 ac of soils that are not highly erodible. The central portion of the proposed munitions impact area has been significantly disturbed from previous development and military activities. The remaining area is mostly undisturbed and generally flat where runoff would be minimal, but there are areas with topographic relief that could have greater stormwater runoff. Cratering from ground detonations would tend to retain water and reduce runoff potential. Existing munitions impact areas on YPG that contain highly erodible soils have not exhibited significant erosion and comparable long-term erosion would be expected in this munitions impact area. Because the munitions impact area would be predominantly on level ground, because historical use of munitions impact areas has not tended to develop erosion problems in highly erodible soils, and because the area of potential erosion would be relatively small, impacts to highly erodible soils from proposed activity K010 would be expected to be minor to moderate.

Proposed activity K024-a would not impact highly erodible soils, but the access road to reach the cable drop site (K024-b) would impact 0.91 ac of Cristobal-Gunsight complex soils. Construction-related impacts to these soils would be minor due to the small area involved. No more than negligible erosion impacts to highly erodible soils would be expected from operations on the road.

The proposed new and expanded munitions impact areas would create additional areas for munitions firing, which could provide long-term benefits to highly erodible soils. The increase in the number of areas where munitions could be fired would likely lead to less intense use of

any one area, which would allow more extensive vegetation cover and less scour from stormwater runoff.

7.2.7 Threatened or Endangered Species and Species of Concern

Proposed new munitions impact areas would not have impacts on the desert rosy boa or the Mojave fringe-toed lizard. YPG lacks quality potentially suitable habitat for the desert rosy boa due to the lack of intermittent or permanent streams with associated riparian areas. The poor to marginal potentially suitable habitat that does occur on YPG is not within or adjacent to any proposed activities associated with establishment or expansion of munitions impact areas. The Mohave fringe-toed lizard occurs on YPG only in sand dune habitat in the northwestern portion of the Cibola Region. This area would not be impacted by any proposed munitions impact areas. Because there would be no potential for impacts to these species or their habitats, they are not further discussed. As noted under small construction activities, potential impacts to the Nichol Turk's head are not addressed because the species would not occur on YPG.

Proposed establishment or expansion of munitions impact areas would not cause the loss of any water tanks that are used by TES species. Because these water tanks would be unaffected by munitions impact areas, there would be no induced behavioral changes in TES species using water tanks.

Proposed new or expanded munitions impact areas C003-a, C003-b, C003-c, C006, C009, C011, C065-a, C065-b, C065-c, and C065-d would be within areas identified as primary Sonoran desert tortoise habitat. Proposed activities C003-a, C003-b, and C003-c would establish small arms impact areas in the JERC areas. Proposed munitions impact areas C006, C009, C011, C065-a, C065-b, C065-d, and C065-d would be for inert and explosive munitions. In C003-a, C003-b, and C003-c, rounds would be fired into catchboxes rather than into the landscape, and no impacts to potential desert tortoise habitat would result. No indirect impacts to the Sonoran desert tortoise would result because there would be no change in habitat conditions. Use of catchboxes at C003-a, C003-b, and C003-c for fired rounds also would prevent direct injury or mortality, as no rounds would be fired into open desert where tortoise may occur. Any impacts to Sonoran desert tortoise at C003-a, C003-b, and C003-c would be limited to avoidance of areas of human activity. Any impacts from use of these small arms munitions impact areas would be expected to be negligible because the frequency of testing and training events would be within the range of historical activity on the JERC ranges. Impacts to Sonoran desert tortoise at proposed munitions impact areas C006, C009, C011, C065-a, C065-b, C065-d, and C065-d could include indirect impacts from habitat degradation from detonation of explosive rounds and direct injury or mortality from inert or explosive rounds fired into these munitions impact areas. Sonoran desert tortoise are known to occur in areas that are or have been used for munitions impacts and the area affected by munitions impacts within a munitions impact area is generally relatively small compared to the area of the safety fans within the munitions impact area. Therefore, any impacts to Sonoran desert tortoise habitat from use of new or expanded munitions impact areas would be expected to be negligible to minor. Because Sonoran desert tortoise are uncommon and because the area affected by detonations within a munitions impact area is generally relatively small compared to the area of the safety fans within the munitions impact area, direct injury and incidental mortality of Sonoran desert tortoise would be expected to be very rare occurrences. Firing into munitions impact areas C006, C009, C011, C065-a, C065-b, C065-d, and C065-d would not cause the Sonoran desert tortoise to be extirpated from YPG and any impacts would be minor to moderate. Should the Sonoran desert tortoise be listed

under the ESA, activities proposed in areas where the tortoise may occur on YPG would be re-evaluated with regard to potential impacts and appropriate consultation with the USFWS would be conducted prior to any land-disturbing activities.

Sonoran pronghorn have not been observed west of US 95. No impacts to this species from proposed new munitions impact areas in the Cibola Region, all of which would be west of US 95, would be expected.

Expansion of munitions impact areas K003 (24,309 ac proposed, 21,377 ac selected under Preferred Alternative), K008 (4,467 ac), and K010 (980 ac) would be near or within King Valley and the Kofa NWR, where Sonoran pronghorn may occur. The potential for noise impacts to Sonoran pronghorn, including those on the Kofa NWR, was discussed in Section 7.2.4. This discussion focuses on the potential for direct impacts from munitions firing and indirect impacts as a result of habitat loss or degradation.

Direct impacts to Sonoran pronghorn would include injury or direct mortality as a result of firing into new or expanded munitions impact areas and also includes the same impacts outside of designated new or expanded munitions impact areas as a result of overshoots and stray rounds. Detonations from military munitions also may enhance pronghorn habitat by creating depressions that retain water and that exhibit greater vegetation growth. Because Sonoran desert pronghorn numbers are low and because the animals have been documented crossing existing munitions impact areas without injury, it is expected that any occurrence of direct injury or mortality would be very rare.

Wildfire that ignites from detonation in the new or expanded munitions impact areas that would be established by proposed activities K003, K008, or K010 could affect Sonoran pronghorn through direct mortality or indirectly through short-term loss of forage habitat and greater exposure to predation from loss of cover if such fires escape and expand to cover an appreciable acreage. The incidence of such fires is low (only one major wildfire on the Kofa Range in the past 50 years) and Sonoran pronghorn densities are low; therefore, the potential for direct or indirect impacts from wildfire ignition from firing into new or expanded munitions impact areas K003, K008, and K010 is minor.

The noise of munitions detonations and wildfires that result from munitions detonation in new or expanded munitions impact areas K003, K008, and K010 could have indirect impacts to Sonoran pronghorn on the Kofa NWR. Potential noise impacts were discussed in Section 7.2.4. The potential impacts from wildfire would be the same as discussed for the Sonoran pronghorn on YPG. Any impacts would be expected to be minor.

The USFWS issued a BO regarding activities that may affect the Sonoran pronghorn on Kofa NWR that included three Reasonable and Prudent Measures with implementing Terms and Conditions that YPG will comply with:

1. To comply with Reasonable and Prudent Measure Number 1: YPG shall monitor environmental conditions on the Kofa Range, including weather patterns (e.g., temperature, precipitation, humidity) and status of fuels (e.g., distribution and density of annual vegetation or any other vegetation that is capable of carrying fire across the landscape).
2. To comply with Reasonable and Prudent Measure Number 2a and 2b: YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire department with wildland firefighting

capabilities. Additionally, YPG shall, subject to availability of funds and where compatible with the military mission (as determined by the Senior Commander), continue to maintain a fire station on the KFR to provide rapid response on the Kofa Range in the event of fire. If the fire department and/or fire station are discontinued at any time in the future, YPG shall notify USFWS-AESO and Kofa NWR, and this Term and Condition may need to be re-evaluated.
Should YPG detect exceptional fuel conditions that are conducive to carrying fire, then YPG shall increase fire readiness by (1) providing additional fire briefings to test officers to stress the importance of initial fire spotting and early notification, and (2) subject to availability of funds, maintaining fire break infrastructure where such infrastructure is compatible with the military mission (as determined by the Senior Commander) and pronghorn conservation (as determined through coordination with Kofa NWR and USFWS-AESO) and is anticipated to reduce the risk of fire spreading to Kofa NWR (as determined by local firefighting agencies).

3. YPG shall report any fires that occur in the King Valley of Kofa NWR as a result of activities carried out or authorized by YPG to USFWS-AESO and Kofa NWR as soon as possible. The report (can be in the form of an email) will, at a minimum, include the date(s), acreage, and location(s) of the fire(s), as well as the number of pronghorn in the vicinity of the fire, if known. YPG shall also immediately notify Kofa NWR once aware that a fire has encroached or may encroach onto the refuge.

Conservation measures that are included in the Proposed Action that would be implemented by YPG include:

- Implement the 2014 Final Incident Response Protocol for Sonoran Pronghorn, which includes: (a) notifying USFWS and other appropriate parties as outlined in the protocol as soon as possible if Sonoran pronghorn are observed on YPG that are injured, sick or dead; and (b) coordinating range access for USFWS and AZGFD as appropriate for capture of sick or injured pronghorn as well as recovery of dead individuals if necessary. Coordination will involve adherence to range safety and security procedures.
- Avoid placing activities in proximity to artificial water sources (suitable for Sonoran pronghorn) to the extent that such action is consistent with the military mission.
- YPG will adhere to the terms of the MOU between the Kofa NWR, Imperial NWR, BLM, and YPG which provides procedures and guidance for cooperation and collaboration on wildland fire issues. This includes notifying interagency dispatch of any wildfire on YPG lands.

New or expanded munitions impact areas would be in potentially suitable habitat for the banded Gila monster. Indirect impacts to the banded Gila monster from habitat loss would be negligible to minor, as expansion or creation of munitions impact areas would not result in vegetation clearing and the area where vegetation could be altered by munitions explosions would be relatively small compared to the total area of the new or expanded munitions impact areas. Direct impacts resulting from injury or incidental mortality related to firing into the new or expanded munitions impact areas would be expected to be negligible to minor due to the low probability of occurrence.

Minor impacts to the loggerhead shrike would be possible from firing of explosive munitions. However, because munitions would be fired at specific target zones within a munitions impact

area and because of the widely scattered occurrences of the loggerhead shrike, there is a very low probability of direct impacts to the species within a given detonation area. Direct impacts would be expected to be negligible to minor. Indirect impacts could result from loss of habitat or from accumulation of MCOCs or metals in soils that could transfer through the insect prey base to the shrike. Potential foraging and nesting habitat for the loggerhead shrike could be reduced through firing into new or expanded munitions impact areas. The potential for indirect impacts to the loggerhead shrike as a result of habitat loss from firing into new or expanded munitions impact areas would be expected to be negligible to minor, because no vegetation clearing would occur to establish new or expanded munitions impact areas, because of the low density of loggerhead shrike on YPG, and because of the relatively small area within a munitions impact area where detonations would actually occur. New and expanded munitions impact areas would be added to the regular range assessments conducted under DoDI 4715.14. Should accumulation of MCOCs be indicated, YPG would implement appropriate measures to protect human health and the environment.

Proposed new or expanded munitions impact areas would include areas where the western burrowing owl may occur. There would be no impacts to the grasslands around the lower Colorado and Gila Rivers, which provide large areas of preferred habitat for the western burrowing owl, and any habitat alteration as a result of firing into new or expanded munitions impact areas on YPG would be expected to be minimal. Indirect impacts to the western burrowing owl as a result of habitat loss or degradation would be negligible to minor.

Bat species of concern, including the California leaf-nosed bat, the cave myotis, and the pocketed free-tailed bat, may forage and roost on YPG. These species roost in caves and mines, which would not be impacted by establishment and operation of the proposed new or expanded munitions impact areas. There would be no indirect impacts to these bat species through loss or degradation of roosting habitat. The western yellow bat and the spotted bat may occur as transients or migrants on YPG, but would not roost on the installation. Because bat roosting would not occur in the areas proposed for new or expanded munitions impact areas, no direct impacts to bats would be expected from testing and training activities on the new or expanded munitions impact areas. Potential foraging habitat for these five bat species could be degraded by disturbance associated with ground-burst explosive munitions firing. Because the amount of degradation would be minor relative to the total foraging habitat available on YPG and the surrounding lands, any indirect impacts to bats from loss of foraging habitat would be minor.

Past and ongoing munitions testing and training on YPG do not appear to have negatively impacted wild horse and burro populations. These animals are very mobile and able to relocate from areas where disturbance occurs. These species use habitat throughout YPG and it is unlikely that use of new or expanded munitions impact areas would have other than negligible to minor impacts to wild horses and burros.

Proposed activity K003, as proposed, would extend a munitions impact area to the southern and eastern boundaries of the Kofa NWR in the general vicinity of SWTR. Parish's onion could occur near those refuge boundaries. Firing into this munitions impact area could impact populations of Parish's onion, if they occur there. However, firing into this munitions impact area would not be aimed near the boundary and only errant rounds would have the potential for landing in this area. Any impacts from errant rounds would be negligible to minor, as the probability of an errant round striking an occurrence of Parish's onion would be very small.

Indirect impacts could result from accumulation of MCOCs or metals in soils as a result of long-term use of new or expanded munitions impact areas. The K003 munitions impact area would be added to the regular range assessments conducted under DoDI 4715.14. Should accumulation of MCOCs be indicated, YPG would implement appropriate measures to protect human health and the environment. Under the Preferred Alternative, the munitions impact area would be 1 km (0.62 mile) from the southern boundary of Kofa NWR and 500 meters from the eastern boundary of the refuge. With this separation from the refuge boundary, no impacts to Parish's onion would be expected from firing into this munitions impact area under the Preferred Alternative.

Other plant species of concern, including the desert barrel cactus, straw-top cholla, saguaro cactus, and ocotillo, occur scattered throughout YPG. These species likely occur in small numbers in proposed new or expanded munitions impact areas, as they are known to occur as scattered individuals in existing munitions impact areas and other portions of YPG. Minor impacts would be possible from firing of explosive munitions. However, because these munitions would be fired at specific target zones within a munitions impact area and considering the widely scattered nature of occurrences of these plant species, there is a very low probability of any plant species of concern being within a given detonation area. Any direct impacts would be expected to be negligible to minor. Indirect impacts could result from accumulation of MCOCs or metals in soils as a result of long-term use of new or expanded munitions impact areas. New and expanded munitions impact areas would be added to the regular range assessments conducted under DoDI 4715.14. Should accumulation of MCOCs be indicated, YPG would implement appropriate measures to protect human health and the environment.

7.2.8 Vegetation

The potential for establishment and operation of new or expanded munitions impact areas to affect vegetation through changes in wildfire frequency or intensity was discussed in Section 7.2.1 and is not further discussed here.

Proposed new and expanded munitions impact areas could impact up to 43,124 ac on YPG. Of this total, approximately 42,874 ac would receive both inert and explosive fire and approximately 250 ac at JERC I, II, and III would be for inert fire only. There would be no direct impacts to vegetation in these areas from creation of the munitions impact areas.

Operation of new or expanded munitions impact areas would have potential for direct and indirect impacts to vegetation due to testing and training activities that would include firing into these areas. Munitions impact areas that receive only inert fire would be less impacted, as direct impacts to vegetation would be negligible. Direct impact to vegetation would result from detonations from explosive fire that physically eliminate vegetation from the blast area. Aerial detonations would not have direct impacts to vegetation.

Potential indirect impacts to vegetation could result from changes to soil chemistry associated with accumulation of lead or other metals from inert fire or accumulation of MCOCs from explosive fire. There could be potential for long-term indirect changes to vegetation as a result of altered growing conditions. New and expanded munitions impact areas would be added to the regular range assessments conducted under DoDI 4715.14. Should accumulation of MCOCs be indicated, YPG would implement appropriate measures to protect human health and the

environment. Implementation of the YPG ITAM program would help to maintain desert vegetation in areas used for training activities.

7.2.9 Visual Resources

Because none of the proposed new or expanded munitions impact areas have unique visual resource characteristics, the potential impacts to visual resources are discussed in aggregate rather than for individual proposed activities. No construction would be associated with establishment of new or expanded munitions impact areas. As a result, there would be no impacts to visual resources from establishment of new or expanded munitions impact areas.

There would be scattered landscape disturbance from munitions impacts and some additional disturbance as a result of UXO removal. However, the disturbance would be away from potential public viewers. Because there would be no public viewers, use of new or expanded munitions impact areas would not be considered an impact to visual resources.

The construction of a proposed aerial cable drop at the Preferred Alternative location in either the Kofa Region (K024-a/b) or the Cibola Region (C066-a/b) would be in remote areas with very little public access. There would be permanent minor negative impacts to the visible landscape.

7.2.10 Water Resources

None of the proposed new or expanded munitions impact areas would be used for munitions with depleted uranium. As such, there are no proposed new or expanded munitions impact areas that would have unique characteristics. Therefore, the discussion of potential impacts is limited to a general discussion that applies to all proposed new or expanded munitions impact areas.

Establishment and operation of new or expanded munitions impact areas would not have direct impacts to groundwater resources. However, all new or expanded munitions impact areas would have the potential for MCOCs from misfires, incomplete detonations, and dud rounds to cause indirect impacts to groundwater if migration through the soil column occurs. New or expanded munitions impact areas would be regularly checked for UXO, which could remain following testing or training events. Any such items would be removed or detonated in place with donor explosives, which would reduce the potential for migration of MCOCs through the soil column. New and expanded munitions impact areas would be added to the regular range assessments conducted under DoDI 4715.14. Should migration of MCOCs from any of the new or expanded munitions impact areas be indicated, YPG would implement appropriate measures to protect human health and the environment.

No direct impacts to surface water resources would result from establishment of new munitions impact areas, as no surface waters are within the boundaries of the proposed munitions impact areas. No impervious surfaces would be created from establishment and operation of munitions impact areas and there would be no change to stormwater runoff. Therefore, no indirect impacts to surface waters from increased rates or volumes of stormwater runoff would occur.

Indirect impacts to surface waters could result should migration of MCOCs from new or expanded munitions impact areas occur. New or expanded munitions impact areas would be regularly checked for UXO, which could remain following testing or training events. Any such items would be removed or detonated in place with donor explosives, which would reduce the potential for migration of MCOCs to offsite surface water resources. New and expanded

munitions impact areas would be added to the regular range assessments conducted under DoDI 4715.14. Should migration of MCOCs from any of the new or expanded munitions impact areas be indicated, YPG would implement appropriate measures to protect human health and the environment.

7.2.11 Wildlife

The potential impacts to wildlife from noise as a result of firing into new or expanded munitions impact areas was discussed in Section 7.2.4.

Proposed activities C003-a, C003-b, and C003-c would establish small arms impact areas in the JERC areas that would use catchboxes for fired rounds. No impacts to wildlife, other than temporary displacement during testing and training activities, would occur in these proposed munitions impact areas. Because testing and training already are conducted in these three areas, any impacts to wildlife from firing into these munitions impact areas would be expected to be negligible.

The other proposed new or expanded munitions impact areas could impact wildlife habitat on up to approximately 16,059 ac on YPG. However, the area affected by munitions firing within a munitions impact area is relatively small compared to the size of the munitions impact area due to including safety fans within the impact area to minimize the potential for stray rounds landing outside the designated impact area. No loss of any habitat types would result, and any indirect impacts to wildlife species on YPG from loss or degradation of habitat would be negligible.

Munitions impact areas may enhance habitat value for some species by creating depressions that retain water and that have greater growth of young vegetation. Although there is potential for direct injury and mortality from fired munitions, wildlife densities are low on YPG, so any injury or incidental mortality would be uncommon. No loss of species from YPG would result, and any impacts from injury or incidental mortality would be minor.

Proposed new or expanded munitions impact areas would not cause the loss of any water tanks that are used by wildlife species. Because these water tanks would be unaffected by munitions impact areas, there would be no induced behavioral changes in animal species using water tanks.

8.0 Transportation Activities

The activities in this category include projects that would construct new roads, alter existing roads, or directly affect normal traffic flow on YPG.

8.1 Activity Description

L002-a: L002 would construct an extension of Runway 18/36 at LAAF and realign Barranca Road to accommodate the runway extension (2,000-ft runway extension 2.75 ac, realignment of Barranca Road 3.37 ac, and utilities 12,500 ft^2).

L008-a: L008-a would construct an access control point (ACP) (19,500 ft^2) at CDH.

L011-a: L011-a would construct a tracked vehicle trail (45,000 ft^2) at YTC to allow movement of tracked vehicles to and from service areas within YTC.

L012-d: L012-d would construct ACP improvements (15,500 ft^2) at MAA.

L023-a: L023-a would improve the ACP at the Kofa cantonment (19,500 ft²).

L025-a: L025-a would construct Aberdeen Road flood upgrades (0.5 mile).

L025-b: L025-b would construct range road improvements (31.5 miles).

C027-b: L027-b would construct a road (34,850 ft²) leading from the sensor building on the top of the hill at Site 12A to the Persistent Threat Detection System Site.

8.2 Potential Impacts

Specific discussions of impacts to threatened or endangered species and species of concern and wildlife are not provided. All proposed transportation activities would occur in previously disturbed areas, where frequent human traffic discourages the presence of wildlife and TES species. There are no proposed activities in this category with unique impacts to these resources and no mitigation is required for impacts to these resources. The discussion of these resources provided in the body of the FPEIS adequately describes the potential for impacts to these resources from implementation of proposed transportation activities.

8.2.1 Air Quality

There would be minor temporary emissions from construction equipment and potential for fugitive dust during construction of transportation activities. YPG would encourage use of BMPs during construction to reduce or eliminate fugitive dust emissions. In areas with disturbed and unstable highly erodible soils, BMPs would also be applied when practicable during military operations. BMPs that could be implemented include the following:

- *Application of Dust Suppressants.* Where appropriate, dust suppressants or liquid surfactants would be applied to areas where dust could be disturbed by construction or traffic.
- *Sprinkling/Irrigation*. Sprinkling the ground surface with water until it is moist can be used to control dust on haul roads and other traffic routes. This practice can be applied to almost any site. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways, which ultimately could increase the dust problem. Mechanical removal of mud from tires would be implemented if necessary.
- *Vegetative Cover*. In areas not expected to accommodate vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetation provides coverage to surface soils and decreases wind velocity at the ground surface, thus reducing the potential for dust to become airborne.
- *Mulch*. Mulching can be a quick and effective means of dust control for recently disturbed areas.

Two transportation activities (L002, L011-a) are within the portion of the Laguna Region that has been designated a non-attainment area for PM. These two projects were included in the emissions analysis to support the RONA for General Conformity developed for projects in the non-attainment area. The RONA analysis determined that the two transportation activities, when combined with six small construction activities analyzed in the RONA, eight small construction activities analyzed programmatically in the FPEIS, one large construction project, a new vehicle test course, an expanded LTA, and a new DZ, would not have a significant effect on air quality in the non-attainment area.

The remaining transportation activities that are outside the designated non-attainment area would have disturbance- and emission-generating potential comparable to the range of emissions associated with the transportation activities analyzed in detail for the RONA. No one of the proposed small construction activities would have more than minor, temporary adverse impacts to air quality.

8.2.2 Energy/Utilities

Proposed activity L002 is the only proposed transportation activity that would result in impacts to utilities. It would be necessary to relocate utility lines to accommodate the extension of Runway 18/36 at LAAF and the realignment of Barranca Road. Approximately 12,500 ft^2 of existing utilities would be relocated. This would be a minor temporary impact on utilities on YPG.

The remaining proposed transportation activities would not affect nearby utilities, and there would be no additional utility impacts from proposed transportation activities.

8.2.3 Fire Management

Construction activities would create temporary potential ignition sources that could lead to wildfires. Fires that start in construction areas would be suppressed, and the potential for spread beyond the immediate area would be very low. The potential for ignition sources during construction would be temporary, and no long-term negative impacts to fire management would result from implementing the transportation activities.

Proposed activity L025-a would construct improvements to the Aberdeen Road crossing at Castle Dome Wash to improve access to the Kofa cantonment and Firing Front Road, which would improve the ability to respond to fires in these areas.

Proposed activity L025-b would implement improvements and maintenance along 31.5 miles of range roads, which would be a long-term benefit to fire management as these road improvements would improve down-range access for response to wildfire in areas where safety constraints associated with UXO do not preclude control efforts.

Wildfires that ignite on YPG have the potential to spread beyond the installation boundaries onto adjoining lands. Similarly, fires that begin on adjoining lands could spread onto YPG. YPG has developed an MOU with the USFWS and BLM that establishes guidance for cooperation and collaboration on wildland fire issues on YPG and the surrounding Federal lands. The MOU recognizes a common goal among the signatories to minimize the impacts of wildland fire on the desert landscape and establishes fire suppression and safety protocols for cooperative efforts to suppress desert wildfires. YPG would continue to cooperate with other Federal agencies per the MOU to combat wildfires in the region.

8.2.4 Hazardous Materials/Hazardous Waste

All proposed activities that would create or improve transportation infrastructure would have potential for impacts from hazardous materials. No more than minor adverse impacts to hazardous materials and hazardous wastes would be expected from construction of transportation activities. Construction of cleared central areas and access would have the potential for stormwater runoff to transport minor quantities of hazardous materials should a spill occur. Standard construction BMPs, discussed in the FPEIS, and procedures in the activity-specific SWPPPs consistent with the Installation SPCCP and ISCP, would be implemented to

minimize the potential for accidental release of hazardous materials to the environment and subsequent offsite transport.

There would be potential for minor spills of POLs from operation of vehicles on new or improved roadways. Should a spill occur, the Installation SPCCP and ISCP would be implemented to minimize the potential for accidental release of hazardous materials to the environment and subsequent offsite transport.

Proposed activity L025-b would provide indirect benefits to hazardous materials. This project would improve 31.5 miles of range roads, which would improve operating conditions for vehicles and equipment using these roads and reduce the potential for accidents and associated releases of POLs.

8.2.5 Land Use

Land use impacts from proposed transportation activities would be minor and separated in time and space. Impacts of specific projects are discussed below.

L002 would construct an extension of Runway 18/36 at LAAF and realign Barranca Road to accommodate the runway extension. Approximately 6.25 ac of land would be impacted by the work, with much of this land converted from desert scrub vegetation to managed airfield/roadway and associated support grounds. These areas would be precluded from other land uses.

C027-b would construct a new road from the sensor building on the top of the hill at Site 12A to the Persistent Threat Detection System Site. Approximately 0.8 ac of land would be converted from desert scrub to roadway and precluded from other land uses.

L011-a would construct a new tracked vehicle trail at YTC that would convert approximately 1.05 ac of open land to a transportation use. This land would be precluded from other land uses.

L008-a, L012-d, and L023-a would construct new ACPs at CDH, MAA, and the Kofa cantonment. These projects would have minor impacts on land use because they would be within and immediately adjacent to existing transportation infrastructure. There would be minor permanent encroachment onto lands outside the existing transportation corridor that would preclude using these areas for other land uses.

L025-a would construct an improved crossing of Castle Dome Wash on Aberdeen Road to improve access to the Kofa cantonment and KFR during and following major precipitation events. No impacts to land use would be expected as no permanent impacts outside the existing transportation corridor would result.

L025-b would implement range road improvements along 31.5 miles of existing roads. This project would have no impact to land use as the work would be confined to the existing transportation corridor.

8.2.6 Noise

Noise impacts associated with proposed transportation activities would be limited to temporary impacts from construction activities. None of the proposed transportation activities would introduce new operational noise to an area. Construction-related noise would be spread over several years as separate transportation activities are implemented. Transportation activities also would be spread spatially across YPG. Construction noise resulting from implementing transportation activities would not be expected to affect off-post sensitive receptors.

Construction workers would be required to wear appropriate hearing protection, and YPG employees would be instructed on proper safety procedures in and around construction sites.

8.2.7 Safety

Construction of proposed transportation activities would create short-term increased safety risks to workers. During construction, workers would have the potential for accidents as a result of routine job exposure to heavy equipment and construction debris. Construction workers also would be exposed to elevated noise levels from heavy equipment and construction activities. Potential safety issues related to construction noise are further discussed in Section 3.11 of the FPEIS. Workers would use appropriate protection and comply with appropriate safety standards. Any potential safety impacts from construction would be minor.

Construction-related traffic and traffic disruptions from certain proposed transportation activities (L008-a, L012-d, L023-a, L025-a, L025-b) could result in minor short-term increases in traffic-safety risk. Appropriate traffic controls, including detours or flaggers, would be implemented as required to minimize the potential for safety risks. Any impacts would be minor.

Construction of proposed transportation activity L002 would require that construction workers access LAAF and work in the clear zones of LAAF. Work would be coordinated with Flight Operations to minimize safety risks associated with work on and adjacent to an active airfield.

Construction of proposed transportation activities L025-b and C025-b would require that construction workers access restricted portions of the Cibola and Kofa Regions. All movement to and from these sites would be coordinated through Range Control to avoid conflicts with munitions testing. Helicopters would be used to evacuate injured workers should immediate care be required. Because of the coordination with Range Control and the availability of helicopter evacuation, no adverse safety impacts would be expected from implementing transportation activities in these remote restricted areas in the Cibola and Kofa Regions.

8.2.8 Soils

Proposed transportation activities would involve soil disturbance during site preparation and during construction activities. Soils on YPG are of two broad types: highly erodible and not highly erodible. The FPEIS (Section 3.15.2.3) provides an adequate analysis of impacts to soils that are not highly erodible and this analysis focuses on potential impacts to highly erodible soils as a result of proposed transportation activities. There are four highly erodible soils complexes on YPG, as discussed in the FPEIS.

Proposed transportation activity L012 would not impact highly erodible soils because no highly erodible soils occur in the proposed construction area for this activity. All other proposed transportation activities would have the potential to impact highly erodible soils.

Where soils that are susceptible to wind erosion are disturbed, there would be potential to create dust and contribute to PM_{10} that could affect air quality. Potential air quality impacts were discussed in Section 8.2.1.

Highly erodible soils occurring within transportation activity areas are more susceptible to erosion when disturbed. Impacts to highly erodible soils would mainly occur during construction of proposed transportation activities. During construction, appropriate BMPs, as discussed in Section 3.2.5 for small construction activities, would be used to stabilize disturbed soils and would minimize the potential for soil erosion impacts from stormwater runoff and

wind erosion. Construction BMPs would comply with the 2005 Arizona Department of Transportation *Erosion and Pollution Control Manual*.

Proposed transportation activity L002-a, which would expand the LAAF runway and realign Barranca Road, would exceed 5 ac, so an Arizona Department of Environmental Quality construction stormwater permit through the Arizona Pollutant Discharge Elimination System would be required. A Construction SWPPP would be developed and implemented to stabilize disturbed soils and minimize the potential for indirect impacts to water resources.

Proposed transportation activities L011-a and L025-a would result in disturbance to more than 1 ac, but less than 5 ac, of soils and the remaining proposed transportation activities would disturb less than 1 ac. Each of these activities would require an Arizona Department of Environmental Quality construction general stormwater permit for stormwater discharges from construction activities. Because these activities would disturb less than 5 ac and would be more than 0.25 mile from impaired or outstanding Arizona waters, they may qualify for waiver options if they have an erosivity value of less than 5, as calculated by the Arizona Smart Notice of Intent System. Proposed transportation activities that meet the waiver requirements would be required to comply with the conditions of the Arizona Pollutant Discharge Elimination System permit. Regardless of size or proximity to impaired or outstanding Arizona waters, proposed transportation activities would include implementation of construction BMPs. If a construction general stormwater permit is required, standard construction BMPs would be coupled with implementation of a Construction SWPPP to stabilize disturbed soils and minimize the potential for indirect impacts to water resources.

Once construction is complete, no long-term indirect impacts to soils from scour as a result of stormwater runoff would be expected. The improvements to range roads that would be implemented under proposed transportation activity L025-b would improve roadway drainage and eliminate concentrated runoff that damages downslope soils at present. This activity would have long-term minor benefits to soils by eliminating sources of indirect impacts to soils. Proposed construction activities would be spread out through time and space. With the use of appropriate site-specific construction BMPs, impacts to highly erodible soils would likely be minor.

8.2.9 Traffic/Transportation

Transportation activities would result in minor, short-term impacts to traffic flow on YPG during construction. Proposed activities L008-a (CDH ACP improvements) and L023-a (Kofa ACP improvements) would not be expected to cause delays on US 95 due to the distance from the public road, although traffic would likely back up on the YPG roads to these ACPs. Proposed activities L012-d (improve ACP at MAA) and L025-a (flood improvements on Aberdeen Road) could create delays during construction that would cause traffic entering YPG to back up on Imperial Dam Road (L012-d) and US 95 (L025-A) due to delays in processing entrants through the security checkpoints. Any such delays would be expected to be minor. It would be possible to route incoming traffic at the MAA to another ACP, if necessary to minimize back-ups on Imperial Dam Road.

None of the other proposed transportation activities would have the potential to affect traffic outside of YPG boundaries. It may be necessary to establish temporary detours within YPG to minimize impacts during portions of specific construction activities, but any internal traffic impacts during construction would be expected to be minor.

Implementation of the proposed transportation activities would be expected to have long-term benefits to traffic on YPG as a result of improved ACPs, uninterrupted access to the Kofa Region during typical flood events, and separation of tracked vehicle movement from roadways in YTC.

8.2.10 Vegetation

The potential for proposed transportation activities to affect vegetation through changes in wildfire frequency or intensity was discussed in Section 8.2.3 and is not further discussed here.

Proposed activity L025-b would implement improvements along existing roads in the Laguna and Kofa Regions. Because the individual improvements would be very small and would be implemented along existing roads, any impacts to vegetation would be negligible to minor.

Proposed transportation activity L002 would disturb 2.75 ac to construct an extension of Runway 18/36 at LAAF. An additional 3.37 ac would be disturbed to realign Barranca Road to accommodate the runway extension. A portion of this 6.12 ac is already disturbed by Barranca Road and a cleared area at the end of the runway. There would be permanent loss of desert scrub vegetation in the areas that are not disturbed. This loss of vegetation would be minor when compared to the total amount of this vegetation occurring on YPG. During construction, appropriate BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of scour from stormwater runoff. There would be a slight increase in impervious area from the runway extension, but stormwater flow from the extended runway would be handled through the LAAF stormwater management system, which would be expanded to encompass the new runway area. There would be no appreciable change in the impervious area of Barranca Road. No indirect impacts to vegetation from scour associated with stormwater runoff would be expected during operations.

Proposed transportation activities L008-a, L012-d, and L023-a would construct or improve ACPs. Because these would build on existing transportation infrastructure, most of the land that would be disturbed is already paved or landscaped. The greatest impacts to vegetation would be for proposed activity L008 at CDH, where there is no existing ACP and up to 0.45 ac of vegetation would be lost. The loss of native desert scrub vegetation from these three proposed activities would be less than 1 ac and the impacts would be minor. During construction, appropriate BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of scour from stormwater runoff. There would be no appreciable change in impervious area from these three projects. No indirect impacts to vegetation from scour associated with stormwater runoff would be expected during operations.

Construction of a new tracked vehicle trail in YTC (L011-a) would not create any new impervious area, as the trail would not be paved. Approximately 1.1 ac of desert scrub vegetation would be removed to create the trail. Because of the relatively small area of vegetation lost compared to the total area of desert scrub vegetation on YPG, any impacts would be minor. During construction, appropriate BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of scour from stormwater runoff.

Proposed activity C027-b would remove approximately 0.8 ac of desert scrub vegetation to create a new unpaved road. Because of the relatively small area of vegetation lost compared to the total area of desert scrub vegetation on YPG, any impacts would be minor. No new

impervious area would be created and no indirect impacts to desert vegetation from scour associated with stormwater runoff would be expected. During construction, appropriate BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of scour from stormwater runoff.

Proposed flood upgrades at Aberdeen Road (L025-a) could result in clearing of native vegetation to upgrade the existing concrete low water crossing. Any clearing associated with the improved crossing would be minor as much of the area already is impervious due to the low water crossing. If a temporary crossing is needed to maintain traffic flow during construction of the upgrades, there would be long-term impacts to vegetation from clearing for the temporary crossing. During construction, appropriate BMPs would be used to stabilize disturbed soils, which would minimize the potential for indirect impacts to vegetation as a result of scour from stormwater runoff. These long-term impacts would be minor because the amount of vegetation that would be disturbed would be much less than 1 percent of the area of YPG.

Clearing to prepare for construction of transportation activities could be beneficial to vegetation. If a site is dominated by exotic invasive vegetation, such as by saltcedar (*Tamarix* spp. and hybrids) at the low water crossing of Aberdeen Road, clearing would remove the exotic vegetation and would be a minor benefit to desert vegetation.

8.2.11 Visual Resources

Transportation activities would have temporary visual impacts during construction. Once construction is complete, the new or modified transportation infrastructure would blend with the previously existing transportation infrastructure in the area.

Proposed activity L002-a would result in the greatest change to existing transportation infrastructure by extending a runway at LAAF and realigning Barranca Road. However, these changes would be inside the installation boundary and not generally visible from outside the installation. During realignment of Barranca Road, alternate routes would be available to YPG personnel if temporary road closures are necessary.

Proposed activities that would improve ACPs (L008a, L012-d, and L023-a) would generally result in improved visual character as the new ACPs would blend with the general architectural pattern and would be less cluttered than current ACPs.

Proposed activity L011-a would be confined within a cantonment area and would not be visible to outside viewers. The finished tracked vehicle trail would be consistent with the military use of the area for testing and maintenance and would not constitute a visual impact.

Proposed activity L025-a would construct improvements to the Aberdeen Road crossing at Castle Dome Wash to improve access to the Kofa cantonment and KFR during and following precipitation events. No long-term visual impacts to this area would be expected and the improved crossing would be visually consistent with Aberdeen Road.

Proposed activity L025-b, which consists of implementing improvements and maintenance along 31.5 miles of range roads, would have no visual impacts after construction is complete as there would be no changes to road alignments and no new roads created.

Proposed activity C027-b is the only transportation activity that would create a new section of road. However, the road would connect to existing test areas in a remote part of YPG and would not be visible to public viewers.

8.2.12 Water Resources

Construction activities to implement proposed transportation activities would have the potential for indirect impacts to water resources as a result of stormwater runoff transporting minor quantities of sediment or vehicle fluids to receiving waters. Standard construction BMPs, as discussed in the FPEIS, would be implemented to minimize the potential for transport of materials to the offsite surface waters.

Any increase in impervious area as a result of implementing transportation activities would be minimal. Most activities would be implemented in areas where the existing transportation infrastructure already is impervious. Proposed activities L011-a and C027-b would create a new tracked vehicle trail and a new range road, but these roads would be unpaved and would not increase impervious area.

There would be minor short-term impacts to Castle Dome Wash from implementation of proposed activity L025-a. This activity would require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and a Clean Water Act Section 401 Water Quality certification from the Arizona Department of Environmental Quality. YPG would obtain these authorizations once the design is complete prior to construction. YPG and its construction contractor would be required to comply with all conditions of the Section 404 permit and Section 401 Water Quality certification, including implementation of any mitigation that may be specified as a condition of the authorization. This activity would replace or improve the existing concrete low water crossing of Castle Dome Wash between US 95 and the Kofa cantonment. A portion of Castle Dome Wash would be disturbed during construction, resulting in short-term impacts, if a temporary crossing is required to maintain traffic flow. Aberdeen Road is the main access route for the Kofa cantonment and the KFR, and the road must remain passable during construction. Impacts from a temporary crossing would be localized and would end once construction was complete. Long-term impacts could result from construction of improvements to the low water crossing. It is possible that a small portion of the wash would be lost or converted to artificial substrate as a result of the improvements.

This page intentionally left blank.

Appendix D
Quick Look Answers

D-1: Air Quality Quick Look Questions (Section 3.2)

1. Is the installation located completely, or partially, in a designated nonattainment area or maintenance area relative to compliance with national ambient air quality standards NAAQS?

Yes. Section 3.2
A portion of Yuma County is currently in nonattainment (moderate) for the 24-hour NAAQS for PM10. This nonattainment area includes the southwestern corner of Laguna. Data indicate that the entire county has moved into attainment with the 24-hour PM10 standard; however, USEPA has not approved the Arizona Department of Environmental Quality (ADEQ) Yuma County PM10 Maintenance Plan and this area remains classified as nonattainment.

The proposed activities would be implemented in Yuma County. With the exception of 10 proposed activities in the southwestern corner of the Laguna Region, all of the proposed activities would be implemented in an attainment area for all criteria pollutants. The 10 proposed activities in the southwestern corner of the Laguna Region would be implemented in the Yuma County moderate PM10 nonattainment area. The area is currently in attainment for the other criteria pollutants.

A signed Record of Non-Applicability certifying that "All activities associated with the Proposed Action in the nonattainment area would be below the conformity threshold value for PM10" has been prepared for the 10 proposed activities that would be implemented in the PM10 nonattainment area.

2. Will the Proposed Action emit a criteria pollutant and/or hazardous air pollutants during its construction and/or operational phase?

Yes. Sections 3.2 and 3.9
The proposed activities would cause minor, short-term adverse impacts on air quality due to construction. These impacts would not be expected to occur past the construction phase. All construction emissions would likely be local, limited to the duration of the construction, and would not have a lasting impact on ambient air quality. During construction, air quality impacts could occur from dust carried offsite and combustion emissions from construction equipment.

The 10 proposed activities in the PM10 nonattainment area would be below the conformity threshold value for PM10 during both the construction and operating phases.
YPG would require use of BMPs during construction to reduce or eliminate fugitive dust emissions.

2a. Will such emissions exceed "de minimus" standards, as designated in federal or state air quality regulations?

No. Section 3.2

Construction emissions would be short term and are not expected to cause a violation of any applicable NAAQS. Minor permanent sources of air emissions would be created by the proposed activities, including building heating units and water heaters; however, these small sources would result in no more than a "de minimis" impact on air quality

3. Are there any sensitive receptors of air pollutant effects associated with the installation (examples of such receptors include forests, agricultural crops, threatened or endangered plant or animal species, and human beings with breathing difficulties or other respiratory illnesses)?

No. Construction, generator emissions would be localized and away from residential and natural areas; while, mobile sources of emissions would be minor compared to the area vehicle emissions burdens in each air quality region.

4. Are there wide variations in the monthly and/or seasonal patterns of atmospheric dispersion conditions at the installation?

Yes. Section 3.2
During the morning hours, temperature inversions occur at YPG due to topography that contributes to poor air quality. In the summer, wildfires can cause smoky periods that affect both visibility and air quality.

5. Within the last 5 years, has the installation been subject to Notices of Violations (NOVs) or fines relative to Clean Air Act requirements?

No. Section 3.2

6. Are there any concerns that federal and state source-oriented permits may not be up to date, and are there any specified conditions not being met?

No. Section 3.2
YPG is classified as a major source of air contaminants and is required to obtain a Title V permit. Currently, YPG operates under ADEQ Title V permit # 43492, dated June 17, 2010. The permit will expire on June 17, 2015. YPG is required to certify compliance with each term or condition of the Title V permit semiannually and to report air emissions annually to ADEQ.

7. Is additional cumulative effects analysis needed?

No. The Proposed Action has demonstrated general conformity and would not contribute to a violation of NAAQS.

D-2: Airspace Management Quick Look Questions (Section 3.3)

1. Are existing airspace designations (e.g., SUAs, MOAs, MTRs, etc.) previously established for the installation currently subject to overutilization?

No, *there are no current problems with over-utilization of designated airspace areas.*

2. Are there concerns with overcrowding of regional airspace or additional restrictions on existing air corridors?

No, concerns over airspace overcrowding have not been expressed during public scoping meetings.
Section Appendix A - public scoping portion.

3. Are there non-military uses of the current airspace, and are conflicts being articulated?

Yes. Private and commercial flights may obtain permission to use the airspace when it is not in use for military purposes. However, no conflicts are being articulated.
Sections 2.1.1.4 and 3.3.

4. Will the Proposed Action cause a more than marginal increased use of existing airspace?

No. Section 3.3

5. Are future actions by non-military and other military entities expected, and would they cause impacts on airspace resources?

No. Section 3.3

6. Will the Proposed Action require new airspace designations or expansions in existing restricted airspace?

No. None of the alternatives under consideration would alter the structure of airspace compared to the No Action alternative.
Section 3.3

Is additional cumulative effects analysis needed?

No. No significant cumulative impacts would be expected.

D-3: Cultural Resources Quick Look Questions (Section 3.4)

1. Is there an inventory of historic buildings?

Yes. Sections 3.4.1 and 3.4.3.2. YPG ICRMP.

1a. Are the buildings 50 years of age or older?

This question is not answered in the text, but it is not necessary. There are no NRHP-eligible structures on YPG.

1b. Is the building eligible to be on the National Register?

No. Section 3.4.3.2. There are no NRHP-eligible structures on YPG.

1c. Is the building included in a Programmatic Agreement, Memorandum of Agreement (MOA), or Memorandum of Understanding (MOU) that would govern work items (repair, replace, modernize, demolish) in the building?

Not Applicable

1d. Is the building a contributing resource in a National Register-eligible or listed Historic District or Cultural Landscape?

Not Applicable

1e. Is the building a National Historic Landmark or located in a National Historic Landmark District?

Not Applicable

1f. Is the building located near or in the viewshed of a National Register-eligible or listed Historic Property, Historic District, Cultural Landscape, or archeological site?

Not Applicable

1g. Is the building located on or near a National Register-eligible or listed archeological site?

Not Applicable

1h. Is the building located in or near a National Historic Preservation Act-eligible Native American traditional cultural property site, sacred site (American Indian Religious Freedom Act), or Native American burial area?

Not Applicable

2. Has the area been surveyed for cultural resources?

Yes. Portions of the Proposed Action locations have been surveyed for buildings, archaeology and TCPs. For activities that would be located outside of previously surveyed areas, YPG would assess the potential for impacts to significant cultural resources prior to implementation of the activity in accordance with the evaluation procedures specified in the ICRMP.
Sections 3.4.3.2. and 3.4.3.3.

3. Are prehistoric sites present?

Yes. Section 3.4.3.1. Surveys have identified 1,924 archaeological sites at YPG (historic and prehistoric).

3a. Have these sites been evaluated for National Register eligibility?

Some have been evaluated. Based on cultural resource surveys conducted to date, several historic districts and thematically related parts of YPG have been identified. These locations contain sites that are potentially eligible for listing on the NRHP. Section 3.4.1.

3b. Are any sites eligible for listing on the National Register?

Some. Locations with sites that are potentially eligible for listing on the NRHP include:

- *White Tanks Management Area in the northern part of East Arm, which consists of 46 archaeological sites within a 2,069-ac area.*
- *Camp Laguna, which consists of the remains of General Patton's IV Armored camp along Laguna Road west of US 95.*
- *Direct Fire Range near the Muggins Mountains, which consists of 54 sites in 5 distinct locations within a 5,652-ac area.*
- *Ammunition Storage, Handling, and Testing Facilities, which consist of 20 sites in 4 distinct patterns within a 2,223-ac area.*
- *Extended Combat Systems Maneuver Area, which consists of 161 sites within a 9,902-ac area in the south-central portion of YPG.*
- *Red Bluff Range Combat Systems Maneuver Area, which consists of 96 sites within a 5,434-ac area in the south-central portion of YPG.*

Other areas could contain potentially eligible sites associated with the Mojave Tanks, Mojave Wash, and Yuma Wash.

Section 3.4.3.3.

3c. Are the sites contributing resources to an eligible or listed District or Cultural Landscape?

Some. See question #3b above. Section 3.4.3.3.

4. Is the project located in or near a Native American cemetery, traditional cultural property, or sacred site?

Yes. White Tanks is considered a TCP by affiliated Native American tribes and it is likely that other notable site complexes (such as Mohave Tanks) or prominent physiographic landmarks (such as Castle Dome) would be considered TCPs. To date, no ethnographic studies for the identification, distribution, and density of TCPs have been undertaken on YPG.
Section 3.4.3.3.

5. Has the area of the proposed project been surveyed for archeological resources?

Not all areas. Section 3.4.3.3. As of 2014, surveys have been conducted on approximately 174,098 acres, which represent approximately 21 percent of the YPG area. For activities that would be located outside of previously surveyed areas, YPG would assess the potential for impacts to significant cultural resources prior to implementation of the activity in accordance with the evaluation procedures specified in the ICRMP.

5a. Are there prehistoric or historic sites present in the area?

Yes. Surveys have identified 1,909 archaeological sites at YPG. Most of the identified sites occur on terraces and ridges, followed by sites at water sources and within wash areas. Section 3.4.3.3.

5b. Have the sites been studied/evaluated?

Some. Section 3.4.3.3.

5c. Is the site 50 years of age or older?

Yes. The sites are associated with prehistoric use. Section 3.4.3.3.

5d. Is the site on or eligible for listing on the or on the National Register?

Some. See question #3b above. Section 3.4.3.3.

5e. Is the site associated with a significant event?

The text does not go into this level of detail and it is not necessary based on the location of the components of the Proposed Action.

5f. Is the site a contributing resource in a National Register-eligible or listed Historic District or Cultural Landscape?

Some. See question #3b above. Section 3.4.3.3.

6. Is the site located in or near a Native American cemetery, traditional cultural property, or sacred site?

Certain activities may occur near sacred or traditional Native American sites. None would occur in them. Section 3.4.3.3.

6a. Is there an MOA in place that applies to the proposed project area?

This question is not answered in the text. However, an MOA for archaeology is identified in the ICRMP. Impacts to areas with known cultural resources would not occur under the Proposed Action.

7. Has the installation identified all federally recognized Indian tribes that are culturally affiliated with the area?

Yes. Tribal representatives have been contacted as part of the outreach for preparation of the PEIS, this is addressed in Section 7.0 and also is addressed in the ICRMP.

8. Has the area of the Proposed Action been surveyed for funerary objects, sacred sites, or objects of cultural patrimony (objects of ongoing historical, traditional, or cultural importance central to the Native American tribal organization)?

Some areas have been surveyed. Section 3.4.3.3. The text does not identify whether any identified sites are sacred or not. There is at least one identified TCP and it is assumed there are others.

Some areas where proposed activities would occur have been surveyed. Activities that would occur in areas where surveys have not been conducted would be subject to site-specific NEPA evaluation and analysis tiered from this PEIS. As part of developing the site-specific NEPA analysis, appropriate surveys, consultation, and mitigation would be implemented prior to undertaking such an activity.

8a. Are the resources mentioned above present in the area of the Proposed Action?

Yes. Section 3.4.3.3 covers TCPs.

8b. Have the resources been studied and summaries of these collections prepared?

Some have been studied, yes, but these previous studies and collections are not mentioned in the text.

Some areas where activities would occur have been surveyed and resources in those areas have been studied and described. Activities that would occur in areas where surveys have not been conducted would be subject to site-specific NEPA evaluation and analysis tiered from this PEIS. As part of developing the site-specific NEPA analysis, appropriate surveys, consultation, and mitigation would be implemented prior to undertaking such an activity. Any resources discovered would be studied and summarized.

8c. Have these summaries been provided to lineal descendants and culturally affiliated Native American tribal organizations that may wish to request repatriation of such objects

Yes, as appropriate.

8d. Will the resources that are found within area of potential effect (APE) require consultation with Native American tribes?

Possibly. Section 3.4.2 refers to the NHPA Section 106 consultation with the tribes, Arizona SHPO, and Advisory Council of Historic Preservation to develop a Programmatic Agreement (PA). The PA will allow YPG to fulfill its mission while respecting historic properties and other cultural resources significant to the tribes. A copy of the PA, signed on November 17, 2014, is provided in Appendix F and copies of correspondence with the SHPO, ACHP, and tribal governments are provided in Appendix A.

Activities that would occur in areas where surveys have not been conducted would be subject to site-specific NEPA analysis tiered from this PEIS. As part of developing the site-specific NEPA analysis, appropriate surveys, consultation, and mitigation would be implemented prior to undertaking such an activity. If resources that warrant tribal consultation are discovered in this process, appropriate tribal consultation would occur.

9. Is it likely that unevaluated resources will be found in the area of Proposed Action?

Yes. However, activities that would be implemented under the Proposed Action in areas that have not yet been evaluated for cultural resources would not be implemented without additional evaluation of the proposed locations.
Section 3.4.7.

10. Are activities (construction, maintenance, or use of the range) conducted as part of the Proposed Action likely to have an adverse effect on the integrity of the resource?

No adverse impacts are expected. However, because not all areas have been surveyed, there would be a potential to cause an impact if a survey revealed a resource and relocation of the project in question was not possible.

11. Will the Proposed Action have the likelihood of altering Native American access to any identified sacred sites?

No. No activities are proposed in areas that would cause disruption to access to identified sacred sites.

12. Is the project located in or near an Alaska Native burial ground, traditional cultural property, or sacred site?

No.

13. Would the Proposed Action result in significant impact to any cultural resources?

No adverse impacts are expected. However, because not all areas have been surveyed, there would be a potential to cause an impact if a survey revealed a resource and relocation of the project in question was not possible. Section 3.4.7.

14. Does the Proposed Action affect any cultural resources that have not been evaluated for National Register eligibility?

No. See question #13. Section 3.4.7.

14a. If YES, do those cultural resources warrant an evaluation, possibly including consultation with other parties?

Not Applicable.

15. Are any resources covered by previously existing resource Programmatic Agreements or MOAs?

The proposed activities would not affect any known resources covered by a previously existing PA or MOA.

16. Are there other potential impacts to cultural resources that individually or collectively could result in significant cumulative effects?

Activities that would occur in areas that have been previously surveyed would not affect cultural resources and would have no potential for cumulative impacts. The inadvertent discovery policy is referenced for appropriate situations, should they arise, and would be implemented should an inadvertent discovery be made.

Activities that would occur in areas where cultural resources surveys have not been conducted would be subject to site-specific NEPA analysis tiered from this PEIS that would address potential cumulative impacts.

As part of developing the site-specific NEPA analysis, appropriate surveys, consultation, and mitigation would be implemented prior to undertaking such an activity.

D-4: Energy Quick Look Questions (Section 3.5)

1. Will the Proposed Action result in more than a marginal increase in demand for regional energy and utility resources?

No. Because much of the proposed new construction would provide new services rather than replacement, a net increase in energy demand would be expected. However, because of the efficient design requirements, the impact on regional utility use would be minor to moderate and within the capacity of the existing infrastructure.
Section 3.5

2. Is additional cumulative effects analysis needed?

No. There are ten reasonably foreseeable projects analyzed for cumulative effect that relate to energy and communications. These projects include development of renewable energy sources in the southern part of Kofa through use of an EUL with private business, a 100-megawatt solar-powered electrical generation facility approximately 10 miles north of Quartzite, Arizona in La Paz County, five proposed solar projects on BLM lands within 10 miles of YPG, construction of a 500 kV transmission line in 2014 by Arizona Public Service, construction of an East Kofa Operations Center (size and location of the project are unknown at this time), and construction of communication towers at various locations along the U.S. and Mexico border.

D-5: Socioeconomics and Environmental Justice Quick Look Questions (Sections 3.6 and 3.14)

1. Has the local region of influence (ROI) undergone any major changes in economic activity or population in the last 10 years?

Yes. The Yuma metropolitan area was the third fastest growing metropolitan area in the country between 1990 and 2000.
Section 3.14

1a. Will the Proposed Action contribute to this ongoing trend?

No, YPG is located in an undeveloped portion of Yuma and La Paz counties; there are limited permanent residential areas in proximity to YPG. Martinez Lake, Arizona has a small permanent population. Senator's Wash is a reservoir that is primarily used a recreation area. In addition there are transient campgrounds, RV parks and resorts in nearby communities such as Quartzite. Land uses adjacent to YPG are primarily undeveloped open space and sparsely populated area where the land ownership includes BLM, USFWS, state and private entities, including agricultural interests.
Sections 3.6 and 3.10.1.4, 3.14.

2. Is the community undergoing rapid growth?

Yes. See question #1.Section 3.14

2a. Is the community seeing reduction in growth?

No. Section 3.14

2b. Does the Proposed Action add to that trend or does it reduce (mitigate) that trend?
No, the Proposed Action does not affect regional growth.
Section 3.14

3. Are political stresses evident over the use of community lands or services infrastructure?

No. Sections 3.12 and 3.14, Appendix A

4. Would the Proposed Action result in any significant impacts to any resource areas?

No. Sections 3.6 and 3.14

5. Does the Proposed Action have a disproportionate adverse impact on minority populations?

No. Section 3.6

6. Is additional cumulative effects analysis needed?

No. No significant socioeconomic impacts are predicted.

D-6: Fire Management Quick Look Questions (Section 3.7)

1. Would the Proposed Action increase the potential for wildland fire starts?
Yes. Areas cleared for testing and training would provide conditions favorable to the spread of invasive plants which would be more likely to spread wildfire.

Sections 3.7 and 3.18

2. Does the Proposed Action involve development of new facilities or firing ranges that could pose a fire risk?

Yes. New impact areas would be created, increasing the area exposed to ignition opportunities (e.g. live fire).
Section 3.7

3. Does the Proposed Action increase the level of intensity of military activity in the area?
Yes. The frequency of testing and number locations used for military activities would increase.

Section 3.7 and 3.18

4. Does the affected area contain high levels of flammable vegetative "fuels"?

Yes. While native vegetation of the Sonoran Desert is not well-adapted to wildfire, areas on YPG with invasive species present are more susceptible to fire.
Section 3.7 and 3.18

5. Has fire management been an issue in the past in the area?

Yes. In early October 2005 a wildfire that originated on YPG burned more than 30,000 ac, including 26,000 ac on Kofa.
Section 3.7 and 3.18

6. Will fire risk be significantly increased?

No. Fire risk is not anticipated to increase significantly. YPG is continuing to address the spread of invasive plants though the INRMP and restoration of disturbed areas though the ITAM. These programs should minimize any potential increase in fire risk.
Section 3.7 and 3.18

7. Has past activity in this area increased fire risk?

Yes. Disturbances to some areas have contributed to the spread of more combustible invasive vegetation.
Section 3.7

8. Would future development and other activity occur in the area as a result of the Proposed Action that would increase the fire risk?

No. Please see question #6.
Section 3.7

9. Is additional cumulative effects analysis needed?

No. Section

D-7: Geology Quick Look Questions (Section 3.8)

1. Are activities proposed that would alter existing geological formations?

No, *there are no activities that would alter existing geologic formations.*
Section 3.8

2. Do existing geological conditions constrain construction or mission activities?

No. Section 3.8

Is additional cumulative effects analysis needed?

No.

D-8: Hazardous Materials/Hazardous Wastes Quick Look Questions (Section 3.9)

1. Will the Proposed Action occur on an existing installation?

Yes. All components of the Proposed Action will occur within the boundaries of YPG.
Section 3.9

2. Are all aspects of the Proposed Action covered by a Spill Prevention, Control, and Countermeasure Plans (SPCCP)?

Yes. A Spill Prevention, Control, and Countermeasures Plan and an Installation Spill Contingency Plan cover all hazardous materials used and stored at YPG. The ISCP and the SPCCP provide information on the storage and handling of petroleum-based products, hazardous substances, and appropriate response actions in the event of fire, explosion, or release of hazardous substances and wastes. The SPCCP includes an inventory of hazardous materials, storage and containment requirements (primary and secondary), and monitoring information.
Section 3.9

3. Have project proponents taken steps to eliminate the use and potential release of hazardous materials?

Yes. Overall, environmental programs at YPG use management actions to minimize use of hazardous substances and reduce resulting waste streams. Solid Waste Management Units (SWMUs) have been investigated and clean-up removal actions have been conducted. Monitoring is conducted and containment has been installed around the open-burn/open detonation management unit. Renovations of residences and other buildings are gradually eliminating lead-based paint and asbestos containing materials from buildings at YPG.

In addition, the Proposed Action contains components that would reduce the risk of release including construction of new POL storage facilities or improvements to existing POL storage facilities and replacement of portable generators with hard power lines.
Section 3.9

4. Are there any existing regional concerns related to chemical contamination of groundwater or surface water?

Yes. The area experiences naturally high levels of arsenic in groundwater.

There are MCOCs associated with testing and SWMUs are present on YPG. However, contamination is localized and contained within YPG boundaries. There are no regional concerns.

Sections 3.9 and 3.20

5. Is additional cumulative effects analysis needed?

Yes. However, the only cumulative effects anticipated are associated with expected yet unknown future evolution of testing and training at YPG

D-9: Land Use Quick Look Questions (Section 3.10)

1. Is the Real Property Master Plan (RPMP) for the installation more than five to ten years old and, if so, is the RPMP subject to current updating/modification efforts.
A RPMP has not been developed for YPG.

2. Are Land Use Controls utilized within the RPMP?
NA

3. Is there extensive usage of on-post lands for recreational (e.g. hunting and/or fishing) purposes?
Yes. YPG is closed to the public and outdoor recreational opportunities are limited. Hunting is the primary recreational activity on YPG. In coordination with AGFD, five recreational hunting areas have been established in portions of YPG where safety constraints were not an issue and where hunting would not interfere with the military mission of the installation.
Section 3.12.1

4. Has a recent (last five to 10 years) Joint Land Use Study (JLUS) been conducted via a collaborative effort between the installation and nearby towns and cities?
No.

5. Is there continuing cooperation and collaboration regarding land usage between the installation and local and regional governmental agencies and other stakeholder groups?
Yes. A draft Memorandum of Understanding (MOU) that would include YPG, Yuma County, the Cities of Yuma, San Luis, and Somerton, the Town of Wellton, and MCAS Yuma is under consideration to establish coordination among the parties regarding land use consistency with military facilities.
Section 3.10.2

6. Are there any historical or current conflicts between the installation and various governmental agencies, and/or stakeholder groups relative to on-post or off-post land usage?
No. Land uses adjacent to YPG are primarily undeveloped open space and sparsely populated area where the land ownership includes BLM, USFWS, state and private entities, including agricultural interests.

7. Is there any evidence of current or anticipated encroachment or urban sprawl that might have implications relative to on-post land usage?
No. Land uses adjacent to YPG are primarily undeveloped. Rezoning requests for additional residential development on the south side of YPG are increasing, but zoning for residential development in that area is limited to 1- to 2-ac suburban ranch parcels.
Section 3.10.1.4.

8. Will the proposed action(s) require on-post land use classification changes that exceed plus or minus five percent?
No. The components of the Proposed Action would occur in areas currently designated for those activities.
Section 3.10.2

9. Will the proposed action(s) require land acquisitions and/or disposal of excess lands?

No.

10. Is there an existing sustainability program for the installation, and does it address sustainability considerations in site selections?

No. Although sustainability is factored into development and siting of projects, there is not a formal sustainability program.

Range sustainability on YPG is managed through the ITAM program, which is implemented to maintain conditions that realistically simulate conditions in other desert regions for operational testing and training activities.

11. Does the installation currently have contiguous buffer zones or conservation easements?

No. YPG does not have designated buffer zones. However, due to its size testing and training do not occur near the borders of the post.

D-10: Noise Effects Quick Look Questions (Section 3.11)

1. Will the Proposed Action create noise zones (Zones 1, 2, or 3) that will extend off the installation?

No, there would be no changes to the designated noise zones on YPG.
Section 3.11

2. Does the Proposed Action increase the level or intensity of military activity?

Yes. The locations where testing and training occur would expand. However, the frequency of testing and training would remain within historical levels and would not increase.
Section 3.11

3. Does the Proposed Action include the use of noisier equipment (or munitions) than that historically used at the proposed site(s)?

No. The Proposed Action does not specify equipment noisier than what is currently used for testing and training. The locations of use would increase, but the frequency of use would remain within historical levels.
Section 3.11

4. Are there any human populations or populations of sensitive animal species within the noise zones?

No. The noise zones are contained within the YPG boundary.
Section 3.11

5. Has the adjacent civilian community (nearest the location of the Proposed Action) complained about any noise associated with past or ongoing activities?

Yes. YPG receives complaints about airplane over flight noise. However, all of these issues have all been attributable to aircraft operating from MCSA Yuma rather than aircraft from YPG. Complaints also have been received regarding operation of UASs within established YPG airspace. Because noise from these operations does not exceed the established levels for the designated noise contour, YPG has not altered operations in response to these complaints.
Section 3.11

6. Are there local or regional controversies over noise levels at the installation that would indicate the need for a cumulative effects analysis?

No. Section 3.11

7. Is additional cumulative effects analysis needed?

No. Although an increase in testing and training capabilities would occur under the Proposed Action, noise levels outside installation boundaries would not likely increase substantially as a result.

D-11: Recreation Quick Look Questions (Section 3.12)

1. Are activities proposed that would alter or eliminate recreational opportunities?

Yes. The Proposed Action includes components that would convert greenspace to xeriscape areas, resulting in the loss of greenspace and the creation of a different type of passive recreation.
Section 3.12

2. Would recreational opportunities be substantially reduced as a result of the Proposed Action?

No. Section 3.12

2. Would access to recreational opportunities be substantially reduced or restricted as a result of the Proposed Action?

No. Section 3.12

Is additional cumulative effects analysis needed?

No.

D-12: Safety Quick Look Questions (Section 3.13)

1. Are activities proposed that would create off-post safety issues?
No. All components of the Proposed Action would occur within the boundary of YPG
Section 3.13

2. Would safety risks to YPG personnel or DoD contractors be substantially increased as a result of the Proposed Action?
No. The types of activities conducted at YPG would not change following implementation of the proposed action.
Section 3.13

2. Would new safety procedures need to be developed to address components of the Proposed Action?
No. Existing safety procedures are sufficient.
Section 3.13

Is additional cumulative effects analysis needed?
No.

D-13: Soils and Desert Pavement Effects Quick Look Questions (Section 3.15)

1. Does the Proposed Action involve a new range or maneuver area, or does it extend beyond the existing boundaries of either?

Yes. The project involves new and expanded impact areas, operational testing, and training areas. These new areas would be located throughout YPG.
Section 3.15

2. Are there sensitive downstream land uses, and has sedimentation/pollution been a downstream issue in the past?

No. Downstream land uses are primarily agricultural. Water quality issues in downstream waters are not associated with sedimentation.
Section 3.10 and Section 3.20

3. Will desert pavement be significantly impacted?

Yes. The locations proposed for new and expanded impact areas, operational testing areas and training area contain desert pavement. BMPs would be implemented where practicable and the ITAM followed to reduce impacts.
Section 3.15

4. Would the Proposed Action result in a significant impact to soil resources?

Yes. Construction activities would result in the permanent covering or compacting of soils. Testing and training activities would cause localized disturbances to desert soils. Due to the slow recovery of the desert ecosystem, these disturbances would be long term impacts. The YPG ITAM program and management programs in the INRMP would be used to avoid and minimize impacts where practicable.
Section 3.15

5. Does the Proposed Action fall within an area covered by an existing soil survey?

Yes. There is a draft NRCS soil survey for the county.
Section 3.15

6. Would implementation of the Proposed Action jeopardize soil stability and increase erosion potential beyond the construction and stabilization period?

Yes. Testing and training activities would cause ongoing localized disturbances to desert soils. In addition, construction of TGPs would result in periodic clearing and compaction of soils and locations throughout YPG. Due to the slow recovery of the desert ecosystem, these disturbances would be long term impacts. The YPG ITAM program and management programs in the INRMP would be used to avoid and minimize impacts where practicable.
Section 3.15

7. Are the proposed sites effectively managed as part of an installation Integrated Training Area Management/Land Rehabilitation and Maintenance (ITAM/LRAM) program?

Yes. Range sustainability on YPG is managed through the ITAM program, which is implemented to maintain conditions that realistically simulate conditions in other desert regions for operational testing and training activities.
Section 3.15

8. Does the proposed Action increase the level of intensity of military activity on military lands?

Yes. The locations for testing and training activities would increase. However, the frequency of these activities would remain within historical levels.
Section 3.15

9. Are there other potential impacts to soil resources that individually or collectively could result in significant cumulative effects?

No. The potential for other actions to interact with the activities of the Proposed Action with regard to impacts to soils would be limited to the potential for increased erosion off-post as a result of Proposed Action activities. Other soils impacts resulting from the Proposed Action would be confined within the boundaries of YPG. Appropriate construction BMPs and post-construction stormwater controls would be implemented to minimize the potential for off-post impacts from increased runoff resulting from Proposed Action activities.
Section 3.15

10. Are there proposed sites that are highly eroded and characterized by gullies and/or poor vegetative cover?

No. Sections 3.9 and 3.15

11. Are there sensitive soils within the proposed project that would require additional stabilization measures from the Proposed Action beyond standard best management practices (BMPs)?

No. Highly erodible soils are present at YPG. However, additional stabilization measures would not be required. Mitigation measures for those areas would include, but would not be limited to, planning to avoid disturbance of highly erodible soils, construction BMPs to minimize the potential for onsite erosion, construction and post-construction stormwater controls, and continued implementation of the ITAM program and the INRMP.
Section 3.15

12 Is additional cumulative effects analysis needed?

Yes. Please see Section 3.15 for a discussion of soils impacts at YPG. Cumulative effects to soils beyond the boundaries of YPG are not expected.

D-14: Biological Resources Quick Look Questions (Sections 3.16, 3.18, 3.20, 3.21)

Threatened and Endangered Species

1. Has the installation been surveyed for the presence of federal- or state-listed threatened or endangered species (TES)?

Yes. YPG has been partially surveyed, mainly in areas of previous development.
Section 3.16.1

1a. Did the survey reveal the presence of any federal- or state-listed TES?

Yes. . The southwestern bald eagle is occasionally observed on YPG. The American peregrine falcon occurs on YPG as an occasional migrant. The Desert Tortoise (Sonoran population) has been observed in East Arm and in Cibola of YPG. The California leaf-nosed bat is one of the most commonly observed bats on the installation. The desert rosy boa, parish onion, and Kofa Mountain barberry are known to occur in the Kofa NWR adjacent to YPG. The loggerhead shrike is a resident species on YPG. The desert burrowing owl, wild horses and wild burros are known to occur on YPG.
Section 3.16.1

2. Are there any proposed species that may be placed on the TES list in the future?

Yes. Yuma and La Paz Counties contain species that are currently listed as candidate species including the Desert Tortoise and Sprague's Pipit.
Section 3.16.1

3. If TES have been found, has the U.S. Fish & Wildlife Service (USFWS) been consulted?

No. Formal consultation has not been necessary.

4. Does the installation have an Integrated Natural Resources Management Plan (INRMP)?

Yes. Section 3.16, 3.18, and 3.21

5. Does the installation have an Endangered Species Management Plan (ESMP)?

No. TES species are managed under the INRMP.

6. What is the viability, size, and distribution of the TES?

An experimental population of the endangered Sonoran pronghorn has been released on Kofa National Wildlife Refuge and these animals have been observed in the Kofa region of YPG, primarily in the southern portion of King Valley.

The Sonoran population of desert tortoise, which is proposed for listing as a separate species, occurs in low densities in the Cibola Region of YPG. Primary habitat for the desert tortoise includes most of Cibola Region, a small portion of the Kofa Region, and the northern portion of the East Arm.

Other sensitive species found on or with potential to occur on YPG include the banded Gila monster, California leaf-nosed bat, cave myotis, Kofa mountain barberry, loggerhead shrike, Mohave fringe-toed lizard, western burrowing owl, and Parish's onion. Salvage restricted plants that could occur on YPG include desert barrel cactus, Parish's onion, senita, and straw-top cholla. Sensitive species may include BLM sensitive, USFS sensitive or state-protected species.

The banded Gila monster is not known to, but likely occurs on YPG. This species prefers washes and rocky hillsides. Size, viability, and distribution of the population is not known.

The California leaf-nosed bat and cave myotis are known to occur on YPG and a single western yellow bat has been captured at Lake Alex. The pocketed free-tailed bat most likely roosts and forages on YPG, but is not confirmed on YPG. These species forage throughout the desert scrub of YPG and roost in caves, crevices, and mines. The size of bat populations on YPG is unknown.

Kofa Mountain Barberry is known to occur in nearby Kofa NWR. This species could occur on YPG and prefers bottoms of deep, shady rocky canyons. Size, viability and distribution of the species is not known.

Loggerhead shrike are commonly seen throughout YPG, particularly perched on fence posts. The size and viability of this species is not known.

A Mohave fringed-toed lizard population occurs only in a sand dune area in the north Cibola Region. The population appears to be stable, though the size is unknown.

Western burrowing-owl are known to occur on YPG. This species would likely occur in grasslands areas of YPG, which is limited. However, the size, viability, and distribution of this species is unknown on YPG.

Parish's onion is known to occur in the Kofa NWR. The size, viability, and distribution of this species on YPG is unknown.

The size, viability, and distribution of salvage restricted plants that could occur on YPG, including the desert barrel cactus, Parish's onion, senita, and straw-top cholla, is unknown.

Section 3.16

7. What pertinent factors adversely affect the TES?

Direct impacts from removal and disturbances to desert scrub habitat. Direct impacts from incidental mortality of TES due to testing and training activities. Disruption of wildlife behavior and reproduction from physical and noise disturbances as a result of testing and training activities.
Section 3.16

8. Is the critical habitat within or adjacent to the proposed project site?

No. Section 3.16

9. Would the actions involved in construction, operation, and maintenance of the proposed project affect TES or its habitat?

Yes. Section 3.16

10. What are the immediate and long-term threats to any TES and their habitats according the Biological Evaluation (BE) and/or ESMP?

YPG implements conservation measures to protect Sonoran desert tortoise as part of the Integrated Natural Resource Management Plan. These measures and recommendations from the Arizona Interagency Desert Tortoise Team are implemented for all projects that could encounter Sonoran desert tortoise. Should the Sonoran desert tortoise be listed under the ESA, then YPG would consult with USFWS on projects that may impact this species.

The non-essential experimental pronghorn population, released on Kofa NWR, will likely continue to move onto portions of YPG. Military activity on YPG will likely affect pronghorn movement and habitat utilization by occasionally frightening them from food or water sources. These impacts to behavior could impact nutrition and body condition of animals and could

reduce survival rates, particularly in times of drought. Vehicles traveling along roads or within maneuver areas may strike pronghorn on YPG. Since YPG is used for live fire testing there is risk to individual pronghorn of being injured or killed by exploding munitions. Should the experimental population of Sonoran pronghorn be reclassified under the ESA, then YPG would consult with USFWS on projects that may impact this species on YPG.

YPG activities on Kofa NWR include over flights and safety fans for munitions testing. Daily over flights occur within airspace R-2307, R-2308A, R-2308b, and R-2308C, with virtually all military use of this airspace between 8,000 and 32,000 ft above ground level (AGL). The YPG Operational Noise Management Plan (ONMP) identifies Kofa NWR and Imperial NWR as areas where pilots should remain at least 2,000 feet AGL. This noise restriction is also recognized in the Laguna Army Air Field Operations Manual. Most YPG air traffic over the refuge consists of UAS, however, there are occasional helicopter flights. The UH-1 is the most common helicopter that may fly over Kofa NWR. The ONMP estimates the noise level of a UH-1 at 70dB at 2000 feet. In the event a helicopter does fly over the refuge, it would not hover but would be traveling from a point A to point B. In the rare event a helicopter flies over refuge lands, even directly over pronghorn, the noise level of the aircraft would be below the 77 dB threshold that has been identified where pronghorn make strong reactions. Furthermore, because YPG aircraft would not be hovering but passing by, the duration of the disturbance would be brief. YPG does not fire into or over the Kofa NWR but estimated safety fans occasionally extend across the boundary. The algorithm used to establish the dimensions for the safety fan uses a 1/1,000,000 probability of munitions landing outside the fan. Instances of munitions landing outside the fan or on the refuge are extremely rare. Noise from munitions fired on YPG can be heard off the installation but the intensity of the sound decreases with distance. The noise contour figures from the Installation Operational Noise Management Plan indicate that the portion of Kofa NWR that is suitable habitat for Sonoran Pronghorn (i.e. King Valley) is located outside the 57-63 CDNL contour. This means that the magnitude of sound experienced by any pronghorn would be less than 57 decibels for an actual explosion within the impact area. Explosions from munitions testing and training on YPG in the Castle Dome Mountains along the western and southern boundary of Kofa NWR would be audible to pronghorn in portions of the area they may occupy but would likely not be heard in the vicinity of the breeding pens. Because munitions testing and training is relatively constant in this area, the noise from these events would likely be perceived as part of the background noise and would not affect pronghorn except in immediate proximity to a detonation. YOG would consult with USFWS on activities that could affect Sonoran pronghorn on Kofa NWR.

11. Does the USFWS agree, in writing, with the BE and its determination of jeopardy?
A Biological Opinion in regards to Formal Section 7 Consultation on Activities and Operations at the United States Army Garrison Yuma Proving Ground, Yuma and La Paz Counties, Arizona, was issued September 9, 2014 by the USFWS.

Wildlife and Fisheries

13. Would the alternatives result in a significant impact to any wildlife or fish species identified as management priorities by the installation's Ecosystem Management Plan?
No fisheries are present on YPG. No significant impacts to wildlife species would be expected. Section 3.16 and 3.21

14. Would the Proposed Action result in a significant loss of vegetation?
Yes. The project will result in the removal and disturbances to desert shrub habitat. Section 3.18

15. Has a forest stand or vegetation community map been created for the area?

No

16. Are the proposed sites effectively managed as part of an installation Integrated Training Area Management (ITAM) program?

Yes. Section 3.16, 3.18, and 3.21

17. Will the Proposed Action affect salvageable lumber?

No

18. Are the proposed sites characterized by poor vegetative cover or high erosion?

Yes. There are some areas with highly erodible soils and some areas with disturbed vegetative cover.
Sections 3.15 and 3.18

19. Would a significant amount of rare plant habitat be impacted by the Proposed Action?

No

20. Would the Proposed Action result in the potential introduction or spread of any highly invasive plant species?

Yes. Disturbance to native vegetation as part of the Proposed Action could enable the spread of two invasive plant species.
Section 3.16, 3.18, and 3.21

Wetlands

21. Are TES associated with any of the wetlands resources in the vicinity of potential installation proposed actions?

No, no wetlands occur at or near any of the proposed locations

22. Would the Proposed Action result in significant impact to wetlands?

No, no wetlands are present on YPG

23. Does a wetland delineation exist for the Proposed Action footprint?

No, no wetlands are present on YPG

24. Are future actions by non-military and other military entities expected and would they cause impacts on wetland resources?

Yes, but they would not impact wetland resources because those resources are not present.

Summary

25. Does the Proposed Action involve a new disturbance, or does it extend beyond the existing disturbance boundaries?

Yes, desert shrub habitat would be lost and disturbed. All impacts would occur within the YPG boundary.
Section 3.15 and 3.18

29. Have previous projects in this area affected the same species or habitats that could be affected by the Proposed Action?

Yes. Existing testing and training activities result in disturbance to desert shrub habitat.
Section 3.16, 3.18, and 3.21

27. Would the Proposed Action likely result in further construction projects or increased activity in the area in the future that could affect the same species and habitats potentially being affected by the Proposed Action?

Yes. Testing and training would be expected to occur in new areas not currently used for these purposes. However, the frequency of testing and training activities on YPG would not increase above the maximum annual level seen in recent historical data.

Section 3.16, 3.18, and 3.21

28. Does the Proposed Action involve development that would cause significant loss of preferred habitat for any management priority species?

No. Section 3.16, 3.18, and 3.21

29. Does the Proposed Action increase the level of intensity of military activity in the area?

Yes. The locations for testing and training activities would increase, but the frequency at any specific location could decrease. No change in the amount of testing and training, as determined by historical fluctuations would result.
Section 3.16, 3.18, and 3.21

30. Is habitat for a Species of Concern being affected?

Yes. Habitat for the Sonoran population of desert tortoise is located in Cibola Region, a small portion of Kofa, and the northern portion of the East Arm. Also potential habitat for the Sonoran pronghorn in the King Valley portion of the Kofa Region.

Section 3.16

31. Are there special interest management areas in the vicinity that could be affected by the Proposed Action?

No. There are special interest management areas (e.g. Kofa NWF). However, impacts would be expected to be limited to the YPG boundary.
Section 3.16, 3.18, and 3.21

32. Is additional cumulative effects analysis needed?

Yes. Cumulative impacts are discussed in Sections 3.16, 3.18, and 3.21.

D-15: Traffic and Transportation Systems Quick Look Questions (Section 3.17)

1. Are transportation data and the transportation plan for the installation more than 5 to 10 years old and, if so, is the plan subject to current updating/modification efforts?

A transportation plan has not been prepared for the installation.

2. Is there a transportation improvement program for the installation and, if so, will current and anticipated traffic concerns be resolved upon completion of the plan?

There is not a transportation improvement program for the installation. Anticipated improvements to traffic concerns are described in Section 3.17.2.3.
Section 3.17.2.3

3. Has a recent (last 5 to 10 years) regional transportation study been conducted via a collaborative effort between the installation and nearby towns and cities?

No.

4. Are there any historical or current conflicts between the installation and various governmental agencies, and/or stakeholder groups, relative to on-post or off-post traffic-related concerns?

No.

5. Is there any evidence of current or anticipated encroachment or rapid urban development that might have implications relative to the traffic and transportation system?

No.

6. Will the proposed action(s) over the planning horizon cause increases to on-post and/or off-post traffic levels?

No. No change in current traffic volumes would be expected.
Section 3.17.2.3

7. Is additional cumulative effects analysis needed?

Yes. Some road improvement projects are forecast for US 95 which would result in improvements to traffic flow and safety.
Section 3.17.2

D-16: Water Resources Management Quick Look Questions

1. Is the installation located completely, or partially, in a designated sole source aquifer area, and/or have local surface waters been designated as having water quality concerns relative to compliance with water quality standards or criteria?

Yes. Section 3.20.1.1

There are no sole source aquifers in Arizona (http://www.epa.gov/region2/water/aquifer/).

The Lower Colorado and Lower Gila Rivers are listed on the Arizona 2006/2008 303(d) List of Impaired Waters. Approximately 32 miles of the Lower Colorado River above the Mexican border are listed as impaired due to low dissolved oxygen levels and elevated selenium levels. Approximately 28 miles of the Lower Gila River are listed as impaired due to elevated selenium and boron levels. An additional waterway in the Lower Gila River watershed, Painted Rocks Borrow Pit Lake, is listed as impaired due to low dissolved oxygen levels and elevated levels of DDT metabolites, toxaphene, and chlordane in fish.

2. During its construction and/or operational phase, will the Proposed Action exhibit point and/or nonpoint emissions of water pollutants?

Yes. Section 3.20.2.3.

During the construction phase there is a possibility of direct impact from the Aberdeen Road Flood Improvements. A portion of Castle Dome Wash would be disturbed and impacts could include erosion and sedimentation. A small portion of the wash would be lost or converted to artificial substrate.

Indirect adverse impacts could occur due to construction of proposed facilities and field operations, including erosion and sedimentation due to land disturbance.

2a. Will such emissions exceed standards as designated in federal or State water quality regulations or permits?

No. Section 3.20.2.3

Construction of the Aberdeen Road Flood Improvements would require a CWA Section 404 permit from USACE and a CWA Section 401 Water Quality certification from ADEQ. YPG and its construction contractor would comply with all conditions of the CWA Section 404 permit and Section 401 Water Quality certification.

Standard construction BMPs would be coupled with the implementation of a Construction SWPPP to stabilize disturbed soils and minimize the potential for indirect impacts to water resources.

3 Is the installation located in an area where the available surface and/or groundwater supplies are already stressed due to excessive use and/or drought conditions?

Yes. Section 3.20.1.1

Historically, the Colorado and Gila Rivers were the source of nearly all groundwater in the Yuma basin through direct infiltration from the river channels and from annual flooding when high flows overtopped the river banks. Impoundment of water in upstream reservoirs on the Colorado River has resulted in loss of sedimentation and scouring of the river channel, lowering the river profile in the Yuma area and causing the Colorado River to act as a drain to the groundwater system. Due to upstream impoundments and consumptive use, the Gila River now flows intermittently, causing it to act as a drain to the groundwater system.

Groundwater quality varies across the Yuma basin, with elevated concentrations of total dissolved solids (TDS), arsenic, lead, agricultural pesticides, nitrate, and VOCs in some areas.

Historically, the chemical composition of groundwater was similar to that of water in the Colorado and Gila Rivers. However, groundwater quality has been altered as a result of agricultural practices.

4. Will the additional water requirements for the Proposed Action be large in relation to the available surface and/or groundwater supplies?

No. Section 3.20.1.1

Groundwater supplied by most wells on the installation is non-potable because of high fluoride, sodium chloride, and arsenic levels. Drinking water is delivered by commercial companies or developed from treated groundwater. Separate water distribution systems in Kofa, Laguna, and Cibola obtain water for potable and non-potable uses from groundwater wells.

5. Are there wide variations in the monthly and/or seasonal patterns of water use at the installation?

No. YPG is used year-round for testing and training.

6. Does the proposed action threaten any sensitive receptors of water? (Examples of such receptors include aquatic ecological resources, threatened or endangered plant or animal species, and excessive human health risk levels.)

No. Section 3.21.2.3

Wildlife on YPG tends to be most abundant near sources of water. Artificial water tanks have been placed to encourage wildlife to relocate away from areas where testing and training activities regularly occur. Proposed activities would not be conducted in proximity to artificial water sources, which would reduce the potential for impacts to wildlife.

Adherence to stormwater construction permits and established BMPs would be sufficient to prevent the likelihood of contamination.

7. Within the last 5 years, has the installation been subject to Notices of Violations (NOVs) or fines relative to Safe Drinking Water Act (SDWA) or Clean Water Act (CWA) permit requirements? Are there any concerns that federal and State source-oriented permits may not be up to date, and are there any specified conditions not being met?

Yes. Section 3.20.1. In 2007 the drinking water from three systems on YPG was found to be in violation of the new arsenic standard, which resulted in a notice of violation issued by ADEQ and USEPA.

No. To meet current federal standards for public drinking water supply, YPG has constructed two new water treatment facilities.

8. Does the installation drain to an impaired waterbody?

Yes. Section 3.20.1.1

Groundwater and surface water from YPG flows in a general southerly direction to the Colorado River and Gila River, described in question #1 above.

9. Would the Proposed Action result in an adverse impact to surface water?

Yes. Section 3.20.2.3.

During the construction phase there is a possibility of direct impact from the Aberdeen Road Flood Improvements. A portion of Castle Dome Wash would be disturbed and impacts could include erosion and sedimentation. A small portion of the stream would be lost or converted to

artificial substrate. However, potential impacts to water quality would be minimal with the implementation and enforcement of SWPPP and standard construction BMP standards.

10. Does the Proposed Action involve development within a floodplain?

No. Section 3.20.2. There are no designated floodplains on YPG.

10a. Are there any practicable alternatives available to constructing within a floodplain?

Not Applicable

11. Are there seasonally flooded areas within the footprint?

Not Applicable

12. Are streams, lakes, or ponds present within the footprint?

Yes. Section 3.20.2.3. A portion of Castle Dome Wash would be disturbed from the Aberdeen Road Flood Improvements. No other streams, lakes, or ponds are present within the footprint.

13. Does the Proposed Action increase the level of intensity of military activity on military lands?

Yes. The locations for testing and training activities would increase. However, the frequency of use would remain within historical levels and would not increase.

14. Could the Proposed Action lead to further projects or activity in the area that could negatively affect surface water?

No. None are known or reasonably foreseeable.

15. Does the Proposed Action involve clearing vegetation within 75 feet of open water?

No

16. Have negative impacts to surface water been an issue in the past?

No. However, YPG is aware of the potential for stormwater transport of contaminants (e.g., MCOCs) to washes and downstream receiving waters and has implemented SWPPPs and BMPs to reduce the probability of such occurrences.
Section 3.9.2.3.

17. Are there other potential impacts to surface water that individually or collectively could result in significant cumulative effects?

No. Because potential direct effects to water resources would be confined within the boundaries of YPG and because BMPs and design features would minimize the potential for indirect impacts to offsite waters, there is little potential for interaction of the Proposed Action with other projects. No cumulative impacts would be expected on YPG.

18. Is additional cumulative effects analysis needed?

No. There is little potential for interaction of the Proposed Action with other projects

D-17: Subsistence Resources Quick Look Questions (Section 3.1)

1. Would the Proposed Action adversely impact to the availability of any subsistence resources?

No

Subsistence resources do not occur on YPG. No subsistence activities (hunting, fishing, gathering of wild materials) occur on YPG. This resource area is not evaluated in the document.

2. Is the area considered to be important for subsistence access or resource sustainability?

No

3. Does the Proposed Action reduce the land available or change the timing or availability for subsistence activities?

Not Applicable

4. Have past activities in the area had negative impacts on subsistence resources?

Not Applicable

5. Could the Proposed Action lead to further projects in the area that could negatively impact subsistence resources?

No

6. Is additional cumulative effects analysis needed?

No

Appendix E
Air Emissions Calculations

General Conformity – Record of Non-Applicability

Project/Action Name: Programmatic Environmental Impact Statement for Mission Activities and Operations - Yuma Proving Ground, Arizona

Project/Action Identification Number:

Project/Action Point of Contact:

Begin Date: January 2014

End Date: October 2015

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this action because total direct and indirect PM_{10} emissions are below the conformity threshold values established at 40 CFR 93.153 (b) and this action is not considered regionally significant under 40 CFR 93.153(i).

Supporting documentation and emission estimates are attached.

SIGNED _____

TABLE OF CONTENTS

1.0 PROPOSED ACTION 3
2.0 CALCULATION OF EMISSIONS FROM NEW CONSTRUCTION 4
2.1 Construction-Related Emissions 4
3.0 CONCLUSION 6

LIST OF ATTACHMENTS

Attachment 1: Model Results

GENERAL CONFORMITY REVIEW (GCR)

Programmatic Environmental Impact Statement for Mission Activities and Operations at Yuma Proving Ground, Arizona

1.0 PROPOSED ACTION

From January 2014 through October 2015, the U.S. Army proposes to construct several new buildings and make facility renovations on Yuma Proving Ground.

The new facilities and facility renovations are needed to support the current and future mission of Yuma Proving ground. The new facilities include the following:

- Seven Operational Buildings,
- Six Warehouses, and
- Four Administrative Buildings

Two pre-existing buildings will be demolished, and no new significant stationary sources will be added to the site during the project. The general conformity review for this project pertains only to construction-related emissions and facility space heating. The PM10 emissions are the pollutant of interest.

2.0 CALCULATION OF EMISSIONS FROM NEW CONSTRUCTION

The emissions associated with the proposed action are construction-related. There will no mobile emissions associated with new government owned vehicles (GOVs) and privately owned vehicles (POVs) due to the proposed actions.

2.1 Construction-Related Emissions

The proposed projects are listed in Table 2-1. The Table includes the gross area of the proposed facility and the area to be graded.

TABLE 2-1
Proposed Actions and Proposed Facility Area and Grading Area
Yuma Proving Ground
Yuma, Arizona

Id	Project	Gross Construction Area (ft^2)	Gross Area to be Graded (ft^2)
L002	Realign Barranca Road	146,797	84,902
	Construct Runway Extension	119,790	500,000
L009	Construct YTC Warehouse	7,750	7,750
L010	Construct Instrument Development Facility	32,500	32,500
L011	Tracked Vehicle Trail Office	8,100	8,100
L029	Construct optical maintenance facility	7,500	
	Graded parking area with power pole farm		90,342
	Perimeter fencing centered at YTC.		2,400
L031	Construct MFFS Dining Facility (3 Location Options)	48,979	48,979
L032	Expand Bravo LTA – No Emissions		
L034	Construct MFFS Ready Room (3 Location Options	48,979	48,979
L037	Construct vehicle test course		792,795
L040	Construct drop zone near LAAF (DZ) (984-foot [ft] x 1,969-ft)		196,021
L102	Construct MFFs Terminal	28,000	28,000
	Construct Rigger Facility	15,500	15,500
	Construct UAS Airfield, hangars, taxiway, and UAS flight test area	599,250	599,250
	Construct CASA Transport Aircraft Hangar	153,858	153,848
L106	Construct 4 Administrative Buildings	44,465	44,465
	Construct Installation Logistics Complex	76,833	
	Total	**1,338,301**	**2,653,841**
			60.9 Acres

The U.S. Air Force Air Conformity Application Model (ACAM), version 4.5, was used to estimate construction-related emissions and facility space heating emissions. It is assume that all construction activities start at the same time. For construction related-emissions, ACAM splits facility construction into two phases; Phase 1 is grading and Phase 2 is the actual construction activity. The following data were input into the model:

- Gross Sq ft – 1,338,301 sq ft
- Duration of Phase 1 – 45 days
- Gross Area to be Graded – 2,653,841 sq ft (60.9 acres)
- Soil Piles – covered or watered twice daily
- Loads – Secure Cover
- Exposed Surface/Grading – watered twice daily
- Truck Hauling Road – paved
- Start Date of Construction – January 2014
- End Date of Construction – October 2015
- Duration of Phase 2 – 400 days

The model calculates emissions for the following activities:

- Grading Equipment Emissions (pounds/day, assume 1 grader, 1 rubber tired dozer, 1 tractor/loader/backhoe, and 1 water truck)
- Emissions Due to Construction Worker Trips (based on 0.42 trip per 1,000 sq ft-day)
- Construction Equipment Emissions (based on sq ft to be constructed during Phase 2, assume 1 crane, 1 tractor/loader/backhoe, 1 forklift).
- Grading Operations Emissions (pounds/day, assume 55 lb/acre-day, uncontrolled)
- Facility Heating (based on regional heating energy requirements and emission factors for natural gas)

Based on ACAM, an increase of 32.4 tons of PM_{10} would be expected due to construction related activities (see Attachment 1) in 2014, the highest year during construction. PM_{10} emissions are expected to be 0.18 tons during the second year of construction.

3.0 CONCLUSION

It is assumed that all of the proposed would start at the same time. Total annual emissions generated by the proposed actions are expected to peak with the release of 32.4 tons of PM_{10} due to construction-related emissions in 2014, as well as an ongoing increase of 0.36 ton/year of PM_{10} after the proposed facilities become operational. These increases are well below the conformity threshold values. Therefore, a general conformity review is deemed unnecessary at this time.

Attachment D-1
Model Results

Attachment 1 - ACAM Output

SOURCE CATEGORY	CO	NO_X	SO_2	VOC	PM_{10}
Emissions (tpy)					
2014					
Area Sources					
Other Phase I Const. – Grading Operations	0.00	0.00	0.00	0.00	31.7
Other Phase II Const. – Mobile/Stationary Construction Equipment	3.32	0.34	0.0034	0.16	0.017
Other Phase II Const. – Workers Trips	1.43	0.062	0.00	0.064	0.00
Other Phase I Const. – Grading Equipment	1.43	0.14	0.0014	0.067	0.0072
Building Demolition Emissions	0.00	0.00	0.00	0.00	0.65
Total	**6.18**	**0.54**	**0.0048**	**0.29**	**32.4**
2015					
Area Sources					
Other Phase I Const. – Grading Operations	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. – Mobile/Stationary Construction Equipment	3.32	0.34	0.0034	0.16	0.017
Other Phase II Const. – Workers Trips	1.43	0.062	0.00	0.064	0.00
Other Phase I Const. – Grading Equipment	0.00	0.00	0.00	0.00	0.00
Building Demolition Emissions	0.00	0.00	0.00	0.00	0.00
Total	**4.75**	**0.40**	**0.0034**	**0.22**	**0.017**
Point Sources					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Commercial/Retail and Office/Employment Heating Emissions	1.79	4.06	0.013	0.12	0.16
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	1.79	4.06	0.013	0.12	0.16
Grand Total	**6.54**	**4.46**	**0.016**	**0.34**	**0.18**
2016					
Area Sources					
Other Phase I Const. – Grading Operations	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. – Mobile/Stationary Construction Equipment	0.00	0.00	0.00	0.00	0.00
Other Phase II Const. – Workers Trips	0.00	0.00	0.00	0.00	0.00
Other Phase I Const. – Grading Equipment	0.00	0.00	0.00	0.00	0.00
Building Demolition Emissions	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00
Point Sources					
Miscellaneous Point Sources	0.00	0.00	0.00	0.00	0.00
Commercial/Retail and Office/Employment Heating Emissions	3.97	8.98	0.029	0.26	0.36
Residential Space Heating	0.00	0.00	0.00	0.00	0.00
Total	3.97	8.98	0.029	0.26	0.36
Grand Total	**3.97**	**8.98**	**0.029**	**0.26**	**0.36**

Id	Project	Gross Construction Area (ft^2)	Gross Area to be Graded (ft^2)
L002	Realign Barranca Road	146,797	84,902
	Construct Runway Extension	119,790	500,000
L009	Construct YTC Warehouse	7,750	7,750
L010	Construct Instrument Development Facility	32,500	32,500
L011	Tracked Vehicle Trail Office	8,100	8,100
L029	Construct Optional Maintenance Facility	7,500	
	Graded Parking Area with Power Pole Farm		90,342
	Perimeter Fencing Centered at YTC		2,400
L031	Construction MFFS Dining Facility (3 Location Options)	48,979	48,979
L032	Expand Bravo LTA - No Emissions		
L034	Construct MFFS Ready Room (3 Location Options)	48,979	48,979
L037	Construct Vehicle Test Course		792,795
L040	Construct drop zone near LAAF (DZ) (984-foot [ft] x 1,969-ft)		196,021
L102	Construct MFFS Terminal	28,000	28,000
	Construct Rigger Facility	15,500	15,500
	Construct UAS Airfield, hangars, taxiway, and UAS flight test area	599,250	599,250
	Construct CASA Transport Aircraft Hangar	153,858	153,858
L106	Construct 4 Administrative Buildings	44,465	44,465
	Construct Installation Logistics Complex	76,833	
		1,338,301	2,653,841
			60.9 Acres

Construction Worker Trip (POVs) Emissions

Equation

Commercial/Retail (trips/day) = 0.32 (trips/1000 SF/day) x Area of Commercial/Retail Units (1000 SF)

Trips/day =	428.3
Number of Days =	400

Pollutant	grams/trip	lbs/day	Tons 1st Yr
CO	15.184	14.34	1.43
NOX	0.661	0.62	0.062
VOC	0.678	0.64	0.064
SO2	0.0005	0.00047	4.72E-05
PM10	0.0047	0.0044	4.44E-04

Mobile and Stationary Construction Equipment Emissions

Equation

Construction Equipment Emissions Phase 1 (lbs/day) = Total Building Square Feet(sq. ft.) / 435600 × [Emission Rate (lbs/day) for a Grader for the specific year + Emission Rate (lbs/day) for a Rubber Tired Dozers for the specific year + Emission Rate (lbs/day) for a Tractor/Loader/Backhoe for the specific year + Emission Rate (lbs/day) for a Water Truck for the specific year]

Construction Equipment Emissions Phase 2 (lbs/day) = Total Building Square Feet(sq. ft.) / 435600 × [Emission Rate (lbs/day) for a Crane for the specific year + Emission Rate (lbs/day) for a Tractor/Loader/Backhoe for the specific year + (Emission Rate (lbs/day) for a Forklift for the specific year x 2)]

Emission Factors

Horsepower	CO (g/hp-hr)	NO_X (g/hp-hr)	VOC (g/hp-hr)	SO_2 (g/hp-hr)	PM_{10} (g/hp-hr)	$PM_{2.5}$ (g/hp-hr)
75 ≤ hp < 175	3.70	0.30	0.14	0.0030	0.015	0.014
175 ≤ hp < 600	2.60	0.30	0.14	0.0030	0.015	0.014

Phase 1

Type of Unit	Rated HP (hp)	# of Units	hr/day	Load Factor	Emission Factor (g/hp-hr)						Emissions (lb/day)					
					CO	NO_X	VOC	SO_2	PM_{10}	$PM_{2.5}$	CO	NO_X	VOC	SO_2	PM_{10}	$PM_{2.5}$
Grader	174	1	6	0.61	3.70	0.30	0.14	0.0030	0.015		15.96	1.29	0.60	0.0129	0.065	0.000
Dozer	357	1	6	0.59	2.60	0.30	0.14	0.0030	0.015	0.014	22.3	2.57	1.20	0.026	0.128	0.120
Tractor/Loader/ Backhoe	108	1	8	0.55	3.70	0.30	0.14	0.0030	0.015	0.014	11.91	0.97	0.45	0.0097	0.048	0.045
Water Truck	189	1	8	0.50	2.60	0.30	0.14	0.0030	0.015	0.014	13.32	1.54	0.72	0.015	0.077	0.072
TOTAL EMISSIONS											**63.4**	**6.36**	**2.97**	**0.064**	**0.32**	**0.24**
										Tons	**1.43**	**0.14**	**0.067**	**0.0014**	**0.0072**	**0.0053**

Phase 2

Type of Unit	Rated HP (hp)	# of Units	hr/day	Load Factor	Emission Factor (g/hp-hr)						Emissions (lb/day)					
					CO	NO_X	VOC	SO_2	PM_{10}	$PM_{2.5}$	CO	NO_X	VOC	SO_2	PM_{10}	$PM_{2.5}$
Crane	399	1	4	0.43	2.60	0.30	0.14	0.0030	0.015	0.014	12.09	1.39	0.65	0.0139	0.070	0.065
Tractor/Loader/ Backhoe	108	1	8	0.55	3.70	0.30	0.14	0.0030	0.015	0.014	11.91	0.97	0.45	0.0097	0.048	0.045
Forklift	145	2	6	0.30	2.60	0.30	0.14	0.0030	0.015	0.014	9.19	1.06	0.50	0.0106	0.053	0.050
TOTAL EMISSIONS											**33.2**	**3.42**	**1.60**	**0.034**	**0.171**	**0.160**
										Tons for 1st Year	3.32	0.34	0.16	0.0034	0.017	0.016

Days Phase 1 45
Days Phase 2 400

Grading Operation Emissions

Equation

PM10G (tons/yr) = 55.00 x ACRES x DPYI / 2000
ACRES = Number of gross acres to be graded during Phase 1 (but not more than 50 acres).
DPYI = Number of days per year during Phase 1, which is the grading phase.
55.00 = Emission factor in pounds per acre per day.
2000 = Conversion factor from pounds to tons.

Grading Dust Reductions

PM10GR (tons/yr)(reduced) = PM10G – (PMRED1 + PMRED2 + PMRED3 + PMRED4)
Is all exposed soil watered twice daily? PMRED1 (tons/yr) = PM10G x 0.37
Are all unpaved haul roads watered twice daily? PMRED2 (tons/yr) = PM10G x 0.03
Are soil piles enclosed, covered, or watered twice daily? PMRED3 (tons/yr) = PM10G x 0.16
Are covers securely applied to all haul/dump trucks moving soils/aggregate? PMRED4 (tons/yr) = PM10G x 0.02

PM10G (tons/yr)	75.4
PMRED1 (tons/yr)	27.9
PMRED2 (tons/yr)	2.26
PMRED3 (tons/yr)	12.1
PMRED4 (tons/yr)	1.51
Total	31.7

Building Demolition Emissions

Equation

E (tons/yr) = 0.00042 x J x Q / 2000

J = (N x O x P)

J = Building volume handled per day.

N = Width of building in feet.

O = Length of building in feet.

P = Height of building in feet.

Q = Number of operating days required to demolish a building (user inputs calendar days that are converted to operating days).

Project	Length (ft)	Width (ft)	height (ft)	PM10 (tons)
L106	200	250	35	0.37
			Total	0.37

Commercial/Retail Heating Emissions

Equation

Ep = F x (1 – CENHEAT) x FACBTU x Efp x sum of gross area/2000

F = Fraction of the year the building operate. Assume 1

CENHEAT = Fraction of facility heating provided by central heating plant (MMBtu basis). Assume 0

FACBTU = Heating energy requirement, MMBtu/square feet. Refer to Appendix K for energy requirements by region and building activity type. (0.072 million Btu/ft ^{2})

EFp = Emission factor for pollutant, p, for natural gas heating (lb/MMBtu). The factors

are as follows: CO = 0.0824, NOX = 0.1863, VOC = 0.0054, SO2 = 0.0006 and PM10 = 0.0075.

Gross Area sq ft	CO lb/MMBtu	NOX lb/MMBtu	VOC lb/MMBtu	SO2 lb/MMBtu	PM10 lb/MMBtu	CO tons	NOX tons	VOC tons	SO2 tons	PM10 tons
1,338,301	0.0824	0.1863	0.0054	0.0006	0.0075	3.97	8.98	0.26	0.029	0.36
					2015	1.79	4.06	0.118	0.0131	0.16

Appendix F
Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

WHEREAS, the United States Army Garrison Yuma Proving Ground (USAG YPG) proposes to continue operations, maintenance, and development projects (undertakings) to ensure the mission of Yuma Proving Ground (YPG) as a test facility for weapons and munitions on approximately 837,916 acres of southwestern Arizona, north of Yuma; and

WHEREAS, YPG is a federally owned and operated facility, and YPG plans to carry out federally funded projects, thereby making the operations, maintenance, and development projects undertakings subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 United States Code (USC) § 470f, and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800; and

WHEREAS, the purpose of the undertakings is to enable USAG YPG to continue to provide adequate facilities for military testing and training activities and for ongoing contracting efforts capable of accommodating current and foreseeable technological advances; testing activities include military ground and aerial vehicle systems, weapons, ammunitions, sensors, and guidance systems; USAG YPG must provide realistic training for units, including, but not limited to, forward observer training, ground combat training, and operational training to provide real-world testing scenarios; and

WHEREAS, USAG YPG has determined the Area of Potential Effects (APE) to be all lands within the YPG boundary (Attachment A); and

WHEREAS, USAG YPG has determined that the development of a Programmatic Agreement (PA), in accordance with 36 CFR § 800.14(b)(1)(ii) and (iv), is warranted because specific details on some undertakings are unknown and the effects on historic properties cannot be fully determined prior to their approval, and for the routine nature of many actions that are part of the ongoing management and operation of YPG; and

WHEREAS, USAG YPG has determined that the undertakings may have adverse effects on historic properties, which are eligible for listing in the National Register of Historic Places (NRHP), and has consulted with the Arizona State Historic Preservation Officer (SHPO), pursuant to 36 CFR Part 800; and

WHEREAS, USAG YPG has consulted with the federally recognized Indian tribes (Tribes) of the Ak-Chin Indian Community, Chemehuevi Indian Tribe, Cocopah Indian Tribe, Colorado River Indian Tribes, Fort McDowell Yavapai Nation, Fort Mojave Indian Tribe, Gila River Indian Community, Hopi Tribe, Quechan Indian Tribe, Salt River Pima Maricopa Indian Community, San Carlos Apache Tribe, Tohono O'odham Nation, Yavapai-Apache Nation, and Yavapai-Prescott Indian Tribe, who attach traditional, religious, and/or cultural significance to YPG lands or cultural resources therein that may be affected by the undertakings, and has invited them to sign this PA as concurring parties; and

WHEREAS, USAG YPG invited the Bureau of Land Management (BLM), Yuma Field Office, and Western Area Power Administration to participate in the development of this PA and they agreed to sign as concurring parties; and

WHEREAS, USAG YPG invited the U.S. Fish and Wildlife Service (USFWS), Arizona Historical Society, Rio Colorado Division, Yuma, and the City of Yuma, a certified local government, to participate in the development of this PA and each has declined to sign as concurring parties; and

WHEREAS, USAG YPG has provided the public an opportunity to comment by placing the following notices of this PA: in the *Yuma Sun* newspaper on January 23, 2013, August 23, 2013, and March 23, 2014; posted a draft PA on the USAG YPG public internet site January 31 through March 12, 2013, September 4 through October 7, 2013, and March 25 through May 12, 2014; at the Yuma County Library Main and Foothills branches February 7 through March 6, 2013, September 4 through October 7, 2013, and March 25 through May 12, 2014; and at the YPG Library September 4 through October 7, 2013, and March 25 through May 12, 2014; and no responses were received; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), USAG YPG has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination, providing the required documentation, and the ACHP has chosen to participate in accordance with 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, USAG YPG has previously conducted cultural resources inventories of 174,098 acres of YPG from 1981 to 2013 (Attachment A) and has identified 848 historic properties as individually eligible for the NRHP, all of which are archaeological sites (Attachment B), and SHPO reaffirmed their concurrence with these findings in correspondence dated May 10, 2013; and

WHEREAS, of these 848 sites, 659 are also contributing resources located within 13 NRHP-eligible archaeological districts; and

WHEREAS, to date, there are no evaluated buildings or structures at YPG that qualify as historic properties except those covered by the *Program Comment for Capehart and Wherry Era Army Family Housing and Associated Structures and Landscape Features (1949–1962)*, *Program Comment for World War II and Cold War Era (1939-1974) Ammunition Storage Facilities*, *Program Comment for Cold War Era Unaccompanied Personnel Housing (1946-1947)*, and undertakings at properties for which effects have been taken into account through those program comments and the *Program Comment for DoD Rehabilitation Treatment Measures*, which are not part of this PA; and

WHEREAS, inholdings, rights of way, and structures not belonging to or under the jurisdiction of USAG YPG are exempt from this PA; and

WHEREAS, properties of traditional religious and cultural significance to Tribes have been identified but are unevaluated for eligibility to the NRHP; however, USAG YPG recognizes that properties of traditional religious and cultural significance have importance to Tribes; and

WHEREAS, USAG YPG shall treat buildings, structures, sites, objects, and districts that are 45 years of age or older that have not yet been evaluated for NRHP eligibility as eligible for listing in the NRHP; and

WHEREAS, USAG YPG has developed a *Geomorphic-Based Archaeological Sensitivity Model for U.S. Army Yuma Proving Ground, Arizona* (2011 sensitivity model) to help predict areas of likely archaeological sensitivity at YPG and provided this model to Tribes and SHPO for review and comment, and it will be implemented taking into account comments received by the SHPO in 2013; and

WHEREAS, USAG YPG has not conducted, and does not plan to conduct, cultural resources inventories in dedicated impact areas, high hazard impact areas, open burn/open detonation areas, chemical test areas, newly identified unexploded ordnance sites, historical contamination areas, and environmental compliance and restoration sites (Attachments C and D) due to human life and safety issues; and

WHEREAS, USAG YPG, SHPO, and the ACHP agree that upon execution of this PA, the *Memorandum of Agreement Between the Department of the Army, the Advisory Council on Historic Preservation, and the Arizona State Historic Preservation Officer Regarding Realignment of Activities to Yuma Proving Ground, Arizona*, executed on 19 August 1992 (1992 Memorandum of Agreement [MOA]), will become null and void and will be replaced with the process outlined in this PA; and

WHEREAS, the Historic Preservation Plan referenced in the 1992 MOA has become the Integrated Cultural Resources Management Plan (ICRMP); and

WHEREAS, undertakings addressed through the 2011 *Programmatic Agreement Among Federal Highway Administration, United States Bureau of Land Management, United States Bureau of Reclamation, U.S. Army Yuma Proving Ground, Arizona Department of Transportation, Arizona State Land Department, Arizona State Museum, Yavapai-Prescott Indian Tribe, Cocopah Tribe, Hopi Tribe, Colorado River Indian Tribe, Ft. Yuma-Quechan Tribe, Ft. Mojave Indian Tribe, U.S. Army Corps of Engineers, and Arizona State Historic Preservation Office Regarding the Historic Properties Along United States Route 95 Between Avenue 9E and Aberdeen Road, Yuma County, Arizona*, the 2013 *Programmatic Agreement Among U.S. Department of Energy-Western Area Power Administration, the Advisory Council on Historic Preservation, Arizona State Historic Preservation Officer, Arizona State Lands Department, Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, National Park Service, United States Forest Service, Yuma Proving Ground, Ak-Chin Indian Community, Colorado River Indian Tribes, Fort Mojave Indian Tribes, Fort Yuma-Quechan Tribe, Gila River Indian Community, Hualapai Tribe, Navajo Nation, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation Regarding Maintenance and Minor Construction Activities at Existing Western Transmission Lines, Facilities and Properties in Arizona*, and the 2013 *Memorandum of Agreement Between Department of the Interior, Bureau of Land Management, Arizona; Department of the Interior, Bureau of Reclamation, Lower Colorado Region; U.S. Army Garrison, Yuma Proving Ground; Arizona State Land Department; Arizona Public Service Company and the Arizona State Historic Preservation Office Regarding the Hassayampa to North Gila 500kV-2 Transmission Line*, will be carried out in accordance with the terms of such documents and are not subject to the terms of this PA; and

WHEREAS, provisions in the 2005 (modified in 2011) *USAG YPG/Cocopah Tribe Cooperative Agreement: Services Between the U.S. Army Yuma Proving Ground and the Cocopah Indian Tribe Cocopah Museum, Somerton, Arizona* and the 2010 (extended in 2014) *Memorandum of Understanding between the Yavapai-Prescott Indian Tribe and U.S. Army Garrison Yuma Proving Ground* are not affected by this PA; and

Background

- A map entitled “Area of Potential Effects & Previous Surveys” showing the APE for this PA and the areas that have been previously surveyed for cultural resources within that APE is included as Attachment A.

- A list of identified historic properties on YPG is included as Attachment B.

- A map entitled “Impact Areas, Other Contaminated Areas, & Previously Disturbed Areas” showing all dedicated impact areas (including high hazard impact areas), open burn/open detonation areas, chemical test areas, newly identified unexploded ordnance sites, environmental compliance and restoration sites, historical contamination areas, and previously disturbed areas at YPG is included as Attachment C.

- A map entitled “Impact Areas, Other Contaminated Areas, & Previously Disturbed Areas Overlain with Areas Previously Surveyed for Cultural Resources at YPG” showing the previously surveyed areas overlain on the map of impact areas, other contaminated areas, and previously disturbed areas is included as Attachment D.

- A list of pertinent definitions and all acronyms used in this PA is included as Attachment E.

- Standard Operating Procedure #5 of the USAG YPG ICRMP for “Inadvertent Discovery of Archaeological Deposits” is included as Attachment F.

- A map entitled “Lands No Longer Requiring Cultural Resources Survey” showing those areas of YPG that USAG YPG will no longer survey for the identification of historic properties through consultation with the SHPO and Tribes is included as Attachment G. This map will be developed after the execution of this PA in accordance with Stipulation III.

- A list of those undertakings that USAG YPG, the SHPO, and the ACHP agree would have no adverse effects to historic properties, and which the SHPO and the ACHP agree no longer need to be reviewed by their offices, is included as Attachment H.

- All days referred to in this PA are calendar days, unless otherwise noted.

Now, therefore, the USAG YPG, the SHPO, and the ACHP agree that this PA shall be implemented in accordance with the following stipulations in order to take into account the effects of undertakings on historic properties.

Stipulations

USAG YPG shall ensure that the following measures are carried out:

I. Roles and Responsibilities of Consulting Parties

A. U.S. Army Garrison Yuma Proving Ground

1. The USAG YPG Garrison Manager is responsible for all decisions regarding the applicability of this PA to undertakings within the APE pursuant to Army Regulation 200-1: *Environmental Protection and Enhancement*.

2. The USAG YPG Garrison Manager shall designate a Cultural Resources Manager (CRM) at USAG YPG with the authority to implement this PA and conduct the stipulated coordination and consultation with other signatories, concurring parties, tribes, other concerned agencies, organizations, and persons. The implementation of this agreement shall be primarily executed on a day-to-day basis by the CRM acting for the Garrison Manager, responsible for ensuring that the stipulations herein are met.

3. The CRM shall meet or USAG YPG shall employ, maintain a contract with, or obtain through other means professional expertise that meets the qualification standards outlined in the Secretary of the Interior’s Historic Preservation Professional Qualification Standards [as amended and annotated] for archeology, history, architecture, historic architecture, or architectural history, as appropriate for the undertaking.

4. The CRM shall ensure that efforts to identify, evaluate, and treat historic properties under the stipulations of this PA meet the Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties.

5. USAG YPG shall consult with BLM or the USFWS on joint eligibility determinations for any cultural resources that extend onto BLM or USFWS lands and will provide the SHPO with documentation of the consultation regarding the determinations of eligibility and seek a consensus of eligibility for these cultural resources.

6. USAG YPG shall notify the public and other identified consulting parties in coordination with the National Environmental Policy Act to meet Section 106 public consultation requirements.

7. USAG YPG shall consult with the SHPO, in accordance with Stipulation III, to define areas requiring no further cultural resources survey efforts based on previous surveys and disturbances.

B. The Arizona State Historic Preservation Officer

1. The SHPO may raise objections according to Stipulation IX, may amend this agreement according to Stipulation X, or may terminate this agreement according to Stipulation XI.

2. The SHPO shall respond within the timeframes of this agreement after notifications are received.

C. The Advisory Council on Historic Preservation

1. The ACHP may raise objections and/or resolve objections according to Stipulation IX, may amend this agreement according to Stipulation X, or may terminate this agreement according to Stipulation XI.

2. The ACHP shall not participate in identifications, evaluations, or reviews described under stipulations II, III, and IV unless requested in writing from either USAG YPG, the SHPO, or Tribes.

D. Concurring Parties

1. Concurring parties may raise objections according to Stipulation IX.

II. Section 106 Project Review Process

A. Determine the Undertaking

1. The CRM shall determine if the proposed project is an undertaking as defined in 36 CFR § 800.16(y).

a) If the CRM determines the proposed project is not an undertaking, as defined in 36 CFR § 800.16(i), the CRM shall document this determination for inclusion in the Annual Report, and USAG YPG has no further obligations under this stipulation.

b) If the CRM determines that the proposed project is listed as an exempted undertaking, as identified in Attachment H, the CRM shall document this determination for inclusion in the Annual Report, and USAG YPG has no further obligations under this stipulation.

c) If the CRM determines the proposed project is an undertaking not listed in Attachment H, the CRM shall continue the Section 106 Project Review Process.

2. The CRM will ensure that all Digging Permits and Records of Environmental Consideration contain text derived from Standard Operating Procedure (SOP) #5, "Inadvertent Discovery of Archaeological Deposits," as found in Attachment F.

B. Define the Area of Potential Effects and Identify Historic Properties

1. The CRM shall determine and document the project APE for each specific undertaking, appropriate to the scope and scale of the undertaking, and considering direct, indirect, and cumulative effects.

2. The CRM shall determine if cultural resource surveys are required for the project APE using the following parameters:

a) If the project APE is limited to within a dedicated impact area, high hazard impact area, open burn/open detonation area, chemical test area, newly identified unexploded ordnance site, environmental compliance and restoration site, or unsafe historical contamination area (Attachments C and D), no additional cultural resource survey is required and the CRM shall continue to Stipulation II(C) in the Section 106 Project Review Process.

(1) For undertakings with project APEs in non-ordnance contaminated areas, in ordnance contaminated historic World War II training areas, or in other ordnance contaminated areas (as shown on Attachments C and D), some contaminated areas may be off limits to ground-disturbing activities, including archaeological surveys, and may not be surveyed at all, at the sole discretion of the CRM. Undertakings in contaminated areas where the CRM determines that they do not pose an imminent threat shall be subject to survey.

(2) Undertakings with project APEs proposed within dedicated impact areas (as shown on Attachments C and D) that require changes in land use designation for project development could be subject to survey at the discretion of the CRM.

b) If the project APE is limited to within an area delineated in Attachment G, upon acceptance, no additional cultural resource survey is required, and the CRM shall continue to Stipulation II(C) in the Section 106 Project Review Process.

c) If the project APE is in an area not delineated in Attachments C, D, or G, the CRM shall determine the level of cultural resource survey necessary, depending on the size and location of the project APE based on the 2011 sensitivity model, as YPG lands are categorized as having low, moderate, or high potential to possess archaeological sites (summary provided in the Fiscal Year 2012-2016 ICRMP; the full study for the sensitivity model is available upon request from the CRM), and the survey percentage based on previous consultation with the SHPO in the development of this PA.

(1) Undertakings in areas of low sensitivity for archaeological sites will be surveyed at less than 100 percent regardless of size of the project APE.

(2) For undertakings with a project APE of 200 acres or less, that are not in low sensitivity areas or not in exempt areas as defined in Attachments C, D, or G, the CRM shall prepare and implement a survey approach using standard procedures based on appropriate SHPO guidance for identification efforts.

(3) For undertakings with a project APE larger than 200 acres, that are not in low sensitivity areas or not in exempt areas as defined in Attachments C, D, or G, the CRM shall prepare the survey approach using the standard procedures based on appropriate SHPO guidance for identification efforts, and finalize the project APE and survey approach in consultation with the SHPO and Tribes.

(a) The CRM shall provide the SHPO and Tribes the survey approach and project APE 30 days in advance of the proposed inventory and request comments.

(b) The SHPO has 20 days upon receipt of all pertinent documentation to provide comments on the survey approach and project APE. If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments before assuming concurrence with the USAG YPG survey approach and project APE.

(c) The Tribes are under no obligation to provide comments on the proposed survey approach or project APE; however, if they wish USAG YPG to consider their comments regarding the proposed survey approach or project APE, Tribes should submit comments in writing within 20 days of receipt of all pertinent documentation.

(d) If there are comments, the CRM will consult to address comments and refine inventory planning efforts, as needed, prior to implementing the proposed inventory and survey.

d) If the project APE is in an area not delineated in Attachments C, D, or G and there is a previous cultural resource survey completed but has not been reviewed or concurred on by the SHPO, USAG YPG shall proceed in accordance with Stipulation II(B)(3) for the review of that survey.

3. Evaluation of Surveyed Cultural Resources

a) Surveys that identify inventoried areas with no archaeological sites, isolated features or artifacts, or other cultural resources will be defined as negative surveys.

(1) The CRM shall provide reports of negative surveys to Tribes before finalizing the report. The Tribes are under no obligation to provide comments on the negative surveys; however, if they wish USAG YPG to consider their comments regarding the negative surveys, Tribes should submit comments in writing within 45 days of receipt of all pertinent documentation. If Tribes identify properties of traditional religious and cultural significance and/or Traditional Cultural Properties, the CRM shall proceed to Stipulation II(B)(3)(b) in the Section 106 Project Review Process.

(2) A list of finalized negative survey reports will be part of the Annual Report, and the CRM shall proceed to Stipulation II(B)(4) in the Section 106 Project Review Process.

b) All newly identified cultural resources, and any previously identified but unevaluated cultural resources that could be affected by an undertaking, shall be evaluated by USAG YPG in accordance with 36 CFR Part 63 and bulletins, guidance, and documents produced by the National Park Service (NPS) to determine if they are historic properties and shall be assessed for effect by the proposed undertaking in accordance with Stipulation II(C)(1). All pertinent reports and determinations will be provided to the SHPO and Tribes for review and comment.

(1) The SHPO shall provide a response to USAG YPG eligibility determinations and effect findings within 30 days of receipt of all pertinent documentation in accordance with Stipulation II(C)(2)(c) or Stipulation II(C)(3)(c). If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments before assuming concurrence with USAG YPG determinations. If USAG YPG and the SHPO cannot resolve the issue within 30 days, then USAG YPG shall forward the dispute to the Keeper of the NRHP for resolution at the conclusion of the 30 day period.

(2) The Tribes are under no obligation to provide comments on the eligibility determinations; however, if they wish USAG YPG to consider their comments regarding the eligibility determinations, Tribes should submit comments in writing within 30 days of receipt of all pertinent documentation.

c) USAG YPG shall consult with Tribes to identify properties of traditional religious and cultural significance (16 U.S.C. 470 Section 101[d][6][A]), and also potential Traditional Cultural Properties, in accordance with NPS Bulletin 38. Due to their unique nature, properties of traditional religious and cultural significance and Traditional Cultural Property determinations will be handled on a case-by-case basis, respecting the desires of the Tribes affected while expediting the mission of USAG YPG.

4. If the CRM does not identify any historic properties within the project APE, the CRM shall document this determination of "No Historic Properties Affected" for those undertakings for inclusion in the Annual Report, and USAG YPG has no further obligations under this stipulation.

5. If the CRM identifies a historic property that may be directly, indirectly, or cumulatively affected within the project APE, the CRM shall continue the Section 106 Project Review Process.

C. Evaluate Effects of the Undertaking

1. The CRM shall assess the effects of the proposed undertaking on historic properties, including direct, indirect, and cumulative effects, using the criteria of adverse effects (36 CFR § 800.5(a)(1)) and shall make one of the following determinations:

   a) "No Historic Properties Affected": if the CRM determines that historic properties present in the project APE will not be affected by the undertaking, the CRM shall document this determination for those undertakings for inclusion in the Annual Report, and USAG YPG has no further obligations under this stipulation.

   b) "No Adverse Effect to Historic Properties": if the CRM determines that historic properties present in the project APE will not be adversely affected by the undertaking, and the undertaking is not included in Attachment H, the CRM shall proceed to Stipulation II(C)(2).

   c) "Adverse Effect to Historic Properties": if the CRM determines that historic properties present in the project APE will be adversely affected by the undertaking, the CRM shall proceed to Stipulation II(C)(3).

2. No Adverse Effect to Historic Properties

   a) For those undertakings with a finding of "No Adverse Effect to Historic Properties" the CRM shall provide the SHPO and Tribes with appropriate reports and/or documentation including, but not limited to, the following:

      (1) project description, to include depth and amount of ground disturbance anticipated;

      (2) APE map showing the location of the project and summary of survey efforts to identify historic properties;

      (3) description of the historic properties affected;

      (4) any photos, as necessary; and

      (5) finding of effect and request for concurrence on "No Adverse Effect to Historic Properties" finding from the SHPO.

b) The Tribes are under no obligation to provide comments on the effect determination; however, if they wish USAG YPG to consider their comments regarding the effect determination, Tribes should submit comments in writing within 30 days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration before concluding the consultation and will notify the SHPO of any tribal concerns and the USAG YPG response to those concerns.

c) The SHPO shall provide a response to USAG YPG effect determination within 30 days of receipt of all pertinent documentation. If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments before assuming concurrence with the USAG YPG effect determination.

(1) If the SHPO concurs with the "No Adverse Effect to Historic Properties" finding, the CRM shall document this concurrence for inclusion in the Annual Report, and USAG YPG has no further obligations under this stipulation.

(2) If the SHPO does not concur with the finding of "No Adverse Effect to Historic Properties," the CRM shall consult with the SHPO for no more than a total of 30 days, or other time period as agreed to between SHPO and the CRM, upon receipt of SHPO notification of non-concurrence to attempt to resolve the concerns identified by the SHPO.

(a) If at the end of the 30 days, or agreed to specified time, the SHPO concurs with the finding of "No Adverse Effect to Historic Properties," the CRM shall document this concurrence for inclusion in the Annual Report, and USAG YPG has no further obligations under this stipulation.

(b) If at the end of the 30 days, or agreed to specified time, the SHPO does not concur with the finding of "No Adverse Effect to Historic Properties," the CRM shall notify the ACHP in accordance with Stipulation IX.

3. Adverse Effect to Historic Properties

a) For those undertakings with a finding of "Adverse Effect to Historic Properties" the CRM shall provide the SHPO and Tribes with a packet of information including, but not limited to, the following:

(1) project description, to include depth and amount of ground disturbance anticipated;

(2) APE map showing the location of the project and summary of survey efforts to identify historic properties;

(3) description of the historic properties affected;

(4) documentation of alternatives considered to avoid or minimize the adverse effect and why they could not be accomplished; and

(5) any photos, as necessary.

b) The Tribes are under no obligation to provide comments on the effect determination; however, if they wish USAG YPG to consider their comments regarding the effect determination, Tribes should submit comments in writing within 30 days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration before concluding the consultation and will notify the SHPO of any tribal concerns and USAG YPG response to those concerns.

c) The SHPO shall provide any comments to the USAG YPG effect determination within 30 days of receipt of all pertinent documentation.

D. Resolution of Adverse Effects

1. The CRM shall notify Consulting Parties and the public within 10 days of notifying the SHPO and Tribes of an adverse effect finding for an undertaking using the following process:

a) The CRM shall prepare and send a notification package for the Consulting Parties, including a description of the undertaking, an illustration of the project APE, a list of identified historic properties within the project APE, the explanation for the finding of adverse effects, steps taken or considered by USAG YPG to avoid or minimize the adverse effects, any SHPO comments received by USAG YPG regarding the undertaking, an invitation to participate in a consultation to resolve adverse effects, and proposed dates for a Consulting Parties meeting.

b) The CRM shall post a notice of the adverse effects finding on the official USAG YPG website to include a description of the undertaking, a list of identified historic properties, the explanation for the finding of adverse effects, steps taken or considered by USAG YPG to avoid or minimize the adverse effects, any SHPO comments received by USAG YPG regarding the undertaking, and an invitation to provide written comment within 30 days of posting to the CRM.

c) Consulting Parties are under no obligation to provide comments on the effect finding; however, if they wish USAG YPG to consider their comments regarding the effect finding, Consulting Parties should submit comments in writing within 30 days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Consulting Parties for comments and if they wish to participate in the resolution of adverse effects. USAG YPG shall take any comments received into consideration before concluding the consultation and will notify the SHPO of any concerns and USAG YPG response to those concerns.

2. The CRM shall organize a consultation meeting, to include the SHPO, approximately 45 days after notifying Consulting Parties to discuss alternatives to avoid, minimize, or mitigate the adverse effects. Additional meetings shall be scheduled as needed.

3. If through consultation with the SHPO and Consulting Parties the undertaking avoids adverse effects, the CRM will document the alternatives utilized in an attempt to reduce the effects of the undertaking to a no adverse effects finding in consultation and in concurrence with all participating Consulting Parties and include them in the Annual Report, and USAG YPG has no further obligations under this stipulation.

4. If through consultation with the SHPO and Consulting Parties the adverse effects are minimized or mitigated, then the measures agreed to by USAG YPG, the SHPO, and Consulting Parties can be specified in a MOA in accordance with 36 CFR § 800.6(c) and filed with the ACHP upon execution.

5. The ACHP will only participate in the resolution of adverse effects for individual undertakings if a written request is received from USAG YPG, the SHPO, or a Tribe.

III. Establishing Areas for No Additional Cultural Resources Surveys

A. In consultation with the SHPO and Tribes, the CRM shall develop a map, titled "Lands No Longer Requiring Cultural Resources Survey," to define those YPG lands that require no additional cultural resources surveys, and shall update USAG YPG's Geographic Information System (GIS) database to reflect these areas within one year of execution of this PA.

B. USAG YPG shall use the following parameters to help define those areas:

1. Lands that have been surveyed by previous investigations meeting current SHPO and Arizona State Museum Standards and which have been subject to Section 106 consultation to identify historic properties, or the lack there of, with the SHPO and Tribes for previous undertakings;

2. Lands that have been extensively disturbed by past human activities; in general, these include developed areas such as cantonment areas, drop zones, and similar areas with little to no probability of subsurface deposits that have been previously bladed or similarly disturbed.

C. The CRM shall prepare a draft map that illustrates these areas within 90 days of execution of this PA and provide it to SHPO and the Tribes for their review and comment.

1. The SHPO shall provide a response to USAG YPG regarding the draft map within 30 days of receipt of all pertinent documentation (to include accompanying descriptive materials). If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments.

2. The Tribes are under no obligation to provide comments on the draft map; however, if they wish USAG YPG to consider their comments regarding the areas that will not require additional cultural resources review, Tribes should submit comments in writing within 30 days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration and will notify the SHPO of any tribal concerns and USAG YPG response to those concerns.

D. The CRM shall prepare a draft final map within 60 days of receiving comments from the SHPO and Tribes and provide it to SHPO and the Tribes for their final review and concurrence.

1. The SHPO shall provide a response to USAG YPG regarding the draft final map within 30 days of receipt of all pertinent documentation (to include accompanying descriptive materials). If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments before assuming concurrence with USAG YPG draft final map.

2. The Tribes are under no obligation to provide comments on the draft final map; however, if they wish USAG YPG to consider their comments regarding the areas that will not require additional cultural resources review, Tribes should submit comments in writing within 30 days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration before concluding the consultation and will notify the SHPO of any tribal concerns and the USAG YPG response to those concerns.

E. If the SHPO fails to concur on the map and USAG YPG and SHPO cannot reach a resolution on the map within 30 days of SHPO's response, the matter shall be referred to the ACHP in accordance with Stipulation IX.

F. USAG YPG shall include the "Lands No Longer Requiring Cultural Resources Survey" map in its GIS database, delineate on installation maps, and include it in this PA as Attachment G within 120 days of its finalization.

G. USAG YPG shall distribute to all Consulting Parties, in the format of their choice, the final "Lands No Longer Requiring Cultural Resources Survey" map within 120 days of its finalization.

H. USAG YPG shall review the "Lands No Longer Requiring Cultural Resources Survey" map, in consultation with the SHPO and the tribes every two years, or more frequently as appropriate, following its finalization to determine if additional areas are to be included.

IV. Sensitivity Model Update

A. USAG YPG shall update the 2011 sensitivity model within two years after execution of this PA, and every five years thereafter in conjunction with major ICRMP updates, with new archaeological and ethnographic data, as long as this PA is in effect.

B. Update intervals will be based on number of sites identified, areas surveyed, or number of locations refined.

C. The SHPO and Tribes have reviewed the categorization of these areas as part of their concurrence with this PA.

V. Post Review Discoveries

This stipulation applies to any and all instances of post review discoveries, including: post review discovery of a cultural resource not previously identified in project review and after project approval and initiation; post review discovery of an effect not previously identified in project review and after project approval and initiation; or post review discovery of an effect willfully inflicted on identified historic property after project approval and initiation. In the event of a post review discovery, the CRM, under the authority of the Garrison Manager, can halt an undertaking until consultation under this PA has concluded. If the discovery is made as part of an ongoing contracting effort at YPG, the discovery must be reported immediately to the Contracting Officer, who has the authority to halt an undertaking. The Contracting Officer must notify the CRM within 24 hours.

A. Post review discovery of a cultural resource not previously identified in project review and after project approval and initiation.

1. In the event cultural resource(s) are discovered in the implementation of a previously approved undertaking, the individual making the discovery shall notify the CRM within 24 hours.

2. The CRM shall ensure that all work ceases in the immediate vicinity (within an approximate 20 meter radius) to protect the newly identified cultural resource(s) within 48 hours of the discovery. The cease-work area shall be marked with flags or visibility tape to clearly delineate the boundaries as appropriate.

3. The CRM shall determine if the cultural resource(s) is/are eligible to the NRHP and notify the SHPO of the determination via phone within 72 hours of the discovery. If the SHPO concurs on non-eligibility of the cultural resource, USAG YPG has no further obligations under this stipulation.

4. If the cultural resource is determined to be a historic property, in consultation with the SHPO, the CRM shall prepare and send a notification package to the SHPO and Tribes including a summary of the undertaking and how it was previously reviewed under this PA, an illustration of the cease-work area, a list of identified historic properties within the cease-work area, and the treatment plan to address effects within four days of the SHPO's concurrence on NRHP eligibility.

    a) The Tribes are under no obligation to provide comments on the post review discovery; however, if they wish USAG YPG to consider their comments, Tribes should submit comments in writing within two days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration and will notify the SHPO of any tribal concerns and the USAG YPG response to those concerns.

    b) The SHPO shall provide a response to USAG YPG regarding the post review discovery within two days of receipt of all pertinent documentation. If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments.

5. USAG YPG shall include an after action report regarding the post review discovery treatment plan in the Annual Report.

B. Post review discovery of an effect not previously identified in project review and after project approval and initiation.

1. In the event effects to historic properties are discovered in the implementation of a previously approved undertaking, the individual making the discovery shall notify the CRM within 24 hours.

2. The CRM shall ensure that all work ceases in the immediate vicinity (within an approximate 20 meter radius) to protect the newly identified historic properties within 48 hours of the discovery. The cease-work area shall be marked with flags or visibility tape to clearly delineate the boundaries as appropriate.

3. The CRM shall determine if the effect is adverse and notify the SHPO of the determination via phone within 72 hours of the discovery. If the SHPO concurs with a no adverse effect finding, USAG YPG has no further obligations under this stipulation.

4. If the effect is determined to be adverse, in consultation with the SHPO, the CRM shall prepare and send a notification package for the SHPO and Tribes including a summary of the undertaking and how it was previously reviewed under this PA, an illustration of the cease-work area, a list of identified historic properties within the cease-work area, and the treatment plan to address effects within four days of the discovery.

    a) The Tribes are under no obligation to provide comments on the post review discovery; however, if they wish USAG YPG to consider their comments, Tribes should submit comments in writing within two days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration and will notify the SHPO of any tribal concerns and the USAG YPG response to those concerns.

    b) The SHPO shall provide a response to USAG YPG regarding the post review discovery within two days of receipt of all pertinent documentation. If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments.

5. USAG YPG shall include an after action report regarding the post review discovery treatment plan in the Annual Report.

VI. Discovery of Human Remains in the Execution of a Previously Approved Undertaking

A. If human remains are identified, including evidence of cremation, in the implementation of a previously approved undertaking, all activity shall immediately cease in the immediate area of the discovery. The individual making the discovery shall immediately notify the USAG YPG Garrison Manager and CRM. The CRM shall establish a minimum 20 meter radius around the area of discovery, which will be flagged and/or marked with visibility tape to protect the remains from further disturbance.

1. If the remains appear to be the victim of a recent crime or accidental death, the USAG YPG Garrison Manager or CRM shall contact the appropriate authorities (military law enforcement, medical examiner, YPG Command Judge Advocate) immediately and notify them of the discovery.

2. If the remains are determined to be Native American in origin, USAG YPG shall follow the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations, 43 CFR Part 10.

    a) The USAG YPG Garrison Manager shall initiate consultation with any known lineal descendants and culturally affiliated tribes by telephone notification and written confirmation within three working days.

    b) USAG YPG shall consult with the appropriate lineal descendants and culturally affiliated tribes on a written plan of action to address the remains.

    c) USAG YPG shall determine if the undertaking can be relocated.

d) If USAG YPG determines that relocation of the undertaking is feasible, then the undertaking shall be relocated to avoid the remains, and USAG YPG, in consultation with the lineal descendants and culturally affiliated tribes, shall decide on the best treatment for the remains, including in situ preservation.

e) USAG YPG shall provide the SHPO a summary of the NAGPRA consultation within 30 days of the consultation's conclusion.

3. If the remains are not Native American and do not warrant criminal investigation but are historic in nature, the CRM shall notify the SHPO within three days and shall consult to identify descendants or other interested parties, if any. USAG YPG, in consultation with SHPO and any interested parties, shall develop a plan for the respectful treatment and disposition of the remains within 180 days of the discovery.

VII. Emergency Situations

A. Emergency situations are those deemed necessary by USAG YPG as an immediate and direct response to a disaster or emergency declared by the President of the United States or Governor of Arizona, or other immediate threat to life or property. Emergency situations under this PA are only those implemented within 30 days from the declared disaster or emergency unless an extension is granted.

B. USAG YPA shall notify the SHPO via telephone within 48 hours of commencing the emergency situation.

C. USAG YPG shall include a summary of all emergency situations in the Annual Report.

D. Immediate rescue and salvage operations to preserve life or property are exempt from Section 106 of the NHPA and are outside the scope of this PA.

VIII. Annual Report and Review

A. USAG YPG shall prepare an annual report and distribute it to all Consulting Parties, except the ACHP, within 75 days of each new fiscal year in Fiscal Year 2016. The report shall include, but is not limited to, the following:

1. A list of negative survey reports produced;

2. A list of surveys with identified cultural resources;

3. A list of newly identified historic properties (updated Attachment B);

4. A list of undertakings that were reviewed but had no effect on historic properties;

5. A list of undertakings that were reviewed but had no adverse effect on historic properties;

6. A list of undertakings that had an adverse effect on historic properties along with their mitigation;

7. A list of all inadvertent discoveries;

8. Proposed USAG YPG cultural resources program activities or changes;

9. A list of any newly proposed undertakings; and

10. Any changes USAG YPG might consider toward improvement in implementation of any stipulations.

B. Consulting Parties should provide comments to USAG YPG regarding the Annual Report within 30 days of receipt.

C. USAG YPG shall ensure that the public is made aware of the availability of the Annual Report on its website, and that interested members of the public are invited to provide comments to the USAG YPG.

D. USAG YPG shall hold an annual meeting with the Consulting Parties to review the implementation of this PA and any amendments that may be proposed no later than February 15th, starting 2016 and annually thereafter during the life of this PA. The meeting shall provide an opportunity to discuss the successes and shortcomings of the PA, its general implementation, and any proposed changes, including consideration of exempting activities that result in a finding of no adverse effect.

IX. Dispute Resolution

A. Should any signatory or Consulting Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, USAG YPG shall consult with such party to resolve the objection. If USAG YPG determines that such objection cannot be resolved, USAG YPG will:

1. Forward all documentation relevant to the dispute, including USAG YPG's proposed resolution, to the ACHP. The ACHP shall provide USAG YPG with its opinion on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, USAG YPG shall prepare a written response that takes into account any timely opinion or comments regarding the dispute from the ACHP, signatories and Consulting Parties, and provide them with a copy of this written response. USAG YPG will then proceed according to its final decision.

2. If the ACHP does not provide its comments regarding the dispute within the 30 day time period, USAG YPG may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, USAG YPG shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and Consulting Parties to the PA, and provide them and the ACHP with a copy of such written response.

B. The responsibilities of USAG YPG to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

C. At any time during implementation of the measures stipulated in this PA, should an objection pertaining to this PA or the effect of an undertaking on historic properties be raised by a member of the public, USAG YPG shall notify the parties to this PA and take the objection into account, consulting with the objector and, should the objector so request, with any of the parties to this PA to resolve the objection.

X. Amendments

A. This PA may be amended when such an amendment is agreed to in writing by all signatories. Any signatory to this PA may propose an amendment in writing to USAG YPG.

B. USAG YPG shall consult with the signatories to this PA to consider the proposed amendment. If there is agreement among all signatories, the document shall be amended accordingly and the amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XI. Termination

A. If a signatory to this PA determines it is not being implemented in accordance with its terms, that party may propose that the agreement be terminated.

B. The party proposing termination shall notify all signatories, explain the reasons for the proposed termination, and afford all signatories 30 days from receipt of the notification to consult and seek alternatives to termination. The consultation shall include all signatories, concurring parties, and any other parties that may be affected by the termination.

C. If the consultation fails to find alternatives to termination, then any signatory may terminate the PA upon written notification to the other signatories, concurring parties, and other consulting parties in writing that this PA is terminated.

D. Once the PA is terminated, and prior to work continuing on any undertaking, USAG YPG must either (a) execute a MOA pursuant to 36 CFR § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. USAG YPG shall notify the signatories as to the course of action it will pursue.

XII. Monitoring

The SHPO and the ACHP may monitor any activities carried out pursuant to this PA, and the ACHP will review any activities if so requested. The USAG YPG Garrison Manager will cooperate with the SHPO and the ACHP should they request to monitor or to review project files for activities carried out pursuant to this PA.

XIII. Duration

A. This PA will become effective on the date of the final signature and continue in force for 10 years.

B. At least six months prior to the end of the 10 year period, the signatories shall consult to determine whether this PA remains satisfactory. If there is agreement, USAG YPG will revise and update the PA as needed, and consult with all signatories, concurring parties, and any parties that may become additional concurring parties. The updated agreement will be signed and executed by all signatories prior to the expiration of the 10 year period.

C. If an extension of time is warranted, all signatories will agree in writing until such time as this PA may be revised and updated.

XIV. Anti-Deficiency Act

USAG YPG's obligations under this PA are subject to the availability of funds and the stipulations of this PA are subject to the provisions of the Anti-Deficiency Act. USAG YPG will make reasonable and good faith efforts to secure the necessary funds to implement this PA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs USAG YPG's ability to implement the stipulations of this PA, USAG YPG will consult with the SHPO and ACHP in accordance with the amendment and termination procedures in stipulations X and XI.

Execution of this PA by USAG YPG, the SHPO, and the ACHP and implementation of its terms evidence that USAG YPG has taken into account the effects of this undertaking on historic properties and afforded the ACHP a reasonable opportunity to comment.

SIGNATORIES:

U.S. Army Yuma Proving Ground

Gordon K. Rogers, Garrison Manager, U.S. Army Garrison, Yuma — Date 27OCT2014

Arizona State Historic Preservation Officer

James W. Garrison, State Historic Preservation Officer — Date 10/31/14

Advisory Council on Historic Preservation

for John M. Fowler, Executive Director — Date 11/17/14

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Bureau of Land Management, Yuma Field Office

_____ Date: _____

John D. MacDonald, Field Manager

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Western Area Power Administration

_____ Date: _____

Ronald Moulton, Acting Desert Southwest Regional Manager,
Department of Energy

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Ak-Chin Indian Community

_____ Date: _____

Louis J. Manuel, Jr., Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Chemehuevi Indian Tribe

_____ Date: _____

Edward D. Smith, Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Cocopah Indian Tribe

_____ Date: _____

Sherry Cordova, Chairwoman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Colorado River Indian Tribes

_____ Date: _____

Wayne Patch, Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Fort McDowell Yavapai Nation

_____ Date: _____

Ruben Balderas, President

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Fort Mojave Indian Tribe

_____ Date: _____

Timothy Williams, Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Gila River Indian Community

_____ Date: _____

Gregory Mendoza, Governor

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Hopi Tribe

_____ Date: _____

Herman G. Honanie, Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Quechan Indian Tribe

_____ Date: _____

Keeny Escalanti, President

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Salt River Pima-Maricopa Indian Community

_____ Date: _____

Diane Enos, Chairwoman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

San Carlos Apache Tribe

_____ Date: _____

Terry Rambler, Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Tohono O'odham Nation

_____ Date: _____

Ned Norris, Jr., Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

Yavapai-Apache Nation

_____ Date: _____

Thomas Beauty, Chairman

PROGRAMMATIC AGREEMENT
AMONG
THE UNITED STATES ARMY GARRISON, YUMA PROVING GROUND,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER, AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
OPERATIONS, MAINTENANCE, AND DEVELOPMENT OF
YUMA PROVING GROUND, ARIZONA

CONCURRING PARTIES:

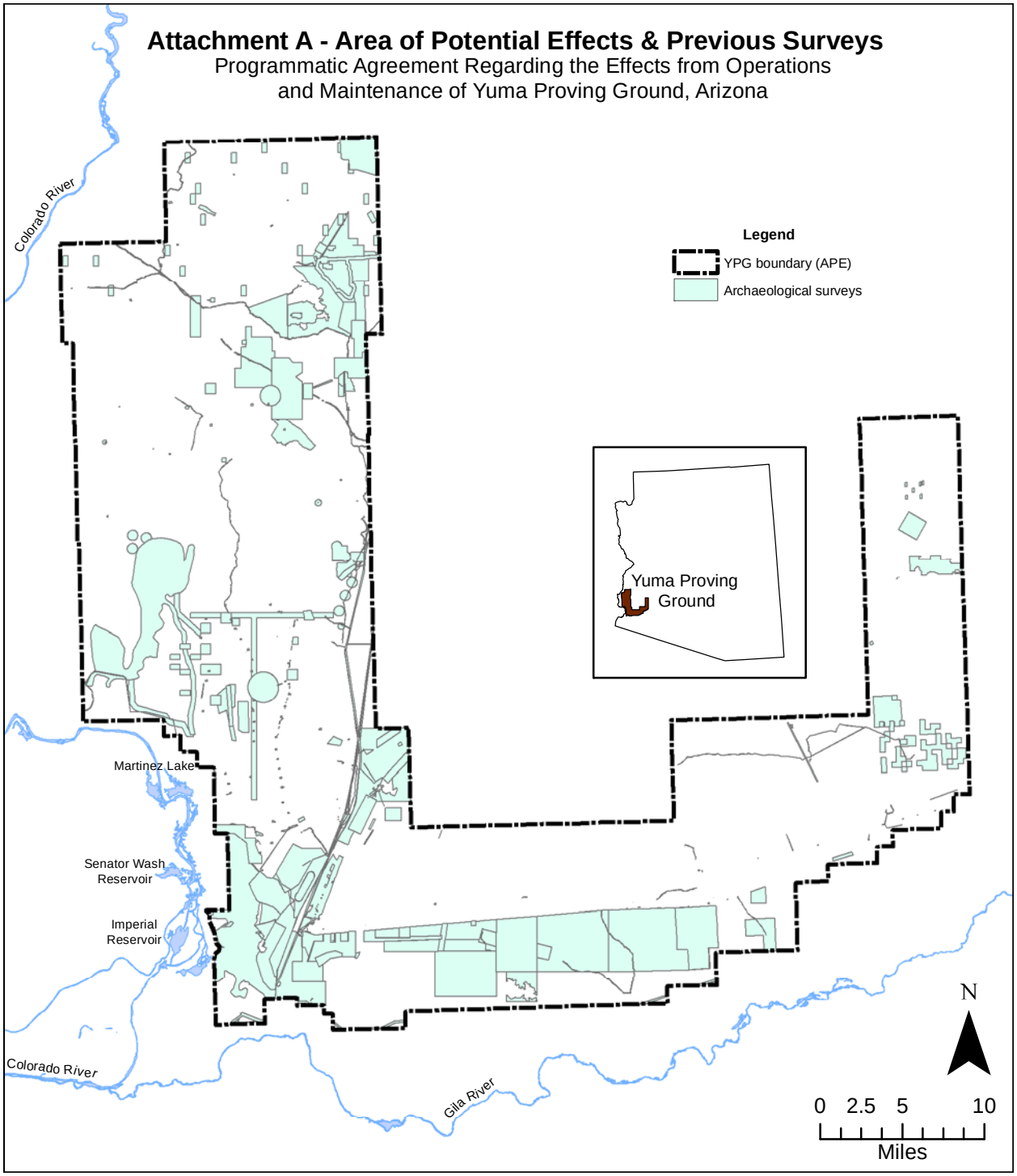
Yavapai-Prescott Indian Tribe

_____ Date: _____

Ernest Jones, Sr., President

LIST OF ATTACHMENTS

Attachment A – Area of Potential Effects & Previous Surveys
Attachment B – Yuma Proving Ground List of Identified Historic Properties
Attachment C – Impact Areas, Other Contaminated Areas, & Previously Disturbed Areas
Attachment D – Impact Areas, Other Contaminated Areas, & Previously Disturbed Areas Overlain with Areas Previously Surveyed for Cultural Resources at YPG
Attachment E – List of Acronyms and Definitions
Attachment F – Standard Operating Procedure #5 of the USAG YPG ICRMP for "Inadvertent Discovery of Archaeological Deposits"
Attachment G – Lands No Longer Requiring Cultural Resources Survey
Attachment H – Exempted Undertakings


Attachment A - Area of Potential Effects & Previous Surveys
Programmatic Agreement Regarding the Effects from Operations
and Maintenance of Yuma Proving Ground, Arizona
Legend
YPG boundary (APE)
Archaeological surveys
Yuma Proving Ground
Colorado River
Martinez Lake
Senator Wash Reservoir
Imperial Reservoir
Colorado River
Gila River
N
0 2.5 5 10
Miles

Yuma Proving Ground List of Identified Historic Properties

Site Number	Primary Site Type
Direct Fire Range and Ammunition Storage, Handling, and Testing Facilities District Eligible Sites SHPO letter 11/29/92 (Gasser to Vander Zyl)	
AZ X:4:66(ASM)	Cleared area
AZ X:4:46(ASM)	Rock ring
AZ X:4:47(ASM)	Cleared area, rock cluster, lithic scatter
AZ X:4:50(ASM)	Cleared area
AZ X:4:52(ASM)	Cleared area
AZ X:4:53(ASM)	Cleared area, rock cluster, lithic scatter
AZ X:4:54(ASM)	Cleared area
AZ X:4:55(ASM)	Cleared area
AZ X:4:56(ASM)	Cleared area
AZ X:4:57(ASM)	Cleared area
AZ X:4:58(ASM)	Cleared area
AZ X:4:59(ASM)	Rock rings
AZ X:4:48(ASM)	Cleared area
AZ X:4:49(ASM)	Cleared area, rock cluster, lithic scatter
AZ X:4:51(ASM)	Cleared area
AZ-050-1202	Cleared areas
AZ-050-1204	Lithic scatter
AZ-050-1205	Rock ring
AZ X:4:63(ASM)	Rock clusters
AZ X:4:65(ASM)	Rock ring, rock cluster
AZ X:4:67(ASM)	Cleared area
AZ X:4:68(ASM)	Cleared area
AZ X:3:108(ASM)	Cleared area
AZ X:3:109(ASM)	Cleared area
AZ X:3:87(ASM)	Cleared area
AZ X:3:88(ASM)	Cleared area
AZ X:3:90(ASM)	Cleared area
AZ X:3:91(ASM)	Cleared area
AZ X:4:34(ASM)	Cleared area
AZ X:4:35(ASM)	Cleared area
AZ X:4:36(ASM)	Cleared area
AZ X:4:38(ASM)	Cleared area
AZ X:4:39(ASM)	Cleared area
AZ X:4:40(ASM)	Cleared area
AZ X:4:43(ASM)	Cleared area
AZ X:4:45(ASM)	Cleared area
AZ X:3:92(ASM)	Cleared area
AZ X:3:93(ASM)	Cleared area
AZ X:3:94(ASM)	Cleared area
AZ X:3:95(ASM)	Cleared area
AZ X:3:96(ASM)	Cleared area
AZ X:3:97(ASM)	Cleared area
AZ X:3:98(ASM)	Cleared area
AZ X:3:100(ASM)	Cleared area
AZ X:3:101(ASM)	Rock cluster
AZ X:3:102(ASM)	Rock cluster
AZ X:3:103(ASM)	Cleared area
AZ X:3:104(ASM)	Cleared area
AZ X:3:105(ASM)	Cleared area
AZ X:3:106(ASM)	Rock cluster
AZ X:3:107(ASM)	Cleared area
AZ X:4:62(ASM)	Cleared area
AZ X:4:60(ASM)	Rock ring
AZ X:4:61(ASM)	Cleared area
AZ X:4:64(ASM)	Cleared area
AZ X:3:504(ASM)	Cleared area
White Tanks Management Area District Eligible Sites SHPO letter 9/24/92 (Hoffman to Vander Zyl)	
AZ S:14:10(ASM)	Lithic scatter
AZ S:14:11(ASM)	Lithic scatter
AZ S:14:12(ASM)	Cleared area
AZ S:14:13(ASM)	Lithic scatter
AZ S:14:14(ASM)	Lithic scatter
AZ S:14:15(ASM)	Lithic scatter
AZ S:14:16(ASM)	Quarry
AZ S:14:17(ASM)	Quarry
AZ S:14:18(ASM)	Lithic scatter
AZ S:14:19(ASM)	Rockshelter
AZ S:14:20(ASM)	Lithic scatter
AZ S:14:21(ASM)	Lithic scatter
AZ S:14:22(ASM)	Lithic scatter
AZ S:14:23(ASM)	Lithic scatter
AZ S:14:24(ASM)	Rock cluster/pile
AZ S:14:25(ASM)	Rockshelter
AZ S:14:26(ASM)	Lithic scatter
AZ S:14:27(ASM)	Lithic scatter
AZ S:14:28(ASM)	Lithic scatter
AZ S:14:29(ASM)	Rockshelter
AZ S:14:30(ASM)	Lithic scatter
AZ S:14:31(ASM)	Rockshelter
AZ S:14:32(ASM)	Rock cairns, lithic & ceramic scatter
AZ S:14:33(ASM)	Rock alignment
AZ S:14:34(ASM)	Quarry
AZ S:14:35(ASM)	Quarry
AZ S:14:36(ASM)	Lithic & ceramic scatter
AZ S:14:37(ASM)	Lithic scatter
AZ S:14:38(ASM)	Quarry
AZ S:14:39(ASM)	Lithic scatter
AZ S:14:40(ASM)	Lithic scatter
AZ S:14:41(ASM)	Lithic scatter
AZ S:14:42(ASM)	Rockshelter
AZ S:14:43(ASM)	Rockshelter
AZ S:14:44(ASM)	Rockshelter
AZ S:14:45(ASM)	Rockshelter
AZ S:14:46(ASM)	Rockshelter
AZ S:14:47(ASM)	Rockshelter
AZ S:14:48(ASM)	Rockshelter
AZ S:14:49(ASM)	Lithic & ceramic scatter
AZ S:14:50(ASM)	Quarry
AZ S:14:51(ASM)	Lithic scatter
AZ S:14:52(ASM)	Historic Malcolm Rogers camp
AZ S:14:53(ASM)	Rock ring
AZ S:14:54(ASM)	Rock ring

Yuma Proving Ground List of Identified Historic Properties

Site Number	Primary Site Type
AZ S:14:55(ASM)	Trail segment
Yuma Wash District Eligible Sites SHPO letter 11/8/93 (Gasser to Vander Zyl)	
AZ R:14:20(ASM)	Cleared area
AZ R:14:21(ASM)	Lithic scatter
AZ R:14:22(ASM)	Cleared area
AZ R:14:23(ASM)	Cleared area, compressed gravel area
AZ R:14:24(ASM)	Cleared area
AZ R:14:25(ASM)	Cleared area, rock ring
AZ R:14:26(ASM)	Cleared area
AZ R:14:27(ASM)	Cleared area, rock ring
AZ R:14:28(ASM)	Cleared area, rock ring
AZ R:14:29(ASM)	Rock ring
AZ R:14:30(ASM)	Rock ring, rock cluster, cleared area
AZ R:14:31(ASM)	Cleared area
AZ R:14:32(ASM)	Cleared area
AZ R:14:33(ASM)	Cleared area
AZ R:14:34(ASM)	Cleared area
AZ R:14:35(ASM)	Cleared area
AZ R:14:36(ASM)	Cleared areas
AZ R:14:37(ASM)	Cleared areas
AZ R:14:38(ASM)	Cleared areas
AZ R:14:39(ASM)	Cairn, rock clusters, cleared areas
AZ R:14:40(ASM)	Cleared areas
AZ R:14:41(ASM)	Rock rings, rock clusters
AZ R:14:42(ASM)	Cleared area
AZ R:14:43(ASM)	Cleared area
AZ R:14:44(ASM)	Cleared area
AZ R:14:45(ASM)	Cleared area
AZ R:14:46(ASM)	Cleared area
AZ R:14:47(ASM)	Cleared areas
AZ R:14:48(ASM)	Cleared area
AZ R:14:49(ASM)	Rock cairn
AZ R:14:50(ASM)	Rock pile, cleared areas
AZ R:14:51(ASM)	Cleared area
AZ R:14:52(ASM)	Cleared areas
AZ R:14:53(ASM)	Cleared areas, rock cluster
AZ R:14:54(ASM)	Cleared areas, rock clusters
AZ R:14:55(ASM)	Trail segment
AZ R:14:56(ASM)	Cleared areas, rock ring
AZ R:14:57(ASM)	Cleared areas, compressed gravel area, rock rings
AZ R:14:58(ASM)	Cleared area, rock ring
AZ R:14:59(ASM)	Cleared areas
AZ R:14:60(ASM)	Cleared areas
AZ R:14:61(ASM)	Cleared areas
AZ R:14:62(ASM)	Cleared areas
AZ R:14:63(ASM)	Cleared area
AZ R:14:64(ASM)	Cleared areas, compressed gravel areas
AZ R:14:65(ASM)	Cleared areas
AZ R:14:66(ASM)	Cleared area
AZ R:14:67(ASM)	Cleared areas, rock rings,

Site Number	Primary Site Type
	compressed gravel area
AZ R:14:68(ASM)	Cleared areas, rock rings
AZ R:14:69(ASM)	Cleared areas
AZ R:14:70(ASM)	Cleared areas
AZ R:14:71(ASM)	Cleared areas, compressed gravel areas
AZ R:14:72(ASM)	Cleared areas, rock ring, rock clusters
AZ R:14:73(ASM)	Cleared areas
AZ R:14:74(ASM)	Rock rings, compressed gravel areas, cleared area
AZ R:14:75(ASM)	Cleared areas, rock ring?
AZ R:14:76(ASM)	Cleared areas, rock rings, compressed gravel areas
AZ R:14:77(ASM)	Cleared areas, rock rings, clusters
AZ R:14:78(ASM)	Cleared area
AZ R:14:79(ASM)	Cleared areas, rock clusters
AZ R:14:80(ASM)	Rock rings, rock clusters, compressed gravel areas
AZ R:14:81(ASM)	Cleared areas, compressed gravel areas, rock ring
AZ R:14:82(ASM)	Rock ring
AZ R:14:83(ASM)	Cleared areas, rock clusters
AZ R:14:84(ASM)	Lithic scatter
AZ R:14:85(ASM)	Cleared area
AZ R:14:86(ASM)	Cleared area
AZ R:14:87(ASM)	Cleared areas
AZ R:14:88(ASM)	Trail segment
AZ R:14:89(ASM)	Rock ring, rock clusters
AZ R:14:90(ASM)	Cleared area
AZ R:14:91(ASM)	Lithic scatter
AZ R:14:92(ASM)	Lithic scatter
AZ R:14:93(ASM)	Cleared areas
AZ R:14:94(ASM)	Cleared areas
AZ R:14:96(ASM)	Cleared areas, rock clusters, rock cairn
AZ R:14:97(ASM)	Cleared areas
AZ R:14:98(ASM)	Cleared areas, rock clusters
AZ R:14:99(ASM)	Cleared areas, rock clusters
AZ R:14:100(ASM)	Cleared areas, rock clusters
AZ R:14:101(ASM)	Cleared areas, rock clusters
AZ R:14:102(ASM)	Cleared areas, compressed gravel areas
AZ R:14:103(ASM)	Cleared areas, rock rings, alignments, clusters
AZ R:14:106(ASM)	Cleared areas
AZ R:14:107(ASM)	Cleared areas, compressed gravel areas
AZ R:14:108(ASM)	Cleared area
AZ R:14:109(ASM)	Cleared areas
AZ R:14:110(ASM)	Cleared areas
AZ R:14:111(ASM)	Cleared areas
AZ R:14:112(ASM)	Cleared areas, rock clusters
AZ R:14:113(ASM)	Lithic & ceramic scatter
AZ R:14:114(ASM)	Cleared area
AZ R:14:115(ASM)	Rock rings
AZ R:14:116(ASM)	Cleared area

Yuma Proving Ground List of Identified Historic Properties

Site Number	Primary Site Type
AZ R:14:117(ASM)	Cleared areas
AZ R:14:118(ASM)	Cleared areas
AZ R:14:119(ASM)	Cleared area
AZ R:14:120(ASM)	Cleared areas
AZ R:14:121(ASM)	Rock clusters
AZ R:14:122(ASM)	Rock ring
AZ R:14:123(ASM)	Rock ring
AZ R:14:124(ASM)	Cleared areas, rock clusters
AZ R:14:125(ASM)	Cleared area
AZ R:14:126(ASM)	Rock ring
AZ R:14:127(ASM)	Cleared area
AZ R:14:128(ASM)	Rock ring
AZ R:14:129(ASM)	Rock clusters
AZ R:14:130(ASM)	Cleared area
AZ R:14:131(ASM)	Rock ring
AZ R:14:132(ASM)	Rock clusters
AZ R:14:133(ASM)	Rock ring
AZ R:14:134(ASM)	Cleared area
AZ R:14:135(ASM)	Rock ring
AZ R:14:136(ASM)	Rock ring
AZ R:14:137(ASM)	Cleared areas
AZ R:14:138(ASM)	Rock rings
AZ R:14:139(ASM)	Cleared areas
AZ R:14:140(ASM)	Rock ring
AZ R:14:141(ASM)	Rock ring
AZ R:14:144(ASM)	Cleared areas
AZ R:14:145(ASM)	Cleared area
AZ R:14:146(ASM)	Rock ring
AZ R:14:147(ASM)	Cleared area
AZ R:14:148(ASM)	Rock rings
AZ R:14:149(ASM)	Rock ring
AZ R:14:150(ASM)	Cleared areas
AZ R:14:151(ASM)	Possible cleared area (impact crater?)
AZ R:14:152(ASM)	Rock ring
AZ R:14:153(ASM)	Cleared areas
AZ R:14:154(ASM)	Cleared area
AZ R:14:155(ASM)	Cleared area
AZ R:14:156(ASM)	Cleared area
AZ R:14:157(ASM)	Cleared areas
AZ R:14:158(ASM)	Rock alignments
AZ R:14:159(ASM)	Cleared area
AZ R:14:160(ASM)	Cleared area
AZ R:14:161(ASM)	Cleared area
AZ R:14:162(ASM)	Cleared area
AZ R:14:163(ASM)	Rock ring, rock clusters
AZ R:14:164(ASM)	Rock clusters
AZ R:14:165(ASM)	Rock cluster
AZ R:14:166(ASM)	Rock ring
AZ R:14:167(ASM)	Cleared area
AZ R:14:168(ASM)	Cleared area
AZ R:14:169(ASM)	Rock rings
AZ R:14:170(ASM)	Rock alignments
AZ R:14:171(ASM)	Rock ring
AZ R:14:172(ASM)	Cleared areas
AZ R:14:173(ASM)	Rock ring
AZ R:14:174(ASM)	Rock ring

Site Number	Primary Site Type
AZ R:14:175(ASM)	Rock ring
AZ R:14:176(ASM)	Rock ring
AZ R:14:177(ASM)	Cleared areas
AZ R:14:178(ASM)	Cleared area
AZ R:14:179(ASM)	Cleared areas
AZ R:14:180(ASM)	Rock cluster
AZ R:14:181(ASM)	Rock ring
AZ R:14:182(ASM)	Rock cluster
AZ R:14:183(ASM)	Rock ring
AZ R:14:184(ASM)	Rock ring
AZ R:14:185(ASM)	Cleared area
AZ R:14:186(ASM)	Rock cluster
AZ R:14:187(ASM)	Rock clusters
AZ R:14:188(ASM)	Rock ring
AZ R:14:189(ASM)	Rock ring
AZ R:14:190(ASM)	Rock ring
AZ R:14:191(ASM)	Cleared area
AZ R:14:192(ASM)	Rock ring, rock clusters
AZ R:14:193(ASM)	Cleared area
AZ R:14:194(ASM)	Rock cluster
AZ R:14:195(ASM)	Cleared areas
AZ R:14:196(ASM)	Cleared areas
AZ R:14:197(ASM)	Cleared area
AZ R:14:198(ASM)	Cleared areas
AZ R:14:199(ASM)	Cleared areas
AZ R:14:200(ASM)	Cleared area
AZ R:14:201(ASM)	Cleared areas
AZ R:14:202(ASM)	Cleared area
AZ R:14:203(ASM)	Cleared areas
AZ R:14:204(ASM)	Rock ring
AZ R:14:205(ASM)	Cleared areas
AZ R:14:206(ASM)	Cleared area
AZ R:14:207(ASM)	Cleared area
AZ R:14:208(ASM)	Rock ring
AZ R:14:209(ASM)	Cleared areas
AZ R:14:210(ASM)	Cleared areas
AZ R:14:211(ASM)	Rock ring
AZ R:14:212(ASM)	Cleared area
AZ R:14:213(ASM)	Rock ring
AZ R:14:214(ASM)	Cleared area
AZ R:14:215(ASM)	Cleared area
AZ R:14:216(ASM)	Rock ring
AZ R:14:217(ASM)	Cleared area
AZ R:14:218(ASM)	Cleared areas
AZ R:15:97(ASM)	Rock ring, rock cluster
AZ R:15:98(ASM)	Cleared area, compressed gravel area
AZ R:15:99(ASM)	Rock rings
AZ R:15:100(ASM)	Cleared areas
AZ R:15:101(ASM)	Cleared area, compressed gravel area
AZ R:15:102(ASM)	Rock clusters
AZ R:15:103(ASM)	Cleared areas
AZ R:15:104(ASM)	Cleared areas
AZ R:15:105(ASM)	Cleared areas
AZ R:15:106(ASM)	Cleared areas, rock rings
AZ R:15:107(ASM)	Rock ring

Yuma Proving Ground List of Identified Historic Properties

Site Number	Primary Site Type
AZ R:15:108(ASM)	Lithic scatter
AZ R:15:109(ASM)	Compressed gravel areas
AZ R:15:110(ASM)	Lithic scatter
AZ R:15:111(ASM)	Rock ring, rock cluster, rock alignment
AZ R:15:112(ASM)	Lithic scatter
AZ R:15:113(ASM)	Lithic scatter
AZ R:15:114(ASM)	Lithic scatter
AZ R:15:115(ASM)	Cleared areas, rock rings, rock clusters
AZ R:15:116(ASM)	Cleared areas, compressed gravel area, rock ring
AZ R:15:117(ASM)	Cleared areas, compressed gravel area
AZ R:15:118(ASM)	Cleared areas
AZ R:15:119(ASM)	Cleared areas, rock rings
AZ R:15:120(ASM)	Cleared areas
AZ R:15:121(ASM)	Rock rings, rock clusters
AZ R:15:122(ASM)	Cleared areas
AZ R:15:123(ASM)	Cleared areas, compressed gravel area
AZ R:15:124(ASM)	Cleared area
AZ R:15:125(ASM)	Cleared areas
AZ R:15:126(ASM)	Rock cluster
AZ R:15:127(ASM)	Cleared areas
AZ R:15:128(ASM)	Rock ring
AZ R:15:129(ASM)	Rock ring
AZ R:15:130(ASM)	Rock ring
AZ R:15:131(ASM)	Cleared area
AZ R:15:132(ASM)	Cleared area
AZ R:15:133(ASM)	Cleared area
AZ R:15:134(ASM)	Rock ring
AZ R:15:135(ASM)	Cleared area
AZ R:15:136(ASM)	Cleared area
AZ R:15:137(ASM)	Rock ring
AZ R:15:138(ASM)	Cleared area
AZ R:15:139(ASM)	Rock cluster
AZ R:15:140(ASM)	Rock ring
AZ R:15:141(ASM)	Cleared area
AZ R:15:142(ASM)	Rock ring
AZ R:15:143(ASM)	Rock cluster
AZ R:15:144(ASM)	Rock cluster
AZ R:15:145(ASM)	Cleared area
AZ R:15:146(ASM)	Cleared area
AZ R:15:147(ASM)	Rock cluster
AZ R:15:148(ASM)	Rock cluster
AZ R:15:149(ASM)	Cleared area
AZ R:15:150(ASM)	Rock ring
AZ R:15:151(ASM)	Cleared area
AZ R:15:152(ASM)	Cleared area
AZ R:15:153(ASM)	Rock ring
AZ R:15:154(ASM)	Rock ring
AZ R:15:155(ASM)	Rock ring
AZ R:15:156(ASM)	Rock ring
AZ R:15:157(ASM)	Rock ring
AZ R:15:158(ASM)	Cleared area
AZ R:15:159(ASM)	Cleared area
AZ R:15:160(ASM)	Rock cluster
AZ R:15:161(ASM)	Rock ring
AZ R:15:162(ASM)	Rock ring
AZ R:15:163(ASM)	Cleared area
AZ R:15:164(ASM)	Rock ring
AZ R:15:165(ASM)	Rock ring
AZ R:15:166(ASM)	Rock cluster
AZ R:15:167(ASM)	Rock cluster
AZ R:15:168(ASM)	Rock cluster
AZ R:15:169(ASM)	Rock ring
AZ R:15:170(ASM)	Rock cluster
AZ R:15:171(ASM)	Rock ring
AZ R:15:172(ASM)	Rock cluster
AZ R:15:173(ASM)	Rock ring
AZ R:15:174(ASM)	Rock clusters
AZ R:15:175(ASM)	Cleared area
AZ R:15:176(ASM)	Rock clusters
AZ R:15:177(ASM)	Rock rings
AZ R:15:178(ASM)	Rock clusters
AZ R:15:179(ASM)	Rock clusters
AZ R:15:180(ASM)	Rock ring
AZ R:15:181(ASM)	Rock ring
AZ R:15:182(ASM)	Cleared area
AZ R:15:183(ASM)	Rock ring
AZ R:14:21(ASM)	Lithic scatter
Extended Combat Systems Maneuver Area District Eligible Sites — SHPO letter 1/13/2000 (Howard to Gauna)	
AZ X:4:106(ASM)	Lithic scatter
AZ X:4:107(ASM)	Lithic scatter
AZ X:4:108(ASM)	Cleared area
AZ X:4:109(ASM)	Lithic & ceramic scatter
AZ X:4:110(ASM)	Cleared area
AZ X:4:111(ASM)	Lithic scatter
AZ X:4:112(ASM)	Lithic & ceramic scatter
AZ X:4:113(ASM)	Rock ring
AZ X:4:114(ASM)	Cleared area
AZ X:4:115(ASM)	Rock cairn
AZ X:4:116(ASM)	Lithic scatter
AZ X:4:117(ASM)	Cleared area
AZ X:4:118(ASM)	Cleared area
AZ X:4:119(ASM)	Lithic scatter
AZ X:4:121(ASM)	Cobble cluster
AZ X:4:122(ASM)	Rock ring
AZ X:4:123(ASM)	Lithic scatter
AZ X:4:124(ASM)	Cleared area
AZ X:4:125(ASM)	Lithic scatter
AZ X:4:126(ASM)	Cleared area
AZ X:4:127(ASM)	Cleared area
AZ X:4:128(ASM)	Lithic scatter
AZ X:4:129(ASM)	Lithic scatter
AZ X:4:130(ASM)	Lithic scatter
AZ X:4:131(ASM)	Cleared area
AZ X:4:132(ASM)	Lithic scatter
AZ X:4:133(ASM)	Lithic scatter
AZ X:4:134(ASM)	Lithic scatter

Yuma Proving Ground List of Identified Historic Properties

Site Number	Primary Site Type
AZ X:4:135(ASM)	Lithic scatter
AZ X:4:136(ASM)	Cleared area
AZ X:4:137(ASM)	Lithic scatter
AZ X:4:138(ASM)	Lithic scatter
AZ X:4:139(ASM)	Lithic scatter
AZ X:4:140(ASM)	Cleared area
AZ X:4:141(ASM)	Cleared area
AZ X:4:142(ASM)	Cleared area
AZ X:4:143(ASM)	Cleared area
AZ X:4:144(ASM)	Cleared area
AZ X:4:145(ASM)	Rock ring/rock cairn
AZ X:4:146(ASM)	Lithic scatter
AZ X:4:147(ASM)	Cleared area
AZ X:4:149(ASM)	Lithic scatter
AZ X:4:150(ASM)	Lithic scatter
AZ X:4:151(ASM)	Lithic scatter
AZ X:4:152(ASM)	Cleared area
AZ X:4:153(ASM)	Rock ring
AZ X:4:154(ASM)	Cleared area
AZ X:4:155(ASM)	Cleared area
AZ X:4:156(ASM)	Rock ring
AZ X:4:159(ASM)	Lithic scatter
AZ X:4:160(ASM)	Lithic scatter
AZ X:4:161(ASM)	Lithic scatter
AZ X:4:162(ASM)	Cleared area
AZ X:4:163(ASM)	Cleared area
AZ X:4:164(ASM)	Lithic scatter
AZ X:4:165(ASM)	Rock ring
AZ X:4:166(ASM)	Rock ring
AZ X:4:167(ASM)	Rock ring
AZ X:4:168(ASM)	Rock ring
AZ X:4:169(ASM)	Cleared area
AZ X:4:170(ASM)	Cleared area
AZ X:4:171(ASM)	Cleared area
AZ X:4:172(ASM)	Lithic scatter
AZ X:4:173(ASM)	Ceramic scatter
AZ X:4:174(ASM)	Lithic scatter
AZ X:4:175(ASM)	Lithic scatter
AZ X:4:176(ASM)	Rock ring
AZ X:4:177(ASM)	Cleared area
AZ X:4:178(ASM)	Rock ring
AZ X:4:179(ASM)	Rock ring
AZ X:4:180(ASM)	Lithic scatter
AZ X:4:181(ASM)	Rock ring
AZ X:4:182(ASM)	Lithic scatter
AZ X:4:183(ASM)	Cleared area
AZ X:4:184(ASM)	Lithic scatter
AZ X:4:185(ASM)	Lithic scatter
AZ X:4:186(ASM)	Lithic scatter
AZ X:4:187(ASM)	Cleared area
AZ X:4:188(ASM)	Lithic scatter
AZ X:4:189(ASM)	Lithic scatter
AZ X:4:190(ASM)	Lithic scatter
AZ X:4:191(ASM)	Lithic scatter
AZ X:4:192(ASM)	Lithic scatter
AZ X:4:193(ASM)	Rock ring
AZ X:4:194(ASM)	Lithic scatter

Site Number	Primary Site Type
AZ X:4:195(ASM)	Cleared area
AZ X:4:196(ASM)	Rock ring
AZ X:4:197(ASM)	Lithic scatter
AZ X:4:198(ASM)	Lithic scatter
AZ X:4:199(ASM)	Lithic scatter
AZ X:4:200(ASM)	Rock ring
AZ X:4:201(ASM)	Lithic scatter
AZ X:4:202(ASM)	Rock ring
AZ X:4:203(ASM)	Lithic scatter
AZ X:4:204(ASM)	Rock cluster, rock alignment
AZ X:4:205(ASM)	Lithic scatter
AZ X:4:206(ASM)	Rock ring
AZ X:4:207(ASM)	Rock cairn
AZ X:4:208(ASM)	Lithic scatter
AZ X:4:209(ASM)	Lithic scatter
AZ X:4:210(ASM)	Lithic scatter
AZ X:4:211(ASM)	Rock cluster
AZ X:4:212(ASM)	Rock ring
AZ X:4:213(ASM)	Rock ring
AZ X:4:214(ASM)	Cleared area
AZ X:4:215(ASM)	Rock ring
AZ X:4:216(ASM)	Historic mine with numerous features
AZ X:4:217(ASM)	Rock ring
AZ X:4:218(ASM)	Cleared area
AZ X:4:219(ASM)	Rock ring
AZ X:4:220(ASM)	Rock ring
AZ X:4:221(ASM)	Cleared area
AZ X:4:222(ASM)	Lithic scatter
AZ X:4:223(ASM)	Rock cairns
AZ X:4:224(ASM)	Cleared area
AZ X:4:225(ASM)	Cleared area
AZ X:4:226(ASM)	Cleared area
AZ X:4:227(ASM)	Rock ring
AZ X:4:228(ASM)	Cleared area
AZ X:4:229(ASM)	Cleared area
AZ X:4:230(ASM)	Cleared area
AZ X:4:231(ASM)	Trail segment
AZ X:4:232(ASM)	Trail segment
AZ X:4:233(ASM)	Trail segment
AZ X:4:234(ASM)	Trail segment
AZ X:4:235(ASM)	Trail segment
AZ X:4:236(ASM)	Trail segment
AZ X:4:237(ASM)	Trail segment
AZ X:4:238(ASM)	Trail segment
AZ X:4:239(ASM)	Trail segment
AZ X:4:240(ASM)	Trail segment
AZ X:4:241(ASM)	Trail segment
AZ X:4:242(ASM)	Trail segment
AZ X:4:243(ASM)	Trail segment
AZ X:4:244(ASM)	Trail segment
AZ X:4:245(ASM)	Trail segment
AZ X:4:246(ASM)	Trail segment
AZ X:4:247(ASM)	Trail segment
AZ X:4:248(ASM)	Trail segment
AZ X:4:249(ASM)	Trail segment
AZ X:4:250(ASM)	Trail segment

Yuma Proving Ground List of Identified Historic Properties

Site Number	Primary Site Type
AZ X:4:251(ASM)	Trail segment
AZ X:4:252(ASM)	Trail segment
AZ X:4:253(ASM)	Trail segment
AZ X:4:254(ASM)	Trail segment
AZ X:4:255(ASM)	Trail segment
AZ X:4:256(ASM)	Trail segment
AZ X:4:257(ASM)	Trail segment
AZ X:4:258(ASM)	Trail segment
AZ X:4:259(ASM)	Trail segment
AZ X:4:260(ASM)	Trail segment
AZ X:4:261(ASM)	Trail segment
AZ X:4:262(ASM)	Trail segment
AZ X:4:263(ASM)	Trail segment
AZ X:4:264(ASM)	Trail segment
AZ X:4:265(ASM)	Trail segment
AZ X:4:266(ASM)	Rock cluster
AZ X:4:267(ASM)	Lithic scatter
AZ X:4:268(ASM)	Lithic scatter
AZ X:4:269(ASM)	Lithic scatter
Mohave Tanks and Mohave Wash District Eligible Sites SHPO-2000-3029(3921, 5295, 10290)	
AZ R:11:62(ASM)	Trail segment
AZ R:11:81(ASM)	Cleared area, rock ring, rock cairn
AZ R:11:82(ASM)	Trail segment
AZ R:11:83(ASM)	Rock ring
AZ R:11:87(ASM)	Rockshelter
AZ R:11:88(ASM)	Cleared area
AZ R:11:89(ASM)	Trail segment
AZ R:11:91(ASM)	Rock ring
AZ R:11:92(ASM)	Rockshelter
AZ R:11:93(ASM)	Rockshelter
AZ R:11:94(ASM)	Lithic scatter
AZ R:11:95(ASM)	Rockshelter
AZ R:11:108(ASM)	Rock cluster
Red Bluff Range Combat Systems Maneuver Area District Eligible Sites SHP0-2002-743(16273)	
AZ X:4:275(ASM)	Lithic scatter
AZ X:4:276(ASM)	Rock ring
AZ X:4:277(ASM)	Lithic scatter
AZ X:4:278(ASM)	Lithic scatter
AZ X:4:279(ASM)	Lithic scatter
AZ X:4:280(ASM)	Lithic scatter
AZ X:4:281(ASM)	Lithic scatter
AZ X:4:282(ASM)	Rock ring
AZ X:4:283(ASM)	Lithic scatter
AZ X:4:284(ASM)	Rock ring
AZ X:4:285(ASM)	Lithic scatter
AZ X:4:286(ASM)	Rock ring
AZ X:4:287(ASM)	Lithic scatter
AZ X:4:288(ASM)	Lithic scatter
AZ X:4:289(ASM)	Lithic scatter
AZ X:4:290(ASM)	Lithic scatter

Site Number	Primary Site Type
AZ X:4:291(ASM)	Lithic scatter
AZ X:4:292(ASM)	Rock ring
AZ X:4:293(ASM)	Lithic scatter
AZ X:4:294(ASM)	Lithic scatter
AZ X:4:295(ASM)	Lithic scatter
AZ X:4:297(ASM)	Lithic scatter
AZ X:4:298(ASM)	Rock alignment/rock cluster
AZ X:4:299(ASM)	Rock ring
AZ X:4:300(ASM)	Lithic scatter
AZ X:4:301(ASM)	Lithic scatter
AZ X:4:302(ASM)	Lithic scatter
AZ X:4:303(ASM)	Lithic scatter
AZ X:4:305(ASM)	Lithic scatter
AZ X:4:306(ASM)	Lithic scatter
AZ X:4:307(ASM)	Lithic scatter
AZ X:4:308(ASM)	Lithic scatter
AZ X:4:309(ASM)	Lithic scatter
AZ X:4:310(ASM)	Lithic scatter
AZ X:4:311(ASM)	Lithic scatter
AZ X:4:312(ASM)	Lithic scatter
AZ X:4:313(ASM)	Rock ring
AZ X:4:314(ASM)	Lithic scatter
AZ X:4:315(ASM)	Lithic scatter
AZ X:4:316(ASM)	Lithic scatter
AZ X:4:317(ASM)	Lithic scatter
AZ X:4:318(ASM)	Trail segment
AZ X:4:320(ASM)	Lithic scatter
AZ X:4:321(ASM)	Lithic scatter
AZ X:4:322(ASM)	Lithic scatter
AZ X:4:323(ASM)	Lithic scatter
AZ X:4:324(ASM)	Lithic scatter
AZ X:4:325(ASM)	Lithic scatter
AZ X:4:326(ASM)	Lithic scatter
AZ X:4:327(ASM)	Lithic scatter
AZ X:4:328(ASM)	Lithic scatter
AZ X:4:329(ASM)	Lithic scatter
AZ X:4:330(ASM)	Lithic scatter
AZ X:4:331(ASM)	Lithic scatter
AZ X:4:332(ASM)	Lithic scatter
AZ X:4:333(ASM)	Lithic scatter
AZ X:4:334(ASM)	Lithic scatter
AZ X:4:335(ASM)	Lithic scatter
AZ X:4:336(ASM)	Lithic scatter
AZ X:4:337(ASM)	Lithic scatter
AZ X:4:338(ASM)	Lithic scatter
AZ X:4:339(ASM)	Lithic scatter
AZ X:4:340(ASM)	Lithic scatter
AZ X:4:341(ASM)	Rock ring
AZ X:4:343(ASM)	Lithic scatter
AZ X:4:344(ASM)	Rock ring
AZ X:4:345(ASM)	Lithic scatter
AZ X:4:346(ASM)	Lithic scatter
AZ X:4:347(ASM)	Rock ring
AZ X:4:348(ASM)	Lithic scatter
AZ X:4:349(ASM)	Rock ring
AZ X:4:350(ASM)	Lithic scatter
AZ X:4:351(ASM)	Lithic scatter

Yuma Proving Ground List of Identified Historic Properties

Site Number	Primary Site Type
AZ X:4:352(ASM)	Rock ring
AZ X:4:353(ASM)	Rock ring
AZ X:4:354(ASM)	Rock ring
AZ X:4:355(ASM)	Rock ring
AZ X:4:356(ASM)	Rock ring
AZ X:4:357(ASM)	Rock ring
AZ X:4:358(ASM)	Rock ring
AZ X:4:359(ASM)	Rock ring
AZ X:4:360(ASM)	Trail segment
AZ X:4:361(ASM)	Trail segment
AZ X:4:362(ASM)	Trail segment
AZ X:4:363(ASM)	Lithic scatter
AZ X:4:365(ASM)	Cleared area
AZ X:4:366(ASM)	Lithic scatter
AZ X:4:367(ASM)	Lithic scatter

Site Number	Primary Site Type
AZ X:4:368(ASM)	Lithic scatter
AZ X:4:369(ASM)	Lithic scatter
AZ X:4:370(ASM)	Lithic scatter
AZ X:4:371(ASM)	Lithic scatter
AZ X:4:372(ASM)	Trail segment
AZ X:4:304(ASM)	Lithic scatter
Camp Laguna District Eligible Site SHPO-2010-1455(87640)CNAE	
AZ X:3:368(ASM)	Major World War II military training camp

Individually Eligible Sites		
Site Number	**Primary Site Type**	**SHPO Concurrence**
AZ 050-0897	Rock rings, cleared areas	SHPO email 3/19/09 (Griffith to McDonald); also SHPO-2010-0218(76634)CNAE
AZ R:11:2(ASM)	Quarry	SHPO letter 4/18/88 (Gasser to Vander Zyl)
AZ R:11:3(ASM)	Lithic scatter	SHPO letter 4/18/88 (Gasser to Vander Zyl)
AZ R:11:4(ASM)	Lithic scatter	SHPO letter 4/18/88 (Gasser to Vander Zyl)
AZ R:11:5(ASM)	Lithic scatter	SHPO letter 4/18/88 (Gasser to Vander Zyl)
AZ R:11:6(ASM)	Lithic scatter	SHPO letter 4/18/88 (Gasser to Vander Zyl)
AZ R:11:7(ASM)	Lithic scatter	SHPO letter 4/18/88 (Gasser to Vander Zyl)
AZ R:11:8(ASM)	Lithic scatter	SHPO letter 4/18/88 (Gasser to Vander Zyl)
AZ R:11:16(ASM)	Quarry, lithic scatter	SHPO letter 5/18/89 (Gasser to Vander Zyl)
AZ R:11:33(ASM)	Lithic scatter	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:11:36(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:37(ASM)	Rock ring	SHPO-2003-0767(16489)NHPA conditional
AZ R:11:38(ASM)	Rock ring	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:39(ASM)	Rock ring	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:40(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:41(ASM)	Rock alignment	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:42(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:43(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:45(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:46(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:47(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:48(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:49(ASM)	Ceramic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:50(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:51(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:52(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:53(ASM)	Lithic & ceramic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:54(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:55(ASM)	Lithic & ceramic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:56(ASM)	Lithic & ceramic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:57(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:58(ASM)	Lithic scatter	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:59(ASM)	Rock ring	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:60(ASM)	Rock ring	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:61(ASM)	Rock ring	SHPO letter 5/23/96 (Heathington to Mitchell)

Yuma Proving Ground List of Identified Historic Properties

Individually Eligible Sites		
Site Number	**Primary Site Type**	**SHPO Concurrence**
AZ R:11:71(ASM)	Rock art	SHPO letter 5/23/96 (Heathington to Mitchell)
AZ R:11:118(ASM)	Rock rings	SHPO email 3/19/09 (Griffith to McDonald); also SHPO-2010-0218(76634)CNAE
AZ R:11:123(ASM)	Trail segment	SHP0-2004-1207(21852)
AZ R:11:124(ASM)	Rock alignment	SHP0-2004-1207(21852)
AZ R:11:125(ASM)	Rock ring	SHP0-2004-1207(21852)
AZ R:11:134(ASM)	Trail segment	SHPO email 3/19/09 (Griffith to McDonald); also SHPO-2010-0218(76634)CNAE
AZ R:11:137(ASM)	Trail segment	SHPO email 3/19/09 (Griffith to McDonald); also SHPO-2010-0218(76634)CNAE
AZ R:11:138(ASM)	Lithic scatter	SHPO email 3/19/09 (Griffith to McDonald); also SHPO-2010-0218(76634)CNAE
AZ R:11:178(ASM)	Ceramic scatter	SHPO-2012-0367(101162)DOE
AZ R:11:184(ASM)	Trail segment	SHPO-2012-0367(101162)DOE
AZ R:11:193(ASM)	Trail segment	SHPO-2012-0367(101162)DOE
AZ R:14:219(ASM)	Lithic scatter	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:220(ASM)	Lithic scatter	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:221(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:222(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:223(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:224(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:225(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:226(ASM)	Cleared area, compressed gravel area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:227(ASM)	Rock alignment	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:228(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:229(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:230(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:231(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:232(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:233(ASM)	Rock alignment	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:234(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:235(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:236(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:237(ASM)	Cleared area, compressed gravel area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:238(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:239(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:240(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:241(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:242(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:243(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:244(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:245(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:246(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:247(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:248(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:249(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:250(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:14:257(ASM)	Trail segment	SHP0-2003-1484(20340)
AZ R:15:1(ASM)	Cleared areas	SHPO letter 7/2/84 (Fryman to Enson, U.S. Army Corps of Engineers, LA District)
AZ R:15:2(ASM)	Trail segment	SHPO letter 7/2/84 (Fryman to Enson, U.S. Army Corps of Engineers, LA District)

Yuma Proving Ground List of Identified Historic Properties

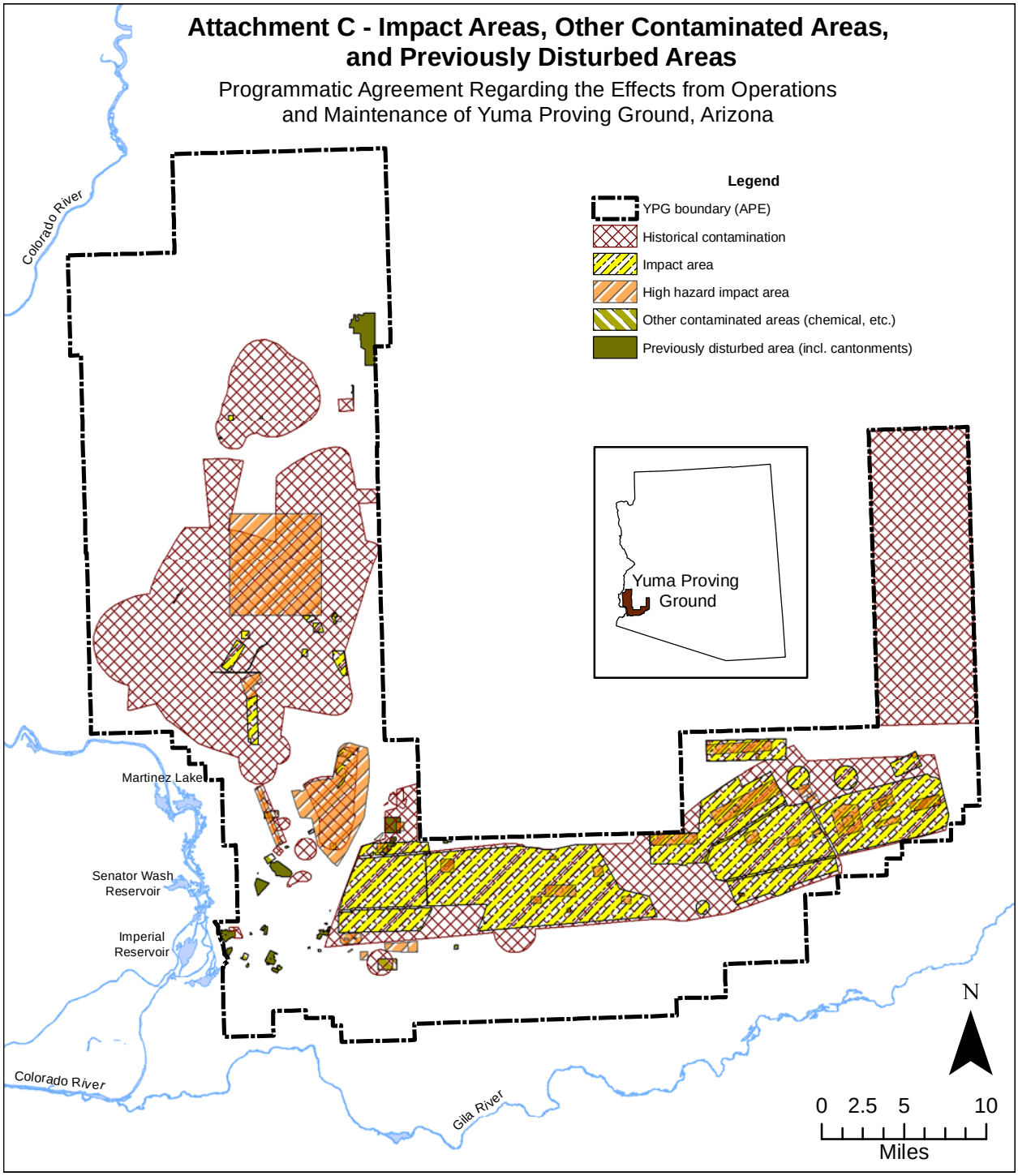
Individually Eligible Sites		
Site Number	**Primary Site Type**	**SHPO Concurrence**
AZ R:15:3(ASM)	Trail segment	SHPO letter 7/2/84 (Fryman to Enson, U.S. Army Corps of Engineers, LA District)
AZ R:15:4(ASM)	Trail segment	SHPO letter 7/2/84 (Fryman to Enson, U.S. Army Corps of Engineers, LA District)
AZ R:15:5(ASM)	Trail segment	SHPO letter 7/2/84 (Fryman to Enson, U.S. Army Corps of Engineers, LA District)
AZ R:15:6(ASM)	Trail segment	SHPO letter 7/2/84 (Fryman to Enson, U.S. Army Corps of Engineers, LA District)
AZ R:15:7(ASM)	Trail segment	SHPO letter 7/2/84 (Fryman to Enson, U.S. Army Corps of Engineers, LA District)
AZ R:15:184(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:185(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:186(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:187(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:188(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:189(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:190(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:191(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:192(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:193(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:194(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:195(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:196(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:197(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:198(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:199(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:200(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:201(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:202(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:203(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:204(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:205(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:206(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:207(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:208(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:209(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:210(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:211(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:212(ASM)	Cleared areas	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:213(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:214(ASM)	Rock cluster	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:215(ASM)	Rock ring	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:216(ASM)	Cleared area	SHPO letter 11/8/93 (Gasser to Vander Zyl)
AZ R:15:217(ASM)	Cleared area, rock ring	SHPO letter 9/9/94 (Gasser to Vander Zyl)
AZ R:15:220(ASM)	Lithic scatter	Unknown
AZ R:15:221(ASM)	Rock ring	Unknown
AZ R:15:222(ASM)	Rock alignment	Unknown
AZ R:15:223(ASM)	Rock alignment	Unknown
AZ R:15:224(ASM)	Lithic scatter	Unknown
AZ R:15:225(ASM)	Trail segment	Unknown
AZ R:15:252(ASM)	Cleared area	SHP0-2003-1484(20340)
AZ R:15:258(ASM)	Rock ring	SHPO-2004-1171(21054)
AZ R:15:262(ASM)	Cleared areas, rock clusters	SHPO-2008-1491(37683)DOE

Yuma Proving Ground List of Identified Historic Properties

Individually Eligible Sites		
Site Number	**Primary Site Type**	**SHPO Concurrence**
AZ R:15:263(ASM)	Rock cluster	SHPO-2008-1491(37683)DOE
AZ R:15:264(ASM)	Rock ring	SHPO-2008-1491(37683)DOE
AZ R:15:265(ASM)	Rock ring	SHPO-2008-1491(37683)DOE
AZ R:15:266(ASM)	Cleared area	SHPO-2008-1491(37683)DOE
AZ R:15:272(ASM)	Road	SHPO-2012-1059(108839)DOE
AZ R:15:281(ASM)	Road	SHPO-2012-1059(108839)DOE
AZ R:15:285(ASM)	Rock rings, lithics	SHPO-2011-0339(90091)CNAE
AZ S:14:62(ASM)	Lithic scatter	SHPO-2000-0704(579)
AZ S:14:63(ASM)	Petroglyph	SHPO-2000-0704(579)
AZ S:14:66(ASM)	Rock cairn, trail segment, & lithic scatter	SHPO-2000-0704(579)
AZ S:14:67(ASM)	Lithic scatter	SHPO-2000-0704(579)
AZ S:14:70(ASM)	Lithic scatter	SHPO-2000-0704(579)
AZ S:14:71(ASM)	Lithic scatter	SHPO-2000-0704(579)
AZ S:14:72(ASM)	Petroglyph	SHPO-2000-0704(579)
AZ S:14:73(ASM)	Trail segment	SHPO-2000-0704(579)
AZ X:3:53(ASM)	Cleared area	SHPO letter 9/21/92 (Gasser to Vander Zyl)
AZ X:3:54(ASM)	Cleared area	SHPO letter 9/21/92 (Gasser to Vander Zyl)
AZ X:3:55(ASM)	Cleared area	SHPO letter 9/21/92 (Gasser to Vander Zyl)
AZ X:3:110(ASM)	Cleared area	SHPO letter 9/21/92 (Gasser to Vander Zyl)
AZ X:3:346(ASM)	Cleared area	SHPO-2009-1047(40482)NHPA
AZ X:3:371(ASM)	Road, State Route 95	SHPO-2000-1125(1088)
AZ X:3:384(ASM)	Lithic scatter	SHPO-2000-1125(1088)
AZ X:3:385(ASM)	Lithic scatter	SHPO-2000-1125(1088)
AZ X:3:401(ASM)	Lithic & ceramic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:402(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:403(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:404(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:405(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:406(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:407(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:471(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:473(ASM)	Lithic scatter	SHPO-2001-1772(32845)CNAE
AZ X:3:489(ASM)	Cleared area	SHPO-2009-1047(40482)NHPA
AZ X:3:496(ASM)	Lithic scatter	SHPO-2009-1047(40482)NHPA
AZ X:3:529(ASM)	Quarry	SHPO-2010-1498(87828)DOE
AZ X:4:69(ASM)	Rock ring	SHPO letter 3/12/97 (Heathington to Vander Zyl)
AZ X:4:70(ASM)	Lithic scatter	SHPO letter 3/12/97 (Heathington to Vander Zyl)
AZ X:4:71(ASM)	Rock ring	SHPO letter 3/12/97 (Heathington to Vander Zyl)
AZ X:4:72(ASM)	Rock ring	SHPO letter 3/12/97 (Heathington to Vander Zyl)
AZ X:4:73(ASM)	Rock ring	SHPO letter 3/12/97 (Heathington to Vander Zyl)
AZ X:4:74(ASM)	Rock ring	SHPO letter 3/12/97 (Heathington to Vander Zyl)
AZ X:4:75(ASM)	Rock ring	SHPO letter 3/12/97 (Heathington to Vander Zyl)
AZ X:4:393(ASM)	Road	SHPO-2012-1059(108839)DOE
AZ Y:1:5(ASM)	Lithic scatter	Concurrence based on Effland, R. W. and Margerie Green, 1983, "Cultural Resource Investigations for the Yuma 500 kV Transmission Line, Arizona Public Service Company," and Schilz, Allan J., Richard I. Carrico, and Jay Thesken, "Archaeological Investigations in Southwestern Arizona: The APS Yuma 500kV Transmission Line."
AZ Y:1:155(ASM)	Ground stone quarry	SHPO-2012-1122(109098)DOE
AZ Y:1:157(ASM)	Ground stone	SHPO-2012-1122(109098)DOE
AZ Y:1:159(ASM)	Ground stone	SHPO-2012-1122(109098)DOE

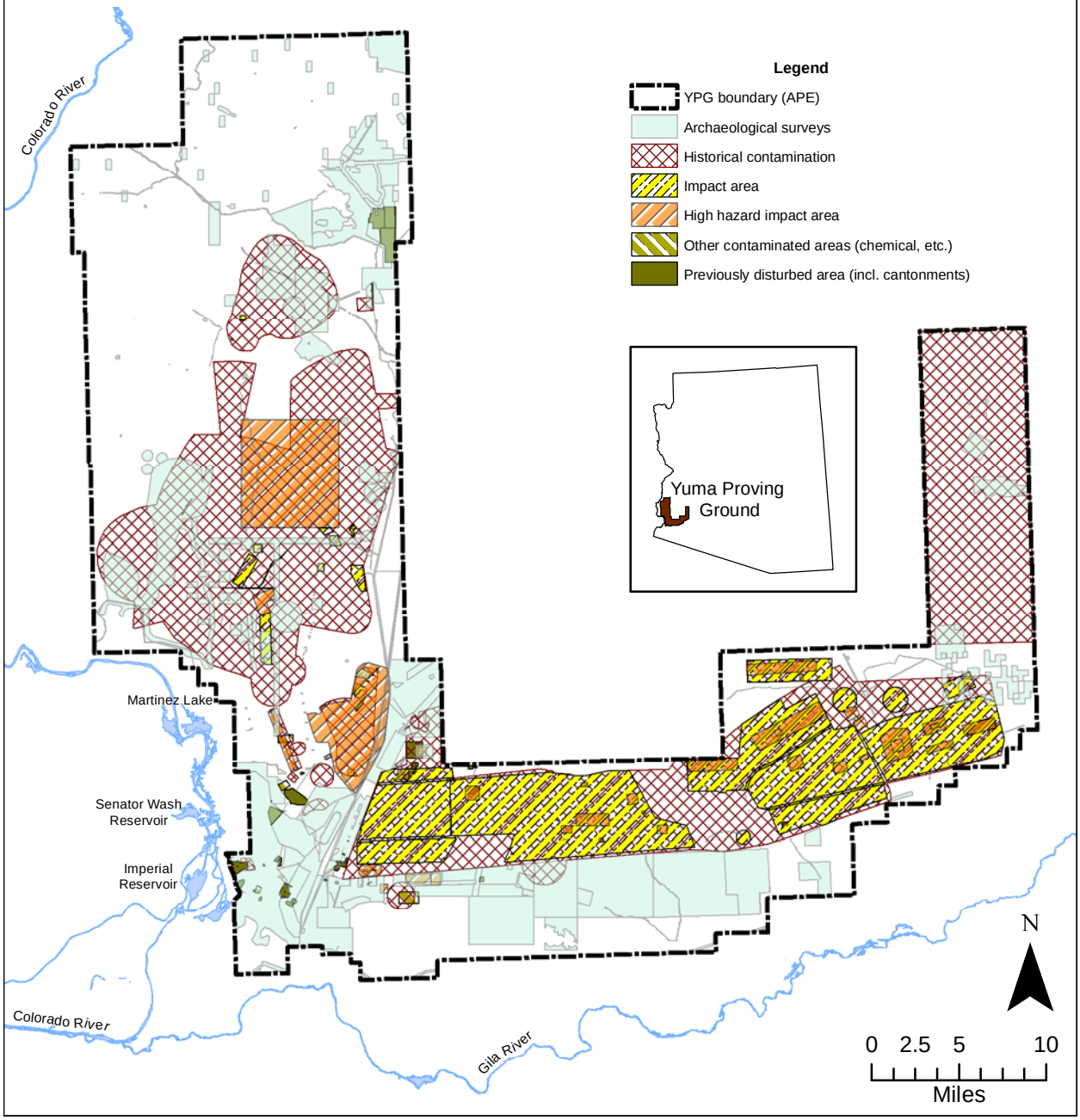
Yuma Proving Ground List of Identified Historic Properties

Individually Eligible Sites		
Site Number	**Primary Site Type**	**SHPO Concurrence**
AZ Y:2:37(ASM)	Lithic scatter	SHPO-2000-0704(579)
AZ Y:2:39(ASM)	Rock ring	SHPO-2000-0704(579)
AZ Y:2:40(ASM)	Lithic scatter	SHPO-2000-0704(579)
AZ Y:2:42(ASM)	Military WWII training area with numerous features	SHPO-2000-0704(579)
AZ Y:2:43(ASM)	Military training area	SHPO-2000-0704(579)
AZ Y:2:45(ASM)	Cleared area, rock ring	SHPO-2000-0704(579)
AZ-050-1162	Rockshelter/alcove	SHPO-2006-2194(30908)


Attachment C - Impact Areas, Other Contaminated Areas, and Previously Disturbed Areas
Programmatic Agreement Regarding the Effects from Operations and Maintenance of Yuma Proving Ground, Arizona
Legend
YPG boundary (APE)
Historical contamination
Impact area
High hazard impact area
Other contaminated areas (chemical, etc.)
Previously disturbed area (incl. cantonments)
Yuma Proving Ground
Colorado River
Martinez Lake
Senator Wash Reservoir
Imperial Reservoir
Colorado River
Gila River
N
0 2.5 5 10
Miles

Attachment D - Impact Areas, Other Contaminated Areas, and Previously Disturbed Areas Overlain with Areas Previously Surveyed for Cultural Resources

Programmatic Agreement Regarding the Effects from Operations and Maintenance of Yuma Proving Ground, Arizona



List of Acronyms and Definitions

Acronyms:

ACHP – Advisory Council on Historic Preservation
APE – Area of Potential Effects
BLM – Bureau of Land Management
CFR – Code of Federal Regulations
CRM – Cultural Resources Manager
GIS - Geographic Information System
ICRMP - Integrated Cultural Resources Management Plan
MOA – Memorandum of Agreement
NAGPRA - Native American Graves Protection and Repatriation Act
NHPA - National Historic Preservation Act
NPS – National Park Service
NRHP - National Register of Historic Places
PA – Programmatic Agreement
SHPO – State Historic Preservation Officer
SOP – Standard Operating Procedure
USAG YPG – United States Army Garrison Yuma Proving Ground
USC – United States Code
USFWS – U.S. Fish and Wildlife Service
YPG – Yuma Proving Ground

Definitions:

1. **Area of potential effects** - the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.
2. **Contaminated area** -Any area where there are known or suspected hazardous substances, pollutants, hazardous wastes, radioactive materials, and similar contaminants, including Department of Defense-unique materials such as munitions or unexploded munitions (dud ammunition or explosives) regardless of type. These include non-ordnance contaminated areas and ordnance contaminated historic World War II training areas.
   a. ***Non-ordnance contaminated areas*** – all areas contaminated with constituents other than munitions, such as state and federally regulated contaminated sites.
   b. ***Ordnance contaminated historic World War II training areas*** – World War II training areas, such as mortar impact ranges, etc., that are ordnance contaminated.
3. **Consultation** - the process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process.
4. **Consulting parties** – parties with consultative roles in the Section 106 process, as provided for in 36 CFR §800.2(c). Consulting parties specifically include the State Historic Preservation Officer, federally recognized Indian tribes and Native Hawaiian organizations, representatives of local governments, applicants for Federal assistance or for a Federal permit, license, or other approval, and certain individuals and organizations with a demonstrated interest in the undertaking. There are three types of consulting parties with different roles regarding their participation in the agreement document to resolve adverse effects to historic properties – signatory, invited signatory, and concurring party.
   a. ***Signatory*** – consulting party with the sole authority to execute, amend, and terminate the agreement, generally the Federal agency, SHPO, and ACHP.
   b. ***Invited Signatory*** - consulting party with the authority to amend and terminate the agreement, such as an applicant for a Federal permit.

c. ***Concurring party*** - consulting party asked to concur in the agreement, indicating acceptance of the process leading to the agreement and a desire and willingness to participate in future consultations, such as representative of local government; however, cannot prevent the agreement from being executed, amended, or terminated.

5. **Effect** - alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.
6. **Historic Property** - Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.
7. **Impact area** - The ground and associated airspace within the training complex used to contain fired, or launched ammunition and explosives, and the resulting fragments, debris, and components from various weapon systems. A weapon system impact area is the area within the surface danger zone used to contain fired, or launched ammunition and explosives, and the resulting fragments, debris, and components. Indirect fire weapon system impact areas include probable error for range and deflection. Direct fire weapon system impact areas encompass the total surface danger zone from the firing point or position downrange to distance *X* (the maximum distance a projectile will travel when fired or launched at a given quadrant elevation with a given charge or propulsion system).
   - *a.* ***Temporary impact area.*** An impact area within the training complex used for a limited period of time to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Temporary impact areas are normally used for non-dud producing ammunition or explosives, and should be able to be cleared and returned to other training support following termination of firing.
   - *b.* ***Dedicated impact area.*** An impact area that is permanently designated within the training complex and used indefinitely to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Dedicated impact areas are normally used for non-sensitive ammunition and explosives.
   - *c.* ***High-hazard impact area.*** An impact area that is permanently designated within the training complex and used to contain sensitive high explosive ammunition and explosives and the resulting fragments, debris, and components. High hazard impact areas are normally established as part of dedicated impact areas where access is limited and strictly controlled due to the extreme hazard of dud ordnance (that is, highly sensitive ammunition and explosives).
8. **Program Comment** – the findings and recommendations of the ACHP concerning a specific category of undertakings formally provided in writing to the head of a Federal agency under Section 106. Under 36 CFR §800.14(e), agencies can request the ACHP to provide a Program Comment on a particular category of undertakings in lieu of conducting individual reviews of each individual undertaking under such category. An agency can meet its Section 106 responsibilities for considering the effects of those undertakings on historic properties by following the steps set forth in the Program Comment.
9. **Programmatic Agreement** - document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex undertaking, or other situations in accordance with 36 CFR §800.14(b).
10. **Undertaking** - a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.
11. **Unexploded ordnance** - ammunition and explosives which have been primed fused, armed, or otherwise prepared for action and which have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations/communities, personnel, or materiel, and remains unexploded either by malfunction or design or any other cause.

Standard Operating Procedure #5 of the USAG YPG ICRMP for "Inadvertent Discovery of Archaeological Deposits"

OVERVIEW

Archaeological investigation methods are designed to discover material evidence of past cultural activities. It is possible; however, that buried archaeological deposits may remain undetected during the survey process, only to be exposed by later construction or other ground-disturbing activities.

POLICY

In the event that archaeological deposits are encountered during any construction or excavation activities, the activity shall stop and the YPG Cultural Resources Manager shall be notified. Because of the potential of each archaeological deposit to contain Native American human remains or cultural materials, failure to report discovery of archaeological deposits may result in violation of NAGPRA, ARPA, and other related federal and state laws resulting in fines and penalties against YPG and its Commander. If it is determined that human remains encountered during a project appear to be the victim of a recent crime or accidental death, the appropriate law enforcement authorities will be notified for further action.

PROCEDURES

This Standard Operating Procedure applies to any and all instances of post review discoveries, including: post review discovery of a cultural resource not previously identified in project review and after project approval and initiation; post review discovery of an effect not previously identified in project review and after project approval and initiation; or post review discovery of an effect willfully inflicted on identified historic property after project approval and initiation. Procedures in this SOP match those in the USAG YPG Programmatic Agreement (PA) with the SHPO and ACHP. In the event of a post review discovery, the CRM, under the authority of the Garrison Manager, can halt an undertaking until consultation under the PA has concluded. If the discovery is made as part of an ongoing contracting effort at YPG, the discovery must be reported immediately to the Contracting Officer, who has the authority to halt an undertaking. The Contracting Officer must notify the CRM within 24 hours.

(1) Post review discovery of a cultural resource not previously identified in project review and after project approval and initiation. In the event cultural resource(s) are discovered in the implementation of a previously approved undertaking, the individual making the discovery shall notify the CRM within 24 hours.
   (a) The CRM shall ensure that all work ceases in the immediate vicinity (within an approximate 20 meter radius) to protect the newly identified cultural resource(s) within 48 hours of the discovery. The cease-work area shall be marked with flags or visibility tape to clearly delineate the boundaries as appropriate.
   (b) The CRM shall determine if the cultural resource(s) is/are eligible to the NRHP and notify the SHPO of the determination via phone within 72 hours of the discovery. If the SHPO concurs on non-eligibility of the cultural resource, USAG YPG has no further obligations under Stipulation V of the PA.
   (c) If the cultural resource is determined to be a historic property, in consultation with the SHPO, the CRM shall prepare and send a notification package to the SHPO and Tribes including a summary of the undertaking and how it was previously reviewed under the PA, an illustration of the cease-work area, a list of identified historic properties within the cease-work area, and the treatment plan to address effects within four days of the SHPO's concurrence on NRHP eligibility.
      (i) The Tribes are under no obligation to provide comments on the post review discovery; however, if they wish USAG YPG to consider their comments, Tribes should submit comments in writing within two days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration and will notify the SHPO of any tribal concerns and the USAG YPG response to those concerns.
      (ii) SHPO shall provide a response to USAG YPG regarding the post review discovery within two days of receipt of all pertinent documentation. If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments.

(d) USAG YPG shall include an after action report regarding the post review discovery treatment plan in the Annual Report.

(2) Post review discovery of an effect not previously identified in project review and after project approval and initiation.
   (a) In the event effects to historic properties are discovered in the implementation of a previously approved undertaking, the individual making the discovery shall notify the CRM within 24 hours.
   (b) The CRM shall ensure that all work ceases in the immediate vicinity (within an approximate 20 meter radius) to protect the newly identified historic properties within 48 hours of the discovery. The cease-work area shall be marked with flags or visibility tape to clearly delineate the boundaries as appropriate.
   (c) The CRM shall determine if the effect is adverse and notify the SHPO of the determination via phone within 72 hours of the discovery. If the SHPO concurs with a no adverse effect finding, USAG YPG has no further obligations under Stipulation V of the PA.
   (d) If the effect is determined to be adverse, in consultation with the SHPO, the CRM shall prepare and send a notification package for the SHPO and Tribes including a summary of the undertaking and how it was previously reviewed under the PA, an illustration of the cease-work area, a list of identified historic properties within the cease-work area, and the treatment plan to address effects within four days of the discovery.
      (i) The Tribes are under no obligation to provide comments on the post review discovery; however, if they wish USAG YPG to consider their comments, Tribes should submit comments in writing within two days of receipt. If no comments are received within that time, the CRM shall make a second attempt to contact the Tribes for comments. USAG YPG shall take any tribal comments received into consideration and will notify the SHPO of any tribal concerns and the USAG YPG response to those concerns.
      (ii) SHPO shall provide a response to USAG YPG regarding the post review discovery within two days of receipt of all pertinent documentation. If no comments are received within that time, the CRM shall make a second attempt to contact the SHPO for comments.
   (e) USAG YPG shall include an after action report regarding the post review discovery treatment plan in the Annual Report of the PA.

(3) Post review discovery of an effect willfully inflicted on identified historic property.
   (a) Violators will be directed to stop the activity and shall result in referral to the County Sheriff and/or to the Garrison Manager. Situations involving damage to archaeological sites will be referred to the proper enforcement agency via the U.S. Army Criminal Investigation Command in accordance with the Archaeological Resources Protection Act.

SYNOPSIS

The following synopsis of this SOP shall be made known on all proposed actions and YPG Digging Permit Approval forms:

Archaeological methods may not detect all buried cultural remains. If archaeological materials or human remains are encountered during construction, the Garrison Manager (phone 928-328-3474) and the Cultural Resources Manager (928-328-2520) or Archaeologists (928-328-4811 or -2721) should be notified immediately by telephone and then in writing. All construction activity will cease immediately within 65 feet (20 meters) of the discovery. Failure to comply will be a violation of the National Historic Preservation Act, the Archaeological Resources Protection Act and/or the Native American Graves Protection and Repatriation Act and other federal laws.

Lands No Longer Requiring Cultural Resources Survey

[To be provided per Stipulation III]

Exempted Undertakings

The categories of undertakings listed below have been determined by USAG YPG, the SHPO, and the ACHP to meet the criteria for exemption; i.e., they qualify as undertakings, but will have no effect on historic properties, or their potential effects will not be adverse. An undertaking of one or more of the types listed below will not require further Section 106 review with SHPO, so long as the undertaking is limited to the types listed below, and is not a part of another undertaking. In addition, if at any time in the course of the undertaking information becomes available that would make this procedure inapplicable, including but not limited to the discovery of historic properties or human remains, Section 106 review or NAGPRA protocol shall be initiated by USAG YPG in accordance with Stipulation V or VI of this PA.

1. **General Projects**
   a. Removal or in-place disposal of unexploded ordnance.
   b. Disposal of ordnance in existing open burning/open detonation units.
   c. Emergency response to releases of potentially hazardous substances, pollutants, and contaminants that pose a threat to human health and safety.
   d. Activities required and regulated by the Arizona Department of Environmental Quality under the Resource Conservation and Recovery Act (RCRA) or the Defense Environmental Restoration (Army) (DERA) program. These include background research, geophysical characterization, and remediation of Solid Waste Management Units (SMWUs), Military Munitions Response Program (MMRP) sites, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. Associated activities such as installation of monitoring equipment will be subject to Section 106 review.
   e. Operations within current permitted landfills and borrow pits.
   f. Operations within current permitted borrow pits.
   g. Installation of stormwater sampling equipment in active washes.
   h. Continued use of small arms impact areas for small arms range activities.
   i. Continued use of dedicated impact areas for routine military weapons testing and training activities.
   j. Routine maintenance of existing non-historic improved or unimproved roads or tank trails where ground disturbance is limited to existing previously maintained road and shoulder.
   k. Routine maintenance of non-historic ditches, culverts or other rainwater conveyance structures.
   l. Studies, data collection, and monitoring for non-cultural resources purposes, provided there is no ground disturbance.
   m. Installation and operation of above-ground and buried utility and communication systems such as fiber optics, natural gas, and single pole electric lines in existing previously disturbed USAG YPG rights-of-way, easements, distribution systems, or facilities.
   n. Removal of dead, diseased, or damaged ornamental trees and shrubs, and trees and shrubs in the cantonment areas.
   o. Use of existing roads, test courses, gun positions, and test sites for routine test activities where operations are limited to existing facilities.
   p. Outdoor recreation programs such as hunting, in accordance with USAG YPG and Army regulations, and State of Arizona laws, when there will be no ground disturbance, including no off-road vehicle use.
   q. Treatment for insect infested plants and invasive species in areas that have been previously surveyed and contain no historic properties or where historic properties can be avoided.

2. **Historic Districts**
   a. In-kind repair/replacement of existing site improvements, including, but not limited to roads, parking areas, fences, recreation equipment, and signs.
   b. Repair or replacement of existing water, electric, gas, sanitary, cable, and underground or aboveground utilities, within the previously disturbed area with no new ground disturbance.

c. Grounds maintenance activities associated with installing, removing, and maintaining landscaping (mowing, trimming, planting, and weed/pest control).
d. Removal of animals, birds, insects, and their associated debris when no damage to historic materials will result.
e. Installation of facilities to provide access to historic properties by disabled persons provided the alterations are architecturally compatible with the facility, are freestanding, and do not damage nor require removal of historic materials.
f. Disturbance in an area less than one square meter, such as placement of fence posts.
g. Installation of perimeter security fencing and gates provided the design is architecturally compatible and does not require removal of historical materials.
h. Maintenance, removal, and replacement in kind of existing landscape and plant materials when keeping with the historic character when they are dead, dying, diseased (unsalvageable), and/or pose an imminent hazard to people or structures.

3. Maintenance, Repair, Renovation, Replacement, New Construction, and Demolition Operations

a. New construction of buildings and other above and below ground infrastructure and related activities in areas that have been previously surveyed and found to have no historic properties present.
b. Maintenance, repair, and related activities on existing facilities and infrastructure not greater than 45 years old and on those facilities older than 45 years of age but previously determined not eligible for the NRHP in consultation with SHPO.
c. Renovation of existing buildings and infrastructure not greater than 45 years old or older than 45 years of age but previously determined not eligible for the NRHP in consultation with SHPO.
d. Demolition of buildings and other infrastructure not greater than 45 years old or older than 45 years of age but previously determined not eligible for the NRHP in consultation with SHPO.
e. Maintenance, repair, or replacement of existing above-ground and buried utility and communication systems in previously disturbed rights-of-way, easements, or distribution systems, or in facilities where the structures are not greater than 45 years old or have previously been determined not eligible for the NRHP in consultation with SHPO.
f. Stockpiling and staging of construction, road repair, and paving materials in surveyed areas with no historic properties present.
g. Natural resources management activities in previously disturbed areas including tree plantings, planting and maintenance of wildlife food and shrub plots, and installation or maintenance of water guzzlers in previously disturbed areas, and improvement of existing dry stream crossings where the depth of the undertaking will not exceed the current disturbance and/or will not impact an intact soil layer that has the potential to contain cultural materials.

4. **Grounds and Land Maintenance**

a. Installation, maintenance, and repair of recreational structures and equipment in areas that have been previously surveyed and found to have no historic properties present.
b. Ground disturbing activities to control, prevent, or repair soil erosion due to rain runoff in areas that have been previously surveyed and found to have no historic properties present.
c. Grounds maintenance activities associated with installation, removal, and maintenance of landscaping (mowing, trimming, planting, rock hardening, prescribed burning, and weed/pest control).
d. Routine repair and maintenance of airfields and associated equipment.
e. Construction of improved roads and tank trails where ground disturbance is contained to existing USAG YPG rights-of-way or previously disturbed areas.

Appendix G
Memorandum Of Understanding between U.S. Department of Interior Fish and Wildlife Service Kofa, Cibola and Imperial Wildlife Refuges, U.S. Department of Interior Bureau of Land Management Lower Colorado River District, Yuma Office and U.S. Department of the Army Yuma Proving Ground

MEMORANDUM OF UNDERSTANDING

Between

U.S. Department of the Interior
Fish & Wildlife Service
Kofa, Imperial and Cibola National Wildlife Refuges

U.S. Department of the Interior
Bureau of Land Management
Lower Colorado River District, Yuma Field Office

and

U.S. Department of Defense
Department of the Army
Yuma Proving Ground

I. INTRODUCTION

A. This Memorandum of Understanding ("MOU") provides procedures and guidance for cooperation and collaboration on wildland fire issues on certain Federal lands. The United States Department of the Interior (DOI), the U.S. Fish and Wildlife Service, Kofa, Imperial, and Cibola National Wildlife Refuges (hereafter referred to as "USFWS"); DOI, Bureau of Land Management, Lower Colorado River District, Yuma Field Office (hereafter referred to as "BLM"); and the United States Department of Defense, Department of the Army, Yuma Proving Ground (hereafter identified as YPG); the USFWS, BLM, and YPG are jointly hereafter referred to as "the Parties."

B. The Parties have a common goal to minimize the impacts of wildland fire on the desert landscape. The mission of YPG is extremely sensitive and the BLM and USFWS recognize the importance of security procedures and policy. The USFWS refuges are exceptionally sensitive to wildfires due to the potential destruction of important wildlife habitat. BLM lands and their multiple resources are also extremely sensitive to the destruction of wildfires.

C. The Parties all have fire organizations specifically designed to support their host agency's mission. Regardless of jurisdiction, cooperative efforts already exist between the Parties' fire organizations to cross-train when applicable and provide a mutually beneficial service as outlined in the Federal Wildland Fire Policy.

D. Safety of firefighters, military personnel, and the public is the number one priority for all actions related to the implementation of this MOU.

II. BACKGROUND – STATEMENT OF MUTUAL BENEFIT

A. Wildfires in southwestern Arizona are a rare event. However, periods of unusually high rainfall, coupled with introduced species, can produce a serious fire threat and pose a major risk to native plants and animals in the desert environment. Additionally, smoke from wildfires and suppression action may hamper vital national security activities on the YPG.

B. It is in the best interest of all Parties to minimize the threat from wildfires and take immediate suppression action, following the agreed upon protocols and safety concerns established in this MOU.

III. PURPOSES

The purposes of this MOU are:

A. To establish a framework of cooperation and coordination for the suppression of wildfires occurring on, or adjacent to, lands administered by the Parties.

B. To outline the authority and general responsibilities of each Party and provide an Annual Operating Plan (Appendix B) to define the specific operating procedures.

C. To establish agreed-upon protocol and procedures to minimize the threat from wildfires, to provide immediate suppression actions, and to provide for safe, efficient, and effective operations.

D. To document established security and safety protocols to be followed for wildland fire suppression.

IV. AUTHORITY

A. The authorities of the USFWS to enter into this MOU include, but are not limited to:

1. National Wildlife Refuge System Act of 1966; 16 U.S.C 668dd-668ee.

2. DOI Departmental Manual, Part 620: Wildland Fire Management.

3. USFWS Fire Management Handbook.

4. Fish and Wildlife Coordination Act; 16 U.S.C. 661-666(c).

5. Fish and Wildlife Act of 1956; 16 U.S.C 742(f), et seq.

6. Endangered Species Act of 1973; 16 U.S.C. 1531, et seq.

7. Reciprocal Fire Protection Act; 42 U.S.C. 1856.

B. The authorities of the BLM to enter into this MOU include, but are not limited to:

1. Federal Land Policy and Management Act (FLPMA): Preservation and Protection of BLM Lands; 43 U.S.C. 1701-52.

2. DOI Departmental Manual, Part 620: Wildland Fire Management.

3. National Wildlife System Administration Act of 1966: Interagency Agreements; 42 U.S.C. 668dd.

4. Reciprocal Fire Protection Act; 42 U.S.C. 1856.

5. Federal Grant and Cooperative Act OF 1977; 31 U.S.C. 6301-6308.

C. The authorities of the YPG to enter into this MOU include, but are not limited to:

1. Department of Defense (DoD) Instruction 6055.6 DoD Fire Protection Program, October 10, 2000 – E2.5.21.1, E2.5.21.2, 2000.

2. Army Regulation 420–90, 10 October 1997, Fire and Emergency Services, Chapters 2-4.

3. Reciprocal Fire Protection Act of 1995: Reciprocal Fire Protection Agreements; 42 U.S.C.1856a-d, 42 U.S.C. 2210, 42 U.S.C. Chapter 15a.

V. AGENCY CONTACT INFORMATION

The Parties will designate principal contacts and general wildfire contact information as specified in Appendix A to this MOU. The Parties may change their contacts at any time by providing a revised Appendix A to the other Parties.

VI. RESPONSIBILITIES

A. The USFWS and BLM individually and jointly agree to:

1. Notify the appropriate fire contact at YPG of any possibly wildland fire on or near YPG.

2. Recognize that access through UPG lands is at the discretion of YPG. Access is to be considered a rare and infrequent event and limited to mission critical traffic.

3. Follow all procedures as outlined by YPG base security personnel prior to entering YPG lands and adhere to the direction of base police and range control procedures, fire department personnel, and technical specialists concerning airspace coordination, sensitive material, unexploded ordnance, and vehicle and foot traffic while on YPG lands.

4. Provide assistance to YPG Fire Department for wildland fire suppression as requested, subject to USFWS and BLM firefighting resource availability.

5. Follow all DOI, National Wildfire Coordinating Group (NWCG), BLM and USFWS regulations regarding firefighting strategy, tactics, and safety while on YPG lands.

6. Utilize Arizona Interagency Fire Center (AIFC) and/or BLM fire dispatch offices to coordinate any and all aviation requests through YPG. In addition, radio communications are considered mission critical for all firefighting resources and AIFC and/or BLM will be the primary contact for all firefighting personnel while on YPG lands.

B. The YPG agrees to:

1. Provide 24 hour contact numbers for YPG Fire (928-328-2316) and Range Control (CIBOLA: (928) 328-2047; KOFA: (928) 328-3333) to coordinate suppression action on or near YPG lands.

2. Notify AIFC and Yuma dispatch of any wildfires that originate on YPG lands and coordinate with the responsible dispatch office to ensure effective airspace de-confliction.

3. Recognize radio communications as mission critical for all firefighting resources and recognize AIFC and/or BLM fire dispatch office as the primary contact for all firefighting personnel while on YPG lands.

4. Provide clear and concise security and safety protocols for USFWS and BLM fire personnel to follow while on YPG lands. These protocols are contained in the Annual Operating Plan attached to the MOU as Appendix B.

5. Adhere to NWCG guidelines for wildland firefighting while on USFWS and/or BLM lands or when assisting USFWS and/or BLM personnel on a wildland fire within YPG boundaries when USFWS and/or BLM have been requested to manage an incident.

   a. The NWCG Wildland Fire Qualifications System Guide, 310-1, identifies fitness levels for specific positions and assures that all firefighters have the appropriate qualifications to suppress wildfires.

6. Respond to wildfires, when available and as requested, on USFWS and/or BLM land with qualified individuals that meet the minimum NWCG standards for wildland firefighting.

   a. Ensure that response is in accordance with the applicable USFWS and/or BLM fire management plan in effect and mindful of the various sensitive Resources managed by USFWS and/or BLM.

C. The Parties agree to:

1. Recognize assisting agencies that have been requested to respond to wildfires (i.e., Bureau of Indian Affairs and other fire entities) as "cooperators" to this MOU.

2. Adhere to the security and safety protocols contained in the Annual Operating Plan (Appendix B).

3. Adhere to NWCG and the *Interagency Standards for Fire and Fire Aviation Operations* (commonly referred to as the "Red Book") guidelines for wildland Firefighting.

4. Jointly review, update, and approve the Annual Operating Plan (Appendix B) by December 1st of each calendar year this MOU is in effect. The Annual Operating Plan may be amended after a major incident as a part of a joint Debriefing and review.

5. Share expertise, training, and information on such items as prevention, investigation, safety, and training.

VII. IMPLEMENTATION, AMENDMENT, AND TERMINATION

A. This MOU is effective upon signature by the final approving official indicated below.

B. This MOU will remain in force for a period five years from the date of execution and will expire five years from the effective date unless terminated, extended, or renewed in writing.

C. This MOU will be reviewed annually during a pre-determined annual meeting of the Parties' fire personnel no later than December 1st of each calendar year. Subsequent amendments must be through written agreement of all signatories and copies must be provided to all Parties.

D. This MOU may be terminated prior to the expiration date by providing 60 day written notice of termination to all other Parties.

VIII. FUNDING

A. Subject to the availability of funds and necessary authorization therefore, each Party hereto agrees to fund their own expenses associated with the implementation of this MOU. This MOU does not obligate any funds.

B. Any endeavor involving reimbursement or payment of funds among the Parties will be handled in accordance with applicable laws, regulations, and procedures. Such endeavors will be documented by separate agreements or other procurement instruments that shall be made in writing, authorized by appropriate statutory authority, and signed by the appropriate warranted contracting officer. This MOU does not provide such authority.

IX. LIABILITIES/WAIVERS

Each Party waives all claims against every other Party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of the MOU unless gross negligence on any part of any Party is determined.

X. SIGNATURES

All signatories have delegated authority to enter into this MOU. The Parties hereto have executed this MOU on the dates shown below.

U.S. Fish and Wildlife Service:

J. Paul Cornes, Kofa NWR, Refuge Manager
Authorized to sign for Cibola and Imperial NWR

Date July 21, 2006

Bureau of Land Management:

Rebecca Heick, Yuma Field Office Manager

Date July 21, 2006

U.S. Army Garrison:

Carol L. Coleman, Garrison Manager

Date Aug 1, 06

U.S. Army, Yuma Proving Ground:

Stephen D. Kreider, Col., FA, Commanding

Date Aug 2, 2006

APPENDIX A
Agency Contact Information

U.S. Fish and Wildlife Service:

Principal Contact: USFWS, Arizona Fire District
Butch Wilson, Fire Management Officer
P.O. Box 109
Sasabe, Arizona 85633
Office: 520-823-4251, ext. 104
Cell: 520-349-1095

Wildfire Contact (**Fire on/threatening USFWS**):
Arizona Interagency Fire Center (State Fire Dispatch)
AZ State Fire Management Facility
2901 w. Pinnacle Peak Road
Phoenix, Arizona 85027-1002
1-800-309-7081

Bureau of Land Management

Principal Contact: BLM, Yuma Field Office
Rebecca Heick, Yuma Field Office Manager
2555 Gila Ridge Road
Yuma, Arizona 85365
Office: 928-317-3201

Wildfire Contact (**Fire on/threatening BLM**):
Yuma BLM Fire Dispatch
2555 Gila Ridge Road
Yuma, Arizona 85365
Office: 928-317-8656

U.S. Department of the Army, Yuma Proving Ground:

Principal Contact: U.S. Army Garrison Yuma Proving Ground
Ann Marie Scheie, Management Analyst
301 C Street
Yuma, Arizona 85365
Office: 928-328-2074

Wildfire Contact (**Fire on/threatening YPG**):
U.S. Army Garrison, Yuma Proving Ground
Fire Department
301 C Street
Yuma, Arizona 85365
Office: 928-328-2074

APPENDIX B
Annual Operating Plan

This Annual Operating Plan (AOP) is established to support the operational aspects of the approved Memorandum of Understanding (MOU). The AOP will provide specific procedures which will provide for safe, efficient, and effective operations between the Parties to the MOU. As required by the MOU, the AOP will be reviewed and approved by December 1st of each calendar year and may be amended after a major incident.

I. Mutual Aid

The Parties recognize that there may be times when USFWS, BLM, or YPG is involved in emergency or mission critical operations and unable to provide mutual aid. In this case other cooperators (i.e., Bureau of Indian Affairs and other fire entities) may be contacted for assistance.

II. Command Structure

A. Unified command should be used, as appropriate, whenever military and public lands are involved, unless one or more of the Parties requests a single agency Incident Commander (IC). If there is a question about jurisdiction, fire managers shall mutually decide and agree on the command structure as soon as they arrive on scene. Once the decision is made, the incident organization in use shall be relayed to all units on the incident as well as to the dispatch centers.

B. In all cases, the identity of the IC must be made known to all fireline and support personnel.

III. Communications

A. In mutual aid situations the common radio frequency will be Arizona Mutual Aid. It is critical for operational safety that all department/agencies resources establish this common communication frequency as soon as they arrive on scene. Clear text communication should be used during interagency operations.

B. When civilian firefighting air resources are requested to assist in suppression operations in restricted/regulated air space, the responsible dispatch center will contact YPG Range Control prior to launching aircraft to the incident. YPG Range Control and the dispatch center will coordinate air space use and aircraft flight following.

C. Aircraft will establish communication with YPG Range Control to ensure flight plans are authorized prior to entering the air space.

Frequency Identifier	Band Width	TX	TXCG	RX	RXCG
Arizona Mutual Aid	Wideband	154.280		154.280	
Range Control	VHF – Primary	119.0		119.0	
Range Control	UHF West of Kofa Range	248.4		248.4	
Range Control	UHG East of Kofa Range	230.2		230.2	

IV. Boundaries

A. USFWS/BLM resources will not enter onto military lands under the jurisdiction of YPG (hereafter referred to as "YPG lands") for the purpose of wildland fire suppression unless specifically requested and escorted by authorized YPG personnel. The USFWS/BLM fully recognizes the requirement to maintain base security and the concern of unexploded ordnance (UXO) within the boundaries of YPG. All Fire suppression activities on YPG lands will be coordinated through the UPG Fire Department.

B. When YPG resources initially attach or suppress fires on public lands, the responding resources will adhere to land management policies and procedures established in the applicable fire management plan of the jurisdictional agency.

C. The majority of the USFWS Wildlife Refuges and BLM lands adjacent to YPG lands are protected as wilderness or special management areas that limit or restrict off road travel entirely. Responding YPG resources will contact the appropriate dispatch center to obtain suppression guidelines prior to engaging in off road suppression activities.

D. The USFWS/BLM may request access to YPG lands in an effort to assess and evaluated potential threats of fires burning near the boundary with public lands. Access shall be at the full discretion of authorized YPG personnel.

V. Time/Duration

When fires occur solely on public or YPG lands and are not considered a mutual threat, during the first 24 hours of an incident, the responding and requesting resources are in a non-reimbursable state.

VI. Qualifications/Minimum Requirements

A. The USFWS/BLM, under direction provided by the National Wildfire Coordinating Group (NWCG) in a memorandum dated March 22, 2004, agrees to accept YPG's standards for fire personnel qualifications and equipment during initial attack. Once jurisdiction is clearly established, the standards of the jurisdictional agency shall prevail.

B. USFWS/BLM subscribes to the NWCG standards and shall also adhere to NWCG standards regardless of jurisdictional boundaries.

C. When conducting firefighting operations under the YPG Incident Command System (ICS) or on YPG lands, a USFWS/BLM liaison will be assigned to the YPG ICS to ensure applicable agency policies and standards are adhered to. This shall be reciprocated when YPG resources are conducting operations under USFWS/BLM ICS on public lands.

D. When an incident escapes initial attack and converts to extended attack on public lands, all personnel and equipment assigned to the incident shall be required to meet NWCG standards.

VII. Reimbursement/Compensation

The MOU does not authorize the exchange of funds. Costs associated with implementing the MOU may be abridged or negated through joint operations and planning between the Parties. Generally, reimbursement/compensation will, subject to the availability of funds, be negotiated on a case-by-case basis. The appropriate separate authorizing instrument shall be executed to authorize any exchange of funds between the Parties. The type of instrument used shall be determined by the Procurement Officer or other authorized official for the agency initiating the reimbursement/compensation.

VIII. Cooperation

A. An "After Action Review" (AAR) will be conducted within seven (7) days post incident. The AAR is a tool intended for post-evaluation of the incident in order to sustain strengths and improve weaknesses. This process shall not be interpreted as an investigational review.

B. The AAR shall be conducted at the field and departmental level. The IC shall conduct a review in the field with the operational resources and as scheduled with the departments/agencies representatives. The IC will be responsible for facilitating, scheduling and contacting each Party to conduct the AAR.

C. The following organizational entities shall be represented during an AAR:

YPG-Range Control
YPG-Wildlife
YPG-Fire Department
BLM-Yuma Field Office
USFWS-AZ Fire District

D. In an effort to standardize training and meet NWCG fire fighting standards, YPG shall annually submit a list of wildland fire training needs. When capable, USFWS/BLM will facilitate the delivery of NWCG 100-200 level courses to meet these needs. The USFWS will be the primary contact agency in coordinating training agendas.

IX. Dispatch Centers

Dispatch centers shall ensure all resources know the name of the assigned IC and announce all changes in incident command.

A. **To contact/request USFWS fire resources:**

Arizona Interagency Fire Center (State Fire Dispatch)
AZ State Fire Management Facility
2901 W. Pinnacle Peak Road
Phoenix, Arizona 85027-1002
1-800-309-7081

B. **To contact/request BLM fire resources:**

Bureau of Land Management, Yuma Field Office
Yuma BLM Fire Dispatch
2555 Gila Ridge Road
Yuma, Arizona 86406
928-317-8656

C. **To contact/request YPG fire resources:**

U.S. Army Garrison, Yuma Proving Ground
Fire Department
301 C Street
Yuma, Arizona 85365
928-328-2117

Appendix H
Noise Contour Figures from the Installation Operational Noise Management Plan

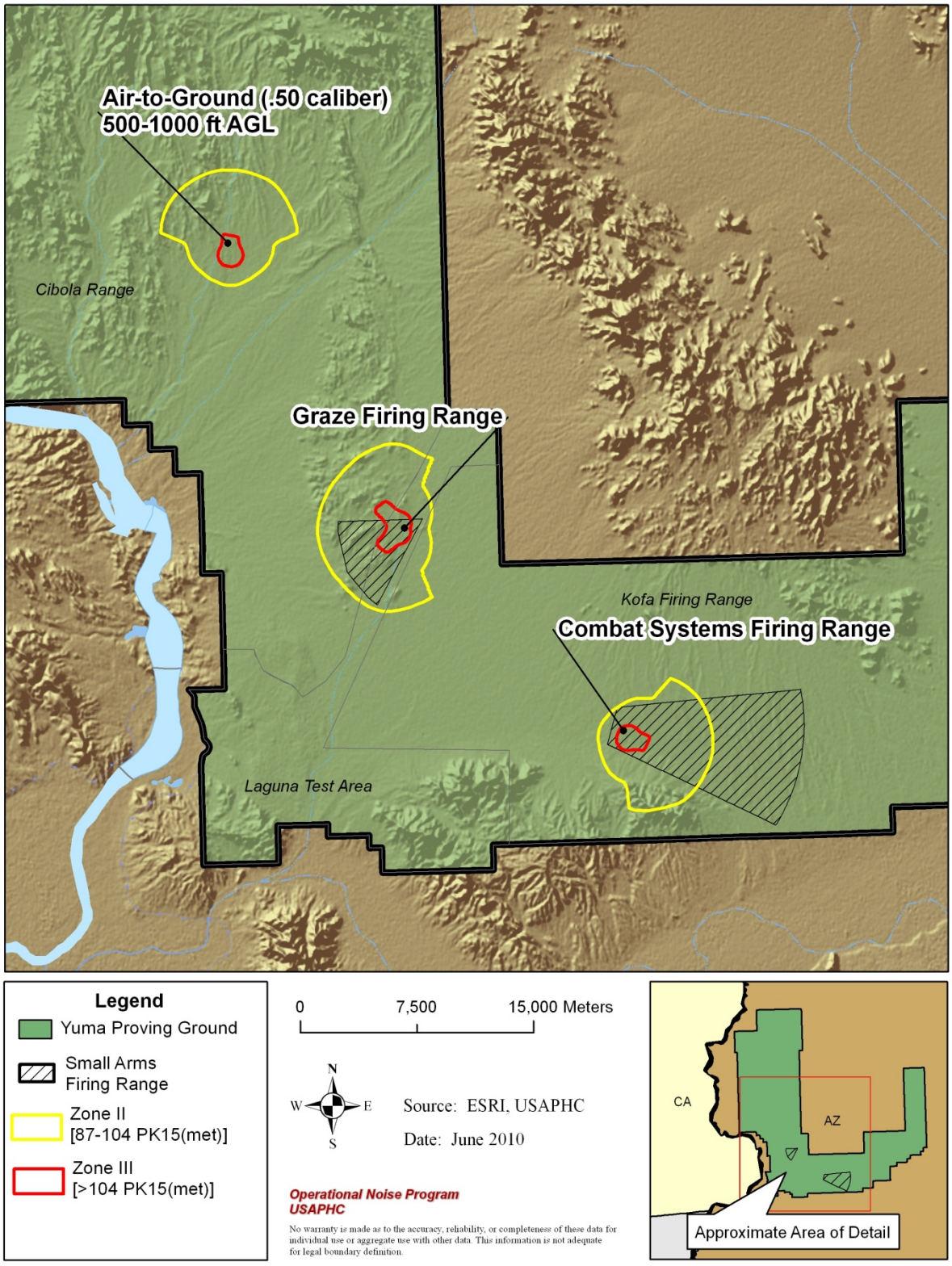


Figure 4-1 YPG Small Caliber Noise Contour (.50 Caliber including Air-to-Ground)

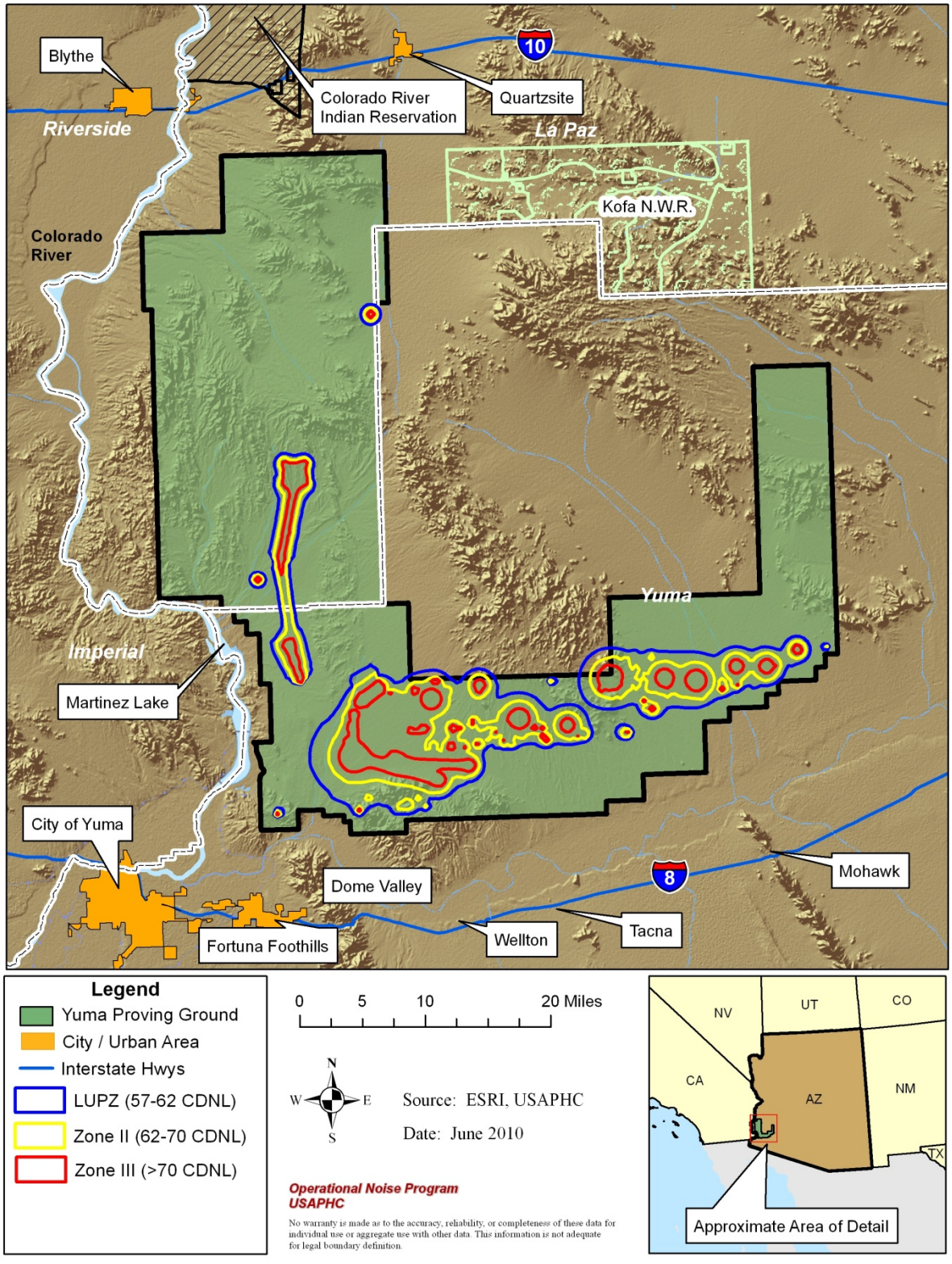


Figure 4-2 YPG Large Caliber Noise Contour (Data provided)

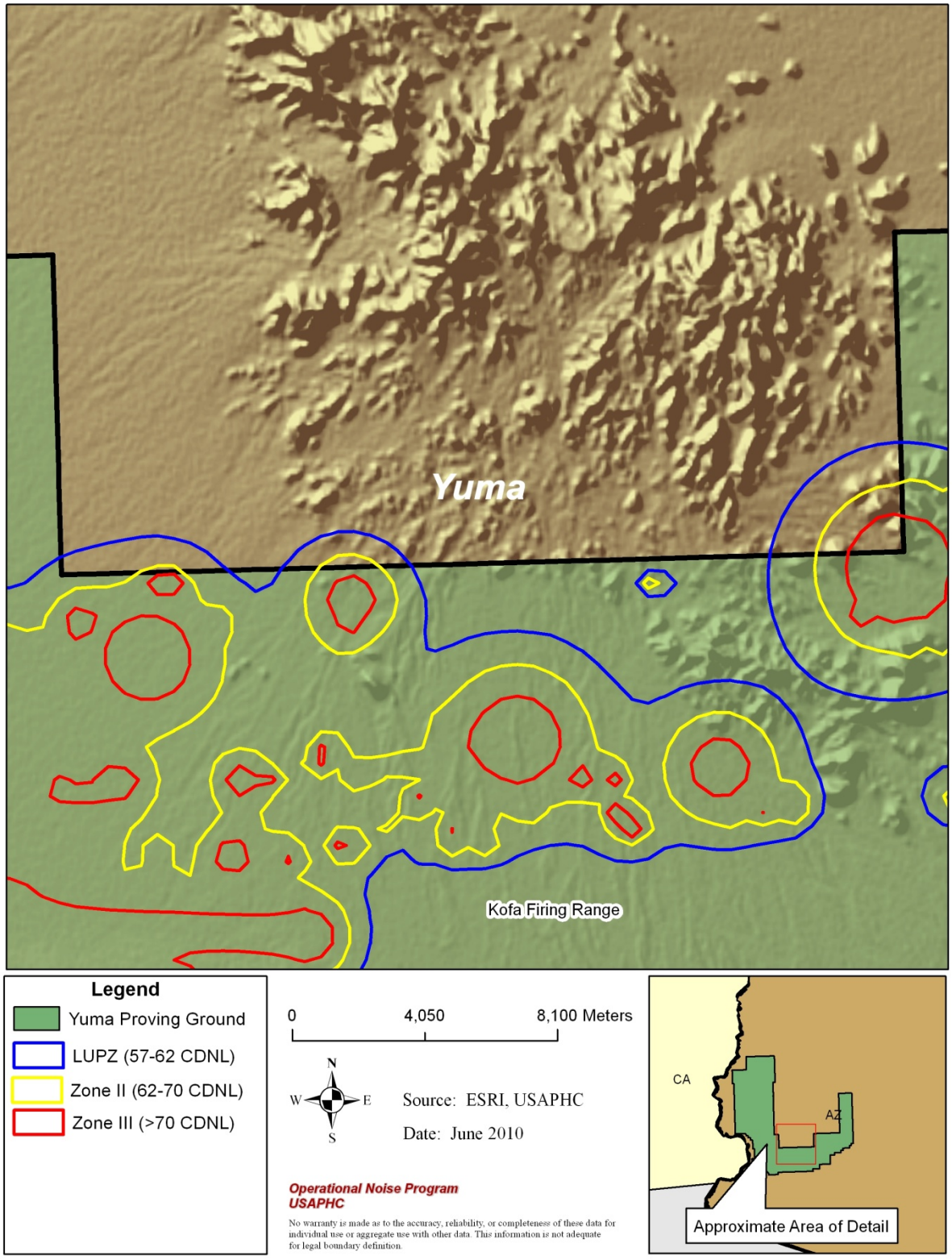


Figure 4-3 YPG Large Caliber Noise Contour Off Post (Detailed Kofa area)

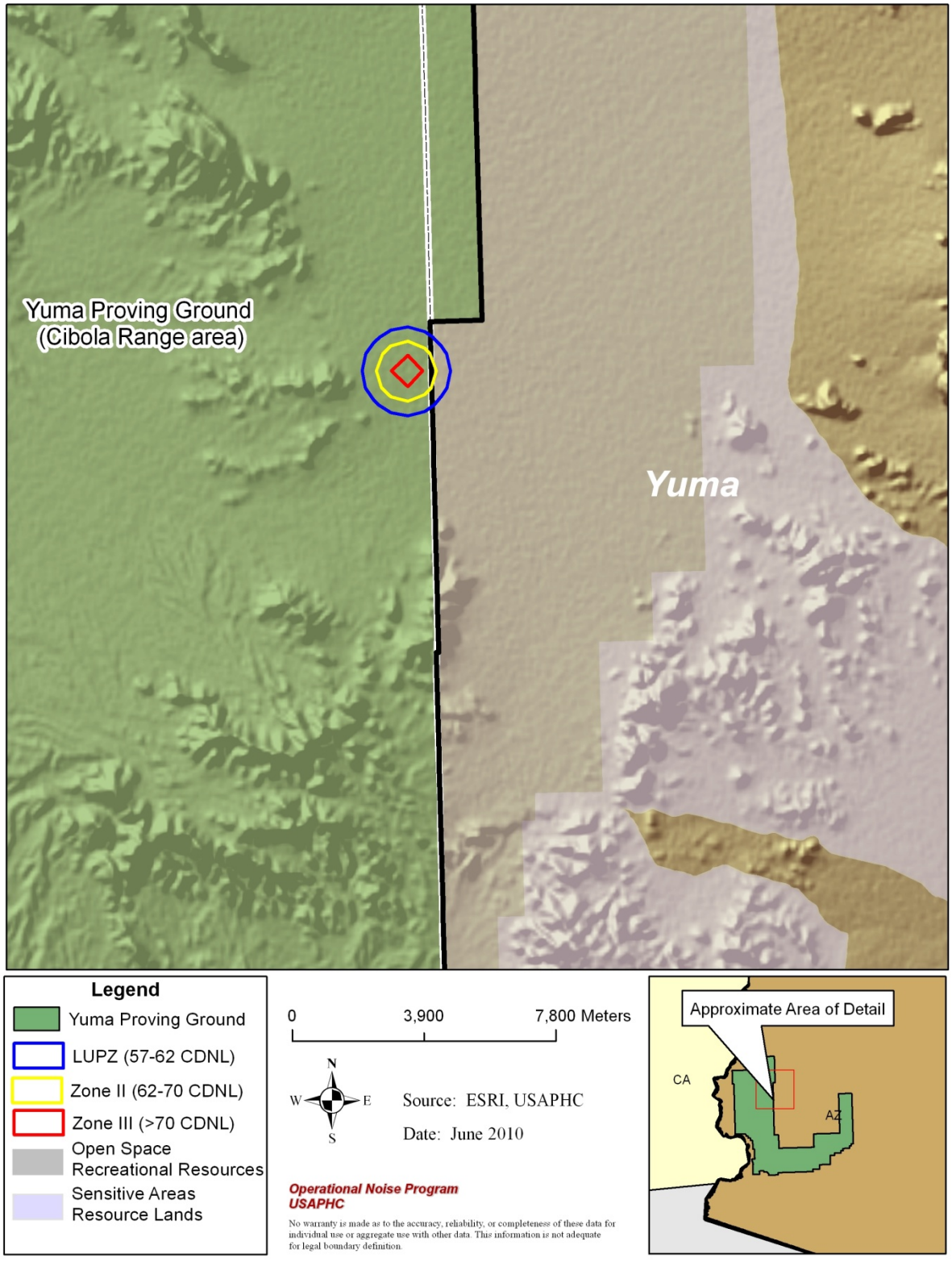


Figure 4-4 YPG Large Caliber Noise Contour Off Post (Detailed Cibola area)

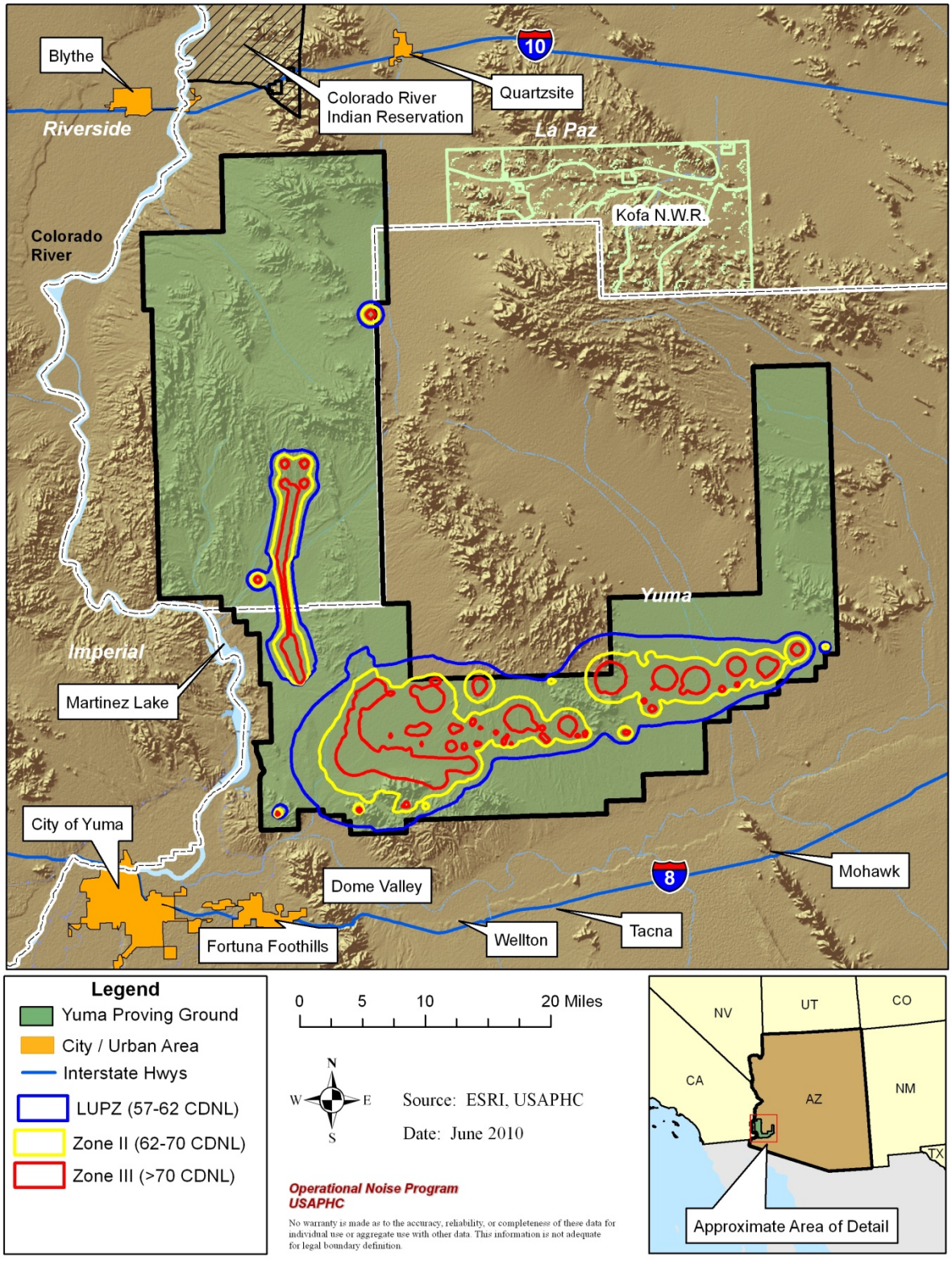


Figure 4-5 YPG Large Caliber Noise Contour (Double Yearly Operations)

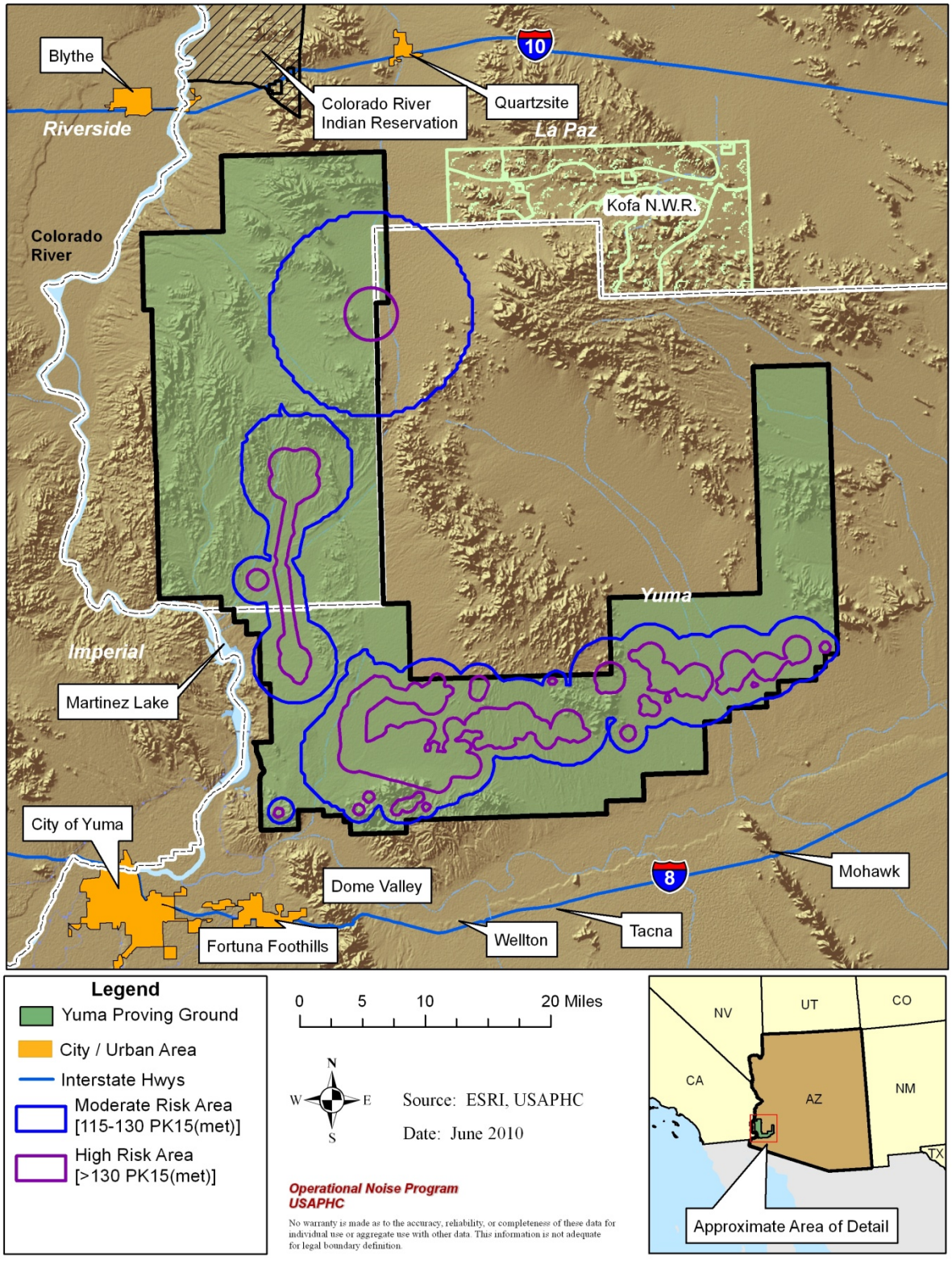


Figure 4-6 YPG Large Caliber Risk of Complaints Area

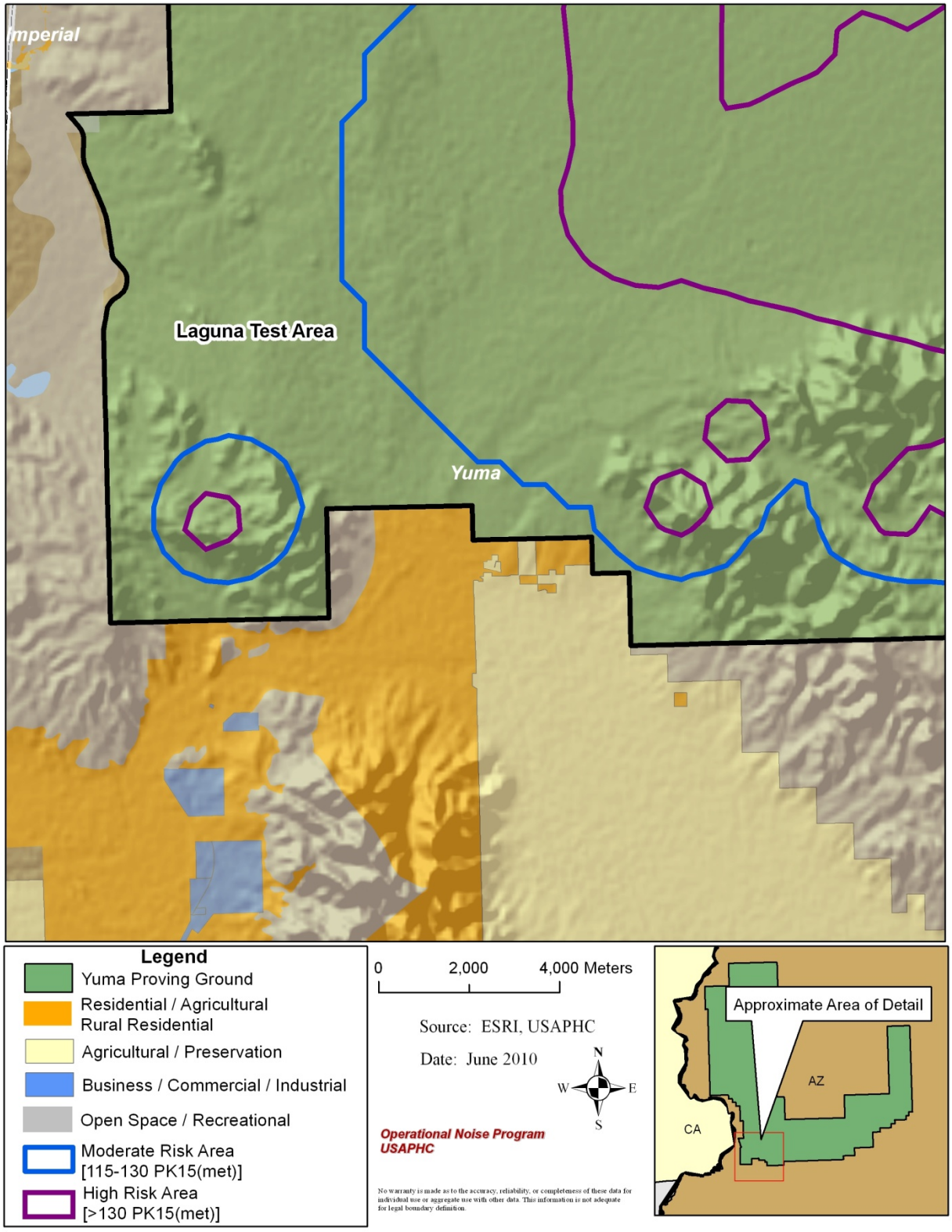


Figure 4-7 YPG Large Caliber Risk of Complaints Area (Detailed Laguna Test Area)

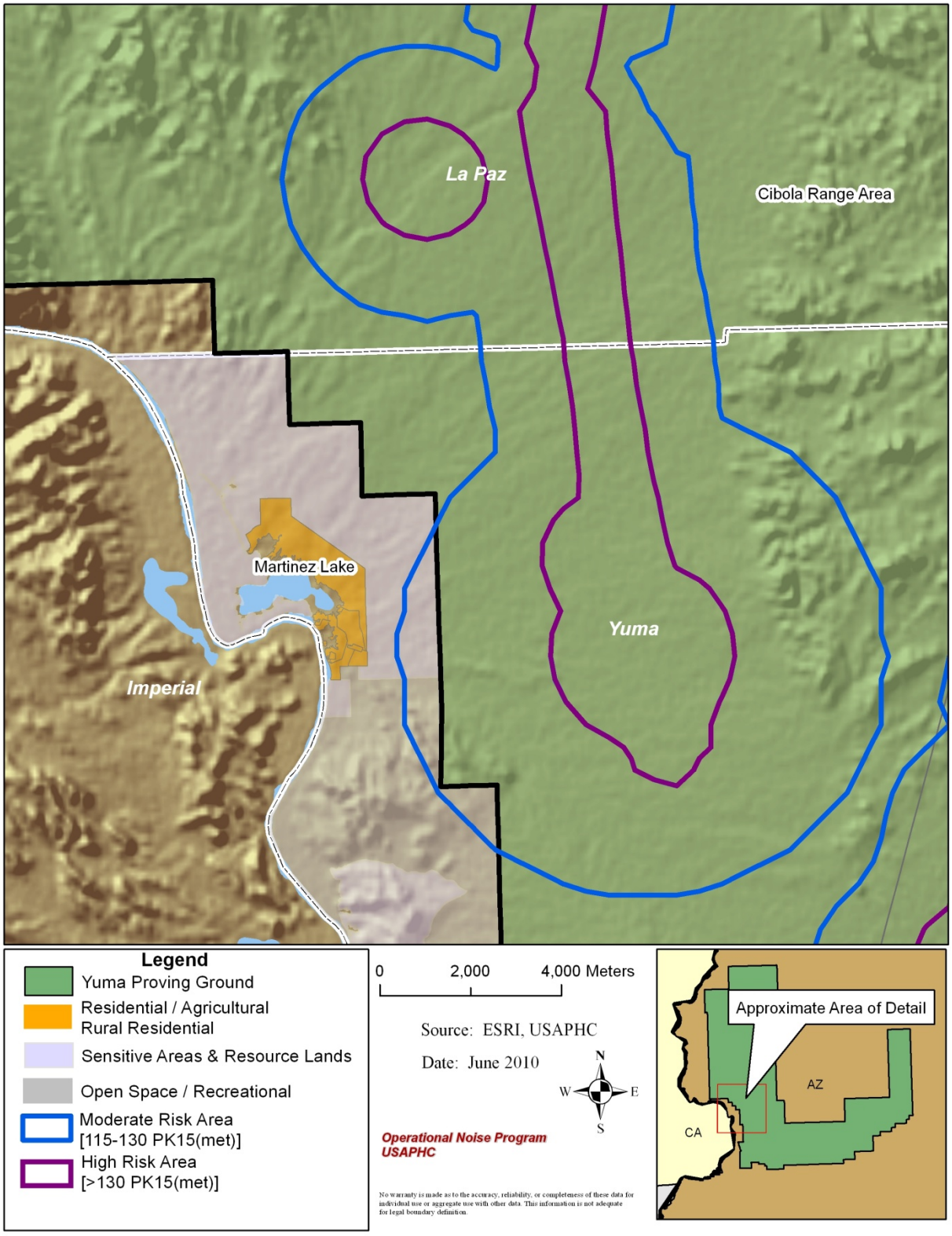


Figure 4-8 YPG Large Caliber Risk of Complaints Area (Detailed Martinez Lake Area)

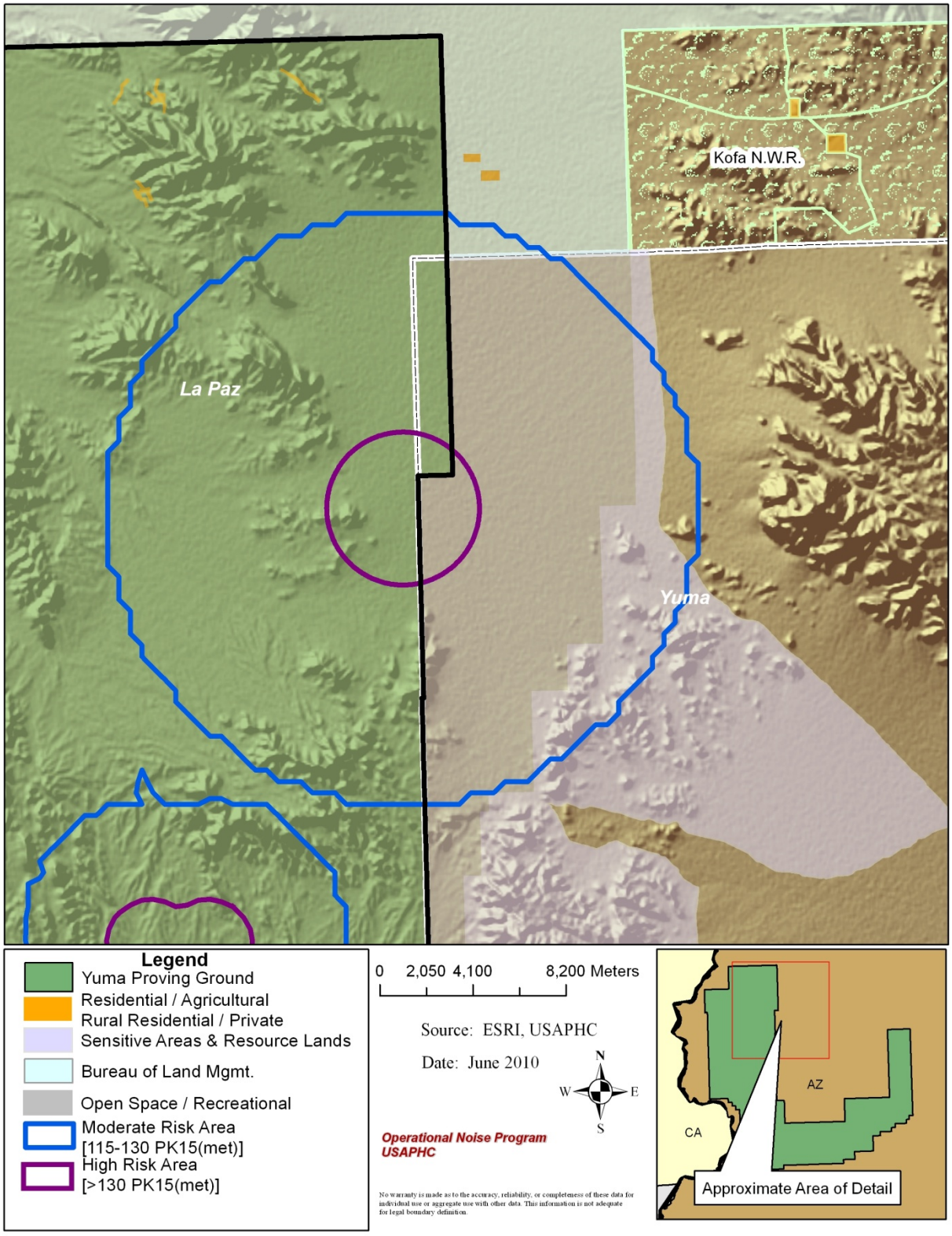
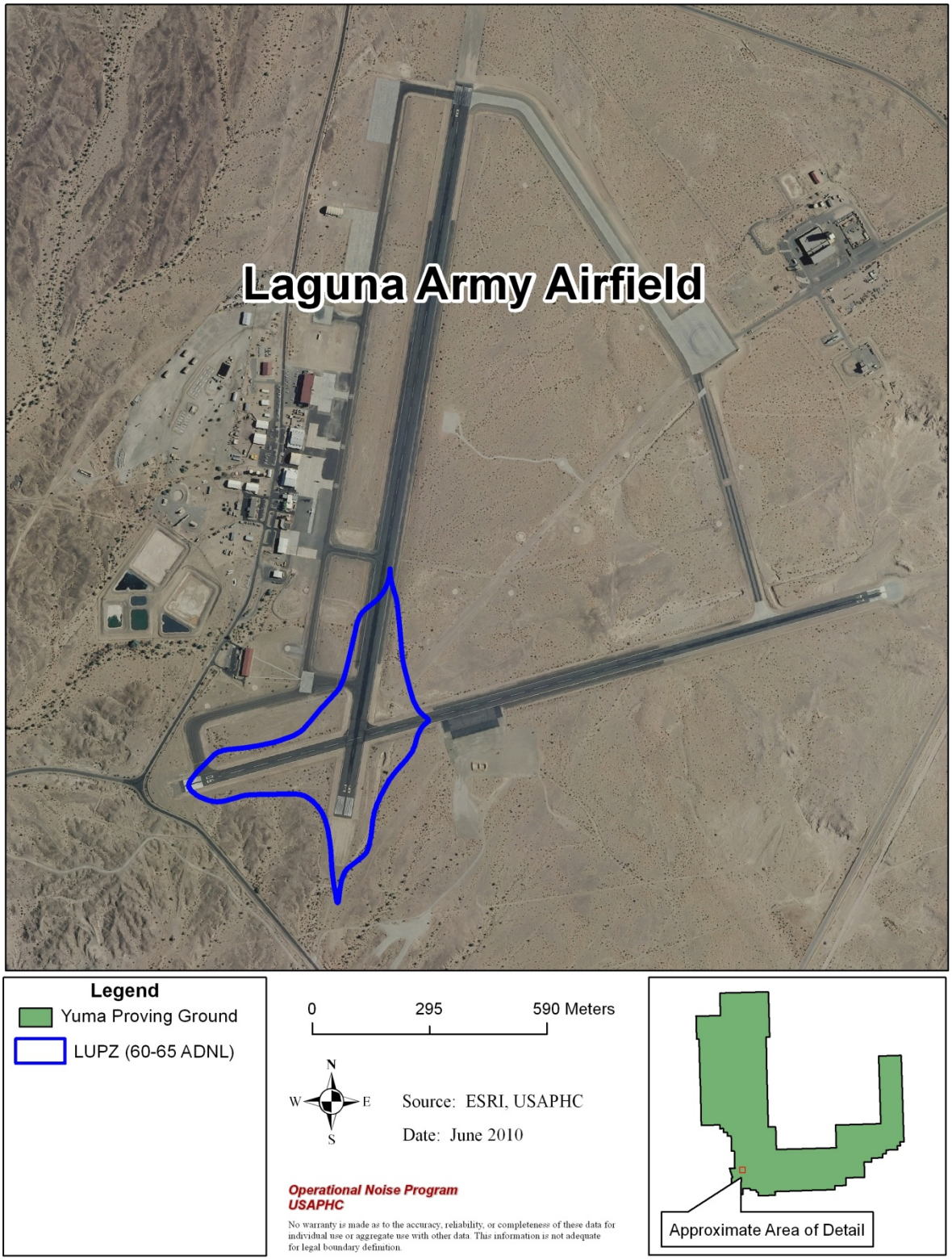


Figure 4-9 YPG Large Caliber Risk of Complaints Area (Detailed Northern Cibola Area)


Laguna Army Airfield
Legend
Yuma Proving Ground
LUPZ (60-65 ADNL)
0
295
590 Meters
N
W
E
S
Source: ESRI, USAPHC
Date: June 2010
Operational Noise Program
USAPHC
No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This information is not adequate for legal boundary definition.
Approximate Area of Detail

Appendix I
Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat

RECOMMENDED STANDARD MITIGATION MEASURES FOR PROJECTS IN SONORAN DESERT TORTOISE HABITAT

Arizona Interagency Desert Tortoise Team
June 2008

The following mitigation process and measures are recommended by the Arizona Interagency Desert Tortoise Team (AIDTT) for proposed surface-disturbing projects located in the habitat of the Sonoran population of the desert tortoise, *Gopherus agassizii*.

Mitigation for projects in the habitat of the Mojave population, located north and west of the Colorado River, will be addressed by project proponents, land management agencies, Arizona Game and Fish Department, and the Fish and Wildlife Service through consultations between the Service and Federal agencies in accordance with section 7 of the Endangered Species Act and in the habitat conservation planning process for private actions. This document is a supplement to the **AIDTT Management Plan (AIDTT 1996).**

Determining the Need for Mitigation

Project proponents, in coordination with local land managers, Arizona Game and Fish Department, and Fish and Wildlife Service, must determine whether desert tortoises are present or may occur in areas that would be disturbed by proposed projects. Presence can often be confirmed by contacting biologists with the Bureau of Land Management, Arizona Game and Fish Department, or other local biologists that have knowledge of specific areas or access to the Arizona Game and Fish Department Heritage Data Management System or other data bases that list locality data for desert tortoises. Tortoises can be expected to occur in desert mountains, rocky areas, washes cut through caliche, and bajadas in desert scrub vegetation communities. Tortoises are typically absent above 4,500 feet elevation. Mitigation will generally not be needed above 4,500 feet.

If tortoises have been found in the project area or nearby areas of similar habitat, the species can be presumed present and appropriate mitigation must be included in the proposed project. If presence is questionable, surveys by qualified biologists should be conducted. Often, casual surveys by qualified biologists that focus on microsites with the greatest potential for supporting tortoises can confirm the presence of the species. More intensive work is needed to suggest absence of tortoises. We recommend that these intensive surveys generally follow Fish and Wildlife Service survey protocol for the Mojave population (Fish and Wildlife Service 1992), except that areas with little or no potential for desert tortoises, such as dry lake beds and riparian areas need not be surveyed. Tortoise biologists conducting surveys should be familiar with the habitats and survey methods for Sonoran tortoises, which are in many ways different from those of the Mojave population. If the species is present in the project area (including the zone of influence - Fish and Wildlife Service 1992), mitigation should be included as a component of the project design.

Mitigation Plan

Mitigation should be tailored to the nature of the proposed action, its anticipated effects, and the density and expected response of desert tortoises to the action. The following mitigation actions are grouped to assist in selection of appropriate actions for specific projects. Nevertheless, each project is different and development of an appropriate mitigation plan will require the input of a desert tortoise biologist and authorizing agencies, such as the Arizona Game and Fish Department and, for actions on Federal lands, the Bureau of Land Management, Forest Service, Bureau of Reclamation, and Department of Defense. Approval of a mitigation plan will typically be by an authorizing or permitting/authorizing land management agency, but only Arizona Game and Fish Department can authorize handling or moving tortoises. Mitigation measures suggested herein are recommendations to be used in developing mitigation plans for specific projects. Required mitigation will be developed by permitting agencies and project proponents in accordance with land management plans, the Desert Tortoise Rangewide Plan (Spang et al. 1988), the National Environmental Policy Act (NEPA), and other applicable guidance and regulations. In general, more rigorous mitigation should be sought in areas supporting moderate to high density tortoise populations (>20 tortoises/mi), in category 1 and 2 habitats (Spang et al. 1988), and in Sonoran Desert Management Areas (AIDTT 1996).

The first set of mitigation measures are presented as a generic mitigation outline. Within the outline, measures are listed in the general order and priority in which they should be applied to project proposals. This step-down process is in accordance with NEPA regulations and Fish and Wildlife Service mitigation policy. A second set of measures follow the outline and consist of project-specific mitigation recommendations. These and/or other measures developed during project planning should be added to the generic mitigation outline as appropriate. A good source of ideas for mitigation measures is the biological analysis for the proposed Eagle Mountain Landfill (Circle Mountain Biological Consultants 1996), in which the author summarizes mitigation measures used as terms and conditions in biological opinions for the Mojave population of the desert tortoise.

Some of the following recommended measures are defined fairly specifically; others provide more general guidance to be considered in the process of developing a project mitigation plan. As these measures are adapted for inclusion into a mitigation plan, replace "should" with "shall" to indicate that they are mandatory stipulations.

Generic Mitigation Plan For Projects in Desert Tortoise Habitat:

Priority 1: Avoid the Impacts

To the extent possible, project features should be located in previously disturbed areas or outside of desert tortoise habitat.

If impacts to desert tortoises or their habitat can not be avoided, then:

Priority 2: Minimize the Impacts

A. **Scheduling Activities to Reduce Potential Adverse Effects:**

To the extent possible, project activities should be scheduled when tortoises are inactive (typically November 1 to March 1).

B. Information and Education of Project Personnel:

A desert tortoise protection education program should be presented to all employees, inspectors, supervisors, contractors, and subcontractors who carry out proposed activities at the project site. The education program should include discussions of the following:

1. The legal and sensitive status of the tortoise;
2. a brief discussion of tortoise life history and ecology;
3. mitigation measures designed to reduce adverse effects to tortoises;
4. and protocols to follow if a tortoise is encountered, including appropriate contact points.

C. **Designation of a Desert Tortoise Coordinator:**

The project proponent should designate a desert tortoise coordinator (DTC) who should be responsible for overseeing compliance with the mitigation program, coordination with permitting agencies, land managers, and Arizona Game and Fish Department; and as a contact point for personnel that encounter desert tortoises. The DTC should be on site during project activities and should be familiar with and have a copy of the desert tortoise mitigation plan.

D. Removal of Harm to Desert Tortoises on Project Sites:

If a tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects", revised October 23, 2007 (or the latest revision). Take, possession, or harassment of a desert tortoise is prohibited by State law, unless specifically authorized by Arizona Game and Fish Department.

E. **Minimization of Project Footprint:**

1. Vehicle use should be limited to existing or designated routes to the extent possible.

2. Areas of new construction or disturbance should be flagged or marked on the ground prior to construction. All construction workers should strictly limit their activities and vehicles to areas that have been marked. Construction personnel should be trained to recognize markers and understand the equipment movement restrictions involved.

F. **Limitation of Habitat Disturbance within the Project Footprint:**

1. Blading of new access or work areas should be minimized to the extent possible. Disturbance to shrubs should be avoided if possible. If shrubs cannot be avoided during equipment operation or vehicle use, wherever possible they should be crushed rather excavated or bladed and removed.

2. Project features that might trap or entangle desert tortoises, such as open trenches, pits, open pipes, etc should be covered or modified to prevent entrapment. [This may only be necessary during the tortoise active season and may be unnecessary if an on-site biologist is monitoring activities - see "Suggested Mitigation Measures for Projects Conducted During the Tortoise Activity Period... "below.]

G. **Preventing Attraction of Predators or Enhancement of Predator Populations:**

Construction sites should be maintained in a sanitary condition at all times. The project proponent should be responsible for controlling and limiting litter, trash, and garbage by immediately placing refuse in predator-proof, sealable receptacles. Trash and debris should be removed when construction is complete.

Priority 3: Rectify the Impacts

A. **Removal of Hazards:**

After completion of the project, trenches, pits, and other features in which tortoises could be entrapped or entangled, should be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.

B. **Habitat Restoration:**

After project completion, measures should be taken to facilitate restoration. Restoration techniques should be tailored to the characteristics of the site and the nature of project impacts identified in the mitigation plan as developed by project biologists, Arizona Game and Fish Department, and permitting State and Federal agencies. Techniques may include removal of equipment and debris, recontouring, replacing boulders that were moved during construction; and seeding, planting, transplanting of cacti and yuccas, etc. Only native plant species, preferably from a source on or near the project area, should be used in restoration.

Priority 4.- Reduce or Eliminate the Impacts over Time, and Provide Guidance and Information for Improving Future Mitigation Plans

Monitoring and Reporting Requirements:

The project proponent should submit a monitoring report to the Arizona Game and Fish Department and any permitting State or Federal agency within 90 days of project completion. For long-term or ongoing projects that may result in continuing impacts to tortoises and habitat, annual monitoring reports should be prepared. Monitoring reports should briefly document the effectiveness of the desert tortoise mitigation measures, actual acreage of desert tortoise habitat disturbed, the number of desert tortoises excavated from burrows, the number of desert tortoises moved from construction sites, and other applicable information on individual desert tortoise encounters. The report should make recommendations for modifying or refining the mitigation program to enhance desert tortoise protection and reduce needless hardship on the project proponents.

Priority 5: Compensate for Residual Impacts

In accordance with "Compensation for the Desert Tortoise" (Desert Tortoise Compensation Team 1991), signed by Desert Tortoise Management Oversight Group, authorizing agencies should require compensation for residual impacts to desert tortoise habitat.

The following mitigation measures are designed for specific project types or conditions. Most act to minimize project impacts (priority 2 measures).

<u>For Projects Involving Hazardous Materials:</u>

Oil, fuel, pesticides, and other hazardous material spills should be cleaned up and properly disposed of as soon as they occur in accordance with applicable State and Federal regulations. All hazardous material spills must be reported promptly to the appropriate surface management agencies and hazardous materials management authorities.

<u>For Projects Conducted During the Tortoise Activity Period (typically March 1 to November 1)</u>

1. Construction and operation activities should be monitored by a qualified desert tortoise biologist. The biologist should be present during all activities in which encounters with tortoises may occur. The biologist should watch for tortoises wandering into construction areas, check under vehicles, check at least three times per day any excavations that might

trap tortoises, and conduct other activities necessary to ensure that death and injury of tortoises is minimized. This measure may only be warranted in areas of moderate to high tortoise density, category 1 or 2 habitat, or in Sonoran Desert Management Areas.

2. Unleashed dogs should be prohibited in project areas.

3. Temporary fencing, such as chicken wire, snow fencing, chain link, and other suitable materials should be used in designated areas to reduce encounters with tortoises on short-term projects, such as construction of power lines, burial of fiber optic cables, etc, where encounters with tortoises are likely.

For Long-term or Permanent Projects in Which Continued Encounters with Desert Tortoises Are Expected:

Construction of schools, factories, power plants, office buildings, and other permanent or long-term projects in moderate to high density desert tortoise habitat should be enclosed with desert tortoise barrier fencing to prevent tortoises from wandering onto the project site where they may be subject to collection, death, or injury. Barrier fencing should consist of wire mesh with a maximum mesh size of 1inch (horizontal) by 2-inch (vertical) fastened securely to posts. The wire mesh should extend at least 18 inches above the ground and preferably 12 inches below the surface of the ground. Where burial is not possible, the lower 12 inches should be folded outward, away from the enclosed site, and fastened to the ground so as to prevent tortoise entry. Any gates or gaps in the fence should be constructed and operated to prevent desert tortoise entry (such as installing "tortoise guards" similar to cattle guards, and/or keeping gates closed). Specific measures for tortoise-proofing gates and gaps should be addressed project by project. Fencing is a relatively expensive mitigation measure and may only be appropriate in areas of moderate to high tortoise density, category I or 2 habitats, or Sonoran Desert Management Areas.

For Projects in Which Encounters Between Vehicles and Tortoises are Likely:

In desert tortoise habitat project-related vehicles should not exceed 25 miles per hour on unpaved roads.

For Road and Railroad Construction or Improvements in Desert Tortoise Habitat:

1. New paved roads and highways or major modifications of existing roads through desert tortoise habitat should be fenced with desert tortoise barrier fencing (described above). Culverts, to allow safe passage of tortoises, should be constructed approximately every mile of new paved roads and railroads (culverts can also serve the more typical purpose of conducting water under roads and railroads). The culvert diameter needed to encourage tortoise use is correlated with culvert length, but generally short culverts of large diameter are most likely to be used. Culvert design should be coordinated with

Arizona Game and Fish Department and authorizing State and Federal agencies. The floor of the culvert should be covered with dirt and maintenance should be performed as necessary to maintain an open corridor for tortoise movement. Fencing and culverts may only be warranted in areas of moderate to high tortoise densities, category 1 or 2 habitats, or in Sonoran Desert Management Areas.

2. Use of roads constructed for specific non-public purposes, such as access routes to microwave towers, should be limited to administrative use only.

3. Temporary access routes created during project construction should be modified as necessary to prevent further use. Closure of access routes could be achieved by ripping, barricading, posting the route as closed, and/or seeding and planting with native plants.

References Cited

Arizona Interagency Desert Tortoise Team. 1996. Arizona Interagency Desert Tortoise Team Management Plan.

Circle Mountain Biological Consultants. 1996. Federal biological opinion analysis for the proposed Eagle Mountain Landfill Project. Prepared for CH2MHILL, Santa Ana, California.

Desert Tortoise Compensation Team. 1991. Compensation for the desert tortoise. Report to the Desert Tortoise Management Oversight Group.

Fish and Wildlife Service. 1992. Procedures for endangered species act compliance for the Mojave population of the desert tortoise. Fish and Wildlife Service, Region 1 -Portland, Region 2 - Albuquerque, and Region 6 - Salt Lake City.

Spang, E.F., G.W. Lamb, F. Rowley, W.H. Radtkey, R.R. Olendorff, E.A. Dahlem, and S. Slone. 1988. Desert tortoise habitat management on the public lands: A rangewide plan. Report prepared for Bureau of Land Management, Division of Wildlife and Fisheries, 903 Premier Building, l8th and C Streets, N. W., Washington, D.C. 20240. 23 pp.

Appendix J
Sensitive Species Tracked by State of Arizona with Potential to Occur in Yuma and La Paz Counties

Table J-1
Sensitive Species not Protected Under the Endangered Species Act Known to Occur in Yuma and LaPaz Counties, Arizona
Yuma Proving Ground

Common Name	*Scientific Name*	Status	Habitat and Potential of Occurrence
Arizona Chuckwalla [a]	*Sauromalus ater (Arizona Population)*	SC, BLM-S,	Near cliffs, boulders, rocky slopes, rocky desert, lava flows, hillsides, and outcrops with creosote. Occurs nearby along north side of Gila River near Muggins Peak, but nearby populations limited to the Colorado and Gila rivers. Species would not be impacted by the proposed action and is not further discussed.
Arizona Toad [b]	*Anaxyrus microscaphus*	SC, BLM-S, USFS-S	Rocky streams and canyons in the pine-oak belt and lower deserts with upland desert and evergreen woodland vegetation. Not known to occur and unlikely to occur within the Proposed Action area. Nearest location is the Bill Williams River in LaPaz County. Species is unlikely to be impacted and is not further discussed.
Bald Eagle [c] (Winter Population)	*Haliaeetus leucocephalus (wintering pop.)*	SC, BLM-S, USFS-S, WSC	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey. Known to occur along Colorado and Gila rivers. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.
Banded Gila Monster [a]	*Heloderma suspectum cinctum*	SC	Primarily Sonoran Desert and extreme western edge of Mohave Desert in undulating rocky foothills, bajadas, and canyons. Known to occur nearby in the Kofa National Wildlife Refuge and south of Gila River. Species is discussed.
Blue Sand Lily [d]	*Triteleiopsis palmeri*	BLM-S, SR	Sandy areas (dunes) in low desert. Nearest occurrence is in Yuma County south of the Gila River and east of the City of Yuma. Species is unlikely to be impacted and is not further discussed.
Cactus Ferruginous Pygmy-owl [c]	*Glaucidium brasilianum cactorum*	SC, BLM-S, USFS-S, WSC	Along streams with cottonwoods and willows adjacent to mesquite bisques, generally with saguaros nearby. Sometimes along dry washes with large mesquite, paloverde, ironwood, and saguaro. Nearest known occurrence is in south central Yuma County near the Mexico border. Not known to occur and unlikely to occur within the Proposed Action area. Species is unlikely to be impacted and is not further discussed.
California Black Rail [c]	*Laterallus jamaicensis coturniculus*	SC, BLM-S, WSC	Mainly tidal salt marshes and also brackish and fresh-water marshes. Known to occur nearby along the Colorado River in Yuma County. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.

Table J-1
Sensitive Species not Protected Under the Endangered Species Act Known to Occur in Yuma and LaPaz Counties, Arizona
Yuma Proving Ground

Common Name	*Scientific Name*	Status	Habitat and Potential of Occurrence
California Fan Palm [e]	*Washingtonia filifera*	SR	Desert oases in Sonoran and Mojave deserts at elevations between 500 and 1,000 feet. Suitable habitat is not present on YPG and species would not occur, Species would not be impacted and is not further discussed.
California Leaf-nosed Bat [f]	*Macrotus californicus*	SC, BLM-S, USFS-S, WSC	Sonoran desert scrub in summer and winter. Roosts in mines, caves, and rock shelters. Species occurs on YPG and is discussed.
Cave Myotis [f]	*Myotis velifer*	SC	Desert scrub of creosote, brittlebush, palo verde, and cacti. Roosts in caves, tunnels, and mineshafts, and sometimes bridges and buildings. Species occurs on YPG and is discussed.
Clark's Grebe [c]	*Aechmophorus clarkii*	BLM-S, USFS-S, WSC	YPG is not within the range of this species. Nearest known occurrence is at the border of LaPaz and Mojave counties. Species would not be impacted and is not further discussed.
Clustered Barrel Cactus [d]	*Echinocactus polycephalus var. polycephalus*	SR	Rocky flats, washes, bajadas, rock ledges, and rocky, gravely slopes in the driest parts of the Sonoran and Mojave deserts. Known to occur south of the Gila River in Yuma County. Species is unlikely to occur on YPG. Species is unlikely to be impacted and not further discussed.
Desert Barrel Cactus [d]	*Ferocactus cylindraceus*	SR	Gravelly or rocky hillsides, canyon walls, alluvial fans, and wash margins in the Mohave and Sonoran deserts, on igneous and limestone substrates. YPG is within the range of the species and suitable habitat is present. Species is discussed.
Desert Rosy Boa [a]	*Lichanura trivirgata gracia*	SC, BLM-S	Rocky areas with desert scrub in desert ranges, especially in canyons with permanent or intermittent streams with cotton-wood or pine-oak riparian communities. Known to occur near the border of YPG in the Kofa National Wildlife Refuge. Species is discussed
Dune Spurge[d]	*Euphorbia platysperma*	SC	Sandy soils in dune habitats. Not known to occur on or near YPG. Nearest known occurrence is along the Mexico border in southwest Yuma County. Species is unlikely to occur on YPG. Species is unlikely to be impacted and not further discussed.
Dune Sunflower [d]	*Helianthus niveus ssp. tephrodes*	SC	Sand dunes or sandy flats of the Algodone Dunes. Not known to occur on YPG, but does occur nearby in the City of Yuma area. Species is unlikely occur on YPG. Species is unlikely to be impacted and is not further discussed.

Table J-1
Sensitive Species not Protected Under the Endangered Species Act Known to Occur in Yuma and LaPaz Counties, Arizona
Yuma Proving Ground

Common Name	*Scientific Name*	Status	Habitat and Potential of Occurrence
Gander's Cryptantha [d]	*Cryptantha ganderi*	SC	Sandy soil in desert dunes and Sonoran desert scrub. Nearest known occurrence is in southeast Yuma County on the Mexico border. Unlikely to occur on YPG. Species is unlikely to be impacted and not further discussed.
Great Egret [c]	*Ardea alba*	BLM-S, WSC	Marshes, swampy woods, tidal estuaries, lagoons, streams, lakes, rivers and ponds; also in fields and meadows. Known to occur along the Colorado River. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.
Greater Western Bonneted Bat [f]	*Eumops perotis californicus*	SC, BLM-S, USFS-S	Lower and upper Sonoran desert scrub near cliffs, preferring rugged rocky canyons with abundant crevices. Not known to occur on YPG. Nearby occurrences include the Colorado River in LaPaz County and near the south Yuma County border. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.
Kearney Sumac [d]	*Rhus kearneyi*	BLM-S, SR	Arid slopes, along canyons and drainages. Nearest known occurrence is in Yuma County south of Gila River and east of the City of Yuma. Unlikely to occur on YPG. Species is unlikely to be impacted and is not further discussed.
Kofa Mt Barberry [d]	*Berberis harrisoniana*	BLM-S	Bottoms of deep, shady, rocky canyons. Known to occur nearby in the Kofa National Wildlife Refuge. Extensive surveys have been conducted on YPG and none has been found. Species is unlikely to be impacted and is briefly discussed.
Least Bittern [c]	*Ixobrychus exilis*	BLM-S, WSC	Freshwater and brackish marshes with aquatic vegetation. Known to occur in the nearby Colorado River of Yuma and LaPaz County. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.
Loggerhead Shrike [c]	*Lanius ludovicianus*	SC	Open country with scattered trees and shrubs, savanna, desert scrub, and occasionally open woodland. Often observed on poles, wires, or fence posts. Resident species on YPG and commonly winters in the Lower Sonoran Zone. Species is discussed.

Table J-1
Sensitive Species not Protected Under the Endangered Species Act Known to Occur in Yuma and LaPaz Counties, Arizona
Yuma Proving Ground

Common Name	*Scientific Name*	Status	Habitat and Potential of Occurrence
Lowland Leopard Frog [b]	*Rana yavapaiensis*	SC, BLM-S, USFS-S, WSC	Aquatic systems in desert grasslands to pinyon-juniper. Absent from the Colorado River watershed. Not known to occur and unlikely to occur within the Proposed Action area. Species is unlikely to be impacted and is not further discussed.
Mohave Fringe-toed Lizard [a]	*Uma scoparia*	BLM-S, WSC	Fine, windblown sands and dunes, flats, riverbanks, and washes of very arid desert with low growing vegetation. Generally within creosote scrub desert habitat. Occurs on YPG, but limited to sand dune complex in northwest Cibola Region. Speices is discussed.
Pale Townsend's Big-eared Bat [f]	*Corynorhinus townsendii pallescens*	SC, BLM-S, USFS-S	Day roosts include caves and mines from desert scrub up to woodlands and coniferous forests. Night roosts in abandoned buildings often. Hibernate in winter in cold caves, lava tubes, and mines mostly in uplands and mountains. Known to occur on YPG near the Kofa National Wildlife Refuge. Species is discussed.
Parish Onion [d]	*Allium parishii*	BLM-S, SR	Open rocky and sandy slopes in the Mojave Desert and desert mountain ranges. Known to occur near YPG in the Kofa National Wildlife Refuge. Species could occur on YPG and is discussed.
Pocketed Free-tailed Bat [f]	*Nyctinomops femorosaccus*	USFS-S	Desert scrub and arid lowland habitats in southern Arizona, roosting in crevices high on cliff faces in rugged canyons. Known to occur in the YPG area and could occur on YPG. Species is discussed.
Sand Food [d]	*Pholisma sonorae*	SC, BLM-S, HS	Drifting sandy soil and other sandy areas in low desert. Nearest known occurrence is in south Yuma County near the Mexico border in the Yuma Desert. Unlikely to occur on YPG. Species unlikely to be impacted and is not further discussed.
Scaly Sandplant [d]	*Pholisma arenarium*	BLM-S, HS	Not known to occur on or near YPG. Nearest known location is in north LaPaz County north of I-10. This species would not be impacted by and is not further discussed.
Schott Wire Lettuce [d]	*Stephanomeria schottii*	BLM-S	Semi-stabilized sand dunes with creosote, white bursage, big galleta grass, and other wildflowers. Not known to occur on YPG. Nearest known occurrence is south of Gila River and east of the City of Yuma area. Unlikely to occur on YPG due to lack of habitat. Species is unlikely to be impacted and is not further discussed.

Table J-1
Sensitive Species not Protected Under the Endangered Species Act Known to Occur in Yuma and LaPaz Counties, Arizona
Yuma Proving Ground

Common Name	*Scientific Name*	Status	Habitat and Potential of Occurrence
Senita [d]	*Lophocereus schottii*	SR	Occurs around washes on sandy and gravelly soils. Suitable habitat is present on YPG Species is not discussed.
Snowy Egret [c]	*Egretta thula*	BLM-S	Marshes, lakes, ponds, lagoons, mangroves, and shallow coastal habitats. Known to occur along the Colorado River drainage in south Yuma County. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.
Spotted Bat [f]	*Euderma maculatum*	SC, BLM-S, USFS-S, WSC	Varied but most often in dry, rough desert scrub, from low to high desert, and riparian habitats. Known to occur nearby in central Yuma County just below the Gila River. Could occur on YPG. Species is discussed.
Straw-top Cholla [d]	*Opuntia echinocarpa*	SR	Driest parts of Sonoran and Mohave deserts, often in creosote bush scrub habitats. Suitable habitat is present at YPG. Species is discussed.
Varied Fishhook Cactus [h]	*Mammillaria viridiflora*	SR	Grows under grasses or brushes in sandy granitic soils of high hills and mountainsides in oak woodland and at edge of forest. Species could occur on YPG, but would be unlikely. Species would not be impacted by proposed action.
Western Burrowing Owl [c]	*Athene cunicularia hypugaea*	SC, BLM-S, USFS-S	Open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands. Known to occur on YPG, along the lower Colorado River Valley and Gila River Valley,and the area around the City of Yuma. Species is discussed.
Western Red Bat [f]	*Lasiurus blossevillii*	BLM-S, USFS-S, WSC	Not known to occur on or nearby YPG. Nearest known location along Bill Williams River in LaPaz County. Species would not be impacted by proposed action and is not further discussed.
Western Yellow Bat [f]	*Lasiurus xanthinus*	BLM-S, USFS-S, WSC	May roost in leafy vegetation, including palm trees. Low-to-mid elevation riparian communities with broad-leaved deciduous trees. Observed once on YPG in the Muggins Mountains. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.
White-faced Ibis [c]	*Plegadis chihi*	SC, USFS-S	Freshwater marshes, swamps, ponds, and rivers. Known to occur nearby along the Colorado River in south LaPaz County. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.

Table J-1
Sensitive Species not Protected Under the Endangered Species Act Known to Occur in Yuma and LaPaz Counties, Arizona
Yuma Proving Ground

Common Name	*Scientific Name*	Status	Habitat and Potential of Occurrence
Yuma Desert Fringe-toed Lizard [a]	*Uma rufopunctata*	SC, BLM-S, WSC	Sparsely vegetated fine, windblown sand dunes, flats, riverbanks and washes of very arid desert. Nearest known occurrence is south of the Gila River in central Yuma County and in the City of Yuma area, mainly associated with Yuma dune system. Unlikely species would occur on YPG. Species is unlikely to be impacted and is not further discussed.
Yuma Hispid Cotton Rat [f]	*Sigmodon hispidus eremicus*	SC	Dense grassy areas, fields, brushy or weedy areas with cattails along Colorado River, streams, ponds, irrigated fields, and desert scrub. Known to occur nearby YPG along the Colorado River in Yuma County. Unlikely species would occur on YPG due to lack of suitable habitat. Species is unlikely to be impacted and not further discussed.
Yuma Myotis [f]	*Myotis yumanensis*	SC	Wide variety of upland and lowland habitats, including riparian, desert scrub, moist woodlands, and forests. Prefer cliffs and rocky walls near water. Not known to occur on YPG, but does occur nearby along the Colorado River in Yuma County. Could incidentally occur on YPG, but would not occur within the Proposed Action Area. Species would not be impacted and is not further discussed.

[i]Notes: SC – Federal Species of Concern, LE (XN) – Federally Endangered (Experimental Nonessential Population), BLM-S – Bureau of Land Management Sensitive, USFS-S U.S. Forest Service Senstive,
Sources: Arizona Game and Fish Department (AGFD), 2010c; [a]AGFD, 2011e; [b]AGFD, 2011e; [c]AGFD, 2011d; [d]AGFD, 2011c; [e]Tetra Tech, 2009; [f]AGFD, 2011b; [g]AGFD, 2011f; [h]Natureserver, 2011