FINAL
FINDING OF NO SIGNIFICANT IMPACT
FOR THE SBI*NET* AJO-1 TOWER PROJECT
AJO STATION'S AREA OF RESPONSIBILITY
U.S. BORDER PATROL, TUCSON SECTOR

Project History: On January 6, 2011, United States (U.S.) Customs and Border Protection's (CBP) Office of Technology Innovation and Acquisition (OTIA) released the draft supplemental environmental assessment (SEA) that analyzed the potential adverse and beneficial impacts on the natural and human environment associated with the Proposed Action and alternatives. The Proposed Action included constructing access to the existing commercial power grid from approximately 1.2 miles west of State Highway 85 (SR 85) to TCA-AJO-302 and TCA-AJO-004 and the installation of a fiber-optic cable between TCA-AJO-302 and TCA-AJO-004. The installation of a fiber-optic cable at TCA-AJO-004 and TCA-AJO-302 would eliminate the need for TCA-AJO-189 altogether. TCA-AJO-189 was designed to relay signals from TCA-AJO-302 to TCA-AJO-305. Installation of a fiber-optic cable would eliminate the need to relay signals via radio waves and, in effect, be faster, more efficient, and stable. Access to the existing commercial power grid would also be provided to the USBP forward operating base (FOB) that was relocated north of TCA-AJO-302 as part of the SBI*net* Ajo-1 Tower Project. Fiber-optic cable was also proposed to be installed at the FOB. The relocation of the FOB was analyzed in the 2009 Ajo-1 EA, and only the construction of access to the existing commercial power grid and potential installation of fiber-optic cable was analyzed in the draft SEA. The installation of a fiber-optic cable at TCA-AJO-216 was also proposed as part of the draft SEA. Additionally, the ecological restoration of former tower site TCA-AJO-189 was included as part of the Proposed Action.

While a permanent solution for TCA-AJO-189 was being developed, OTIA installed communications equipment on an existing, operational telecommunications radio repeater facility operated by CBP's Project 25 (P-25) program. This repeater facility is located on Growler Mountain in proximity to the TCA-AJO-189 tower site. The purpose of this action was to temporarily utilize available space within CBP's P-25 telecommunications facility on Growler Mountain to establish immediate, short-term, communications connectivity with TCA-AJO-302 and TCA-AJO-305. Installation of the OTIA communications equipment was authorized under Categorical Exclusions E1 and E2 outlined in Department of Homelands Security's (DHS) *Directive 023-01*, Appendix A, Section 3B. The OTIA communications equipment within CBP's P-25 telecommunications facility on Growler Mountain has operated at acceptable levels, and OTIA has decided to maintain and operate the communications equipment on a long-term basis. OTIA has determined that the Proposed Action, as analyzed in the draft SEA, is no longer necessary to achieve the communication link between TCA-AJO-302 and TCA-AJO-305, and the Proposed Action in this final SEA has been revised to only include the restoration of former tower site TCA-AJO-189. In response to the draft SEA, U.S. Fish and Wildlife Service (USFWS), in a February 9, 2011 correspondence, directed OTIA to restore TCA-AJO-189 to pre-project conditions, to the extent possible.

The SEA was prepared in compliance with the provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code 4321 et seq)., the Council on Environmental

Quality's NEPA implementing regulations at 40 Code of Federal Regulations Part 1500, and the Department of Homeland Security's *Directive 023-01*.

Project Location: The affected area for this SEA is the former TCA-AJO-189 tower site located on Growler Mountain within the CPNWR Wilderness Area, Arizona.

Purpose and Need: The purpose of the proposed project is to restore the former TCA-AJO-189 tower site.

This action is needed to:

1) restore impacts that occurred at the former TCA-AJO-189 tower site;
2) reduce impacts on designated wilderness;
3) comply with previous USFWS's directive; and
4) comply with previous NEPA documents.

Proposed Action: The Proposed Action is the restoration of the former TCA-AJO-189 tower site to pre-project conditions (to the extent possible) in accordance with the restoration plan prepared by CBP and approved by USFWS. The restoration plan is included as an appendix to the SEA and is incorporated herein by reference. Restoration activities would include the 35- x 35-foot original project area that was previously cleared of vegetation and graded, including the 14- x 14- x 6-foot hole for a proposed tower foundation that was excavated within the 35- x 35-foot area. The final rehabilitated site should be similar in appearance and vegetation characteristics (e.g. plant species and plant density) to the adjacent landscape. A majority of the rehabilitation work at former tower site TCA-AJO-189 would require helicopter transport of restoration materials due to the remote location of the site. It is anticipated that the rehabilitation of TCA-AJO-189 would require a total of 90 airlifts if the restoration activities are conducted during the fall or winter months (November through March). Airlifts would be allocated as follows: 68 lifts for site rehabilitation and landscaping, six lifts for revegetation efforts, 14 lifts for irrigation efforts (including water delivery), and two lifts for project termination. Site rehabilitation (i.e., backfilling of the hole and landscaping) and the installation of irrigation would be completed before March 15, prior to the Sonoran pronghorn (*Antilocapra americana sonoriensis*) closure season. The remaining airlifts for revegetation efforts and project termination would occur after March 15 per coordination with USFWS. OTIA is currently coordinating with USFWS regarding the reinitiation of formal consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq) for Sonoran pronghorn and lesser long-nosed bat (*Leptonycteris yerbabuenae*). Restoration activities will not be initiated until the reinitiated Section 7 consultation with USFWS has been completed for the project.

No Action Alternative: The No Action Alternative is the same as the Proposed Action presented in the 2009 Ajo-1 EA, with one exception. Under the No Action Alternative, the former TCA-AJO-189 tower site would not be restored per the USFWS's directive. The No Action Alternative would not satisfy the stated purpose and need; however, its inclusion in the SEA is required by NEPA regulations (40 CFR § 1502.14(d)) as a basis of comparison to the anticipated effects of the action alternatives.

Alternatives Eliminated: Three alternatives (Modified Tower Foundation, TCA-AJO-189B, and TCA-AJO-189C) were proposed as potential alternatives to the Proposed Action in the draft SEA. These alternatives were eliminated during the preparation of the final SEA. OTIA decided to eliminate these alternatives as a result of the success of the temporary installation of communications equipment within an existing, operational telecommunications radio repeater facility operated by CBP's Project 25 (P-25) program. The communications equipment within CBP's P-25 telecommunications facility on Growler Mountain has operated at acceptable levels and OTIA has decided to maintain and operate the communications equipment on a long-term basis. Therefore, alternatives to the original TCA-AJO-189 design and/or tower site are no longer necessary.

Environmental Consequences: Implementation of the Proposed Action would permanently affect approximately 0.03 acre of a previously disturbed site. CBP proposes to restore the former TCA-AJO-189 tower site to pre-project conditions, to the extent possible, as directed by USFWS in a February 9, 2011 correspondence. The proposed project has been coordinated with USFWS. Restoration of TCA-AJO-189 would require the issuance of a special use permit and minimum requirement analysis from USFWS.

Restoration of the former TCA-AJO-189 tower site would have no effects to negligible effects on surface waters, vegetation, hazardous materials, cultural resources, or air quality. Temporary, minor effects on soils, wildlife, and protected species would be expected. The Proposed Action would result in temporary, moderate effects on land use, noise, wilderness, groundwater, and aesthetics. Potential long-term, beneficial effects would be realized on land use, wilderness, soils, vegetation, and aesthetics.

Mitigation: It is CBP's policy to reduce impacts through a sequence of avoidance, minimization, mitigation, and compensation. Mitigations vary and include activities such as restoration of habitat in other areas, acquisition of lands, implementation of best management practices (BMP), and typically are coordinated with the USFWS and other appropriate Federal and state resource agencies. The following is a list of mitigation measures to be implemented as part of the Proposed Action. Many of the measures listed below were developed in coordination with USFWS during the reinitiation of Section 7 consultation for this project.

PROJECT PLANNING/DESIGN – GENERAL CONSTRUCTION

CBP will ensure that restoration efforts follow DHS *Directive 025-01* for Sustainable Practices for Environmental, Energy, and Transportation Management.

A CBP-approved spill prevention control and countermeasure plan (SPCCP) will be developed and implemented at restoration and maintenance sites to ensure that any toxic substances are properly handled and that escape into the environment is prevented. Agency standard protocols will be used. Drip pans will be placed underneath parked or stationary equipment, containment zones will be used when refueling vehicles or equipment, and other measures will be included.

All BMPs to be implemented by the project contractor will be included in the contract.

GENERAL CONSTRUCTION ACTIVITIES

CBP will avoid nighttime lighting impacts by conducting restoration activities during daylight hours only.

CBP will not use natural sources of water for restoration or irrigation purposes to avoid transmitting disease vectors, introducing invasive non-native species, and depleting natural aquatic systems.

All irrigation components will be temporary and removed when the restoration goals are met. Irrigation equipment will be removed from the site after 1 year following the initial planting pending acceptance of the restoration results at the site by USFWS (CPNWR).

CBP and its contractor will minimize site disturbance and avoid attracting predators by promptly removing waste materials, wrappers, and debris from the site. Any waste that must remain more than 12 hours should be properly stored until disposal.

CBP will notify the USFWS (CPNWR) 2 weeks before any construction activities begin, and within 1 week after project construction activities are completed.

All BMPs to be implemented by the project contractor will be included in the contract.

SOILS

Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during construction. All work shall cease during heavy rains and will not resume until conditions are suitable for the movement of equipment and material.

CBP will implement environmental design measures, such as straw wattles and wetting compounds to decrease erosion and sedimentation.

CBP will implement erosion control measures and appropriate BMPs before and during restoration activities, as appropriate.

CBP will place drip pans under stationary equipment and use containment zones when refueling vehicles or equipment.

VEGETATIVE HABITAT

Salvage, transplantation, and container planting will be done in accordance with a restoration plan approved by the land manager and USFWS that includes success criteria and monitoring.

All plant material will be obtained from the Cabeza Prieta National Wildlife Refuge (CPNWR) to maintain a local plant source. Plant material will be obtained by harvesting cuttings from donor plants at locations identified by CPNWR personnel.

Fill material (gravel and topsoil) brought in from outside of the project area will be identified by its source loeation. Sources will be used that are clean and weed-free.

Certified weed and weed-seed free natural materials (e.g., straw) will be used for on-site erosion control to avoid the spread of non-native plants.

The site will be surveyed for the presence of exotic plant species. If exotic plant species that are not already established in the surrounding landscape are encountered within the restoration action area, they will be documented, and OTIA will coordinate with USFWS (CPNWR) concerning corrective actions.

CBP will avoid the spread of non-native plants by using certified weed and weed-seed free natural materials (e.g., straw) for on-site erosion control if natural materials must be used.

WILDLIFE AND AQUATIC RESOURCES

The Migratory Bird Treaty Act (16 U.S.C. 703-712, [1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989]) requires that Federal agencies coordinate with the USFWS if a construction activity would result in the take of a migratory bird. If restoration activities are scheduled during nesting seasons (February 15 through August 31), surveys will be performed to identify active nests. If restoration activities result in the take of a migratory bird, then coordination with the USFWS will be required and applicable permits would be obtained prior to construction or clearing activities. Another mitigation measure that may be employed is to schedule all restoration activities outside nesting seasons, negating the requirement for nesting bird surveys.

Pets will not be permitted inside the project area or adjacent native habitats. This BMP does not pertain to law enforcement animals.

Biological monitors will check underneath construction equipment for wildlife species (e.g., desert tortoise) prior to moving equipment that has been idle for more than 1 hour.

PROTECTED SPECIES

CBP will minimize impacts on Sonoran pronghorn and their habitat by using flagging or temporary fencing to clearly demarcate project construction area perimeters. Soil and vegetation outside the construction area perimeter will not be disturbed.

CBP will minimize impacts on listed species and their habitats by using areas already disturbed by past activities for staging, parking, laydown, and equipment storage. If site disturbance is unavoidable, CBP will minimize the area of disturbance by scheduling deliveries of materials and equipment to only those items needed for ongoing project implementation.

CBP will minimize impacts on listed species and their habitats by limiting grading or topsoil removal to areas where this activity is absolutely necessary for construction, staging, or maintenance activities.

CBP will minimize impacts on listed species and their habitats by obtaining materials that are clean, such as gravel or topsoil, from existing developed or previously used sources, and not from undisturbed areas adjacent to the project area.

CBP will minimize the number of construction and maintenance trips to the tower site.

To minimize impacts on endangered species, CBP will follow a helicopter ingress/egress route to the project site that avoids or minimizes flight activity in Sonoran pronghorn habitat as specified by USFWS. The Restoration Plan has been designed to include the minimum number of helicopter lifts necessary.

All vehicular traffic associated with restoration efforts will use designated/authorized roads to access the sites and will avoid off-road vehicle activity outside of the project footprint.

CBP will minimize potential animal collisions, particularly with Sonoran pronghorn, by not exceeding speed limits of 25 mph on all unpaved roads.

Any collisions with Sonoran pronghorn will be reported to USFWS-Arizona Ecological Services Office (AESO) via telephone and electronic mail as soon as practicable, but no later than 12 hours after the collision. Information to be relayed will include: a) location of the collision, b) date and time of the collision, c) type of vehicle, and d) a description of the collision to include the outcome and a photograph of the Sonoran pronghorn (if available).

CBP will place restrictions on restoration activities involving heavy equipment during the Sonoran pronghorn fawning season (March 15 to July 31) to avoid and minimize disturbance to females and fawns.

CBP will provide for an on-site biological monitor to be present during work activities for all construction activities. The biological monitor will have the following duties: ensure and document that agreed-upon measures to minimize and avoid impacts on listed species and BMPs are properly implemented, send a weekly summary report via electronic mail to the CPNWR and USFWS-AESO following CBP review, and notify the construction manager (who has the authority to temporarily suspend activities) when construction activities are not in compliance with all agreed-upon BMPs.

The biological monitor shall report all detections of Sonoran pronghorn via electronic mail or phone to USFWS-AESO and the CPNWR within 24 hours of any detection. The electronic mail will include the following details: a) if known, the coordinates and a description of the locations where the pronghorn was detected, b) the date and time of the detection, c) the method used to make the detection, and d) as available, other pertinent details, such as the behavior of the Sonoran pronghorn (i.e. standing, foraging, or running).

All project personnel will report detections of Sonoran pronghorn to the biological monitor.

WATER RESOURCES

Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during restoration activities. All work shall cease during heavy rains and will not resume until conditions are suitable for the movement of equipment and material.

All fuels, waste oils, and solvents will be collected and stored in tanks or drums within secondary containment areas consisting of an impervious floor and bermed sidewalls capable of holding the volume of the largest container stored therein.

CBP will avoid impacts on groundwater by obtaining treated water from outside the immediate area for restoration use.

CULTURAL RESOURCES

If human remains are encountered, the OTIA Environmental Manager, the CPNWR refuge manager, and the appropriate law enforcement authorities per the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq., 43 CFR 10, as updated) will be contacted. Descendant tribal communities will be notified of the inadvertent discovery, and consultation will be initiated through CPNWR.

AIR QUALITY

Mitigation measures will be incorporated to ensure that fugitive dust and other air quality constituents' emission levels do not rise above the minimum threshold as required per 40 CFR 51.853(b)(1), (2). Standard construction BMPs such as routine watering of the construction site will be used to control fugitive dust and thereby assist in limiting potential particulate matter less than 10 microns (PM-10) emissions during restoration of the site. Additionally, all construction equipment and vehicles will be required to be kept in good operating condition to minimize exhaust emissions.

NOISE

During backfilling and grading, temporary noise impacts are possible. All applicable Occupational Safety and Health Administration regulations and requirements will be followed. Construction equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the potential temporary noise impacts in and around the construction site.

CBP will avoid noise impacts during the nighttime by conducting restoration activities during daylight hours only.

HAZARDOUS MATERIALS

BMPs will be implemented as standard operating procedures during all restoration activities, and will include proper handling, storage, and/or disposal of hazardous and/or regulated materials.

To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils, and solvents will be collected and stored in clearly labeled tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein.

Refueling of machinery will be completed in accordance with accepted industry and regulatory guidelines.

Any spills will be contained immediately and cleaned up using the appropriate methods for the spill.

To ensure pollution prevention, an SPCCP will be in place prior to the start of restoration activities and all personnel will be briefed on the implementation and responsibilities of this plan. All spills will be reported to the OTIA environmental manager and the CPNWR refuge manager. Furthermore, a spill of any petroleum liquids (e.g., fuel) or material listed in 40 CFR 302 Table 302.4 of a reportable quantity will be cleaned up and reported to the appropriate Federal and state agencies.

CBP and its contractor(s) will contain non-hazardous waste materials and other discarded materials, such as construction waste, until removed from the restoration site.

CBP and its contractor(s) will recycle all waste oil and solvents. All non-recyclable hazardous and regulated wastes will be collected, characterized, labeled, stored, transported, and disposed of in accordance with all applicable Federal, state, and local regulations, including proper waste-manifesting procedures.

CBP and its contractor(s) will avoid contamination of ground and surface waters by storing any water that has been contaminated with construction materials, oils, equipment residue, etc., in closed containers on-site until removed for disposal. Storage tanks will be on-ground containers, have proper air space to avoid rainfall-induced overtopping, and be located in upland areas instead of washes.

Finding: Based upon the analyses of the SEA and the mitigation measures to be incorporated as part of the Proposed Action, it has been concluded that the Proposed Action will not result in any significant adverse effects on the environment. Therefore, no further environmental impact analysis is warranted.

1-5-12

David R. Hoffman
Chief, Strategic Planning, Policy, and Analysis Division
Headquarters, U.S. Border Patrol
U.S. Customs and Border Protection

Date

12/9/2011

Karl H. Calvo
Executive Director
Facilities Management and Engineering
U.S. Customs and Border Protection

Date

FINAL

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

FOR THE SBI*NET* AJO-1 TOWER PROJECT

AJO STATION'S AREA OF RESPONSIBILITY

U.S. BORDER PATROL, TUCSON SECTOR

Department of Homeland Security
U.S. Customs and Border Protection
SBI*net*

NOVEMBER 2011

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WILDLIFE AND AQUATIC RESOURCES

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CBP will minimize impacts on listed species and their habitats by using areas already disturbed by past activities for staging, parking, laydown, and equipment storage. If site disturbance is unavoidable, CBP will minimize the area of disturbance by scheduling deliveries of materials and equipment to only those items needed for ongoing project implementation.

CBP will minimize impacts on listed species and their habitats by limiting grading or topsoil removal to areas where this activity is absolutely necessary for construction, staging, or maintenance activities.

CBP will minimize impacts on listed species and their habitats by obtaining materials that are clean, such as gravel or topsoil, from existing developed or previously used sources, and not from undisturbed areas adjacent to the project area.

CBP will minimize the number of construction and maintenance trips to the tower site.

To minimize impacts on endangered species, CBP will follow a helicopter ingress/egress route to the project site that avoids or minimizes flight activity in Sonoran pronghorn habitat as specified by USFWS. The Restoration Plan has been designed to include the minimum number of helicopter lifts necessary.

All vehicular traffic associated with restoration efforts will use designated/authorized roads to access the sites and will avoid off-road vehicle activity outside of the project footprint.

CBP will minimize potential animal collisions, particularly with Sonoran pronghorn, by not exceeding speed limits of 25 mph on all unpaved roads.

Any collisions with Sonoran pronghorn will be reported to USFWS-Arizona Ecological Services Office (AESO) via telephone and electronic mail as soon as practicable, but no later than 12 hours after the collision. Information to be relayed will include: a) location of the collision, b) date and time of the collision, c) type of vehicle, and d) a description of the collision to include the outcome and a photograph of the Sonoran pronghorn (if available).

CBP will place restrictions on restoration activities during the Sonoran pronghorn fawning season (March 15 to July 31) to avoid and minimize disturbance to females and fawns.

CBP will provide for an on-site biological monitor to be present during work activities for all construction activities. The biological monitor will have the following duties: ensure and document that agreed-upon measures to minimize and avoid impacts on listed species and BMPs are properly implemented, send a weekly summary report via electronic mail to the CPNWR and USFWS-AESO following CBP review, and notify the construction manager (who has the authority to temporarily suspend activities) when construction activities are not in compliance with all agreed-upon BMPs.

The biological monitor shall report all detections of Sonoran pronghorn via electronic mail or phone to USFWS-AESO and the CPNWR within 24 hours of any detection. The electronic mail will include the following details: a) if known, the coordinates and a description of the locations where the pronghorn was detected, b) the date and time of the detection, c) the method used to make the detection, and d) as available, other pertinent details, such as the behavior of the Sonoran pronghorn (i.e. standing, foraging, or running).

All project personnel will report detections of Sonoran pronghorn to the biological monitor.

WATER RESOURCES

Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during restoration activities. All work shall cease during heavy rains and will not resume until conditions are suitable for the movement of equipment and material.

All fuels, waste oils, and solvents will be collected and stored in tanks or drums within secondary containment areas consisting of an impervious floor and bermed sidewalls capable of holding the volume of the largest container stored therein.

CBP will avoid impacts on groundwater by obtaining treated water from outside the immediate area for restoration use.

CULTURAL RESOURCES

If human remains are encountered, the OTIA Environmental Manager, the CPNWR refuge manager, and the appropriate law enforcement authorities per the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq., 43 CFR 10, as updated) will be contacted. Descendant tribal communities will be notified of the inadvertent discovery, and consultation will be initiated through CPNWR.

AIR QUALITY

Mitigation measures will be incorporated to ensure that fugitive dust and other air quality constituents' emission levels do not rise above the minimum threshold as required per 40 CFR 51.853(b)(1), (2). Standard construction BMPs such as routine watering of the construction site will be used to control fugitive dust and thereby assist in limiting potential particulate matter less than 10 microns (PM-10) emissions during restoration of the site. Additionally, all construction equipment and vehicles will be required to be kept in good operating condition to minimize exhaust emissions.

NOISE

During backfilling and grading, temporary noise impacts are possible. All applicable Occupational Safety and Health Administration regulations and requirements will be followed. Construction equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the potential temporary noise impacts to an insignificant level in and around the construction site.

CBP will avoid noise impacts during the nighttime by conducting restoration activities during daylight hours only.

HAZARDOUS MATERIALS

BMPs will be implemented as standard operating procedures during all restoration activities, and will include proper handling, storage, and/or disposal of hazardous and/or regulated materials.

To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein.

Refueling of machinery will be completed in accordance with accepted industry and regulatory guidelines.

Any spills will be contained immediately and cleaned up using the appropriate methods for the spill.

To ensure pollution prevention, an SPCCP will be in place prior to the start of restoration activities and all personnel will be briefed on the implementation and responsibilities of this plan. All spills will be reported to the OTIA environmental manager and the CPNWR refuge manager. Furthermore, a spill of any petroleum liquids (e.g., fuel) or material listed in 40 CFR 302 Table 302.4 of a reportable quantity will be cleaned up and reported to the appropriate Federal and state agencies.

CBP and its contractor(s) will contain non-hazardous waste materials and other discarded materials, such as construction waste, until removed from the restoration site.

CBP and its contractor(s) will recycle all waste oil and solvents. All non-recyclable hazardous and regulated wastes will be collected, characterized, labeled, stored, transported, and disposed of in accordance with all applicable Federal, state, and local regulations, including proper waste-manifesting procedures.

CBP and its contractor(s) will avoid contamination of ground and surface waters by storing any water that has been contaminated with construction materials, oils, equipment residue, etc., in closed containers on-site until removed for disposal. Storage tanks will be on-ground containers, have proper air space to avoid rainfall-induced overtopping, and be located in upland areas instead of washes.

All construction will follow DHS *Directive 025-01* for Sustainable Practices for Environmental, Energy, and Transportation Management.

Finding: Based upon the analyses of the SEA and the mitigation measures to be incorporated as part of the Proposed Action, it has been concluded that the Proposed Action will not result in any significant adverse effects on the environment. Therefore, no further environmental impact analysis is warranted.

_____ _____

David R. Hoffman Date
Chief, Strategic Planning, Policy, and Analysis Division
Headquarters, U.S. Border Patrol
U.S. Customs and Border Protection

_____ _____

Karl H. Calvo Date
Executive Director
Facilities Management and Engineering
U.S. Customs and Border Protection

FINAL

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR THE SBI*NET* AJO-1 TOWER PROJECT AJO STATION'S AREA OF RESPONSIBILITY U.S. BORDER PATROL, TUCSON SECTOR

November 2011

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EXECUTIVE SUMMARY

INTRODUCTION

This Supplemental Environmental Assessment (SEA) supplements United States (U.S.) Customs and Border Protection's (CBP) 2009 *Environmental Assessment for the SBInet Ajo-1 Tower Project Ajo Station's Area of Responsibility, U.S. Border Patrol, Tucson Sector,* which analyzed various aspects of a proposed project that would be carried out under CBP's former SBI*net* program. The Secure Border Initiative (SBI) is a comprehensive, multi-year plan established by the Department of Homeland Security (DHS) in November 2005 to secure the United States borders and reduce illegal immigration. SBI*net* was the component of the former SBI program charged with developing and installing technology and attendant tactical infrastructure solutions to help DHS, CBP gain effective control of the Nation's borders. While SBI*net* no longer exists, the Office of Technology Innovation and Acquisition (OTIA) has assumed all of SBI and SBI*net*'s responsibilities.

After completion of the 2009 Ajo-1 EA and development of the final laydown for the SBI*net* Ajo-1 Tower Project, SBI*net* identified the need for modification of some aspects of one tower site covered in the 2009 Ajo-1 EA. The original design for the TCA-AJO-189 tower site included a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction, bedrock was not found at or near the ground surface. In an attempt to locate bedrock, a 14- x 14-foot hole was excavated to a depth of 6 feet. However, it was determined that bedrock was deeper than 6 feet, and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site on top of Growler Mountain. During the excavation of the hole, excavated material was airlifted in canvas slings and staged at the Ajo Airport. During one of the airlifts, a canvas sling, with an approximately 3,000-pound payload, was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain within designated wilderness. U.S. Fish and Wildlife Service (USFWS) requested that tower construction be halted until a reasonable alternative construction method or an alternative tower site could be developed for TCA-AJO-189.

On January 6, 2011, OTIA released the draft SEA that analyzed the potential adverse and beneficial impacts on the natural and human environment associated with the Proposed Action and alternatives. The Proposed Action included constructing access to the existing commercial power grid from approximately 1.2 miles west of State Highway 85 (SR 85) to TCA-AJO-302 and TCA-AJO-004 and the installation of a fiber-optic cable between TCA-AJO-302 and TCA-AJO-004 (Figure 1-2). The installation of a fiber-optic cable at TCA-AJO-004 and TCA-AJO-302 would eliminate the need for TCA-AJO-189 altogether. TCA-AJO-189 was designed to relay signals from TCA-AJO-302 to TCA-AJO-305. Installation of a fiber-optic cable would eliminate the need to relay signals via radio waves and, in effect, be faster, more efficient, and stable. Access to the existing commercial power grid would also be provided to the USBP forward operating base (FOB) that was relocated north of TCA-AJO-302 as part of the SBI*net* Ajo-1 Tower Project. Fiber-optic cable was also proposed to be installed at the FOB. The relocation of the FOB was analyzed in the 2009 Ajo-1 EA, and only the construction of access to the existing commercial power grid and potential installation of fiber-optic cable was analyzed in

the draft SEA. The installation of a fiber-optic cable at TCA-AJO-216 was also proposed as part of the draft SEA. Additionally, the ecological restoration of former tower site TCA-AJO-189 was included as part of the Proposed Action.

While a permanent solution for TCA-AJO-189 was being developed, OTIA installed communications equipment on an existing, operational telecommunications radio repeater facility operated by CBP's Project 25 (P-25) program. This repeater facility is located on Growler Mountain in proximity to the TCA-AJO-189 tower site. The purpose of this action was to temporarily utilize available space within CBP's P-25 telecommunications facility on Growler Mountain to establish immediate, short-term, communications connectivity with TCA-AJO-302 and TCA-AJO-305. Installation of the OTIA communications equipment was authorized under Categorical Exclusions E1 and E2 outlined in DHS's *Directive 023-01*, Appendix A, Section 3B. The OTIA communications equipment within CBP's P-25 telecommunications facility on Growler Mountain has operated at acceptable levels, and OTIA has decided to maintain and operate the communications equipment on a long-term basis. OTIA has determined that the Proposed Action, as analyzed in the draft SEA, is no longer necessary to achieve the communication link between TCA-AJO-302 and TCA-AJO-305, and the Proposed Action in this final SEA has been revised to only include the restoration of former tower site TCA-AJO-189. In response to the draft SEA, USFWS, in a February 9, 2011 correspondence, directed OTIA to restore TCA-AJO-189 to pre-project conditions, to the extent possible.

PURPOSE AND NEED

The purpose of the proposed project is to restore former tower site TCA-AJO-189.

The action is needed to:

1) restore impacts that occurred at the former TCA-AJO-189 tower site;
2) reduce impacts on designated wilderness;
3) comply with USFWS's directive; and
4) comply with previous NEPA documents.

DESCRIPTION OF PROPOSED ACTION

The Proposed Action is the restoration of former tower site TCA-AJO-189 to pre-project conditions (to the extent possible) in accordance with the Restoration Plan (CBP 2011) prepared by CBP and approved by USFWS (Appendix B). Restoration activities would include the 35- x 35-foot original project area that was previously cleared of vegetation and graded, including the 14- x 14- x 6-foot hole for a proposed tower foundation that was excavated within the 35- x 35-foot area of the formerly proposed tower site. The final rehabilitated site should be similar in appearance and vegetation characteristics (e.g. plant species and plant density) to the adjacent landscape. A majority of the rehabilitation work at former tower site TCA-AJO-189 would require helicopter transport of site restoration materials due to the remote location of the site. It is anticipated that the rehabilitation of former tower site TCA-AJO-189 would require a total of 90 airlifts if the restoration activities are conducted during the fall or winter months (November through March). Airlifts would be allocated as follows: 68 lifts for site rehabilitation and

landscaping, six lifts for revegetation efforts, 14 lifts for irrigation efforts (including water delivery), and two lifts for project termination. Site rehabilitation (i.e., backfilling of the hole and landscaping) and the installation of irrigation would be completed before March 15, prior to the Sonoran pronghorn (*Antilocapra americana sonoriensis*) closure season. The remaining airlifts for revegetation efforts and project termination would occur after March 15 per coordination with USFWS. CBP is currently coordinating with USFWS regarding the reinitiation of formal consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq) for Sonoran pronghorn and lesser long-nosed bat (*Leptonycteris yerbabuenae*). Restoration activities will not be initiated until the reinitiated Section 7 consultation with USFWS has been completed for the project.

One main storage and staging area would be maintained at the Ajo Airport in Ajo, Arizona. Light-duty equipment and materials, and personnel would be transported to the work area daily, as needed. All heavy-duty equipment would be staged overnight within the disturbed area at the project site.

ALTERNATIVES CONSIDERED

Three alternatives (Modified Tower Foundation, TCA-AJO-189B, and TCA-AJO-189C) were proposed as potential alternatives to the Proposed Action in the draft SEA. These alternatives were eliminated during the preparation of the final SEA. OTIA decided to eliminate these alternatives as a result of the success of the temporary installation of communications equipment within an existing, operational telecommunications radio repeater facility operated by CBP's P-25 program. The communications equipment within CBP's P-25 telecommunications facility on Growler Mountain has operated at acceptable levels, and OTIA has decided to maintain and operate the communications equipment on a long-term basis. Therefore, alternatives to the original TCA-AJO-189 design and/or tower site are no longer necessary.

AFFECTED ENVIRONMENT AND CONSEQUENCES

Implementation of the Proposed Action would permanently affect approximately 0.03 acre of the previously disturbed site. CBP proposes to restore former tower site TCA-AJO-189 to pre-project conditions, to the extent possible, and as directed by USFWS in a February 9, 2011 correspondence. The proposed project has been coordinated with USFWS. Restoration of former tower site TCA-AJO-189 would require the issuance of a special use permit and minimum requirement analysis from USFWS.

Restoration of former tower site TCA-AJO-189 would have no effects to negligible effects on surface waters, vegetation, hazardous materials, cultural resources, and air quality. Temporary, minor effects on soils, wildlife, and protected species would be expected. The Proposed Action would result in a temporary, moderate effect on land use, noise, wilderness, groundwater, and aesthetics. Potential long-term, beneficial effects would be realized on land use, wilderness, soils, vegetation, and aesthetics.

FINDINGS AND CONCLUSIONS

Based upon the analyses of this SEA and the environmental design and mitigation measures to be implemented, the Proposed Action would not result in a significant effect on the environment. Therefore, no additional environmental impact evaluation is warranted.

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SECTION 1.0
BACKGROUND

1.0 BACKGROUND

1.1 INTRODUCTION

The Secure Border Initiative (SBI) is a comprehensive, multi-year plan established by the Department of Homeland Security (DHS) in November 2005 to secure the United States (U.S.) borders and reduce illegal immigration. SBI*net* was the component of the former SBI program charged with developing and installing technology and attendant tactical infrastructure (TI) solutions to help DHS, U.S. Customs and Border Protection (CBP) gain effective control of the Nation's borders. While SBI*net* no longer exists, the Office of Technology Innovation and Acquisition (OTIA) has assumed all of SBI and SBI*net*. The mission is still to promote border security strategies that protect against and prevent terrorist attacks and other transnational crimes.

CBP implements the National Border Patrol Strategy with the goal of establishing and maintaining effective control of the borders. U.S. Border Patrol (USBP) maximizes border security with an appropriate balance of personnel, technology, and infrastructure. Effective control exists when CBP is consistently able to: 1) detect illegal entries into the United States when they occur; 2) identify the entry and classify its level of threat; 3) efficiently and effectively respond to these entries; and, 4) bring each event to an appropriate law enforcement resolution. The appropriate balance of personnel, technology, and infrastructure enhances CBP's detection capabilities and interdiction efficiency and provides a deterrence to illegal cross-border activities.

This Supplemental Environmental Assessment (SEA) supplements CBP's 2009 *Environmental Assessment for the Proposed SBInet Ajo-1 Tower Project Ajo Station's Area of Responsibility, U.S. Border Patrol, Tucson Sector,* which analyzed various aspects of a proposed project that would be carried out under the SBI*net* program. The 2009 Environmental Assessment (EA) addressed the potential direct and indirect effects of the proposed construction, installation, operation, and maintenance of a system of 10 sensor and communication towers and the construction and improvement of access roads on Organ Pipe Cactus National Monument (OPCNM), Cabeza Prieta National Wildlife Refuge (CPNWR), Bureau of Land Management (BLM) lands, Arizona State Trust lands, and CBP-leased land at the Lukeville Port of Entry (POE [CBP 2009]) (Figure 1-1).

After completion of the 2009 Ajo-1 EA and development of the final laydown for the SBI*net* Ajo-1 Tower Project, SBI*net* identified the need to modify some aspects of tower site TCA-AJO-189 originally covered in the 2009 Ajo-1 EA (CBP 2009). The original design for TCA-AJO-189 included a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction, bedrock was not found at or near the ground surface. In an attempt to locate bedrock, a 14- x 14-foot hole was excavated to a depth of 6 feet. However, it was determined that bedrock was deeper than 6 feet, and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site on top of Growler Mountain. Excavated material from TCA-AJO-189 was airlifted in canvas slings and staged at the Ajo Airport. During one of the airlifts, a canvas sling with an approximately 3,000-pound payload was released to avoid stalling

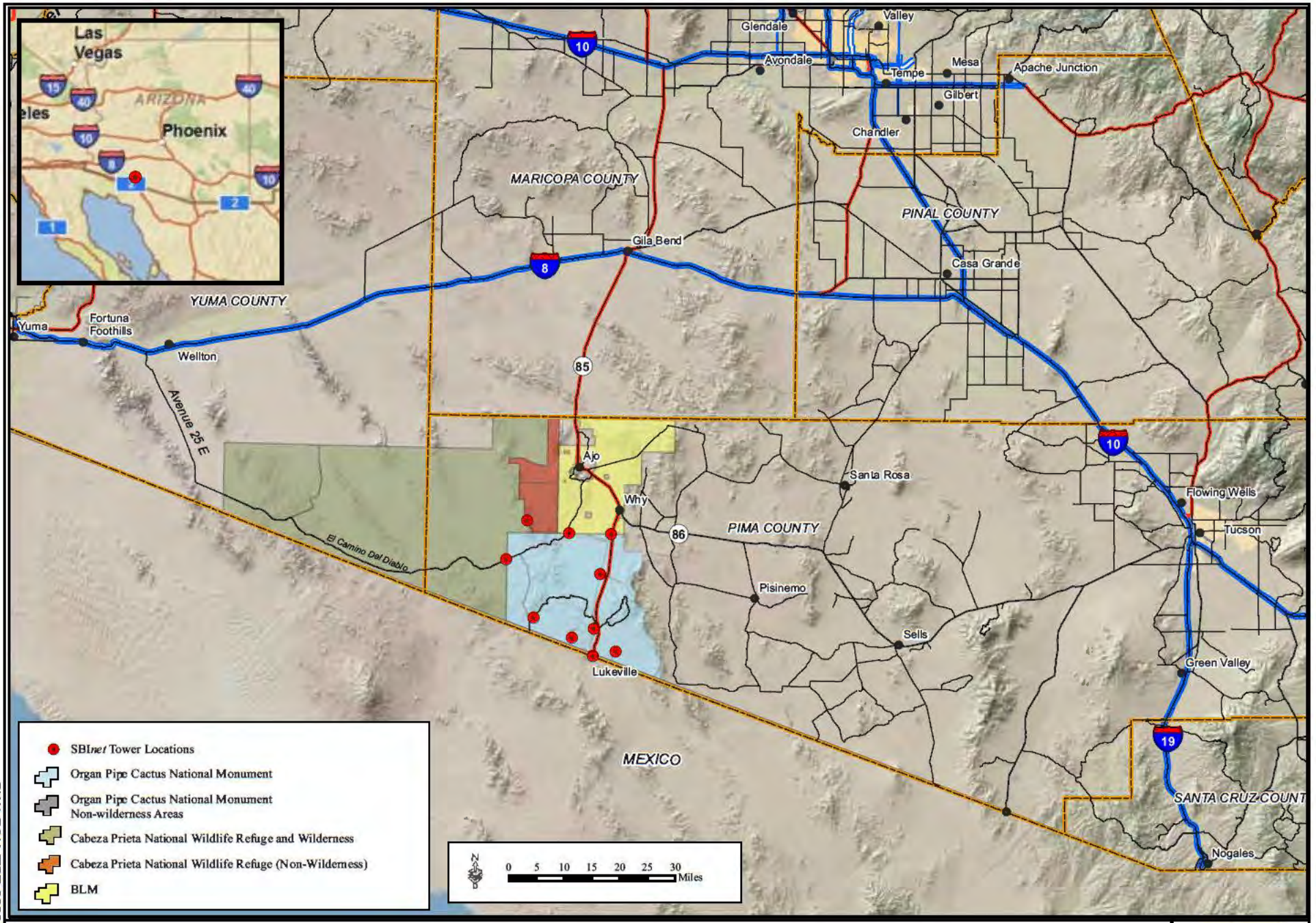

Figure 1-1: Vicinity Map

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the helicopter. The payload landed on the side of Growler Mountain within designated wilderness. The U.S. Fish and Wildlife Service (USFWS) requested that tower construction be halted until a reasonable alternative construction method or an alternative tower site could be developed for TCA-AJO-189. A total tower site area of approximately 35 x 35 feet, including the 14- x 14-foot hole for the tower foundation, was disturbed during the initial construction activities.

To accommodate the USFWS's request, OTIA developed one alternative that would eliminate the need for the construction of TCA-AJO-189. Three other alternatives were considered in the draft SEA: 1) the construction of a communications tower at TCA-AJO-189 (with a modified foundation); 2) the construction of a communications tower at alternate site TCA-AJO-189B; and 3) the construction of a communications tower at alternate site TCA-AJO-189C (Figure 1-2).

On January 6, 2011, OTIA released the draft SEA that analyzed the potential adverse and beneficial impacts on the natural and human environment associated with the Proposed Action and alternatives. The Proposed Action included constructing access to the existing commercial power grid from approximately 1.2 miles west of State Highway 85 (SR 85) to TCA-AJO-302 and TCA-AJO-004 and the installation of a fiber-optic cable between TCA-AJO-302 and TCA-AJO-004 (Figure 1-3). The installation of a fiber-optic cable at TCA-AJO-004 and TCA-AJO-302 would eliminate the need for TCA-AJO-189 altogether. TCA-AJO-189 was designed to relay signals from TCA-AJO-302 to TCA-AJO-305. Installation of a fiber-optic cable would eliminate the need to relay signals via radio waves and, in effect, be faster, more efficient, and stable. Access to the existing commercial power grid would also be provided to the USBP forward operating base (FOB) that was relocated north of TCA-AJO-302 as part of the SBI*net* Ajo-1 Tower Project. Consequently, only the construction of access to the existing commercial power grid and installation of fiber-optic cable was analyzed in the January 2011 draft SEA. The installation of fiber-optic cable at TCA-AJO-216 was also proposed as part of the draft SEA. Additionally, the restoration of former tower site TCA-AJO-189 was included as part of the Proposed Action.

While a permanent solution for TCA-AJO-189 was being developed, OTIA installed communications equipment on an existing, operational telecommunications radio repeater facility operated by CBP's Project 25 (P-25) program. This repeater facility is located on Growler Mountain in proximity to TCA-AJO-189. The purpose of this action was to temporarily utilize available space within CBP's P-25 telecommunications facility on Growler Mountain in order to establish immediate, short-term communications connectivity with TCA-AJO-302 and TCA-AJO-305. Installation of the OTIA communications equipment was authorized under Categorical Exclusions E1 and E2 outlined in DHS *Directive 023-01*, Appendix A, Section 3B. The OTIA communications equipment within CBP's P-25 telecommunications facility on Growler Mountain has operated at acceptable levels, and OTIA has decided to maintain and operate the communications equipment on a long-term basis. OTIA determined that the Proposed Action as analyzed in the draft SEA is no longer necessary to achieve the communications link between TCA-AJO-302 and TCA-AJO-305, and the Proposed Action in the final SEA has been revised to only include the rehabilitation of former tower site TCA-AJO-189.

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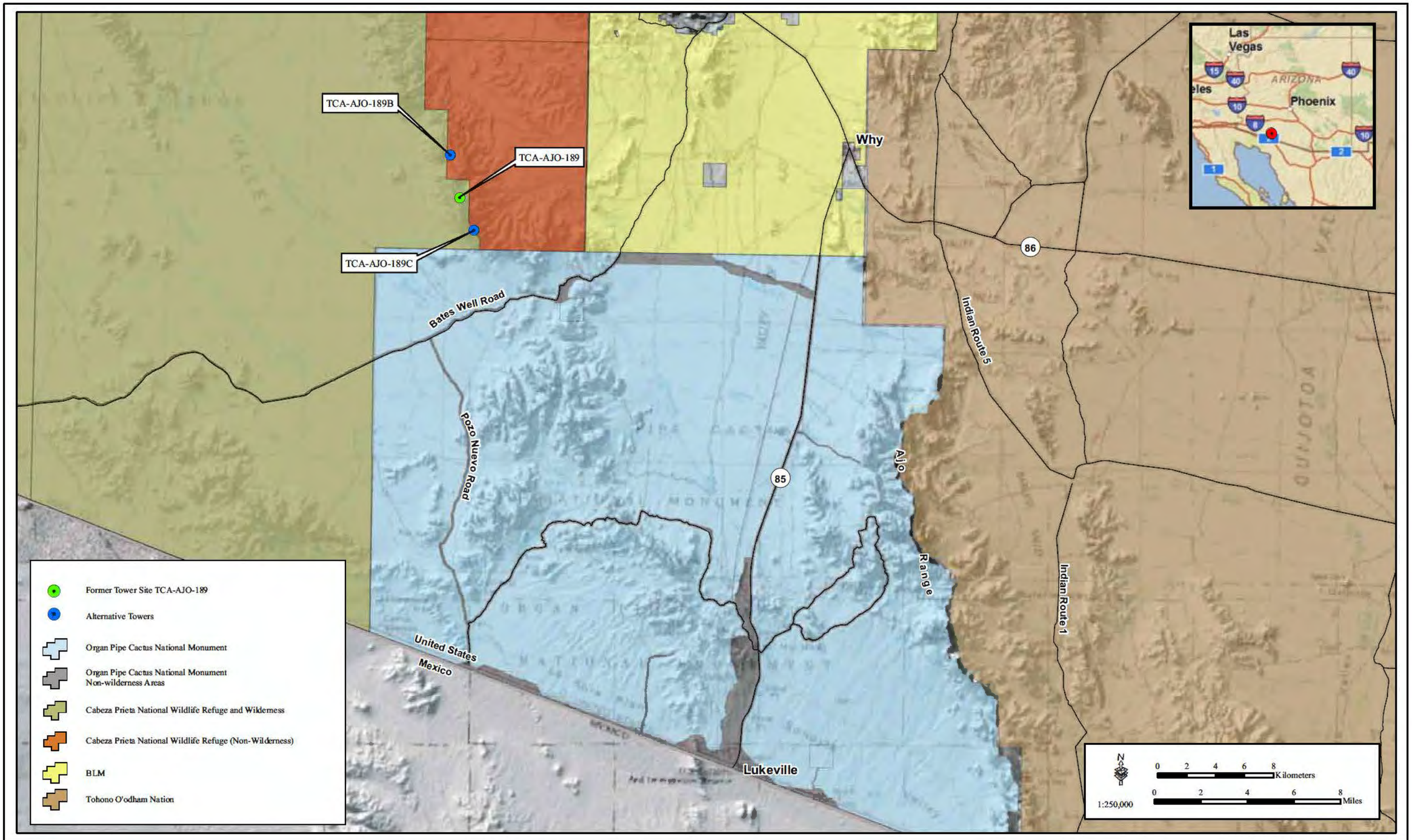

Figure 1-2: TCA-AJO-189, TCA-AJO-189B and TCA-AJO-189C Location Map

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September 2011

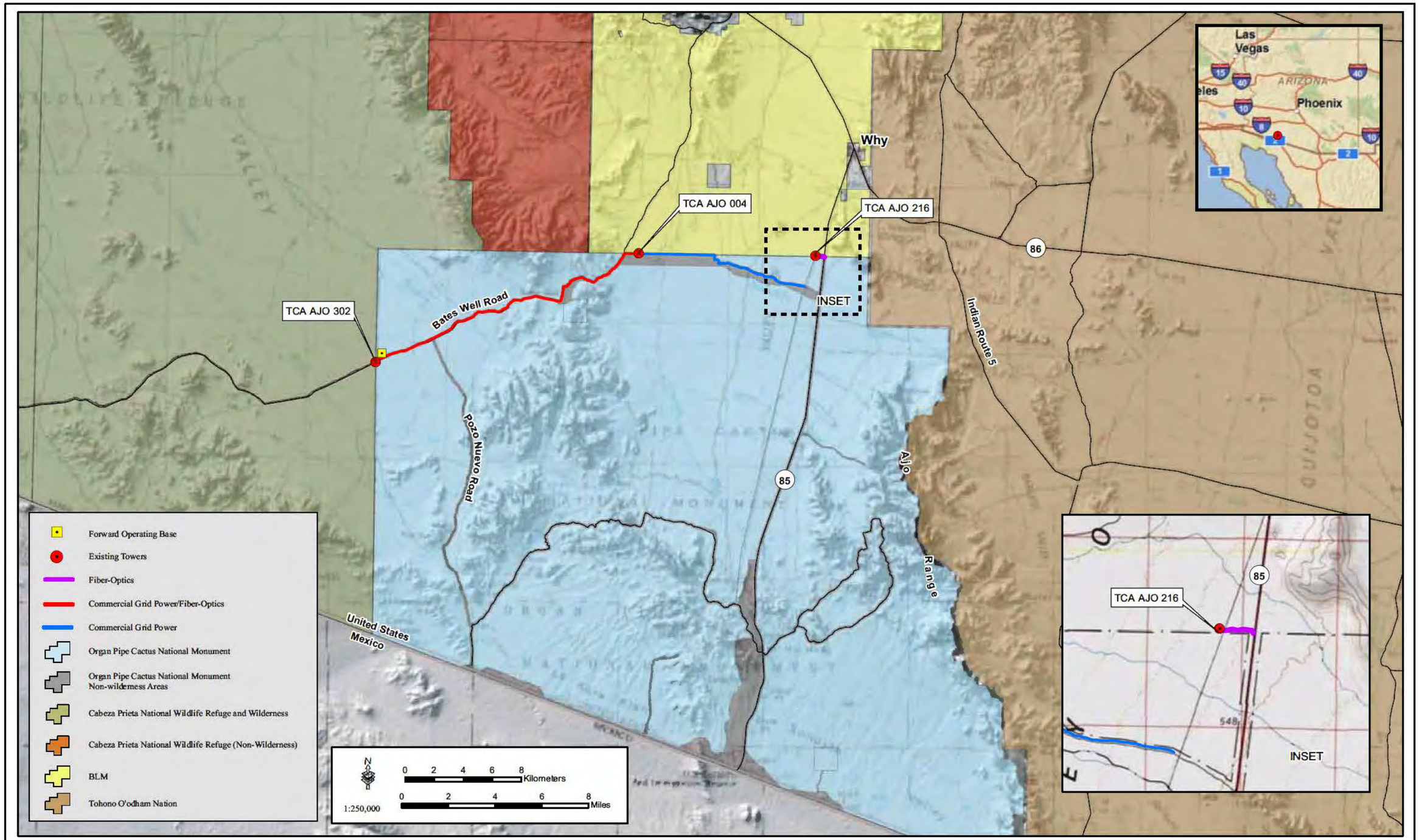

Figure 1-3: Location of Fiber-Optic and Electrical Lines for Three Tower Sites

This SEA was prepared in compliance with provisions of the National Environmental Policy Act (NEPA) of 1969 as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality's (CEQ) NEPA implementing regulations at 40 Code of Federal Regulations (CFR) Part 1500, and DHS's *Directive 023-01*.

Consistent with 40 CFR 1508.28, this SEA analyzes direct and indirect project and cumulative environmental impacts of this supplemental Proposed Action. In connection with earlier border infrastructure projects, much of this area and similar actions were analyzed in previous NEPA documents prepared by CBP and the legacy Immigration and Naturalization Service (INS). Accordingly, this SEA tiers from the *Programmatic Environmental Assessment for the Proposed Installation and Operation of Remote Video Surveillance Systems in the Western Region of Immigration and Naturalization Service* (INS 2003). Where this SEA incorporates previously documented information, the appropriate NEPA document is cited and the incorporated content is summarized in this SEA, such as from CBP's 2009 Ajo-1 EA (CBP 2009). Where previous NEPA documents do not provide sufficient information for the analysis required in this SEA, new surveys for sensitive resources and tower site characterization were completed. That information is included in this SEA.

1.1.1 Program Background

The United States experiences substantial cross-border traffic of cross-border violators (CBVs), and the transportation of illegal drugs and other contraband every year. These illegal cross-border activities not only violate United States laws, but adversely affect natural resources on public and private lands through the creation of illegal roads and trails, degradation and loss of habitat from fires set by CBVs, deposition of trash and human waste, and the destruction of fences. Additionally, CBVs pose a threat to public safety from high-speed vehicle chases on public roads, smuggling, and other crimes. The program background was described in the 2009 Ajo-1 EA and is incorporated herein by reference (CBP 2009).

1.1.2 Cooperating Agencies

The U.S. Department of the Interior (DOI) is a cooperating agency (40 CFR § 1501.6) on CBP projects, including the proposed OTIA supplemental project included in this SEA. A Memorandum of Understanding (MOU) was entered into in March 2006 between DHS, DOI, and U.S. Department of Agriculture (USDA). The MOU outlines the cooperative efforts between DOI, USDA, and DHS with operations in the southwest border region when planning and negotiating project details to best meet each agency's goals and objectives. Additionally, a Memorandum of Agreement (MOA) entered into in January 2008 between CBP and DOI for SBI projects formalized the commitment among CBP and DOI to coordinate the review of projects subject to NEPA and CEQ Regulations for Implementing NEPA. Further, DOI's actions, such as issuance of special use permits and minimum requirement analysis (MRA) associated with this proposed action are included as part of this NEPA analysis.

1.1.3 Legislative Background

The legislative background that provides authorization and guidance to DHS and CBP, National Park Service (NPS), USFWS, and BLM was described in the 2009 Ajo-1 EA and is incorporated herein by reference (CBP 2009).

1.2 PURPOSE AND NEED

Following the failed attempt to locate bedrock and the release of excavated material on the side of Growler Mountain, the USFWS requested SBI*net* halt tower construction and develop reasonable alternative construction methods or alternative tower sites for TCA-AJO-189. OTIA has determined that the Proposed Action, analyzed in the draft SEA, is no longer necessary to achieve the communication link location TCA-AJO-302 and TCA-AJO-305. In a February 9, 2011 correspondence, USFWS directed OTIA to restore former tower site TCA-AJO-189 to pre-project conditions to the extent possible (Appendix A). Thus, the purpose of the proposed project is to restore former tower site TCA-AJO-189.

The action is needed to:

1) restore impacts that occurred at the former TCA-AJO-189 tower site;
2) reduce impacts on designated wilderness;
3) comply with USFWS's directive; and
4) comply with previous NEPA documents.

1.3 PUBLIC INVOLVEMENT

1.3.1 Public Review

OTIA (formerly SBI*net*) initiated public involvement and scoping activities as directed by 40 CFR § 1501.7, 1503, and 1506.6 to identify any significant issues related to the construction of CBP towers in Arizona. This process began in June 2007 through the issuance of 47 agency coordination letters to potentially affected Federal, state, and local agencies and Indian tribes, inviting their participation and input regarding the proposed SBI*net* tower project. On December 30, 2009, the 2009 Ajo-1 EA and Finding of No Significant Impact (FONSI) were released to the public. The public review process was described in detail in the 2009 Ajo-1 EA and is incorporated herein by reference (CBP 2009).

On January 6, 2011, OTIA released the draft SEA to the public for review and comment. A Notice of Availability (NOA) for the draft SEA was published in the *Ajo Copper News* newspaper on January 5, 2011, and the *Arizona Daily Star* and *Arizona Republic* newspaper on January 6, 2011 to solicit comments on the proposed project. Proof of publication of the NOA is included in Appendix A. A total of eight comment letters were received from Federal and state agencies, tribes, and organizations (Appendix A). The majority of the comments received were in reference to the installation of fiber optics and commercial grid power. These comments are not addressed in the SEA, as these actions have been removed from the Proposed Action. Only one comment from USFWS addressed the restoration of former tower site TCA-AJO-189. In a February 9, 2011 correspondence, USFWS directed OTIA to restore former tower site TCA-AJO-189 to pre-project conditions, to the extent possible (Appendix A). In response to USFWS' comment, OTIA prepared a site restoration plan in cooperation with USFWS and prepared this SEA for the restoration of former tower site TCA-AJO-189.

1.3.2 Agency Coordination

Coordination and consultation with stakeholder agencies and other potentially affected parties occurred at the initial preparation stages of the 2009 Ajo-1 EA. The agency coordination process was described in detail in the 2009 Ajo-1 EA and is incorporated herein by reference. On June 18, 2010, 11 agency coordination letters specifically addressing the proposed actions described in the draft SEA were issued to potentially affected Federal, state, and local agencies and Indian tribes, inviting their participation and input regarding this project (Appendix A). Formal and informal coordination was conducted is on-going with the following agencies:

- U.S. DOI
  - NPS, OPCNM
  - BLM
  - USFWS-Arizona Ecological Service Office (AESO) and CPNWR
- U.S. Section, International Boundary and Water Commission (USIBWC)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (EPA)
- Arizona Game and Fish Department (AGFD)
- Arizona State Historic Preservation Officer (SHPO)
- Arizona Department of Environmental Quality (ADEQ)
- Arizona Department of Transportation

OTIA has developed a restoration plan for former tower site TCA-AJO-189 in cooperation with USFWS. The restoration plan developed by OTIA was approved by USFWS. CBP is currently coordinating with USFWS regarding the reinitiation of formal consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq) for Sonoran pronghorn (*Antilocapra americana sonoriensis*) and lesser long-nosed bat (*Leptonycteris yerbabuenae*). Restoration activities will not be initiated until the reinitiated Section 7 consultation with USFWS has been completed for the project.

1.4 FRAMEWORK FOR ANALYSIS

The framework for analysis was discussed in detail in the 2009 Ajo-1 EA and is incorporated herein by reference (CBP 2009). This SEA was prepared in accordance with provisions of NEPA of 1969, as amended (40 U.S.C. 4321 et seq.), CEQ's NEPA implementing regulations in 40 CFR Part 1500, and the DHS *Directive 023-01* (previously numbered 5100.1). Table 1-1 summarizes some of the applicable laws and regulations that were considered in the development of this SEA.

Table 1-1. Summary of Guidance, Statutes, and Relevant Regulation Including Compliance Requirements

Issue	Acts Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status
Wilderness	Wilderness Act of 1964, 16 U.S.C. § 1131-1136, Public Law [P.L.] 88-577)	Land administrating agency	Approval from land administrating agency that action is minimum necessary to manage an area as wilderness
	Arizona Desert Wilderness Act of 1990 (P.L. 101-628)	Land administrating agency	Approval from land administrating agency that action is minimum necessary to manage an area as wilderness
	National Parks and Recreation Act of 1978 (P.L. 95-625)	NPS	Approval from land administrating agency that action is minimum necessary to manage an area as wilderness
Soils	Resource Conservation and Recovery Act of 1976, 42 U.S.C. § 6901 et seq., as amended	EPA	Proper management, and in some cases, permit for restoration
	Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601et seq., as amended	EPA	Development of emergency response plans, notification, and cleanup
	Farmland Protection Policy Act of 1981, 7 U.S.C. §4201 et seq. 7 CFR 657-658 Prime and unique farmlands	Natural Resource Conservation Service (NRCS)	NRCS determination via Form AD-1006, if prime or unique farmlands are present
Natural Resources	Endangered Species Act of 1973, 16 U.S.C. § 1531 et seq., as amended	USFWS	Compliance by lead agency and/or consultation to assess impacts.
	Migratory Bird Treaty Act of 1918, 16 U.S.C. § 703 et seq.	USFWS	Compliance by lead agency and/or consultation to assess impacts and, if necessary, develop mitigation measures
	National Wildlife Refuge System Administration Act of 1966, 16 U.S.C. § 668dd-668ee, and amendments	USFWS	Compliance by lead agency to ensure the protection and conservation of National wildlife resources
	National Wildlife Refuge Improvement Act of 1997, 16 U.S.C. § 668dd et seq., P.L. 105-57	USFWS	Compliance by lead agency
	Organic Act of 1916 (U.S.C. 1 2 3 and 4)	NPS	Compliance by lead agency
	Federal Land Policy Management Act (P.L. 94-579)	BLM	Compliance by lead agency

Table 1-1, continued

Issue	Acts Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status
Cultural/ Archaeological	National Historic Preservation Act of 1966 (16 U.S.C. § 470a et seq.), as amended	Advisory Council on Historic Preservation through SHPO	Section 106 Consultation
	Archaeological Resources Protection Act of 1979 (16 U.S.C. § 470aa et seq.)	Affected land-managing agency	Permits to survey and excavate/ remove archaeological resources on Federal lands; Native American tribes with interests in resources must be consulted prior to issue of permits
	Native American Graves Protection and Repatriation Act of 1990	Affected land-managing agency	Compliance by lead agency
	Indian Sacred Sites of 1996 (Executive Order; EO 13007)	Affected land-managing agency and affected Native American tribe	Compliance by lead agency
	Consultation and Coordination with Indian Tribal Governments of 2000 (EO 13175)	Affected land-managing agency and affected Native American tribe	Compliance by lead agency
	Government-to-Government Relations with Native American Tribal Governments of 1994 (Presidential Memorandum)	Affected land-managing agency and affected Native American tribe	Compliance by lead agency
Air	Clean Air Act, and amendments of 1990 (42 U.S.C. § 7401 et seq.)	EPA and Arizona Department of Environmental Quality	Compliance with National Ambient Air Quality Standards (NAAQS) and emission limits and/or reduction measures; Conformity to *de minimus* thresholds; preparation of a Record of Non-Applicability
Water	Federal Water Pollution Control Act of 1977 (also known as the Clean Water Act (CWA; 33 U.S.C. § 1251 et seq.)	EPA	Section 402(b) National Pollutant Discharge Elimination System General Permit for Storm Water Discharges for Construction Activities- Storm Water Pollution Prevention Plan (SWPPP)
	EO 11988 (Floodplain Management), 42 Federal Register (FR) 26,951 (May 24, 1997), as amended.	Water Resources Council, Federal Emergency Management Agency (FEMA), CEQ	Compliance
	EO 11990 (Protection of Wetlands), 42 FR 26,691(May 24, 1977), as amended	USACE and USFWS	Compliance
	CWA (33 U.S.C. § 1341 et seq.)	USACE and Arizona Department of Water Resources	Section 401/404 Permit

Table 1-1, continued

Issue	Acts Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status
Social/ Economic	EO12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) of 1994, 59 FR 7629 (February 11, 1994)	EPA	Compliance
Sound/Noise	Noise Control Act of 1972, 42 U.S.C. § 4901 et seq., as amended	EPA	Compliance with surface carrier noise emissions
Health and Safety	Occupational Health and Safety Act of 1970, 29 U.S.C. §651 et seq.	Occupational Safety and Health Administration	Compliance with guidelines including Material Safety Data Sheets

SECTION 2.0
PROPOSED ACTION AND ALTERNATIVES

2.0 PROPOSED ACTION AND ALTERNATIVES

Four alternatives in addition to the Proposed Action were identified and analyzed in the draft SEA: Modified Foundation Alternative, the TCA-AJO-189B Alternative, the TCA-AJO-189C Alternative, and the No Action Alternative. Each of these alternatives, with the exception of the Modified Foundation Alternative, also included the restoration of former tower site TCA-AJO-189. On January 6, 2011, the draft SEA was released to the public for review and comment.

After the completion of the 30-day public review period for the draft SEA, OTIA determined that the alternatives analyzed in the draft SEA were no longer necessary and decided to only include the rehabilitation of former tower site TCA-AJO-189 in the final SEA. Therefore, TCA-AJO-189B, TCA-AJO-189C, and the Modified Foundation alternatives have been eliminated from the final SEA. The rehabilitation of former tower site TCA-AJO-189 was a part of the original Proposed Action, TCA-AJO-189B Alternative, and TCA-AJO-189C Alternative, and the beneficial and adverse effects associated with rehabilitation activities were analyzed as part of these alternatives in the draft SEA. As the proposed rehabilitation efforts were fully disclosed and analyzed in the draft SEA and the current Proposed Action is a reduction in the scope of work, OTIA determined that it is unnecessary to release a second draft SEA for public review.

2.1 PROPOSED ACTION

The Proposed Action is the restoration of former tower site TCA-AJO-189 to pre-project conditions (to the extent possible) in accordance with the Restoration Plan (CBP 2011) prepared by CBP and approved by USFWS (Appendix B). Restoration efforts would include the 35- x 35-foot original project area that was previously cleared of vegetation and graded, including the 14- x 14- x 6-foot hole for a proposed tower foundation that was excavated within the 35- x 35-foot area. Restoration activities include backfilling the existing hole, grading the site, landscaping the site, collecting native plant sources for regeneration, planting the site with native vegetation, irrigating the plantings, and monitoring the restored site. The final rehabilitated site should be similar in appearance and vegetation characteristics (e.g. plant species and plant density) to the adjacent landscape.

A majority of the restoration work at former tower site TCA-AJO-189 would require helicopter transport due to the remote location of the site, and it is anticipated that the rehabilitation of former tower site TCA-AJO-189 would require a total of 90 airlifts if the restoration activities are conducted during the fall or winter months (November through March). Airlifts would be allocated as follows: 68 lifts for site rehabilitation and landscaping, six lifts for revegetation efforts, 14 lifts for irrigation efforts (including water delivery), and two lifts for project approval and termination.

One main storage and staging area would be maintained at the Ajo Airport in Ajo, Arizona. Light duty equipment, materials, and personnel would be transported to the work area daily as needed. All heavy equipment would be staged overnight within the disturbed area at the project site.

2.2 NO ACTION ALTERNATIVE

The No Action Alternative would include the continued use of the communications equipment within the P-25 telecommunication facility, and former tower site TCA-AJO-189 would not be restored per USFWS' directive. The No Action Alternative would not satisfy the stated purpose and need; however, its inclusion in this SEA is required by NEPA regulations (40 CFR 1502.14(d)) as a basis of comparison to the anticipated effects of the action alternative.

2.3 ALTERNATIVES ELIMINATED FROM ANALYSIS

Three alternatives (Modified Tower Foundation, TCA-AJO-189B, and TCA-AJO-189C) were proposed as potential alternatives to the Proposed Action in the draft SEA. These alternatives were eliminated during the preparation of the final SEA. OTIA decided to eliminate these alternatives as a result of the success of the temporary installation of communications equipment within an existing, operational telecommunications radio repeater facility operated by CBP. The communications equipment within CBP's P-25 telecommunications facility on Growler Mountain has operated at acceptable levels, and OTIA has decided to maintain and operate the communications equipment on a long-term basis. Therefore, alternatives to the original TCA-AJO-189 design and/or tower site are no longer necessary.

Two other alternative sites (TCA-AJO-189A and TCA-AJO-189D) were evaluated for communications efficiencies and overall compatibility with the SBI*net* Ajo-1 Tower Project network design and connectivity. The rationale for eliminating the two potential alternatives is provided in the following paragraphs.

TCA-AJO-189A was eliminated from consideration based on technical and constructability reasons. At the former design antenna height for the TCA-AJO-189 tower, terrain and communications line-of-sight (LOS) analyses indicated that TCA-AJO-189A may be able to communicate with TCA-AJO-305 but would not be able to communicate with TCA-AJO-302. The terrain at the proposed site has a couple of ridges, which would block communications and prohibit tower placement in that location. The use of the proposed tower site would require a taller antenna height than in the present RAT design. Further, the terrain at the site does not provide a helicopter landing area close enough to the proposed tower location that would be practical for construction.

TCA-AJO-189D was eliminated from consideration based on constructability reasons. The terrain at the site does not provide a helicopter landing area close enough to the proposed tower location that would be practical for construction.

2.4 SUMMARY

Only the Proposed Action and No Action Alternative are analyzed in the final SEA. An alternative matrix (Table 2-1) shows how each of these alternatives satisfies the stated purpose and need. Table 2-2 presents a summary matrix of the impacts from the two alternatives.

Table 2-1. Alternative Matrix of Purpose and Need of Alternatives

Purpose and Need	No Action Alternative	Proposed Action
Restore impacts that occurred at the former TCA-AJO-189 tower site	No	Yes
Reduce impacts on designated wilderness	No	Yes
Comply with USFWS's directive	No	Yes
Comply with previous NEPA documents	No	Yes

Table 2-2. Summary Matrix

Affected Environment	No Action Alternative	Proposed Action
Land Use (Section 3.2)	Former tower site TCA-AJO-189 would not be restored and the site would remain in its current degraded state. The No Action Alternative would have an indirect, moderate adverse impact on land use.	The Proposed Action would restore former tower site TCA-AJO-189 to pre-project conditions (to the extent possible) in accordance with USFWS's directive. The Proposed Action would have a long-term, moderate beneficial impact on land use.
Wilderness (Section 3.3)	Under the No Action Alternative, former tower site TCA-AJO-189 would not be restored to pre-project conditions and the mechanically disturbed area would remain within designated wilderness. The No Action Alternative would have an indirect, major adverse impact on designated wilderness.	Under the Proposed Action, the project site would be restored to pre-project conditions (to the extent possible). The natural setting of designated wilderness at the project site would be restored, and over time it would not be apparent that a man-made disturbance had occurred at the project site. The Proposed Action would have a permanent, moderate, indirect beneficial impact on designated wilderness. However, noise levels generated during the restoration activities would have a temporary, minor adverse effect on the quality of designated wilderness.
Geology and Soils (Section 3.4)	Under the No Action Alternative, former tower site TCA-AJO-189 would not be restored and the excavated hole would remain open. Left unrestored, the disturbed area, especially the open hole, would be susceptible to erosion and the potential for erosion would likely increase. The No Action Alternative would have a permanent, minor adverse impact on the soils at former tower site TCA-AJO-189.	The project site would be restored to pre-project conditions (to the extent possible), thus stabilizing the site and reducing the potential for soil erosion. The Proposed Action would have a permanent, moderate beneficial impact on soils at former tower site TCA-AJO-189.
Hydrology and Groundwater (Section 3.5)	No additional impacts on hydrology or groundwater would occur under the No Action Alternative beyond those described in the 2009 Ajo-1 EA (CBP 2009).	Approximately 3,250 gallons would be required for irrigating plants for 5 months. It is assumed that up to 1,000 gallons may be needed to compact the backfill soil in compliance with the Restoration Plan. Currently, the Lower Gila Basin experiences an annual overdraft of groundwater; therefore, the Proposed Action would have a temporary, moderate adverse impact on hydrology and groundwater resources.
Surface Waters (Section 3.6)	Indirect impacts on surface waters could occur as a result of potential soil erosion at the unrestored site. Sediment could be carried off-site into the headwaters of drainages. Thus, the No Action Alternative would have a long-term, minor adverse effect on water quality.	Restoration of the site would reduce the potential for erosion and resulting sedimentation. Thus, having a long-term, negligible beneficial impact on surface waters and water quality.

Table 2-2, continued

Affected Environment	No Action Alternative	Proposed Action
Vegetative Habitat (Section 3.8)	No additional direct impacts on vegetation would occur beyond those described in the Proposed Action in the 2009 Ajo-1 EA (CBP 2009). However, the site would not be restored and would remain unvegetated with the exception of naturally recruited vegetation. The No Action Alternative would have a long-term, negligible impact on vegetation in the project area.	In accordance with the Restoration Plan, native vegetation would be reestablished on the approximately 35- x 35-foot disturbance area. The Proposed Action would have a permanent, negligible beneficial impact on vegetation on the CPNWR.
Wildlife and Aquatic Resources (Section 3.9)	No additional impacts on wildlife and aquatic resources would occur beyond those described in the Proposed Action in the 2009 Ajo-1 EA (CBP 2009).	Noise emissions from heavy construction equipment and helicopter airlifts would have a temporary, minor adverse effect on wildlife.
Protected Species (Section 3.10)	No direct impacts on threatened or endangered species or their habitats would occur beyond those described for the Proposed Action in the 2009 Ajo-1 EA (CBP 2009).	Noise levels associated with helicopters, as well as heavy construction equipment, would have temporary, minor adverse impacts on Sonoran pronghorn and a temporary, negligible impact on lesser long-nosed bat.
Cultural Resources (Section 3.11)	The No Action Alternative would have no effect, either beneficial or adverse, on cultural resources beyond those described in the 2009 Ajo-1 EA.	No significant cultural resources were identified at former tower site TCA-AJO-189 during a previous cultural resources survey; therefore, no impacts on cultural resources are anticipated under the Proposed Action.
Air Quality (Section 3.12)	The No Action Alternative would not result in any directs impacts on air quality because restoration efforts would not occur.	The proposed restoration activities would neither violate air quality standards nor conflict with the state implementation plan; therefore, impacts on air quality would be less than significant.
Noise (Section 3.13)	Under the No Action Alternative, sensitive noise receptors and wildlife would incur no additional impacts beyond those described in the 2009 Ajo-1 EA (CBP 2009).	The noise impacts from restoration activities would be temporary and moderate.
Aesthetic and Visual Resources (Section 3.17)	Under the No Action Alternative, the disturbed area would not be restored and would remain in a degraded state. The No Action Alternative would have a permanent, moderate effect on aesthetic resources in the project area.	The final rehabilitated site would be similar in appearance and vegetation characteristic (e.g. plant species and plant density) to the adjacent landscape. Therefore, the Proposed Action would have a permanent, moderate beneficial impact on aesthetics.
Hazardous Waste (Section 3.18)	The No Action Alternative would not contribute any additional hazardous waste or materials to the project area beyond those described in the 2009 Ajo-1 EA (CBP 2009).	The potential exists for minor releases of petroleum, oil, and lubricant (POL) during restoration activities. Best management practices (BMPs) would be put in place to minimize any potential contamination at the proposed sites during restoration. The Proposed Action would have a temporary, minor potential to contaminate the environment with hazardous materials.

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SECTION 3.0
AFFECTED ENVIRONMENT AND CONSEQUENCES

3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 PRELIMINARY IMPACT ANALYSIS

This section of the SEA describes the natural and human environment that exists within the project area of the supplemental SBI*net* Ajo-1 Tower Project and the potential impacts of the Proposed Action as outlined in Section 2.0 of this document. Only those parameters with the potential to be affected by the Proposed Action are described, per CEQ regulation (40 CFR 1501.7 [3]). Impacts can vary in magnitude from a slight to a total change in the environment. The impact analysis presented in this SEA is based upon existing regulatory standards, scientific and environmental knowledge, and best professional opinions.

Some topics are limited in scope due to the lack of direct effect from the proposed project on the resource, or because that particular resource is not located within the project corridor. Resources such as climate, wild and scenic rivers, floodplains, waters of the U.S. and wetlands, prime farmlands, aquatic resources, radio frequency environment, utilities and infrastructure, roadways and traffic, socioeconomics, environmental justice and protection of children, and sustainability and greening are not addressed for the following reasons:

Climate
The climate would not be impacted by the implementation of the Proposed Action.

Floodplains
The Proposed Action would not affect floodplains because none are located in the project area.

Waters of the U.S. and Wetlands
On February 18, 2009, Gulf South Research Corporation (GSRC) surveyed former tower site TCA-AJO-189 for biological resources and waters of the U.S. No potential jurisdictional waters of the U.S., including wetlands were observed at the former tower site. Therefore, no waters of the U.S. or wetlands would be impacted by the Proposed Action.

Prime Farmlands
The only soil type identified at the site of the Proposed Action, Quilotosa-Vaiva-Rock Outcrop complex, is not classified as a Prime Farmlands soil. Therefore, the Proposed Action would not affect Prime Farmlands.

Aquatic Resources
No streams or waterbodies are located within the project area; therefore, the Proposed Action would not affect any aquatic resources.

Radio Frequency
The radio frequency environment would not be affected by the Proposed Action.

Utilities and Infrastructure
There would be no additional impacts on utilities and infrastructure beyond those described for the Proposed Action in the 2009 Ajo-1 EA (CBP 2009).

Roadways and Traffic
There would be no additional impacts on roadways and traffic beyond those described for the Proposed Action in the 2009 Ajo-1 EA (CBP 2009).

Environmental Justice and Protection of Children
The project site is located in an extremely remote area of southwest Arizona and no communities or residential areas are located within proximity to former tower site TCA-AJO-189. Therefore, the Proposed Action would not affect low-income or minority populations, or children.

Socioeconomics
The Proposed Action would potentially have temporary, negligible benefits from local purchases, if they occur.

Sustainability and Greening
The Proposed Action does not include the construction and operation of Federal facilities; therefore, Federal sustainability and greening practices are not applicable.

Wild and Scenic Rivers
The Proposed Action would not affect any designated Wild and Scenic Rivers (16 U.S.C. 551, 1278[c], 1281[d]) because no rivers designated as such are located within or near the project area.

Impacts can be either beneficial or adverse and can be either directly related to the action or indirectly caused by the action. Direct impacts are those effects that are caused by the action and occur at the same time and place (40 CFR 1508.8[a]). Indirect impacts are those effects that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR 1508.8[b]). As discussed in this section, the No Action Alternative and Proposed Action may create temporary (lasting the duration of restoration efforts), short-term (up to 3 years), or long-term (greater than 3 years) impacts.

Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis the intensity of impacts will be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- Negligible: A resource would not be affected or the effects would be at or below the level of detection, and changes would not be of any measurable or perceptible consequences.
- Minor: Effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable.
- Moderate: Effects on a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.

- Major: Effects on a resource would be obvious, long-term, and would have substantial consequences on a regional scale. Mitigation measures to offset the adverse effects would be required and extensive, and success of the mitigation measures would not be guaranteed.

The following discussions describe and, where possible, quantify the potential effects of each alternative on the resources within or near the project area. All impacts described below are considered to be adverse unless stated otherwise.

3.2 LAND USE

3.2.1 Affected Environment

Land use in the project area was discussed in detail in the 2009 Ajo-1 EA and is incorporated herein by reference (CBP 2009). Pima County is situated on the southwestern border of Arizona and encompasses 9,184 square miles (Arizona Department of Commerce [AZDC] 2008). The majority of the county is located along the United States/Mexico border. Land use is dependent upon soil characteristics and water availability since the majority of Pima County is desert. Government, tourism, commercial, and Indian reservations are the county's principal land uses. BLM and U.S. Forest Service account for 12.1 percent of land ownership; Indian reservations, 42.1 percent; the State of Arizona, 14.9 percent; private or corporate, 13.8 percent; and other public lands, 17.1 percent (AZDC 2008). Other public lands include those managed by USFWS and NPS.

Former tower site TCA-AJO-189 is located on CPNWR which consists of undeveloped lands established for the recovery of the desert bighorn sheep. Approximately 93 percent of CPNWR is designated wilderness, as discussed in detail in Section 3.3. Former tower site TCA-AJO-189 is located within the Cabeza Prieta Wilderness.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

Under the No Action Alternative, former tower site TCA-AJO-189 would not be restored and the site would remain in its current degraded state. The USFWS's directive to restore the site would not be realized and impacts on designated wilderness would not be reduced. The No Action Alternative would have an indirect, moderate adverse impact on land use in the project area.

3.2.2.2 Proposed Action

The Proposed Action would include the restoration of former tower site TCA-AJO-189 to pre-project conditions (to the extent possible) in accordance with USFWS's directive. Restoration of the project site would reduce impacts on designated wilderness and return the former tower site to its original land use. The Proposed Action would have a long-term, moderate beneficial impact on land use in the project area.

3.3 WILDERNESS

3.3.1 Affected Environment

The Wilderness Act of 1964 (Public Law [P.L.] 88-577 [Wilderness Act]) allowed for the establishment of a National Wilderness Preservation System and allows for the designation of wilderness on Federally owned lands by Congress. The Wilderness Act was discussed in detail in the 2009 Ajo-1 EA, and that discussion is herein incorporated by reference (CBP 2009).

Cabeza Prieta National Wildlife Refuge and Cabeza Prieta Wilderness

CPNWR is one of 510 refuges governed by the National Wildlife Refuge System Administration Act of 1966, as amended (P.L. 106-580) and National Wildlife Refuge System Improvement Act (P.L. 105-57).

Cabeza Prieta Wilderness was created within CPNWR by the 1990 Arizona Wilderness Act (House Report 2570 Title III). It encompasses 93 percent (803,418 acres) of CPNWR (Figure 3-1) and was created to preserve the Sonoran Desert Ecosystem. Descriptions of CPNWR and Cabeza Prieta Wilderness were provided in the 2009 Ajo-1 EA and are herein incorporated by reference (CBP 2009).

Minimum Requirement Analysis (MRA)

As specified under Section 4(c) of the Wilderness Act, an MRA is a process which helps an agency to determine whether an action should be completed in designated wilderness. The MRA process was described in the 2009 Ajo-1 EA and that description is incorporated herein by reference (CBP 2009).

Existing Conditions

The existing conditions of the Cabeza Prieta Wilderness were discussed in the 2009 Ajo-1 EA, and that discussion is herein incorporated by reference (CBP 2009). Currently, an approximately 35- x 35-foot area on top of Growler Mountain within designated wilderness has been mechanically disturbed, including an approximately 14- x 14-foot excavated hole. The entire 35- x 35-foot area was cleared of vegetation and graded during the early phases of tower construction.

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

Under the No Action Alternative, former tower site TCA-AJO-189 would not be restored and the mechanically disturbed area would remain within designated wilderness. The disturbed site would adversely impact the aesthetics of designated wilderness and would be evidence of a man-made disturbance in designated wilderness. Additionally, the No Action Alternative would not be in compliance with USFWS's directive and would be in violation of the Wilderness Act. The No Action Alternative would have a permanent, major impact on designated wilderness.

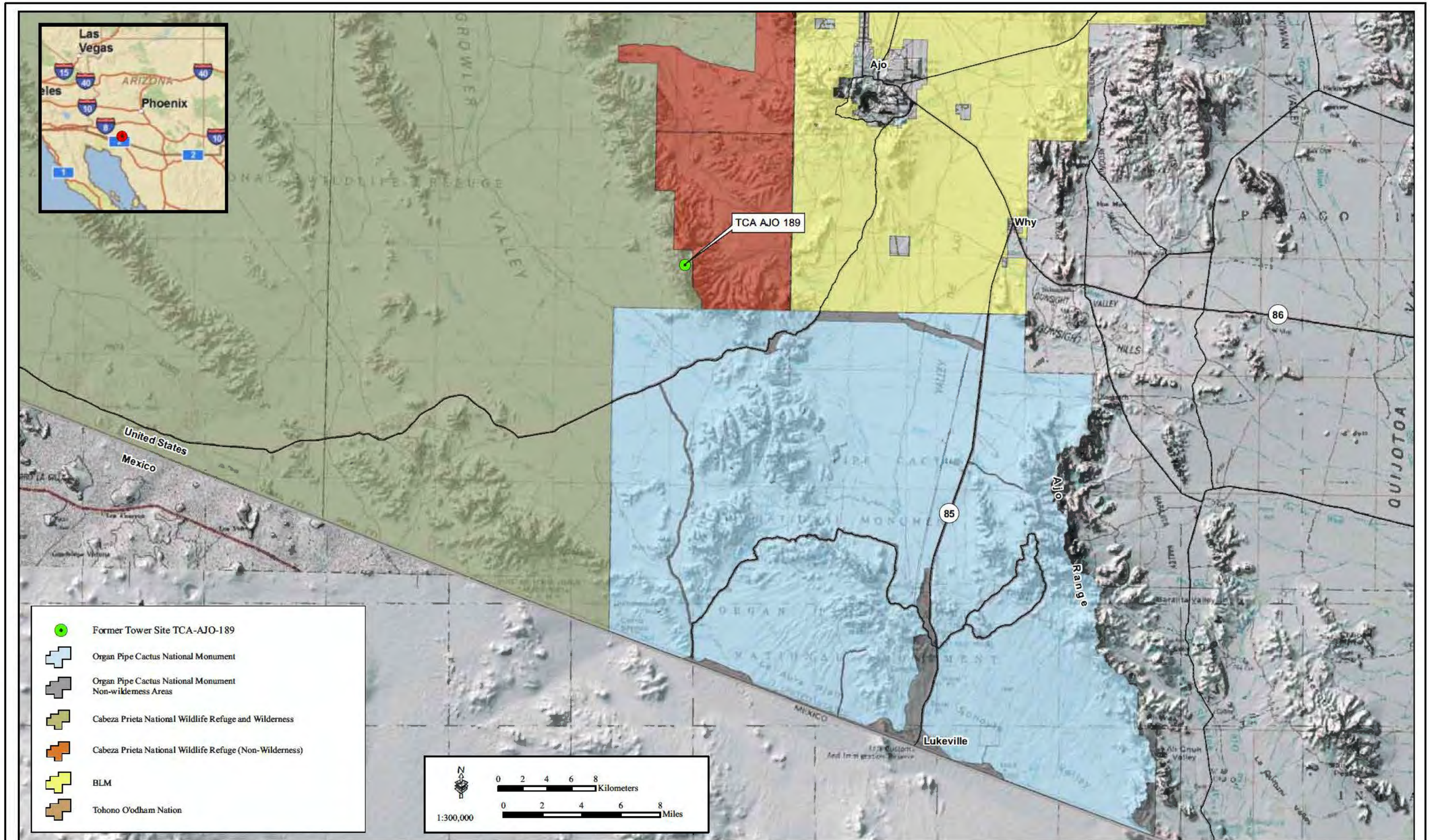

Figure 3-1: Organ Pipe Cactus National Monument and Cabeza Prieta National Wildlife Refuge Wilderness Areas

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3.3.2.2 Proposed Action

Restoration activities at former tower site TCA-AJO-189 would require the use of helicopters and heavy construction equipment. The use of helicopters and heavy equipment would increase the noise levels in designated wilderness beyond ambient noise levels. Noise levels associated with helicopters and heavy construction equipment would have an adverse impact on the quietness and solitude of designated wilderness at the project site and the adjacent area. However, noise emissions would be intermittently produced during restoration efforts (e.g., backfilling of hole and subsequent planting and irrigation efforts) and noise levels would be anticipated to return to ambient levels following the completion of restoration efforts. Noise emissions during restoration efforts would have a temporary, minor adverse effect on the quality of designated wilderness. A detailed noise analysis is provided in Section 3.12.

Under the Proposed Action, former tower site TCA-AJO-189 would be restored to pre-project conditions (to the extent possible). The natural setting of designated wilderness at the project site would be restored in accordance with the USFWS approved Restoration Plan, and over time, it would not be apparent that a man-made disturbance had occurred at the project site (Appendix B). The Proposed Action would have a permanent, moderate, indirect, beneficial impact on designated wilderness.

3.4 GEOLOGY AND SOILS

3.4.1 Affected Environment

The geologic environment and soils within the SBI*net* Ajo-1 Tower Project were described in the 2009 Ajo-1 EA, and that discussion is incorporated herein by reference (CBP 2009). In summary, the project area is part of the Basin and Range Physiographic Province as delineated by the U.S. Geological Survey [USGS] (USGS and California Geologic Survey 2000). Most landforms within this province are the result of tectonic and alluvial processes, and the province is characterized by low mountains and deep valleys filled with alluvium (USGS and California Geologic Survey 2000).

Soils

The Quilotosa-Vaiva-Rock Outcrop soil complex is associated with former tower site TCA-AJO-189 (Figure 3-2). This map unit is on mountain and hill slopes at elevations ranging from 1,200 to 3,000 feet above mean sea level (amsl). The complex is comprised of 50 percent Quilotosa extremely gravelly sandy loam, 20 percent Vaiva extremely gravelly sandy loam, and 20 percent rock outcrop (Natural Resources Conservation Service [NRCS] 2010). The Quilotosa soil and Vaiva soil components are well-drained soils formed in alluvium and colluvium derived from granite and gneiss. Permeability of the Quilotosa and Vaiva soils are moderately rapid and moderate, respectively. Runoff is medium to rapid for both Quilotosa and Vaiva soils. Both soil units have a moderate water erosion hazard, and cuts and fills are highly susceptible to erosion. Rock outcrop areas consist of exposed areas of granite and gneiss (NRCS 2010).

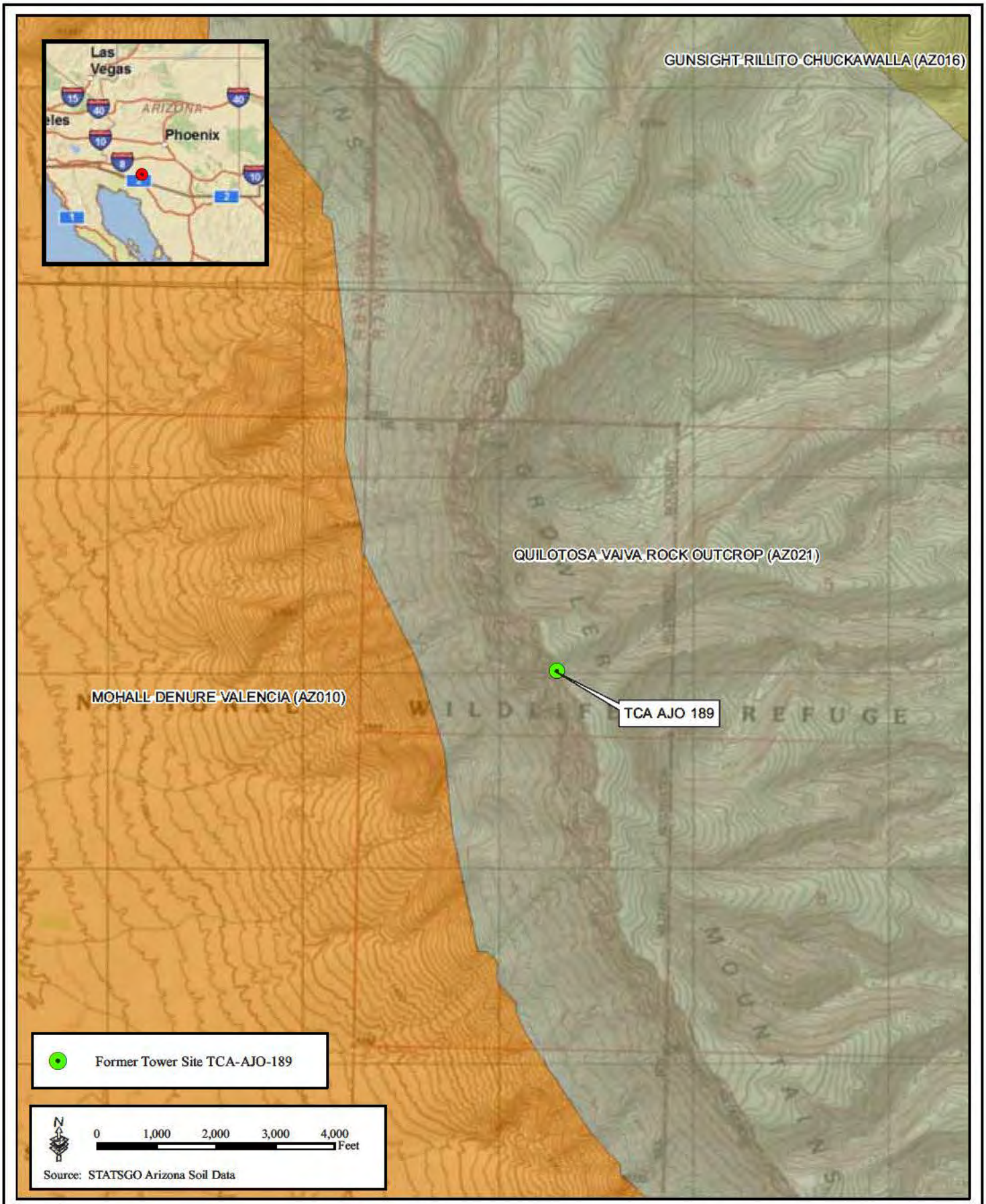

Figure 3-2: TCA-AJO-189 Tower Soil Survey Map

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

Under the No Action Alternative, the project site would not be restored and the excavated hole would remain open. Exposed soils are more susceptible to wind and water erosion. Both the Quilotosa and Vaiva soils have a moderate water erosion hazard and cut and fills are highly susceptible to erosion. Left unrestored, the disturbed area, especially the open hole, would be susceptible to erosion and the potential for erosion would likely increase. The No Action Alternative would have a permanent, minor adverse impact on the soils at former tower site TCA-AJO-189.

3.4.2.2 Proposed Action

The Proposed Action would temporarily disturb approximately 0.03 acre of previously disturbed Quilotosa-Vaiva-Rock Outcrop soils. Restoration of the site would eliminate the excavated hole and revegetate the approximately 35- x 35-foot disturbed area at former tower site TCA-AJO-189. Restoration efforts would stabilize the site and reduce the potential for erosion. The Proposed Action would have a permanent, moderate beneficial impact on soils at the project site. Mitigation measures to minimize soil erosion are provided in Section 5.0.

3.5 HYDROLOGY AND GROUNDWATER

3.5.1 Affected Environment

Former tower site TCA-AJO-189 is located in the Lower Gila Basin as designated by Arizona Department of Water Resources (ADWR). Groundwater resources were described in the 2009 Ajo-1 EA and are incorporated herein by reference (CBP 2009). The Lower Gila Basin is characterized by plains and valleys surrounded by low elevation mountain ranges (ADWR 2008). The average annual rainfall ranges between 3.8 to 7.7 inches across the basin. The annual groundwater recharge rate of the Lower Gila Basin is 9,000 to 88,000 acre-feet per year and the annual municipal, industrial, and agricultural use in the basin is approximately 287,900 acre-feet per year.

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

No impacts on hydrology and groundwater would occur under the No Action Alternative beyond those described in the 2009 Ajo-1 EA (CBP 2009).

3.5.2.2 Proposed Action

Water would be needed for compaction of the backfill material in the excavated hole and to irrigate plants. Approximately 3,250 gallons would be required for irrigating plants for 5 months (CBP 2011). Based on the small area of the project site, it is estimated that up to 1,000 gallons of water may be needed to compact the backfill soil in compliance with the Restoration Plan (CBP 2011) located in Appendix B of this SEA. Water for restoration activities would be obtained in Ajo, Arizona and hauled into the project site. While the water requirements of the Proposed Action would be limited to the duration of the restoration activities and are small in comparison to the overall water use in the basin, the Lower Gila Basin experiences an annual overdraft of groundwater resources, and any increase in the demand would increase the deficit. Therefore, the impacts on groundwater resources would be temporary and moderate.

3.6 SURFACE WATERS

3.6.1 Affected Environment

The Proposed Action is located in the Lower Gila River Watershed as delineated by ADEQ (Figure 3-3). The closest perennial rivers are the Colorado River mainstream and its reservoirs and the Gila River near Yuma where irrigation return flow provides perennial flow (ADEQ 2008).

A detailed discussion of the region's surface waters was provided in the 2009 Ajo-1 EA and that information is incorporated herein by reference (CBP 2009). Within CPNWR, surface water drainage originates in mountainous areas and results in numerous intermittent, braided channels, connecting to larger arroyos or washes. These washes are well-defined and hold runoff from brief but intense summer rainstorms or other seasonal rainstorms that are typically less intense and longer in duration. Usually, runoff quickly infiltrates streambeds, and only rarely is it sufficient to cause flooding in the normally dry washes. The perennial and intermittent streams on CPNWR are presented in Figure 3-3. No surface water drainage features are located within TCA-AJO-189.

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

Under the No Action Alternative, there would be no direct impacts on surface waters or waters of the U.S. beyond those discussed in the 2009 Ajo-1 EA (CBP 2009). Indirect impacts on surface waters and waters of the U.S. would occur as a result of potential soil erosion at the unrestored site. Sediment could be carried off-site into the headwaters of drainages. However, the potential for sediment originating at former tower site TCA-AJO-189 reaching drainages is low. The No Action Alternative would have a long-term, minor adverse effect on surface waters and water quality as a result of accelerated erosion associated with the unrestored site.

3.6.2.2 Proposed Action

Under the Proposed Action, the project site would be restored in accordance with the Restoration Plan (CBP 2011) prepared by CBP and approved by USFWS (Appendix B). Restoration of the site would include backfilling the existing excavated hole and revegetating the entire disturbed area with native vegetation. No surface waters would be directly impacted during restoration efforts. However, during backfilling and grading activities, the potential for erosion and sedimentation would increase. Stormwater management measures (e.g., straw wattles) would be incorporated to reduce the movement of soils from the site during restoration activities. Once the planted vegetation becomes established and the site is stabilized, the potential for erosion and resulting sedimentation would decrease, thus reducing the potential for indirect impacts on water quality. The Proposed Action would have a long-term, negligible beneficial impact on surface waters and water quality.

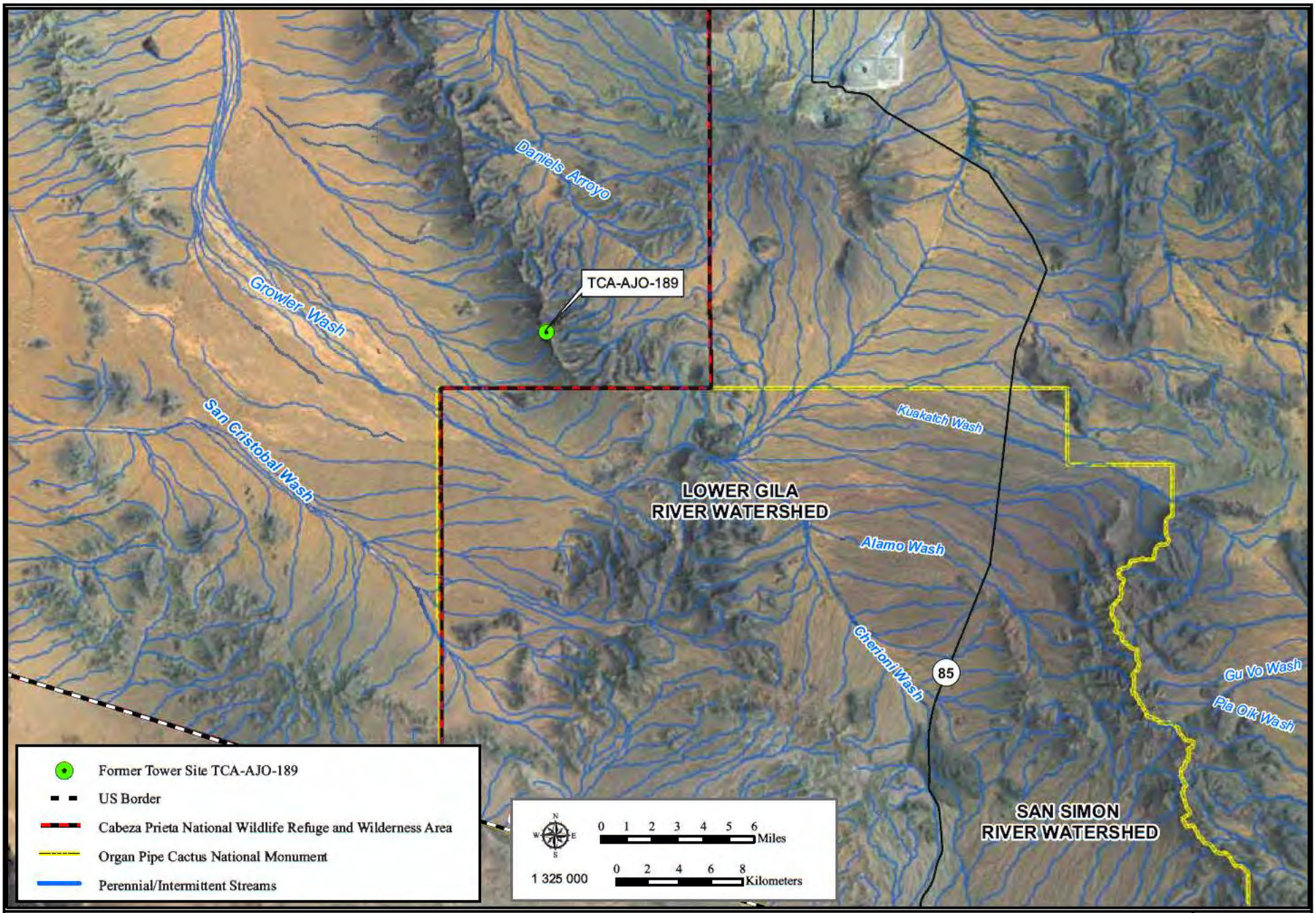

Figure 3-3: Perennial and Intermittent Streams within Organ Pipe Cactus National Monument and Cabeza Prieta National Wildlife Refuge and Wilderness Area

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3.7 VEGETATIVE HABITAT

3.7.1 Affected Environment

The vegetative environment of the SBI*net* Ajo-1 Tower Project was described in the 2009 Ajo-1 EA and is incorporated herein by reference (CBP 2009). In summary, the vegetative community within the project corridor includes Sonoran Desertscrub (Brown 1994).

On February 18, 2009, GSRC surveyed former tower site TCA-AJO-189 for biological resources and waters of the U.S. Vegetation at TCA-AJO-189 included saguaro (*Carnegiea gigantea*), agave (*Agave* sp.), creosotebush (*Larrea tridentate*), teddy-bear cholla (*Cylindropuntia bigelovii*), hedgehog cactus (*Echinocereus engelmannii*), prickly pear cactus (*Opuntia* sp.), staghorn cholla (*Opuntia versicolor*), longleaf ephedra (*Ephedra trifurca*), broom snakeweed (*Gutierrezia sarothrae*), triangle-leaf bursage (*Ambrosia deltoidea*), and ocotillo (*Fouquieria spendens*).

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

Under the No Action Alternative, the site would not be restored and would remain unvegetated with the exception of naturally recruited vegetation. The No Action Alternative would have a long-term, negligible impact on vegetation in the region.

3.7.2.2 Proposed Action

There would be no additional vegetation removal or disturbance beyond those described in the 2009 Ajo-1 EA, herein incorporated by reference (CBP 2009). Under the Proposed Action, the project site would be restored in accordance with the Restoration Plan (Appendix B). Native vegetation would be reestablished on the approximately 35- x 35-foot disturbance area following the backfilling of the existing hole. Thus, approximately 0.03 acre of Sonoran Desertscrub vegetation would be restored on the CPNWR. The restored site would be similar in appearance and vegetation characteristics (e.g. plant species and plant density) to the adjacent landscape. The Proposed Action would have a beneficial impact on vegetation on the CPNWR.

3.8 WILDLIFE AND AQUATIC RESOURCES

3.8.1 Affected Environment

The biological environment of the project area was discussed in detail in the EA for the SBI*net* Ajo-1 Tower Project, and is herein incorporated by reference (CBP 2009). In summary, many of the animals found in the Sonoran Desertscrub vegetation community are found throughout the warmer and drier regions of the southwestern United States. Because of the lack of available forage and extreme temperatures, many of the mammals occupying these vegetation communities are small, and most are nocturnal.

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

No additional impacts on wildlife and aquatic resources would occur beyond those described in the Proposed Action in the 2009 Ajo-1 EA (CBP 2009).

3.8.2.2 Proposed Action

Noise levels associated with helicopter use, as well as heavy construction equipment, would likely have an adverse impact on wildlife at former tower site TCA-AJO-189 and the adjacent area. The use of helicopters and heavy equipment would increase the noise levels above ambient noise levels. It is anticipated that backfilling efforts at the project site would occur over a 10-day work period; however, noise emissions would be intermittently produced during the rehabilitation (e.g., planting and irrigation efforts) of the former tower site. Noise levels would be anticipated to return to ambient levels following the completion of rehabilitation efforts, and therefore would have a temporary, minor adverse effect on wildlife. A detailed noise analysis is provided in Section 3.12.

3.9 PROTECTED SPECIES AND CRITICAL HABITATS

3.9.1 Affected Environment

Protected species and critical habitats were discussed in the 2009 Ajo-1 EA and are herein incorporated by reference (CBP 2009).

3.9.1.1 Federal

USFWS-AESO lists 14 endangered species, two threatened species, and one proposed threatened species believed to occur within Pima County, Arizona (USFWS 2010). USFWS also lists four candidate species, although candidate species are not afforded protection under the ESA. A list of all USFWS threatened, endangered, and candidate species is provided in Appendix C. Not all of these species occur within the vicinity of the project area. Two endangered species have the potential to occur within or near the project area: lesser long-nosed bat and Sonoran pronghorn. Descriptions of lesser long-nosed bat and Sonoran pronghorn were provided in the 2009 Ajo-1 EA and are herein incorporated by reference (CBP 2009).

CBP entered into formal consultation with USFWS pursuant to Section 7 of the ESA for the SBI*net* Ajo-1 Tower Project in 2009. On December 12, 2009, USFWS issued a Biological Opinion (BO [USFWS-AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6]) concluding that the Proposed Action in the 2009 Ajo-1 EA may affect and is likely to adversely affect Sonoran pronghorn, lesser long-nosed bat, and desert (Quitobaquito) pupfish (*Cyprinodon* [*macularis*] *eremus*) (USFWS 2009). CBP is currently coordinating with USFWS regarding reinitiation of formal consultation pursuant to Section 7 of the ESA for Sonoran pronghorn and lesser long-nosed bat. The desert pupfish is not located within or near the project footprint of the current Proposed Action and will not be discussed as part of this SEA.

3.9.1.2 Critical Habitat

The ESA calls for the conservation of what is termed "critical habitat" the areas of land, water, and air space that an endangered species requires for survival. Critical habitat also includes such things as food and water sources, breeding sites, cover or shelter, and sufficient habitat area to provide for normal population growth and behavior. One of the primary threats to many species is the destruction, conversion, or modification of essential habitat by uncontrolled land and water development. No critical habitat has been designated for either the lesser long-nosed bat or Sonoran pronghorn.

3.9.1.3 State

The AGFD Natural Heritage Program maintains lists of wildlife of special concern (WSC) in Arizona. This list includes fauna whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines (AGFD 2007). These species are not necessarily the same as those protected under the ESA. A list of these species is presented in Appendix C. No Arizona WSC species were observed within the project footprint; however, habitat adjacent to the project site was determined to be suitable for six Arizona WSC.

The Arizona Department of Agriculture (ADA) maintains a list of protected plant species within Arizona. The 1999 Arizona Native Plant Law defined five categories of protection within the state: 1) Highly Safeguarded, no collection allowed; 2) Salvage Restricted, collection only with permit; 3) Export Restricted, transport out of state prohibited; 4) Salvage Assessed, permit required to remove live trees; and 5) Harvest Restricted, permit required to remove plant by-products (ADA 2007). A list of native plants protected by the ADA is included in Appendix C. Only those plants with highly safeguarded and salvage-restricted status are discussed here, as other regulated activities would not occur. None of the highly safeguarded or salvage -restricted status species plants were observed at former tower site TCA-AJO-189.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

Under the No Action Alternative, there would be no direct impacts on protected species or critical habitat beyond those described in the 2009 Ajo-1 EA (CBP 2009).

3.9.2.2 Proposed Action

As described above, noise levels associated with helicopters, as well as heavy construction equipment, would likely have an adverse impact on wildlife, including threatened and endangered species, at former tower site TCA-AJO-189 and the adjacent area. Noise levels would be anticipated to return to ambient levels following the completion of restoration efforts. Potential impacts on specific species are discussed below.

Sonoran Pronghorn

Sonoran pronghorn are migratory; although, few migratory paths are known to occur in the immediate vicinity of the project site, the adjacent areas may be more heavily utilized (Figure 3-4). Noise levels associated with helicopters and heavy construction equipment could disturb pronghorn during restoration efforts; however, the helicopter path established by USFWS during formal Section 7 consultation for the SBI*net* Ajo-1 Tower Project would be used for ingress and egress to the project site during the restoration of the site (Figure 3-5). Utilization of the established helicopter flight path would reduce potential impacts on Sonoran pronghorn. CBP is currently reinitiating Section 7 consultation with USFWS for the restoration activities. Site rehabilitation (i.e., backfilling of the hole and landscaping) and the installation of irrigation would be completed before March 15, prior to the Sonoran pronghorn closure season. The remaining airlifts for revegetation efforts and project termination would occur after March 15 per coordination with USFWS. Site restoration will not commence until the reinitiated Section 7 consultation with USFWS has been completed. As thus, the Proposed Action would have temporary to short-term, minor adverse impacts on Sonoran pronghorn.

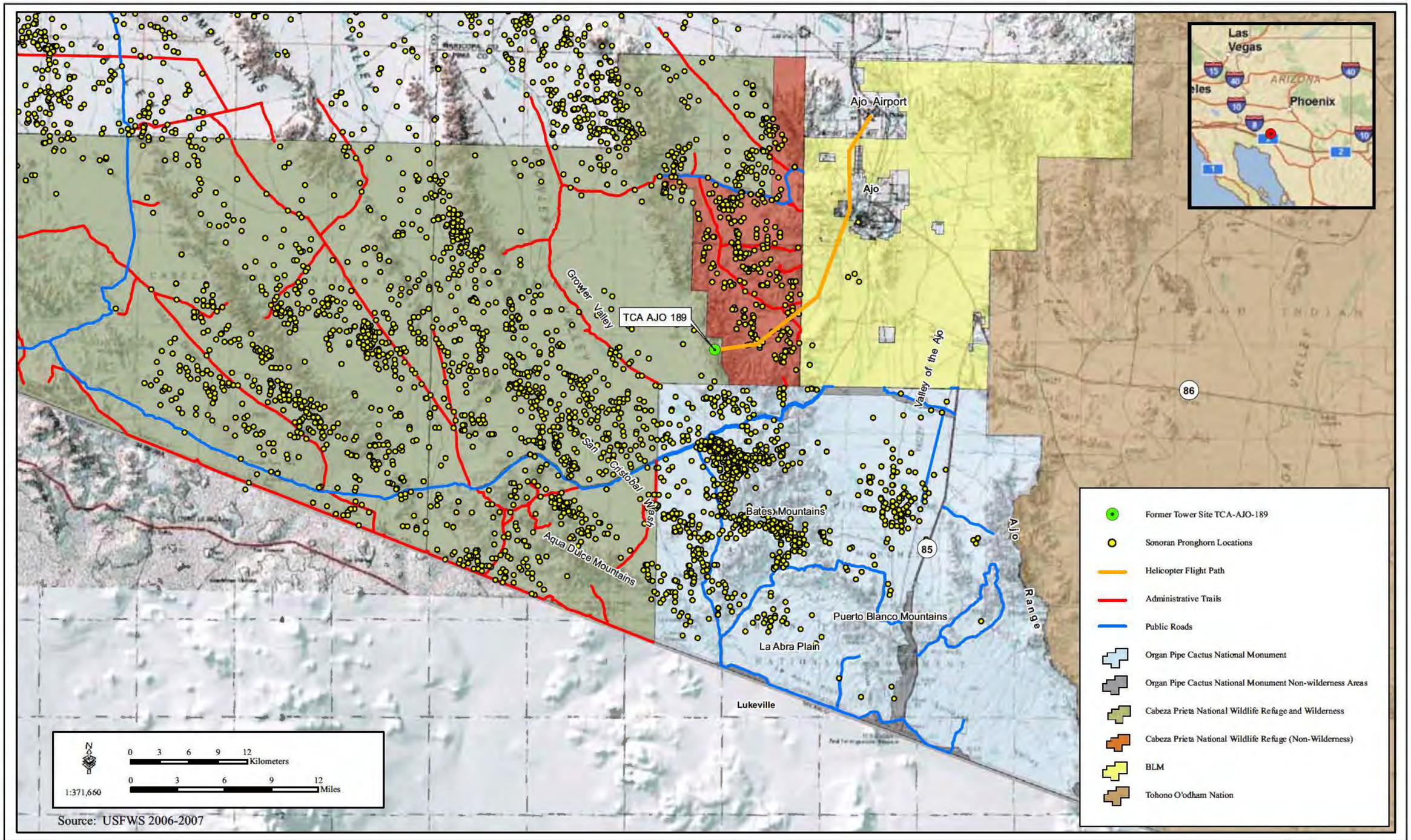

Figure 3-4: Historical Sonoran Pronghorn Sitings Telemetry Data

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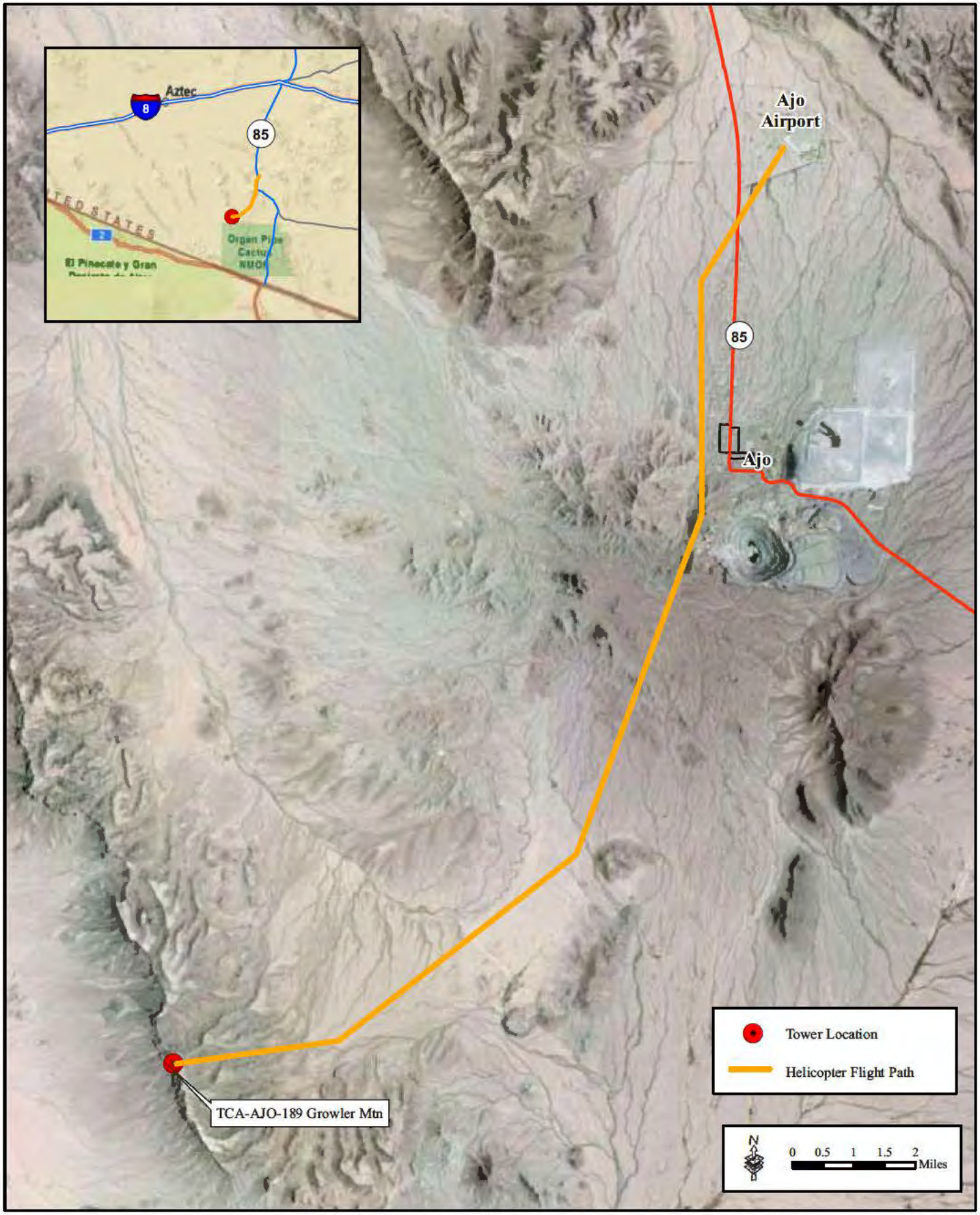

Figure 3-5: Helicopter Flight Path

Lesser Long-nosed Bat

Based on occurrence records provided by USFWS (USFWS 2011a), one lesser long-nosed bat roost occurs near the project area, although none are located within or adjacent to the footprint of TCA-AJO-189 (Figure 3-6). The designated helicopter flight path is located north of the known lesser long-nosed bat roost on the CPNWR. Therefore, roost disturbance from helicopter-generated noise is not anticipated during the restoration of TCA-AJO-189. Additionally, lesser long-nosed bats begin arriving at maternity roosts in Arizona as early as the second week in April. If the proposed restoration (i.e., backfilling and planting) is conducted between November and March as anticipated, lesser long-nosed bats will not have arrived in southwest Arizona at this time and thus, would not be present in the roost. The Proposed Action would have a short-term, negligible effect on lesser long-nosed bat.

3.10 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

3.10.1 Affected Environment

The process of identifying and evaluating potential impacts on cultural resources was described in detail in the 2009 Ajo-1 EA and incorporated herein by reference (CBP 2009). In a June 24, 2009 correspondence, SHPO concluded that the SBI*net* Ajo-1 Tower Project would have no adverse effects on cultural resources. This concurrence included former tower site TCA-AJO-189 tower site (Appendix A). Briefly, the National Historic Preservation Act (NHPA) of 1966, as amended, established the Advisory Council on Historic Preservation (ACHP) to advocate full consideration of historic values in Federal decision-making and ensure consistency in national policies. Additionally, the NHPA also established SHPO to administer national historic preservation programs on a state level and Tribal Historic Preservation Officers on tribal lands, where appropriate. The NHPA also established the National Register of Historic Places (NRHP), which is the Nation's official list of cultural resources worthy of preservation and protection. The historic preservation review process mandated by Section 106 of the NHPA is outlined in the ACHP regulations, "Protection of Historic Properties" (36 CFR Part 800), which were revised and became effective on January 11, 2001.

The cultural overview of the project region was described in various environmental documents and is incorporated by reference (CBP 2009 and INS and Joint Task Force-6 [JTF-6] 2001). Briefly, the cultural history of southwestern Arizona is usually discussed in periods: Paleo-Indian (circa 11,500 to 8,000 years before present), Archaic (circa 8,000 to 1,400 years before present) which is generally divided into the Early, Middle and Late Archaic periods, Formative Period (1,400 to 550 years before present) which is generally divided into the Pioneer Period, Colonial Period, Sedentary Period, and Classic Period, Protohistoric and Early Historic Periods (A.D. 1540 to 1860), and Late Historic Period (A.D. 1860 to 1950).

3.10.1.1 Previous Investigations

On February 18, 2009, Northland Research, Inc. (NRI) conducted a Class III cultural resources survey on approximately 0.70 acre located on top of Growler Mountain. The survey area included former tower site TCA-AJO-189 (Hart 2009). During the survey, three isolated occurrences were observed and recorded. The first isolated occurrence consists of a chipping station of fine-grained gray basalt. Approximately 25 flakes, along with a core and tested core,

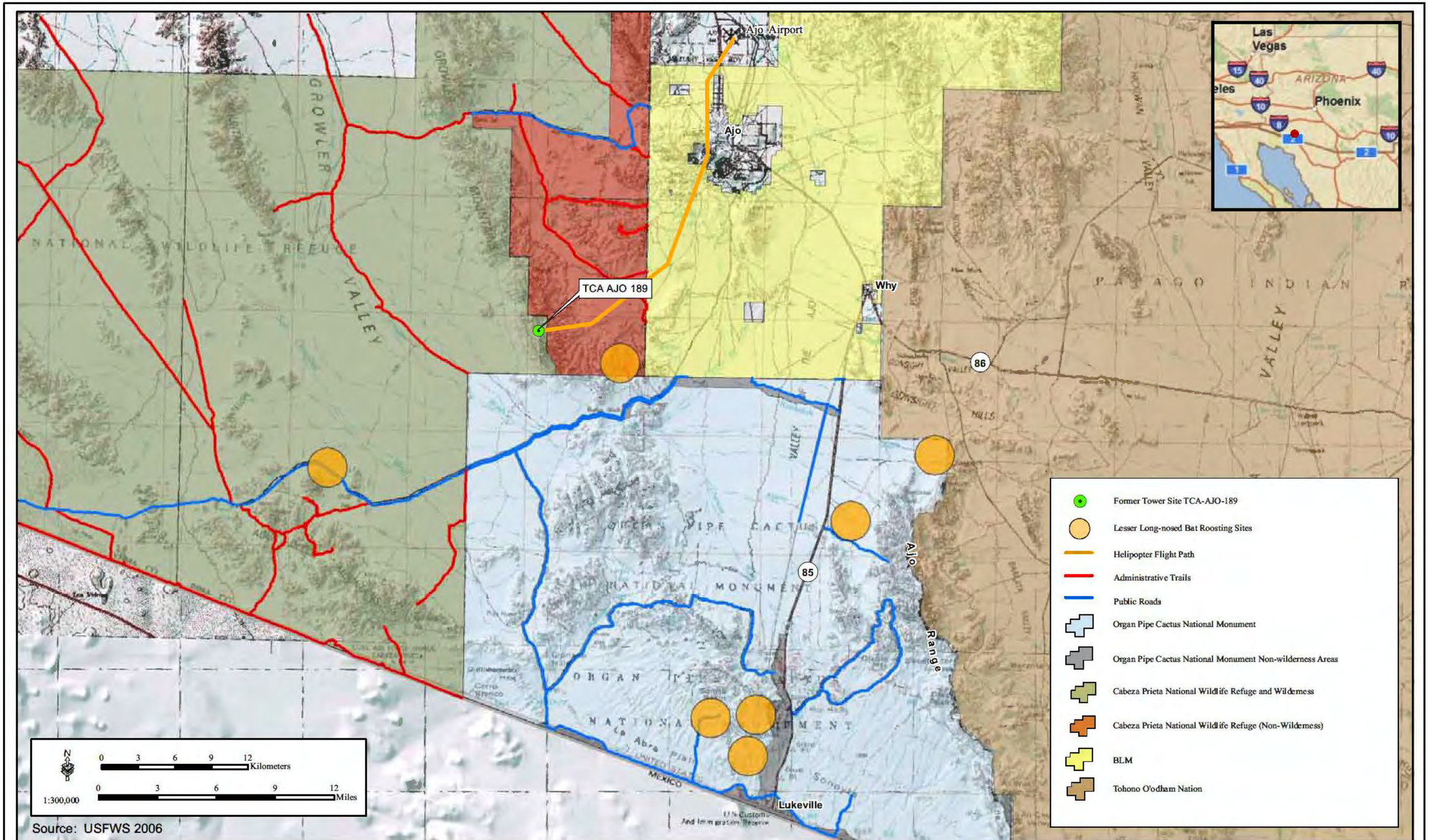

Figure 3-6: Lesser Long-nosed Bat Roosting Sites

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are located in a 6-foot diameter area. The second isolated occurrence consists of an additional chipping station of fine-grained gray basalt. One core, one core fragment, and 38 flakes are located in a 6-foot x 9-foot area. The third isolated occurrence consists of a broken tabular tool. No significant cultural resources were identified during the survey, and NRI determined that no additional archaeological investigations are necessary at the site (Hart 2009).

3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

The No Action Alternative would have no effect, either beneficial or adverse, on cultural resources beyond those described in the 2009 Ajo-1 EA (CBP 2009).

3.10.2.2 Proposed Action

No impacts on cultural resources would be anticipated under the Proposed Action. Previous cultural resources surveys of the former tower site identified no significant cultural resources. If previously unidentified cultural resources are encountered during restoration activities, the contractor will stop all ground-disturbing activities in the vicinity of the discovery until an archaeologist is notified and the nature and significance of the find is evaluated. If human remains are encountered during construction activities, the OTIA environmental manager, CPNWR refuge manager, and law enforcement officials would be contacted immediately.

3.11 AIR QUALITY

3.11.1 Affected Environment

Air quality within the SBI*net* Ajo-1 Tower Project was described in the 2009 Ajo-1 EA, and that discussion is incorporated herein by reference (CBP 2009). In summary, EPA considers Pima County as a moderate non-attainment area for particulate matter less than 10 microns (PM-10). The de minimis threshold for moderate non-attainment for PM-10 is 100 tons of PM-10 air emissions per year (40-CFR 51.853).

3.11.2 Environmental Consequences

3.11.2.1 No Action Alternative

The No Action Alternative would not result in any directs impacts on air quality because there would be no construction activities beyond those described in the 2009 Ajo-1 EA (CBP 2009).

3.11.2.2 Proposed Action

Restoration Activities

Temporary and minor increases in air pollution would occur from the use of construction equipment (combustible emissions) and the disturbance of soils (fugitive dust) during the restoration of former tower site TCA-AJO-189. Potential effects on air quality would be minimized through the implementation of BMPs listed in Section 5.0. Additionally, construction plans would include a Pima County Fugitive Dust Control Construction Permit for surface disturbances and demolition, if required.

The following paragraphs describe the air calculation methodologies utilized to estimate air emissions produced by the Proposed Action. Fugitive dust emissions were calculated using the emission factor of 0.19 ton per acre per month (Midwest Research Institute 1996), which is a

more current standard than the 1985 PM-10 emission factor of 1.2 tons per acre-month presented in AP- 42 Section 13 Miscellaneous Sources 13.2.3.3 (EPA 2001).

EPA's NONROAD Model (EPA 2005a) was used, as recommended by EPA's *Procedures Document for National Emission Inventory, Criteria Air Pollutants, 1985-1999* (EPA 2001), to calculate emissions from construction equipment. Combustible emission calculations were made for standard construction equipment, such as backhoes and power generators. Assumptions were made regarding the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used (Appendix D).

Construction workers would temporarily increase the combustible emissions in the airshed during their commute to and from the Ajo airport. Emissions from delivery trucks contribute to the overall air emission budget. Emissions from delivery trucks and construction worker commuters traveling to the meeting site were calculated using the EPA MOBILE6.2 Model (EPA 2005b, 2005c and 2005d).

The total air quality emissions were calculated for the proposed construction activities occurring in Pima County to be compared to the General Conformity Rule's de minimis threshold. The de minimis threshold (100 tons per year) is the point at which air emissions are significant. If air emissions exceed the 100 tons per year threshold, they are considered a significant impact. Summaries of the total emissions for the Proposed Action are presented in Table 3-1.

Table 3-1. Total Air Emissions (tons/year) from Construction Activities vs. *de minimis* Levels

Pollutant	Total (tons/year)	*de minimis* Thresholds (tons/year)[1]
Carbon Monoxide	4.12	100
Volatile Organic Compounds	0.54	100
Nitrous Oxides	1.49	100
Particulate Matter <10 microns	3.17	100
Particulate Matter <2.5 microns	0.43	100
Sulfur Dioxide	0.10	100
Carbon Dioxide Equivalency	658	27,557

Source: EPA 2010b, 40 CFR 51.853, and GSRC modeled air emissions (Appendix D).
[1] Pima County is in moderate non attainment for PM 10 (EPA 2010b).

Several sources of air pollutants contribute to the overall air impacts of the construction project. The air calculations in Appendix D and in the summary table included emissions from:

1. Combustible engines of construction equipment
2. Construction workers' commute to and from work
3. Supply trucks delivering materials to the Ajo airport
4. Fugitive dust from job-site ground disturbances
5. Post-restoration site maintenance

As can be seen from the table above, the proposed restoration activities do not exceed the de minimis threshold for PM-10 in Pima County and, thus, do not require a Conformity Determination. As there are no violations of air quality standards and no conflicts with the state implementation plans, impacts on air quality would not be considered in the context of the General Conformity Rule.

During the restoration of the project site, proper and routine maintenance of all vehicles and other construction equipment would be implemented to ensure that emissions are within the design standards of all construction equipment. Water would be applied to the project site to properly compact the backfill material placed in the hole. The use of water for compaction would also minimize the emissions of fugitive dust. By using these BMPs, air emissions from the restoration activities would be temporary, and potential effects on air quality in Pima County would be minor.

3.12 NOISE

3.12.1 Affected Environment

Noise is often described as unwanted sound. Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the dB scale is referred to as sound level. The A-weighted dB scale (dBA) takes this into account, emphasizing the frequencies, and is a measure of noise at a given, maximum level or constant state level. The threshold of perception of the human ear is approximately 3 dBA, which is considered barely perceptible. A 5 dBA change is considered to be clearly noticeable. A 10 dBA increase in the measured sound level is typically perceived as being twice as loud.

Former tower site TCA-AJO-189 is located within the Cabeza Prieta Wilderness. Designated wilderness is valued for its quietness and solitude. Anthropogenic noises can degrade the natural soundscape and adversely affect humans and wildlife. Natural soundscapes are composed completely of natural sounds without the presence of human-made sounds. The former tower site is located on lands where noise can adversely affect natural soundscapes. The natural ambient background noise levels on OPCNM were measured and averaged at 20 dBA over a 20-day period (NPS 2009). Background noise levels on CPNWR are assumed to be similar to those measured on OPCNM.

Designated Wilderness

Two important noise emission thresholds are considered in this wilderness noise analysis. First, Federal Highway Administration (FHWA) established a construction noise abatement criterion of 57 dBA for lands, such as National Parks, in which serenity and quiet are of extraordinary significance (23 CFR 722 Table 1). The 57 dBA criterion threshold is used to measure the impacts from short-term noise emissions associated with restoration activities that require the use of heavy equipment (e.g., backfilling).

3.12.2 Environmental Consequences

3.12.2.1 No Action Alternative

Under the No Action Alternative, sensitive noise receptors and wildlife would incur no additional impacts beyond those described in the 2009 Ajo-1 EA (CBP 2009).

3.12.2.2 Proposed Action

The following analysis focuses on short-term noise emissions, which include emissions from construction equipment and helicopter activities involved in the restoration of former tower site TCA-AJO-189. Long-term noise emissions would not occur at the former tower site since a tower is no longer proposed at the site.

Temporary Construction Noise

Temporary noise emissions include noise emissions from construction equipment used for restoration efforts at former tower site TCA-AJO-189. Construction equipment would be used to backfill the hole, compact soil, and grade the site. Table 3-2 describes noise emission levels at a distance of 50 feet for the type of construction equipment to be used for restoration efforts (FHWA 2007). Noise would have to travel up to 1,000 feet before it would be attenuated to an acceptable level of 57 dBA. However, noise emissions associated with construction equipment would be temporary (approximately 10 days) and localized to TCA-AJO-189. Noise emissions, with the exception of intermittent helicopter generated noise, are anticipated to return to ambient levels following the completion of backfilling and grading activities. The Proposed Action would have a temporary, minor adverse effect on designated wilderness.

Table 3-2. A-Weighted (dBA) Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances[1]

Noise Source	50 feet	500 feet	1,000 feet	2,000 feet	3,000 feet
Backhoe / Bobcat	78	57	51	44	39

Source: FHWA 2007 and GSRC

[1] The dBA at 50 feet is a measured noise emission (FHWA 2007). The 500 to 3,000 foot results are GSRC modeled estimates.

Helicopter Noise Emissions

Restoration of TCA-AJO-189 would require the use of a helicopter, and CBP estimates that restoration would require up to 85 total lifts for equipment and materials.

A Kaman K-MAX or similar cargo helicopter would be used to transport equipment, materials, and personnel to restore former tower site TCA-AJO-189. According to the manufacturer's data, the K-MAX helicopter produces noise emissions of 82 dBA at a distance of 300 feet. The noise model predicted that noise emissions of 82 dBA would have to travel 3,838 feet before they would attenuate to acceptable levels of 57 dBA (Figure 3-7). The 57 dBA noise contour produced by helicopter noise would encompass approximately 1,062 acres of land. The model predicts noise levels based on horizontal surfaces and does not take into account slope and altitude. Thus, the acreage potentially impacted by noise emissions is a worst case scenario. Effects from helicopter noise emissions would be localized and considered a temporary, minor adverse effect on designated wilderness.

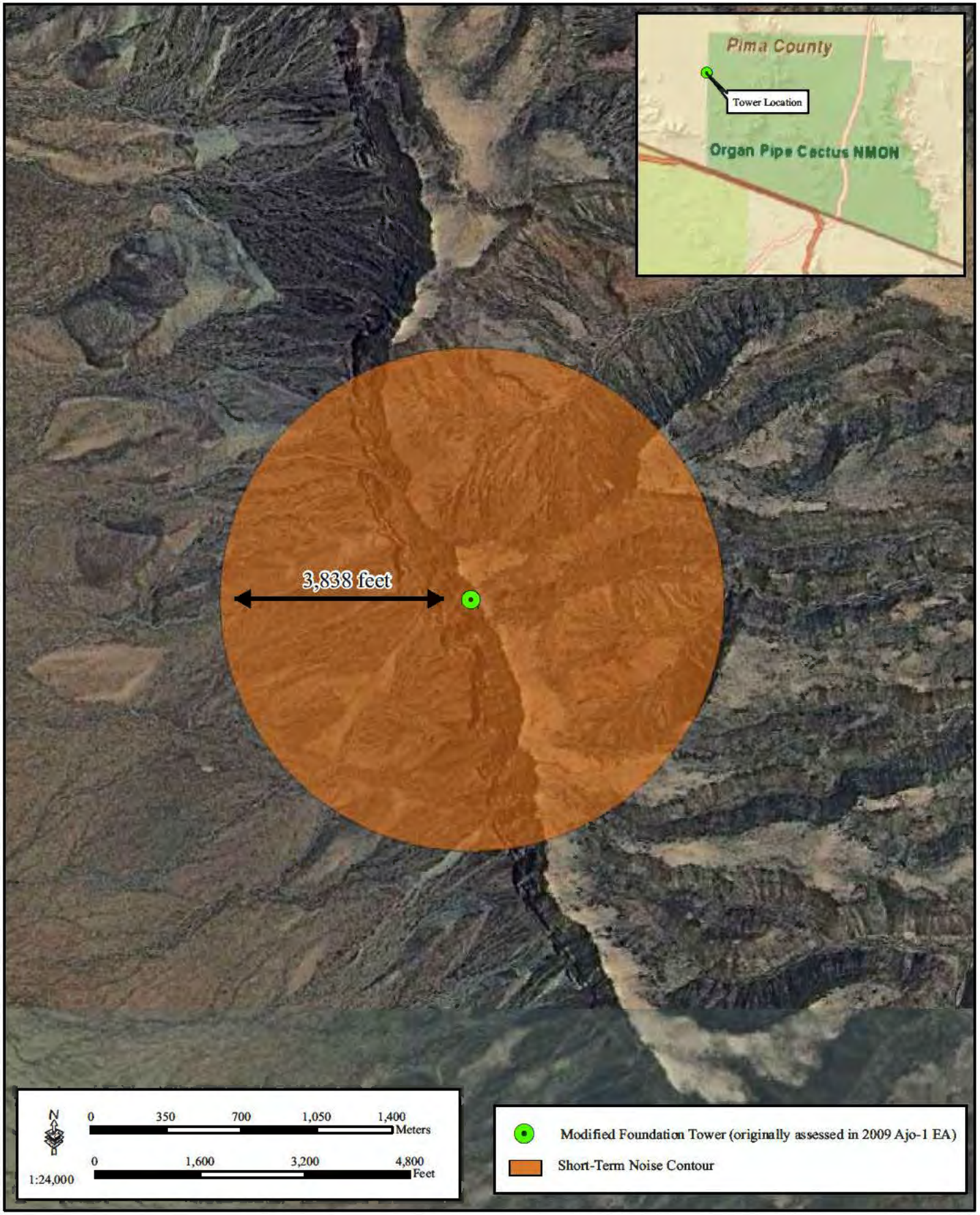

Figure 3-7: Short-term Noise Contours at TCA-AJO-189

3.13 AESTHETIC AND VISUAL RESOURCES

3.13.1 Affected Environment

Sensor and communication towers, as well as general commercial, General Services Administration, CBP-Office of Information and Technology (OIT), U.S. Air Force and USFWS communications towers currently exist adjacent to former tower site TCA-AJO-189. The existing towers affect the aesthetic and visual resources in the project area.

Aesthetic resources vary throughout the project area and include vast open areas of arid desert land, lava flows, mountains, and areas of unique native vegetation. Areas within the project area visited for their natural setting and aesthetic values include OPCNM and CPNWR and their associated wilderness. Former tower site TCA-AJO-189 is located in the Growler Mountains within Cabeza Prieta Wilderness.

3.13.2 Environmental Consequences

3.13.2.1 No Action Alternative

The 2009 Ajo-1 EA indicated that the temporarily disturbed areas associated with the construction of TCA-AJO-189 would be restored following construction (CBP 2009). Under the No Action Alternative, the disturbed area would not be restored and would remain in a degraded state. Currently, the site detracts from the aesthetic values of designated wilderness. However, potential impacts on aesthetics are negligible due to the juxtaposition of the disturbed site to existing P-25 and other agencies' communications equipment currently located on Growler Mountain. The No Action Alternative would have a permanent, moderate adverse effect on aesthetic resources in the project area.

3.13.2.2 Proposed Action

The site would be restored in accordance with the Restoration Plan (CBP 2011) prepared by CBP and approved by USFWS (Appendix B). With completion of the Proposed Action, native vegetation would be reestablished on the approximately 35- x 35-foot disturbance area following the backfilling of the existing hole. The restored site would be similar in appearance and vegetation characteristics (e.g., plant species and plant density) to the adjacent landscape.

Furthermore, the Proposed Action would have an indirect, beneficial impact on aesthetics as a result of eliminating a tower at the former tower site. A viewshed analysis conducted as part of the 2009 Ajo-1 EA indicated that TCA-AJO-189 would have been visible from the Growler Valley within both CPNWR and OPCNM (CBP 2009). The tower would have also been visible from portions of the Valley of the Ajo on OPCNM. The Proposed Action would have a permanent, moderate beneficial impact on aesthetics.

3.14 HAZARDOUS MATERIALS

3.14.1 Affected Environment

Hazardous materials were discussed in the 2009 Ajo-1 EA and are incorporated herein by reference (CBP 2009). Solid and hazardous wastes are regulated in Arizona by a combination of laws promulgated by the Federal, state, and regional Councils of Government. A search of the SBI*net* Ajo-1 Tower Project area was conducted on EPA's Comprehensive Environmental

Response, Compensation, and Liability Information System (CERCLIS). CERCLIS contains information on hazardous waste sites, potential hazardous waste sites, and remedial activities, including sites that are on the National Priorities List (NPL) or being considered for the NPL. The search found no active NPL sites within a 1-mile radius of any of the proposed tower sites located in Pima County, Arizona.

3.14.2 Environmental Consequences

3.14.2.1 No Action Alternative

The No Action Alternative would not contribute any additional hazardous waste or materials to the project area beyond those described in the 2009 Ajo-1 EA (CBP 2009).

3.14.2.2 Proposed Action

The Proposed Action would not result in the exposures of the environment or public to any hazardous materials. During the backfilling and grading of the project site, a potential exists for POL contamination at former tower site TCA-AJO-189 and the Ajo Airport due to the storage of POL material for maintenance and refueling of construction equipment and the helicopter. The quantity of POLs maintained at the project site would be minimal, as construction equipment would be present on-site for no more than 10 days during the backfilling and grading of the site. POLs would be delivered to the Ajo Airport via a fuel truck for the purpose of servicing and refueling the helicopter. The storage of POLs would include primary and secondary containment measures. Cleanup materials (e.g., oil mops) would be maintained on-site for appropriate spill response and cleanup in case an accidental spill occurs. Drip pans would be provided for all on-site stationary construction equipment to capture any POL that is accidentally spilled during maintenance. Containment measures would be used during refueling to capture any fuel spilled during refueling. To ensure oil pollution prevention, the construction contractor would have a Spill Prevention Control and Countermeasure Plan (SPCCP) in place prior to the start of restoration activities as outlined in Section 5.0. The Proposed Action would have a temporary, minor potential to contaminate the environment with hazardous materials.

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SECTION 4.0
CUMULATIVE IMPACTS

4.0 CUMULATIVE IMPACTS

The NEPA regulations define a cumulative impact as an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision making is served by consideration of cumulative impacts resulting from activities that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

4.1 HISTORICAL IMPACTS ON THE SONORAN DESERT

The Sonoran Desert Ecosystem has been impacted by historical and ongoing activities such as ranching, agricultural and urban development, Federal land use including military operations, management for recreation and wildlife, and law enforcement activities. All of these actions have, to a greater or lesser extent, contributed to several ongoing threats to the ecosystem, including loss and degradation of habitat for both common and rare wildlife and plants, and the proliferation of roads and trails. The most substantial impacts of these activities were not or are not regulated by NEPA and did not include efforts to minimize impacts. These include the loss of lesser long-nosed bat maternity roosts, restriction of the Sonoran pronghorn range, the establishment of non-native plants, and the proliferation of roads and trails.

4.2 REASONABLY FORESEEABLE CBP PROJECTS WITHIN AND NEAR THE TUCSON SECTOR

USBP has been conducting law enforcement actions along the United States/Mexico border since its inception in 1924, and has continually transformed its methods as new missions, CBV modes of operation, agent needs, and national enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, and roads and fences have affected hundreds of acres of resources associated with the Sonoran Desert, including the climate and landscapes which support native plants and animals, as well as socioeconomic conditions in border communities.

In recent years, Congress expressed its interest in border security through various legislative enactments and by consistently appropriating significant funds for the construction of fencing, infrastructure, and technology along the border. In FYs 2008, 2009, and 2010, CBP completed construction of up to approximately 358 miles of primary fence in the CBP Sectors of Rio Grande Valley, Marfa, Del Rio, and El Paso, Texas; Tucson and Yuma, Arizona; and El Centro and San Diego, California (SBI 2010). Approximately 5 miles of pedestrian fence was constructed on OPCNM in 2008.

Another CBP initiative, entitled Vehicle Fence 300, constructed approximately 320 miles of vehicle fence in Arizona and California as of September 2010 (SBI 2010). Approximately 15 miles of vehicle fence was constructed on CPNWR. CBP projects recently completed or

reasonably foreseeable in the near future in the Tucson Sector are presented in Table 4-1. OTIA projects which include the construction of towers are currently in the planning phase for Arizona and would include tower construction and access roads in the Naco, Douglas, and Wilcox stations' Areas of Responsibility (Tucson East, 29 towers proposed), Tohono O'odham Nation (30 proposed towers), and in the Ajo and Yuma Sector's Wellton Station Area of Responsibility (CPNWR, 11 proposed towers). The number of proposed towers for these projects may change based on the development of final planning and analysis designs.

Table 4-1. Recently Completed or Reasonably Foreseeable CBP projects within and near the Tucson Sector

Project	Approximate Acres Permanently Impacted
Recent construction of nine communication and sensor towers as part of the SBInet Ajo-1 Tower Project	19
Construction of 15 communication and sensor towers as part of the SBInet Tucson-1 Tower Deployment in 2009.	8
Recent construction of 36 miles of hybrid barrier and the proposed construction of 35 miles of patrol and drag road, eight water wells, two new temporary staging areas, five existing staging areas, and approximately 7.5 miles of improvements to north-south access roads on the BMGR.	189
Recent expansion of the USBP Ajo Station in Why, Arizona (including one tower).	30
Construction of approximately 15 miles of vehicle fence and north-south access road improvements on the CPNWR (VF 300).	115
Construction of approximately 37 miles of permanent vehicle barrier, improvements to approximately 37 miles of access road, construction of 1 mile of new road, and installation of approximately 1.5 miles of temporary vehicle barriers on the CPNWR.	186
Recent construction of 80 miles of all-weather patrol road and construction of 50 miles of PVBs on TON, as well as a construction access road for the installation and maintenance of the PVBs.	72
Recent relocation of the USBP FOB from Bates Well to the western boundary of the OPCNM.	1
Proposed expansion of the FOB near tower sites TCA-AJO-302 from 1 acre to 3 acres. The FOB would have two modular buildings for agent support and detention of CBVs and would be similar to the existing facility at Papago Farms on the Tohono O'odham Nation.	3
Ongoing Land Mobile Radio Modernization Project – installed 68 communications antennas throughout AZ on existing structures.	0
Proposed installation of four-antenna sites on CPNWR (3) and Coronado National Forest (1) as part of the Land Mobile Radio Modernization Project.	1
Installation of 26 emergency beacons within the CPNWR and BMGR.	0
Proposed construction of vehicle fence on the Tohono O'odham Nation (VF 300).	41
Proposed tower construction and access roads for SBI*net* Yuma/BMGR project.	9*
Proposed tower construction and access roads for SBI*net* CPNWR project.	2*
Proposed tower construction and access roads for SBI*net* Tucson East project.	5*
Proposed tower construction and access roads for SBI*net* Tohono O'odham project.	30*

* These are only initial planning estimates based on tower impacts and currently does not include roads.

All CBP actions have been in support of the agency's mission to gain and maintain control of the United States border. Infrastructure projects have supported the operational methods determined to be the most effective approach to achieving the agency's mission. Each of these projects has

been compliant with NEPA, and measures to avoid, minimize, or mitigate for the adverse effects on the human and natural environments have been developed and implemented on a project-specific basis. With continued funding and implementation of BMPs developed as part of past, ongoing, and future actions, including environmental education and training of CBP agents and officers, as well as the use of biological and archaeological monitors, wildlife water systems, wildlife forage plots, and restoration activities, the direct impacts of these projects have been and would be prevented or minimized.

Operational impacts have also occurred as part of required CBV interdiction activities. USBP agents patrol the United States/Mexico international border and adjacent lands in the United States using a variety of transportation, including foot, horse, ATV, trucks, and aircraft. Both CBV traffic and resulting required law enforcement traffic have disturbed existing roads, and off-road travel has affected natural resources. Traffic volume and travel speed has increased on existing OPCNM and CPNWR authorized roads. These changes have necessitated increased road maintenance and road widening. However, infrastructure (i.e., vehicle barriers) and technology (i.e., Mobile Surveillance Systems) projects serve as force multipliers, allowing for increasingly efficient interdiction activities and consequent increased deterrence of CBVs, thereby reducing the level of cross-border crime and thus reducing the required enforcement footprint.

An example of the effectiveness of this application of force multipliers is seen in the USBP enhanced operations in Yuma Sector in 2007. At that time, Yuma Sector was one of the busiest locations for illegal entry into the United States. Within one year of enhancing operations, Yuma Sector saw a decrease in activity from 33,405 arrests to 7,077. Since 2005 (when the traffic was highest) there has been a 95 percent decrease in cross-border violations in the sector (99,491 arrests in 2005 vs. 5,287 in 2009) (CBP 2009). Yuma Sector's strategy involved the balanced deployment of personnel, technology, and infrastructure specific to the operational environment. Following implementation, illegal entries declined drastically and were effectively confined to the immediate border. USBP's presence within rural and remote areas did not decrease significantly initially, but rather was focused on patrolling the immediate border area. Their presence was significantly concentrated as opposed to being scattered over a larger area. This concentration of patrol efforts to the immediate border area has reduced the patrol area of the USBP and consequently reduced the environmental impacts associated with USBP operations (CBP 2009).

4.3 OTHER AGENCY/ORGANIZATIONS PROJECTS

Projects are currently being planned by other Federal entities which may affect areas in use by CBP. CBP maintains close coordination with these agencies to ensure that CBP activities do not conflict with other agencies' policies or management plans. CBP would consult with applicable state and Federal agencies prior to performing any construction activities and would coordinate operations so that they do not inappropriately impact the mission of other agencies. Other agencies, such as BLM, U.S. Air Force, NPS, and USFWS, routinely prepare or update Resource Management Plans for the resources they manage. The following is a list of projects other Federal agencies and tribes are conducting or have completed within the last 4 years within the United States/Mexico border region.

OPCNM

- Construction of parking at OPCNM entrance sign
- Realignment of the Alamo Canyon Road
- Repair of the Kuakatch berm
- Construction of a USBP horse trailer pull-out off of SR 85
- Construction of corridor access to TCA-AJO-170
- Construction of an access road to Tower 310
- Proposed installation of approximately 2 miles of new water line from the Visitor Center to the campgrounds
- Ongoing efforts to reduce water loss from Quitobaquito Pond
- Ongoing facilities maintenance projects including installation of gates along park administrative roads, reconstruction of picnic ramadas, rehabilitation of the campground dump station, and culvert replacement
- Construction of two new office buildings for law enforcement operations and the resource division.
- Construction of 30 miles of vehicle fence on OPCNM

Marine Corps Air Station (MCAS)-Yuma

MCAS-Yuma conducts military flights over CPNWR and Barry M. Goldwater Range, operates various training facilities, such as landing strips and a rifle range, and conducts Weapons Tactics Instructor courses. The courses are conducted twice a year and involve overflights and ground-based activities such as movement of troops and vehicles at ground-support areas. Ordnance delivery occurs in two locations within the range of Sonoran pronghorn. MCAS-Yuma implements measures to minimize destruction and degradation of habitat and closely monitors all activities which may disturb or harm pronghorn.

Luke Air Force Base, Barry M. Goldwater Range

Military activities within BMGR-east (the area nearest CPNWR and the Sonoran pronghorns range) include: use of airspace, four manned air-to-ground ranges, three tactical air-to-ground target areas, four auxiliary airfields, use of Stoval Airfield, and an explosive ordnance disposal burn area. Luke Air Force Base has committed to implementing measures to minimize impacts on Sonoran pronghorn and to implementing recovery projects recommended by the Sonoran Pronghorn Recovery Team.

CPNWR

Activities on CPNWR include the construction of forage-enhancement plots and waters as part of Sonoran pronghorn recovery efforts. Additionally, a semi-captive breeding pen is maintained on CPNWR as part of an emergency recovery program for Sonoran pronghorn.

4.4 IDENTIFICATION OF CUMULATIVE EFFECTS ISSUES

Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis, the intensity of impacts will be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3.1.

Cumulative impacts associated with the implementation of the SBI*net* Ajo-1 Tower Project were analyzed in the 2009 Ajo-1 EA for the SBI*net* Ajo-1 Tower Project (CBP 2009). Due to the short time period between release of the 2009 Ajo-1 EA (CBP 2009) and preparation of this SEA, the cumulative impacts presented in the 2009 Ajo-1 EA (CBP 2009) are still valid and herein incorporated by reference (CBP 2009). Further, the restoration of tower site TCA-AJO-189 to pre-project conditions would not change the significance of cumulative impact findings presented in the 2009 Ajo-1 EA (CBP 2009). Therefore, the Proposed Action analyzed in this SEA would have no to negligible cumulative effects on radio frequency environment, utilities and infrastructure, floodplains, surface waters and waters of the U.S., vegetation, hazardous materials, cultural resources, protected species (i.e., lesser long-nosed bat), socioeconomics, roadway and traffic, environmental justice issues, and sustainability and greening would be anticipated under the Proposed Action. A minor cumulative effect on soils, air quality, wildlife, and protected species (i.e., Sonoran pronghorn) would also be anticipated. The Proposed Action would result in a moderate cumulative effect on land use, noise, wilderness, groundwater, and aesthetics.

4.5 SUMMARY

No potentially major cumulative effects have been identified for further analysis. When combined with the beneficial effects of other similar measures, the proposed project would ultimately result in cumulative beneficial effects on these resources.

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SECTION 5.0
MITIGATION MEASURES

5.0 MITIGATION MEASURES

It is CBP's policy to reduce impacts through a sequence of avoidance, minimization, mitigation, and compensation. This chapter describes those measures that would be implemented to reduce or eliminate potential adverse impacts on the human and natural environment. Many of these measures have been incorporated as standard operating procedures by CBP on past projects. Environmental design measures are presented for each resource category potentially affected. These are general mitigation measures; the development of specific mitigation measures would be required for certain activities implemented under the Proposed Action. The specific mitigation measures would be coordinated through appropriate agencies and land managers or administrators, as required. Mitigations vary and include activities such as restoration of habitat in other areas, acquisition of lands, implementation of BMPs, and typically are coordinated with the USFWS and other appropriate Federal and state resource agencies.

5.1 PROJECT PLANNING/DESIGN – GENERAL CONSTRUCTION

CBP will ensure that restoration efforts follow DHS *Directive 025-01* for Sustainable Practices for Environmental, Energy, and Transportation Management.

A CBP-approved SPCCP will be developed and implemented at restoration and maintenance sites to ensure that any toxic substances are properly handled and that escape into the environment is prevented. Agency standard protocols will be used. Drip pans will be placed underneath parked or stationary equipment, containment zones will be used when refueling vehicles or equipment, and other measures will be included.

All BMPs to be implemented by the project contractor will be included in the contract.

5.2 GENERAL CONSTRUCTION ACTIVITIES

CBP will avoid contamination of ground and surface waters by storing any water that has been contaminated with construction materials, oils, equipment residue, etc., in closed containers on-site until removed for disposal. Storage tanks must have proper air space (to avoid rainfall-induced overtopping), be on-ground containers, and be located in upland areas instead of washes.

CBP will avoid nighttime lighting impacts by conducting restoration activities during daylight hours only.

CBP will not use natural sources of water for restoration or irrigation purposes to avoid transmitting disease vectors, introducing invasive non-native species, and depleting natural aquatic systems.

All irrigation components will be temporary and removed when the restoration goals are met. Irrigation equipment will be removed from the site after 1 year following the initial planting if the site is accepted by USFWS.

CBP and its contractor will minimize site disturbance and avoid attracting predators by promptly removing waste materials, wrappers, and debris from the site. Any waste that must remain more than 12 hours should be properly stored until disposal.

CBP will notify the USFWS 2 weeks before any construction activities begin, and within 1 week after project construction activities are completed.

All BMPs to be implemented by the project contractor will be included in the contract.

5.3 SOILS

Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during construction. All work shall cease during heavy rains and will not resume until conditions are suitable for the movement of equipment and material.

CBP will implement environmental design measures, such as straw wattles and wetting compounds to decrease erosion and sedimentation.

CBP will implement erosion control measures and appropriate BMPs before and during restoration activities, as appropriate.

CBP will place drip pans under stationary equipment and use containment zones when refueling vehicles or equipment.

5.4 VEGETATIVE HABITAT

Salvage, transplantation, and container planting will be done in accordance with a restoration plan approved by the land manager and USFWS that includes success criteria and monitoring.

All plant material will be obtained from the CPNWR to maintain a local plant source. Plant material will be obtained by harvesting cuttings from donor plants at locations identified by CPNWR personnel.

Fill material (gravel and topsoil) brought in from outside the project area will be identified by its source location. Sources will be used that are clean and weed-free.

Certified weed and weed-seed free natural materials (e.g., straw) will be used for on-site erosion control to avoid the spread of non-native plants.

The site will be surveyed for the presence of exotic plant species. If exotic plant species that are not already established in the surrounding landscape are encountered within the restoration action area, they will be documented and OTIA will coordinate with USFWS concerning corrective actions.

CBP will avoid the spread of non-native plants by using certified weed and weed-seed free natural materials (e.g., straw) for on-site erosion control if natural materials must be used.

5.5 WILDLIFE AND AQUATIC RESOURCES

The Migratory Bird Treaty Act (16 U.S.C. 703-712, [1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989]) requires that Federal agencies coordinate with the USFWS if a construction activity would result in the take of a migratory bird. If restoration activities are scheduled during nesting seasons (February 15 through August 31), surveys will be performed to identify active nests. If restoration activities result in the take of a migratory bird, then coordination with the USFWS will be required and applicable permits would be obtained prior to construction or clearing activities. Another mitigation measure that may be employed is to schedule all restoration activities outside nesting seasons, negating the requirement for nesting bird surveys.

CBP will not permit any pets inside the project area or adjacent native habitats. This BMP does not pertain to law enforcement animals.

Biological monitors will check underneath construction equipment for wildlife species (e.g., desert tortoise) prior to moving equipment that has been idle for more than 1 hour.

5.6 PROTECTED SPECIES

CBP will minimize impacts on Sonoran pronghorn and their habitat by using flagging or temporary fencing to clearly demarcate project construction area perimeters. Soil and vegetation outside the construction area perimeter will not be disturbed.

CBP will minimize impacts on listed species and their habitats by using areas already disturbed by past activities for staging, parking, laydown, and equipment storage. If site disturbance is unavoidable, CBP will minimize the area of disturbance by scheduling deliveries of materials and equipment to only those items needed for ongoing project implementation.

CBP will minimize impacts on listed species and their habitats by limiting grading or topsoil removal to areas where this activity is absolutely necessary for construction, staging, or maintenance activities.

CBP will minimize impacts on listed species and their habitats by obtaining materials that are clean, such as gravel or topsoil, from existing developed or previously used sources, not from undisturbed areas adjacent to the project area.

CBP will minimize the number of construction and maintenance trips to the tower site.

To minimize impacts on endangered species, CBP will follow a helicopter ingress/egress route to the project site that avoids or minimizes flight activity in Sonoran pronghorn habitat as specified by USFWS. The Restoration Plan has been designed to include the minimum number of helicopter lifts necessary.

All vehicular traffic associated with restoration efforts will use designated/authorized roads to access the sites, and avoiding off-road vehicle activity outside of the project footprint.

CBP will minimize potential animal collisions, particularly with Sonoran pronghorn, by not exceeding speed limits of 25 mph on all unpaved roads.

Any collisions with Sonoran pronghorn will be reported to USFWS-AESO via telephone and electronic mail as soon as practicable, but no later than 12 hours after the collision. Information to be relayed will include: a) location of the collision, b) date and time of the collision, c) type of vehicle, and d) a description of the collision to include the outcome and a photograph of the Sonoran pronghorn (if available).

CBP will place restrictions on restoration activities during the Sonoran pronghorn fawning season (March 15 to July 31) to avoid and minimize disturbance to females and fawns.

CBP will provide for an on-site biological monitor to be present during work activities for all construction activities. The biological monitor will have the following duties: ensure and document that agreed-upon measures to minimize and avoid impacts on listed species and BMPs are properly implemented, send a weekly summary report via electronic mail to the CPNWR and USFWS-AESO following CBP review, and notify the construction manager (who has the authority to temporarily suspend activities) when construction activities are not in compliance with all agreed-upon BMPs.

The biological monitor shall report all detections of Sonoran pronghorn via electronic mail or phone to USFWS-AESO and the CPNWR within 24 hours of any detection. The electronic mail will include the following details: a) if known, the coordinates and a description of the locations where the pronghorn was detected, b) the date and time of the detection, c) the method used to make the detection, and d) as available, other pertinent details, such as the behavior of the Sonoran pronghorn (i.e. standing, foraging or running).

All project personnel will report detections of Sonoran pronghorn to the biological monitor.

5.7 WATER RESOURCES

Standard construction procedures will be implemented to minimize potential for erosion and sedimentation during restoration activities. All work shall cease during heavy rains and will not resume until conditions are suitable for the movement of equipment and material.

All fuels, waste oils, and solvents will be collected and stored in tanks or drums within secondary containment areas consisting of an impervious floor and bermed sidewalls capable of holding the volume of the largest container stored therein. The refueling of machinery will be completed following accepted guidelines, and all vehicles will have drip pans during storage and parking to contain minor spills and drips.

CBP will avoid impacts on groundwater by obtaining treated water from outside the immediate area for restoration use.

5.8 CULTURAL RESOURCES

If human remains are encountered, the OTIA Environmental Manager, the CPNWR refuge manager, and the appropriate law enforcement authorities per the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq., 43 CFR 10, as updated) will be contacted. Descendant tribal communities will be notified of the inadvertent discovery, and consultation will be initiated through CPNWR.

5.9 AIR QUALITY

Mitigation measures will be incorporated to ensure that fugitive dust and other air quality constituents' emission levels do not rise above the minimum threshold as required per 40 CFR 51.853(b)(1), (2). Standard construction BMPs such as routine watering of the construction site will be used to control fugitive dust and thereby assist in limiting potential PM-10 emissions during restoration of the site. Additionally, all construction equipment and vehicles will be required to be kept in good operating condition to minimize exhaust emissions.

5.10 NOISE

During backfilling and grading, temporary noise impacts are possible. All applicable Occupational Safety and Health Administration regulations and requirements will be followed. Construction equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the potential temporary noise impacts to an insignificant level in and around the construction site.

CBP will avoid noise impacts during the nighttime by conducting restoration activities during daylight hours only.

5.11 HAZARDOUS MATERIALS

BMPs will be implemented as standard operating procedures during all restoration activities, and will include proper handling, storage, and/or disposal of hazardous and/or regulated materials.

To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein.

Refueling of machinery will be completed in accordance with accepted industry and regulatory guidelines.

Any spills will be contained immediately and cleaned up using the appropriate methods for the spill.

To ensure pollution prevention, an SPCCP will be in place prior to the start of restoration activities and all personnel will be briefed on the implementation and responsibilities of this

plan. All spills will be reported to the OTIA environmental manager and the CPNWR refuge manager. Furthermore, a spill of any petroleum liquids (e.g., fuel) or material listed in 40 CFR 302 Table 302.4 of a reportable quantity will be cleaned up and reported to the appropriate Federal and state agencies.

CBP and its contractor(s) will contain non-hazardous waste materials and other discarded materials, such as construction waste, until removed from the restoration site.

CBP and its contractor(s) will recycle all waste oil and solvents. All non-recyclable hazardous and regulated wastes will be collected, characterized, labeled, stored, transported, and disposed of in accordance with all applicable Federal, state, and local regulations, including proper waste-manifesting procedures.

CBP and its contractor(s) will avoid contamination of ground and surface waters by storing any water that has been contaminated with construction materials, oils, equipment residue, etc., in closed containers on-site until removed for disposal. Storage tanks will be on-ground containers, have proper air space to avoid rainfall-induced overtopping, and be located in upland areas instead of washes.

All construction will follow DHS *Directive 025-01* for Sustainable Practices for Environmental, Energy, and Transportation Management.

SECTION 6.0
REFERENCES

6.0 REFERENCES

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SECTION 7.0
ACRONYMS AND ABBREVIATIONS

7.0 ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AESO	Arizona Ecological Services Office
AGFD	Arizona Game and Fish Department
amsl	above mean sea level
AZDC	Arizona Department of Commerce
BLM	Bureau of Land Management
BMGR	Barry M. Goldwater Range
BMP	best management practices
BO	Biological Opinion
CBP	U.S. Customs and Border Protection
CBV	cross-border violator
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CPNWR	Cabeza Prieta National Wildlife Refuge
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DHS	Department of Homeland Security
DOI	Department of Interior
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FOB	forward operating base
FR	Federal Register
GSRC	Gulf South Research Corporation
INS	Immigration and Naturalization Service
LOS	line of sight
MCAS	Marine Corps Air Station
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRA	Minimum Requirement Analysis
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resource Conservation Service

NRHP	National Register of Historic Places
NRI	Northland Research Incorporated
OIT	Office of Information and Technology
OTIA	Office of Technology Innovation and Acquisition
OPCNM	Organ Pipe Cactus National Monument
P-25	Project 25
PM-10	particulate matter measuring less than 10 microns
P.L.	Public Law
POE	port of entry
POL	petroleum, oil, and lubricants
SBI	Secure Border Initiative
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Office
SPCCP	Spill Prevention Control and Countermeasure Plan
SR 85	State Highway 85
TI	tactical infrastructure
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
USIBWC	U.S. Section, International Boundary and Water Commission
WSC	Wildlife of Special Concern

SECTION 8.0
LIST OF PREPARERS

8.0 LIST OF PREPARERS

The following people were primarily responsible for preparing this Supplemental Environmental Assessment.

Name	Agency/Organization	Discipline/Expertise	Experience	Role in Preparing EA
Patience E. Patterson, RPA	CBP, OTIA	Archaeology	30 years professional archaeologist/cultural resource and NEPA manager	SEA Review
Paula Miller	CBP, OTIA	NEPA/Legal	30 years of environmental compliance law and NEPA compliance	SEA Review
Chris Ingram	GSRC	Biology/Ecology	32 years EA/EIS studies	SEA review
Suna Adam Knaus	GSRC	Forestry/Wildlife	21 years of natural resources studies and NEPA	SEA review
Howard Nass	GSRC	Forestry/Wildlife	20 years of natural resources studies and NEPA	Project Manager - SEA preparation (Wilderness and Aesthetics) and review
Shanna McCarty	GSRC	Forestry	3 years natural resource studies, 2 years NEPA	SEA preparation (Socioeconomics, Land Use, Radio Frequency, Sustainability/Greening, Vegetation, Wildlife, and Protected Species) and biological surveys
Denise Rousseau Ford	GSRC	Environmental Engineering	Over 15 years of environmental experience	Hazardous Waste
John Lindemuth	GSRC	Archaeology	16 years professional archaeologist/cultural resources	SEA preparation (Cultural Resources)
Steve Kolian	GSRC	Environmental Studies	10 years experience environmental science	SEA preparation (Noise, Floodplains, Air Quality, Roadways and Traffic)
Sherry Ethell	GSRC	Environmental Studies	17 years NEPA and natural resources	SEA review
Maria Bernard Reid	GSRC	Environmental Studies	7 years NEPA and natural resources	EA review
Dan Ginter	GSRC	Botany	9 years of natural resources experience	Biological surveys
Sharon Newman	GSRC	GIS/graphics	17 years GIS/graphics experience	GIS/graphics

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APPENDIX A
CORRESPONDENCE

From: PATTERSON, PATIENCE E [patience.patterson@dhs.gov] on behalf of AJOSEACOMMENTS [Ajoseacomments@dhs.gov]

Sent: Friday, January 28, 2011 12:53 PM

To: Ginger Ritter

Cc: Howard Nass

Subject: RE: SBInet Program

Dear Ms. Ritter:
Thanks for your email. The completion of the AJO-1 tower project is still on-going and has not been cancelled in the sense of stopping. This project will go to completion. After extensive review, Secretary Napolitano has directed CBP to end SBInet as originally conceived and instead implement a new border security technology plan, which will utilize existing, proven technology tailored to the distinct terrain and population density of each border region.
Our nation's border security is still very much a high priority and projects to enhance border security will continue.
Please do provide comments on the Supplemental Draft EA that you have mentioned. As our other projects move forward, we will be in touch to share future information regarding our environmental compliance requirements.
Thank you very much.
Sincerely,
Patience

Patience E. Patterson, RPA
Manager, Environmental Resources
Office of Technology Innovation and Acquisition US Customs and Border Protection
1901 S. Bell Street - 7th Floor - #734
Arlington, VA 20598
Desk: (571) 468-7290
Cell: (202) 870-7422
Fax: (571) 468-7391
patience.patterson@dhs.gov

From: Ginger Ritter [mailto:GRitter@azgfd.gov]
Sent: Wednesday, January 26, 2011 4:24 PM
To: AJOSEACOMMENTS
Subject: SBInet Program

Hello,

I'm contacting you to find out if you are still moving forward with this project (SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, US Border Patrol Tucson Sector, AZ). If so, I will proceed with review of the SEA and submit comments.

Ginger Ritter
Project Evaluation Program Specialist

Phone: 623-236-7606
Fax: 623-236-7366

Arizona Game and Fish Department-WMHB
5000 West Carefree Highway
Phoenix, Arizona 85086

If you want to learn ways to get connected to the outdoors, visit http://www.azgfd.gov/getoutside .

Sign up for enews:
Receive the latest news and information on wildlife issues and events, outdoor tips, education programs, regulations, and more...
http://www.azgfd.gov/eservices/subscribe.shtml

From: PATTERSON, PATIENCE E [patience.patterson@dhs.gov] on behalf of AJOSEACOMMENTS [Ajoseacomments@dhs.gov]

Sent: Friday, January 28, 2011 12:53 PM

To: Howard Nass

Subject: FW: SBInet Program

Howard,

I just responded to this email.

Paddie

From: Ginger Ritter [mailto:GRitter@azgfd.gov]
Sent: Wednesday, January 26, 2011 4:24 PM
To: AJOSEACOMMENTS
Subject: SBInet Program

Hello,

I'm contacting you to find out if you are still moving forward with this project (SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, US Border Patrol Tucson Sector, AZ). If so, I will proceed with review of the SEA and submit comments.

Ginger Ritter
Project Evaluation Program Specialist

Phone: 623-236-7606
Fax: 623-236-7366

Arizona Game and Fish Department-WMHB
5000 West Carefree Highway
Phoenix, Arizona 85086

If you want to learn ways to get connected to the outdoors, visit http://www.azgfd.gov/getoutside .

Sign up for enews:

Receive the latest news and information on wildlife issues and events, outdoor tips, education programs, regulations, and more...

http://www.azgfd.gov/eservices/subscribe.shtml

From: PATTERSON, PATIENCE E [patience.patterson@dhs.gov] on behalf of AJOSEACOMMENTS [Ajoseacomments@dhs.gov]
Sent: Thursday, February 03, 2011 9:38 AM
To: Howard Nass
Subject: FW: Draft Supplemental Environmental Assessment for SBInet Ajo 1 Tower Project

Importance: High

Howard,
See below.
Paddie

From: Wendy S. LeStarge [mailto:LeStarge.Wendy@azdeq.gov]
Sent: Wednesday, February 02, 2011 4:03 PM
To: AJOSEACOMMENTS
Cc: Linda C. Taunt
Subject: Draft Supplemental Environmental Assessment for SBInet Ajo 1 Tower Project

On behalf of Linda Taunt, Deputy Division Director of the Arizona Department of Environmental Quality, Water Quality Division (ADEQ):

We received the Draft Supplemental Environmental Assessment and Proposed Finding of No Significant Impact for the SBInet Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona. We agree with the mitigation measures, if required, of a Clean Water Act section 404 permit, and a Construction General Permit under the Arizona Pollutant Discharge Elimination System program. ADEQ does not see any other impacts related to water quality. We appreciate the opportunity to review and provide comments.

Wendy LeStarge
Environmental Rules Specialist
Arizona Department of Environmental Quality
Water Quality Division
(602) 771-4836

National Optical Astronomy Observatory

Kitt Peak National Observatory • Cerro Tololo Inter-American Observatory • NOAO Gemini Science Center

7 February 2011

Ms. Patience E. Patterson, RPA
U.S. Department of Homeland Security
SBI*net* Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, VA 20598

Dear Ms. Patterson,

In response to the SBInet Ajo-1 Tower Project draft SEA and proposed FONSI, the following comments are submitted on behalf of numerous astronomical observatories in the area. For reference, we attach our previous comments on the draft EAs for the Ajo-1 and Tucson West projects since both projects raised similar concerns. Also appended below is an email sent to ajoseacomments@cbp.dhs.gov on 7 Feb. 2011 regarding the SEA for the Ajo-1 project, from Harvey Liszt who serves as Spectrnm Manager for the National Radio Astronomy Observatory (NRAO).

Kitt Peak National Observatory (KPNO) hosts the facilities of consortia that operate two radio telescopes (for the NRAO and the Arizona Radio Observatory) and numerous optical telescopes on Kitt Peak. Given that our radio observatories operate in the frequency range identified and given our prior comments (attached), we do not feel that a FONSI is appropriate. This applies even for the alternative cases in the Ajo-1 draft SEA which note that the RF environment would not result in significant adverse impacts to observatories (Section 3.14.2.3 on p. 3-51) and that transmitters and sensors would operate below 30 GHz and would not result in significant adverse impacts to observatories (Table 2-3 on p. 2-27). Our observatories operate at frequencies in this range and thorough analysis needs to be performed before such claims can be made (ref. Appendix 4 of this email's attachment: filename 080705.SBInetTucsonWestEAComments.final.pdf). We urge the DHS and SBI*net* planning and engineering teams to coordinate all proposed RF devices with the NSF, NRAO, and KPNO.

Kitt Peak National Observatory (KPNO) is part of the National Optical Astronomy Observatory (NOAO). NOAO is the national center for ground-based nighttime astronomy in the USA and is operated by the Association of Universities for Research in Astronomy (AURA) under cooperative agreement with the National Science Foundation (NSF).

National Optical Astronomy Observatory

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We are pleased to see the statements in Section 3.15.1.2 on p. 3-52 that none of the towers currently planned would be constructed at heights greater than 180 feet and the implication that they might not be lit other than if unavoidable during nighttime construction. We suggest clarifying that statement to say that the towers would not be lit when not required by FAA regulations and that when lighting is required, steady red would be used (ref. this email's attachment: 091010.SBInetAjo1EAComments.final.pdf).

We suggest that the last paragraph (Section 3.15.1.2 on p. 3-52) referring to nighttime construction be corrected from "bulbs designed to ensure minimal increase in lighting would be minimized" to a more appropriate statement. We believe the intent was to minimize impact and this is done through a combination of techniques including reducing lighting levels to the minimum required, having no light emitted above the horizontal, using low-pressure sodium lamps when possible, and ensuring that lights are turued off when work is complete each evening that nighttime work is unavoidable.

Our observatories have extensive experience working with our communities to address lighting and radio frequency interference issues. We offer our assistance in assessing the issues and appropriate mitigation measures. The KPNO director's office has offered to serve as a single point of contact for questions or comments based on this submission. Please contact Elizabeth Alvarez at ealvarez@noao.edu or 520-318-8414.

Sincerely,

Elizabeth M. Alvarez del Castillo

Assistant to the Director
Kitt Peak National Observatory / NOAO

950 North Cherry Avenue • P.O. Box 26732, Tucson, Arizona 85726
www.noao.edu • Phone: 520.318.8000

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Appended for Reference: Comments submitted from Harvey Liszt, NRAO

Subject: NRAO Comments on SBInet Ajo-1 Tower Project draft SEA and proposed FONSI
Date: Mon, 07 Feb 2011 16:58:18 -0500
From: Harvey Liszt <hliszt@nrao.edu>
Reply-To: hliszt@nrao.edu
Organization: National Radio Astronomy Observatory, CV
To: ajoseacomments@cbp.dhs.gov

Dear Sirs:

On behalf of the National Radio Astronomy Observatory (NRAO, see http://www.nrao.edu) that operates the 25-m VLBA telescope on Kitt Peak using various frequency bands between 608 MHz and 89 GHz.

With regard to statements in your documentation such as

"Transmitters and sensors associated with the SBInet Ajo-1 Tower Project would operate below 30 GHz. Therefore, the RF environment ... would not result in significant adverse impacts to observatories ... "

and

"The Modified Foundation Alternative would have a similar design and equipment as TCA-AJO-189; therefore, impacts from the Modified Foundation Alternative would be similar to those described for Proposed Action in the 2009 Ajo-1 EA (CBP 2009). Transmitters and sensors associated with the SBInet Ajo-1 Tower Project would operate below 30 GHz. Therefore, the RF environment created by the installation, operation and maintenance of the communication system on the proposed tower would not result in significant adverse impacts to observatories, human safety or the natural environment."

The assertion that, because they operate only below 30 GHz, your towers will have no effect on the environment, appears not to account for the operation of a radio telescope in the same frequency range on Kitt Peak. Detailed studies of the potential for interference to radio astronomy, recognizing international standards, must be conducted before such a conclusion may safely be made.

regards, Harvey Liszt

Smithsonian Astrophysical Observatory

Fred Lawrence Whipple Observatory

October 9, 2009

Ms. Patience E. Patterson, RPA
U.S. Department of Homeland Security
SBInet Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, VA 20598

Dear Ms. Patterson,

In response to the SBInet Ajo-1 Tower Project Environmental Assessment (EA) and Proposed FONSI, the following comments are submitted on behalf of numerous astronomical observatories in the area affected by the proposed SBInet Ajo-1 Tower Project. Since the Ajo-1 EA seems to echo the Tucson West Draft EA, we have attached our previous letter of comment for the Tucson West EA for your reference.

We are glad to see the Ajo-1 EA does contain language addressing certain outdoor lighting concerns. We have included comments recommending more precise language and lighting practices that would reduce harm to optical astronomy. White strobe lights on towers are particularly troublesome. In addition, the SBInet towers are to work in conjunction with highway checkpoints, yet extremely overly-bright checkpoint lighting is not addressed. In spite of several years of our attempts to communicate this to the CBP, checkpoint lighting has not improved.

To our knowledge, neither the CBP nor its representatives contacted any of the area observatories during the preparation of this EA. No one in the EA list of preparers shows any expertise in radio frequency interference or light pollution.

While the SBInet Ajo-1 Tower Project Environmental Assessment FONSI concludes no significant impact will result, what is the path for redress if these towers do indeed cause significant harm to our research?

Our observatories have extensive experience working with our neighbors to address lighting and radio frequency interference issues. We offer our assistance is assessing the issues and are concerned they were not better identified and addressed in the SBInet Ajo-1 Tower Project EA and Proposed FONSI. The director's office at Kitt Peak National Observatory has offered to serve as a single point of contact for questions or comments based on this submission. You may reach Ms. Elizabeth Alvarez in the director's office at ealvarez@noao.edu or 520-318-8414.

Respectfully,

Dr. Emilio Falco, Project Director, Fred Lawrence Whipple Observatory

Encl: Tucson West Draft EA comments

P O Box 6369
670 Mount Hopkins Road
Amado AZ 85645-6369 U S A
520.670.5701 Telephone
520.670.5714 Fax

Smithsonian Astrophysical Observatory

Fred Lawrence Whipple Observatory

Proposed SBI*net* Ajo-1 Tower Project EA comments
October 9, 2009

Light Pollution

References to outdoor lighting appear on pages 9-11, 37, 178, 191, 229, 235, 271, 273, and 452.

1. Tower lights are referred to in several locations with the language essentially being --

Unless otherwise required by the FAA, CBP will use only white (preferable) or red strobe lights at night, and these will be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. CBP will not use solid red or pulsating red warning lights at night.

White strobe lights cause the greatest harm to astronomy because of the color and flashes. Red strobes cause less color harm but still disrupt measurements because of the flashes. Steady red light causes the least harm.

As an example, the TV (KMSB) transmission tower in the Santa Rita Mountains near the Observatories on Mt. Hopkins has used steady red only for many years without incident. The towers of the electronic site at Melendrez Pass in the Santa Rita's have no lights.

How many towers does the CBP deem in need of strobes and where are they located?

2. We suggest replacing the incorrect term "low sodium lights" with "low-pressure sodium lights." (This term differentiates them from high-pressure sodium lights.)

The words "downshielded" or "shielded from top" are unclear and must be replaced with the standard terminology: "full cut-off (FCO) light fixtures." This is the term accepted and used by the lighting industry and lighting designers

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Smithsonian Astrophysical Observatory

Fred Lawrence Whipple Observatory

Proposed SBI*net* Ajo-1 Tower Project EA comments
October 9, 2009

Radio Interference

The EA says:

All frequencies used by CBP would be coordinated through the FCC and NTIA as required by NTIA regulations. Additionally, transmitters and sensors associated with the SBInet OPCNM project would operate below 30 GHz. Therefore, the RF environment created by the installation, operation and maintenance of the communication and radar systems on the proposed towers would have a longterm, negligible adverse impact on observatories, human safety or the natural and biological environment.

How did the preparers come to this conclusion without consulting radio observatories? Were detailed radio frequency propagation analyses (including harmonics) performed? No such information appears in the EA, thus rendering this conclusion invalid.

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Buell T. Jannuzi, Director
Kitt Peak National Observatory
950 N. Cherry Ave., P.O. Box 26732
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Fax: 520-318-8487
jannuzi@noao.edu

National Optical Astronomy Observatory
Kitt Peak National Observatory • Cerro Tololo Inter-American Observatory • NOAO Gemini Science Center

June 30, 2008

Ms. Patience E. Patterson, RPA
U.S. Department of Homeland Security
SBI*net* Program Management Office
U.S. Customs and Border Protection, Headquarters
1300 Pennsylvania Avenue, NW, Room 7.5B
Washington, D.C. 20229

Dear Ms. Patterson,

In response to the Tucson West Draft Environmental Assessment (EA) and Proposed FONSI, the following comments are submitted on behalf of numerous astronomical observatories in the area affected by the proposed Tucson West Project. (See Appendix 1 for a list of institutions.) The premier astronomy observatories in the continental USA are in Arizona, California, New Mexico, and Texas. They represent a substantial investment by our federal and state governments as well as private enterprises and are a key component of our nation's research infrastructure. The Arizona Arts, Sciences, and Technology Academy recently published an economic impact report citing that by the end of 2006, investment in capital facilities and land in Arizona for astronomy, planetary and space sciences (APSS) had reached well over $1 billion and that in 2006, APSS research returned a total economic impact of well over $250 million in Arizona alone (Ref. http://www.simginc.com/AASTA/).

We are concerned about the potential for harm to our optical and radio astronomy observations and loss of value from that considerable investment because of SBI*net*-produced artificial light at night, degraded air quality, and radio emissions. The SBI*net* radio emissions could cause direct interference with the instruments of both radio and optical telescopes due to the proximity of SBI*net* towers to our facilities. We feel that the EA is incomplete without addressing these previously communicated concerns.

Our submission identifies issues that we feel still need to be addressed.

We have communicated with representatives from the Department of Homeland Security (DHS), Customs and Border Patrol (CBP), and SBI*net* several times over

the course of the last year to raise awareness of the potential impact of their proposed facilities on the research enabled by our observatories. We have appreciated the willingness of CBP and DHS staff to meet with us in the past and look forward to further meetings. See Appendix 2 for references to past meetings.

During previous meetings with CBP and DHS personnel, we have discussed useful strategies to minimize the adverse impact of artificial light at night on astronomy. We are pleased to see that the draft EA (under section 2.3, Proposed Action, p. 27, lines 3-5) cites lighting guidelines that indirectly address these issues. We feel the lighting associated with proposed towers during their construction, operation, and maintenance should be assessed for its impact on astronomy activities. An analysis should be based on the proximity and line of sight of individual towers to specific telescopes and arrays used for astronomy.

The placement of towers and associated activity by CBP could channel illegal border traffic closer to our observatory sites. A resultant impact that is not assessed in the draft EA is the potential for CBP search vehicles and aircraft to illuminate areas and inadvertently damage or destroy sensitive observatory detectors or observations. (See Appendix 3 for a recent example.) This issue was discussed during the October 22, 2007 visit to our observatories by Frank Woelfle and colleagues from DHS but does not appear in the draft EA.

When towers are located near observatories (within a few miles), radio transmissions can impact optical as well as radio telescopes since they can affect electronic circuits that read signals from sensitive detectors used for astronomy. The EA should identify this issue as it relates to additionally planned towers (e.g. those on the Tohono O'odham Nation) if their proposed locations are near observatories. One tower is within the Mt. Hopkins observatory site. Frequencies, transmitter power, antenna geometry, and beam patterns should be assessed to calculate the effect on observatory equipment.

The draft EA does not identify and assess the possibility of inadvertent radio frequency interference (RFI) to radio astronomy equipment at the National Science Foundation/National Radio Astronomy Observatory (NSF/NRAO) Very Long Baseline Array site at Kitt Peak (VLBA-KP), or at the Arizona Radio Observatory sites (ARO) on Mount Graham and Kitt Peak. Due to their concern, the NSF/NRAO initiated extensive discussions with Frank Woelfle of DHS and Phil Smith, the SBI*net* Chief Engineer in August of 2007 (Ref. Appendix 2). A detailed propagation analysis of the radar, motion-sensing equipment, and data transmission links to be used on-site during normal operations would determine possible interference. (See Appendix 4 for an example.) We feel that the NSF should be included in this process.

Our observatories have extensive experience working with our neighbors to address lighting and radio frequency interference issues. We offer our assistance

in assessing the issues, but are extremely concerned that they are not identified and assessed as necessary in the current Tucson West Draft Environmental Assessment (EA) and Proposed FONSI. Buell Jannuzi (contact information at the top of this letter) will serve as the single point of contact for questions or comments based on this submission.

Sincerely,

Buell T. Jannuzi, Director
Kitt Peak National Observatory

Christopher J. Corbally, S.J.
Vice Director, Vatican Observatory

Emilio E. Falco, Project Head
Fred Lawrence Whipple Observatory

Jeffrey S. Kingsley
Associate Director
Steward Observatory
The University of Arizona

Robert L. Dickman
Assistant Director for New Mexico Operations
National Radio Astronomy Observatory
(VLA/VLBA)

Faith Vilas, Director
MMT Observatory

Stephen J. Criswell, Project Manager
VERITAS

Richard F. Green, Director
Large Binocular Telescope Observatory

Appendix 1
Observatories on Kitt Peak

National Optical Astronomy Observatory / Kitt Peak National Observatory and
National Solar Observatory
Both are operated by the Association of Universities for Research in Astronomy, Inc. under cooperative agreement with the National Science Foundation.
NOAO telescopes include: 4-meter Mayall, 2.1-meter, 0.9-meter Coude Feed
NSO telescopes include: 1.6-meter McMath-Pierce Solar telescope, 2x 0.9-meter east and west auxiliaries, and the SOLIS (Synoptic Optical Long-term Investigations of the Sun) facility
Public outreach telescopes include: 2x 0.4-meters, 0.5-meter, 0.1-meter Solar telescope

National Radio Astronomy Observatory (25-m Very Long Baseline Array)
A facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.

Burrell-Schmidt Telescope, CWRU (0.6-meter)
Case Western Reserve University, Cleveland, OH

Calypso Observatory, Edgar O. Smith (1.2-meter)
Private observatory founded in 1992

Michigan/Dartmouth/MIT Observatory (1.3-meter and 2.4-meter)
The consortium includes the University of Michigan, Dartmouth College, the Ohio State University, Columbia University, and Ohio University.

RCT (1.3-meter Robotically Controlled Telescope)
Consortium universities and research institutions are The Planetary Science Institute, Western Kentucky University, South Carolina State University, Villanova University, and Fayetteville State University.

Southeastern Association for Research in Astronomy (0.9-meter)
The consortium includes Florida Institute of Technology, East Tennessee State University, Florida International University, University of Georgia, Valdosta State University, Clemson University, Ball State University, Agnes Scott College, University of Alabama, and Valparaiso University.

ARO (Arizona Radio Observatory) 12-meter Telescope
Spacewatch (1.8-meter and 0.9-meter) Telescopes
Bok (2.3-meter) Telescope
University of Arizona, Arizona State University, Northern Arizona University
(ARO includes the Academia Sinica Institute of Astronomy and Astrophysics.)

WIYN Observatory (3.5-meter)
The consortium includes the University of Wisconsin, Indiana University, Yale University, and the National Optical Astronomy Observatory.

WIYN Observatory (0.9-meter)
The consortium includes the University of Wisconsin (Madison, Oshkosh, Stevens Point, Whitewater), Indiana University, Bowling Green State University, Wesleyan University, University of Florida, San Francisco State University, and the Wisconsin Space Grant Consortium.

Observatories on Mt. Hopkins

Fred Lawrence Whipple Observatory, operated by the Smithsonian Astrophysical Observatory, has the following facilities.

MMT 6.5-meter
A joint facility of the Smithsonian Astrophysical Observatory, the University of Arizona, Arizona State University, and Northern Arizona University.

1.5-meter Tillinghast telescope

1.2-meter telescope

PAIRITEL (Peters Automated IR Imaging Telescope) 1.3-meter

VERITAS (Very Energetic Radiation Imaging Telescope Array System)
Member institutions include the Smithsonian Astrophysical Observatory, Purdue University, Iowa State University, Washington University in St. Louis, University of Chicago, University of Utah, University of California, Los Angeles, McGill University, University College Dublin, University of Leeds, Adler Planetarium, Argonne National Lab, Barnard College, DePauw University, Grinnell College, University of California, Santa Cruz, University of Iowa, University of Massachusetts, Cork Institute of Technology, Galway-Mayo Institute of Technology, National University of Ireland, Galway, and the University of Delaware/Bartol Research Institute.

HAT (Hungarian Automated Telescope) network of telescopes
Operated by the Harvard-Smithsonian Center for Astrophysics

Observatories on Mt. Graham

The Mount Graham International Observatory, operated by the University of Arizona, has the following facilities.

The Vatican Observatory (1.8-meter Alice P. Lennon Telescope)

Large Binocular Telescope Observatory (2x 8.4-meter telescope)
The consortium includes the University of Arizona, Arizona State University, Northern Arizona University, Istituto Nazionale di Astrofisica, Osservatorio Astrofisico di Arcetri (Florence), Osservatorio Astronomico di Bologna, Osservatorio Astronomico di Roma, Osservatorio Astronomico di Padova, Osservatorio Astronomico di Brera (Milan), Max-Planck-Institut für Astronomie (Heidelberg, Landessternwarte), Astrophysikalisches Institut Potsdam, Max-Planck-Institut für Extraterrestrische Physik (Munich), Max-Planck-Institut für Radioastronomie (Bonn), the Ohio State University, and Research Corporation (on behalf of the Ohio State University, University of Notre Dame, University of Minnesota, and University of Virginia).

Arizona Radio Observatory (ARO) – 10-meter Heinrich Hertz Submillimeter Telescope
University of Arizona, Arizona State University, Northern Arizona University
(ARO includes the Academia Sinica Institute of Astronomy and Astrophysics.)

Observatories in the Catalinas

1.6-meter Kuiper Telescope
1.5-meter NASA Telescope
1.5-meter Mount Lemmon Observing Facility Telescope
0.4-meter Schmidt Camera
University of Arizona, Arizona State University, Northern Arizona University

The Korean Astronomy and Space Science Institute 1-meter Telescope

University of Minnesota 1.5-meter Telescope

Public outreach telescopes include: 1.0-meter telescope

Appendix 2
Partial List of related meetings / communications

1. A series of email communications were initiated by Dan Brocious on behalf of numerous southern Arizona observatories to make SBI personnel aware of our concerns about potential adverse effects on astronomy research activities.
   a. From: Dan Brocious [mailto:brocious@carpincho.sao.arizona.edu]
      Sent: Wednesday, April 11, 2007 4:07 PM
      To: Giddens, Gregory
      Subject: SBI effects on research sites
      [This email outlined the issues. Mr. Giddens referred us to Mr. Smith.]
   b. From: "Dan Brocious" <brocious@carpincho.sao.arizona.edu>
      To: Charles.P.Smith2@cbp.dhs.gov
      Received: 4/24/2007 2:50:58 PM
      Subject: SBI effects on research sites
   c. From: Dan Mertely dmertely@aoc.nrao.edu,
      To: dfinley@nrao.edu, CHARLES.P.Smith@dhs.gov
      Date: Fri, 11 May 2007 10:23:53 -0600
      Subject: RE: Secure Border Initiative effects on research sites,

2. 19 June 2007, at Fred Lawrence Whipple Observatory offices
Meeting with observatory personnel associated with Mt. Hopkins and Tucson Sector Customs and Border Patrol agents (Lisa Reed - Community Relations Officer, John Fitzpatrick - Assistant Chief Patrol Agent, Tucson Sector, and Chris Petrazack - Nogales Station agent)

3. 23 July 2007, at National Optical Astronomy Observatory headquarters
Meeting with observatory personnel associated with Kitt Peak and Tucson Sector Customs and Border Patrol agents (Lisa Reed- Community Relations Officer and six additional specialists in attendance to answer specific questions)

4. 17 July 2007, Holiday Inn Palo Verde, Tucson, AZ
Public Scoping Meeting for the siting, construction, and operation of a technology-based border security system along a portion of the international border in eastern Arizona.
Attended by observatory personnel representing the Fred Lawrence Whipple Observatory (Mt. Hopkins), the National Optical Astronomy Observatory/Kitt Peak National Observatory, the Mount Graham International Observatory, and the University of Arizona observatories.

5. 22 October 2007, Visit to Mt. Hopkins facilities
Frank J. Woelfle (CBP/DHS) and colleagues meeting with observatory personnel representing Fred Lawrence Whipple Observatory (Mt. Hopkins), the Mount Graham International Observatory, and the National Optical Astronomy Observatory/Kitt Peak National Observatory

Appendix 3

VERITAS is a major, new gamma-ray observatory with an array of four 12-m diameter, optical reflectors located adjacent to the Fred Lawrence Whipple Observatory's offices at the base of Mt. Hopkins. During its first year of operation, VERITAS is already seeing an increase in CBP agent enforcement activity. If all four VERITAS cameras were overloaded by a helicopter or truck-mounted searchlight, the replacement of the array's cameras would be $800,000. Each night of observing lost to such damage would cost the collaboration about $10,000. Helicopter flights over the VERITAS array prompted a meeting by observatory personnel with local CBP agents on June 19, 2007. The same flight illuminated the summit and interrupted observing at the telescopes there as well.

Appendix 4
Propagation analysis example

Subject: Re: SBInet EA review: NRAO, ref VLBA-KP RA site
Date: Tue, 17 Jun 2008 14:52:48 -0600
From: Dan Mertely <dmertely@aoc.nrao.edu>
Organization: NRAO
To: Elizabeth Alvarez del Castillo ealvarez@noao.edu
…
I have reviewed the information … and have the following comments and concerns relating to RF protection of the NSF/NRAO VLBA site at Kitt Peak (VLBA-KP).

… no detailed information is provided in the EA on spectrum usage, so detailed propagation analyses cannot be performed...

As hypothetical examples, Longley-Rice propagation analyses were performed using approximate Latitude and Longitude values for 2 towers (TCA-TUS-103, TCA-TUS-035), at a harmonic of a common federal 2-way communications band (406 - 420 MHz). The latitude and longitude of the two towers were estimated graphically from the maps included in the EA. The results showed the existence of line-of-sight (LOS) propagation from either of the two proposed sites and the VLBA-KP station. Making engineering assumptions as to the power levels and height of any antenna used with a UHF repeater base station on the tower, one finds likely interference to 1665 MHz OH- observing (x4 harmonic of the federal 2-way band) at levels from 11 to 31 dB over the ITU-R-RA.769 recommended levels for VLBI observing at 1665 MHz. Even assuming only mobile radio units in the same band (ground level, 4 W power output), harmonic RFI over the ITU-R-RA.769 recommended levels is still likely.

The above is just one example of the potential for RFI to the VLBA-KP station during construction, and perhaps maintenance. Many other possible RFI situations at primary or harmonic frequencies of SBI*net* tower equipment exist. Lack of information in the EA prevents the analysis of possible interference due to radar, motion-sensing, and data transmission links that would be expected to be used on-site during normal operations.

As a result, I would strongly urge the DHS and SBInet planning and engineering project teams to coordinate any and all proposed RF devices planned for each tower with the NSF and NRAO. We are available for detailed RFI analyses once information on site spectrum usage is forwarded, or included in an addendum to the draft EA.

Sincerely;
-Mert
~~~~~~

Daniel J. (Mert) Mertely
National Radio Astronomy Observatory
Interference Protection Office Engineer
P.O. Box o
Socorro, NM 87801
(505) 835-7128
dmertely@nrao.edu
nrao-rfi@nrao.edu
~~~~~~

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P.O. Box 1306
Albuquerque, New Mexico 87103

In Reply Refer To:
FWS/R2/NWRS-SUPV/047395

FEB 09 2011

Patience E. Patterson, RPA
U.S. Department of Homeland Security
SBI*net* Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, Virginia 20598

Dear Ms. Patterson:

Thank you for the opportunity to provide comments on the *Draft Supplemental Environmental Assessment* (SEA) for the SBInet Ajo-1 Tower Project. The U.S. Fish and Wildlife Service (Service) strongly supports the selection of the Preferred Alternative. The Preferred Alternative eliminates the need for tower TCA-AJO-189, located within designated wilderness on Cabeza Prieta National Wildlife Refuge (Refuge). The selection of this alternative would reduce impacts to Wilderness from construction, and long term maintenance of the infrastructures associated with alternatives B and C. Additionally, reduced tower maintenance, refueling, and generator use at tower TCA-AJO-302 (located at the boundary of the Refuge and Organ Pipe Cactus National Monument) would also reduce potential adverse effects on Sonoran pronghorn (*Antilocapra Americana sonoriensis*).

Given that the impacts associated with the initial excavation for the foundation for tower TCA-AJO-189 is in designated wilderness and that the excavation was beyond that approved for the project, it is imperative that the site be restored to pre-existing or near pre-existing conditions. This should be addressed in the document as part of the Preferred Alternative and incorporated into any decision document for the draft SEA. The following should also be incorporated in the draft SEA and associated decision document:

- A qualified botanist should be obtained by the Department of Homeland Security (DHS) to conduct an inventory to determine plant composition, density and percent ground cover of perennial shrubs and cacti - by species - at three randomly selected 12 by 12 foot plots outside of, but within one hundred feet of, the existing disturbed site at Tower 189. The three plots should be averaged and used as a baseline to determine the target objectives for restoration of the tower site.

- The restoration objectives will be determined by the Service after consultation with the DHS and a qualified expert in restoration of desert environments. The Service stands ready to assist DHS with implementing the restoration objectives for the tower site.

- The restoration expert should develop a plan for the restoration of the site. This plan will lay out a strategy and procedures for implementing the actions necessary to meet the restoration objectives.

- Upon approval of the restoration plan, the Service will conduct a "minimum tool analysis" which will lay out how the plan will be implemented.

- The Service must inspect and sign off on the completed restoration project before the DHS is relieved of its responsibility.

Thank you for this opportunity to provide comments on the *Draft Supplemental Environmental Assessment*. We look forward to your continued cooperation on this matter. Please contact Sid Slone, Refuge Manager at 520-387-4993 with any questions.

Sincerely,

Regional Director

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

February 3, 2011

Ms. Patience E. Patterson, RPA
US Department of Homeland Security
SBInet Program Management Office
1901 S. Bell St., Room 7-090
Arlington, VA 20598

Re: Supplemental Environmental Assessment for the SBInet Ajo-1 Tower Project, Ajo Station's Area of Responsibility, US Border Patrol Tucson Sector, Arizona.

Dear Ms. Patterson:

The Arizona Game and Fish Department (Department) appreciates the opportunity to review the Supplemental Environmental Assessment for the SBInet Ajo-1 Tower Project. The Department understands the proposed action would involve constructing access to the commercial power grid from TCA-AJO-302 and TCA-AJO-004, as well as installation of fiber optic cable between the towers. It would also include installation of fiber optic cable to TCA-AJO-216 to establish a stable communication link. This would eliminate the need for TCA-AJO-189 and allow remediation of the tower site.

The Department supports the changes to the SEA and supports the efforts of the U.S. Customs and Border Protection (CBP) to reduce illegal traffic along the border. The Department appreciates the opportunity to comment on this project and close coordination on large scale projects such as this is vital to ensuring impacts to the state's wildlife resources are minimized. For further coordination or if you have questions regarding this letter, please contact me at (623) 236-7606.

Sincerely,

Ginger Ritter

Ginger Ritter
Project Evaluation Program Specialist, Habitat Branch

cc: Laura Canaca, Project Evaluation Program Supervisor
John Windes, Habitat Program Manager, Region V

AGFD # M11-01105656

GILA RIVER INDIAN COMMUNITY

POST OFFICE BOX 2140, SACATON, AZ 85147

TRIBAL HISTORIC PRESERVATION OFFICE

(520) 562-7162
Fax: (520) 562-5083

April 12, 2011

Patience E. Patterson
U.S. Department of Homeland Security
SBI*net* Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, Virginia 20598

RE: Draft Supplemental Environmental Assessment and Proposed Finding of No Significant Impact for the SBInet Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Tucson Sector, Arizona

Dear Ms. Patterson,

The Gila River Indian Community Tribal Historic Preservation Office (GRIC-THPO) received your draft supplemental Environmental Assessment (EA) on January 31, 2011. The draft EA describes an undertaking by the U.S. Department of Homeland Security to improve communication links between towers and reduce impact to sensitive resources. Cultural Resources recorded in the area including the Growler Mine/Growler Pass (AZ Z:13:48[ASM]), Bates Well (AZ Z:13:39[ASM]), AZ Y:16:32(ASM) and Armenta Ranch AZ Z:13:127[ASM]) will be temporarily flagged and marked to avoid impacts to the site. AZ Z:13:27(ASM) will be tested and fenced.

On pages FONSI 16, lines 6 through 12, and 5-7, lines 20 through 26, the text indicates that "if human remains are encountered, the first course of action will be to determine if they are Native American remains." The GRIC-THPO would like to indicate that the first course of action will be to immediately halt all construction in the area and to immediately contact SBI lead agency supervisors. If human remain remains are encountered you halt work immediately regardless if the remains are Native American or not. Please change the text in these sections. The project occurs within the ancestral lands of the Four Southern Tribes (Gila River Indian Community; Salt River Pima-Maricopa Indian Community; Ak-Chin Indian Community and the Tohono O'Odham Nation). We defer to the Tohono O'Odham Nation as leads in the consultation process.

Thank you for consulting with the GRIC-THPO on this project. If you have any questions please do not hesitate to contact me or Archaeological Compliance Specialist Larry Benallie, Jr. at 520-562-7162.

Respectfully,

Barnaby V. Lewis
Tribal Historic Preservation Officer
Gila River Indian Community

United States Department of the Interior

NATIONAL PARK SERVICE
INTERMOUNTAIN REGION
12795 West Alameda Parkway
PO Box 25287
Denver, Colorado 80225-0287

DEC-11/00011

February 7, 2011

OFFICIAL CORRESPONDENCE SENT VIA ELECTRONIC MAIL
NO HARD COPY TO FOLLOW

Patience E. Patterson
U.S. Department of Homeland Security
SBInet Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, VA 20598

Subject: National Park Service comments on the Draft Supplemental EA and Proposed FONSI for the SBINet Ajo-1 Tower Project, January 2011

Dear Ms. Patterson:

Thank you for the opportunity to review and comment on the Draft Supplemental EA (SEA) and Proposed FONSI for the SBINet Ajo-1 Tower Project, dated January 2011. As a cooperating agency on this project, the National Park Service (NPS) appreciates that we had an opportunity to review the Preliminary Draft Supplemental EA and submit two sets of comments dated July 10, 2009 and September 28, 2010. We are pleased that some of our previous comments on the Preliminary Draft were addressed in this version; however, we noticed that some of our comments were only partially or, in some cases, not fully addressed. To illustrate where we still have concerns from the previous review, we have attached copies of these comments to this letter and identified those comments that we feel are still outstanding with yellow highlighter (please see attachments A and B). In addition to these previous comments, we respectfully submit new comments and issues, which are identified in the following text. All of our comments relate to how this project affects Organ Pipe Cactus National Monument (ORPI), and we thank you in advance for considering our comments.

General Comments

Overall, NPS feels that the document (Draft Supplemental EA and Proposed FONSI) could better and more clearly define the proposed actions. We are concerned that it does not adequately address the effects of improvements that are already proposed by DHS in the project area, cumulative effects, and impacts to wilderness resources. We recommend that these issues be better addressed throughout the document. Our specific comments should give you a better indication of our recommendations.

- Throughout the document, actions are referenced that may, potentially, could, or might be implemented. We recommend that document clearly state all of the actions being implemented.

- The document frequently states that there are "no known developments planned in the project area in the foreseeable future". However, the document also describes expanding operations at Tower 302 from one acre to two, widening el Camino del Diablo to 18', and expansion of the Ajo Station; and we recommend that the effects of these actions be addressed throughout the document.

- Cumulative Impacts: We recommend that the cumulative impacts section better assess the cumulative influence of existing, planned, and future actions within the project area. The proposed action is a component of a much broader series of inter-related projects and actions that collectively comprise CBP's strategy to establish operation control of the border within the project area. The NPS supports CBP in this effort. The impacts from CBP's cumulative border strategy should not be so readily summarized and dismissed as they currently are in this document. The cumulative influence of the vehicle barrier, pedestrian fence, SBInet towers, the tactical infrastructure maintenance and repair (TIMR) program, the construction of the new CBP station facility in support of exponential increases in the number of CBP agents working in the project area, the widespread use of diverse types of equipment, existing agreements, the proposed expansion of a forward operating base, the proposed widening of the Camino del Diablo in addition to this, and other, proposed actions should be comprehensively assessed in this analysis. There are also temporal (short or long-term) and directional (beneficial or adverse) components to this assessment that should be considered. The conclusions of such an assessment should be based upon empirical data and not conjecture or supposition. Data reveal that over time cumulative impacts have been expanding within the project area and that this trend is continuing. This expansion of cumulative impacts is having measurable effects on diverse trust resources such as wilderness and threatened and endangered species. NPS is willing to collaborate and help develop such an assessment.

- Wilderness: From a wilderness perspective, there are advantages and disadvantages associated with each action alternative and regardless of the one that may ultimately be chosen, there will inevitably be direct and indirect effects on wilderness. The nature, magnitude and longevity of such effects should be more thoroughly understood and carefully considered prior to final alternative selection. Table 2-3 compares the alternatives and presents anticipated affects on wilderness. Tower alternatives A, B and C describe anticipated impacts as being similar to those that are anticipated for the proposed action. However the proposed action's description is silent on important components regarding anticipated impacts to wilderness. In particular the NPS needs to understand the anticipated influence of each alternative on law enforcement activities.

Specific Comments

FONSI

FONSI-1 L25-28: Deterrence is not listed as an aspect of border control. We recommend that you include specific content on the on the role of deterrence in securing the border. In previous DHS and CBP documents, deterrence has been listed as an important element of border enforcement. Deterrence (i.e, a strong and visible CBP presence of personnel and infrastructure *at the border*) is likely to be among the most cost-effective border enforcement elements, and the least damaging to public and private properties.

FONSI-2 L26: We recommend that any actions that are conditional in the FONSI be eliminated. The FONSI should specify the actions that will be implemented, and not include statements such as: 216 *may* be hooked up to power. We suggest that "will" instead of "may" or "would" should be used.

FONSI-2 L32: Sonoran pronghorn are: "a species that is federally listed as endangered under the Endangered Species Act".

FONSI-2 L45-46: The stated "affected area" of 517 square miles seems to correspond to the total area of Organ Pipe Cactus NM. A more accurate description of the affected area should include BLM and USFWS lands adjacent to ORPI as described in the SBInet Biological Opinion and EA.

FONSI-3 L33 – There should be continuity between the FONSI, Executive Summary, and EA. This line says access to power would "potentially" be provided. Are Tower 302 and the FOB being connected to power? If so, then it needs to be stated clearly and corrected throughout the FONSI, ES and EA. Examples: ES P-ES-2 L 28 – access may be provided to 302 and FOB EA P1-3 L 18-20: The proposed action includes…installation of a fiber optic cable between 302 and 004. If the power is not connected, then the benefits claimed for pronghorn need to be deleted.

FONSI 4-L35-36: The document states that pull boxes would temporarily impact a 20x50 foot area and this amount of disturbed area is excessive. Previous discussions indicated that the entire 20x50 foot area would not be impacted. Rather, it would be an angled corridor from the road into the 4x6' pullbox and an angled corridor back to the road Figure 2-3.

FONSI-5 L15: Road maintenance was not analyzed in 2009. Road maintenance is being addressed as part of the ORPI Roads Study. There has not been any NEPA or compliance done on the maintenance of the roads.

FONSI-5 L15-19: For the majority of the construction along the road, alternative methods for handling and storing of materials removed from trenching operation need to be addressed in order to keep the road open for travel which not always be possible in certain areas. When not in operation, trenches need to be covered. Please specify the dimensions needed for project implementation, staging, and road passage – and how all of these dimensions fit into the existing footprint of the road. The description of the proposed traffic management needs considerable clarification. The vast majority of the proposed project alignment is a primitive dirt road, 1 to 1.5 lanes wide. Opportunities for two standard motor vehicles to pass one another are infrequent, and often result in damage to roadside plants and soils, and incremental widening of the road footprint. NPS requests that both sides of the road be delineated in the active construction area using safety barrier fencing to ensure all traffic and disturbance is limited to the existing road footprint. In previous consultations, there was discussion regarding the need for development of "road usage plans" for each agency impacted by the implementation of this project. This needs to be addressed. Also include a "trench detail blueprint" indicating the placement of both utilities.

FONSI-8 L9-10: See FONSI 5 L15-19. Given the frequent traffic along the project route, it is likely flagmen will be passing vehicles around project machinery multiple times per hour. It is reasonable to expect the project will in fact be able to accommodate such levels of traffic within the existing road footprint along the project's entire length? NPS requests that both sides of the road be delineated in active construction areas using safety barrier fencing to ensure all traffic and disturbance is limited to the existing road footprint.

FONSI8 L10 – The number of acres disturbed should be corrected throughout the documents. This section says permanently disturb .57 acre, and temporarily 15.18. (ES- 4 L3-4: says would permanently affect 1.36 acres and 14.21 temporarily). A table of permanent and temporary acres impacted areas by alternative would be helpful.

FONSI-8 L25-28: SEA states that the commercial power element of the proposed action will reduce operation of generators at towers 004 and 302, from about 8 hours/month to about 2 hours/month. We question if the operation is 8 hours/month or 8 hours/day? Please clarify. If it is 8 hours/month, this reduction of generator operation by 6 hours per month seems insignificant, in terms of noise reduction. The proposed action will reduce generator operation from about 1% of the 24-hour clock per month (8 of 720 hours for a 30-day month), to about 0.27% of that time. This would seem to be an insignificant benefit, when weighed against the costs and impacts on multiple resources associated with the proposed connection to commercial power.

FONSI-9 L23-25: The potential for future development caused by establishing commercial power along the 59.4 Road / Bates Well Road, concerns NPS. For the Sonoran pronghorn, this could result in additional impacts. The project will pass through Growler Canyon which provides an important corridor for Sonoran pronghorn to move back and forth between the Valley of the Ajo and Growler Valley.

FONSI-9 L32-39: If the statement 8 hours/month instead of 8 hours/day is correct, (FONSI 8 L25-28) the proposed project would actually result in a *net increase* in noise impacts, for more than 5 years.

FONSI-11 L34-35: See FONSI-5 L15-19. This provision should include clearly demarcating the current footprint of the road with safety barrier fence, and preventing vehicle travel outside of that footprint, by project vehicle or other traffic passing the construction zone. Any disturbance outside the current footprint of the road would constitute project-related disturbance, and is not authorized.

FONSI-12 L12: The document should specifically state that off-road activity is prohibited.

FONSI12 L 26-27 – Delete – "to the maximum extent practicable". The document should specifically state that off-road activity is prohibited.

FONSI12 L42-43 – NPS agrees with the comment that they will "minimize disturbance to smallest footprint" as shown in Figure 2-3. NPS previously stated that 20x50 foot area at each pull box is excessive.

FONSI 12-L44 thru 13-L12: NPS requires that CBP obtain written permission to conduct any vegetation management within the project area in ORPI, including: seeding, trimming, cutting, mowing, herbicide application, restoration and removal. NPS requires that restoration activities in temporary disturbed sites be closely coordinated with and approved by NPS in writing, prior to contracting and implementation.

FONSI-13 L16-24: OTIA is advised there are multiple species of birds that nest on or near the ground. Because of this, any vehicles driving off the current footprint of the road may result in take, under the Migratory Bird Treaty Act. No vehicles should be allowed to drive around the construction area to pass through, unless that can be done without leaving the current established road.

Executive Summary

P ES-2 L28 – see FONSI 3 L33. Specify if power will go to 302 and the FOB.

ES4 L3-4: Please correct the number of acres disturbed throughout the document, as they are inconsistent.

P-ES4 L.11-14: NPS respectfully disagrees with negligible long-term impacts. "There could be a minor to moderate indirect adverse effect…"depending on future development proposals. See FONSI P9 L.23-25. The likelihood for development should be analyzed in this EA, specifically regarding the references in this document to expand the FOB, widen of el Camino del Diablo and the expand the Ajo Station.

P ES4 L.25-27: See P ES4 L11-14 says negligible. This says minor. Please analyze the long-term indirect effects.

P ES-5 L31-37: See FONSI-9 L32-39.

P ES-6 L10-15: Please support claims of increases or decreases with data.

Environmental Assessment

Chapter 1

P1-1 L. 18-20: See FONSI-3 L33.

P1-1 L20-25: Deterrence should be listed as a component of the CBP/USBP's NBPS. See FONSI-1 L25-28.

P1-6 Section 1.1.2 – Cooperating Agencies – Please share a copy of the referenced January 2008 MOA with the NPS for our records. Thank you.

P1-3 L18-30: If fiber optic is run from 302 to 004, what additional infrastructure will be required at tower 004 in order to facilitate adequate communications interface?

P1-3 L18-30. This paragraph commingles the stated needs of the fiber optic cable and the commercial power line. The primary need of OTAI is to transmit data streams from tower 302 to tower 004. The fiber optic cable would accomplish this need. The stated purpose of the power line appears to be to " . . . reduce generator use and associated noise emissions . . ." at the towers. If this is the case, the potential adverse impacts of the proposed action on Sonoran pronghorn are far greater than the adverse impacts of the current level of generator noise.

P1-5. This map shows tower 204, and this tower was not constructed.

P1-7 Section 1.3.1 Public Review – The text mentions that a notice of availability was printed in local newspapers, but it does not describe what public comments were received. We recommend that you include a description of the number of public comments received, from whom, and the nature of those comments.

P. 1-9: Section 1.3.2 Agency Coordination – We appreciate that other agency coordination has been conducted or is ongoing. We recommend that you include a description of the results of tribal consultation as well as a summary of any outstanding comments amongst agencies that have yet to be resolved.

Chapter 2

P. 2-1, Chapter 2.0 Proposed Action and Alternatives – Please identify the Preferred Alternative and the Environmentally Preferred Alternative in this chapter.

P2-1 L46 thru 2-2 L1: See FONSI-3 L33.

P2-2 L27: The document states: backfill material will be hand sifted at these locations. Is this correct? Where will the spoils be utilized?

P2-2 L9-10: See P1-3 L18-30.

P2-6: Figure 2-3. The trenching project should begin at the pull box location and trench toward the road in both directions in order to minimize impacts beyond the pull box. This would conceivably considerably reduce the size of the 20x50 foot temporarily impacted area Figure 2-3.

P2-7 L9: If no pull boxes are needed for the 2645' distance from SR 85 to tower 216, why are there pull boxes every 1000' along the rest of the project route? NPS wishes to minimize the number of pull boxes.

P2-9 L38-39: See FONSI-5 L15. This section should reflect the same language as in the document on EA P3-3 L26-29 to show the inconveniences along 59.4/Bates Well Road.

P2-9 L39-41: See FONSI 5 L15-19.

P2-9 L46-47. SEA states that towers 302 and 004 currently account for 80 maintenance/refueling visits per year, and (on the next page, lines 1-5) that the proposed action would result in that being reduced to 36 visits/year. However Table 2-1 (page 2-10) lists only 28 visits annually for these two towers *without* implementation of the proposed action. These numbers should be checked and clarified.

P2-10 Table 2-1: Lists total trips to 004 & 302 as 28; line 2 says 36 trips; needs to be clarified.

P2-10 L21-26: A plan for staging project equipment needs to be prepared and approved by affected agencies prior to being implemented during construction. The number and size of temporarily disturbed pull box areas should be minimized.

P2-23 Table 2-3: See FONSI 8 L10.

P3-3 L26-34: There was earlier dialog that there would not be any inconveniences on 59.4/Bates Well road. See in the document EA P3-3 L26-29.

P3-3 L33: See P-ES4 L11-14. See: P-ES4 L11-14. The likelihood for development should be analyzed in this EA.

P3-3 L36: See FONSI 4 L35-36.

P3-3 L38-39. Approximately .57 acres would be permanently disturbed, not temporary.

Chapter 3

P 3-7, L17-19: How will implementation of the action alternatives result in or contribute to a reduction in illegal traffic or a reduction in the creation of illegal roads and trails? In other words, substantiate the statement that without implementation of one of the action alternatives "illegal traffic and the

creation of unauthorized roads and trails is likely to increase" given the fact that substantial infrastructure already exists.

P3-8 L20-26: See P ES4 L11-14. The likelihood of subsequent development should be analyzed.

P3-8 L44-45, P3-9 1-12: Please refer to P3-7 L17-19.

P. 3-29 Section 3.10.1.1 Federal – This section states that CBP has requested re-initiation of formal consultation pursuant to Section 7of the ESA for Sonoran pronghorn and lesser long-nosed bat, but does not state why. Presumably, the goal of this consultation will be to reopen discussions about changing the "may affect, likely to adversely affect" determination by developing new alternatives or introducing additional mitigation measures. If this is the case, NPS supports this effort. We recommend that you include language describing what the goal of this additional consultation is and where you are at in the process. We also recommend that you describe where you are at in the process in terms of reinitiating Section 7 consultation.

P3-21 Figure 3-6. The document needs to articulate how each drainage crossing will be implemented.

P3-24 L4-11. A reduction in off-road traffic does not correlate to indirect benefits with regards to water quality in the project area. Existing impacted areas will continue to erode in the absence of well designed and implemented restoration activities. This statement could use modification because all off-road travel past, present and future results in adverse impacts.

P3-25 L 26-33. See P3-24 L4-11.

P3-31 L38-43: See FONSI 9 L23-25.

P3-31 L41: The statement: "no known developments" is incorrect. There are two development projects already listed in this document (See EA P4-2 Table 4-1) in the foreseeable future regarding the expansion of the camp to an FOB at tower 302, and another proposal to widen the El Camino del Diablo. The implications of expanding operations at Tower 302 and Camino del Diablo need to be assessed.

P. 3-35 Section 3.11.1.1 Previous Investigations – We appreciate that a complete cultural resources inventory of the project area has been conducted; however, we are concerned that the SEA includes too much descriptive information related to archeological resources. Specifically, the text describes the types of archeological sites found during the surveys, which, in our opinion, provides the public with too much information that can lead to looting or damage. To avoid the potential for any increased harm to archeological resources in the area, we recommend that the descriptive nature of the text be eliminated and replaced with more simplified text that cites the number of sites and the site numbers. We also recommend that you describe where you are at in the process in terms of Section 106 consultation with the State Historic Preservation Officer.

P3-42 L24: Do wetting solutions contain materials other than plain water? If so, please describe their contents.

P3-51 L26-34: Is there any potential for the power line to interfere with vehicle computers, two-way radios, hand-held electronic devices, GPS units, etc.?

P3-52 L34; "minimized" should be "utilized"; sentence doesn't make sense as is.

P3-55 L41-42. NPS suggests that it is more appropriate to acknowledge that the proposed action would have long-tem, moderate adverse effects on visual and aesthetic resources. The project would change what until recently was a primitive, remote, one-lane dirt road through wilderness. The road would have electrical pull-boxes for over 21 miles. The drive along Bates Well Road through ORPI and on into CPNWR has long been popular with the public as a remote desert excursion. Under the proposed action, the sense of solitude and escaping the overdeveloped world would be adversely affected, for the long term.

P3-63 L26-30. The commercial electricity component of the proposed action conflicts with basic sustainability and greening principles. Towers 302 and 004 are already equipped with solar energy systems, and backup propane generators. The towers are situated in one of the best areas in the U.S. for taking maximum advantage of solar potential, with nearly 360 sunny days per year. The proposed action would require extensive use of additional petroleum fuels and other products, in the course of installing the commercial-grid power line. The towers would then consume commercial electricity, which may be generated by burning oil, coal, or other non-sustainable resources.

Chapter 4

P 4-1 L 15: The statement that the Sonoran Desert has been "significantly impacted" has greater implications. If these actions are contributing to significant adverse effects in this ecosystem, an EIS should be prepared.

P4-1 L20-22: This statement is incorrect. These actions are regulated by NEPA on federally managed lands.

P4-1 L42: Please change primary fence to pedestrian fence.

P4-1 L45-46: Please include that DOI funded the construction of 30 miles of vehicle fence through ORPI.

P4-2 L3 and Table 4-1: In light of the discontinuation of the SBI tower program these narratives could use revision. Also include CTIMR.

P4-3 L10-12 – Provide data that demonstrate the relative changes in deterrence, travel volume and speed, and substantiate that statement that increased road maintenance and road widening are required.

P4-3 L45: Several projects should be added to list: entrance sign parking, Alamo Canyon Road re-alignment, Kuakatch berm repair, BP horse trailer pull-out off of Highway 85, the Powerline Corridor access to Tower 170, and access road to Tower 310.

P4-4 Section 4-4. In accordance with NEPA the assessment of cumulative effects of the project is inadequate and needs to be strengthened, given the diversity and size of many of the cumulative projects mentioned. Many projects involve large scale construction, significant increases in personnel, along with associated materials and infrastructure. Several of these are occurring in sensitive and protected environments and the cumulative effects of these actions need to be assessed more comprehensively. The document needs to explain how the specific conclusions were determined, and not just state the level of impact.

4-4 L43: See FONSI-2 L45-46.

P4-5 Section 4-5: See P4-4 Section 4-4. If there is a projected reduction in the most prevalent and damaging effects of CBV activities on monument resources, both the current level of impact and the projected decrease in impacts should be quantified.

Chapter 5

P5-2 L3-4: CBP will coordinate with the appropriate land management agency to identify disturbed areas to be used for staging during the construction.

P5-2 L-25: CBP will utilize safety barrier fences to demarcate construction perimeters, access roads, etc.

P 5-3 L 18-19: Rewrite: Vehicular traffic associated with construction will remain on established roads.

P5-3 L18-19: See FONSI 5 L15-19.

P5-5 L25: Mitigations for lesser long-nosed bats; construction will be "avoided" within 4 miles of roosts; is this sufficient?

P5-7 L20-29: Please delete these lines

P5-7 L 22: If human remains are encountered it doesn't matter if they are Native American or not…the archeologist will immediately notify SBI, the superintendent, and appropriate law enforcement authorities.

P5-8 L32: All spills will be reported to CBP add: and notify the appropriate land management agency.

Thank you for considering our comments on this project. We acknowledge the fact that we have provided several comments for you to consider and would like to extend our assistance in helping you understand and incorporate our concerns. Please do not hesitate to contact us with any questions or concerns. We look forward to working with you. Our main point of contact is Mark Sturm, Chief of Resource Management, ORPI, 520.387.6849 x7110.

Sincerely,

John Wessels
Regional Director, NPS, Intermountain Region

cc: NPS EQD-WASO
Robert Stewart, DOI
Mark Sturm, NPS-ORPI

Attachment A

7/10/09
NPS Comments on the
Preliminary Draft EA for the SBInet Ajo 1 Tower Project

Comments:

Proposed Action – Forward Operating Base

The NPS was previously informed that the proposed new forward operating base would be on the scale of the current Bates Well facility, and not a 2 acre development on par with the Papago forward operating base. The details of the proposed new, larger forward operating base should be more fully disclosed (e.g., the number of agents that would be staffed at the facility). The direct and indirect impacts of this new, larger facility, should be very carefully examined and completely disclosed.

Proposed Action – Road Construction

The description of the proposed action contains only minimal information on how new roads would be constructed. Details of road construction activities should be more fully described.

General Comments - Impact Analysis

Often times the impact analysis describes impacts without explaining or discussing the intensity of those impacts. For example, the analysis describes potential adverse impacts on migratory birds without identifying the intensity of the impacts. The intensity of all adverse impacts should be indicated.

When the intensity of an impact is described, it is typically done so without context and in a conclusory fashion. For example, the analysis claims that the proposed action would have a moderate adverse impact to aesthetic resources without discussion of what constitutes a moderate impact or sufficient enough description of the impact to support the determination of "moderate." The meaning of intensity modifiers should be clearly defined and the discussion of impacts should readily support the assignment of a particular intensity modifier to an impact.

The impact analysis discusses numerous beneficial impacts associated with reduced illegal alien traffic that would indirectly result from the proposed action. Is there evidence to suggest that reduced illegal alien traffic is, in fact, a reasonably foreseeable outcome of the proposed action? If so, and indirect impacts associated with reduced illegal alien traffic are addressed, so too should the reasonably foreseeable impacts associated with future on-the-ground enforcement activities be addressed.

The document contains internal contradictions regarding impacts of the proposed action. For example, the environmental consequences section claims that the new forward operating base will not interfere with Sonoran pronghorn, which is in apparent contradiction to a statement in the alternatives section acknowledging that Sonoran pronghorn may be impacted in the area of the new base. Such contradictions should be resolved.

Wilderness

The treatment of impacts on wilderness is very limited in nature. For example, there is no discussion of how operation and visual and auditory elements of the proposed action (towers and new forward operating base) could permanently impact the wilderness values (opportunities to experience: solitude; primitive, unconfined forms of recreation; and naturalness, i.e., little evidence of human manipulation of natural conditions) of the Organ Pipe Cactus Wilderness. Impacts of the proposed action on wilderness values should be addressed.

Surface Waters and Waters of the U.S.

The analysis for water quality impacts claims that activities associated with illegal alien traffic results in the impairment of water quality. Is there data to support this conclusion? If so, it should be cited. If not, the analysis should be modified so as not to over-state the impact.

Floodplains

The analysis for floodplains impacts indicates that it is unknown if any access roads transect floodplains in OPCNM. This information should be obtained in order to adequately analyze the impacts of the proposed action. The analysis also notes that engineers would be consulted before road improvement, but then states that no construction of permanent structures such as culverts would be required. Can such a claim be made if engineers have not yet been consulted?

Protected Species and Critical Habitats

The impact analysis for protected species and critical habitats raises concerning issues but offers limited discussion of impacts. For example, the analysis for Sonoran pronghorn notes possible long-term "avoidance of critical resources during sensitive periods" resulting from the proposed action yet does not go further than to label the impact as "adverse."

Noise

The analysis under the noise impact topic is oriented solely on the issue of human annoyance caused by noise. The analysis fails to discuss the natural soundscape as a resource in and of itself. The analysis should address impacts on the natural soundscape. Additionally, it is not clear that noise impacts on wildlife species were considered for all species. For example, Sonoran pronghorn are especially sensitive to noise and are likely to be impacted by noise from the proposed action. However, noise-related impacts on this species are not called out in the analysis. The analysis should be broadened to include such concerns.

Utilities and Infrastructure – Ambient and Artificial Lighting

The discussion of artificial lighting highlights mitigation measures that would be implemented to reduce adverse impacts, but does not indicate to what degree adverse impacts would still be expected to occur under the proposed action. The analysis should disclose the nature of these remaining impacts and discuss them especially in terms of their effect on nocturnal wildlife species such as the lesser long-nosed bat.

Cumulative Impacts

There is an over-emphasis, especially in the cumulative impacts section, on equating the area impacted by an action with the size of infrastructure footprint. Impacts may, in fact, extend well beyond the project footprint. For cumulative impact analysis, the analysis should be conducted in a broader, resource-based spatial context rather than in a manner confined to project footprint.

The dismissal of many of the cumulative impacts issues is questionable. For example, given the nature of the projects and actions considered for cumulative impact analysis, it is very likely that there are accumulated impacts on resources such as wildlife, sensitive species, and vegetation that would be added to by construction and operation of the proposed action. The dismissal of cumulative impacts issues should be revisited.

The cumulative impact analysis does not describe the impacts that have been and are expected to be experienced as a result of past, present, and reasonably foreseeable actions. The existing cumulative impact analysis consists primarily of conclusory statements that cumulative impacts will not be significant or major. The analysis lacks any accompanying description of the impacts or context to provide a basis for understanding the characterization of the impact. Cumulative impacts should be fully described and characterized in terms of intensity and duration.

Attachment B

DOCUMENT NAME: SBInet AJO-1 Preliminary Draft Supplemental Environmental Assessment
DRAFT DATE: 28 SEPTEMBER 2010
DUE DATE: COB 13 OCTOBER 2010

Comment #	Page	Section	Line	Commenter	Comment	NPS Annotations on How the Comment Was Addressed in January 2011 Draft
1.	FONSI-2		7	ORPI	Replace "CPNWR manager" with "the USFWS." The text as is personalizes a federal agency action, which is unnecessary and inappropriate, unless every management decision, request, proposal, and action by all agencies and contractors is going to be attributed to the specific individual making that decision, request, &/or action.	Addressed throughout document
2.	FONSI-2		16	ORPI	The need for tower #189 would be negated if a fiber optic line is constructed, connecting towers 004 and 302. However, constructing commercial grid power to those two towers is unrelated to, and independent of, tower #189 and any desires to eliminate that or other tower #189 alternatives. This should be identified and evaluated in the SEA. It may be appropriate to split these into two alternatives: 1) Running fiber optic cable to #302, #004, and #216, and 2) Running both fiber optic cable and commercial power to #302, #004.	Addressed on 3-33, line 14
3.	FONSI-2		37	ORPI	SEA states that the affected area is "approximately 30 linear miles of U.S. border, which is incorrect. (See Figure 1-2). The proposed actions would take place approximately 12 to almost 20 miles north of the US border, along a meandering road alignment. The area	Addressed on FONSI-2, line 45

					affected by SBInet and related operations is a much larger, non-linear area, as identified in the 2009 EA and BO.	
4.	FONSI-3		25	ORPI	Same as comment #1.	Addressed
5.	FONSI-4		6	ORPI	SEA says the trench will be about 4.5 feet "from" the southern edge or berm of the road. Please clarify that this will be to the north and inside footprint of existing road.	Addressed on FONSI-4, line 8
6.	FONSI-4		19	ORPI	The area of permanent impact seems excessive, considering the size of the pullboxes. The SEA text should elaborate on why this is necessary.	Change is reflected on FONSI-4, line 35
7.	FONSI-4		44	ORPI	This paragraph does not adequately address the changes in (or impacts to) roads that the proposed action will cause, which were not covered by the 2009 EA. For example: How will the project accommodate pass-through vehicle traffic, during construction, without routing that traffic off the 59.4 and Bates Well Roads? Transportation issues and limitations must be clearly addressed and accepted by all stakeholders including CBP, project contractors, NPS, FWS, BLM, etc. For example Camp Grip transportation will be affected, how will this be addressed throughout? Any impacts outside the existing road footprint must be approved by the land manager, and thoroughly addressed in this SEA.	Flagmen will be on site at all times and will route traffic around construction vehicles. See FONSI-5, line 14-19.
8.	FONSI-5		28	ORPI	During our review we determined that neither the FONSI nor the SEA considers the potential long-term, adverse, indirect effects on wilderness, presented by establishing a commercial power line deep into what is currently a remote, undeveloped area. Presence of commercial power may facilitate additional developments and human presence. Such affects must be adequately addressed in this document.	Needs to be clarified throughout EA. See FONSI-8, line 30 and ES-4, lines 22-27 and 3-8, lines 10-18.
9.	FONSI 6		29	ORPI	No pull boxes or transformers will be permitted within the vicinity of Bates Well, Growler Mines or Armenta Ranch.	Can't find any reference to this

10.	FONSI-6	Environmental Consequences	29-41	ORPI	Two additional archeological sites considered Eligible to the National Register of Historic Places were inadvertently omitted from the SEA: AZ Z:13:38, the Growler Pass Mines and site AZ Y:16:32 adjacent to Tower #302. Site AZ Z:13:38 (Growler Pass Mines) is a separate and distinct archeological site from AZ Z:13:48 (Growler Area Mine Group), separated by a distance of approximately 2 mi. Both sites are eligible and AZ Z:13:48 is already listed on the National Register. AZ Z:13:38 was determined eligible by the Arizona SHPO in 2010. AZ Y:16:32 is a prehistoric firecracked rock site, believed to be a roasting pit with potential radiocarbon dates from charcoal & macrobotanical remains that may date to the San Dieguito phase, approx. 9,000 yrs. ago. It is unevaluated but considered Eligible by OPCNM. These 2 sites that were omitted from consideration in the SEA should have archeological monitors placed on ground disturbance in their vicinity during construction of the trenches; this should be added to the Mitigation section of the SEA. The NHPA Section 106 Finding of Effect should remain "No Adverse Effect" if the appropriate mitigation strategy is put in place. In the event artifacts and/or features are discovered during construction, the OPCNM Superintendent and Staff Archeologist must be notified to assess the find before construction continues.	Addressed on FONSI-9, line 41
11.	FONSI 8		37	ORPI	Please describe the trench configuration during night time including lighting, barriers, tapering ends and any measures to address wildlife concerns.	Addressed on FONSI-4, line 43
12.	FONSI 9		22	ORPI	Spoil should be sifted and to the extent possible the products used in the project area, particularly on the road surface. An appropriate area for sifting should be identified.	See FONSI-4, line 12 through 17. Need for this is not anticipated by contractor.
13.	FONSI 9		26	ORPI	Revegetation and restoration techniques and materials need to be developed and approved by the land manager.	Addressed on 3-23, line 36

14.	FONSI-12		9	ORPI	Replace "avoid constructing" with "not construct." Part of the project area (approx from tower 004 to tower 302) is in prime, heavily-used Sonoran pronghorn habitat. The winter of 2010 – 2011 is predicted to be a warm, dry winter, which will reduce fitness of pronghorn. The fawning season dates should be seen as absolute – no construction during that time.	"CBP will not install fiber optic and commercial grid power cables in Sonoran pronghorn habitat from March 15 to July 31." This leaves open the possibility of other types of construction. See 5-6, line 6.
15.	FONSI 13		7	ORPI	Specifically, where would the water storage containers be used and what do they look like, how big are they and how big are the water trucks needed to service them?	See FONSI-4, line 22. 4-ton water trucks would be used; no info re: storage container size or location
16.	FONSI-13		16-21	ORPI	The 2 eligible archeological sites that were omitted from consideration should be added to this section: AZ Z:13:38 and AZ Y:16:32. They should be temporarily fenced/flagged and monitored by a qualified archeologist during ground disturbance.	Addressed on FONSI-15, line 35
17.	FONSI-13		13-14	ORPI	It is great that an archeologist will monitor all ground disturbance activities in previously undisturbed areas--- but it is paramount that an archeologist monitor all ground disturbance in the vicinities of known previously recorded eligible archeological sites.	Addressed on FONSI-15, line 32
18.	ES-1		25	ORPI	Deterrence is not listed among CBP's goals here, whereas it has been in earlier documents, and is a large part of the public perception of CBP.	Addressed on ES-1, line 27
19.	ES-2		5	ORPI	Same as comment #1	See above
20.	ES-2		9	ORPI	Same as comment #1	See above
21.	ES-2		15	ORPI	The proposed commercial power line is not relevant to the development of alternatives to the original tower #189. The issue is getting the data feeds from tower #302 to the USBP station in Why, which could be accomplished by the fiber optic cable. The issue of power is	Addressed on 3-33, line 14

					independent from, and not related to, the need/desire to find alternatives to tower #189.	
22.	ES-3		29	ORPI	Same as comment 5.	See above
23.	ES-4		21	ORPI	This paragraph does not adequately address the changes in (or impacts to) roads that the proposed action will cause, which were not covered by the 2009 EA. For example: How will the project accommodate pass-through vehicle traffic, during construction, without routing that traffic off the 59.4 and Bates Well Roads? If vehicles will be expected to simply drive around the construction areas, then this project will have the effect of essentially doubling the width of the roads. This must be cleared with the land manager, and addressed in this SEA. Also, if the trench is to be dug 4.5 feet south of the south edge of the road (See comment #17), the proposed action would increase the width of the road by 50%.	See comment #7
24.	ES-4		42	ORPI	Same as comment #1. Since this is a recurring item, perhaps the SEA should outline how that excavation and the sling-loading operations conformed with permits/arrangements with the USFWS, and identify all contractor and DHS personnel involved.	See above
25.	ES-6		45	ORPI	Adverse effects on aesthetics: Many would say these would be permanent, major (not minor), adverse effects. The Bates Well Road used to be a remote, primitive road used by visitors to the adjoining wildernesses of OPCNM and CPNWR. The presence of 5 ft x 5 ft electrical pullboxes at 1000-foot intervals would be a profound, permanent change in the experiences of these visitors.	SEA still says "minor"; see FONSI-9, line 13; ES-5, line 4; ES-6, line 6; 3-55, line 41; 3-56, line 4. SEA adds mitigation.
26.	ES-7		2	ORPI	There are no data to support this statement. In fact, the construction of considerable border infrastructure, increased CBP manpower and technology, and expansion of interdiction activities to include routine operation of vehicles in wilderness and endangered species habitats	No change in language.

					has not yet resulted in any measurably beneficial reduction in cross-border activities and the associated direct and indirect effects thereof. Our hope is that this will change soon.	
27.	ES-7		37	ORPI	Same as comment #26.	See above
28.	1-3		3	ORPI	Same as comment #1	See above
29.	1-3		7	ORPI	Same as comment #1	See above
30.	1-3		17	ORPI	Same as comment #21	See above
31.	2-1	2.3	43	ORPI	Same as comment 21	See above
32.	2-2	2.3	18	ORPI	Same as comment #5	See above
33.	2-2	2.3	20	ORPI	What is the fill between 49" and 38"? To what depth will the bedding materials be used? How will compacting be done in the narrow lower reaches of the trench?	Can't find any reference to this.
34.	2-9	2.3	6	ORPI	This section does not adequately address the changes in (or impacts to) roads that the proposed action will cause, which were not covered by the 2009 EA. The SEA needs to discuss how the project will accommodate pass-through vehicle traffic, during construction, within the footprint of the existing road infrastructure. During construction, given current usage levels, vehicles pass frequently, planning alternatives to accommodate this traffic is required and such alternatives need to be approved by the land manager and accepted by all stakeholders.	See comment #7
35.	2-9	2.3	35	ORPI	The pull box disturbed areas have a very limited expanse that may not accommodate after hour staging of project equipment. As an alternative consideration, there are a number of delineated pull off areas that may be well suited to meet this need.	Addressed on 2-10, line 21
36.	2-22	2.9	-	ORPI	Land Use: The proposed Action might result in major (not negligible) changes in land use, by providing commercial power along a 20-mile corridor. Presence of this power source increases the probability for future development in non-wilderness lands in OPCNM, CPNWR and BLM.	Need clarification on this topic; document variously describes impact as minor and negligible. See FONSI-8, lines 17-34 and 3-3, line

						45.
37.	3-3	3.2.2.2	17	ORPI	The "inconvenience" caused by the project on travelers will extend beyond BLM and OPCNM employees. All travelers including CBP and project contractors. Methods for addressing travel needs on project roads during project implementation will have to be considered in this SEA. All impacted agencies will have to understand these affects and develop alternative access plans or accept limited road access during project implementation. Alternatively, the project would have to accommodate access needs during implementation. For example there will continue to be a need to regularly supply Camp Grip or the new FOB throughout the project, how will this be done within the existing road infrastructure?	See comment #7.
38.	3-3	3.2.2.2.	19	ORPI	". . . baseline conditions would return . . ." re: OPCNM and CPNWR visitors traveling the project route. This is not the case; in fact as a result of the proposed alternative baseline conditions would undergo permanent adverse impacts. These impacts need to be reevaluated. What is now a primitive undeveloped road through one of the largest wilderness systems in the US would have electrical pullboxes visible every 1000 feet. This would erode current aesthetics, and would imply the prospect of numerous new human developments tying in to commercial power. Also, restoration of these sites would need to be closely coordinated with and approved by the land manager.	No change in language
39.	3-7	3.3.2.2.	34	ORPI	The proposed action would have indirect adverse effects on wilderness. For example although this and other future developments may take place in the non-wilderness corridor of the road, they could have major adverse impacts by being visible from the adjacent wilderness. These impacts need to be assessed.	See comment #8
40.	3-8	3.3.2.2.	4	ORPI	As noted above, over the last 10 years, increases in DHS	Not addressed. See 3-8,

					staffing, infrastructure, technology, and vehicle access through wilderness areas has been coincident with continually increasing (not decreasing) impacts on wilderness values.	lines 44-46 and 3-9, lines 1-12 as example.
41.	3-22	3.6.2.2	38	ORPI	BMPs involving re-vegetation and restoration must be developed with input from the land manager. The land manager must concur with planned re-vegetation and restoration work prior to solicitation of bids.	Addressed. See FONSI-12, line 36.
42.	3-30	3.10.2.2.	35	ORPI	The proposed action may indirectly result in major, long-term adverse impact on Sonoran pronghorn. Establishing a commercial-grid powerline through the project area may facilitate further human development in the area, which would have adverse effects on Sonoran pronghorn.	This topic needs clarification. See comment #14.
43.	3-32	3.10.2.2.	1-2	ORPI	This sentence is speculative, and is counter to observed trends over 10 years.	Don't know which sentence this is referring to.
44.	3-53	3.16.2.2.	15	ORPI	The SEA is silent on the critical issue of how traffic passing through the construction zone(s) will be managed, to prevent additional impacts outside the current footprint of the 59.4 and Bates Well Roads. Currently these road may have as many as 6 vehicles passing per hour. Construction activities are likely to occupy virtually the entire width of these roads, which currently are barely wide enough for 2 vehicles to pass in opposite directions. How will pass-through traffic be managed, to prevent it from departing the current road footprint? If pass-through traffic will be driving off on the side of the road to pass construction area(s), that will result in additional environmental impacts. Such impacts would constitute major, long-term, adverse effects on multiple resources, and must be addressed in this SEA, or an EIS.	See comment #7.
45.	3-54	3.17.2.2.	30-41	ORPI	Similar to comment 45.	
46.	5-5	5.7	7	ORPI	CBP must identify, specifically what, if any improvements to existing roads will be required in order to implement	Addressed. See 2-9, line 37.

					the project throughout its entire length.	
47.	5-5	5.7	10-13	ORPI	This paragraph is unclear. Any demarcation of project perimeters outside the footprint of the existing roadways in question must be determined solely by the land manager. Such areas, if needed, must be clearly identified, justified and openly coordinated with the land manager ahead of time during the compliance process.	Not well-addressed. See FONSI-11, line 34.
48.	5-7	5.7	2	ORPI	The maximum speed limit on all unpaved roads within OPCNM is 25 mph	Addressed. See 5-6, line 9.
49.	General comment			ORPI	Trenching by mechanical means may not be appropriate everywhere. Please describe more completely the methods, depths and locations that will be used to cross washes.	Horizontal boring will be used at some locations; see 2-7, line 14, 18, 42.
50.	General Comment			ORPI	If a horizontal boring machine is to be used where will the sludge be stored and where will the machine be washed down?	Addressed. See 2-9, line 10.
51.	General Comment			ORPI	How will compacting be done in trenched areas too narrow for the vibratory compactor.	Can't find reference to this.
52.	General Comment			ORPI	Please describe how the engineering road study being funded by CBP and conducted by Baker will be incorporated during this project to determine appropriate road grade and drainage for impacted sections of road.	

THE COCOPAH INDIAN TRIBE
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CCR-018-10-014

Patience E. Patterson, RPA
U.S. Department of Homeland Security
SBInet, Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, VA 20598

DATE: 01/11/2011

RE: Ajo-1 Draft SEA and Proposed FONSI

Dear: Ms Patterson

The Cultural Resources Department of the Cocopah Indian Tribe appreciates your consultation efforts on this project. We are pleased that you contacted our department on this issue for the purpose of solicitation of our input and to address our concerns on this matter. At this time we wish to make no comments on the development of the project. We defer the decision making process regarding the sensitive cultural resources of the area to the most local tribe(s) and support their determinations on this issue.

If you have any questions or need additional information please feel free to contact the cultural resource department. We will be happy to assist you with any future concerns or questions.

Sincerely,

H. Jill McCormick, M.A.
Cultural Resource Manager

AFFIDAVIT OF PUBLICATION

THE ARIZONA REPUBLIC

NOTICE OF AVAILABILITY
DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (SEA) AND PROPOSED FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE PROPOSED SBInet AJO-1 TOWER PROJECT, AJO STATION'S AREAS OF RESPONSIBILITY, U.S. BORDER PATROL, TUCSON SECTOR

United States (U.S.) Customs and Border Protection (CBP), a component of the Department of Homeland Security (DHS), announces the availability of and invites public comments on a draft Supplemental Environmental Assessment (SEA) and proposed Finding of No Significant Impact (FONSI) for the SBInet Ajo-1 Tower Project. Pursuant to the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (U.S.C.) 4321 et seq., CBP has prepared a draft SEA and proposed FONSI to identify and assess potential impacts associated with the proposed installation of a fiber optic cable and access to commercial grid power between previously analyzed towers. Additionally, the Proposed Action includes the option of siting, construction, operation, and maintenance of one communications tower, supporting infrastructure components, and technological improvements to existing facilities within the Tucson Sector, as well as the remediation of tower site TCA-AJO-189 on the Cabeza Prieta National Wildlife Refuge. The Proposed Action covers approximately 517 square miles of southwest Arizona in the area between Why and Lukeville, Arizona.

The draft SEA and proposed FONSI were prepared in accordance with CBP's obligations under NEPA, the Council on Environmental Quality (CEQ) implementing regulations at 40 Code of Federal Regulations Parts 1500-1508, and DHS Directive 023-01 (Environmental Planning Program). Copies of the draft SEA and proposed FONSI can be downloaded from the project website at www.cbp.gov/xp/cgov/border_security/sbi/sbi_news/sbi_enviro_docs/nepa/. Additionally, copies will be available in the following libraries for public review:

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15 Plaza
Ajo, Arizona 85321
(520) 387-6075

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101 N. Stone Avenue
Tucson, Arizona 85701
(520) 594-5235

Tohono O'odham Community College Library
Central Campus
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Highway 86 Mile Post 115.5N
Sells, Arizona 85634
(520) 383-8401

Phoenix Public Library
1221 N. Central Avenue
Phoenix, Arizona 85004

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(a) By Email to: ajoseacomments@cbp.dhs.gov.
(b) By mail to: Ms. Patience E. Patterson, RPA, U.S. Department of Homeland Security, U.S. Customs and Border Protection, Office of Technology, Innovation, and Acquisition Program Management Office, 1901 S. Bell Street, 7th Floor, Room 734, Arlington, VA 20598.
(c) By fax to: (571) 468-7391.

When submitting comments, please include your name and address, and identify your comments as being for the SBInet Ajo-1 Tower Project draft SEA and proposed FONSI. To request a hard copy of the draft SEA, please use one of the aforementioned contact methods.

Published: Jan. 6, 2011

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

Mark Gilmore, being first duly sworn, upon oath deposes and says: That he is a legal advertising representative of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

The Arizona Republic

January 6, 2011

Sworn to before me this
7TH day of
January A.D. 2011

BRIAN BILLINGS
Notary Public - Arizona
Maricopa County
My Comm. Expires Jul 25, 2014

Notary Public

Ajo Copper News

Hollister David, Publisher
Gabrielle David, Editor
Michelle Pacheco, Office Manager

P. O. Box 39 • Ajo, Arizona 85321
Phone (520) 387-7688
FAX (520) 387-7505

STATE OF ARIZONA)
) **ss.**
COUNTY OF PIMA)

NOTICE OF AVAILABILITY DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (SEA) AND PROPOSED FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE PROPOSED SBI*NET* AJO-1 TOWER PROJECT, AJO STATION'S AREAS OF RESPONSIBILITY, U.S. BORDER PATROL, TUCSON SECTOR

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Published in the Ajo Copper News on January 5, 2011
GSRC-NOA SBINet 110105 Gabrielle

Hollister David deposes and says that he is the publisher of the *Ajo Copper News*, a weekly newspaper of general circulation and established character, published weekly at Ajo, Pima County, Arizona, and that

NOTICE OF AVAILABILITY DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (SEA) AND PROPOSED FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE PROPOSED SBI*NET* AJO-1 TOWER PROJECT, AJO STATION'S AREAS OF RESPONSIBILITY, U.S. BORDER PATROL, TUCSON SECTOR

a correct copy of which is attached to this affidavit, was published in the said *Ajo Copper News* every week in the newspaper proper and not in a supplement for

Publ. January 5, 2011

Hollister David, Publisher,
Ajo Copper News

Sworn to and subscribed before me, a Notary Public in and for the County of Pima, Arizona, this **5** day of **January, 2010.**

Notary Public

OFFICIAL SEAL
MICHELLE A. PACHECO
Notary Public - State of Arizona
PIMA COUNTY
My Comm. Expires Feb. 27, 2011

TUCSON NEWSPAPERS

Tucson, Arizona

STATE OF ARIZONA)
COUNTY OF PIMA)

Debbie Capanear, being first duly sworn deposes and says: that she is the Legal Advertising Representative of **TNI PARTNERS, commonly known as TUCSON NEWSPAPERS**, a General Partnership organized and existing under the laws of the State of Arizona, and that it prints and publishes the Arizona Daily Star, a daily newspaper printed and published in the City of Tucson, Pima County, State of Arizona, and having a general circulation in said City, County, State and elsewhere, and that the attached

Legal Notice

was printed and published correctly in the entire issue of the said Arizona Daily Star on each of the following dates, to-wit:

JANUARY 6, 2011

Debbie Capanear

Subscribed and sworn to before me this 4 day of February, 2011

Silvia H Valdez

Notary Public

SILVIA H VALDEZ
Notary Public — Arizona
Pima County
Expires 12/15/2013

My commission expires _____

TNI AD NO. 7370856

NOTICE OF AVAILABILITY
DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (SEA) AND PROPOSED FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE PROPOSED SBINET AJO-1 TOWER PROJECT, AJO STATION'S AREAS OF RESPONSIBILITY, U.S. BORDER PATROL, TUCSON SECTOR

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Publish January 6, 2011
Arizona Daily Star

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Greta Anderson
Center for Biological Diversity
P.O. Box 710
Tucson, Arizona 85702

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

Dear Participant:

Enclosed for your review and comment is the above referenced document. The 30-day review period begins on January 6, 2011 and ends on February 7, 2011. The U.S. Customs and Border Protection (CBP) has prepared this draft SEA to identify and assess the potential impacts associated with the construction of fiber optic and commercial grid power to existing CBP communication and sensor towers. The SEA also analyzes the rehabilitation of a hole on Growler Mountain that was excavated during the initial construction of a proposed communication tower on Growler Mountain. The existing communication and sensor towers were previously analyzed in the *Environmental Assessment for the Proposed SBnet Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona*, finalized in December 2009. The document can also be viewed and down loaded at the following URL address: http://www.cbp.gov/xp/cgov/border_security/sbi/sbi_news/sbi_enviro_docs/nepa/

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1) Increase efficiency of border surveillance and interdiction;
2) Provide a stable and efficient communication link between SBI*net* towers;
3) Reduce impacts from the SBInet Ajo-1 Tower Project on designated wilderness;
4) Reduce impacts to Sonoran pronghorn; and
5) Remediate impacts that occurred at the TCA-AJO-189 tower site (Growler Mountain)

The draft SEA was prepared in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321, et seq.), the Council on Environmental Quality's NEPA implementing regulations at 40 C.F.R. Parts 1500-1508, and the U.S. Department of Homeland Security's *Management Directive 023-01, Environmental Planning Program.*

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Sincerely,

-Margaret C Arnberg

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Lee Baiza
Park Superintendent
National Park Service
Organ Pipe Cactus National Monument
10 Organ Pipe Drive
Ajo, Arizona 85321

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Sherry Barrett
Assistant Field Supervisor for Southern Arizona
U.S. Fish and Wildlife Service
110 South Church Avenue
Suite 3450
Tucson, Arizona 85701

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Brian Bellow
Field Manager
Bureau of Land Management, U.S. Department of Interior
12661 East Broadway
Tucson, Arizona 85748

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Marjorie Blaine
Senior Project Manager
U.S. Army Corps of Engineers
Los Angeles District, Arizona Regulatory Branch
5205 East Comanche Street
Tucson, Arizona 85707

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

Mr. Nova Blazej
Manager Environmental Review Office Coordinator
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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(c) By fax to: 571-468-7391, Attention: Ms. Patience Patterson

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Sincerely,

Margaret C. Arnberg

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Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Dan Brocious
Public Information
Smithsonian Institution, Fred Lawrence Whipple Observatory
P.O. Box 97
670 Mount Hopkins Road
Amado, Arizona 85645-0097

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

Ms. Laura Canaca
Project Evaluation Program Supervisor
Arizona Game and Fish
Habitat Branch-Project Evaluation Program
2221 West Greenway Road
Phoenix, Arizona 85023

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Elizabeth Alvarez del Castillo
Kitt Peak National Observatory
950 North Cherry Avenue
Tucson, Arizona 85719

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

January 6, 2011

Mr. Matt Clark
Southwest Representative
Defenders of Wildlife
Southwest Office, 110 South Church Street
Suite 4292
Tucson, Arizona 85701

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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January 6, 2011

The Honorable Sherry Cordova
Chairperson
Cocopah Tribal Council
Attn: Lisa Wanstall, Museum Director
Cocopah Museum
County 15th and Avenue G
Somerton, Arizona 85350

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

Mr. Christopher Corbally, S.J.
Vatican Observatory Group
University of Arizona, Steward Observatory
Tucson, Arizona 85721

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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January 6, 2011

The Honorable Diane Enos
President
Salt River Pima-Maricopa Indian Community
Attn: Mr. Dan Daggett, Cultural Programs Supervisor or Ms. Dezbah Hatathli
10005 East Osborn Road
Scottsdale, Arizona 85256

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Customs and
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January 6, 2011

Mr. Robert L. Gent
President
International Dark-Sky Association
4204 South Hohokam Drive
Sierra Vista, Arizona 85650

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
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January 6, 2011

The Honorable Gabrielle Giffords
Representative (Arizona-8th)
United States House of Representatives
502 Cannon House Office Building
Washington, DC 20510-0308

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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(c) By fax to: 571-468-7391, Attention: Ms. Patience Patterson

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Sincerely,

Margaret C. Arnberg

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable Raul Grijavala
Representative (Arizona-7th)
United States House of Representatives
1440 Longworth House Office Building
Washington, DC 20510-0307

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Office of Technology Innovation and Acquisition
Customs and Border Protection
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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Benjamin Grumbles
Director
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Lisa Hanf
Office of Federal Activities
U.S. Environmental Protection Agency
Region 9, Federal Activities Office (CMD-2)
75 Hawthorne Street
San Francisco, California 94105

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable Chairwoman Marla Henry
Tohono O'odham Nation
Tohono O'odham Nation Administration Building
49 Main Street
Sells, Arizona 85634

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

Mr. Michael Horton
National Section 7 Coordinator
U.S. Fish and Wildlife Service
4401 North Fairfax Drive
Suite 420
Arlington, Virginia 22203

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Karen Howe
Ecologist
Tohono O'odham Nation
Wildlife and Vegetation Management
Tohono O'odham Nation Administration Building
49 Main Street
Sells, Arizona 85634

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

Mr. C. H. Huckelberry
County Administrator
Pima County
130 West Congress St.
10th Floor
Tucson, Arizona 85701

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Customs and
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January 6, 2011

Dr. Buell T. Jannuzi
Director
Kitt Peak National Observatory
950 N. Cherry Avenue
Tucson, Arizona 85719

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

The Honorable Jon Kyl
Senator (Arizona)
United States House Senate
730 Hart Senate Office Building
Washington, DC 20510-0304

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Sincerely,

Margaret C Arnberg

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Jody Latimer
Manager
Arizona State Land Department
Natural Resource Conservation Division
1616 West Adams Street
Phoenix, Arizona 85007

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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The draft SEA was prepared in accordance with provisions of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321, et seq.), the Council on Environmental Quality's NEPA implementing regulations at 40 C.F.R. Parts 1500-1508, and the U.S. Department of Homeland Security's *Management Directive 023-01, Environmental Planning Program*.

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable Ronnie Lupe
Chairman
White Mountain Apache Tribe
Attn: Mr. Mark Atalha, THPO
White Mountain Apache Tribe Historic Preservation Office
202 East Walnut Street
Whiteriver, Arizona 85941

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Colonel Thomas H. Magness, IV
District Commander
U.S. Army Corps of Engineers
Los Angeles District
915 Wilshire Boulevard
Suite 980
Los Angeles, California 90017

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Customs and Border Protection
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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable Louis Manuel
Chairperson
Ak-Chin Indian Community Council
Attn: Ms. Caroline Anton, Cultural Resource Manager
Ak-Chin Him Dak Eco Museum & Archives
47685 North Eco Museum Road
Maricopa, Arizona 85239

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable John McCain
Senator (Arizona)
United States House Senate
241 Russell Senate Office Building
Washington, DC 20510-0303

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Craig Miller
Northern Jaguar Project
110 Church Street
Suite 4292
Tucson, Arizona 85701

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Customs and
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January 6, 2011

Ms. Leesa Morrison
Homeland Security Advisor- Arizona
Arizona Department of Homeland Security
1700 West Washington
Phoenix, Arizona 85007

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable Ned Norris, Jr.
Chairman
Tohono O'odham Nation
Attn: Mr. Peter Steere, Cultural Affairs Program Manager
Main Tribal Building Business Loop
Sells, Arizona 85634

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

The Honorable Wendsler Nosie, Sr.
Chairperson
San Carlos Apache Tribe
Attn: Ms. Vernelda Grant, THPO
Historic Preservation & Archaeology Department
San Carlos Avenue
San Carlos, Arizona 85550

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
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U.S. Customs and
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January 6, 2011

The Honorable Benjamin H. Nuvamsa
Chairman
Attn: Marvin Lalo, Acting Director
Hopi Cultural Preservation Office
Hopi Tribal Council
1 Main Street
Kykotsmovi, Arizona 86039

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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4) Reduce impacts to Sonoran pronghorn; and

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Sincerely,

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Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Steve Owens
ADEQ Director
Arizona Department of Environmental Quality
Southern Region Office
400 West Congress
Suite 433
Tucson, Arizona 85701

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U.S. Customs and
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January 6, 2011

Ms. Kathy Pedrick
Special Assistant for International Programs
Bureau of Land Management, U.S. Department of Interior
Federal Building, CNF Sixth Floor, #6V3
300 West Congress
Tucson, Arizona 85701

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Phoenix Public Library
Attention: Librarian
1221 N. Central Avenue
Phoenix, AZ 85004

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33 Plaza
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101 N. Stone Avenue
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Tohono O'odham Nation
Tohono O'odham Nation Administration Building
49 Main Street
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Ms. Elaine Raper
Acting District Manager
Bureau of Land Management, U.S. Department of Interior
Phoenix District
21604 North 7th Avenue
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Sincerely,

Margaret C Arnberg

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable William Rhodes
Governor
Gila River Indian Community
Attn: Mr. Barnaby Lewis, Cultural Resource Specialist
315 West Casa Blanco Road
Sacaton, Arizona 85247

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Commissioner C.W. "Bill" Ruth
Office of the Commissioner
International Boundary and Water Commission
U.S. Section
4171 North Mesa
Suite C-100
El Paso, Texas 79902-1441

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Nina Siqueiros
Superintendent
Bureau of Indian Affairs
BIA Agency, Circle Drive
Sells, Arizona 85634

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Sid Slone
Manager
Cabeza Prieta National Wildlife Refuge
1611 North Second Avenue
Ajo, Arizona 85321

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable Ivan Smith
Chairman
Tonto Apache Tribe
Reservation #30
Payson, Arizona 85541

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Steve Spangle
Field Supervisor
U.S. Fish and Wildlife Service
2321 West Royal Palm Road
Suite 103
Phoenix, Arizona 85021-4951

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Customs and
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January 6, 2011

Mr. Peter Steere
Manager
Tohono O'odham Nation
Cultural Affairs Office
Tohono O'odham Nation Administration Building
49 Main Street
Sells, Arizona 85634

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January 6, 2011

Mr. Mark Sturm
Organ Pipe Cactus National Monument
10 Organ Pipe Drive
Ajo, Arizona 85321

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January 6, 2011

Mr. Sean Sullivan
Sierra Club
758 N. 5th Ave
Suite 214
Tucson, Arizona 85705

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Customs and Border Protection
Enclosure(s)

1300 Pennsylvania Avenue NW
Washington, DC 20229

U.S. Customs and Border Protection

Tohono O'odham Community College Library
Central Campus
Building 400, Room 402
Attention: Librarian
Highway 86 Mile Post 115.5N
Sells, Arizona 85634

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

Dear Librarian:

U.S. Customs and Border Protection (CBP) requests that your library make available to the public the enclosed *Draft Supplemental Environmental Assessment for the SBInet Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona*, and the related proposed *Finding of No Significant Impact*, for a 30-day public review period. Please place a copy of this letter and the draft Supplemental Environmental Assessment (SEA) in a location that facilitates public review. The document can also be downloaded from the project website at www.cbp.gov/xp/egov/border_security/sbi/sbi_news/sbi_enviro_docs/nepa/.

In support of the Secure Border Initiative program, on January 11, 2011, CBP is publishing a Notice of Availability for the draft SEA. The draft EA identifies and assesses the potential impacts associated with the installation of fiber optic cable and construction of access from the existing commercial power grid to existing CBP communication and sensor towers. The SEA also analyzes the rehabilitation of a hole on Growler Mountain that was excavated during the initial construction of a proposed communication tower on Growler Mountain. The Proposed Action covers approximately 517 square miles of southwest Arizona in the area between Why and Lukeville, Arizona.

The purpose of the Proposed Action is to provide a communication link between towers to ensure effectiveness and reduce impacts to sensitive resources. The supplemental action is needed to:

1) increase surveillance and interdiction efficiency;
2) provide a stable and efficient communication link between two SBI*net* towers;

3) reduce impacts from the SBInet Ajo-1 Tower Project on designated wilderness;
4) reduce impacts on Sonoran pronghorn; and
5) remediate impacts that occurred at the TCA-AJO-189 tower site (Growler Mountain)

The draft SEA was prepared in compliance with provisions of the National Environmental Policy Act (NEPA) of 1969 as amended (42 United State Code 4321, et seq.), the Council on Environmental Quality's NEPA implementing regulations at 40 Code of Federal Regulations Part 1500 et seq., and the U.S. Department of Homeland Security's *Management Directive 023-01, Environmental Planning Program*.

CBP invites your participation in this public process. Comments must be received by February 7, 2011. When submitting your comments, please include name and address, and identify comments as intended for the Ajo-1 Draft SEA and Proposed FONSI. Comments on the enclosed documents, or questions about them, can be submitted by:

(a) E-mail to: ajoseacomments@cbp.dhs.gov
(b) By mail to: Ms. Patience E. Patterson, RPA, U.S. Department of Homeland Security, SBI*net* Program Management Office, 1901 S. Bell Street, Room 7-090, Arlington, VA 20598
(c) By fax to: (517) 468-7391, Attention: Ms. Patience Patterson

Your prompt attention to this request is greatly appreciated. If you have any questions, please contact Ms. Patterson via E-mail or the postal address listed above.

Sincerely,

Margaret C. Arnberg
Program Manager, SBI*net*

Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

January 6, 2011

Dr. Benjamin Tuggle
Regional Director
U.S. Fish and Wildlife Service
Southwest Region (Region 2)
P.O. Box 1306
Albuquerque, New Mexico 87103-1306

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

Dear Participant:

Enclosed for your review and comment is the above referenced document. The 30-day review period begins on January 6, 2011 and ends on February 7, 2011. The U.S. Customs and Border Protection (CBP) has prepared this draft SEA to identify and assess the potential impacts associated with the construction of fiber optic and commercial grid power to existing CBP communication and sensor towers. The SEA also analyzes the rehabilitation of a hole on Growler Mountain that was excavated during the initial construction of a proposed communication tower on Growler Mountain. The existing communication and sensor towers were previously analyzed in the *Environmental Assessment for the Proposed SBnet Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona,* finalized in December 2009. The document can also be viewed and down loaded at the following URL address: http://www.cbp.gov/xp/cgov/border_security/sbi/sbi_news/sbi_enviro_docs/nepa/

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Sincerely,

Margie Arnberg

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

The Honorable Chairman Jose Vernon
Legislative Chairman
Tohono O'odham Nation
Tohono O'odham Nation Administration Building
49 Main Street
Sells, Arizona 85634

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Sincerely,

Margaret C Arnberg

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Selso Villegas
Director
Tohono O'odham Nation
Department of Natural Resources
Tohono O'odham Nation Administration Building
49 Main Street
Sells, Arizona 85634

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Sincerely,

-Margaret Carney

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Ms. Karen Vitulano
U.S. Environmental Protection Agency
Region 9
Environmental Review Office, Mail Code CED-2
75 Hawthorne Street
San Francisco, California 94105-3901

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Program Manager, SBInet
Office of Technology Innovation and Acquisition
Customs and Border Protection
Enclosure(s)

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

January 6, 2011

Mr. Paul J. Winger
9131 N. Overlook Drive
Tucson, Arizona 85704

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
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January 6, 2011

Ms. Laura Yoshii
Acting Reginal Administrator
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

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Margaret C Arnberg

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Program Manager, SBInet
Office of Technology Innovation and Acquisition
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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

January 6, 2011

The Honorable Peter Yucupicio
Chairman
Pascua Yaqui Tribe
Attn: Ms. Amalia Reyes, Language and Cultural Preservation Specialist
7474 South Camino de Oeste
Tucson, Arizona 85746

Subject: Draft Supplemental Environmental Assessment (SEA) and Proposed Finding of No Significant Impact for the SBI*net* Ajo-1 Tower Project, Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector, Arizona

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Sincerely,

Margaret C. Arnberg

Margaret C. Arnberg
Program Manager, SBInet
Office of Technology Innovation and Acquisition
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ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Benjamin H. Grumbles
Director

July 9, 2010

Mr. James Riordan, Executive Director SBI*net*
U.S. Department of Homeland Security
U.S. Customs and Border Protection
Washington, D.C. 20229

Project: Proposed Supplemental Environmental Assessment for SBI*net* Ajo-1 Tower Project
U.S. Border Patrol Tucson Sector

Dear Mr. Riodan:

The Air Quality Division has reviewed the project as described in your letter, with map enclosure, received on June 18, 2010, that you submitted for a General Conformity Determination with the Arizona State Implementation Plan in accordance with Clean Air Act Section 176(c)(1); 58 Federal Register 63214-63259; Title 40 Code of Federal Regulations Part 51, Subpart W §§ 51.850-51.860; Title 40 Code of Federal Regulations Part 93, Subpart B §§ 93.150-160; and Arizona Administrative Code R18-2-348 (approved into the Arizona State Implementation Plan April 23, 1999; effective June 22, 1999). The Air Quality Division has concluded that a General Conformity Determination is not required for the following reason:

- Project's total emissions of PM_{10} in a PM_{10} Maintenance Area would be less than *de minimis* levels in Title 40 CFR § 51.853(b) [and §93.153(b)] as described or calculated.

Nevertheless, considering the proposed tower sites and prevailing winds, which can affect the Ajo PM_{10} Moderate Planning Nonattainment Area, we are concerned that the proposed project(s), may potentially, affect the area's immediate environment with particulate matter. Both particulate matter 10-microns (PM_{10}) and particulate matter 2.5-microns ($PM_{2.5}$) in size are subject to National Ambient Air Quality Standards (NAAQS). PM_{10} and smaller can penetrate the lungs of human beings and animals, and $PM_{2.5}$ and smaller is difficult for lungs to expel and has been linked to increases in death rates and heart attacks by disturbing heart rhythms and increasing plaque and clotting; respiratory infections, asthma attacks and chronic obstructive pulmonary disease (COPD) aggravation.

To comply with applicable air pollution control requirements and minimize adverse impacts on public health and welfare, the following information is provided:

REDUCE DISTURBANCE of PARTICULATE MATTER during CONSTRUCTION

The following measures are recommended to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off the construction site:

I. Site Preparation and Construction
   A. Minimize land disturbance;
   B. Suppress dust on traveled paths which are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air;
   C. Cover trucks when hauling soil;
   D. Minimize soil track-out by washing or cleaning truck wheels before leaving construction site;
   E. Stabilize the surface of soil piles; and
   F. Create windbreaks.

II. Site Restoration
   A. Revegetate any disturbed land not used;
   B. Remove unused material; and
   C. Remove soil piles via covered trucks.

The following rules applicable to reducing dust during construction, demolition and earth moving activities are enclosed:

- Arizona Administrative Code R18-2-604 through -607
- Arizona Administrative Code R18-2-804

Should you have further questions, please do not hesitate to call me at (602) 771-2375 or A. "Bonnie" Cockrell at (602) 771-2378 of the Planning Section Staff.

Very truly yours,

Diane L. Arnst, Manager
Air Quality Planning Section

Enclosure

cc: Bret Parke, EV Administrative Counsel
A. "Bonnie" Cockrell, Environmental Program Specialist, Air Planning
File No. 240105

R18-2-604. Open Areas, Dry Washes, or Riverbeds

A. No person shall cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.

B. No person shall cause, suffer, allow, or permit a vacant lot, or an urban or suburban open area, to be driven over or used by motor vehicles, trucks, cars, cycles, bikes, or buggies, or by animals such as horses, without taking reasonable precautions to limit excessive amounts of particulates from becoming airborne. Dust shall be kept to a minimum by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means.

C. No person shall operate a motor vehicle for recreational purposes in a dry wash, riverbed or open area in such a way as to cause or contribute to visible dust emissions which then cross property lines into a residential, recreational, institutional, educational, retail sales, hotel or business premises. For purposes of this subsection "motor vehicles" shall include, but not be limited to trucks, cars, cycles, bikes, buggies and 3-wheelers. Any person who violates the provisions of this subsection shall be subject to prosecution under A.R.S. § 49-463.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-604 renumbered without change as Section R18-2-604 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-604 renumbered to R18-2-804, new Section R18-2-604 renumbered from R18-2-404 and amended effective November 15, 1993 (Supp. 93-4).

R18-2-605. Roadways and Streets

A. No person shall cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down, detouring or by other reasonable means.

B. No person shall cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-605 renumbered without change as Section R18-2-605 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-605 renumbered to R18-2-805, new Section R18-2-605 renumbered from R18-2-405 effective November 15, 1993 (Supp. 93-4).

R18-2-606. Material Handling

No person shall cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Section R18-2-606 renumbered from R18-2-406 effective November 15, 1993 (Supp. 93-4).

R18-2-607. Storage Piles

A. No person shall cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled, or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.

B. Stacking and reclaiming machinery utilized at storage piles shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents, as to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Section R18-2-607 renumbered from R18-2-407 effective November 15, 1993 (Supp. 93-4).

R18-2-804. Roadway and Site Cleaning Machinery

A. No person shall cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

B. In addition to complying with subsection (A), no person shall cause, allow or permit the cleaning of any site, roadway, or alley without taking reasonable precautions to prevent particulate matter from becoming airborne. Reasonable precautions may include applying dust suppressants. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means.

Historical Note

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-804 renumbered to Section R18-2-904, new Section R18-2-804 renumbered from R18-2-604 effective November 15, 1993 (Supp. 93-4).

Arizona State Parks

Eligibility determinations
No adverse effect

June 24, 2009

James Riordan, Executive Program Director
Secure Border Initiative
U.S. Customs and Border Protection
1300 Pennsylvania Avenue
Washington, DC 20229

RE: Proposed Tower Installations within Organ Pipe Cactus Monument); CBP
SHPO-2008-1056 (40004)

Dear Mr. Riordan:

Thank you for continuing to consult with our office pursuant to 36 CFR 800 regarding the above referenced tower project. William Collins, Historian, and I have the following comments based on documentation submitted.

1. We concur with your "unevaluated" determinations as listed in the enclosure with your letter (Enclosure #1) because the documentation provided in the survey report is not sufficient to support eligibility determinations for those properties.

2. We concur with eligibility determinations as listed in the enclosure to your letter (Enclosure #1), with two exceptions: AZ Z:13:127(ASM) and SON C:1:71(ASM).

3. We do not concur with the recommendation that the historic components of AZ A:13:127(ASM) are eligible for listing in the National Register of Historic Places (NRHP) under Criterion A. The statement of the property's historic context relates that this property was a short-term use of land in a manner inappropriate to the area's climate and water resources. It is not associated with the broad pattern of historic usage (cattle raising) that was important in the region's development. It fails to meet to National Register's criteria for association with *important* aspects of local history.

4. We do not concur with the recommendation that the prehistoric components of SON C:1:71(ASM) are not eligible for listing in the NRHP. It is our opinion that the earthen berms are prehistoric water control features and that the site is NRHP eligible under Criterion D.

5. **We concur that the avoidance and archaeological monitoring measures that will be implemented during construction and installation are sufficient to support the finding of no adverse effect for the undertaking.**

We appreciate your continuing cooperation with our office in complying with the requirements of historic preservation.

Sincerely,

Jo Anne Medley
Compliance Specialist/Archaeologist
State Historic Preservation Office

Enclosure (1)

Cc: Patience E. Patterson, Director, Environmental Planning, SBInet, Washington, DC

Arizona State Parks
1300 W. Washington
Phoenix, AZ 85007

Tel & TTY: 602.542.4174
AZStateParks.com

800.285.3703 from
(520 & 928) area codes

General Fax:
602.542.4180

Director's Office Fax:
602.542.4188

Table – Summary of findings, project effects and management recommendations

Archaeological Site	Component Description	Potential Effect	NRHP Recommendation	Management Recommendation	Associated Tower
SON B:4:32(ASM)	Prehistoric (artifacts/features)	No adverse effect	Eligible	Avoidance, archaeological monitoring during construction	TCA-AJO-003
AZ Z:13:127(ASM) Armenta Ranch	Historic (ranch property) Prehistoric (artifacts/features)	No adverse effect No effect	~~Eligible~~ NOT ELIGIBLE Unevaluated	Avoidance; use Bates Well Road to access tower location	TCA-AJO-004
SON C:1:63(ASM)	Prehistoric (artifacts)	No adverse effect	Eligible	Avoidance, archaeological monitoring during construction	TCA-AJO-310
SON C:1:64(ASM)	Historic (erosion control) Prehistoric (artifacts/feature)	No effect No adverse effect	Unevaluated Eligible	Avoidance, tower location rejected	TCA-AJO-008
SON C:1:65(ASM)	Historic (erosion control) Prehistoric (artifacts/feature)	No effect No adverse effect	Unevaluated Eligible	Avoidance, tower location rejected	TCA-AJO-008
SON C:1:66(ASM)	Prehistoric (artifacts/features)	No adverse effect	Eligible	Avoidance, tower location rejected	TCA-AJO-008
SON C:1:67(ASM)	Historic (erosion control) Prehistoric (artifacts/features)	No effect No adverse effect	Unevaluated Eligible	Avoidance, tower location rejected	TCA-AJO-008
SON C:1:68(ASM)	Prehistoric (artifacts/features)	No adverse effect	Eligible	Avoidance, tower location rejected	TCA-AJO-008
SON C:1:69(ASM)	Prehistoric (artifacts/feature)	No effect	Ineligible	Avoidance, tower location rejected	TCA-AJO-008
SON C:1:70(ASM)	Historic (erosion control) Prehistoric (artifacts)	No effect No adverse effect	Unevaluated Unevaluated	Avoidance, tower location rejected	TCA-AJO-008
SON C:1:71(ASM)	Historic (erosion control) Prehistoric (artifacts) update	No effect No effect	Unevaluated ~~Ineligible~~ D ELIGIBLE	Archaeological monitoring during construction	TCA-AJO-310
No CR Site on CPNWR tower site	N/A	None	No Historic Properties Affected	No Historic Properties Affected	TCA-AJO-189

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Project Evaluation Program Supervisor
Arizona Game and Fish Department
WMHB – Project Evaluation Program
5000 W. Carefree Highway
Phoenix, AZ 85086-5000

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Sir/Madam:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed actions. The actions included in this SEA would occur with the SBInet Ajo-1 Tower Project Area (Figure 1). The project area is located solely on federally-owned lands and includes CPNWR, Organ Pipe Cactus National Monument and Bureau of Land Management lands. At the present time, the proposed action includes the construction of fiber optic and commercial grid power to TCA-AJO-004 and 302 and the USBP forward operating base to be moved in proximity to TCA-AJO-302 as part of the 2009 EA (Figure 2). The construction of fiber optic would replace the communication function of tower TCA-AJO-189 and complete the

communication link between towers TCA-AJO-004 and 302 with the USBP Ajo Station. Two proposed tower sites are also currently being considered as alternates (Alternatives 2 and 3) to the original TCA-AJO-189 tower site (Figure 3). The two alternate tower sites would require the use of helicopter for access during construction and maintenance. Additionally, the modification of the tower foundation at TCA-AJO-189 (Alternative 1) is also being considered as part of this SEA (Figure 3).

We are currently in the process of gathering the most current information available regarding Federal and state listed species potentially occurring within this area. CBP respectfully requests that your agency provide input regarding protected species, designated critical habitat, descriptions of the sensitive resources (e.g., rare or unique plant communities, threatened and endangered and candidate species), and unique or environmentally sensitive areas that you believe may be affected by the proposed USBP activities.

We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Dorion Watkins

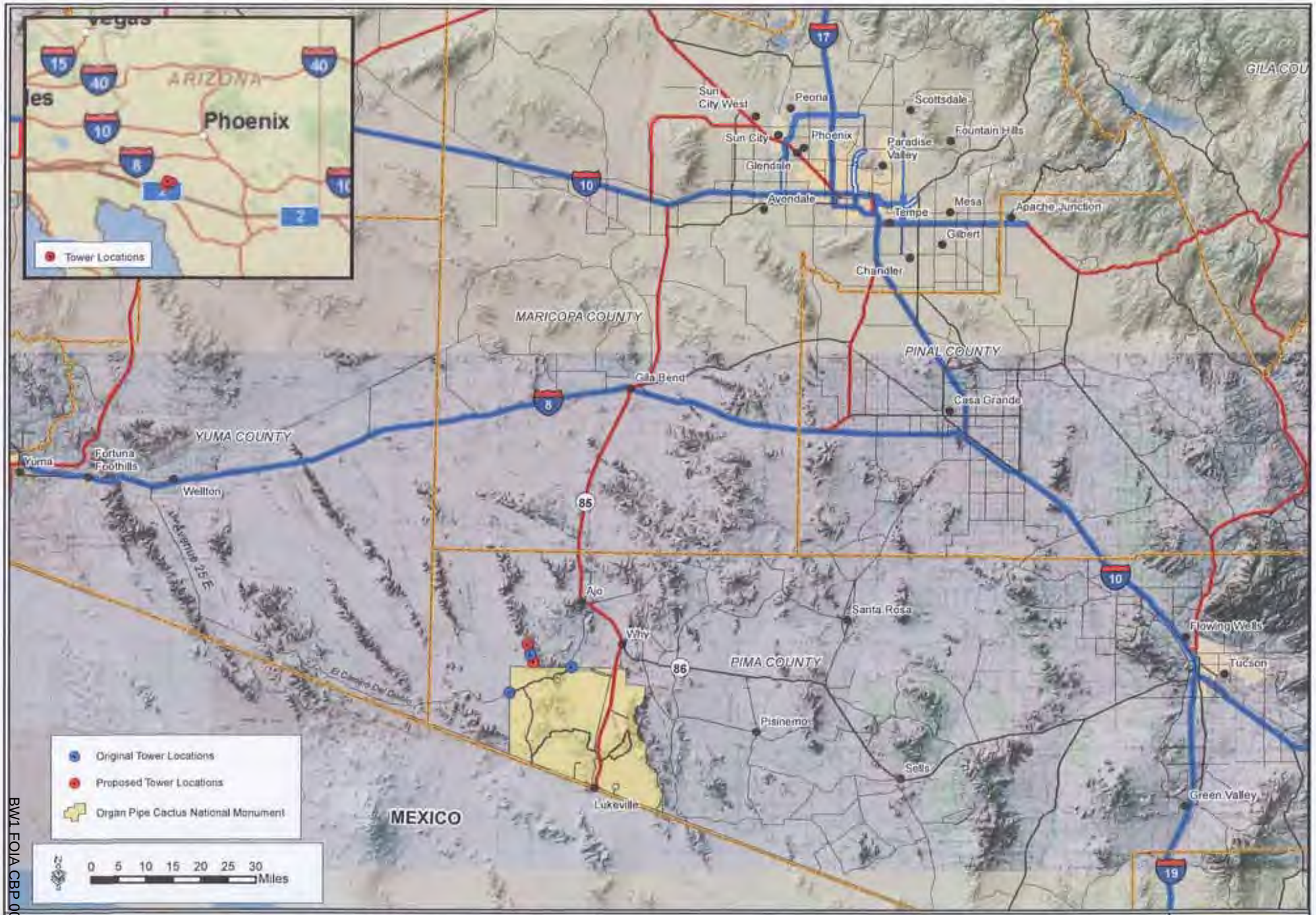
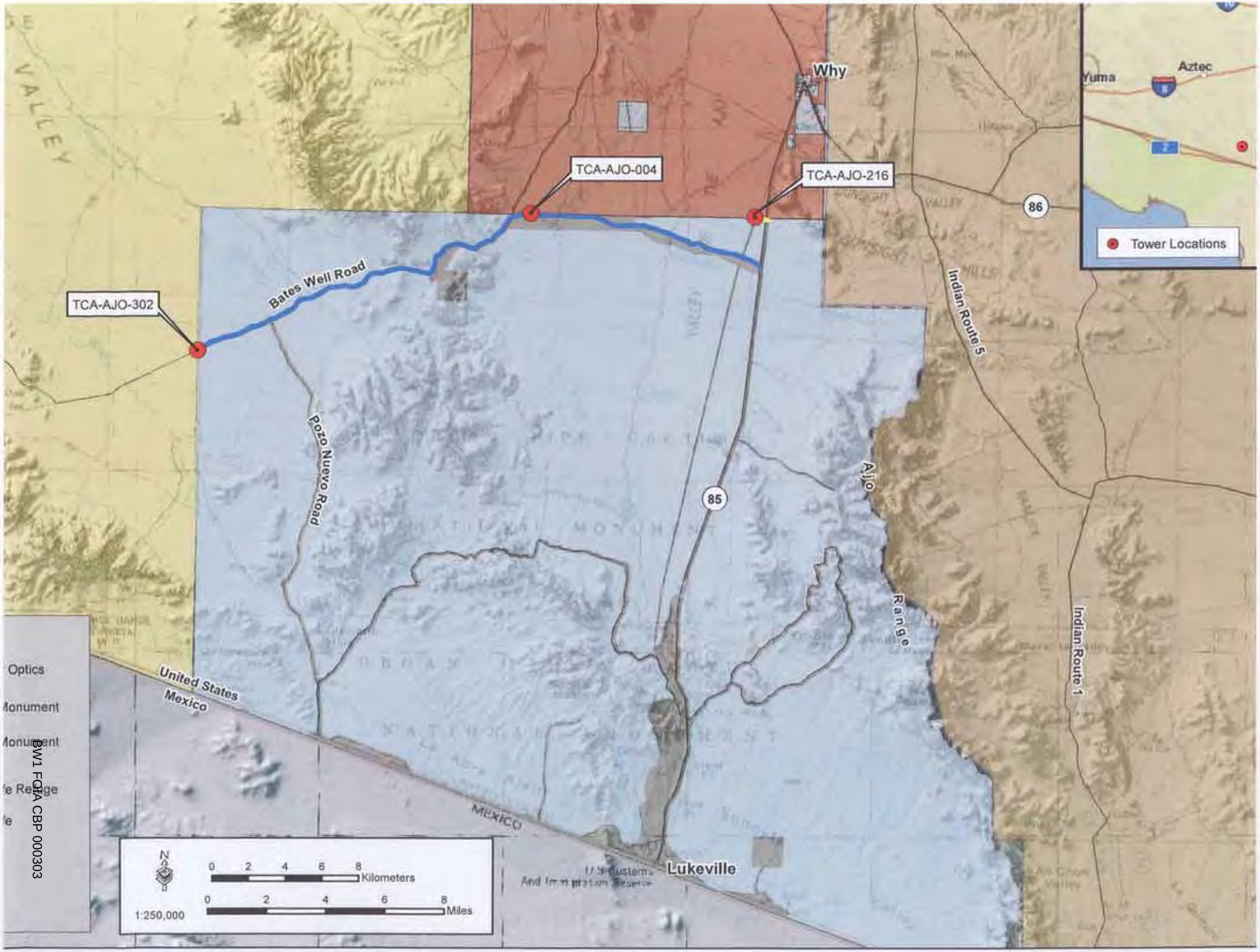
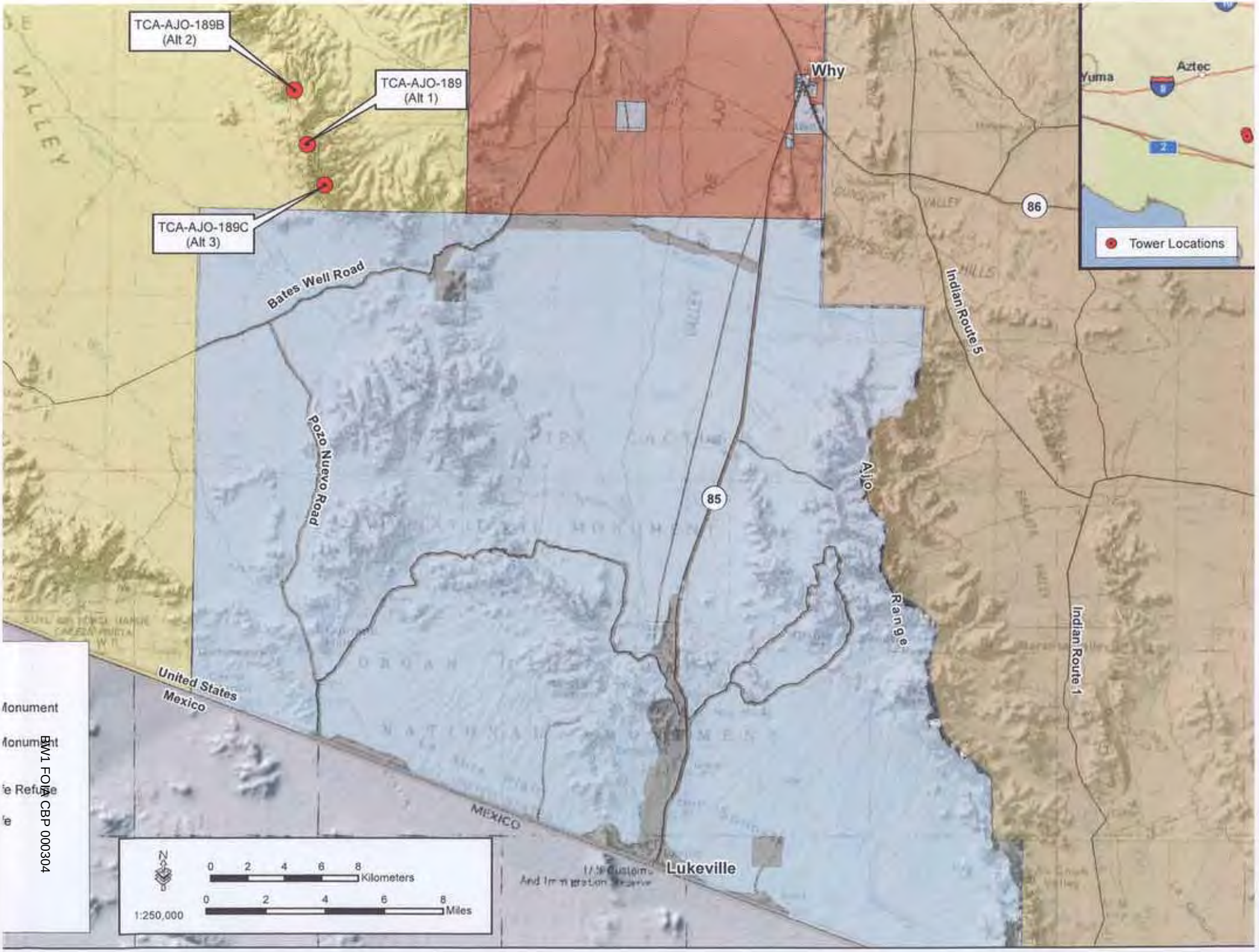


Figure 1: Vicinity Map

GSRC

June 2010





U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Sherry Barrett, Assistant Field Supervisor
Arizona Ecological Services Field Office
U.S. Fish and Wildlife Service
201 N. Bonita Ave.
Suite 141
Tucson, AZ 85745

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project.
U.S. Border Patrol Tucson Sector

Dear Ms. Barrett:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed actions. The actions included in this SEA would occur with the SBInet Ajo-1 Tower Project Area (Figure 1). The project area is located solely on federally-owned lands and includes CPNWR, Organ Pipe Cactus National Monument and Bureau of Land Management lands. At the present time, the proposed action includes the construction of fiber optic and commercial grid power to TCA-AJO-004 and 302 and the USBP forward operating base to be moved in proximity to TCA-AJO-302 as part of the 2009 EA (Figure 2). The construction of fiber optic

would replace the communication function of tower TCA-AJO-189 and complete the communication link between towers TCA-AJO-004 and 302 with the USBP Ajo Station. Two proposed tower sites are also currently being considered as alternates (Alternatives 2 and 3) to the original TCA-AJO-189 tower site (Figure 3). The two alternate tower sites would require the use of helicopter for access during construction and maintenance. Additionally, the modification of the tower foundation at TCA-AJO-189 (Alternative 1) is also being considered as part of this SEA (Figure 3).

We are currently in the process of gathering the most current information available regarding Federal and state listed species potentially occurring within this area. CBP respectfully requests that your agency provide input regarding protected species, designated critical habitat, descriptions of the sensitive resources (e.g., rare or unique plant communities, threatened and endangered and candidate species), and unique or environmentally sensitive areas that you believe may be affected by the proposed USBP activities. Threatened and Endangered species and best management practices information from the U.S. Fish and Wildlife Service's (USFWS) IPac system and the USFWS's Biological Opinion for the SBI*net* Ajo-1 Tower Project (22410-F-2009-0089 and 22410-1989-0078-R6) will be used in preparation of the Draft SEA.

We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Steve Spangle
Ms. Erin Fernandez
Mr. Jim Rorabaugh
Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Mr. Lee Biaza, Superintendent
Organ Pipe Cactus National Monument
10 Organ Pipe Drive
Ajo, AZ 85321

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Mr. Biaza:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

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operating base to be moved in proximity to TCA-AJO-302 as part of the 2009 EA (Figure 2). The construction of fiber optic would replace the communication function of tower TCA-AJO-189 and complete the communication link between towers TCA-AJO-004 and 302 with the USBP Ajo Station. Two proposed tower sites are also currently being considered as alternates (Alternatives 2 and 3) to the original TCA-AJO-189 tower site (Figure 3). The two alternate tower sites would require the use of helicopter for access during construction and maintenance. Additionally, the modification of the tower foundation at TCA-AJO-189 (Alternative 1) is also being considered as part of this SEA (Figure 3).

We are currently in the process of gathering the most current information available regarding Federal and state listed species potentially occurring within this area. CBP respectfully requests that your agency provide input regarding protected species, designated critical habitat, descriptions of the sensitive resources (e.g., rare or unique plant communities, threatened and endangered and candidate species), and unique or environmentally sensitive areas that you believe may be affected by the proposed USBP activities. Additionally, your response should include any National Park Service restrictions, permitting or other requirements with which CBP would have to comply during project siting, construction, and operation. Threatened and Endangered species and best management practices information from the U.S. Fish and Wildlife Service's (USFWS) IPac system and the USFWS's Biological Opinion for the SBI*net* Ajo-1 Tower Project (22410-F-2009-0089 and 22410-1989-0078-R6) will be used in preparation of the Draft SEA.

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Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Ms. Joan Card, Director
Water Quality Division
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Ms. Card:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

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We are currently in the process of gathering the most current data and input from state and local governmental agencies, departments, and bureaus that may be affected by or otherwise have an interest in this proposed action. Since your agency may have particular knowledge and expertise regarding potential environmental impacts from CBP's proposed action, your input is sought regarding the likely or anticipated environmental effects of this proposed action. Your response should include any state and local restrictions, permitting or other requirements with which CBP would have to comply during project siting, construction, and operation.

We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Steve Owens
Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Mr. Curtis McCasland, Manager
Cabeza Prieta National Wildlife Refuge
1611 North Second Avenue
Ajo, AZ 85321

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Mr. McCasland:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

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operating base to be moved in proximity to TCA-AJO-302 as part of the 2009 EA (Figure 2). The construction of fiber optic would replace the communication function of tower TCA-AJO-189 and complete the communication link between towers TCA-AJO-004 and 302 with the USBP Ajo Station. Two proposed tower sites are also currently being considered as alternates (Alternatives 2 and 3) to the original TCA-AJO-189 tower site (Figure 3). The two alternate tower sites would require the use of helicopter for access during construction and maintenance. Additionally, the modification of the tower foundation at TCA-AJO-189 (Alternative 1) is also being considered as part of this SEA (Figure 3).

We are currently in the process of gathering the most current information available regarding Federal and state listed species potentially occurring within this area. CBP respectfully requests that your agency provide input regarding protected species, designated critical habitat, descriptions of the sensitive resources (e.g., rare or unique plant communities, threatened and endangered and candidate species), and unique or environmentally sensitive areas that you believe may be affected by the proposed USBP activities. Additionally, your response should include any U.S. Fish and Wildlife Service restrictions, permitting or other requirements with which CBP would have to comply during project siting, construction, and operation. Threatened and Endangered species and best management practices information from the U.S. Fish and Wildlife Service's (USFWS) IPac system and the USFWS's Biological Opinion for the SBI*net* Ajo-1 Tower Project (22410-F-2009-0089 and 22410-1989-0078-R6) will be used in preparation of the Draft SEA.

We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

June 18, 2010

U.S. Customs and Border Protection

The Honorable Mr. Ned Norris, Chairman
Tohono O'odham Nation
P.O. Box 837
Sells, AZ 85634

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Chairman Norris:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed actions. The actions included in this SEA would occur with the SBInet Ajo-1 Tower Project Area (Figure 1). The project area is located solely on federally-owned lands and includes CPNWR, Organ Pipe Cactus National Monument and Bureau of Land Management lands. At the present time, the proposed action includes the construction of fiber optic and commercial grid power to TCA-AJO-004 and 302 and the USBP forward operating base to be moved in proximity to TCA-AJO-302 as part of the 2009 EA (Figure

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We are currently in the process of gathering the most current information regarding Federal and state listed species, cultural resources, and sensitive and unique areas potentially occurring within the project area. CBP respectfully requests that your agency provide any information regarding those resources and/or issues that you believe may be affected by the proposed action.

We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Peter Steere
Ms. Karen Howe
Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

June 18, 2010

U.S. Customs and Border Protection

Mr. Steve Owens, Director
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Mr. Owens:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

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We are currently in the process of gathering the most current data and input from state and local governmental agencies, departments, and bureaus that may be affected by or otherwise have an interest in this proposed action. Since your agency may have particular knowledge and expertise regarding potential environmental impacts from CBP's proposed action, your input is sought regarding the likely or anticipated environmental effects of this proposed action. Your response should include any state and local restrictions, permitting or other requirements with which CBP would have to comply during project siting, construction, and operation.

We intend to provide your agency with a copy of the Draft EA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Dorion Watkins

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Benjamin H. Grumbles
Director

July 9, 2010

Mr. James Riordan, Executive Director SBI*net*
U.S. Department of Homeland Security
U.S. Customs and Border Protection
Washington, D.C. 20229

Project: Proposed Supplemental Environmental Assessment for SBI*net* Ajo-1 Tower Project
U.S. Border Patrol Tucson Sector

Dear Mr. Riodan:

The Air Quality Division has reviewed the project as described in your letter, with map enclosure, received on June 18, 2010, that you submitted for a General Conformity Determination with the Arizona State Implementation Plan in accordance with Clean Air Act Section 176(c)(1); 58 Federal Register 63214-63259; Title 40 Code of Federal Regulations Part 51, Subpart W §§ 51.850-51.860; Title 40 Code of Federal Regulations Part 93, Subpart B §§ 93.150-160; and Arizona Administrative Code R18-2-348 (approved into the Arizona State Implementation Plan April 23, 1999; effective June 22, 1999). The Air Quality Division has concluded that a General Conformity Determination is not required for the following reason:

- Project's total emissions of PM_{10} in a PM_{10} Maintenance Area would be less than *de minimis* levels in Title 40 CFR § 51.853(b) [and §93.153(b)] as described or calculated.

Nevertheless, considering the proposed tower sites and prevailing winds, which can affect the Ajo PM_{10} Moderate Planning Nonattainment Area, we are concerned that the proposed project(s), may potentially, affect the area's immediate environment with particulate matter. Both particulate matter 10-microns (PM_{10}) and particulate matter 2.5-microns ($PM_{2.5}$) in size are subject to National Ambient Air Quality Standards (NAAQS). PM_{10} and smaller can penetrate the lungs of human beings and animals, and $PM_{2.5}$ and smaller is difficult for lungs to expel and has been linked to increases in death rates and heart attacks by disturbing heart rhythms and increasing plaque and clotting; respiratory infections, asthma attacks and chronic obstructive pulmonary disease (COPD) aggravation.

To comply with applicable air pollution control requirements and minimize adverse impacts on public health and welfare, the following information is provided:

REDUCE DISTURBANCE of PARTICULATE MATTER during CONSTRUCTION

The following measures are recommended to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off the construction site:

I. Site Preparation and Construction
   A. Minimize land disturbance;
   B. Suppress dust on traveled paths which are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air;
   C. Cover trucks when hauling soil;
   D. Minimize soil track-out by washing or cleaning truck wheels before leaving construction site;
   E. Stabilize the surface of soil piles; and
   F. Create windbreaks.

II. Site Restoration
   A. Revegetate any disturbed land not used;
   B. Remove unused material; and
   C. Remove soil piles via covered trucks.

The following rules applicable to reducing dust during construction, demolition and earth moving activities are enclosed:

- Arizona Administrative Code R18-2-604 through -607
- Arizona Administrative Code R18-2-804

Should you have further questions, please do not hesitate to call me at (602) 771-2375 or A. "Bonnie" Cockrell at (602) 771-2378 of the Planning Section Staff.

Very truly yours,

Diane L. Arnst, Manager
Air Quality Planning Section

Enclosure

cc: Bret Parke, EV Administrative Counsel
A. "Bonnie" Cockrell, Environmental Program Specialist, Air Planning
File No. 240105

R18-2-604. Open Areas, Dry Washes, or Riverbeds

A. No person shall cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.

B. No person shall cause, suffer, allow, or permit a vacant lot, or an urban or suburban open area, to be driven over or used by motor vehicles, trucks, cars, cycles, bikes, or buggies, or by animals such as horses, without taking reasonable precautions to limit excessive amounts of particulates from becoming airborne. Dust shall be kept to a minimum by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means.

C. No person shall operate a motor vehicle for recreational purposes in a dry wash, riverbed or open area in such a way as to cause or contribute to visible dust emissions which then cross property lines into a residential, recreational, institutional, educational, retail sales, hotel or business premises. For purposes of this subsection "motor vehicles" shall include, but not be limited to trucks, cars, cycles, bikes, buggies and 3-wheelers. Any person who violates the provisions of this subsection shall be subject to prosecution under A.R.S. § 49-463.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-604 renumbered without change as Section R18-2-604 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-604 renumbered to R18-2-804, new Section R18-2-604 renumbered from R18-2-404 and amended effective November 15, 1993 (Supp. 93-4).

R18-2-605. Roadways and Streets

A. No person shall cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down, detouring or by other reasonable means.

B. No person shall cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-605 renumbered without change as Section R18-2-605 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-605 renumbered to R18-2-805, new Section R18-2-605 renumbered from R18-2-405 effective November 15, 1993 (Supp. 93-4).

R18-2-606. Material Handling

No person shall cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Section R18-2-606 renumbered from R18-2-406 effective November 15, 1993 (Supp. 93-4).

R18-2-607. Storage Piles

A. No person shall cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled, or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.

B. Stacking and reclaiming machinery utilized at storage piles shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents, as to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note

Section R18-2-607 renumbered from R18-2-407 effective November 15, 1993 (Supp. 93-4).

R18-2-804. Roadway and Site Cleaning Machinery

A. No person shall cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

B. In addition to complying with subsection (A), no person shall cause, allow or permit the cleaning of any site, roadway, or alley without taking reasonable precautions to prevent particulate matter from becoming airborne. Reasonable precautions may include applying dust suppressants. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means.

Historical Note

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-804 renumbered to Section R18-2-904, new Section R18-2-804 renumbered from R18-2-604 effective November 15, 1993 (Supp. 93-4).

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Ms. Teri Raml
Bureau of Land Management
Phoenix Field Office
21605 N. 7th Avenue
Phoenix, AZ 85027-2099

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Ms. Raml:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

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We are currently in the process of gathering the most current information available regarding Federal and state permits that may be required for this project. CBP respectfully requests that your agency provide input regarding any rare, unique, or environmentally sensitive areas that you believe may be affected by the proposed USBP activities. Additionally, your response should include any Bureau of Land Management restrictions, permitting or other requirements with which CBP would have to comply during project siting, construction, and operation.

We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Mr. Bill Ruth, Commissioner
U.S. International Boundary and Water Commission
4171 North Mesa Street
Suite C100
El Paso, TX 79902

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Mr. Ruth:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

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We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. John Merino
Mr. Al Riera
Mr. Jose Nunez
Mr. Tony Solo
Mr. Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Steve Spangle, Field Supervisor
U.S. Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 103
Phoenix, AZ 85021-4915

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Mr. Spangle:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

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Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Ms. Sherry Barret
Ms. Erin Fernandez
Mr. Jim Rorabaugh
Mr. Dorion Watkins

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

June 18, 2010

Mr. Mark Winkleman
State Land Commissioner
Arizona State Land Department
1616 West Adam Street
Phoenix, AZ 85007

RE: Proposed Supplemental Environmental Assessment for the SBI*net* Ajo-1 Tower Project, U.S. Border Patrol Tucson Sector

Dear Mr. Winkleman:

On behalf of the U.S. Customs and Border Protection (CBP) and the Department of Homeland Security, the U.S. Army Corps of Engineers (USACE), Fort Worth District intends to prepare a Supplemental Environmental Assessment (SEA) for the Secure Border Initiative (SBI*net*) Ajo-1 Tower Project in the U.S. Border Patrol (USBP) Tucson Sector. After completion of the 2009 Environmental Assessment (EA) and initiation of tower construction at tower site TCA-AJO-189, SBI*net* identified the need for the modification of some aspects of tower TCA-AJO-189 covered in the 2009 EA. The original design for TCA-AJO-189, addressed in the 2009 EA, was a Remote Access Tower with a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction bedrock was not found at or near the ground surface. In an attempt to locate bedrock a 12- x 12- foot hole was excavated to a depth of 14 feet; however, it was determined that bedrock was deeper than 14 feet and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site. During the excavation of the hole, excavated material was air lifted and staged at the Ajo airport in heavy duty canvas bags. During one of the airlifts a canvas bag with an approximately 3,000 pound payload was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain. The Cabeza Prieta National Wildlife Refuge (CPNWR) manager requested that tower construction be halted until a reasonable alternative construction method or tower site could be developed for TCA-AJO-189. Further, excavation and the airlifting of excavated material were not addressed in the 2009 EA.

The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed actions. The actions included in this SEA would occur with the SBInet Ajo-1 Tower Project Area (Figure 1). The project area is located solely on federally-owned lands and includes CPNWR, Organ Pipe Cactus National Monument and Bureau of Land Management lands. At the present time, the proposed action includes the construction of

fiber optic and commercial grid power to TCA-AJO-004 and 302 and the USBP forward operating base to be moved in proximity to TCA-AJO-302 as part of the 2009 EA (Figure 2). The construction of fiber optic would replace the communication function of tower TCA-AJO-189 and complete the communication link between towers TCA-AJO-004 and 302 with the USBP Ajo Station. Two proposed tower sites are also currently being considered as alternates (Alternatives 2 and 3) to the original TCA-AJO-189 tower site (Figure 3). The two alternate tower sites would require the use of helicopter for access during construction and maintenance. Additionally, the modification of the tower foundation at TCA-AJO-189 (Alternative 1) is also being considered as part of this SEA (Figure 3).

We are currently in the process of gathering the most current data and input from state and local governmental agencies, departments, and bureaus that may be affected by or otherwise have an interest in this proposed action. Since your agency may have particular knowledge and expertise regarding potential environmental impacts from CBP's proposed action, your input is sought regarding the likely or anticipated environmental effects of this proposed action. Your response should include any state and local restrictions, permitting or other requirements with which CBP would have to comply during project siting, construction, and operation.

We intend to provide your agency with a copy of the Draft SEA for the SBI*net* Ajo-1 Tower Project once completed. Please let us know if additional copies are needed.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Ms. Patience Patterson at (571) 468-7290.

Sincerely,

Mr. James Riordan
Executive Program Director, SBI*net*

Enclosure(s)

cc: Mr. Dorion Watkins

APPENDIX B
TCA-AJO-189 RESTORATION PLAN

FINAL

RESTORATION PLAN
FOR THE FORMER SBI*NET* TCA-AJO-189 TOWER SITE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
U.S. BORDER PATROL, AJO STATION, ARIZONA

Department of Homeland Security
U.S. Customs and Border Protection
U.S. Border Patrol

AUGUST 2011

FINAL

RESTORATION PLAN
FOR THE FORMER SBI*net* TCA-AJO-189 TOWER SITE
CABEZA PRIETA NATIONAL WILDLIFE REFUGE
U.S. BORDER PATROL, AJO STATION, ARIZONA

August 2011

Prepared for:

Department of Homeland Security
U.S. Customs and Border Protection
Office of Technology Innovation and Acquisition
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SECTION 1.0
INTRODUCTION

1.0 INTRODUCTION

The Secure Border Initiative (SBI) is a comprehensive, multi-year plan established by the Department of Homeland Security (DHS) in November 2005 to secure the United States (U.S.) borders and reduce illegal immigration. The SBI mission is to promote border security strategies that protect against and prevent terrorist attacks and other transnational crimes. Additionally, SBI will coordinate DHS efforts to ensure the legal entry and exit of people and goods moving across the U.S. borders and improve the enforcement of immigration, customs, and agriculture laws at U.S. borders, within the country, and abroad.

SBI*net* is the component of SBI charged with developing and installing technology and attendant tactical infrastructure solutions to help U.S. Customs and Border Protection (CBP) gain effective control of the Nation's borders. The goal of SBI*net* is to field the most effective, proven technology and response platforms, and integrate them into a single, comprehensive border security system for DHS. SBI*net* no longer exists as a branch of SBI. The Office of Technology, Innovation and Acquisition (OTIA) has assumed all of SBI and SBI*net*.

U.S. Customs and Border Protection (CBP), OTIA proposes to restore an approximately 35- x 35-foot disturbance area located on Growler Mountain in the Cabeza Prieta National Wildlife Refuge (Photographs 1-1 and 1-2 and Figure 1-1). The entire 35- x 35-foot area has been cleared of vegetation and graded. In 2009, CBP prepared an environmental assessment for the construction, operation, and maintenance of the SBI*net* Ajo-1 Tower Project. The project included 10 towers and included the proposed tower (TCA-AJO-189) located on Growler Mountain. The disturbance was created during the initial construction phase of TCA-AJO-189.

Photograph 1-1. Aerial view of disturbance looking north from south of the site

Photograph 1-2. Excavated hole at TCA-AJO-189

The original design for TCA-AJO-189 included a rock anchor foundation. This type of foundation is designed to be installed in bedrock at or near the ground surface. However, during the initial phases of foundation construction, bedrock was not found at or near the ground surface. In an attempt to locate bedrock, a 14- x 14-foot hole was excavated to a depth of 6 feet. However, it was determined that bedrock was deeper than 6 feet, and an alternate tower foundation was required for tower construction at the TCA-AJO-189 site on top of Growler Mountain. During the excavation of the hole, excavated material was airlifted in canvas slings

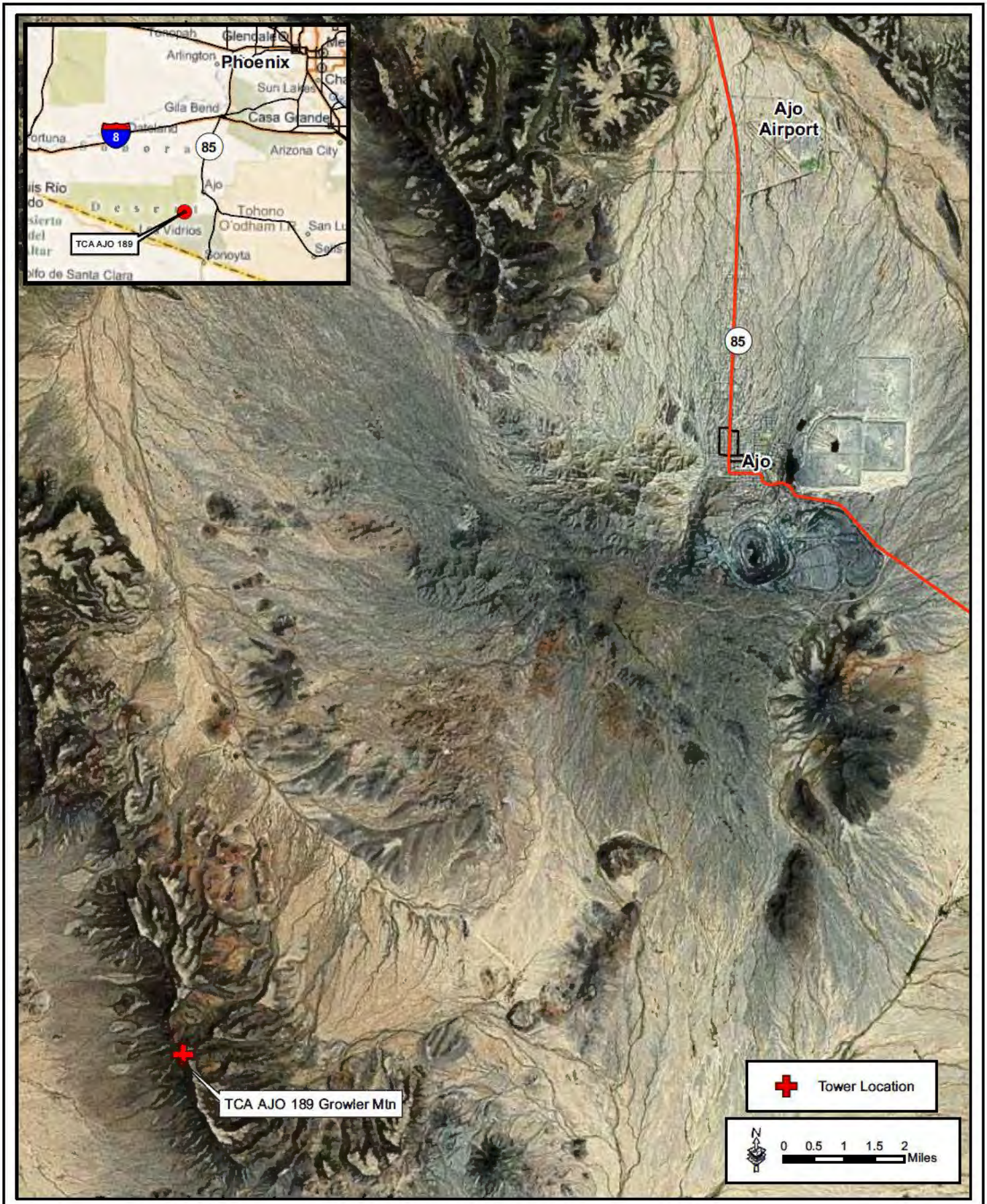

Figure 1-1: Location Map

and staged at the Ajo Airport. During one of the airlifts, a canvas sling, with an approximately 3,000-pound payload, was released to avoid stalling the helicopter. The payload landed on the side of Growler Mountain within designated wilderness. U.S Fish and Wildlife Service (USFWS) requested that tower construction be halted until a reasonable alternative construction method or an alternative tower site could be developed for TCA-AJO-189.

To accommodate USFWS's request, OTIA developed one alternative that would eliminate the need for TCA-AJO-189, an alternative that would modify the foundation at TCA-AJO-189, and two alternate locations for TCA-AJO-189, which would avoid designated wilderness. In December 2010, CBP released a draft supplemental environmental assessment, for public review, addressing five alternatives, including the No Action Alternative. The alternative that would eliminate the need for TCA-AJO-189 was the preferred alternative. In a February 9, 2011 correspondence, USFWS mandated that CBP restore tower site TCA-AJO-189 to pre-construction or near pre-construction conditions (Appendix A). Additionally, the correspondence outlined restoration requirements for the site.

The purpose of the proposed restoration project is to return the site to, at, or near pre-construction conditions. This restoration plan outlines the site remediation, landscaping, re-vegetation, irrigation, and monitoring requirements for the restoration of the site.

1.1 SETTING

The restoration site is situated along the crest of Growler Mountain at an elevation of approximately 3,000 feet above mean sea level. The vegetation community found in this area is described by Brown and Lowe (1994) as the Colorado subdivision of the Sonoran Desert Scrub biotic community. Other communication equipment and solar panels are located on the crest adjacent to the restoration site. Currently, the entire 35- x 35-foot site is void of vegetation and the soil is exposed to the elements.

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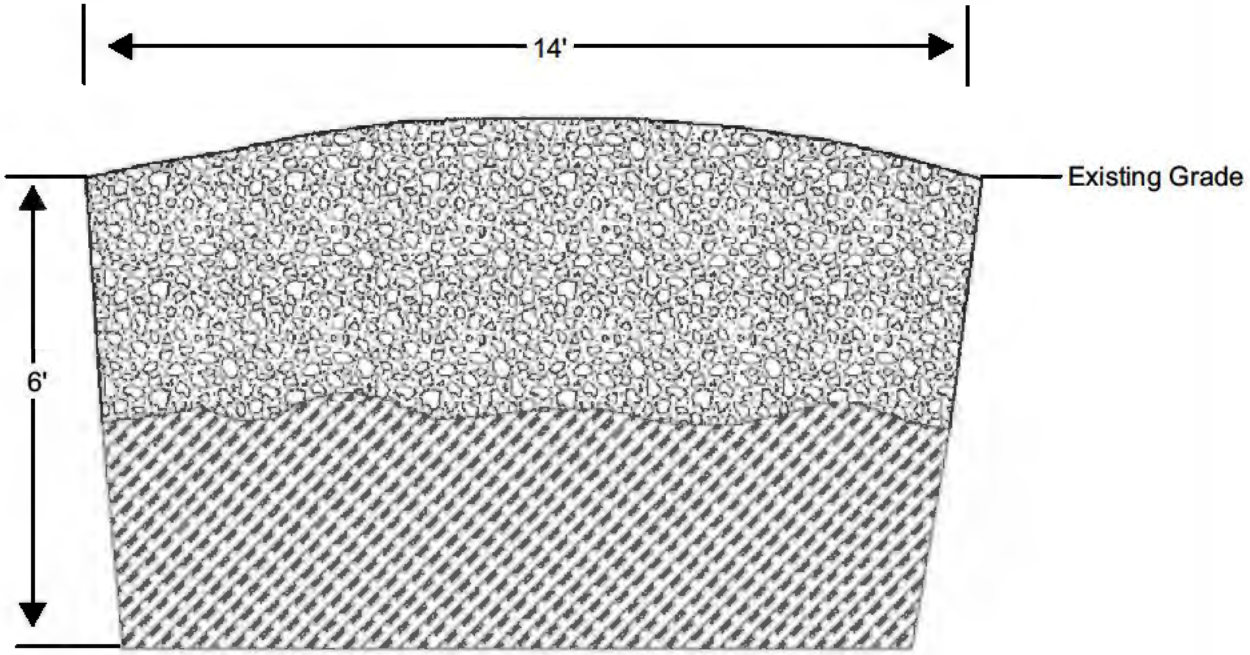
SECTION 2.0
SITE REMEDIATION AND LANDSCAPING

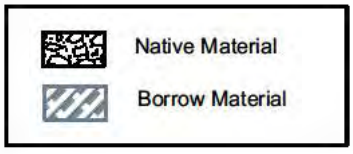
2.0 SITE REMEDIATION AND LANDSCAPING

This plan provides provisions to restore the natural topography of the site to pre-construction conditions. The initial phase of restoration efforts will include the remediation of the 14- x 14-foot hole. The hole will be backfilled with both off-site borrow material and native material excavated from the hole. Off-site borrow material will be obtained from Mission Material, located north of Gila Bend, Arizona. This material is needed to compensate for the excavated material lost on the side of Growler Mountain when the soil bag was released from the helicopter. The off-site borrow material will be the first material placed in the hole, and the bottom 50 to 75 percent of the material will be compacted to a 95 percent compaction rate. Previously excavated native material will be used to backfill the remainder of the hole (Figure 2-1). Only native material excavated from the site will be used to backfill the upper portion of the excavated hole. Due to the remote nature of the site, all material will need to be transported by helicopter.

Following backfilling efforts, the entire 35- x 35-foot site will be graded to match the adjacent natural grade. The backfilled hole will be graded to ensure that there is not an excessive mound of soil, nor concavity at the top of the restored area. The native material used to backfill the hole should be slightly mounded above grade to allow for natural compaction.

Rocks originally removed from the site will be used to restore the natural landscape. However, in western arid land soils there is often a carbonate or caliche layer present. These materials are generally pale and starkly contrast with undisturbed surface layers. This contrast can be further exacerbated by the presence of desert varnish, a weathering of some rocks that produces a dark brown-black coating (Abella et al. 2007). This contrast is evident at the disturbance site (see Photographs 1-1 and 1-2). Upon final grading of the 35- x 35-foot disturbed area, native rocks removed from the site will be placed on the site to restore the landscape. Native rocks removed from the site will be sorted and those rocks with desert varnish or dark coloring will be selected for use. These rocks will be hand placed so the desert varnish (dark coating) is exposed and arranged in a natural pattern using the adjacent undisturbed landscape as a model. If a sufficient amount of native material with desert varnish cannot be obtained from the previously excavated material, the rocks will be treated to create an artificial desert varnish appearance. There are also several commercially available non-toxic products (e.g., Permeon™) that mimic the appearance of desert varnish and can be applied to the soil and rock surfaces to lessen the contrast of exposed paler materials. If required, these treatments would be conducted after plantings are established and no more disturbances are expected in order to fully maximize effectiveness of color application.





NOT TO SCALE

Figure 2-1: Typical Cross-section of Remediated Hole on Growler Mountain

SECTION 3.0
REVEGETATION

3.0 REVEGETATION

3.1 VEGETATION SAMPLING

The purpose of this restoration effort is to restore the disturbed footprint at TCA-AJO-189 to at or near pre-construction conditions. In an effort to determine pre-construction conditions at the site, vegetation sampling was conducted in the undisturbed habitat adjacent to the disturbed area. On March 23, 2011 Gulf South Research Corporation (GSRC) conducted vegetation sampling adjacent to the disturbed area at TCA-AJO-189. The purpose of the vegetation sampling was to identify and characterize the revegetation target community. Per the requirements in USFWS' February 9, 2011 correspondence, three randomly located 12- X 12-foot plots were established outside but within 100 feet of the disturbed area. Data was collected regarding the species composition, species density, and percent ground cover for all perennial shrubs and cacti. A portion of the area adjacent to the western edge of the disturbed area was excluded from sampling due to the extremely steep nature of the topography. To ensure the three plots were randomly located, a random number generator was used to determine the direction from the disturbed area for each plot. The random number generator was also used to determine a distance to the center of each plot from the disturbed area. The center and all four corners of each of the sample plots were collected using a Trimble Geo XT handheld GPS unit (Figure 3-1). Photographs of each plot were taken from the four corners and at the midpoint along each side. A photograph of Plot 2 is shown as Photograph 3-1.

Photograph 3-1. Layout of Sample Plot 2

Data was collected regarding the plant composition and density for each of the three randomly chosen sample plots. A point intercept method was used to collect percent ground cover in each sample plot by stretching a calibrated tape across each plot at 1-foot transect intervals and recording cover types at 1-foot intervals along each transect (Appendix B). A total of 132 data points were collected for each of the three sample plots. This data was averaged across all three plots, and species type, number, and percent cover per unit area were calculated to determine the vegetation characteristics of the landscape adjacent to the disturbed area (Table 3-1). These vegetation characteristics were used to determine the revegetation requirements for the disturbed area.

Overall plant species diversity was relatively low with an average of 4.3 species per plot. Vegetation densities were also low. Triangle-leaf bursage (*Ambrosia deltoidea*), had the highest density with an average of less than 28 plants per sample plot. The average density of all other plants represented in the sample plots was 0.33 to 2 plants per sample area.

Figure 3-1: Sample Vegetation Plot Locations

Table 3-1. Species Occurrence, Prevalence, and Percent Cover for Sample Plots and Re-vegetation Recommendations

Species	Species Occurrence by Plot	Average Number Present per Sample plot	Average Number Present per Unit Area (1 square feet)	Number of Plants Required to Achieve Desired Densities (1,225 ft^2)	Average Percent Cover (%)
Triangle-leaf bursage (*Ambrosia deltoidea*)	1,2,3:(3)	27.7	0.192	**236**	10.8%
Desert agave (*Agave deserti*)	1,2,3:(3)	1.7	0.01180	**14**	0.76%
Cane cholla (*Cylindropuntia spinosior*	1,2,3:(3)	1	0.0069	**9**	0.0%
Engelmann's hedgehog cactus (*Echinocereus engelmannii*)	2,3:(2)	1	0.0069	**9**	0.25%
Fremont's wolfberry (*Lycium fremontii*)	3:(1)	0.33	0.00229	**3**	0.52%
Ocotillo (*Fouquieria splendens*)	2:(1)	0.33	0.00229	**3**	0.25%
White ratany (*Krameria grayi*)	2:(1)	0.33	0.00229	**3**	0.0%

Other plants noted in the landscape but not captured in the sample plots included saguaro (*Carnegia gigantea*), brittle bush (*Encelia farinosa*), creosote bush (*Larrea tridentata*), Graham's nipple cactus (*Mammillaria grahamii*), and Nevada jointfir (*Ephedra nevadensis*).

It should be noted that prior to the initiation of construction, three desert agave and one saguaro (*Carnegia gigantea*), approximately 2.5 feet tall, were removed from the 35- x 35-foot disturbed area and transplanted for site rehabilitation efforts following tower construction. The three agaves were transplanted in pots and left on Growler Mountain, and the saguaro was transplanted on Growler Mountain outside the 35- x 35-foot footprint. During the vegetation sampling efforts in 2011, it was noted that the three agaves had been vandalized and were dead (Photograph 3-2).

Photograph 3-2. Three transplanted desert agaves from disturbance footprint after vandalism mortality

3.2 REVEGETATION REQUIREMENTS

Perennial shrubs comprise the majority of the plant composition in the adjacent landscape. In consultation with USFWS, it was determined that with the exception of one saguaro that was removed from the disturbed area prior to vegetation clearing, revegetation efforts would focus on perennial shrubs. Although not sampled during the vegetation sampling, creosotebush is a common species on the landscape and will serve to promote species diversity. Creosote is being used in place of white ratany due to the low survival potential of transplanted white ratany. A

total of 248 plants will be planted within the disturbed area and will include the following species and numbers:

- Triangle-leaf bursage 240 plants
- Fremont's wolfberry 4 plants
- Creosotebush 4 plants

Additionally, the saguaro originally removed from the disturbed area will be transplanted back on-site as part of the planting efforts associated with the restoration project.

3.3 PLANTING STOCK

One of the confounding issues often encountered in re-vegetation efforts is a need for a relatively quick schedule of completion. Due to the relatively recent nature of the disturbance (March 2010), and its location in designated Wilderness, the need for quick restoration is important. It is important to minimize the time in which the site is disturbed to reduce the potential for erosion, continued degradation, and invasion by exotic plant species. Due to the time required for a site to naturally regenerate, artificial regeneration methods will be used to revegetate the disturbed area. To utilize artificial regeneration methods, appropriate plant stock will need to be obtained for planting.

Underlying all plant source selections for revegetation projects is a need to reduce genetic pollution and maintain genetic integrity through the use of source materials native to the proposed action site (Munda et. al. 1995). It is thought that locally derived source materials will be better adapted to the specific constraints imposed on them by the immediate environmental conditions. The degree to which these concerns of genetic integrity and genetic pollution are applicable to a given re-vegetation site increases as the project area increases in size due to the greater influence imposed by the introduced genetic pool (Richards 1998). All plant material will be obtained from the Cabeza Prieta National Wildlife Refuge (CPNWR) to maintain a local plant source. Plant material will be obtained from harvesting cutting from donor plants on the CPNWR. The specific location for harvesting cuttings will be identified by the CPNWR manager but is anticipated to be the Childs Mountain Area. Cuttings of the appropriate species will be harvested and transported to a nursery in Tucson, Arizona the same day. During collection and transport, the cuttings will be kept moist and out of direct sunlight. Currently, it is anticipated that cuttings will be harvested in October 2011. The cuttings need to be obtained from actively growing plants and new plant growth should be harvested.

The cuttings will be established and raised at a nursery. Cuttings would be established in deep pots, tree cells, or plant bands to promote fuller, deeper root development (Bainbridge 1995). The cuttings will be ready for transplanting approximately 6 months from the date of harvest. To allow for mortality during propagation at the nursery, an additional 15 percent or a total of 286 cuttings would be harvested and grown at the nursery. The following number of cuttings by species would be harvested:

- Triangle-leaf bursage 276 cuttings
- Fremont's wolfberry 5 cuttings
- Creosotebush 5 cuttings

3.4 PLANTING

A total of 248 plants will be planted within the 35- x 35-foot disturbed area on Growler Mountain. The planting mix will include the species and quantities discussed in Section 3.2 of this plan. It is anticipated that planting activities would occur in April 2012. Planting arrangements and positions will be selected using a grid matrix with selections chosen at random for each group of plant species. These randomly chosen site selections will be evaluated with respect to any patterns observed in the adjacent native plant communities and adjusted if necessary to mimic natural plant dispersal in an effort to better visually integrate the restoration site with the surrounding native landscape.

Plants will be transported to the disturbed area via a helicopter the day of planting. The plants will be protected from direct sunlight during daily planting activities. Plants will be placed in the soil to a depth not to exceed the root collar.

3.5 PLANT AND SITE PROTECTION

Tree protectors or guards will be securely placed around each plant to mitigate herbivory and provide temporary enhanced microclimates for the young plants. Additionally, a sturdy but temporary exclusionary fence constructed of T-posts and fencing material approved by USFWS will be established around the site. No fewer than four clearly marked signs in English and Spanish stating that the site is an active restoration project with restricted access will be placed along the perimeter of the fenced area.

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SECTION 4.0
IRRIGATION

4.0 IRRIGATION

The use of irrigation for establishing plants in re-vegetation projects in the arid southwest is mandatory if any degree of success is to be obtained. Using four different irrigation treatment types for arid land re-vegetation models, 1-gallon container grown plants with irrigation had the highest success rate (Bean 2004, Grantz 1998). Through the use of new technologies like deep pipe irrigation and older indigenous irrigation strategies such as shallow basins, researchers have been able to vastly increase survivorship while reducing the quantities of water needed to establish plants in dry, remote sites (Bainbridge 2002). The major goals of this project is to restore the disturbed area to at or near pre-construction conditions, therefore all of irrigation components will be temporary and removed when the restoration goals are met.

The proposed irrigation system will incorporate the deep pipe method. This system reduces the quantity of water needed for plant establishment by encouraging deeper, healthier root growth and reducing water losses inherent with surface drip irrigation through evaporation. This method is also known to greatly reduce the opportunistic establishment of unwanted weed and exotic plant species. At the time of planting, a 0.5-inch PVC pipe with multiple 1-millimeter holes drilled along its length but primarily toward the bottom will be installed. This pipe will be inserted into the soil adjacent to the plant to a depth of 8 to 20 inches. A total of 13 250-gallon tanks on stands will be maintained on Growler Mountain adjacent to the site. These drums will serve as storage for the irrigation water needed for this project.

The plantings will be manually irrigated for a period of 5 months beginning at the time of planting. Each plant will receive 1 gallon of water per watering episode. Irrigation personnel will fill 1-gallon containers from the water storage tanks and place the 1-gallon container on each individual emitter per plant. Approximately 3,250 gallons of water will be required during the 5 months of irrigation. Personnel responsible for monthly irrigation efforts will access the site on foot. Irrigation equipment will be removed from the site after 1 year following the initial planting if the restoration site is accepted by USFWS. The following watering schedule was developed in coordination with USFWS.

- Water every week (4 times per month, including the initial water at planting) during the first and second months (May and June 2012) following planting.
- Water every two weeks (2 times per month) during the third and fourth months (July and August 2012).
- Water once a month during the fifth month (September 2012).

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SECTION 5.0
MONITORING

5.0 MONITORING

Personnel will access the site on foot up to 13 times during a 5 month period following planting to irrigate, and monitor the condition of the plantings, and conduct maintenance on the irrigation system. Monitoring efforts will coincide with irrigation visits to minimize the amount of trips to the site and will occur during the same 5-month period. Monitoring and irrigation personnel will be the same people. The condition of the plantings and irrigation system will be recorded. Notes will be taken on plant health, losses to herbivory, transplant shock, and desiccation. Any new growth, recruitment of new seedlings, and the presence of annual plant growth will be recorded. Dead plants will be identified by marking their location with surveyor paint. Irrigation requirements will be adjusted in consultation with USFWS if plant loss due to the lack of water is noticed during monitoring efforts. The site will also be surveyed for the presence of exotic plant species. If exotic plant species that are not already established in the surrounding landscape are encountered within the restoration action area they will be documented and OTIA will coordinate with USFWS concerning corrective actions. Site photos will be taken to document conditions.

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SECTION 6.0
RESTORATION GOALS

6.0 RESTORATION GOALS

The purpose of this restoration project is to restore the 35- x 35-foot disturbed area to, at, or near pre-project conditions both functionally and visually. Attainment of success for restoration projects can be measured in multiple ways and is often a function of project size, preexisting conditions, and the degree to which thresholds of irreversibility have been passed (Aronson 1993). This project deals with a relatively new disturbance within a fairly intact ecosystem, therefore restoration of the site to at or near pre-project conditions should be achievable. The plant community adjacent to the site is replicable; however, the harsh climatic conditions and remote nature of the site will increase the cost and efforts involved with restoration. The visual continuity between the disturbed area and the adjacent native landscape will be difficult to measure and subjective in nature. This hurdle can best be overcome through a well-established plan of action and clearly established agency expectations with frequent and open communications.

The goal for re-vegetation is more easily measured. Through coordination with USFWS, OTIA has established a goal of a total of 174 plants (70 percent survival), including both planted and naturally recruited plants. Generally, plantings are not considered established until after the first full growing season. Therefore, USFWS and OTIA personnel will visit the restoration site 1 year from the date of planting to determine if restoration goals have been met. If the site is accepted by USFWS, all irrigation material and fencing will be removed from the site within a week of the site visit.

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SECTION 7.0
HELICOPTER ACCESS

7.0 HELICOPTER ACCESS

Due to the remote location of the restoration site, helicopter access will be required for all restoration activities with the exception of irrigation and monitoring. Due to the location of the restoration site in designated Wilderness and within the current range of the Sonoran pronghorn (*Antilocapra americana sonoriensis*), OTIA has developed the restoration plan to include the minimal helicopter lifts necessary. A total of 90 helicopter lifts will be required to complete the restoration activities as described in this restoration plan. The following is an itemization of the helicopter lifts by activity:

- Site Rehabilitation and Landscaping 68 lifts
- Revegetation 6 lifts
- Irrigation (includes water delivery) 14 lifts
- Project Termination 2

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SECTION 8.0
REFERENCES

8.0 REFERENCES

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APPENDIX A
LETTER COMMENTS ON
DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P.O. Box 1306
Albuquerque, New Mexico 87103

In Reply Refer To:
FWS/R2/NWRS-SUPV/047395

FEB 09 2011

Patience E. Patterson, RPA
U.S. Department of Homeland Security
SBI*net* Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, Virginia 20598

Dear Ms. Patterson:

Thank you for the opportunity to provide comments on the *Draft Supplemental Environmental Assessment* (SEA) for the SBInet Ajo-1 Tower Project. The U.S. Fish and Wildlife Service (Service) strongly supports the selection of the Preferred Alternative. The Preferred Alternative eliminates the need for tower TCA-AJO-189, located within designated wilderness on Cabeza Prieta National Wildlife Refuge (Refuge). The selection of this alternative would reduce impacts to Wilderness from construction, and long term maintenance of the infrastructures associated with alternatives B and C. Additionally, reduced tower maintenance, refueling, and generator use at tower TCA-AJO-302 (located at the boundary of the Refuge and Organ Pipe Cactus National Monument) would also reduce potential adverse effects on Sonoran pronghorn (*Antilocapra Americana sonoriensis*).

Given that the impacts associated with the initial excavation for the foundation for tower TCA-AJO-189 is in designated wilderness and that the excavation was beyond that approved for the project, it is imperative that the site be restored to pre-existing or near pre-existing conditions. This should be addressed in the document as part of the Preferred Alternative and incorporated into any decision document for the draft SEA. The following should also be incorporated in the draft SEA and associated decision document:

- A qualified botanist should be obtained by the Department of Homeland Security (DHS) to conduct an inventory to determine plant composition, density and percent ground cover of perennial shrubs and cacti - by species - at three randomly selected 12 by 12 foot plots outside of, but within one hundred feet of, the existing disturbed site at Tower 189. The three plots should be averaged and used as a baseline to determine the target objectives for restoration of the tower site.

- The restoration objectives will be determined by the Service after consultation with the DHS and a qualified expert in restoration of desert environments. The Service stands ready to assist DHS with implementing the restoration objectives for the tower site.

- The restoration expert should develop a plan for the restoration of the site. This plan will lay out a strategy and procedures for implementing the actions necessary to meet the restoration objectives.

- Upon approval of the restoration plan, the Service will conduct a "minimum tool analysis" which will lay out how the plan will be implemented.

- The Service must inspect and sign off on the completed restoration project before the DHS is relieved of its responsibility.

Thank you for this opportunity to provide comments on the *Draft Supplemental Environmental Assessment*. We look forward to your continued cooperation on this matter. Please contact Sid Slone, Refuge Manager at 520-387-4993 with any questions.

Sincerely,

Regional Director

APPENDIX B
RESULTS FOR VEGETATION SAMPLE PLOT DATA COLLECTION

Plot 1: 12’ x 12’

Triangle-leaf bursage (*Ambrosia deltoidea*) 31
Desert agave (*Agave deserti*) 1
Cane cholla (*Cylindropuntia spinosior*) 1
3 species, 33 plants

Plot 2: 12’ x 12’

Triangle-leaf bursage (*Ambrosia deltoidea*) 32
Desert agave (*Agave deserti*) 2
Cane cholla (*Cylindropuntia spinosior*) 1
Ocotillo (*Fouquieria splendens*) 1
Engelmann’s hedgehog cactus (*Echinocereus engelmannii*) 2
White ratany (*Krameria grayi*) 1
6 species, 39 plants

Plot 3: 12’ x 12

Triangle-leaf bursage (*Ambrosia deltoidea*) 20
Desert agave (*Agave deserti*) 2
Cane cholla (*Cylindropuntia spinosior*) 1
Engelmann’s hedgehog cactus (*Echinocereus engelmannii*) 1
Fremont’s wolfberry (*Lycium fremontii*) 1
5 species, 25 plants

	Plot 1	Plot 2	Plot 3	Mean average # /144sq ft
Triangle-leaf bursage	31	32	20	27.7
Desert agave	1	2	2	1.7
Cane cholla	1	1	1	1
Ocotillo	0	1	0	0.33
Hedgehog cactus	0	2	1	1
White ratany	0	1	0	0.33
wolfberry	0	0	1	0.33

APPENDIX C
FEDERAL AND STATE PROTECTED SPECIES LISTS

Pima County

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
California Least Tern	*Sterna antillarum browni*	Endangered	Smallest of the North American Terns. Body length is 21 to 24 cm (8 to 9 inches) with a wingspan of 45 to 51cm (18 to 20 inches). Has black crown and loral stripe on head, snowy white forehead and underside, and gray upperparts. Outer two primaries black, yellow or orange bill with black tip, and orange legs. Males have a wider dark loral stripe but sexes mostly distinguished by behavior.	Maricopa, Mohave, Pima	< 2,000 ft	Open, bare or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems.	Breeding occasionally documented in Arizona; migrants may occur more frequently. Feeds primarily on fish in shallow waters and secondarily on invertebrates. Nests in a simple scrape on sandy or gravelly soil.
Chiricahua leopard frog	*Lithobates [Rana] chiricahuensis*	Threatened	Cream colored tubercles (spots) on a dark background on the rear of the thigh, dorsolateral folds that are interrupted and deflected medially, and a call given out of water distinguish this spotted frog from other leopard frogs.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, Navajo, Pima, Santa Cruz, Yavapai	3,300-8,900 ft	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs.	Require permanent or nearly permanent water sources. Populations north of the Gila River may be a closely-related, but distinct, undescribed species. A special rule allows take of frogs due to operation and maintenance of livestock tanks on State and private lands.
Desert pupfish	*Cyprinodon macularius*	Endangered	Small (2 inches) smoothly rounded body shape with narrow vertical bars on the sides. Breeding males blue on head and sides with yellow on tail. Females and juveniles tan to olive colored back and silvery sides.	Cochise, Graham, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	< 4,000 ft	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	Two subspecies are recognized: Desert Pupfish (C.m. macularis) and Quitobaquito Pupfish (C.m. eremus). Critical habitat includes Quitobaquito Springs, Pima County, portions of San Felipe Creek, Carrizo Wash, and Fish Creek Wash, Imperial County, California.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Gila chub	*Gila intermedia*	Endangered	Deep compressed body, flat head. Dark olive-gray color above, silver sides. Endemic to Gila River Basin.	Cochise, Gila, Graham, Greenlee, Pima, Pinal, Santa Cruz, Yavapai	2,000-5,500 ft	Pools, springs, cienegas, and streams.	Found on multiple private lands, including the Nature Conservancy and the Audubon Society. Also occurs on Federal and state lands and in Sonora, Mexico. Critical habitat occurs in Cochise, Gila, Graham, Greenlee, Pima, Pinal, Santa Cruz, and Yavapai counties.
Gila topminnow	*Poeciliopsis occidentalis occidentalis*	Endangered	Small (2 inches), guppy-like, live bearing, lacks dark spots on its fins. Breeding males are jet black with yellow fins.	Cochise, Gila, Graham, Maricopa, Pima, Santa Cruz, Yavapai	< 4,500 ft	Small streams, springs, and cienegas vegetated shallows.	Species historically also occurred in backwaters of large rivers but is currently isolated to small streams and springs.
Huachuca water umbel	*Lilaeopsis schaffneriana ssp. recurva*	Endangered	Herbaceous, semi-aquatic perennial in the parsley family (Umbelliferae) with slender erect, hollow, leaves that grow from the nodes of creeping rhizomes. Flower: 3 to 10 flowered umbels arise from root nodes.	Cochise, Pima, Santa Cruz	3,500-6,500 ft	Cienegas, perennial low gradient streams, wetlands.	Species also occurs in adjacent Sonora, Mexico, west of the continental divide. Critical habitat in Cochise and Santa Cruz counties (64 FR 37441, July 12, 1999).
Jaguar	*Panthera onca*	Endangered	Largest species of cat native to Southwest. Muscular, with relatively short, massive limbs, and a deep-chested body. Usually cinnamon-buff in color with many black spots. Weights ranges from 90-300 lbs.	Cochise, Pima, Santa Cruz	1,600-9,000 ft	Found in Sonoran desertscrub up through subalpine conifer forest.	Also occurs in New Mexico. A Jaguar conservation team is being formed that is being led by Arizona and New Mexico state entities along with private organizations.
Kearney's blue star	*Amsonia kearneyana*	Endangered	A herbaceous perennial about 2 feet tall in the dogbane family (Apocynaceae). Thickened woody root and many pubescent (hairy) stems that rarely branch. Flowers: white terminal inflorescence in April and May.	Pima	3,600-3,800 ft	West-facing drainages in the Baboquivari Mountains.	Plants grow in stable, partially shaded, coarse alluvium along a dry wash in the Baboquivari Mountains. Range is extremely limited. Protected by Arizona Native Plant Law.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	Endangered	Elongated muzzle, small leaf nose, and long tongue. Yellowish brown or gray above and cinnamon brown below. Tail minute and appears to be lacking. Easily disturbed.	Cochise, Gila, Graham, Greenlee, Maricopa, Pima, Pinal, Santa Cruz, Yuma	1,600-11,500 ft	Desert scrub habitat with agave and columnar cacti present as food plants.	Day roosts in caves and abandoned tunnels. Forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti. This species is migratory and is present in Arizona usually from April to September and south of the border the remainder of the year.
Masked bobwhite	*Colinus virginianus ridgewayi*	Endangered	Males have a brick-red breast and black head and throat. Females are generally nondescript but resemble other races such as the Texas bobwhite.	Pima	1,000-4,000 ft	Desert grasslands with diversity of dense native grasses, forbs, and brush.	Species is closely associated with Prairie acacia (Acacia angustissima). Formerly occurred in Altar and Santa Cruz valleys, as well as Sonora, Mexico. Presently only known from reintroduced populations on Buenos Aires NWR.
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	Medium sized with dark eyes and no ear tufts. Brownish and heavily spotted with white or beige.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai	4,100-9,000 ft	Nests in canyons and dense forests with multi-layered foliage structure.	Generally nest in older forests of mixed conifer or ponderosa pine/gambel oak type, in canyons, and use variety of habitats for foraging. Sites with cool microclimates appear to be of importance or are preferred. Critical habitat was finalized on August 31, 2004 (69 FR 53182) in Arizona in Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Navajo, Pima, Pinal, Santa Cruz, and Yavapai counties.
Mountain plover	*Charadrius montanus*	Proposed threatened	Small bird (8 – 9 ½-in), about the size of a killdeer, with longer legs and more upright posture. Light brown above with white forehead, throat, and breast but lacks the black breast band typical of many plovers. Crown may be mottled black to solid black during the breeding season and distinct black loral stripe extending from the black bill to the eye. In winter, the crown and loral stripe become pale brown in coloration.	Apache, Cochise, La Paz, Maricopa, Navajo, Pima, Pinal, Yuma	< 7,200 ft	Semi-desert grasslands and agricultural lands with sparse vegetation or vegetation interspersed with bare ground and flat topography.	Arizona primarily provides winter habitat for the species but some breeding occurs near Springerville.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Nichol Turk's head cactus	*Echinocactus horizonthalonius var. nicholii*	Endangered	Blue-green to yellowish-green, columnar, 18 inches tall, 8 inches in diameter. Spine clusters have 5 radial and 3 central spines; one curves downward and is short; 2 spines curve upward and are red or pale gray. Flowers: pink; fruit: woolly white.	Pima, Pinal	2,400-4,100 ft	Sonoran desertscrub.	Found in unshaded microsites in Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountain sides.
Ocelot	*Leopardus (=Felis) pardalis*	Endangered	Medium-sized spotted cat that is yellowish with black streaks and stripes running from front to back. Tail is spotted and about 1/2 the length of head and body. Face is less heavily streaked than the back and sides.	Cochise, Pima, Santa Cruz	< 8,000 ft	Desert scrub in Arizona. Humid tropical and sub-tropical forests, and savannahs in areas south of the U.S.	May persist in partly-cleared forests, second-growth woodland, and abandoned cultivated areas reverted to brush. Universal component is presence of dense cover. Unconfirmed reports of individuals in the southern part of the State continue to be received.
Pima pineapple cactus	*Coryphantha scheeri var. robustispina*	Endangered	Hemispherical stems 4-7 inches tall 3-4 inches diameter. Central spine 1 inch long straw colored hooked surrounded by 6-15 radial spines. Flower: yellow, salmon, or rarely white narrow floral tube.	Pima, Santa Cruz	2,300-5,000 ft	Sonoran desertscrub or semi-desert grassland communities.	Occurs in alluvial valleys or on hillsides in rocky to sandy or silty soils. This species can be confused with juvenile barrel cactus (Ferocactus). However, the spines of the later are flattened, in contrast with the round cross-section of the Coryphanta spines. About 80-90% of individuals occur on state or private land.
Sonoran pronghorn	*Antilocapra americana sonoriensis*	Endangered	Upperparts tan; underparts, rump, and two bands across the neck are white. Male has two black cheek pouches. Hoofed with slightly curved black horns having a single prong. Smallest and palest of the pronghorn subspecies.	Maricopa, Pima, Yuma	2,000-4,000 ft	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations.	Typically, bajadas are used as fawning areas and sandy dune areas provide food seasonally. Cacti (jumping cholla) appears to make up substantial part of diet. This subspecies also occurs in Mexico.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Small passerine (about 6 inches) grayish-green back and wings, whitish throat, light olive-gray breast and pale yellowish belly. Two wingbars visible. Eye-ring faint or absent.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	< 8,500 ft	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	Migratory riparian-obligate species that occupies breeding habitat from late April to September. Distribution within its range is restricted to riparian corridors. Difficult to distinguish from other members of the Empidonax complex by sight alone. Training seminar required for those conducting flycatcher surveys. Critical habitat was finalized on October 19, 2005 (50 CFR 60886). In Arizona there are critical habitat segments in Apache, Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pima, Pinal, and Yavapai counties.
Acuna cactus	*Echinomastus erectocentrus var. acunensis*	Candidate	Less than 12 inches tall; spine clusters borne on tubercles, each with a groove on the upper surface. 2-3 central spines and 12 radial spines. Radial spines are dirty white with maroon tips. Flowers pink to purple.	Pima, Pinal	1,300-2,000 ft	Well drained knolls and gravel ridges in Sonoran desertscrub.	Immature plants distinctly different from mature plants. Immatures are disc-shaped or spherical and have no central spines until they are about 1.5 inches.
Northern Mexican Gartersnake	*Thamnophis eques megalops*	Candidate	Background color ranges from olive, olive-brown, to olive-gray. Body has three yellow or light colored stripes running down the length of the body, darker towards tail. Species distinguished from other native gartersnakes by the lateral stripes reaching the 3rd and 4th scale rows. Paired black spots extend along dorsolateral fields.	Apache, Cochise, Coconino, Gila, Graham, Navajo, Pima, Pinal, Santa Cruz, Yavapai	130-8,500 ft	Cienegas, stock tanks, large-river riparian woodlands and forests, streamside gallery forests.	Core population areas in the U.S. include mid/upper Verde River drainage, mid/lower Tonto Creek, and the San Rafael Valley and surrounding area. Status on tribal lands unknown. Distributed south into Mexico along the Sierra Madre Occidental and Mexican Plateau. Strongly associated with the presence of a native prey base including leopard frogs and native fish.
Sonoyta mud turtle	*Kinosternon sonoriense longifemorale*	Candidate	Aquatic; dark, medium-sized; shell up to 7 inches long; head, neck, and limbs mottled; carapace is olive brown to dark brown; plastron hinged; long barbels on chin, webbed feet.	Pima	1,100 ft	Ponds and streams.	Found only in Quitobaquito Springs in Organ Pipe Cactus National Monument, Arizona. Species also occurs in Rio Sonoyta, Sonora, Mexico.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Tucson shovel-nosed snake	*Chionactis occipitalis klauberi*	Candidate	Small snake (10-17 inches total length) in the family Colubridae, with a shovel-shaped snout and an inset lower jaw. Overall coloring mimics coral snakes, with pale yellow to cream-colored body, 21 or more black or brown saddle-like bands across the back, and orange-red saddle-like bands in between. The subspecies is distinguished from the other subspecies in that these secondary orange-red crossbands are suffused with dark pigment, making them appear brown or partly black, and the black and red crossbands do not encircle the entire body.	Maricopa, Pima, Pinal	785-1,662 ft	Sonoran Desertscrub; associated with soft, sandy soils having sparse gravel.	Found in creosote-mesquite floodplain environments, finds refuge under desert shrubs,active during crepuscular (dawn and dusk) and daylight hours.
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	Medium-sized bird with a slender, long-tailed profile, slightly down-curved bill that is blue-black with yellow on the lower half. Plumage is grayish-brown above and white below, with rufous primary flight feathers.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	< 6,500 ft	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries).	Neotropical migrant that winters primarily in South America and breeds primarily in the U.S. (but also in southern Canada and northern Mexico). As a migrant it is rarely detected; can occur outside of riparian areas. Cuckoos are found nesting statewide, mostly below 5,000 feet in central, western, and southeastern Arizona. Concern for cuckoos are primarily focused upon alterations to its nesting and foraging habitat. Nesting cuckoos are associated with relatively dense, wooded, streamside riparian habitat, with varying combinations of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk. Some cuckoos have also been detected nesting in velvet mesquite, netleaf hackberry, Arizona sycamore, Arizona alder, and some exotic neighborhood shade trees.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Gooddings onion	*Allium gooddingii*	Conservation Agreement	Herbaceous perennial plant; broad, flat, rather blunt leaves; flowering stalk 14-18 inches tall, flattened, and narrowly winged toward apex; fruit is broader than long; seeds are short and thick.	Apache, Greenlee, Pima	7,500-11,250 ft	Shaded sites on north-trending drainages, on slopes, or in narrow canyons, within mixed conifer and spruce fir forests.	Known from the White, Santa Catalina, and Chuska Mountains. Also found in New Mexico on the Lincoln and Gila National Forests. A Conservation Agreement between the Service and the Forest Service signed in February 1998.
San Xavier talussnail	*Sonorella eremita*	Conservation Agreement	Land snail, less than one inch in diameter (about .75 inches); round shell with 4.5 whorls; white to pinkish tint and chestnut-brown shoulder band.	Pima	3,850-3,920 ft	Inhabits a deep, northwest-facing limestone rockslide.	Restricted to 50 by 100 foot area of land privately owned in southeastern Arizona. A Conservation Agreement was finalized in 1995 and renewed in May 2008.
American peregrine falcon	*Falco pereginus anatum*	Delisted	A crow-sized falcon with slate blue-gray on the back and wings, and white on the underside; a black head with vertical “bandit’s mask” pattern over the eyes; long pointed wings; and a long wailing call made during breeding. Very adept flyers and hunters, reaching diving speeds of 200 mph.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	3,500-9,000 ft	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 such as office towers and bridge abutments.	Species recovered with over 1,650 breeding birds in the US and Canada.
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	Delisted; petitioned for relisting	Small reddish-brown owl with a cream-colored belly streaked with reddish-brown. Males average 2.2 oz and females average 2.6 oz. Length is approximately 6.5 in., including a relatively long tail. Lacks ear tufts, and has paired black spots on the back of the head.	Pima, Pinal	< 4,000 ft	Areas of desert woodlands with tall canopy cover. Primarily found in Sonoran desert scrub and occasionally in riparian drainages and woodlands within semi-desert grassland communities. Prefers to nest in cavities in saguaro cacti but has been found in low-density suburban developments that include natural open spaces.	Not recognized as a protected taxonomic entity under the Act, but protected from direct take of individuals and nests/eggs under the Migratory Bird Treaty Act. A 2006 petition for relisting under the Act is currently being evaluated. Due to low population numbers, captive breeding research was initiated in 2006 with some success.

Special Status Species in the Arizona HDMS, listed alphabetically by county, by taxon, by scientific name.

Updated December 2006

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Apache	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Apache	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Apache	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Apache	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Apache	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Apache	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Apache	BIRD	Catharus fuscescens	Veery						WSC	ABPBJ18080	S1	G5
Apache	BIRD	Ceryle alcyon	Belted Kingfisher				4		WSC	ABNXD01020	S2B,S5N	G5
Apache	BIRD	Charadrius montanus	Mountain Plover	SC	S	S	4			ABNNB03100	S1B,S2N	G2
Apache	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Apache	BIRD	Dolichonyx oryzivorus	Bobolink						WSC	ABPBXA9010	S1	G5
Apache	BIRD	Dumetella carolinensis	Gray Catbird						WSC	ABPBK01010	S1	G5
Apache	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Apache	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Apache	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Apache	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Apache	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Apache	BIRD	Pica hudsonia	Black billed Magpie						WSC	ABPAV09010	S3	G5
Apache	BIRD	Pinicola enucleator	Pine Grosbeak						WSC	ABPBY03010	S1	G5
Apache	BIRD	Setophaga ruticilla	American Redstart						WSC	ABPBX06010	S1	G5
Apache	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Apache	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Apache	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Apache	FISH	Catostomus sp. 3	Little Colorado Sucker	SC		S			WSC	AFCJC02250	S2	G2
Apache	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Apache	FISH	Lepidomeda vittata	Little Colorado Spinedace	LT		S			WSC	AFCJB20040	S1S2	G1G2
Apache	FISH	Oncorhynchus apache	Apache Trout	LT		S			WSC	AFCHA02102	S3	G3T3
Apache	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Apache	FISH	Tiaroga cobitis	Loach Minnow	LT		S		P	WSC	AFCJB37140	S1	G2
Apache	INVERTEBRATE	Anodonta californiensis	California Floater	SC		S				IMBIV04020	S1S2	G3Q
Apache	INVERTEBRATE	Daihinibaenetes arizonensis	Arizona Giant Sand Treader Cricket	SC	S	S				IIORT21010	S1S3	G1G3
Apache	INVERTEBRATE	Psephenus montanus	White Mountains Water Penny Beetle	SC		S				IICOL63020	S2?	G2?
Apache	INVERTEBRATE	Pyrgulopsis trivialis	Three Forks Springsnail	C	S	S				IMGASJ0560	S1	G1
Apache	INVERTEBRATE	Speyeria nokomis nitocris	Mountain Silverspot Butterfly			S				IILEPJ6052	S?	G3T3
Apache	MAMMAL	Euderma maculatum	Spotted Bat	SC				PR	WSC	AMACC07010	S1S2	G4
Apache	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Apache	MAMMAL	Microtus mexicanus navaho	Navajo Mexican Vole	SC		S	4		WSC	AMAFF11213	S1	G5T2Q
Apache	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Apache	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Apache	MAMMAL	Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC		S				AMAFD01031	S3	G5T3
Apache	MAMMAL	Sorex palustris	American Water Shrew						WSC	AMABA01150	S1	G5
Apache	MAMMAL	Spermophilus tridecemlineatus monticola	White Mountains Ground Squirrel			S				AMAFB05092	S3	G5T3
Apache	MAMMAL	Zapus hudsonius luteus	New Mexican Jumping Mouse	SC		S			WSC	AMAFH01014	S2	G5T2
Apache	PLANT	Allium gooddingii	Goodding Onion	SC		S	3		HS	PMLIL02120	S3S4	G4
Apache	PLANT	Amsonia peeblesii	Peebles Blue Star				4			PDAPO030E0	S3	G3
Apache	PLANT	Astragalus nutriosensis	Nutrioso Milk vetch	SC					SR	PDFAB0FB70	S3?	G3?
Apache	PLANT	Astragalus xiphoides	Gladiator Milk Vetch	SC					SR	PDFAB0F9T0	S3	G3
Apache	PLANT	Botrychium crenulatum	Crenulate Moonwort	SC		S				PPOPH010L0	S1	G3
Apache	PLANT	Calypso bulbosa	Western Fairy Slipper						SR	PMORC0D010	S3	G5
Apache	PLANT	Carex chihuahuensis	A Sedge			S				PMCYP032T0	S2S3	G3G4
Apache	PLANT	Carex specuicola	Navajo Sedge	LT			3		HS	PMCYP03CQ0	S2	G2
Apache	PLANT	Castilleja mogollonica	White Mountains Paintbrush	SC		S			SR	PDSCR0D3Q0	S1	G1Q
Apache	PLANT	Chrysothamnus molestus	Tusayan Rabbitbrush	SC		S				PDAST2C060	S3	G3
Apache	PLANT	Cypripedium parviflorum var. pubescens	Yellow Lady's slipper						HS	PMORC0Q092	S1	G5T5
Apache	PLANT	Draba standleyi	Standley Whitlow grass	SC						PDBRA112G0	S2S3	G2G3
Apache	PLANT	Eremocrinum albomarginatum	Utah Solitaire Lily			S			SR	PMLIL0T010	S2	G3
Apache	PLANT	Erigeron rhizomatus	Rhizome Fleabane	LT			2			PDAST3M3N0	S1	G2
Apache	PLANT	Goodyera repens	Lesser Rattlesnake Plantain						SR	PMORC17030	S2	G5
Apache	PLANT	Ipomoea plummerae var. cuneifolia	Huachuca Morning Glory			S				PDCON0A141	S3	G4T3
Apache	PLANT	Malaxis porphyrea	Purple Adder's Mouth						SR	PMORC1R0Q0	S2	G4
Apache	PLANT	Mammillaria wrightii var. wrightii	Wright Fishhook Cactus						SR	PDCAC0A0E2	S1	G4T3
Apache	PLANT	Platanthera hyperborea	Boreal Bog Orchid						SR	PMORC1Y0B0	S3S4	G5
Apache	PLANT	Platanthera purpurascens	Slender Bog Orchid						SR	PMORC1Y0P0	S4	G5
Apache	PLANT	Puccinellia parishii	Parish Alkali Grass	SC			4		HS	PMPOA530T0	S2	G2
Apache	PLANT	Rumex orthoneurus	Blumer's Dock	SC		S			HS	PDPGN0P0Z0	S3	G3
Apache	PLANT	Salix arizonica	Arizona Willow			S			HS	PDSAL02080	S2	G2G3
Apache	PLANT	Senecio quaerens	Gila Groundsel	SC		S			SR	PDAST8H2L0	S2	G2
Apache	PLANT	Stellaria porsildii	Porsild's Starwort			S				PDCAR0X160	S1	G1
Apache	PLANT	Streptopus amplexifolius	White Mandarin Twisted Stalk						SR	PMLIL1X010	S2S3	G5
Apache	PLANT	Trifolium neurophyllum	White Mountains Clover	SC		S				PDFAB401N0	S2	G2
Apache	PLANT	Zigadenus virescens	Green Death Camas						SR	PMLIL280E0	S4	G4
Apache	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Apache	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Apache; Gral	BIRD	Ceryle alcyon	Belted Kingfisher				4		WSC	ABNXD01020	S2B,S5N	G5
Apache; Gral	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Apache; Gree	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Apache; Gree	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Apache; Gree	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Apache; Gree	PLANT	Allium gooddingii	Goodding Onion	SC		S	3		HS	PMLIL02120	S3S4	G4
Apache; Gree	PLANT	Calypso bulbosa	Western Fairy Slipper						SR	PMORC0D010	S3	G5
Apache; Gree	PLANT	Malaxis porphyrea	Purple Adder's Mouth						SR	PMORC1R0Q0	S2	G4
Apache; Gree	PLANT	Rumex orthoneurus	Blumer's Dock	SC		S			HS	PDPGN0P0Z0	S3	G3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Apache; Gree	PLANT	Senecio quaerens	Gila Groundsel	SC		S			SR	PDAST8H2L0	S2	G2
Apache; Gree	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Apache; Nav	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Apache; Nav	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Apache; Nav	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Apache; Nav	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Clark	FISH	Catostomus latipinnis	Flannelmouth Sucker	SC	S	S				AFCJC02110	S2	G3G4
Cochise	AMPHIBIAN	Ambystoma tigrinum stebbinsi	Sonoran Tiger Salamander	LE				PR	WSC	AAAAA01145	S1S2	G5T1T2
Cochise	AMPHIBIAN	Eleutherodactylus augusti cactorum	Western Barking Frog			S			WSC	AAABD04171	S1	G5T5
Cochise	AMPHIBIAN	Rana blairi	Plains Leopard Frog						WSC	AAABH01040	S1	G5
Cochise	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Cochise	AMPHIBIAN	Rana subaquavocalis	Ramsey Canyon Leopard Frog	SC		S				AAABH01280	S1	G1Q
Cochise	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Cochise	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Cochise	BIRD	Amazilia violiceps	Violet crowned Hummingbird						WSC	ABNUC29150	S3	G5
Cochise	BIRD	Ammodramus bairdii	Baird's Sparrow	SC					WSC	ABPBXA0010	S2N	G4
Cochise	BIRD	Anthus spragueii	Sprague's Pipit						WSC	ABPBM02060	S2N	G4
Cochise	BIRD	Asturina nitida maxima	Northern Gray Hawk	SC		S		PR	WSC	ABNKC19011	S3	G5T4Q
Cochise	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Cochise	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Cochise	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Cochise	BIRD	Dendrocygna autumnalis	Black bellied Whistling Duck						WSC	ABNJB01040	S3	G5
Cochise	BIRD	Empidonax fulvifrons pygmaeus	Northern Buff breasted Flycatcher	SC					WSC	ABPAE33141	S1	G5T5
Cochise	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Cochise	BIRD	Euptilotis neoxenus	Eared Quetzal			S		A		ABNWA03010	SAB,S1N	G3
Cochise	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Cochise	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Cochise	BIRD	Ictinia mississippiensis	Mississippi Kite					A	WSC	ABNKC09010	S3	G5
Cochise	BIRD	Plegadis chihi	White faced Ibis	SC						ABNGE02020	S?B,S2S3N	G5
Cochise	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Cochise	BIRD	Trogon elegans	Elegant Trogon						WSC	ABNWA02070	S3	G5
Cochise	BIRD	Tyrannus crassirostris	Thick billed Kingbird						WSC	ABPAE52040	S2	G5
Cochise	BIRD	Tyrannus melancholicus	Tropical Kingbird						WSC	ABPAE52010	S3	G5
Cochise	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Cochise	FISH	Agosia chrysogaster ssp. 1	Yaqui Longfin Dace	SC	S			A		AFCJB37152	S1	G4T1
Cochise	FISH	Campostoma ornatum	Mexican Stoneroller	SC		S		P	WSC	AFCJB03030	S1	G3
Cochise	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Cochise	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Cochise	FISH	Cyprinella formosa	Beautiful Shiner	LT				A	WSC	AFCJB49080	S1	G2
Cochise	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Cochise	FISH	Gila purpurea	Yaqui Chub	LE				P	WSC	AFCJB13140	S1	G1
Cochise	FISH	Ictalurus pricei	Yaqui Catfish	LT				PR	WSC	AFCKA01090	S1	G2

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Cochise	FISH	Poeciliopsis occidentalis sonoriensis	Yaqui Topminnow	LE				A	WSC	AFCNC05022	S1	G3T3
Cochise	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Cochise	INVERTEBRATE	Agathymus aryxna	Arizona Giant Skipper			S				IILEP87080	S?	G4G5
Cochise	INVERTEBRATE	Agathymus evansi	Huachuca Giant skipper			S				IILEP87110	S?	G2G3
Cochise	INVERTEBRATE	Agathymus neumoegeni	Neumogen's Giant Skipper			S				IILEP87010	S?	G4G5
Cochise	INVERTEBRATE	Anthocharis cethura	Felder's Orange Tip			S				IILEPA6010	S?	G4G5
Cochise	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Cochise	INVERTEBRATE	Erynnis scudderi	Scudder's Dusky Wing			S				IILEP37070	S?	G4G5
Cochise	INVERTEBRATE	Neophasia terlooii	Chiricahua Pine White			S				IILEP99020	S2?	G3G4
Cochise	INVERTEBRATE	Psephenus arizonensis	Arizona Water Penny Beetle	SC		S				IICOL63010	S2?	G2?
Cochise	INVERTEBRATE	Pyrgulopsis bernardina	San Bernardino Springsnail	SC	S	S				IMGASJ0950	S1	G1
Cochise	INVERTEBRATE	Pyrgulopsis thompsoni	Huachuca Springsnail	C	S	S				IMGASJ0230	S2	G2
Cochise	INVERTEBRATE	Stygobromus arizonensis	Arizona Cave Amphipod	SC		S				ICMAL05360	S1?	G2G3
Cochise	INVERTEBRATE	Sympetrum signiferum	Mexican Meadowfly			S				IIODO61150	S?	G2G3
Cochise	MAMMAL	Choeronycteris mexicana	Mexican Long tongued Bat	SC				A	WSC	AMACB02010	S2	G4
Cochise	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Cochise	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Cochise	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Cochise	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Cochise	MAMMAL	Lasiurus xanthinus	Western Yellow Bat						WSC	AMACC05070	S1	G5
Cochise	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long nosed Bat	LE		S		|	WSC	AMACB03030	S2	G4
Cochise	MAMMAL	Myotis ciliolabrum	Western Small footed Myotis	SC	S					AMACC01140	S3	G5
Cochise	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Cochise	MAMMAL	Myotis thysanodes	Fringed Myotis	SC	S					AMACC01090	S3S4	G4G5
Cochise	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Cochise	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5
Cochise	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Cochise	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Cochise	MAMMAL	Panthera onca	Jaguar	LE		S		P	WSC	AMAJH02010	S1	G3
Cochise	MAMMAL	Sciurus nayaritensis chiricahuae	Chiricahua Fox Squirrel	SC		S				AMAFB07051	S1S2	G5T1T2
Cochise	MAMMAL	Sigmodon ochrognathus	Yellow nosed Cotton Rat	SC						AMAFF07040	S3S4	G4G5
Cochise	MAMMAL	Sorex arizonae	Arizona Shrew	SC		S		P	WSC	AMABA01240	S2S3	G3
Cochise	MAMMAL	Thomomys bottae mearnsi	Mearns' Southern Pocket Gopher	SC						AMAFC0102G	S5	G5T5
Cochise	PLANT	Allium plummerae	Plummer Onion						SR	PMLIL021V0	S3	G4
Cochise	PLANT	Allium rhizomatum	Redflower Onion			S			SR	PMLIL02320	S1	G3?Q
Cochise	PLANT	Apacheria chiricahuensis	Chiricahua Rock Flower						SR	PDCRO01010	S2	G2
Cochise	PLANT	Arabis tricornuta	Chiricahua Rock Cress			S				PDBRA06200	S1?	G1?
Cochise	PLANT	Asclepias lemmonii	Lemmon Milkweed			S				PDASC020Z0	S2	G4?
Cochise	PLANT	Asplenium dalhousiae	Dalhouse Spleenwort		S					PPASP020A0	S1	GNR
Cochise	PLANT	Astragalus cobrensis var. maguirei	Coppermine Milk vetch	SC		S			SR	PDFAB0F262	S1	G4T2
Cochise	PLANT	Astragalus hypoxylus	Huachuca Milk vetch	SC	S	S			SR	PDFAB0F470	S1	G1
Cochise	PLANT	Carex chihuahuensis	A Sedge			S				PMCYP032T0	S2S3	G3G4
Cochise	PLANT	Carex ultra	Arizona Giant Sedge		S	S				PMCYP03E50	S2	G3?

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Cochise	PLANT	Castilleja nervata	Trans pecos Indian paintbrush			S				PDSCR0D270	S1	G3Q
Cochise	PLANT	Cleome multicaulis	Playa Spider Plant	SC					SR	PDCPP03080	S1	G2G3
Cochise	PLANT	Coryphantha robbinsorum	Cochise Pincushion Cactus	LT					HS	PDCAC0X0C0	S1	G1
Cochise	PLANT	Coryphantha scheeri var. valida	Slender Needle Corycactus						SR	PDCAC040C4	S3?	G4T4
Cochise	PLANT	Coursetia glabella		SC		S				PDFAB140B0	S1	G3?
Cochise	PLANT	Draba standleyi	Standley Whitlow grass	SC						PDBRA112G0	S2S3	G2G3
Cochise	PLANT	Echinocereus ledingii	Pinaleno Hedgehog Cactus						SR	PDCAC06066	S4	G4G5T4
Cochise	PLANT	Echinocereus pectinatus var. pectinatus	Texas Rainbow Cactus						SR	PDCAC060A3	S4	G5T4
Cochise	PLANT	Echinomastus erectocentrus var. erectocentrus	Needle spined Pineapple Cactus	SC		S			SR	PDCAC0J0E2	S3	G3T3Q
Cochise	PLANT	Epithelantha micromeris	Button Cactus					PR	SR	PDCAC07020	S1	G4
Cochise	PLANT	Erigeron arisolius				S				PDAST3M510	S2	G2
Cochise	PLANT	Erigeron kuschei	Chiricahua Fleabane	SC		S			SR	PDAST3M240	S1	G1
Cochise	PLANT	Erigeron lemmonii	Lemmon Fleabane	C					HS	PDAST3M2A0	S1	G1
Cochise	PLANT	Eriogonum capillare	San Carlos Wild buckwheat	SC					SR	PDPGN08100	S4	G4
Cochise	PLANT	Eriogonum terrenatum	San Pedro River Wild Buckwheat		S					PDPGN08760	S1	G1
Cochise	PLANT	Escobaria tuberculosa	Incense Corycactus						SR	PDCAC0X0F0	S1	G4
Cochise	PLANT	Euphorbia macropus	Woodland Spurge	SC					SR	PDEUP0Q2U0	S2	G4
Cochise	PLANT	Gentianella wislizeni	Wislizeni Gentian	SC		S			SR	PDGEN07090	S1	G2
Cochise	PLANT	Graptopetalum bartramii	Bartram Stonecrop	SC	S	S			SR	PDCRA06010	S3	G3
Cochise	PLANT	Hedeoma costatum	Chiricahua Mock Pennyroyal			S				PDLAM0M0L0	S1	G5
Cochise	PLANT	Hedeoma dentatum	Mock pennyroyal			S				PDLAM0M0M0	S3	G3
Cochise	PLANT	Heterotheca rutteri	Huachuca Golden Aster	SC	S	S				PDAST4V0J0	S2	G2
Cochise	PLANT	Heuchera glomerulata	Arizona Alum Root			S				PDSAX0E0F0	S3	G3
Cochise	PLANT	Hexalectris revoluta	Chisos Coral root		S	S			SR	PMORC1C030	S1	G1G2
Cochise	PLANT	Hexalectris spicata	Crested Coral Root						SR	PMORC1C040	S3S4	G5
Cochise	PLANT	Hexalectris warnockii	Texas Purple Spike	SC	S	S			HS	PMORC1C050	S1	G2G3
Cochise	PLANT	Hieracium pringlei	Pringle Hawkweed	SC		S				PDAST4W170	S1	G2Q
Cochise	PLANT	Hieracium rusbyi	Rusby Hawkweed			S				PDAST4W1A0	S1	G2?
Cochise	PLANT	Ipomoea plummerae var. cuneifolia	Huachuca Morning Glory			S				PDCON0A141	S3	G4T3
Cochise	PLANT	Ipomoea thurberi	Thurber's Morning glory			S				PDCON0A1K0	S1	G3
Cochise	PLANT	Laennecia eriophylla	Woolly Fleabane			S				PDASTDL020	S2	G3
Cochise	PLANT	Lilaeopsis schaffneriana var. recurva	Huachuca Water Umbel	LE					HS	PDAPI19051	S2	G4T2
Cochise	PLANT	Lilium parryi	Lemmon Lily	SC		S			SR	PMLIL1A0J0	S2	G3
Cochise	PLANT	Lobelia fenestralis	Leafy Lobelia						SR	PDCAM0E0H0	S1	G4
Cochise	PLANT	Lupinus huachucanus	Huachuca Mountain Lupine			S				PDFAB2B210	S2	G2
Cochise	PLANT	Lupinus lemmonii	Lemmon's Lupine			S				PDFAB2B2A0	S1S2Q	G1G2Q
Cochise	PLANT	Malaxis corymbosa	Madrean Adders Mouth						SR	PMORC1R020	S3S4	G4
Cochise	PLANT	Malaxis porphyrea	Purple Adder's Mouth						SR	PMORC1R0Q0	S2	G4
Cochise	PLANT	Malaxis tenuis	Slender Adders Mouth						SR	PMORC1R090	S1	G4
Cochise	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Cochise	PLANT	Mammillaria wrightii var. wilcoxii	Wilcox Fishhook Cactus						SR	PDCAC0A0E1	S4	G4T4
Cochise	PLANT	Metastelma mexicanum	Wiggins Milkweed Vine	SC		S				PDASC050P0	S1S2	G3G4
Cochise	PLANT	Pectis imberbis	Beardless Chinch Weed	SC		S				PDAST6W0A0	S1	G3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Cochise	PLANT	Peniocereus greggii var. greggii	Night blooming Cereus	SC				PR	SR	PDCAC0V011	S1	G3G4T2
Cochise	PLANT	Penstemon discolor	Catalina Beardtongue			S			HS	PDSCR1L210	S2	G2
Cochise	PLANT	Penstemon ramosus	Branching Penstemon			S				PDSCR1L7L0	S1	G3G4Q
Cochise	PLANT	Penstemon superbus	Superb Beardtongue			S				PDSCR1L630	S2?	G3?
Cochise	PLANT	Perityle cochisensis	Chiricahua Rock Daisy			S			SR	PDAST70080	S1S2	G1G2
Cochise	PLANT	Physalis latiphysa	Broad leaf Ground cherry			S				PDSOL0S0H0	S1	G1
Cochise	PLANT	Platanthera limosa	Thurber's Bog Orchid						SR	PMORC1Y0G0	S4	G4
Cochise	PLANT	Polemonium flavum	Pinaleno Jacobs Ladder			S				PDPLM0E0B2	S2	G5T3?
Cochise	PLANT	Polemonium pauciflorum ssp. hinckley	Hinckley's Ladder	SC		S				PDPLM0E0G1	S1	G3G5T2Q
Cochise	PLANT	Psilactis gentryi	Mexican Bare ray aster			S				PDASTE7010	S1	G3
Cochise	PLANT	Rumex orthoneurus	Blumer's Dock	SC		S			HS	PDPGN0P0Z0	S3	G3
Cochise	PLANT	Salvia amissa	Aravaipa Sage	SC	S	S				PDLAM1S020	S2	G2
Cochise	PLANT	Samolus vagans	Chiricahua Mountain Brookweed			S				PDPRI09040	S2	G2?
Cochise	PLANT	Schiedeella arizonica	Fallen Ladies' tresses						SR	PMORC67020	S4	GNR
Cochise	PLANT	Senecio carlomasonii	Seemann Groundsel			S				PDAST8H3W0	S2S3	G4?Q
Cochise	PLANT	Senecio multidentatus var. huachucanus	Huachuca Groundsel			S			HS	PDAST8H411	S2	G2G4T2
Cochise	PLANT	Senecio neomexicanus var. toumeyi	Toumey Groundsel			S				PDAST8H274	S2	G5T2Q
Cochise	PLANT	Sisyrinchium cernuum	Nodding Blue eyed Grass			S				PMIRI0D0B0	S2	G5
Cochise	PLANT	Spiranthes delitescens	Madrean Ladies' tresses	LE					HS	PMORC2B140	S1	G1
Cochise	PLANT	Stellaria porsildii	Porsild's Starwort			S				PDCAR0X160	S1	G1
Cochise	PLANT	Stenorrhynchos michuacanum	Michoacan Ladies' tresses						SR	PMORC2B0L0	S3	G4
Cochise	PLANT	Talinum marginatum	Tepic Flame Flower	SC		S			SR	PDPOR080N0	S1	G2
Cochise	PLANT	Tephrosia thurberi	Thurber Hoary Pea			S				PDFAB3X0M0	S3	G4G5
Cochise	PLANT	Tragia laciniata	Sonoran Noseburn			S				PDEUP1D060	S3?	G3G4
Cochise	PLANT	Vauquelinia californica ssp. pauciflora	Limestone Arizona Rosewood	SC					SR	PDROS1R022	S1	G4T3
Cochise	PLANT	Viola umbraticola	Shade Violet			S				PDVIO042E0	S2?	G3G4
Cochise	PLANT	Zigadenus virescens	Green Death Camas						SR	PMLIL280E0	S4	G4
Cochise	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC	S	S				ARACJ02011	S3	G4T4
Cochise	REPTILE	Crotalus willardi obscurus	New Mexico Ridge nosed Rattlesnake	LT		S		PR		ARADE02131	S1	G5T1T2
Cochise	REPTILE	Crotalus willardi willardi	Arizona Ridge nosed Rattlesnake			S		PR	WSC	ARADE02132	S3	G5T4
Cochise	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Cochise	REPTILE	Phrynosoma cornutum	Texas Horned Lizard	SC	S			A		ARACF12010	S3S4	G4G5
Cochise	REPTILE	Sistrurus catenatus edwardsii	Desert Massasauga			S		PR	WSC	ARADE03012	S1S2	G3G4T3T4Q
Cochise	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Cochise; Gra	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Cochise; Pim	BIRD	Tyrannus melancholicus	Tropical Kingbird						WSC	ABPAE52010	S3	G5
Cochise; Pim	PLANT	Eriogonum capillare	San Carlos Wild buckwheat	SC					SR	PDPGN08100	S4	G4
Cochise; Pim	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC	S	S				ARACJ02011	S3	G4T4
Cochise; San	AMPHIBIAN	Ambystoma tigrinum stebbinsi	Sonoran Tiger Salamander	LE				PR	WSC	AAAAA01145	S1S2	G5T1T2
Cochise; San	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Cochise; San	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Cochise; San	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Cochise; San	BIRD	Trogon elegans	Elegant Trogon						WSC	ABNWA02070	S3	G5
Cochise; San	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Cochise; San	PLANT	Erigeron arisolius				S				PDAST3M510	S2	G2
Cochise; San	PLANT	Hedeoma dentatum	Mock pennyroyal			S				PDLAM0M0M0	S3	G3
Cochise; San	PLANT	Laennecia eriophylla	Woolly Fleabane			S				PDASTDL020	S2	G3
Cochise; San	PLANT	Muhlenbergia dubioides	Box Canyon Muhly			S				PMPOA480G0	S1	G1Q
Cochise; San	PLANT	Tragia laciniata	Sonoran Noseburn			S				PDEUP1D060	S3?	G3G4
Cochise; San	REPTILE	Crotalus willardi willardi	Arizona Ridge nosed Rattlesnake			S		PR	WSC	ARADE02132	S3	G5T4
Cochise; San	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Coconino	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Coconino	AMPHIBIAN	Rana blairi	Plains Leopard Frog						WSC	AAABH01040	S1	G5
Coconino	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Coconino	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Coconino	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Coconino	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Coconino	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Coconino	BIRD	Buteo regalis	Ferruginous Hawk	SC			3		WSC	ABNKC19120	S2B,S4N	G4
Coconino	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Coconino	BIRD	Ceryle alcyon	Belted Kingfisher				4		WSC	ABNXD01020	S2B,S5N	G5
Coconino	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Coconino	BIRD	Euptilotis neoxenus	Eared Quetzal			S		A		ABNWA03010	SAB,S1N	G3
Coconino	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Coconino	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Coconino	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Coconino	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Coconino	BIRD	Pinicola enucleator	Pine Grosbeak						WSC	ABPBY03010	S1	G5
Coconino	BIRD	Plegadis chihi	White faced Ibis	SC						ABNGE02020	S?B,S2S3N	G5
Coconino	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Coconino	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Coconino	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Coconino	FISH	Catostomus latipinnis	Flannelmouth Sucker	SC	S	S				AFCJC02110	S2	G3G4
Coconino	FISH	Catostomus sp. 3	Little Colorado Sucker	SC		S			WSC	AFCJC02250	S2	G2
Coconino	FISH	Gila cypha	Humpback Chub	LE			2		WSC	AFCJB13080	S1	G1
Coconino	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Coconino	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Coconino	FISH	Lepidomeda vittata	Little Colorado Spinedace	LT		S			WSC	AFCJB20040	S1S2	G1G2
Coconino	FISH	Oncorhynchus apache	Apache Trout	LT		S			WSC	AFCHA02102	S3	G3T3
Coconino	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Coconino	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Coconino	INVERTEBRATE	Anodonta californiensis	California Floater	SC		S				IMBIV04020	S1S2	G3Q
Coconino	INVERTEBRATE	Archeolarca cavicola	Grand Canyon Cave Pseudoscorpion	SC						ILARA38020	S?	G1G2

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Coconino	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Coconino	INVERTEBRATE	Discus shimekii cockerelli	Cockerell's Striate Disc (Snail)	SC	S					IMGAS54121	S2?	G4T4
Coconino	INVERTEBRATE	Metrichia nigritta	Page Spring Micro Caddisfly	SC						IITRI97010	S?	G3G4
Coconino	INVERTEBRATE	Oxyloma haydeni haydeni	Niobrara Ambersnail		S	S				IMGAS67152	S1	G3?T1
Coconino	INVERTEBRATE	Oxyloma haydeni kanabensis	Kanab Ambersnail	LE	S	S	4			IMGAS67151	S1?	G3T1Q
Coconino	INVERTEBRATE	Stenopelmatus navajo	Navajo Jerusalem Cricket	SC	S	S				IIORT26020	S1S3	G1G3
Coconino	MAMMAL	Choeronycteris mexicana	Mexican Long tongued Bat	SC				A	WSC	AMACB02010	S2	G4
Coconino	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Coconino	MAMMAL	Dipodomys microps leucotis	Houserock Valley Chisel toothed Kangaroo Rat	SC			4		WSC	AMAFD03024	S2	G5T2Q
Coconino	MAMMAL	Euderma maculatum	Spotted Bat	SC				PR	WSC	AMACC07010	S1S2	G4
Coconino	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Coconino	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Coconino	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Coconino	MAMMAL	Microtus mexicanus hualpaiensis	Hualapai Mexican Vole	LE					WSC	AMAFF11212	S1	G5T1Q
Coconino	MAMMAL	Microtus mexicanus navaho	Navajo Mexican Vole	SC		S	4		WSC	AMAFF11213	S1	G5T2Q
Coconino	MAMMAL	Myotis ciliolabrum	Western Small footed Myotis	SC	S					AMACC01140	S3	G5
Coconino	MAMMAL	Myotis evotis	Long eared Myotis	SC	S					AMACC01070	S3S4	G5
Coconino	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Coconino	MAMMAL	Myotis thysanodes	Fringed Myotis	SC	S					AMACC01090	S3S4	G4G5
Coconino	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Coconino	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5
Coconino	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Coconino	MAMMAL	Perognathus amplus cineris	Wupatki Arizona Pocket Mouse	SC		S	4			AMAFD01053	S3	G5T3Q
Coconino	PLANT	Allium bigelovii	Bigelow Onion						SR	PMLIL02070	S2S3	G3
Coconino	PLANT	Amsonia peeblesii	Peebles Blue Star				4			PDAPO030E0	S3	G3
Coconino	PLANT	Aquilegia desertorum	Mogollon Columbine						SR	PDRAN05070	S4	G4
Coconino	PLANT	Argemone arizonica	Roaring Springs Prickly poppy	SC						PDPAP03030	S1	G1
Coconino	PLANT	Asclepias welshii	Welsh's Milkweed	LT			3		HS	PDASC02290	S1	G1
Coconino	PLANT	Astragalus ampullarius	Gumbo Milk vetch	SC		S				PDFAB0F0L0	S1	G2
Coconino	PLANT	Astragalus beathii	Beath Milk vetch				4			PDFAB0F160	S2	G2
Coconino	PLANT	Astragalus cremnophylax var. cremnophylax	Sentry Milk vetch	LE					HS	PDFAB0F2H1	S1	G1T1
Coconino	PLANT	Astragalus cremnophylax var. hevronii	Marble Canyon Milk vetch		S	S	3			PDFAB0F2H3	S1	G1T1
Coconino	PLANT	Astragalus cremnophylax var. myriorrhaphis	Cliff Milk vetch	SC	S	S			SR	PDFAB0F2H2	S1	G1T1
Coconino	PLANT	Astragalus rusbyi	Rusby's Milk vetch			S				PDFAB0F7Q0	S3	G3
Coconino	PLANT	Astragalus xiphoides	Gladiator Milk Vetch	SC					SR	PDFAB0F9T0	S3	G3
Coconino	PLANT	Botrychium crenulatum	Crenulate Moonwort	SC		S				PPOPH010L0	S1	G3
Coconino	PLANT	Calypso bulbosa	Western Fairy Slipper						SR	PMORC0D010	S3	G5
Coconino	PLANT	Camissonia exilis	Slender Evening primrose	SC					SR	PDONA030J0	S1	G1
Coconino	PLANT	Camissonia specuicola ssp. hesperia	Grand Canyon Evening primrose	SC						PDONA031J1	S1	G2T1
Coconino	PLANT	Carex specuicola	Navajo Sedge	LT			3		HS	PMCYP03CQ0	S2	G2
Coconino	PLANT	Castilleja kaibabensis	Kaibab Paintbrush			S				PDSCR0D1J0	S2	G2

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Coconino	PLANT	Chrysothamnus molestus	Tusayan Rabbitbrush	SC		S				PDAST2C060	S3	G3
Coconino	PLANT	Cimicifuga arizonica	Arizona Bugbane	SC		S			HS	PDRAN07020	S2	G2
Coconino	PLANT	Cirsium parryi ssp. mogollonicum	Mogollon Thistle	SC		S			SR	PDAST2E261	S1	G4T1
Coconino	PLANT	Coryphantha missouriensis	Missouri Corycactus						SR	PDCAC0X020	S3	G5
Coconino	PLANT	Cymopterus megacephalus	Cameron Water parsley	SC		S				PDAPI0U0M0	S3	G3
Coconino	PLANT	Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus						SR	PDCAC05033	S2	G3G4T3T4
Coconino	PLANT	Echinocactus polycephalus var. xeranthemoides	Grand Canyon Cottontop Cactus						SR	PDCAC05032	S2S3	G3G4T1T3
Coconino	PLANT	Erigeron saxatilis	Rock Fleabane			S				PDAST3M560	S3	G3
Coconino	PLANT	Eriogonum ericifolium var. ericifolium	Heathleaf Wild buckwheat			S				PDPGN08231	S2	G3T2
Coconino	PLANT	Eriogonum ripleyi	Ripley Wild buckwheat	SC		S			SR	PDPGN08520	S2	G2
Coconino	PLANT	Errazurizia rotundata	Roundleaf Errazurizia		S		4		SR	PDFAB1L010	S2	G2
Coconino	PLANT	Ferocactus cylindraceus var. eastwoodiae	Golden Barrel Cactus						SR	PDCAC08084	S1	G5T1
Coconino	PLANT	Flaveria mcdougallii	Grand Canyon Flaveria						SR	PDAST3V070	S2	G2
Coconino	PLANT	Gentianopsis barbellata	Bearded Gentian			S				PDGEN08010	S1	G3G4
Coconino	PLANT	Hedeoma diffusum	Flagstaff Pennyroyal			S			SR	PDLAM0M0N0	S3	G3
Coconino	PLANT	Heuchera eastwoodiae	Eastwood Alum Root			S				PDSAX0E0B0	S3	G3
Coconino	PLANT	Lesquerella kaibabensis	Kaibab Bladderpod	SC		S				PDBRA1N1R0	S1S2	G1G2
Coconino	PLANT	Listera convallarioides	Broadleaf Twayblade						SR	PMORC1N050	S1	G5
Coconino	PLANT	Malaxis porphyrea	Purple Adder's Mouth						SR	PMORC1R0Q0	S2	G4
Coconino	PLANT	Opuntia basilaris var. aurea	Yellow Beavertail						SR	PDCAC0D300	S3	G3
Coconino	PLANT	Opuntia basilaris var. longiareolata	Grand Canyon Beavertail Cactus						SR	PDCAC0D054	S2	G5T2Q
Coconino	PLANT	Opuntia nicholii	Navajo Bridge Cactus						SR	PDCAC0D0W0	S4	G4Q
Coconino	PLANT	Pediocactus bradyi	Brady Pincushion Cactus	LE			2		HS	PDCAC0E010	S1	G1
Coconino	PLANT	Pediocactus paradinei	Kaibab Pincushion Cactus	SC	S	S			HS	PDCAC0E040	S2	G2
Coconino	PLANT	Pediocactus peeblesianus var. fickeiseniae	Fickeisen Plains Cactus	C		S	3		HS	PDCAC0E051	S1S2	G1G2T1T2
Coconino	PLANT	Pediocactus sileri	Siler Pincushion Cactus	LT	S				HS	PDCAC0E060	S3	G3
Coconino	PLANT	Pediocactus simpsonii	Simpson Plains Cactus						SR	PDCAC0E070	S1	G4
Coconino	PLANT	Penstemon clutei	Sunset Crater Beardtongue	SC		S			SR	PDSCR1L1E0	S2	G2
Coconino	PLANT	Penstemon nudiflorus	Flagstaff Beardtongue			S				PDSCR1L4A0	S2S3	G2G3
Coconino	PLANT	Phacelia serrata	Cinder Phacelia	SC						PDHYD0C4B0	S3	G3
Coconino	PLANT	Phacelia welshii	Welsh Phacelia	SC						PDHYD0C4U0	S2	G2
Coconino	PLANT	Pinus aristata	Rocky Mountain Bristlecone Pine						SR	PGPIN04020	S2	G3
Coconino	PLANT	Platanthera zothecina	Alcove Bog orchid	SC			3			PMORC1Y130	S2	G2
Coconino	PLANT	Polemonium flavum	Pinaleno Jacobs Ladder			S				PDPLM0E0B2	S2	G5T3?
Coconino	PLANT	Primula specuicola	Grand Canyon Primrose						SR	PDPRI080H0	S2	G4Q
Coconino	PLANT	Psorothamnus thompsonae var. whitingii	Whiting Indigo Bush	SC						PDFAB3C092	S1	G3?T2
Coconino	PLANT	Puccinellia parishii	Parish Alkali Grass	SC			4		HS	PMPOA530T0	S2	G2
Coconino	PLANT	Rosa stellata ssp. abyssa	Grand Canyon Rose	SC	S	S			SR	PDROS1J153	S2	G4T2
Coconino	PLANT	Rumex orthoneurus	Blumer's Dock	SC		S			HS	PDPGN0P0Z0	S3	G3
Coconino	PLANT	Sclerocactus sileri	House Rock Fishhook Cactus						SR	PDCAC0J0T0	S1	G1

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Coconino	PLANT	Senecio franciscanus	San Francisco Peaks Groundsel	LT					HS	PDAST8H1C0	S1	G1
Coconino	PLANT	Silene rectiramea	Grand Canyon Catchfly	SC						PDCAR0U1F0	S1	G1
Coconino	PLANT	Talinum validulum	Tusayan Flame Flower	SC					SR	PDPOR080M0	S3	G3
Coconino	PLANT	Triteleia lemmoniae	Mazatzal Triteleia						SR	PMLIL210C0	S3	G3
Coconino	PLANT	Zigadenus virescens	Green Death Camas						SR	PMLIL280E0	S4	G4
Coconino	REPTILE	Crotalus oreganus abyssus	Grand Canyon Rattlesnake			S				ARADE02121	S4	G5T4
Coconino	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Coconino	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Coconino; Gi	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Coconino; Gi	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Coconino; Gi	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Coconino; Gi	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Coconino; Gi	PLANT	Heuchera eastwoodiae	Eastwood Alum Root			S				PDSAX0E0B0	S3	G3
Coconino; Gi	PLANT	Triteleia lemmoniae	Mazatzal Triteleia						SR	PMLIL210C0	S3	G3
Coconino; Gi	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Coconino; Mo	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Coconino; Mo	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Coconino; Mo	FISH	Catostomus latipinnis	Flannelmouth Sucker	SC	S	S				AFCJC02110	S2	G3G4
Coconino; Mo	FISH	Gila cypha	Humpback Chub	LE			2		WSC	AFCJB13080	S1	G1
Coconino; Mo	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Coconino; Mo	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Coconino; Mo	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Coconino; Mo	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Coconino; Mo	PLANT	Camissonia specuicola ssp. hesperia	Grand Canyon Evening primrose	SC						PDONA031J1	S1	G2T1
Coconino; Mo	PLANT	Flaveria mcdougallii	Grand Canyon Flaveria						SR	PDAST3V070	S2	G2
Coconino; Mo	PLANT	Thelypteris puberula var. sonorensis	Aravaipa Wood Fern		S					PPTHE05192	S2	G5T3
Coconino; Mo	PLANT	Yucca whipplei	Our Lords Candle						SR	PMAGA0B0X0	S3S4	G4G5
Coconino; Na	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Coconino; Na	PLANT	Carex specuicola	Navajo Sedge	LT			3		HS	PMCYP03CQ0	S2	G2
Coconino; Ya	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Coconino; Ya	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Coconino; Ya	BIRD	Pinicola enucleator	Pine Grosbeak						WSC	ABPBY03010	S1	G5
Coconino; Ya	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Coconino; Ya	PLANT	Allium bigelovii	Bigelow Onion						SR	PMLIL02070	S2S3	G3
Coconino; Ya	PLANT	Eriogonum ripleyi	Ripley Wild buckwheat	SC		S			SR	PDPGN08520	S2	G2
Coconino; Ya	PLANT	Hedeoma diffusum	Flagstaff Pennyroyal			S			SR	PDLAM0M0N0	S3	G3
Coconino; Ya	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Gila	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Gila	AMPHIBIAN	Eleutherodactylus augusti cactorum	Western Barking Frog			S			WSC	AAABD04171	S1	G5T5
Gila	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Gila	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Gila	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Gila	BIRD	Asturina nitida maxima	Northern Gray Hawk	SC		S		PR	WSC	ABNKC19011	S3	G5T4Q

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Gila	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Gila	BIRD	Ceryle alcyon	Belted Kingfisher				4		WSC	ABNXD01020	S2B,S5N	G5
Gila	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Gila	BIRD	Dolichonyx oryzivorus	Bobolink						WSC	ABPBXA9010	S1	G5
Gila	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Gila	BIRD	Euptilotis neoxenus	Eared Quetzal			S		A		ABNWA03010	SAB,S1N	G3
Gila	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Gila	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Gila	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Gila	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
Gila	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Gila	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Gila	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Gila	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Gila	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Gila	FISH	Gila nigra	Headwater Chub	C						AFCJB13180	S2	G2Q
Gila	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Gila	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Gila	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Gila	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Gila	INVERTEBRATE	Agathon arizonicus				S				IIDIP46010	S?	G1
Gila	INVERTEBRATE	Anodonta californiensis	California Floater	SC		S				IMBIV04020	S1S2	G3Q
Gila	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Gila	INVERTEBRATE	Pyrgulopsis simplex	Fossil Springsnail	SC	S	S				IMGASJ0210	S1	G1G2
Gila	INVERTEBRATE	Pyrgulopsis sola	Brown Springsnail	SC	S	S				IMGASJ0220	S1	G1
Gila	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Gila	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Gila	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Gila	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Gila	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Gila	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Gila	MAMMAL	Myotis thysanodes	Fringed Myotis	SC	S					AMACC01090	S3S4	G4G5
Gila	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Gila	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5
Gila	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5
Gila	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Gila	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Gila	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2
Gila	PLANT	Agave arizonica	Arizona Agave	No status					HS	PMAGA01030	SHYB	G1Q
Gila	PLANT	Agave delamateri	Tonto Basin Agave	SC		S			HS	PMAGA010W0	S2	G2
Gila	PLANT	Agave murpheyi	Hohokam Agave	SC	S	S			HS	PMAGA010F0	S2	G2
Gila	PLANT	Agave toumeyana var. bella	Toumey Agave						SR	PMAGA010R1	S3	G3T3
Gila	PLANT	Arenaria aberrans	Mt. Dellenbaugh Sandwort			S				PDCAR04010	S2	G2G3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Gila	PLANT	Carex chihuahuensis	A Sedge			S				PMCYP032T0	S2S3	G3G4
Gila	PLANT	Cimicifuga arizonica	Arizona Bugbane	SC		S			HS	PDRAN07020	S2	G2
Gila	PLANT	Echinocereus triglochidiatus var. arizonicus	Arizona Hedgehog Cactus	LE		S			HS	PDCAC060K1	S2	G5T2
Gila	PLANT	Erigeron anchana	Mogollon Fleabane	SC		S				PDAST3M580	S2	G2
Gila	PLANT	Eriogonum capillare	San Carlos Wild buckwheat	SC					SR	PDPGN08100	S4	G4
Gila	PLANT	Ferocactus cylindraceus var. cylindraceus	California Barrel Cactus					PR	SR	PDCAC08081	S3	G5T4
Gila	PLANT	Fremontodendron californicum	Flannel Bush		S				SR	PDSTE03010	S2S3	G4
Gila	PLANT	Heuchera eastwoodiae	Eastwood Alum Root			S				PDSAX0E0B0	S3	G3
Gila	PLANT	Heuchera glomerulata	Arizona Alum Root			S				PDSAX0E0F0	S3	G3
Gila	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Gila	PLANT	Osmorhiza brachypoda	Sweet Cicely			S				PDAPI1K020	S1	G4
Gila	PLANT	Penstemon nudiflorus	Flagstaff Beardtongue			S				PDSCR1L4A0	S2S3	G2G3
Gila	PLANT	Penstemon superbus	Superb Beardtongue			S				PDSCR1L630	S2?	G3?
Gila	PLANT	Perityle gilensis var. salensis	Gila Rock Daisy			S				PDAST700D2	S2?	G2?T2?
Gila	PLANT	Perityle saxicola	Fish Creek Rock Daisy	SC		S				PDAST700P0	S1	G1
Gila	PLANT	Phlox amabilis	Arizona Phlox			S				PDPLM0D050	S2	G2
Gila	PLANT	Rumex orthoneurus	Blumer's Dock	SC		S			HS	PDPGN0P0Z0	S3	G3
Gila	PLANT	Salvia amissa	Aravaipa Sage	SC	S	S				PDLAM1S020	S2	G2
Gila	PLANT	Triteleia lemmoniae	Mazatzal Triteleia						SR	PMLIL210C0	S3	G3
Gila	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Gila	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Gila	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Gila; Graham	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Gila; Graham	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Gila; Graham	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Gila; Graham	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Gila; Graham	FISH	Gila nigra	Headwater Chub	C						AFCJB13180	S2	G2Q
Gila; Maricop	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Gila; Maricop	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Gila; Maricop	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Gila; Maricop	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Gila; Maricop	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5
Gila; Maricop	PLANT	Fremontodendron californicum	Flannel Bush		S				SR	PDSTE03010	S2S3	G4
Gila; Navajo	PLANT	Penstemon nudiflorus	Flagstaff Beardtongue			S				PDSCR1L4A0	S2S3	G2G3
Gila; Pinal	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Gila; Pinal	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Gila; Pinal	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Gila; Pinal	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Gila; Pinal	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Gila; Pinal	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Gila; Pinal	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Gila; Pinal	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Gila; Pinal	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Gila; Pinal	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Gila; Pinal	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Gila; Yavapa	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Gila; Yavapa	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Gila; Yavapa	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Gila; Yavapa	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Gila; Yavapa	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Gila; Yavapa	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Gila; Yavapa	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
Gila; Yavapa	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Gila; Yavapa	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Gila; Yavapa	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Gila; Yavapa	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Gila; Yavapa	FISH	Gila nigra	Headwater Chub	C						AFCJB13180	S2	G2Q
Gila; Yavapa	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Gila; Yavapa	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Gila; Yavapa	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Gila; Yavapa	INVERTEBRATE	Pyrgulopsis simplex	Fossil Springsnail	SC	S	S				IMGASJ0210	S1	G1G2
Gila; Yavapa	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Gila; Yavapa	PLANT	Fremontodendron californicum	Flannel Bush		S				SR	PDSTE03010	S2S3	G4
Gila; Yavapa	PLANT	Heuchera eastwoodiae	Eastwood Alum Root			S				PDSAX0E0B0	S3	G3
Gila; Yavapa	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Graham	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Graham	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Graham	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Graham	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Graham	BIRD	Amazilia violiceps	Violet crowned Hummingbird						WSC	ABNUC29150	S3	G5
Graham	BIRD	Asturina nitida maxima	Northern Gray Hawk	SC		S		PR	WSC	ABNKC19011	S3	G5T4Q
Graham	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Graham	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Graham	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Graham	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Graham	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Graham	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Graham	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Graham	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Graham	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Graham	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Graham	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
Graham	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Graham	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Graham	FISH	Meda fulgida	Spikedace	LT		S			WSC	AFCJB22010	S1	G2
Graham	FISH	Oncorhynchus apache	Apache Trout	LT		S			WSC	AFCHA02102	S3	G3T3
Graham	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Graham	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Graham	FISH	Tiaroga cobitis	Loach Minnow	LT		S		P	WSC	AFCJB37140	S1	G2
Graham	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Graham	INVERTEBRATE	Anodonta californiensis	California Floater	SC		S				IMBIV04020	S1S2	G3Q
Graham	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Graham	INVERTEBRATE	Eumorsea pinaleno	Pinaleno Monkey Grasshopper	SC		S				IIORT14010	S1S3	G1G3
Graham	INVERTEBRATE	Limenitis archippus obsoleta	Obsolete Viceroy Butterfly			S				IILEPL3024	S?	G5T3T4
Graham	INVERTEBRATE	Oreohelix grahamensis	Pinaleno Mountainsnail			S				IMGASB5120	S2	G2
Graham	INVERTEBRATE	Pyrgulopsis arizonae	Bylas Springsnail	SC	S	S				IMGASJ0770	S1	G1G2
Graham	INVERTEBRATE	Sonorella christenseni	Clark Peak Talussnail	SC		S				IMGASC9150	S1	G1
Graham	INVERTEBRATE	Sonorella grahamensis	Pinaleno Talussnail	SC		S				IMGASC9280	S1	G1
Graham	INVERTEBRATE	Sonorella imitator	Mimic Talussnail			S				IMGASC9320	S2	G2
Graham	INVERTEBRATE	Sonorella macrophallus	Wet Canyon Talussnail	SC		S				IMGASC9360	S1	G1
Graham	INVERTEBRATE	Tryonia gilae	Gila Tryonia	SC		S				IMGASJ7160	S1	G1
Graham	MAMMAL	Choeronycteris mexicana	Mexican Long tongued Bat	SC				A	WSC	AMACB02010	S2	G4
Graham	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Graham	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Graham	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Graham	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Graham	MAMMAL	Lasiurus xanthinus	Western Yellow Bat						WSC	AMACC05070	S1	G5
Graham	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long nosed Bat	LE		S			WSC	AMACB03030	S2	G4
Graham	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Graham	MAMMAL	Microtus longicaudus leucophaeus	White bellied Long tailed Vole			S				AMAFF11061	S3	G5T3
Graham	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Graham	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5
Graham	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Graham	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Graham	MAMMAL	Sigmodon ochrognathus	Yellow nosed Cotton Rat	SC						AMAFF07040	S3S4	G4G5
Graham	MAMMAL	Tamiasciurus hudsonicus grahamensis	Mt Graham Red Squirrel	LE					WSC	AMAFB08011	S1	G5T1
Graham	MAMMAL	Thomomys bottae mearnsi	Mearns' Southern Pocket Gopher	SC						AMAFC0102G	S5	G5T5
Graham	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2
Graham	PLANT	Carex chihuahuensis	A Sedge			S				PMCYP032T0	S2S3	G3G4
Graham	PLANT	Carex ultra	Arizona Giant Sedge		S	S				PMCYP03E50	S2	G3?
Graham	PLANT	Echinocereus ledingii	Pinaleno Hedgehog Cactus						SR	PDCAC06066	S4	G4G5T4
Graham	PLANT	Erigeron heliographis	Pinalenos Fleabane	SC						PDAST3M500	S1	G1
Graham	PLANT	Erigeron piscaticus	Fish Creek Fleabane	SC	S	S			SR	PDAST3M4X0	S1	G1
Graham	PLANT	Eriogonum apachense	Apache Wild buckwheat	SC					SR	PDPGN082PD	S1	G5T1
Graham	PLANT	Eriogonum capillare	San Carlos Wild buckwheat	SC					SR	PDPGN08100	S4	G4
Graham	PLANT	Eupatorium bigelovii	Bigelow Thoroughwort			S				PDAST3P080	S1	G2?

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Graham	PLANT	Hackelia ursina	Chihuahuan Stickseed			S				PDBOR0G0R0	S2	G3?
Graham	PLANT	Heuchera glomerulata	Arizona Alum Root			S				PDSAX0E0F0	S3	G3
Graham	PLANT	Hieracium rusbyi	Rusby Hawkweed			S				PDAST4W1A0	S1	G2?
Graham	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Graham	PLANT	Mammillaria wrightii var. wilcoxii	Wilcox Fishhook Cactus						SR	PDCAC0A0E1	S4	G4T4
Graham	PLANT	Penstemon discolor	Catalina Beardtongue			S			HS	PDSCR1L210	S2	G2
Graham	PLANT	Penstemon ramosus	Branching Penstemon			S				PDSCR1L7L0	S1	G3G4Q
Graham	PLANT	Penstemon superbus	Superb Beardtongue			S				PDSCR1L630	S2?	G3?
Graham	PLANT	Physalis latiphysa	Broad leaf Ground cherry			S				PDSOL0S0H0	S1	G1
Graham	PLANT	Platanthera hyperborea	Boreal Bog Orchid						SR	PMORC1Y0B0	S3S4	G5
Graham	PLANT	Platanthera purpurascens	Slender Bog Orchid						SR	PMORC1Y0P0	S4	G5
Graham	PLANT	Polemonium flavum	Pinaleno Jacobs Ladder			S				PDPLM0E0B2	S2	G5T3?
Graham	PLANT	Potentilla albiflora	White flowered Cinquefoil			S				PDROS1B010	S1S2	G1G2
Graham	PLANT	Purshia subintegra	Arizona Cliff Rose	LE					HS	PDROS1E080	S1	GNA
Graham	PLANT	Rumex orthoneurus	Blumer's Dock	SC		S			HS	PDPGN0P0Z0	S3	G3
Graham	PLANT	Salvia amissa	Aravaipa Sage	SC	S	S				PDLAM1S020	S2	G2
Graham	PLANT	Schiedeella arizonica	Fallen Ladies' tresses						SR	PMORC67020	S4	GNR
Graham	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC	S	S				ARACJ02011	S3	G4T4
Graham	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Graham	REPTILE	Phrynosoma cornutum	Texas Horned Lizard	SC	S			A		ARACF12010	S3S4	G4G5
Graham	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Graham; Gre	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Graham; Gre	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Graham; Gre	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Graham; Gre	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Graham; Gre	PLANT	Allium bigelovii	Bigelow Onion						SR	PMLIL02070	S2S3	G3
Graham; Gre	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Graham; Pina	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Graham; Pina	PLANT	Salvia amissa	Aravaipa Sage	SC	S	S				PDLAM1S020	S2	G2
Graham; Pina	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Greenlee	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Greenlee	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Greenlee	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Greenlee	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Greenlee	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Greenlee	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Greenlee	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Greenlee	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Greenlee	BIRD	Euptilotis neoxenus	Eared Quetzal			S		A		ABNWA03010	SAB,S1N	G3
Greenlee	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Greenlee	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Greenlee	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Greenlee	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Greenlee	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Greenlee	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Greenlee	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Greenlee	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Greenlee	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Greenlee	FISH	Meda fulgida	Spikedace	LT		S			WSC	AFCJB22010	S1	G2
Greenlee	FISH	Oncorhynchus apache	Apache Trout	LT		S			WSC	AFCHA02102	S3	G3T3
Greenlee	FISH	Oncorhynchus gilae	Gila Trout	LE		S			WSC	AFCHA02100	S1	G3
Greenlee	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Greenlee	FISH	Tiaroga cobitis	Loach Minnow	LT		S		P	WSC	AFCJB37140	S1	G2
Greenlee	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Greenlee	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Greenlee	INVERTEBRATE	Psephenus montanus	White Mountains Water Penny Beetle	SC		S				IICOL63020	S2?	G2?
Greenlee	INVERTEBRATE	Speyeria nokomis nitocris	Mountain Silverspot Butterfly			S				IILEPJ6052	S?	G3T3
Greenlee	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Greenlee	MAMMAL	Myotis evotis	Long eared Myotis	SC	S					AMACC01070	S3S4	G5
Greenlee	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Greenlee	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5
Greenlee	MAMMAL	Zapus hudsonius luteus	New Mexican Jumping Mouse	SC		S			WSC	AMAFH01014	S2	G5T2
Greenlee	PLANT	Allium gooddingii	Goodding Onion	SC		S	3		HS	PMLIL02120	S3S4	G4
Greenlee	PLANT	Calypso bulbosa	Western Fairy Slipper						SR	PMORC0D010	S3	G5
Greenlee	PLANT	Coeloglossum viride var. virescens	American Frog Orchid						SR	PMORC0K011	S1	G5T5
Greenlee	PLANT	Conioselinum mexicanum	Mexican Hemlock Parsley	SC		S				PDAPI0P030	S1	G2?
Greenlee	PLANT	Cypripedium parviflorum var. pubescens	Yellow Lady's slipper						HS	PMORC0Q092	S1	G5T5
Greenlee	PLANT	Echinocereus fasciculatus	Magenta flower Hedgehog cactus						SR	PDCAC06065	S?	G4G5T4T5
Greenlee	PLANT	Eriogonum capillare	San Carlos Wild buckwheat	SC					SR	PDPGN08100	S4	G4
Greenlee	PLANT	Gentianella wislizeni	Wislizeni Gentian	SC		S			SR	PDGEN07090	S1	G2
Greenlee	PLANT	Goodyera repens	Lesser Rattlesnake Plantain						SR	PMORC17030	S2	G5
Greenlee	PLANT	Hackelia ursina	Chihuahuan Stickseed			S				PDBOR0G0R0	S2	G3?
Greenlee	PLANT	Heuchera glomerulata	Arizona Alum Root			S				PDSAX0E0F0	S3	G3
Greenlee	PLANT	Lupinus lemmonii	Lemmon's Lupine			S				PDFAB2B2A0	S1S2Q	G1G2Q
Greenlee	PLANT	Penstemon linarioides ssp. maguirei	Maguire's Penstemon						SR	PDSCR1L3S1	S1	G5T1
Greenlee	PLANT	Penstemon ramosus	Branching Penstemon			S				PDSCR1L7L0	S1	G3G4Q
Greenlee	PLANT	Penstemon superbus	Superb Beardtongue			S				PDSCR1L630	S2?	G3?
Greenlee	PLANT	Perityle ambrosiifolia	Lace leaf Rockdaisy		S					PDAST70120	S1	G1
Greenlee	PLANT	Platanthera hyperborea	Boreal Bog Orchid						SR	PMORC1Y0B0	S3S4	G5
Greenlee	PLANT	Platanthera purpurascens	Slender Bog Orchid						SR	PMORC1Y0P0	S4	G5
Greenlee	PLANT	Rumex orthoneurus	Blumer's Dock	SC		S			HS	PDPGN0P0Z0	S3	G3
Greenlee	PLANT	Schiedeella arizonica	Fallen Ladies' tresses						SR	PMORC67020	S4	GNR
Greenlee	PLANT	Senecio quaerens	Gila Groundsel	SC		S			SR	PDAST8H2L0	S2	G2
Greenlee	PLANT	Trifolium neurophyllum	White Mountains Clover	SC		S				PDFAB401N0	S2	G2

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Greenlee	PLANT	Zigadenus virescens	Green Death Camas						SR	PMLIL280E0	S4	G4
Greenlee	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
La Paz	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
La Paz	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
La Paz	BIRD	Ardea alba	Great Egret						WSC	ABNGA04040	S1B,S4N	G5
La Paz	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
La Paz	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
La Paz	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
La Paz	BIRD	Ixobrychus exilis	Least Bittern					A	WSC	ABNGA02010	S3	G5
La Paz	BIRD	Laterallus jamaicensis coturniculus	California Black Rail	SC		S		PR	WSC	ABNME03041	S1	G4T1
La Paz	BIRD	Plegadis chihi	White faced Ibis	SC						ABNGE02020	S?B,S2S3N	G5
La Paz	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
La Paz	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
La Paz	FISH	Gila elegans	Bonytail	LE			1	P	WSC	AFCJB13100	S1	G1
La Paz	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
La Paz	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
La Paz	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
La Paz	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
La Paz	MAMMAL	Lasiurus xanthinus	Western Yellow Bat						WSC	AMACC05070	S1	G5
La Paz	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
La Paz	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
La Paz	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5
La Paz	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
La Paz	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
La Paz	PLANT	Opuntia echinocarpa	Straw top Cholla						SR	PDCAC0D2W0	S5	G5
La Paz	PLANT	Pholisma arenarium	Scaly Sandplant		S				HS	PDLNN02010	S2	G3
La Paz	REPTILE	Charina trivirgata gracia	Desert Rosy Boa	SC	S	S				ARADA01021	S3	G4G5T3
La Paz	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
La Paz	REPTILE	Heloderma suspectum cinctum	Banded Gila Monster	SC	S			A		ARACE01011	S4	G4T4
La Paz	REPTILE	Uma scoparia	Mojave Fringe toed Lizard						WSC	ARACF15030	S2S3	G3G4
La Paz; Mari	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
La Paz; Moha	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
La Paz; Moha	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
La Paz; Moha	BIRD	Aechmophorus clarkii	Clark's Grebe				4		WSC	ABNCA04020	S3	G5
La Paz; Moha	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
La Paz; Moha	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
La Paz; Moha	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
La Paz; Moha	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
La Paz; Moha	BIRD	Laterallus jamaicensis coturniculus	California Black Rail	SC		S		PR	WSC	ABNME03041	S1	G4T1
La Paz; Moha	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
La Paz; Moha	FISH	Gila elegans	Bonytail	LE			1	P	WSC	AFCJB13100	S1	G1
La Paz; Moha	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
La Paz; Moha	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
La Paz; Moha	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
La Paz; Moha	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
La Paz; Moha	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
La Paz; Moha	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
La Paz; Moha	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
La Paz; Yum	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Maricopa	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Maricopa	AMPHIBIAN	Gastrophryne olivacea	Great Plains Narrow mouthed Toad					PR	WSC	AAABE01020	S3	G5
Maricopa	AMPHIBIAN	Pternohyla fodiens	Lowland Burrowing Treefrog						WSC	AAABC06010	S1S2	G4
Maricopa	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Maricopa	BIRD	Ardea alba	Great Egret						WSC	ABNGA04040	S1B,S4N	G5
Maricopa	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Maricopa	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Maricopa	BIRD	Charadrius alexandrinus nivosus	Western Snowy Plover	No Status		S			WSC	ABNNB03031	S1	G4T3
Maricopa	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Maricopa	BIRD	Dendrocygna autumnalis	Black bellied Whistling Duck						WSC	ABNJB01040	S3	G5
Maricopa	BIRD	Egretta thula	Snowy Egret						WSC	ABNGA06030	S1B,S4N	G5
Maricopa	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Maricopa	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Maricopa	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy owl	SC				A	WSC	ABNSB08041	S1	G5T3
Maricopa	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Maricopa	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Maricopa	BIRD	Ictinia mississippiensis	Mississippi Kite					A	WSC	ABNKC09010	S3	G5
Maricopa	BIRD	Ixobrychus exilis	Least Bittern					A	WSC	ABNGA02010	S3	G5
Maricopa	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Maricopa	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
Maricopa	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Maricopa	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Maricopa	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Maricopa	FISH	Catostomus sp. 3	Little Colorado Sucker	SC		S			WSC	AFCJC02250	S2	G2
Maricopa	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
Maricopa	FISH	Gila elegans	Bonytail	LE			1	P	WSC	AFCJB13100	S1	G1
Maricopa	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Maricopa	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Maricopa	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Maricopa	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Maricopa	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Maricopa	INVERTEBRATE	Limenitis archippus obsoleta	Obsolete Viceroy Butterfly			S				IILEPL3024	S?	G5T3T4
Maricopa	INVERTEBRATE	Sonorella allynsmithi	Squaw Peak Talussnail	SC		S				IMGASC9010	S1	G1
Maricopa	MAMMAL	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE		S		P	WSC	AMALD01012	S1	G5T1
Maricopa	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Maricopa	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Maricopa	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Maricopa	MAMMAL	Lasiurus xanthinus	Western Yellow Bat						WSC	AMACC05070	S1	G5
Maricopa	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long nosed Bat	LE		S		|	WSC	AMACB03030	S2	G4
Maricopa	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Maricopa	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Maricopa	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5
Maricopa	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Maricopa	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2
Maricopa	PLANT	Acacia farnesiana	Sweet Acacia			S				PDFAB020D0	S1S2	G5
Maricopa	PLANT	Agave arizonica	Arizona Agave	No status					HS	PMAGA01030	SHYB	G1Q
Maricopa	PLANT	Agave delamateri	Tonto Basin Agave	SC		S			HS	PMAGA010W0	S2	G2
Maricopa	PLANT	Agave murpheyi	Hohokam Agave	SC	S	S			HS	PMAGA010F0	S2	G2
Maricopa	PLANT	Agave toumeyana var. bella	Toumey Agave						SR	PMAGA010R1	S3	G3T3
Maricopa	PLANT	Allium bigelovii	Bigelow Onion						SR	PMLIL02070	S2S3	G3
Maricopa	PLANT	Berberis harrisoniana	Kofa Barberry		S					PDBER02030	S1S2	G1G2
Maricopa	PLANT	Echinomastus erectocentrus var. acunensis	Acuna Cactus	C				P	HS	PDCAC0J0E1	S1	G3T1Q
Maricopa	PLANT	Erigeron piscaticus	Fish Creek Fleabane	SC	S	S			SR	PDAST3M4X0	S1	G1
Maricopa	PLANT	Eriogonum ripleyi	Ripley Wild buckwheat	SC		S			SR	PDPGN08520	S2	G2
Maricopa	PLANT	Ferocactus cylindraceus var. cylindraceus	California Barrel Cactus					PR	SR	PDCAC08081	S3	G5T4
Maricopa	PLANT	Ferocactus cylindraceus var. eastwoodiae	Golden Barrel Cactus						SR	PDCAC08084	S1	G5T1
Maricopa	PLANT	Ferocactus emoryi	Emory's Barrel cactus						SR	PDCAC08090	S1S2	G4
Maricopa	PLANT	Fremontodendron californicum	Flannel Bush		S				SR	PDSTE03010	S2S3	G4
Maricopa	PLANT	Mabrya acerifolia	Mapleleaf False Snapdragon			S				PDSCR2L010	S2	G2
Maricopa	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Maricopa	PLANT	Opuntia echinocarpa	Straw top Cholla						SR	PDCAC0D2W0	S5	G5
Maricopa	PLANT	Opuntia engelmannii var. flavispina							SR	PDCAC0D224	S3?	G5T3?
Maricopa	PLANT	Perityle saxicola	Fish Creek Rock Daisy	SC		S				PDAST700P0	S1	G1
Maricopa	PLANT	Purshia subintegra	Arizona Cliff Rose	LE					HS	PDROS1E080	S1	GNA
Maricopa	PLANT	Stenocereus thurberi	Organ Pipe Cactus						SR	PDCAC10020	S4	G5
Maricopa	PLANT	Tumamoca macdougalii	Tumamoc Globeberry		S	S			SR	PDCUC0S010	S3	G4
Maricopa	PLANT	Vauquelinia californica ssp. sonorensis	Arizona Sonoran Rosewood		S					PDROS1R024	S1	G4T1
Maricopa	REPTILE	Aspidoscelis burti xanthonota	Red back Whiptail	SC		S				ARACJ02012	S2	G4T2
Maricopa	REPTILE	Charina trivirgata gracia	Desert Rosy Boa	SC	S	S				ARADA01021	S3	G4G5T3
Maricopa	REPTILE	Charina trivirgata trivirgata	Mexican Rosy Boa	SC	S					ARADA01023	S2	G4G5T3
Maricopa	REPTILE	Eumeces gilberti arizonensis	Arizona Skink	SC		S		PR	WSC	ARACH01061	S1	G5T1Q

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Maricopa	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Maricopa	REPTILE	Heloderma suspectum cinctum	Banded Gila Monster	SC	S			A		ARACE01011	S4	G4T4
Maricopa	REPTILE	Phyllorhynchus browni lucidus	Maricopa Leaf nosed Snake			S		PR		ARADB25012	S2	G5T2Q
Maricopa	REPTILE	Sauromalus ater (Arizona Population)	Arizona Chuckwalla	SC	S			A		ARACF13013	S4	G5T4Q
Maricopa	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Maricopa; Pir	MAMMAL	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE		S		P	WSC	AMALD01012	S1	G5T1
Maricopa; Pir	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Maricopa; Pir	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2
Maricopa; Pir	PLANT	Lotus alamosanus	Alamos Deer Vetch			S				PDFAB2A020	S1	G3G4
Maricopa; Pir	REPTILE	Aspidoscelis burti xanthonota	Red back Whiptail	SC		S				ARACJ02012	S2	G4T2
Maricopa; Pir	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Maricopa; Ya	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Maricopa; Ya	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Maricopa; Ya	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Maricopa; Ya	BIRD	Ceryle alcyon	Belted Kingfisher				4		WSC	ABNXD01020	S2B,S5N	G5
Maricopa; Ya	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Maricopa; Ya	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Maricopa; Ya	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Maricopa; Ya	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Maricopa; Ya	PLANT	Heuchera eastwoodiae	Eastwood Alum Root			S				PDSAX0E0B0	S3	G3
Maricopa; Ya	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Maricopa; Ya	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Mohave	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Mohave	AMPHIBIAN	Rana onca	Relict Leopard Frog	C		S			WSC	AAABH01150	SU	G1
Mohave	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Mohave	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Mohave	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Mohave	BIRD	Aechmophorus clarkii	Clark's Grebe				4		WSC	ABNCA04020	S3	G5
Mohave	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Mohave	BIRD	Buteo regalis	Ferruginous Hawk	SC			3		WSC	ABNKC19120	S2B,S4N	G4
Mohave	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Mohave	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Mohave	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Mohave	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Mohave	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Mohave	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Mohave	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
Mohave	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Mohave	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Mohave	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Mohave	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Mohave	FISH	Catostomus latipinnis	Flannelmouth Sucker	SC	S	S				AFCJC02110	S2	G3G4
Mohave	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
Mohave	FISH	Gila cypha	Humpback Chub	LE			2		WSC	AFCJB13080	S1	G1
Mohave	FISH	Gila elegans	Bonytail	LE			1	P	WSC	AFCJB13100	S1	G1
Mohave	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Mohave	FISH	Gila seminuda	Virgin River Chub	LE		S			WSC	AFCJB13170	S1	G1
Mohave	FISH	Lepidomeda mollispinis mollispinis	Virgin Spinedace	SC					WSC	AFCJB20031	S1	G1G2T1
Mohave	FISH	Plagopterus argentissimus	Woundfin	LE,XN					WSC	AFCJB33010	S1	G1
Mohave	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Mohave	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Mohave	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Mohave	INVERTEBRATE	Pyrgulopsis bacchus	Grand Wash Springsnail	SC	S	S				IMGASJ0150	S1	G1
Mohave	INVERTEBRATE	Pyrgulopsis conica	Kingman Springsnail	SC	S	S				IMGASJ0160	S1	G1
Mohave	INVERTEBRATE	Pyrgulopsis deserta	Desert Springsnail		S	S				IMGASJ0390	S1	G2
Mohave	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Mohave	MAMMAL	Euderma maculatum	Spotted Bat	SC				PR	WSC	AMACC07010	S1S2	G4
Mohave	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Mohave	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Mohave	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Mohave	MAMMAL	Microtus mexicanus hualpaiensis	Hualapai Mexican Vole	LE					WSC	AMAFF11212	S1	G5T1Q
Mohave	MAMMAL	Myotis ciliolabrum	Western Small footed Myotis	SC	S					AMACC01140	S3	G5
Mohave	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Mohave	MAMMAL	Myotis thysanodes	Fringed Myotis	SC	S					AMACC01090	S3S4	G4G5
Mohave	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Mohave	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5
Mohave	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5
Mohave	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Mohave	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Mohave	PLANT	Arctomecon californica	Las Vegas Bearpoppy	SC					SR	PDPAP02010	S2	G3
Mohave	PLANT	Astragalus ampullarius	Gumbo Milk vetch	SC		S				PDFAB0F0L0	S1	G2
Mohave	PLANT	Astragalus geyeri var. triquetrus	Beaver Dam Milk vetch	SC	S					PDFAB0F3M2	S1	G4T2T3
Mohave	PLANT	Astragalus holmgreniorum	Holmgren Milk vetch	LE					HS	PDFAB0F9Z0	S1	G1
Mohave	PLANT	Astragalus lentiginosus var. ambiguus	Freckled Milk vetch	SC						PDFAB0FB91	S1	G5T1Q
Mohave	PLANT	Astragalus newberryi var. aquarii	Aquarius Milkvetch		S					PDFAB0F5Y5	S1	G5T1
Mohave	PLANT	Astragalus toanus var. scidulus	Diamond Butte Milkvetch		S					PDFAB0F8Z1	S1	G4G5T1T3
Mohave	PLANT	Camissonia brevipes	Golden Suncup	SC						PDONA03070	S1	G4G5
Mohave	PLANT	Camissonia exilis	Slender Evening primrose	SC					SR	PDONA030J0	S1	G1
Mohave	PLANT	Camissonia specuicola ssp. hesperia	Grand Canyon Evening primrose	SC						PDONA031J1	S1	G2T1
Mohave	PLANT	Cirsium virginense	Virgin Thistle	SC					SR	PDAST2E3F0	S1	G2
Mohave	PLANT	Coryphantha missouriensis	Missouri Corycactus						SR	PDCAC0X020	S3	G5

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Mohave	PLANT	Cycladenia humilis var. jonesii	Jones' Cycladenia	LT					HS	PDAPO09012	S1	G3G4T2
Mohave	PLANT	Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus						SR	PDCAC05033	S2	G3G4T3T4
Mohave	PLANT	Echinocactus polycephalus var. xeranthemoides	Grand Canyon Cottontop Cactus						SR	PDCAC05032	S2S3	G3G4T1T3
Mohave	PLANT	Enceliopsis argophylla	Silverleaf Sunray		S					PDAST3G010	S2	G2G3
Mohave	PLANT	Eriogonum mortonianum	Morton Wild buckwheat	SC		S			SR	PDPGN083Z0	S1	G1
Mohave	PLANT	Eriogonum thompsoniae var. atwoodii	Atwood Wild buckwheat	SC		S			SR	PDPGN085T2	S1	G4T1
Mohave	PLANT	Eriogonum viscidulum	Sticky Buckwheat	SC	S					PDPGN08690	S1	G2
Mohave	PLANT	Escobaria vivipara var. rosea	Viviparous Foxtail Cactus						SR	PDCAC0X0G8	S3	G5T3
Mohave	PLANT	Fremontodendron californicum	Flannel Bush		S				SR	PDSTE03010	S2S3	G4
Mohave	PLANT	Lupinus latifolius ssp. leucanthus	Broadleaf Lupine			S				PDFAB2B29D	S1	G5T1T2
Mohave	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Mohave	PLANT	Mentzelia memorabalis	September 11 Stickleaf		S					PDLOA03290	S1	G1
Mohave	PLANT	Opuntia basilaris var. aurea	Yellow Beavertail						SR	PDCAC0D300	S3	G3
Mohave	PLANT	Opuntia basilaris var. longiareolata	Grand Canyon Beavertail Cactus						SR	PDCAC0D054	S2	G5T2Q
Mohave	PLANT	Opuntia echinocarpa	Straw top Cholla						SR	PDCAC0D2W0	S5	G5
Mohave	PLANT	Opuntia nicholii	Navajo Bridge Cactus						SR	PDCAC0D0W0	S4	G4Q
Mohave	PLANT	Opuntia superbospina	Kingman's Prickly pear						SR	PDCAC0D1Q0	SH	GHQ
Mohave	PLANT	Opuntia whipplei var. multigeniculata	Blue Diamond Cholla	SC					SR	PDCAC0D1N1	S1	G4?T1Q
Mohave	PLANT	Opuntia whipplei var. whipplei	Whipple Cholla						SR	PDCAC0D1N3	S1	G4?T4?
Mohave	PLANT	Pediocactus peeblesianus var. fickeiseniae	Fickeisen Plains Cactus	C		S	3		HS	PDCAC0E051	S1S2	G1G2T1T2
Mohave	PLANT	Pediocactus sileri	Siler Pincushion Cactus	LT	S				HS	PDCAC0E060	S3	G3
Mohave	PLANT	Pediomelum castoreum	Beaver Dam Scurf Pea	SC						PDFAB5L050	S1	G3
Mohave	PLANT	Pediomelum epipsilum	Kane Scurf pea	SC						PDFAB5L0F1	S1	G4?T1
Mohave	PLANT	Penstemon albomarginatus	White margined Penstemon	SC	S				SR	PDSCR1L070	S2	G2
Mohave	PLANT	Penstemon bicolor ssp. roseus	Cerbat Beardtongue	SC	S				SR	PDSCR1L0S2	S2	G3T3Q
Mohave	PLANT	Penstemon distans	Mt. Trumbull Beardtongue	SC	S	S			SR	PDSCR1L6W0	S2	G2
Mohave	PLANT	Penstemon petiolatus	Sheep Range Beardtongue		S					PDSCR1L4Z0	S1	G2G3
Mohave	PLANT	Phacelia parishii	Parish's Phacelia		S					PDHYD0C3G0	S1	G2G3
Mohave	PLANT	Polygala rusbyi	Hualapai Milkwort			S				PDPGL021H0	S3	G3
Mohave	PLANT	Purshia subintegra	Arizona Cliff Rose	LE					HS	PDROS1E080	S1	GNA
Mohave	PLANT	Rosa stellata ssp. abyssa	Grand Canyon Rose	SC	S	S			SR	PDROS1J153	S2	G4T2
Mohave	PLANT	Townsendia smithii	Blackrock Ground Daisy		S					PDAST9C0R0	S1	G1
Mohave	PLANT	Tricardia watsonii	Three Hearts		S					PDHYD0F010	S2	G4
Mohave	PLANT	Yucca whipplei	Our Lords Candle						SR	PMAGA0B0X0	S3S4	G4G5
Mohave	REPTILE	Charina trivirgata gracia	Desert Rosy Boa	SC	S	S				ARADA01021	S3	G4G5T3
Mohave	REPTILE	Crotalus oreganus abyssus	Grand Canyon Rattlesnake			S				ARADE02121	S4	G5T4
Mohave	REPTILE	Gopherus agassizii (Mohave Population)	Mohave Desert Tortoise	LT				A	WSC	ARAAF01012	S2	G4T3Q
Mohave	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Mohave	REPTILE	Heloderma suspectum cinctum	Banded Gila Monster	SC	S			A		ARACE01011	S4	G4T4

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Mohave	REPTILE	Lampropeltis pyromelana infralabialis	Utah Mountain Kingsnake			S				ARADB19041	S1	G4G5T3
Mohave	REPTILE	Xantusia arizonae	Arizona Night Lizard			S				ARACK01050	S3	G3
Mohave; Yav	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Mohave; Yav	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Mohave; Yav	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Mohave; Yav	PLANT	Allium bigelovii	Bigelow Onion						SR	PMLIL02070	S2S3	G3
Mohave; Yav	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Navajo	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Navajo	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Navajo	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Navajo	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Navajo	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Navajo	BIRD	Buteo regalis	Ferruginous Hawk	SC			3		WSC	ABNKC19120	S2B,S4N	G4
Navajo	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Navajo	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Navajo	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Navajo	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Navajo	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Navajo	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Navajo	FISH	Catostomus sp. 3	Little Colorado Sucker	SC		S			WSC	AFCJC02250	S2	G2
Navajo	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Navajo	FISH	Lepidomeda vittata	Little Colorado Spinedace	LT		S			WSC	AFCJB20040	S1S2	G1G2
Navajo	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Navajo	INVERTEBRATE	Anodonta californiensis	California Floater	SC		S				IMBIV04020	S1S2	G3Q
Navajo	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Navajo	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Navajo	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Navajo	MAMMAL	Microtus mexicanus navaho	Navajo Mexican Vole	SC		S	4		WSC	AMAFF11213	S1	G5T2Q
Navajo	MAMMAL	Myotis evotis	Long eared Myotis	SC	S					AMACC01070	S3S4	G5
Navajo	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Navajo	MAMMAL	Myotis thysanodes	Fringed Myotis	SC	S					AMACC01090	S3S4	G4G5
Navajo	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5
Navajo	MAMMAL	Panthera onca	Jaguar	LE		S		P	WSC	AMAJH02010	S1	G3
Navajo	MAMMAL	Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC		S				AMAFD01031	S3	G5T3
Navajo	PLANT	Amsonia peeblesii	Peebles Blue Star				4			PDAPO030E0	S3	G3
Navajo	PLANT	Asclepias welshii	Welsh's Milkweed	LT			3		HS	PDASC02290	S1	G1
Navajo	PLANT	Astragalus xiphoides	Gladiator Milk Vetch	SC					SR	PDFAB0F9T0	S3	G3
Navajo	PLANT	Carex specuicola	Navajo Sedge	LT			3		HS	PMCYP03CQ0	S2	G2
Navajo	PLANT	Chrysothamnus molestus	Tusayan Rabbitbrush	SC		S				PDAST2C060	S3	G3
Navajo	PLANT	Errazurizia rotundata	Roundleaf Errazurizia		S		4		SR	PDFAB1L010	S2	G2
Navajo	PLANT	Pediocactus papyracanthus	Paper spined Cactus	SC					SR	PDCAC0J0K0	S2S3	G4
Navajo	PLANT	Pediocactus peeblesianus var. peeblesianus	Peebles Navajo Cactus	LE					HS	PDCAC0E053	S1	G1G2T1

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Navajo	PLANT	Penstemon nudiflorus	Flagstaff Beardtongue			S				PDSCR1L4A0	S2S3	G2G3
Navajo	PLANT	Platanthera zothecina	Alcove Bog orchid	SC			3			PMORC1Y130	S2	G2
Navajo	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Navajo	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Pima	AMPHIBIAN	Gastrophryne olivacea	Great Plains Narrow mouthed Toad					PR	WSC	AAABE01020	S3	G5
Pima	AMPHIBIAN	Pternohyla fodiens	Lowland Burrowing Treefrog						WSC	AAABC06010	S1S2	G4
Pima	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Pima	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Pima	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Pima	BIRD	Ammodramus bairdii	Baird's Sparrow	SC					WSC	ABPBXA0010	S2N	G4
Pima	BIRD	Asturina nitida maxima	Northern Gray Hawk	SC		S		PR	WSC	ABNKC19011	S3	G5T4Q
Pima	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Pima	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Pima	BIRD	Caracara cheriway	Crested Caracara	No Status					WSC	ABNKD02020	S1S2	G5
Pima	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Pima	BIRD	Colinus virginianus ridgwayi	Masked Bobwhite	LE				P	WSC	ABNLC21022	S1	G5T1
Pima	BIRD	Dendrocygna autumnalis	Black bellied Whistling Duck						WSC	ABNJB01040	S3	G5
Pima	BIRD	Dendrocygna bicolor	Fulvous Whistling Duck	SC						ABNJB01010	SAN	G5
Pima	BIRD	Empidonax fulvifrons pygmaeus	Northern Buff breasted Flycatcher	SC					WSC	ABPAE33141	S1	G5T5
Pima	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Pima	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Pima	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy owl	SC				A	WSC	ABNSB08041	S1	G5T3
Pima	BIRD	Pachyramphus aglaiae	Rose throated Becard						WSC	ABPAE53070	S1	G4G5
Pima	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Pima	BIRD	Polioptila nigriceps	Black capped Gnatcatcher						WSC	ABPBJ08040	S1	G5
Pima	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
Pima	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Pima	BIRD	Trogon elegans	Elegant Trogon						WSC	ABNWA02070	S3	G5
Pima	BIRD	Tyrannus crassirostris	Thick billed Kingbird						WSC	ABPAE52040	S2	G5
Pima	BIRD	Tyrannus melancholicus	Tropical Kingbird						WSC	ABPAE52010	S3	G5
Pima	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Pima	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Pima	FISH	Cyprinodon eremus	Quitobaquito Desert Pupfish	LE					WSC	AFCNB02140	S1	G1
Pima	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
Pima	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Pima	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Pima	INVERTEBRATE	Agathymus aryxna	Arizona Giant Skipper			S				IILEP87080	S?	G4G5
Pima	INVERTEBRATE	Agathymus polingi	Poling's Giant Skipper			S				IILEP87190	S?	G4
Pima	INVERTEBRATE	Anthocharis cethura	Felder's Orange Tip			S				IILEPA6010	S?	G4G5
Pima	INVERTEBRATE	Argia sabino	Sabino Canyon Damselfly	SC		S				IIODO68100	S?	G1G2
Pima	INVERTEBRATE	Calephelis rawsoni arizonensis	Arizona Metalmark			S				IILEPH2073	S2	G3G4
Pima	INVERTEBRATE	Limenitis archippus obsoleta	Obsolete Viceroy Butterfly			S				IILEPL3024	S?	G5T3T4
Pima	INVERTEBRATE	Neophasia terlooii	Chiricahua Pine White			S				IILEP99020	S2?	G3G4

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Pima	INVERTEBRATE	Sonorella eremita	San Xavier Talussnail	SC						IMGASC9240	S1	G1
Pima	INVERTEBRATE	Tryonia quitobaquitae	Quitobaquito Tryonia	SC		S				IMGASJ7130	S1	G1G2
Pima	MAMMAL	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE		S		P	WSC	AMALD01012	S1	G5T1
Pima	MAMMAL	Choeronycteris mexicana	Mexican Long tongued Bat	SC				A	WSC	AMACB02010	S2	G4
Pima	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Pima	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Pima	MAMMAL	Eumops underwoodi	Underwood's Bonneted Bat	SC	S					AMACD02020	S1	G4
Pima	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Pima	MAMMAL	Lasiurus xanthinus	Western Yellow Bat						WSC	AMACC05070	S1	G5
Pima	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long nosed Bat	LE		S			WSC	AMACB03030	S2	G4
Pima	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Pima	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Pima	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Pima	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Pima	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Pima	MAMMAL	Panthera onca	Jaguar	LE		S		P	WSC	AMAJH02010	S1	G3
Pima	MAMMAL	Sigmodon ochrognathus	Yellow nosed Cotton Rat	SC						AMAFF07040	S3S4	G4G5
Pima	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2
Pima	PLANT	Abutilon thurberi	Thurber Indian Mallow						SR	PDMAL020P0	S1	G2?
Pima	PLANT	Acacia farnesiana	Sweet Acacia			S				PDFAB020D0	S1S2	G5
Pima	PLANT	Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	SC		S		A	HS	PMAGA010L2	S3	G3T3
Pima	PLANT	Agave schottii var. treleasei	Trelease Agave	SC		S			HS	PMAGA010N2	S1	G5T1Q
Pima	PLANT	Allium gooddingii	Goodding Onion	SC		S	3		HS	PMLIL02120	S3S4	G4
Pima	PLANT	Allium plummerae	Plummer Onion						SR	PMLIL021V0	S3	G4
Pima	PLANT	Amoreuxia gonzalezii	Saiya	SC		S			HS	PDBIX01010	S1	G1
Pima	PLANT	Amsonia grandiflora	Large flowered Blue Star	SC		S				PDAPO03060	S2	G2
Pima	PLANT	Amsonia kearneyana	Kearney's Blue Star	LE					HS	PDAPO030M0	S1	G1
Pima	PLANT	Asplenium dalhousiae	Dalhouse Spleenwort		S					PPASP020A0	S1	GNR
Pima	PLANT	Berberis harrisoniana	Kofa Barberry		S					PDBER02030	S1S2	G1G2
Pima	PLANT	Boerhavia megaptera	Tucson Mountain Spiderling			S				PDNYC06090	S3	G3
Pima	PLANT	Capsicum annuum var. glabriusculum	Chiltepin			S				PDSOL06012	S2	G5T5
Pima	PLANT	Carex chihuahuensis	A Sedge			S				PMCYP032T0	S2S3	G3G4
Pima	PLANT	Carex ultra	Arizona Giant Sedge		S	S				PMCYP03E50	S2	G3?
Pima	PLANT	Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE					HS	PDCAC040C1	S2	G4T2
Pima	PLANT	Dalea tentaculoides	Gentry Indigo Bush	SC	S	S			HS	PDFAB1A1K0	S1	G1
Pima	PLANT	Desmanthus covillei	Coville Bundleflower			S				PDFAB1C030	S1	G3G4
Pima	PLANT	Echinocactus horizonthalonius var. nicholii	Nichol Turk's Head Cactus	LE					HS	PDCAC05022	S2	G4T2
Pima	PLANT	Echinocereus fasciculatus	Magenta flower Hedgehog cactus						SR	PDCAC06065	S?	G4G5T4T5
Pima	PLANT	Echinomastus erectocentrus var. acunensis	Acuna Cactus	C				P	HS	PDCAC0J0E1	S1	G3T1Q
Pima	PLANT	Echinomastus erectocentrus var. erectocentrus	Needle spined Pineapple Cactus	SC		S			SR	PDCAC0J0E2	S3	G3T3Q

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Pima	PLANT	Erigeron arisolius				S				PDAST3M510	S2	G2
Pima	PLANT	Eriogonum capillare	San Carlos Wild buckwheat	SC					SR	PDPGN08100	S4	G4
Pima	PLANT	Eriogonum ericifolium var. ericifolium	Heathleaf Wild buckwheat			S				PDPGN08231	S2	G3T2
Pima	PLANT	Eriogonum terrenatum	San Pedro River Wild Buckwheat		S					PDPGN08760	S1	G1
Pima	PLANT	Euphorbia gracillima	Mexican Broomspurge			S				PDEUP0D110	S3	G4?
Pima	PLANT	Ferocactus cylindraceus var. eastwoodiae	Golden Barrel Cactus						SR	PDCAC08084	S1	G5T1
Pima	PLANT	Ferocactus emoryi	Emory's Barrel cactus						SR	PDCAC08090	S1S2	G4
Pima	PLANT	Graptopetalum bartramii	Bartram Stonecrop	SC	S	S			SR	PDCRA06010	S3	G3
Pima	PLANT	Hackelia ursina	Chihuahuan Stickseed			S				PDBOR0G0R0	S2	G3?
Pima	PLANT	Hedeoma dentatum	Mock pennyroyal			S				PDLAM0M0M0	S3	G3
Pima	PLANT	Hermannia pauciflora	Sparseleaf Hermannia			S				PDSTE06010	S1	G2?
Pima	PLANT	Heterotheca rutteri	Huachuca Golden Aster	SC	S	S				PDAST4V0J0	S2	G2
Pima	PLANT	Hexalectris revoluta	Chisos Coral root		S	S			SR	PMORC1C030	S1	G1G2
Pima	PLANT	Hexalectris spicata	Crested Coral Root						SR	PMORC1C040	S3S4	G5
Pima	PLANT	Lilaeopsis schaffneriana var. recurva	Huachuca Water Umbel	LE					HS	PDAPI19051	S2	G4T2
Pima	PLANT	Lilium parryi	Lemmon Lily	SC		S			SR	PMLIL1A0J0	S2	G3
Pima	PLANT	Listera convallarioides	Broadleaf Twayblade						SR	PMORC1N050	S1	G5
Pima	PLANT	Lophocereus schottii	Senita					|	SR	PDCAC14010	S2	G4
Pima	PLANT	Lysiloma watsonii	Littleleaf False Tamarind						SR	PDFAB2C040	S1	G4?
Pima	PLANT	Malaxis tenuis	Slender Adders Mouth						SR	PMORC1R090	S1	G4
Pima	PLANT	Mammillaria mainiae	Counter Clockwise Fishhook Cactus			S			SR	PDCAC0A060	S1	G3
Pima	PLANT	Mammillaria thornberi	Thornber Fishhook Cactus						SR	PDCAC0A0C0	S4	G4
Pima	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Pima	PLANT	Manihot davisiae	Arizona Manihot			S				PDEUP0Z010	S2	G4
Pima	PLANT	Matelea cordifolia	Sonoran Milkweed Vine			S				PDASC0A080	S1	G4
Pima	PLANT	Metastelma mexicanum	Wiggins Milkweed Vine	SC		S				PDASC050P0	S1S2	G3G4
Pima	PLANT	Muhlenbergia dubioides	Box Canyon Muhly			S				PMPOA480G0	S1	G1Q
Pima	PLANT	Muhlenbergia xerophila	Weeping Muhly			S				PMPOA48220	S1	G3
Pima	PLANT	Notholaena lemmonii	Lemmon Cloak Fern	SC						PPADI0G0D0	S1S2	G3?
Pima	PLANT	Opuntia engelmannii var. flavispina							SR	PDCAC0D224	S3?	G5T3?
Pima	PLANT	Opuntia versicolor	Stag horn Cholla						SR	PDCAC0D1K0	S2S3	G4
Pima	PLANT	Opuntia x kelvinensis	Kelvin Cholla						SR	PDCAC0D2M0	SHYB	GNA
Pima	PLANT	Passiflora foetida	Foetid Passionflower			S				PDPAS01070	S2	G5
Pima	PLANT	Pectis imberbis	Beardless Chinch Weed	SC		S				PDAST6W0A0	S1	G3
Pima	PLANT	Peniocereus greggii var. transmontanus	Desert Night blooming Cereus					PR	SR	PDCAC0V012	S3S4	G3G4T3T4
Pima	PLANT	Peniocereus striatus	Dahlia Rooted Cereus						SR	PDCAC0V020	S1	G4
Pima	PLANT	Penstemon discolor	Catalina Beardtongue			S			HS	PDSCR1L210	S2	G2
Pima	PLANT	Penstemon superbus	Superb Beardtongue			S				PDSCR1L630	S2?	G3?
Pima	PLANT	Perityle ajoensis	Ajo Rock Daisy						SR	PDAST700Y0	S1	G1
Pima	PLANT	Physalis latiphysa	Broad leaf Ground cherry			S				PDSOL0S0H0	S1	G1
Pima	PLANT	Platanthera limosa	Thurber's Bog Orchid						SR	PMORC1Y0G0	S4	G4

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Pima	PLANT	Psilotum nudum	Whisk Fern						HS	PPPSI01020	S1	G5
Pima	PLANT	Samolus vagans	Chiricahua Mountain Brookweed			S				PDPRI09040	S2	G2?
Pima	PLANT	Schiedeella arizonica	Fallen Ladies' tresses						SR	PMORC67020	S4	GNR
Pima	PLANT	Senecio carlomasonii	Seemann Groundsel			S				PDAST8H3W0	S2S3	G4?Q
Pima	PLANT	Senecio neomexicanus var. toumeyi	Toumey Groundsel			S				PDAST8H274	S2	G5T2Q
Pima	PLANT	Sisyrinchium cernuum	Nodding Blue eyed Grass			S				PMIRI0D0B0	S2	G5
Pima	PLANT	Solanum lumholtzianum	Lumholtz Nightshade			S				PDSOL0Z180	S3	G3G4
Pima	PLANT	Stenocereus thurberi	Organ Pipe Cactus						SR	PDCAC10020	S4	G5
Pima	PLANT	Stevia lemmonii	Lemmon's Stevia			S				PDAST8V010	S2	G3G4
Pima	PLANT	Thelypteris puberula var. sonorensis	Aravaipa Wood Fern		S					PPTHE05192	S2	G5T3
Pima	PLANT	Tragia laciniata	Sonoran Noseburn			S				PDEUP1D060	S3?	G3G4
Pima	PLANT	Triteleiopsis palmeri	Blue Sand Lily		S				SR	PMLIL22010	S1	G3
Pima	PLANT	Tumamoca macdougalii	Tumamoc Globeberry		S	S			SR	PDCUC0S010	S3	G4
Pima	PLANT	Vauquelinia californica ssp. sonorensis	Arizona Sonoran Rosewood		S					PDROS1R024	S1	G4T1
Pima	PLANT	Viola umbraticola	Shade Violet			S				PDVIO042E0	S2?	G3G4
Pima	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC	S	S				ARACJ02011	S3	G4T4
Pima	REPTILE	Aspidoscelis burti xanthonota	Red back Whiptail	SC		S				ARACJ02012	S2	G4T2
Pima	REPTILE	Charina trivirgata gracia	Desert Rosy Boa	SC	S	S				ARADA01021	S3	G4G5T3
Pima	REPTILE	Charina trivirgata trivirgata	Mexican Rosy Boa	SC	S					ARADA01023	S2	G4G5T3
Pima	REPTILE	Chionactis palarostris organica	Organ Pipe Shovel nosed Snake			S				ARADB05021	S2	G3G4T2
Pima	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Pima	REPTILE	Kinosternon sonoriense longifemorale	Sonoyta Mud Turtle	C		S				ARAAE01041	S1	G4T1
Pima	REPTILE	Masticophis bilineatus lineolatus	Ajo Mountain Whipsnake			S				ARADB21012	S2	G5T2Q
Pima	REPTILE	Phrynosoma cornutum	Texas Horned Lizard	SC	S			A		ARACF12010	S3S4	G4G5
Pima	REPTILE	Phyllorhynchus browni lucidus	Maricopa Leaf nosed Snake			S		PR		ARADB25012	S2	G5T2Q
Pima	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Pima	REPTILE	Uma rufopunctata	Yuman Desert Fringe toed Lizard	SC		S		A	WSC	ARACF15040	S2S3	G2G3
Pima; Pinal	PLANT	Hedeoma dentatum	Mock pennyroyal			S				PDLAM0M0M0	S3	G3
Pima; Santa	AMPHIBIAN	Eleutherodactylus augusti cactorum	Western Barking Frog			S			WSC	AAABD04171	S1	G5T5
Pima; Santa	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Pima; Santa	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Pima; Santa	BIRD	Tyrannus melancholicus	Tropical Kingbird						WSC	ABPAE52010	S3	G5
Pima; Santa	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long nosed Bat	LE		S		|	WSC	AMACB03030	S2	G4
Pima; Santa	PLANT	Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	SC		S		A	HS	PMAGA010L2	S3	G3T3
Pima; Santa	PLANT	Amsonia grandiflora	Large flowered Blue Star	SC		S				PDAPO03060	S2	G2
Pima; Santa	PLANT	Asclepias lemmonii	Lemmon Milkweed			S				PDASC020Z0	S2	G4?
Pima; Santa	PLANT	Carex chihuahuensis	A Sedge			S				PMCYP032T0	S2S3	G3G4
Pima; Santa	PLANT	Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE					HS	PDCAC040C1	S2	G4T2
Pima; Santa	PLANT	Graptopetalum bartramii	Bartram Stonecrop	SC	S	S			SR	PDCRA06010	S3	G3
Pima; Santa	PLANT	Hexalectris spicata	Crested Coral Root						SR	PMORC1C040	S3S4	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Pima; Santa	PLANT	Hieracium pringlei	Pringle Hawkweed	SC		S				PDAST4W170	S1	G2Q
Pima; Santa	PLANT	Lupinus huachucanus	Huachuca Mountain Lupine			S				PDFAB2B210	S2	G2
Pima; Santa	PLANT	Samolus vagans	Chiricahua Mountain Brookweed			S				PDPRI09040	S2	G2?
Pima; Santa	PLANT	Tephrosia thurberi	Thurber Hoary Pea			S				PDFAB3X0M0	S3	G4G5
Pima; Santa	REPTILE	Oxybelis aeneus	Brown Vinesnake						WSC	ARADB24010	S2	G5
Pinal	AMPHIBIAN	Gastrophryne olivacea	Great Plains Narrow mouthed Toad					PR	WSC	AAABE01020	S3	G5
Pinal	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Pinal	BIRD	Ardea alba	Great Egret						WSC	ABNGA04040	S1B,S4N	G5
Pinal	BIRD	Asturina nitida maxima	Northern Gray Hawk	SC		S		PR	WSC	ABNKC19011	S3	G5T4Q
Pinal	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Pinal	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Pinal	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Pinal	BIRD	Dendrocygna autumnalis	Black bellied Whistling Duck						WSC	ABNJB01040	S3	G5
Pinal	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Pinal	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Pinal	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy owl	SC				A	WSC	ABNSB08041	S1	G5T3
Pinal	BIRD	Ictinia mississippiensis	Mississippi Kite					A	WSC	ABNKC09010	S3	G5
Pinal	BIRD	Ixobrychus exilis	Least Bittern					A	WSC	ABNGA02010	S3	G5
Pinal	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
Pinal	BIRD	Tyrannus crassirostris	Thick billed Kingbird						WSC	ABPAE52040	S2	G5
Pinal	BIRD	Tyrannus melancholicus	Tropical Kingbird						WSC	ABPAE52010	S3	G5
Pinal	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Pinal	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Pinal	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Pinal	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
Pinal	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Pinal	FISH	Meda fulgida	Spikedace	LT		S			WSC	AFCJB22010	S1	G2
Pinal	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Pinal	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Pinal	FISH	Tiaroga cobitis	Loach Minnow	LT		S		P	WSC	AFCJB37140	S1	G2
Pinal	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Pinal	MAMMAL	Choeronycteris mexicana	Mexican Long tongued Bat	SC				A	WSC	AMACB02010	S2	G4
Pinal	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Pinal	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Pinal	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Pinal	MAMMAL	Lasiurus xanthinus	Western Yellow Bat						WSC	AMACC05070	S1	G5
Pinal	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long nosed Bat	LE		S		|	WSC	AMACB03030	S2	G4
Pinal	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Pinal	MAMMAL	Myotis ciliolabrum	Western Small footed Myotis	SC	S					AMACC01140	S3	G5
Pinal	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Pinal	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5

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Pinal	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Pinal	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2
Pinal	PLANT	Agave murpheyi	Hohokam Agave	SC	S	S			HS	PMAGA010F0	S2	G2
Pinal	PLANT	Agave toumeyana var. bella	Toumey Agave						SR	PMAGA010R1	S3	G3T3
Pinal	PLANT	Carex ultra	Arizona Giant Sedge		S	S				PMCYP03E50	S2	G3?
Pinal	PLANT	Echinocactus horizonthalonius var. nicholii	Nichol Turk's Head Cactus	LE					HS	PDCAC05022	S2	G4T2
Pinal	PLANT	Echinocereus triglochidiatus var. arizonicus	Arizona Hedgehog Cactus	LE		S			HS	PDCAC060K1	S2	G5T2
Pinal	PLANT	Echinomastus erectocentrus var. acunensis	Acuna Cactus	C				P	HS	PDCAC0J0E1	S1	G3T1Q
Pinal	PLANT	Echinomastus erectocentrus var. erectocentrus	Needle spined Pineapple Cactus	SC		S			SR	PDCAC0J0E2	S3	G3T3Q
Pinal	PLANT	Erigeron anchana	Mogollon Fleabane	SC		S				PDAST3M580	S2	G2
Pinal	PLANT	Eriogonum capillare	San Carlos Wild buckwheat	SC					SR	PDPGN08100	S4	G4
Pinal	PLANT	Euphorbia gracillima	Mexican Broomspurge			S				PDEUP0D110	S3	G4?
Pinal	PLANT	Ferocactus cylindraceus var. eastwoodiae	Golden Barrel Cactus						SR	PDCAC08084	S1	G5T1
Pinal	PLANT	Fremontodendron californicum	Flannel Bush		S				SR	PDSTE03010	S2S3	G4
Pinal	PLANT	Lilaeopsis schaffneriana var. recurva	Huachuca Water Umbel	LE					HS	PDAPI19051	S2	G4T2
Pinal	PLANT	Mabrya acerifolia	Mapleleaf False Snapdragon			S				PDSCR2L010	S2	G2
Pinal	PLANT	Mammillaria thornberi	Thornber Fishhook Cactus						SR	PDCAC0A0C0	S4	G4
Pinal	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Pinal	PLANT	Opuntia versicolor	Stag horn Cholla						SR	PDCAC0D1K0	S2S3	G4
Pinal	PLANT	Penstemon discolor	Catalina Beardtongue			S			HS	PDSCR1L210	S2	G2
Pinal	PLANT	Perityle gilensis var. gilensis	Gila Rock Daisy			S				PDAST700D1	S2?	G2?T2?
Pinal	PLANT	Stenocereus thurberi	Organ Pipe Cactus						SR	PDCAC10020	S4	G5
Pinal	PLANT	Thelypteris puberula var. sonorensis	Aravaipa Wood Fern		S					PPTHE05192	S2	G5T3
Pinal	PLANT	Tumamoca macdougalii	Tumamoc Globeberry		S	S			SR	PDCUC0S010	S3	G4
Pinal	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC	S	S				ARACJ02011	S3	G4T4
Pinal	REPTILE	Aspidoscelis burti xanthonota	Red back Whiptail	SC		S				ARACJ02012	S2	G4T2
Pinal	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Pinal	REPTILE	Phyllorhynchus browni lucidus	Maricopa Leaf nosed Snake			S		PR		ARADB25012	S2	G5T2Q
Pinal	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Pinal	REPTILE	Xantusia arizonae	Arizona Night Lizard			S				ARACK01050	S3	G3
Santa Cruz	AMPHIBIAN	Ambystoma tigrinum stebbinsi	Sonoran Tiger Salamander	LE				PR	WSC	AAAAA01145	S1S2	G5T1T2
Santa Cruz	AMPHIBIAN	Eleutherodactylus augusti cactorum	Western Barking Frog			S			WSC	AAABD04171	S1	G5T5
Santa Cruz	AMPHIBIAN	Gastrophryne olivacea	Great Plains Narrow mouthed Toad					PR	WSC	AAABE01020	S3	G5
Santa Cruz	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Santa Cruz	AMPHIBIAN	Rana tarahumarae	Tarahumara Frog	SC					WSC	AAABH01210	SXS1	G3
Santa Cruz	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Santa Cruz	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Santa Cruz	BIRD	Amazilia violiceps	Violet crowned Hummingbird						WSC	ABNUC29150	S3	G5

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Santa Cruz	BIRD	Ammodramus bairdii	Baird's Sparrow	SC					WSC	ABPBXA0010	S2N	G4
Santa Cruz	BIRD	Anthus spragueii	Sprague's Pipit						WSC	ABPBM02060	S2N	G4
Santa Cruz	BIRD	Asturina nitida maxima	Northern Gray Hawk	SC		S		PR	WSC	ABNKC19011	S3	G5T4Q
Santa Cruz	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Santa Cruz	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Santa Cruz	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Santa Cruz	BIRD	Dendrocygna autumnalis	Black bellied Whistling Duck						WSC	ABNJB01040	S3	G5
Santa Cruz	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Santa Cruz	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Santa Cruz	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy owl	SC				A	WSC	ABNSB08041	S1	G5T3
Santa Cruz	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Santa Cruz	BIRD	Pachyramphus aglaiae	Rose throated Becard						WSC	ABPAE53070	S1	G4G5
Santa Cruz	BIRD	Pandion haliaetus	Osprey						WSC	ABNKC01010	S2B,S4N	G5
Santa Cruz	BIRD	Polioptila nigriceps	Black capped Gnatcatcher						WSC	ABPBJ08040	S1	G5
Santa Cruz	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Santa Cruz	BIRD	Trogon elegans	Elegant Trogon						WSC	ABNWA02070	S3	G5
Santa Cruz	BIRD	Tyrannus crassirostris	Thick billed Kingbird						WSC	ABPAE52040	S2	G5
Santa Cruz	BIRD	Tyrannus melancholicus	Tropical Kingbird						WSC	ABPAE52010	S3	G5
Santa Cruz	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Santa Cruz	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Santa Cruz	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Santa Cruz	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
Santa Cruz	FISH	Gila ditaenia	Sonora Chub	LT				A	WSC	AFCJB13090	S1	G2
Santa Cruz	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Santa Cruz	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Santa Cruz	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Santa Cruz	INVERTEBRATE	Agathymus aryxna	Arizona Giant Skipper			S				IILEP87080	S?	G4G5
Santa Cruz	INVERTEBRATE	Argia sabino	Sabino Canyon Damselfly	SC		S				IIODO68100	S?	G1G2
Santa Cruz	INVERTEBRATE	Calephelis rawsoni arizonensis	Arizona Metalmark			S				IILEPH2073	S2	G3G4
Santa Cruz	INVERTEBRATE	Heterelmis stephani	Stephan's Heterelmis Riffle Beetle	C		S				IICOL5B010	S1	G1
Santa Cruz	INVERTEBRATE	Limenitis archippus obsoleta	Obsolete Viceroy Butterfly			S				IILEPL3024	S?	G5T3T4
Santa Cruz	INVERTEBRATE	Neophasia terlooii	Chiricahua Pine White			S				IILEP99020	S2?	G3G4
Santa Cruz	INVERTEBRATE	Pyrgulopsis thompsoni	Huachuca Springsnail	C	S	S				IMGASJ0230	S2	G2
Santa Cruz	INVERTEBRATE	Stygobromus arizonensis	Arizona Cave Amphipod	SC		S				ICMAL05360	S1?	G2G3
Santa Cruz	INVERTEBRATE	Sympetrum signiferum	Mexican Meadowfly			S				IIODO61150	S?	G2G3
Santa Cruz	MAMMAL	Choeronycteris mexicana	Mexican Long tongued Bat	SC				A	WSC	AMACB02010	S2	G4
Santa Cruz	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Santa Cruz	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Santa Cruz	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long nosed Bat	LE		S		|	WSC	AMACB03030	S2	G4
Santa Cruz	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Santa Cruz	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5

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Santa Cruz	MAMMAL	Panthera onca	Jaguar	LE		S		P	WSC	AMAJH02010	S1	G3
Santa Cruz	MAMMAL	Sigmodon ochrognathus	Yellow nosed Cotton Rat	SC						AMAFF07040	S3S4	G4G5
Santa Cruz	MAMMAL	Sorex arizonae	Arizona Shrew	SC		S		P	WSC	AMABA01240	S2S3	G3
Santa Cruz	MAMMAL	Thomomys umbrinus intermedius	Southern Pocket Gopher			S				AMAFC01012	S3	G5T3
Santa Cruz	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2
Santa Cruz	PLANT	Acacia farnesiana	Sweet Acacia			S				PDFAB020D0	S1S2	G5
Santa Cruz	PLANT	Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	SC		S		A	HS	PMAGA010L2	S3	G3T3
Santa Cruz	PLANT	Allium rhizomatum	Redflower Onion			S			SR	PMLIL02320	S1	G3?Q
Santa Cruz	PLANT	Amoreuxia gonzalezii	Saiya	SC		S			HS	PDBIX01010	S1	G1
Santa Cruz	PLANT	Amsonia grandiflora	Large flowered Blue Star	SC		S				PDAPO03060	S2	G2
Santa Cruz	PLANT	Arabis tricornuta	Chiricahua Rock Cress			S				PDBRA06200	S1?	G1?
Santa Cruz	PLANT	Asclepias lemmonii	Lemmon Milkweed			S				PDASC020Z0	S2	G4?
Santa Cruz	PLANT	Asclepias uncialis	Greene Milkweed	SC		S				PDASC02220	S1?	G3G4
Santa Cruz	PLANT	Astragalus hypoxylus	Huachuca Milk vetch	SC	S	S			SR	PDFAB0F470	S1	G1
Santa Cruz	PLANT	Browallia eludens	Elusive New Browallia Species	SC		S				PDSOL03030	S1	G2?
Santa Cruz	PLANT	Capsicum annuum var. glabriusculum	Chiltepin			S				PDSOL06012	S2	G5T5
Santa Cruz	PLANT	Carex chihuahuensis	A Sedge			S				PMCYP032T0	S2S3	G3G4
Santa Cruz	PLANT	Carex ultra	Arizona Giant Sedge		S	S				PMCYP03E50	S2	G3?
Santa Cruz	PLANT	Choisya mollis	Santa Cruz Star Leaf	SC		S				PDRUT02022	S2	G5?T2?
Santa Cruz	PLANT	Conioselinum mexicanum	Mexican Hemlock Parsley	SC		S				PDAPI0P030	S1	G2?
Santa Cruz	PLANT	Coryphantha recurvata	Santa Cruz Beehive Cactus			S			HS	PDCAC04090	S3	G3
Santa Cruz	PLANT	Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE					HS	PDCAC040C1	S2	G4T2
Santa Cruz	PLANT	Coursetia glabella		SC		S				PDFAB140B0	S1	G3?
Santa Cruz	PLANT	Dalea tentaculoides	Gentry Indigo Bush	SC	S	S			HS	PDFAB1A1K0	S1	G1
Santa Cruz	PLANT	Erigeron arisolius				S				PDAST3M510	S2	G2
Santa Cruz	PLANT	Euphorbia macropus	Woodland Spurge	SC					SR	PDEUP0Q2U0	S2	G4
Santa Cruz	PLANT	Graptopetalum bartramii	Bartram Stonecrop	SC	S	S			SR	PDCRA06010	S3	G3
Santa Cruz	PLANT	Hedeoma dentatum	Mock pennyroyal			S				PDLAM0M0M0	S3	G3
Santa Cruz	PLANT	Heterotheca rutteri	Huachuca Golden Aster	SC	S	S				PDAST4V0J0	S2	G2
Santa Cruz	PLANT	Hexalectris revoluta	Chisos Coral root		S	S			SR	PMORC1C030	S1	G1G2
Santa Cruz	PLANT	Hexalectris spicata	Crested Coral Root						SR	PMORC1C040	S3S4	G5
Santa Cruz	PLANT	Hieracium pringlei	Pringle Hawkweed	SC		S				PDAST4W170	S1	G2Q
Santa Cruz	PLANT	Ipomoea plummerae var. cuneifolia	Huachuca Morning Glory			S				PDCON0A141	S3	G4T3
Santa Cruz	PLANT	Ipomoea thurberi	Thurber's Morning glory			S				PDCON0A1K0	S1	G3
Santa Cruz	PLANT	Laennecia eriophylla	Woolly Fleabane			S				PDASTDL020	S2	G3
Santa Cruz	PLANT	Lilaeopsis schaffneriana var. recurva	Huachuca Water Umbel	LE					HS	PDAPI19051	S2	G4T2
Santa Cruz	PLANT	Lilium parryi	Lemmon Lily	SC		S			SR	PMLIL1A0J0	S2	G3
Santa Cruz	PLANT	Lobelia fenestralis	Leafy Lobelia						SR	PDCAM0E0H0	S1	G4
Santa Cruz	PLANT	Lobelia laxiflora	Mexican Lobelia						SR	PDCAM0E0X0	S1	G4
Santa Cruz	PLANT	Lotus alamosanus	Alamos Deer Vetch			S				PDFAB2A020	S1	G3G4
Santa Cruz	PLANT	Lupinus huachucanus	Huachuca Mountain Lupine			S				PDFAB2B210	S2	G2
Santa Cruz	PLANT	Macroptilium supinum	Supine Bean	SC		S			SR	PDFAB330L0	S1	G2
Santa Cruz	PLANT	Malaxis corymbosa	Madrean Adders Mouth						SR	PMORC1R020	S3S4	G4

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Santa Cruz	PLANT	Malaxis porphyrea	Purple Adder's Mouth						SR	PMORC1R0Q0	S2	G4
Santa Cruz	PLANT	Mammillaria wrightii var. wilcoxii	Wilcox Fishhook Cactus						SR	PDCAC0A0E1	S4	G4T4
Santa Cruz	PLANT	Manihot davisiae	Arizona Manihot			S				PDEUP0Z010	S2	G4
Santa Cruz	PLANT	Marina diffusa	Escoba			S				PDFAB2F020	S1	G5?
Santa Cruz	PLANT	Metastelma mexicanum	Wiggins Milkweed Vine	SC		S				PDASC050P0	S1S2	G3G4
Santa Cruz	PLANT	Muhlenbergia xerophila	Weeping Muhly			S				PMPOA48220	S1	G3
Santa Cruz	PLANT	Notholaena lemmonii	Lemmon Cloak Fern	SC						PPADI0G0D0	S1S2	G3?
Santa Cruz	PLANT	Opuntia versicolor	Stag horn Cholla						SR	PDCAC0D1K0	S2S3	G4
Santa Cruz	PLANT	Paspalum virletii	Virlet Paspalum			S				PMPOA4P1L0	S1	G3?
Santa Cruz	PLANT	Passiflora foetida	Foetid Passionflower			S				PDPAS01070	S2	G5
Santa Cruz	PLANT	Pectis imberbis	Beardless Chinch Weed	SC		S				PDAST6W0A0	S1	G3
Santa Cruz	PLANT	Penstemon discolor	Catalina Beardtongue			S			HS	PDSCR1L210	S2	G2
Santa Cruz	PLANT	Penstemon superbus	Superb Beardtongue			S				PDSCR1L630	S2?	G3?
Santa Cruz	PLANT	Physalis latiphysa	Broad leaf Ground cherry			S				PDSOL0S0H0	S1	G1
Santa Cruz	PLANT	Psilotum nudum	Whisk Fern						HS	PPPSI01020	S1	G5
Santa Cruz	PLANT	Samolus vagans	Chiricahua Mountain Brookweed			S				PDPRI09040	S2	G2?
Santa Cruz	PLANT	Schiedeella arizonica	Fallen Ladies' tresses						SR	PMORC67020	S4	GNR
Santa Cruz	PLANT	Senecio carlomasonii	Seemann Groundsel			S				PDAST8H3W0	S2S3	G4?Q
Santa Cruz	PLANT	Senecio multidentatus var. huachucanus	Huachuca Groundsel			S			HS	PDAST8H411	S2	G2G4T2
Santa Cruz	PLANT	Sisyrinchium cernuum	Nodding Blue eyed Grass			S				PMIRI0D0B0	S2	G5
Santa Cruz	PLANT	Solanum lumholtzianum	Lumholtz Nightshade			S				PDSOL0Z180	S3	G3G4
Santa Cruz	PLANT	Spiranthes delitescens	Madrean Ladies' tresses	LE					HS	PMORC2B140	S1	G1
Santa Cruz	PLANT	Stenorrhynchos michuacanum	Michoacan Ladies' tresses						SR	PMORC2B0L0	S3	G4
Santa Cruz	PLANT	Stevia lemmonii	Lemmon's Stevia			S				PDAST8V010	S2	G3G4
Santa Cruz	PLANT	Talinum humile	Pinos Altos Flame Flower	SC		S			SR	PDPOR080A0	S1	G2
Santa Cruz	PLANT	Talinum marginatum	Tepic Flame Flower	SC		S			SR	PDPOR080N0	S1	G2
Santa Cruz	PLANT	Tephrosia thurberi	Thurber Hoary Pea			S				PDFAB3X0M0	S3	G4G5
Santa Cruz	PLANT	Tragia laciniata	Sonoran Noseburn			S				PDEUP1D060	S3?	G3G4
Santa Cruz	PLANT	Viola umbraticola	Shade Violet			S				PDVIO042E0	S2?	G3G4
Santa Cruz	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC	S	S				ARACJ02011	S3	G4T4
Santa Cruz	REPTILE	Crotalus willardi willardi	Arizona Ridge nosed Rattlesnake			S		PR	WSC	ARADE02132	S3	G5T4
Santa Cruz	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Santa Cruz	REPTILE	Lampropeltis getula nigrita	Western Black Kingsnake			S		A		ARADB19026	S1S2	G5T3T4Q
Santa Cruz	REPTILE	Oxybelis aeneus	Brown Vinesnake						WSC	ARADB24010	S2	G5
Santa Cruz	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Yavapai	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
Yavapai	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		A	WSC	AAABH01080	S3	G3
Yavapai	AMPHIBIAN	Rana pipiens	Northern Leopard Frog			S	2		WSC	AAABH01170	S2	G5
Yavapai	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
Yavapai	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
Yavapai	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Yavapai	BIRD	Buteo regalis	Ferruginous Hawk	SC			3		WSC	ABNKC19120	S2B,S4N	G4
Yavapai	BIRD	Buteogallus anthracinus	Common Black Hawk			S		A	WSC	ABNKC15010	S3	G4G5
Yavapai	BIRD	Ceryle alcyon	Belted Kingfisher				4		WSC	ABNXD01020	S2B,S5N	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Yavapai	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Yavapai	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Yavapai	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
Yavapai	BIRD	Haliaeetus leucocephalus	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10010	S2S3B,S4N	G5
Yavapai	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle	LT,PDL		S		P	WSC	ABNKC10012	S4N	G5
Yavapai	BIRD	Setophaga ruticilla	American Redstart						WSC	ABPBX06010	S1	G5
Yavapai	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		S	3	A	WSC	ABNSB12012	S3S4	G3T3
Yavapai	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A		AFCJB37151	S3S4	G4T3T4
Yavapai	FISH	Catostomus clarki	Desert Sucker	SC	S					AFCJC02040	S3S4	G3G4
Yavapai	FISH	Catostomus insignis	Sonora Sucker	SC	S			P		AFCJC02100	S3	G3
Yavapai	FISH	Cyprinodon macularius	Desert Pupfish	LE				P	WSC	AFCNB02060	S1	G1
Yavapai	FISH	Gila intermedia	Gila Chub	LE		S		P	WSC	AFCJB13160	S2	G2
Yavapai	FISH	Gila nigra	Headwater Chub	C						AFCJB13180	S2	G2Q
Yavapai	FISH	Gila robusta	Roundtail Chub	SC		S	2	PR	WSC	AFCJB13150	S2	G3
Yavapai	FISH	Meda fulgida	Spikedace	LT		S			WSC	AFCJB22010	S1	G2
Yavapai	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	WSC	AFCNC05021	S1S2	G3T3
Yavapai	FISH	Ptychocheilus lucius	Colorado Pikeminnow	LE,XN			2	P	WSC	AFCJB35020	S1	G1
Yavapai	FISH	Rhinichthys osculus	Speckled Dace	SC	S			P		AFCJB37050	S3S4	G5
Yavapai	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Yavapai	INVERTEBRATE	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC	S	S				IICOL02362	S3	G5T3
Yavapai	INVERTEBRATE	Cylloepus parkeri	Parker's Cylloepus Riffle Beetle	SC		S				IICOL59010	S1?	G1?
Yavapai	INVERTEBRATE	Metrichia nigritta	Page Spring Micro Caddisfly	SC						IITRI97010	S?	G3G4
Yavapai	INVERTEBRATE	Protoptila balmorhea	Balmorhea Saddle case Caddisfly	SC						IITRI34040	S?	G2
Yavapai	INVERTEBRATE	Pyrgulopsis glandulosa	Verde Rim Springsnail	SC	S	S				IMGASJ0180	S1	G1
Yavapai	INVERTEBRATE	Pyrgulopsis montezumensis	Montezuma Well Springsnail	SC	S	S				IMGASJ0190	S1	G1
Yavapai	INVERTEBRATE	Pyrgulopsis morrisoni	Page Springsnail	C	S	S				IMGASJ0200	S1	G1
Yavapai	INVERTEBRATE	Pyrgulopsis sola	Brown Springsnail	SC	S	S				IMGASJ0220	S1	G1
Yavapai	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Yavapai	MAMMAL	Euderma maculatum	Spotted Bat	SC				PR	WSC	AMACC07010	S1S2	G4
Yavapai	MAMMAL	Idionycteris phyllotis	Allen's Big eared Bat	SC	S					AMACC09010	S2S3	G3G4
Yavapai	MAMMAL	Lasiurus blossevillii	Western Red Bat						WSC	AMACC05060	S2	G5
Yavapai	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Yavapai	MAMMAL	Microtus mexicanus hualpaiensis	Hualapai Mexican Vole	LE					WSC	AMAFF11212	S1	G5T1Q
Yavapai	MAMMAL	Myotis ciliolabrum	Western Small footed Myotis	SC	S					AMACC01140	S3	G5
Yavapai	MAMMAL	Myotis occultus	Arizona Myotis	SC	S					AMACC01160	S3	G3G4
Yavapai	MAMMAL	Myotis thysanodes	Fringed Myotis	SC	S					AMACC01090	S3S4	G4G5
Yavapai	MAMMAL	Myotis velifer	Cave Myotis	SC	S					AMACC01050	S4	G5
Yavapai	MAMMAL	Myotis volans	Long legged Myotis	SC	S					AMACC01110	S3S4	G5
Yavapai	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Yavapai	MAMMAL	Nyctinomops macrotis	Big Free tailed Bat	SC	S					AMACD04020	S2S3	G5
Yavapai	MAMMAL	Sigmodon arizonae arizonae	Camp Verde Cotton Rat						WSC	AMAFF07023	SH	G5TH
Yavapai	PLANT	Abutilon parishii	Pima Indian Mallow	SC	S	S			SR	PDMAL020E0	S2	G2

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Yavapai	PLANT	Agave arizonica	Arizona Agave	No status					HS	PMAGA01030	SHYB	G1Q
Yavapai	PLANT	Agave delamateri	Tonto Basin Agave	SC		S			HS	PMAGA010W0	S2	G2
Yavapai	PLANT	Agave mckelveyana	Mckelvey's Agave						SR	PMAGA010D0	S4	G4
Yavapai	PLANT	Agave murpheyi	Hohokam Agave	SC	S	S			HS	PMAGA010F0	S2	G2
Yavapai	PLANT	Agave toumeyana var. bella	Toumey Agave						SR	PMAGA010R1	S3	G3T3
Yavapai	PLANT	Allium bigelovii	Bigelow Onion						SR	PMLIL02070	S2S3	G3
Yavapai	PLANT	Amsonia peeblesii	Peebles Blue Star				4			PDAPO030E0	S3	G3
Yavapai	PLANT	Arenaria aberrans	Mt. Dellenbaugh Sandwort			S				PDCAR04010	S2	G2G3
Yavapai	PLANT	Astragalus newberryi var. aquarii	Aquarius Milkvetch		S					PDFAB0F5Y5	S1	G5T1
Yavapai	PLANT	Carex ultra	Arizona Giant Sedge		S	S				PMCYP03E50	S2	G3?
Yavapai	PLANT	Cymopterus megacephalus	Cameron Water parsley	SC		S				PDAPI0U0M0	S3	G3
Yavapai	PLANT	Erigeron saxatilis	Rock Fleabane			S				PDAST3M560	S3	G3
Yavapai	PLANT	Eriogonum ericifolium var. ericifolium	Heathleaf Wild buckwheat			S				PDPGN08231	S2	G3T2
Yavapai	PLANT	Eriogonum ripleyi	Ripley Wild buckwheat	SC		S			SR	PDPGN08520	S2	G2
Yavapai	PLANT	Escobaria vivipara var. rosea	Viviparous Foxtail Cactus						SR	PDCAC0X0G8	S3	G5T3
Yavapai	PLANT	Ferocactus cylindraceus var. eastwoodiae	Golden Barrel Cactus						SR	PDCAC08084	S1	G5T1
Yavapai	PLANT	Fremontodendron californicum	Flannel Bush		S				SR	PDSTE03010	S2S3	G4
Yavapai	PLANT	Hedeoma diffusum	Flagstaff Pennyroyal			S			SR	PDLAM0M0N0	S3	G3
Yavapai	PLANT	Heuchera eastwoodiae	Eastwood Alum Root			S				PDSAX0E0B0	S3	G3
Yavapai	PLANT	Hexalectris spicata	Crested Coral Root						SR	PMORC1C040	S3S4	G5
Yavapai	PLANT	Lupinus latifolius ssp. leucanthus	Broadleaf Lupine			S				PDFAB2B29D	S1	G5T1T2
Yavapai	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus						SR	PDCAC0A0D0	S4	G4
Yavapai	PLANT	Penstemon nudiflorus	Flagstaff Beardtongue			S				PDSCR1L4A0	S2S3	G2G3
Yavapai	PLANT	Phlox amabilis	Arizona Phlox			S				PDPLM0D050	S2	G2
Yavapai	PLANT	Polygala rusbyi	Hualapai Milkwort			S				PDPGL021H0	S3	G3
Yavapai	PLANT	Puccinellia parishii	Parish Alkali Grass	SC			4		HS	PMPOA530T0	S2	G2
Yavapai	PLANT	Purshia subintegra	Arizona Cliff Rose	LE					HS	PDROS1E080	S1	GNA
Yavapai	PLANT	Salvia dorrii ssp. mearnsii	Verde Valley Sage	SC		S			SR	PDLAM1S0G5	S3	G5T3
Yavapai	PLANT	Talinum validulum	Tusayan Flame Flower	SC					SR	PDPOR080M0	S3	G3
Yavapai	PLANT	Thelypteris puberula var. sonorensis	Aravaipa Wood Fern		S					PPTHE05192	S2	G5T3
Yavapai	PLANT	Triteleia lemmoniae	Mazatzal Triteleia						SR	PMLIL210C0	S3	G3
Yavapai	PLANT	Washingtonia filifera	California Fan Palm						SR	PMARE0G010	S1	G4
Yavapai	REPTILE	Charina trivirgata gracia	Desert Rosy Boa	SC	S	S				ARADA01021	S3	G4G5T3
Yavapai	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Yavapai	REPTILE	Heloderma suspectum cinctum	Banded Gila Monster	SC	S			A		ARACE01011	S4	G4T4
Yavapai	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	SC		S		A	WSC	ARADB36061	S2S3	G5T5
Yavapai	REPTILE	Thamnophis rufipunctatus	Narrow headed Gartersnake	SC		S			WSC	ARADB36110	S3	G3G4
Yavapai	REPTILE	Xantusia arizonae	Arizona Night Lizard			S				ARACK01050	S3	G3
Yuma	BIRD	Ardea alba	Great Egret						WSC	ABNGA04040	S1B,S4N	G5
Yuma	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		4	A		ABNSB10012	S3	G4T4
Yuma	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
Yuma	BIRD	Egretta thula	Snowy Egret						WSC	ABNGA06030	S1B,S4N	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
Yuma	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
Yuma	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy owl	SC				A	WSC	ABNSB08041	S1	G5T3
Yuma	BIRD	Ixobrychus exilis	Least Bittern					A	WSC	ABNGA02010	S3	G5
Yuma	BIRD	Lanius ludovicianus	Loggerhead Shrike	SC						ABPBR01030	S4	G4
Yuma	BIRD	Laterallus jamaicensis coturniculus	California Black Rail	SC		S		PR	WSC	ABNME03041	S1	G4T1
Yuma	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
Yuma	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
Yuma	MAMMAL	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE		S		P	WSC	AMALD01012	S1	G5T1
Yuma	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big eared Bat	SC			4			AMACC08014	S3S4	G4T4
Yuma	MAMMAL	Euderma maculatum	Spotted Bat	SC				PR	WSC	AMACC07010	S1S2	G4
Yuma	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC						AMACD02011	S1S2	G5T4
Yuma	MAMMAL	Lasiurus xanthinus	Western Yellow Bat						WSC	AMACC05070	S1	G5
Yuma	MAMMAL	Macrotus californicus	California Leaf nosed Bat	SC					WSC	AMACB01010	S3S4	G4
Yuma	MAMMAL	Myotis yumanensis	Yuma Myotis	SC						AMACC01020	S3S4	G5
Yuma	MAMMAL	Nyctinomops femorosaccus	Pocketed Free tailed Bat		S					AMACD04010	S2S3	G4
Yuma	MAMMAL	Sigmodon hispidus eremicus	Yuma Hispid Cotton Rat	SC						AMAFF07013	S2S3	G5T2T3
Yuma	PLANT	Allium parishii	Parish Onion		S				SR	PMLIL021N0	S1	G3
Yuma	PLANT	Berberis harrisoniana	Kofa Barberry		S					PDBER02030	S1S2	G1G2
Yuma	PLANT	Cryptantha ganderi	Gander's Cryptantha	SC						PDBOR0A120	S1	G1G2
Yuma	PLANT	Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus						SR	PDCAC05033	S2	G3G4T3T4
Yuma	PLANT	Euphorbia platysperma	Dune Spurge	SC						PDEUP0D1X0	S1	G3
Yuma	PLANT	Ferocactus cylindraceus var. cylindraceus	California Barrel Cactus					PR	SR	PDCAC08081	S3	G5T4
Yuma	PLANT	Helianthus niveus ssp. tephrodes	Dune Sunflower	SC						PDAST4N0Z2	S2	G4T2
Yuma	PLANT	Lophocereus schottii	Senita					|	SR	PDCAC14010	S2	G4
Yuma	PLANT	Opuntia echinocarpa	Straw top Cholla						SR	PDCAC0D2W0	S5	G5
Yuma	PLANT	Pholisma sonorae	Sand Food	SC	S				HS	PDLNN02020	S1	G2
Yuma	PLANT	Rhus kearneyi	Kearney Sumac		S				SR	PDANA08050	S2	G4
Yuma	PLANT	Stephanomeria schottii	Schott Wire Lettuce		S					PDAST8U0D0	S2	G2
Yuma	PLANT	Triteleiopsis palmeri	Blue Sand Lily		S				SR	PMLIL22010	S1	G3
Yuma	PLANT	Washingtonia filifera	California Fan Palm						SR	PMARE0G010	S1	G4
Yuma	REPTILE	Charina trivirgata gracia	Desert Rosy Boa	SC	S	S				ARADA01021	S3	G4G5T3
Yuma	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	SC				A	WSC	ARAAF01013	S4	G4T4
Yuma	REPTILE	Heloderma suspectum cinctum	Banded Gila Monster	SC	S			A		ARACE01011	S4	G4T4
Yuma	REPTILE	Phrynosoma mcallii	Flat tailed Horned Lizard	SC				A	WSC	ARACF12040	S2S3	G3
Yuma	REPTILE	Sauromalus ater (Arizona Population)	Arizona Chuckwalla	SC	S			A		ARACF13013	S4	G5T4Q
Yuma	REPTILE	Uma rufopunctata	Yuman Desert Fringe toed Lizard	SC		S		A	WSC	ARACF15040	S2S3	G2G3
	AMPHIBIAN	Bufo microscaphus	Arizona Toad	SC		S				AAABB01110	S3S4	G3G4
	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC		S		PR	WSC	AAABH01250	S4	G4
	BIRD	Accipiter gentilis	Northern Goshawk	SC		S	4	A	WSC	ABNKC12060	S3	G5
	BIRD	Aechmophorus clarkii	Clark's Grebe				4		WSC	ABNCA04020	S3	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	STATE	ELCODE_BCD	SRANK	GRANK
	BIRD	Ardea alba	Great Egret						WSC	ABNGA04040	S1B,S4N	G5
	BIRD	Coccyzus americanus occidentalis	Western Yellow billed Cuckoo	C		S	2		WSC	ABNRB02022	S3	G5T3Q
	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	2		WSC	ABPAE33043	S1	G5T1T2
	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC		S	4	A	WSC	ABNKD06071	S4	G4T4
	BIRD	Ixobrychus exilis	Least Bittern					A	WSC	ABNGA02010	S3	G5
	BIRD	Laterallus jamaicensis coturniculus	California Black Rail	SC		S		PR	WSC	ABNME03041	S1	G4T1
	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE				P	WSC	ABNME0501A	S3	G5T3
	FISH	Catostomus latipinnis	Flannelmouth Sucker	SC	S	S				AFCJC02110	S2	G3G4
	FISH	Gila elegans	Bonytail	LE			1	P	WSC	AFCJB13100	S1	G1
	FISH	Plagopterus argentissimus	Woundfin	LE,XN					WSC	AFCJB33010	S1	G1
	FISH	Xyrauchen texanus	Razorback Sucker	LE		S	2	P	WSC	AFCJC11010	S1	G1
	MAMMAL	Microtus mexicanus navaho	Navajo Mexican Vole	SC		S	4		WSC	AMAFF11213	S1	G5T2Q
	PLANT	Carex ultra	Arizona Giant Sedge		S	S				PMCYP03E50	S2	G3?
	PLANT	Puccinellia parishii	Parish Alkali Grass	SC			4		HS	PMPOA530T0	S2	G2
	REPTILE	Crotalus willardi obscurus	New Mexico Ridge nosed Rattlesnake	LT		S		PR		ARADE02131	S1	G5T1T2
	REPTILE	Phrynosoma cornutum	Texas Horned Lizard	SC	S			A		ARACF12010	S3S4	G4G5
	REPTILE	Sistrurus catenatus edwardsii	Desert Massasauga			S		PR	WSC	ARADE03012	S1S2	G3G4T3T4Q

APPENDIX D
AIR QUALITY CALCULATIONS

CALCULATION SHEET-COMBUSTIBLE EMISSIONS-CONSTRUCTION

Assumptions for Combustible Emissions					
Type of Construction Equipment	Num. of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Water Truck	0	300	8	0	0
Diesel Road Compactors	1	100	8	40	32000
Diesel Dump Truck	0	300	8	0	0
Diesel Excavator	0	300	8	0	0
Diesel Hole Trenchers	0	175	8	0	0
Diesel Bore/Drill Rigs	0	300	8	0	0
Diesel Cement & Mortar Mixers	0	300	8	0	0
Diesel Cranes	0	175	8	0	0
Diesel Graders	0	300	8	0	0
Diesel Tractors/Loaders/Backhoes	1	100	8	40	32000
Diesel Bull Dozers	0	300	8	0	0
Diesel Front End Loaders	0	300	8	0	0
Diesel Fork Lifts	1	100	8	40	32000
Diesel Generator Set	1	40	8	40	12800

Emission Factors							
Type of Construction Equipment	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	PM-10 g/hp-hr	PM-2.5 g/hp-hr	SO2 g/hp-hr	CO2 g/hp-hr
Water Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Road Compactors	0.370	1.480	4.900	0.340	0.330	0.740	536.200
Diesel Dump Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Excavator	0.340	1.300	4.600	0.320	0.310	0.740	536.300
Diesel Trenchers	0.510	2.440	5.810	0.460	0.440	0.740	535.800
Diesel Bore/Drill Rigs	0.600	2.290	7.150	0.500	0.490	0.730	529.700
Diesel Cement & Mortar Mixers	0.610	2.320	7.280	0.480	0.470	0.730	529.700
Diesel Cranes	0.440	1.300	5.720	0.340	0.330	0.730	530.200
Diesel Graders	0.350	1.360	4.730	0.330	0.320	0.740	536.300
Diesel Tractors/Loaders/Backhoes	1.850	8.210	7.220	1.370	1.330	0.950	691.100
Diesel Bull Dozers	0.360	1.380	4.760	0.330	0.320	0.740	536.300
Diesel Front End Loaders	0.380	1.550	5.000	0.350	0.340	0.740	536.200
Diesel Fork Lifts	1.980	7.760	8.560	1.390	1.350	0.950	690.800
Diesel Generator Set	1.210	3.760	5.970	0.730	0.710	0.810	587.300

CALCULATION SHEET-COMBUSTIBLE EMISSIONS-CONSTRUCTION

Emission factors (EF) were generated from the NONROAD2005 model for the 2006 calendar year. The VOC EFs includes exhaust and evaporative emissions. The VOC evaporative components included in the NONROAD2005 model are diurnal, hotsoak, running loss, tank permeation, hose permeation, displacement, and spillage. The construction equipment age distribution in the NONROAD2005 model is based on the population in U.S. for the 2006 calendar year.

Emission Calculations							
Type of Construction Equipment	VOC tons/yr	CO tons/yr	NOx tons/yr	PM-10 tons/yr	PM-2.5 tons/yr	SO2 tons/yr	CO2 tons/yr
Water Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Road Paver	0.013	0.052	0.173	0.012	0.012	0.026	18.909
Diesel Dump Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Excavator	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Hole Cleaners\Trenchers	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Bore/Drill Rigs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Cement & Mortar Mixers	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Cranes	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Graders	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Tractors/Loaders/Backhoes	0.065	0.290	0.255	0.048	0.047	0.034	24.371
Diesel Bull Dozers	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Front End Loaders	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Aerial Lifts	0.070	0.274	0.302	0.049	0.048	0.034	24.360
Diesel Generator Set	0.017	0.053	0.084	0.010	0.010	0.011	8.284
Total Emissions	**0.165**	**0.668**	**0.813**	**0.120**	**0.116**	**0.105**	**75.924**

Conversion factors	
Grams to tons	1.102E-06

CALCULATION SHEET-TRANSPORTATION COMBUSTIBLE EMISSIONS-CONSTRUCTION

Construction Worker Personal Vehicle Commuting to Meeting Site-Passenger and Light Duty Trucks									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile	Mile/day	Day/yr	Number of cars	Number of trucks	Total Emissions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	1.61	60	180	10	10	0.16	0.19	0.35
CO	12.4	15.7	60	180	10	10	1.48	1.87	3.34
NOx	0.95	1.22	60	180	10	10	0.11	0.15	0.26
PM-10	0.0052	0.0065	60	180	10	10	0.00	0.00	0.00
PM 2.5	0.0049	0.006	60	180	10	10	0.00	0.00	0.00
CO2	369	511	60	180	10	10	43.92	60.82	104.73

Heavy Duty Trucks Delivery Supply Trucks to Transport Site									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	10,000-19,500 lb Delivery Truck	33,000-60,000 lb semi trailer rig	Mile/day	Day/yr	Number of trucks	Number of trucks	Total Emissions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	0.29	0.55	60	180	2	2	0.01	0.01	0.02
CO	1.32	3.21	60	180	2	2	0.03	0.08	0.11
NOx	4.97	12.6	60	180	2	2	0.12	0.30	0.42
PM-10	0.12	0.33	60	180	2	2	0.00	0.01	0.01
PM 2.5	0.13	0.36	60	180	2	2	0.00	0.01	0.01
CO2	536	536	60	180	2	2	12.76	12.76	25.52
Maintenance Commute Associated with Proposed Action									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile	Mile/day	Day/yr	Number of Cars	Number of trucks	Total Emissions cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	1.61	40	365	0	2	-	0.05	0.05
CO	12.4	15.7	40	365	0	2	-	0.51	0.51
NOx	0.95	1.22	40	365	0	2	-	0.04	0.04
PM-10	0.0052	0.0065	40	365	0	2	-	0.00	0.00
PM 2.5	0.0049	0.006	40	365	0	2	-	0.00	0.00
CO2	369	511	40	365	0	2	-	16.44	16.44

Truck Emission Factor Source: MOBILE6.2 USEPA 2005 Emission Facts: Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks. EPA 420-F-05-022 August 2005. Emission rates were generated using MOBILE.6 highway.

CALCULATION SHEET-TRANSPORTATION COMBUSTIBLE EMISSIONS-CONSTRUCTION

Conversion factor:	gms to tons
	0.000001102

Carbon Equivalents	Conversion Factor
N2O or NOx	311
Methane or VOCs	25

Source: EPA 2010 Reference, Tables and Conversions, Inventory of U.S. Greenhouse Gas Emissions and Sinks; http://www.epa.gov/climatechange/emissions/usinventoryreport.html

CARBON EQUIVALENTS

Construction Commuters	Conversion	Emissions CO2 tons/yr	Total CO2
VOCs	25	8.84	
NOx	311	0.26	
Total		9.10	113.83

Delivery Trucks	Conversion	Emissions CO2 tons/yr	Total CO2
VOCs	25	0.50	
NOx	311	130.07	
Total		130.57	156.08

Kirtland AFB staff and Students	Conversion	Emissions CO2 tons/yr	Total CO2
VOCs	25	1.30	
NOx	311	12.21	
Total		13.50	29.95

Construction Fugitive Dust Emissions

Construction Fugitive Dust Emission Factors

	Emission Factor	Units	Source
General Construction Activities	0.19	ton PM10/acre-month	MRI 1996; EPA 2001; EPA 2006
New Road Construction	0.42	ton PM10/acre-month	MRI 1996; EPA 2001; EPA 2006

PM2.5 Emissions

PM2.5 Multiplier	0.10	(10% of PM10 emissions assumed to be PM2.5)	EPA 2001; EPA 2006
Control Efficiency	0.50	(assume 50% control efficiency for PM10 and PM2.5 emissions)	EPA 2001; EPA 2006

Project Assumptions

Construction Area (0.19 ton PM10/acre-month)

			Conversion Factors	
Duration of Construction Project	6	months	0.000022957	acres per feet
Length		miles	5280	feet per mile
Length (converted)		feet		
Width		feet		
Area	5.00	acres		

Staging Areas

Duration of Construction Project	6	months
Length		miles
Length (converted)		feet
Width		feet
Area	2.00	acres

	Project Emissions (tons/year)			
	PM10 uncontrolled	PM10 controlled	PM2.5 uncontrolled	PM2.5 controlled
Construction Area (0.19 ton PM10/ac	5.70	2.85	0.57	0.29
Staging Areas	0.38	0.19	0.04	0.02
Total	**6.08**	**3.04**	**0.61**	**0.30**

References:

EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999.* EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.

EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants.*Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.

MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1).* Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

Construction Fugitive Dust Emission Factors

General Construction Activities Emission Factor

0.19 ton PM10/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The area based emission factor for construction activities is based on a study completed by the Midwest Research Institute (MRI) Improvement of Specific Emission Factors (BACM Project No. 1), March 29, 1996. The MRI study evaluated seven construction projects in Nevada and California (Las Vegas, Coachella Valley, South Coast Air Basin, and the San Joaquin Valley). The study determined an average emission factor of 0.11 ton PM10/acre month for sites without large scale cut/fill operations. A worst case emission factor of 0.42 ton PM10/acre month was calculated for sites with active large scale earth moving operations. The monthly emission factors are based on 168 work hours per month (MRI 1996). A subsequent MRI Report in 1999, Estimating Particulate Matter Emissions from Construction Operations, calculated the 0.19 ton PM10/acre month emission factor by applying 25% of the large scale earthmoving emission factor (0.42 ton PM10/acre month) and 75% of the average emission factor (0.11 ton PM10/acre month).

The 0.19 ton PM10/acre month emission factor is referenced by the EPA for non residential construction activities in recent procedures documents for the National Emission Inventory (EPA 2001; EPA 2006). The 0.19 ton PM10/acre month emission factor represents a refinement of EPA's original AP 42 area based total suspended particle (TSP) emission factor in Section 13.2.3 Heavy Construction Operations. In addition to the EPA, this methodology is also supported by the South Coast Air Quality Management District and the Western Regional Air Partnership (WRAP) which is funded by the EPA and is administered jointly by the Western Governor's Association and the National Tribal Environmental Council. The emission factor is assumed to encompass a variety of non residential construction activities including building construction (commercial, industrial, institutional, governmental), public works, and travel on unpaved roads. The EPA National Emission Inventory documentation assumes that the emission factors are uncontrolled and recommends a control efficiency of 50% for PM10 and PM2.5 in PM nonattainment areas.

New Road Construction Emission Factor

0.42 ton PM10/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The emission factor for new road construction is based on the worst case conditions emission factor from the MRI 1996 study described above (0.42 tons PM10/acre month). It is assumed that road construction involves extensive earthmoving and heavy construction vehicle travel resulting in emissions that are higher than other general construction projects. The 0.42 ton PM10/acre month emission factor for road construction is referenced in recent procedures documents for the EPA National Emission Inventory (EPA 2001; EPA 2006).

PM2.5 Multiplier **0.10**

PM2.5 emissions are estimated by applying a particle size multiplier of 0.10 to PM10 emissions. This methodology is consistent with the procedures documents for the National Emission Inventory (EPA 2006).

Control Efficiency for PM10 and PM2.5 **0.50**

The EPA National Emission Inventory documentation recommends a control efficiency of 50% for PM10 and PM2.5 in PM nonattainment areas. Wetting controls will be applied during project construction (EPA 2006).

References:

EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985 1999.* EPA 454/R 01 006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.

EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants.* Prepared for: Emissions Inventory and Analysis Group (C339 02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.

MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1).* Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

CALCULATION SHEET-SUMMARY OF EMISSIONS

Alternative 1 Construction Emissions for Criteria Pollutants (tons per year)									
Emission Source	VOC	CO	NOx	PM-10	PM-2.5	SO2	CO2	CO2 Equivalents	Total CO2
Combustible Emissions	0.17	0.67	0.81	0.12	0.12	0.10	75.92	257.12	333.04
Construction Site Fugitive PM 10	NA	NA	NA	3.04	0.30	NA	NA	NA	NA
Construction Workers Commuter & Trucking	0.37	3.45	0.68	0.01	0.01	NA	104.73	219.72	324.46
Total emissions-CONSTRUCTION	**0.54**	**4.12**	**1.49**	**3.17**	**0.43**	**0.10**	**181**	**477**	**658**
De minimis Threshold (1)	100	100	100	100	100	100	NA	NA	27,557

1. Pima County is in non attainment for PM 10

Carbon Equivalents	Conversion Factor
N2O or NOx	311
Methane or VOCs	25

Source: EPA 2010 Reference, Tables and Conversions, Inventory of U.S. Greenhouse Gas Emissions and Sinks; http://www.epa.gov/climatechange/emissions/usinventoryreport.html

DRAFT

ENVIRONMENTAL ASSESSMENT

FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE U.S. BORDER PATROL, EL PASO SECTOR, TEXAS EL PASO, YSLETA, FABENS AND FORT HANCOCK STATIONS AREAS OF OPERATION

U.S. Department of Homeland Security
U.S. Customs and Border Protection
U.S. Border Patrol

FEBRUARY 2008

ACRONYMS AND ABBREVIATIONS

AO	Area of Operations
BEA	Bureau of Economic Analysis
BMP	Best Management Practices
CBP	U.S. Customs and Border Protection
CEQ	Council on Environmental Quality
CERM	Center for Environmental Resource Management
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CRS	Congressional Research Service
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DHS	Department of Homeland Security
DNL	Day-night level
DOI	U.S. Department of the Interior
EA	Environmental Assessment
ECSO	Engineering and Construction Support Office
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPCWID1	El Paso County Water Improvement District No. 1
EPE	El Paso Electric Company
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Farm to Market Road
FOB	Forward Operating Base
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GIS	Geographic Information Systems
HCCRD1	Hudspeth County Conservation and Reclamation District No. 1
IA	Illegal alien
INS	Immigration and Naturalization Service
JTFN	Joint Task Force North
MARAMA	Mid-Atlantic Regional Air Management Association
MBTA	Migratory Bird Treaty Act
MD	Management Directive
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NOA	Notice of Availability

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DRAFT
FINDING OF NO SIGNIFICANT IMPACT
FOR CONSTRUCTION, OPERATION, AND MAINTENANCE
OF TACTICAL INFRASTRUCTURE
U.S. BORDER PATROL, EL PASO SECTOR, TEXAS
EL PASO, YSLETA, FABENS AND FORT HANCOCK STATIONS AREAS OF OPERATION

PROJECT HISTORY: United States (U.S.) Border Patrol (USBP) is a law enforcement entity of U.S. Customs and Border Protection (CBP), a component of U.S. Department of Homeland Security (DHS). USBP's priority mission is to prevent the entry of terrorists and terrorist weapons and to enforce the laws that protect the U.S. homeland by the detection, interdiction, and apprehension of those who attempt to illegally enter or smuggle any person or contraband across the sovereign borders of the U.S.

During recent years, illegal aliens (IAs) and illegal entry into the U.S. along the U.S.-Mexico border in southwest Texas has been a severe problem. USBP is addressing this threat, focusing on accomplishing its goal of effective control of the border and is working to implement the right combination of personnel, technology and infrastructure, and thus deter illegal entries through improved enforcement. Deterrence is achieved when USBP has the ability to create and convey the immediate, credible, and absolute certainty of detection and apprehension. As such, tactical infrastructure (TI) components are a critical element in the current enforcement strategy. TI is a term used by USBP to describe physical structures that facilitate their enforcement activities; these items typically include but are not limited to roads, bridges, fences, lights, gates, and barriers. The recognition of environmental preservation concerns and the increase of criminal cross-border activities, continue to pose a border enforcement challenge and compound the need for TI along the international border.

USBP El Paso Sector currently patrols the area of the U.S. Section, International Boundary and Water Commission (USIBWC) levee, the irrigation canals north of the levee, and the floodplain of the Rio Grande south and east of El Paso, Texas. There are currently no physical impediments in the way of barriers or fences to prevent cross border violators from illegally crossing the river and the canal into the U.S., except in the developed area of El Paso. The lack of lighting at night poses a safety risk for USBP agents, and hinders the ability of USBP agents to detect and intercept IAs and smugglers in this area. Access to the area between the canal/levee and the Rio Grande is limited by a lack of bridge access across the El Paso County Water Improvement District No. 1 (EPCWID1) and Hudspeth County Conservation and Reclamation District No. 1 (HCCRD1) canals.

CBP proposes to construct, maintain, and operate the following TI: permanent lights along 21 miles of the USIBWC levee, installation of a continuous primary pedestrian fence along 56.7 miles of the protected side of the USIBWC levee between the irrigation canals and the levee, from a point 0.9 mile west of Ascarate Park to a point 2.8 miles east of the Fort Hancock Port of Entry (POE), improvement of dirt roads in the local patrol area near the levee, and installation of eight bridges across the EPCWID1 and HCCRD1 canals.

In accordance with the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) was prepared to address the environmental impacts of this TI construction, operation and maintenance. Due to the similarity and proximity of past

projects to the proposed project, applicable information from several EAs within and near the current project is incorporated by reference to the extent practicable. This EA is tiered from the "*Programmatic Environmental Assessment for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations*", and Finding of No Significant Impact (FONSI) prepared by USBP in October 2006; and the "*Environmental Assessment and FONSI for Installation of Fencing, Lights, Cameras, Guardrails, and Sensors along the American Canal Extension, El Paso District, El Paso, Texas, June 4, 1999"*. In addition, references are also made to the "*Supplemental Programmatic Environmental Impact Statement, Immigration and Naturalization Service (INS) and Joint Task Force-6 Activities on the Southwest U.S./ Mexican Border U.S. Army Corps of Engineers, Fort Worth District, Fort Worth, Texas, June 2001*".

PROJECT LOCATION: The project corridor extends 56.7 miles from a point 0.9 mile west of Ascarate Park in El Paso southeast to 2.8 miles east of the Fort Hancock Port of Entry (POE), in El Paso and Hudspeth counties, Texas. The TI would be installed primarily along the USIBWC levee and the EPCWID1 and HCCRD1 canals. The TI would be contained within the USBP El Paso, Ysleta, Fabens, and Fort Hancock Stations Areas of Operation (AO).

PURPOSE AND NEED: The purpose of the Proposed Action is to increase border security within USBP El Paso Sector through the construction, operation, and maintenance of TI in the form of fences, roads, and supporting technological and tactical assets. USBP El Paso Sector has identified areas along the border that experience high levels of illegal cross-border activity. This activity occurs in areas that are remote and not easily accessed by USBP agents, near POEs where concentrated populations might live on either side of the border, or have quick access to U.S. transportation routes, and in crowded metropolitan areas where IAs can quickly assimilate into the U.S. population.

The Proposed Action is needed to provide USBP agents with the tools necessary to strengthen their control of the U.S. borders between POEs in the USBP El Paso Sector. It is designed to help to deter illegal cross-border activities within the USBP El Paso Sector by improving enforcement abilities, thus preventing terrorists and terrorist weapons from entering the U.S., reducing the flow of illegal drugs, and enhancing response time, while providing a safer work environment for USBP agents.

ALTERNATIVES: Three Alternatives were analyzed in detail, the No Action Alternative, Proposed Action Alternative, and the Floating Foundation Fence Alternative. Other alternatives were initially evaluated, but were eliminated from further consideration because they either failed to meet USBP's mission and operation needs or the project's purpose and need, or they were not acceptable for construction by the owners of the land within the project area (USIBWC, EPCWID1 and HCCRD1) due to interference with their agencies mandates, or operation and maintenance requirements.

NO ACTION ALTERNATIVE: Under the No Action Alternative, lights, primary pedestrian fencing, access bridges and road improvements along the 55-mile corridor would not be installed. This alternative would not meet the purpose and need of this project, but is carried forward for analysis in accordance with Council on Environmental Quality (CEQ) regulations.

PROPOSED ACTION ALTERNATIVE: The Proposed Action Alternative would install approximately 56.7 miles of primary pedestrian fence along the north side of the USIBWC levee from a point 0.9 mile west of Ascarate Park in El Paso to a point located 2.8 miles east of the Fort Hancock POE. Existing chain link fence would be replaced with primary pedestrian fence along the eastern-most portion of the project corridor. An additional 21 miles of permanent lights would be installed from the Riverside Canal diversion to a point 1 mile east of the Fabens POE. Eight bridges across the canal on the U.S. side of the levee would be constructed within the project corridor, and approximately 2 miles of existing dirt road would be improved with an all-weather surface within the same area. Gates would be installed in the fence at each bridge crossing to provide access to the USIBWC levee and the Rio Grande floodplain. Temporary construction staging areas would occur both in the Rio Grande floodplain and at discrete locations north of the levee along the project corridor.

The Proposed Action Alternative has been determined to be the Preferred Alternative, and, throughout the remainder of this document, Preferred Alternative and Proposed Action Alternative are synonymous

FLOATING FOUNDATION FENCE ALTERNATIVE: This alternative would construct the fence using a floating foundation, in which the concrete fence foundation sections would be built off-site and placed on the top of the USIBWC levee with little ground disturbance other than grading. The fence would then be installed on the connected foundation sections. This alternative would meet the purpose and need of the project, but would have greater operational issues for both USIBWC and USBP compared to the Proposed Action Alternative. All other lights and bridge portions of the project would be the same as for the Proposed Action Alternative. The Floating Foundation Fence Alternative could be used interchangeably with the Proposed Action, as necessary, in any section of the project corridor.

ENVIRONMENTAL CONSEQUENCES: The Proposed Action Alternative would require typical construction activities associated with digging holes and installing light stanchions, transformers, and underground wiring, and installing fencing along the levee within the project area, all of which has been previously disturbed. The eight bridges would also be installed in previously disturbed areas, some of which are the sites of former bridges. The road improvements would remain within existing footprints, so no additional ground disturbances would be expected. Because all activities would take place in previously disturbed areas, and CBP, in implementing its decision, would employ all practical means to further minimize the potential adverse impacts on the local

environment, no significant impacts are expected to occur to biological resources, aesthetic resources, air quality, water resources, socioeconomics, floodplains and noise levels from the implementation of the Proposed Action Alternative. Concurrence from the Texas State Historic Preservation Officer (SHPO) will be attained for the Proposed Action Alternative, completing the Section 106 process.

MITIGATION MEASURES: USBP will be responsible for implementation of mitigation measures. These mitigation measures include:

1. Best Management Practices (BMPs) will be implemented as standard operating procedures during all construction activities. These BMPs will include proper handling, storage, and disposal of hazardous and regulated materials. To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein. The refueling of machinery will be completed following accepted guidelines, and all vehicles will have drip pans during storage to contain minor spills and drips. Although it would be unlikely for a major spill to occur, any spill of 5 gallons or more will be contained immediately within an earthen dike, and the application of an absorbent (*e.g.*, granular, pillow, sock) will be used to absorb and contain the spill. Any spill of 5 gallons or more of a hazardous or regulated substance will be reported immediately to on-site environmental personnel who will notify appropriate Federal and state agencies. A Spill Prevention, Control and Countermeasure Plan will be in place prior to the start of construction, and all personnel will be briefed on the implementation and responsibilities of this plan.

2. Vehicular traffic associated with the construction activities and operational support activities will remain on established roads when traveling to and from the proposed project area. Erosion control measures will be implemented before, during, and after construction activities. Any excess soils not used during construction will be hauled from the site and disposed of properly.

3. Monitoring for possible buried cultural resources will be conducted during all excavation activities. Although no cultural resources are known within the project areas, should any evidence of cultural resources be observed during construction, work will stop in the immediate vicinity, the resource will be protected, and SHPO will be notified within 24 hours of the discovery. If, in consultation with SHPO, it is determined that the resource is significant, and cannot be avoided, a mitigation plan will be developed and implemented before construction is resumed. Light switches will be installed, as specified in a memorandum of agreement (MOA) with the Ysleta del Sur Pueblo Tribe to provide for undisturbed tribal ceremonies along the river. Access to the Rio Grande will be provided with gates in the fence at prescribed intervals.

4. Since construction activities cannot be scheduled to avoid the migratory bird nesting season (typically February 15 through August 31), surveys will be performed to identify active nests. If construction activities would result in the take of a migratory bird, then coordination with U.S. Fish and Wildlife Service and Texas Parks and Wildlife Department and applicable permits will be obtained prior to construction or clearing activities. Monitoring for the presence of burrowing owls in the sides of the levee will be conducted, and relocation of owls present will be done for any owls present outside of the nesting season to the extent practicable. Monitoring of open holes for the presence of Texas horned lizards and other animals will also be conducted.

5. Fence and bridge designs will be coordinated with USIBWC, EPCWID1 and HCCRD1 to insure that the integrity of the levee and the canals is not compromised by foundation construction.

FINDING: Based upon the results of the EA and the mitigation measures that would be implemented by CBP and USBP and incorporated as part of the Proposed Action Alternative, it has been concluded that the Proposed Action Alternative and the Floating Foundation Fence Alternative would not have a significant effect on the environment. Therefore, no further environmental impact analysis for the Proposed Action Alternative is warranted.

_____ _____

Victor M. Manjarrez, Jr. Date
Chief Patrol Agent
U.S. Border Patrol
El Paso Sector Headquarters

_____ _____

Robert F. Janson Date
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

COVER SHEET

ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE

U.S. BORDER PATROL, EL PASO SECTOR, TEXAS EL PASO, YSLETA, FABENS AND FORT HANCOCK STATIONS AREAS OF OPERATION

Responsible Agency: United States (U.S.) Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP).

Cooperating Agencies: U.S. Army Corps of Engineers (USACE) Albuquerque District; U.S. Section, International Boundary and Water Commission (USIBWC); U.S. Department of the Interior (DOI); and Joint Task Force North (JTF-N).

Affected Location: U.S.-Mexico international border along the Rio Grande in El Paso and Hudspeth counties, Texas.

Proposed Action: The Proposed Action includes the construction, operation and maintenance of tactical infrastructure (TI), to include a primary pedestrian fence, patrol roads and access roads, bridges and permanent lights along approximately 56.7 miles of the USIBWC levee within the USBP El Paso Sector. The Proposed Action would be implemented in five segments: segment K-2A is 9.6 miles long, segment K-2B and C is 19.42 miles long, segment K-3 is 9 miles long, segment K-4 is 13.5 miles long, and segment K-5 is 5.2 miles long.

Report Designation: Draft Environmental Assessment (EA).

Abstract: CBP proposes to construct, operate and maintain approximately 56.7 miles of TI, including 21 miles of permanent lights, 56.7 miles of fence, 2 miles of existing roads, and eight bridges across irrigation canals along the U.S.-Mexico international border in El Paso and Hudspeth counties, Texas. The proposed TI would primarily involve public lands managed by USIBWC as part of the Rio Grande flood control levee system and irrigation canals managed by local water districts.

The EA will analyze and document potential environmental consequences associated with the Proposed Action. If the analyses presented in the EA indicate that implementation of the Proposed Action would not result in significant environmental or socioeconomic impacts, then a Finding of No Significant Impact (FONSI) would be prepared. If potential environmental concerns arise that cannot be mitigated to insignificance, a Notice of Intent to prepare an Environmental Impact Statement (EIS) would be required.

Throughout the National Environmental Policy Act (NEPA) process, the public may obtain information concerning the status and progress of the Proposed Action and the EA via the project Web site at *www.BorderFenceNEPA.com*; by emailing

information@BorderFenceNEPA.com; or by written request to Mr. Charles McGregor, Environmental Manager, U.S. Army Corps of Engineers, Fort Worth District, Engineering and Construction Support Office, 819 Taylor Street, Room 3B10, Fort Worth, TX 76102, Fax: (225) 761-8077.

You may submit written comments to CBP by contacting the SBI Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) Electronically through the website at *www.BorderFenceNEPA.com*

(b) By email to *EPEAcomments@BorderFenceNEPA.com*

(c) By mail to El Paso Fence and Lights EA, c/o Gulf South Research Corporation, 8081 GSRI Avenue, Baton Rouge, LA 70820

(d) By fax to (225) 761-8077.

Privacy Notice

Your comments on this document are due by March 19, 2008. Comments will normally be addressed in the EA and made available to the public. Any personal information included in comments will therefore be publicly available.

DRAFT

ENVIRONMENTAL ASSESSMENT
FOR
CONSTRUCTION, OPERATION, AND MAINTENANCE
OF TACTICAL INFRASTRUCTURE

U.S. BORDER PATROL, EL PASO SECTOR, TEXAS
EL PASO, YSLETA, FABENS AND FORT HANCOCK STATIONS AREAS OF OPERATION

February 2008

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U.S. Department of the Interior
U.S. Army Corps of Engineers, Albuquerque District
Joint Task Force North

EXECUTIVE SUMMARY

INTRODUCTION

United States (U.S.) Border Patrol (USBP) is a law enforcement entity of U.S. Customs and Border Protection (CBP) within U.S. Department of Homeland Security (DHS). USBP's priority mission is to prevent the entry of terrorists and their weapons of terrorism and to enforce the laws that protect the U.S. homeland. This is accomplished by the detection, interdiction, and apprehension of those who attempt to illegally enter the U.S. or smuggle any person or contraband across the sovereign borders of the U.S. This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA), and analyzes the project alternatives and potential impacts to the human and natural environment from these alternatives.

CBP proposes to install primary pedestrian fence and high intensity lighting along the U.S. International Boundary and Water Commission (USIBWC) maintained Rio Grande levee from near the Ascarate Park in El Paso to a point 2.8 miles east of the Fort Hancock Port of Entry (POE). Bridges will also be constructed across the irrigation canal on the U.S. side of the levee for operational access.

PURPOSE AND NEED

The purpose of the Proposed Action is to increase border security within USBP El Paso Sector through the construction, operation, and maintenance of tactical infrastructure (TI) in the form of fences, roads, and supporting technological and tactical assets. USBP El Paso Sector has identified areas along the border that experience high levels of illegal cross-border activity. This activity occurs in areas that are remote and not easily accessed by USBP agents, near POEs where concentrated populations might live on either side of the border or have quick access to U.S. transportation routes, and in crowded metropolitan areas where IAs can quickly assimilate into the U.S. population.

The Proposed Action Alternative is needed to provide USBP agents with the tools necessary to strengthen their control of the U.S. borders between POEs in the USBP El Paso Sector. The Proposed Action Alternative would help to deter illegal cross-border activities within the USBP El Paso Sector by improving enforcement abilities, thus preventing terrorists and terrorist weapons from entering the U.S., reducing the flow of illegal drugs, and enhancing agents' response time, while providing a safer work environment for USBP agents.

PROPOSED ACTION ALTERNATIVE

CBP and USBP El Paso Sector propose to install approximately 56.7 miles of primary pedestrian fence along the USIBWC levee and the El Paso County Water Improvement District No. 1 (EPCWID1) and Hudspeth County Conservation and Reclamation District No. 1 (HCCRD1) canals, from a point 0.9 mile west of Ascarate Park to a point 2.8 miles

east of the Fort Hancock POE. Lights would be installed on the south side of the USIBWC levee along a 21-mile length of the border from the Riverside Canal Diversion to a point 1 mile east of the Fabens POE. Eight bridges across the EPCWID1 and HCCRD1 canals would also be constructed, and approximately 2 miles of existing dirt road would be improved. This alternative would involve conventional fence installation at the north toe of the USIBWC levee adjacent to the canals within the 56.7-mile section. However, an alternate design could be used, as described below, in various segments where engineering analyses indicate that the alternate design is more appropriate.

USBP has identified its Preferred Alternative as the Proposed Action Alternative. Throughout the EA, Preferred Alternative and Proposed Action Alternative are synonymous.

ALTERNATIVES CONSIDERED

No Action Alternative. The No Action Alternative would preclude the installation of fence, lights and bridges along this section of the U.S./Mexico border. The No Action Alternative will serve as a baseline against which the impacts of the Proposed Action Alternative will be evaluated.

Floating Foundation Fence Alternative. The fence would be installed with a "floating foundation". This design requires that the foundation would be constructed off-site, and the sections of fence would be placed on the top of the levee with little or no ground disturbance other than leveling the top of the levee. A hard surface road would be integrated into the proposed fence design. The lights, bridges and road improvements would be placed as indicated in the Proposed Action Alternative. The Floating Foundation Fence Alternative could be installed interchangeably with the Proposed Action in any portion of the 56.7-mile corridor.

Alternatives Considered but Eliminated from Further Consideration. Other alternatives considered but eliminated from further consideration include:

- Stronger enforcement and harsher penalties for employers that hire illegal immigrants: eliminated since it does not meet the project's purpose and need.
- Installation of the fence on the south side of the levee: eliminated due to possible interference with flood control.
- Installation of lights only without a fence: eliminated due to lack of deterrence value and it does not meet the project's purpose and need.
- Installation of fence only without lights: eliminated due to lack of increased safety value.
- Installation of a conventional fence on top of the levee: eliminated due to conflicts with levee maintenance by USIBWC.
- Additional USBP agents in lieu of TI: eliminated due to lack of increased agent safety factors.

- Technology in lieu of TI: eliminated because it does not meet the purpose and need for the project.
- Secure Fence Act (2-tier fence) alternative: eliminated due to lack of space and interference with existing canals and roads

ENVIRONMENTAL CONSEQUENCES

The proposed project corridor consists of previously disturbed landscape due to construction of the irrigation canals and the flood control levee. All of the corridor is maintained for vegetation control, and is heavily traveled by maintenance equipment and USBP vehicles. No natural environment exists within the footprint of the project corridor. A narrow, discontinuous natural riparian corridor is present along the Rio Grande south of the project corridor.

The No Action Alternative would not directly impact any human or environmental resources since there would be no new construction. Indirect and cumulative adverse impacts would occur due to the lack of IA deterrence and lighting along this section of the U.S.-Mexico border. Continued, and possibly increased, cross border violations would result in degradation of community values and an increase in drug related crimes. The lack of sufficient vehicle and personnel access to the area between the USIBWC levee and EPCWID1 and HCCRD1 canals and the Rio Grande would result in continued safety and rescue problems, and increased safety risk to USBP personnel operating in the area.

Implementation of the Proposed Action Alternative or Floating Foundation Fence Alternative would occur in previously disturbed areas impacted by the construction of the levee and canals along the U.S.-Mexico border. There would be no additional impacts to soils, native vegetation, or wildlife habitats. Land use would not change and no hazardous materials would be impacted. Short term insignificant impacts to water resources, air quality and noise would occur. Visual aesthetics are already impacted by the existing canals and levee, and no additional significant impacts would occur. No threatened or endangered species are present in the project corridor, and habitats outside the corridor would not be impacted. No significant impacts to cultural resources would occur, and Texas State Historical Preservation Officer (SHPO) concurrence will be obtained.

CONCLUSIONS

Based on the conclusions of this analysis and the assumption that all environmental design measures recommended herein are implemented, no significant adverse impacts would occur from the Proposed Action Alternative or Floating Foundation Fence Alternative, and no additional NEPA documentation is warranted.

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SECTION 1.0
INTRODUCTION

1.0 INTRODUCTION

1.1 BACKGROUND

The Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) entitled: "*Installation of Fencing, Lights, Cameras, Guardrails, and Sensors along the American Canal Extension El Paso District, El Paso, Texas*" was finalized on June 4, 1999 by the Immigration and Naturalization Service (INS) (INS 1999). Chain link fence and permanent lights were subsequently installed along the U.S.-Mexico border through El Paso to the Riverside Diversion Canal in accordance with that EA. U.S. Customs and Border Protection (CBP) now proposes to extend the project along the U.S. Section, International Boundary and Water Commission (USIBWC) levee, to a point 2.8 miles east of the Fort Hancock Port of Entry (POE), including replacement of a portion of the chain link fence previously installed, for a total distance of approximately 56.7 miles.

In 2006, CBP and U.S. Border Patrol (USBP) completed the "*Programmatic Environmental Assessment (PEA) for Proposed Tactical Infrastructure, USBP El Paso Sector, Texas Stations*" (USBP 2006). The USBP PEA discussed the tactical infrastructure (TI) program and the impacts of new infrastructure such as that proposed and addressed in this EA. Therefore, this EA is tiered from that PEA, and discussions concerning the affected environment and cumulative impacts are incorporated by reference from the 2006 USBP PEA. In addition, in 2001, Immigration and Naturalization Service (INS) completed the "*Supplemental Programmatic Environmental Impact Statement (SPEIS), Immigration and Naturalization Service and JTF-6 Activities on the Southwest U.S./Mexican Border U.S. Army Corps of Engineers, Fort Worth District, Fort Worth, Texas, June 2001*" (INS 2001). Applicable discussions from the 2006 PEA and the 2001 SPEIS are incorporated by reference, where applicable.

1.2 USBP BACKGROUND

The mission of CBP is to prevent terrorists and terrorist weapons from entering the U.S., while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the borders of the U.S. USBP's mission strategy consists of five main objectives:

- Establish substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between the POEs;
- Deter illegal entries through improved enforcement;
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband;
- Leverage "smart border" technology to multiply the effect of enforcement personnel; and
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

USBP has nine administrative sectors along the U.S.-Mexico border. Each sector is responsible for implementing an optimal combination of personnel, technology, and infrastructure appropriate for its operational requirements. The El Paso Sector is responsible for El Paso and Hudspeth counties, Texas and the entire state of New Mexico. The areas affected by the Proposed Action include El Paso and Hudspeth counties in Texas along the levees and floodplain of the Rio Grande.

1.3 PURPOSE AND NEED

The purpose of the Proposed Action Alternative is to increase border security and USBP agent safety within USBP El Paso Sector through the construction, operation, and maintenance of TI in the form of fences, roads, bridges, lights, and supporting technological and tactical assets. In alignment with Federal mandates USBP has identified this area of the border as a location where primary pedestrian fence would contribute significantly to their priority homeland security mission. The need for the proposed action is to meet USBP operational requirements; provide a safer

environment for USBP agents and general public; deter IAs by constructing an impediment to northward movement into the U.S.; enhance the response time of USBP agents; and meet the mandates of Federal legislation (i.e., Secure Fence Act of 2006 and 2007 Department of Homeland Security [DHS] Appropriations Act [HR 5441]).

USBP El Paso Sector has identified distinct areas along the border that experience high levels of illegal cross-border activity, and would require additional TI. This activity occurs in areas that are adjacent to the Rio Grande and not easily accessed by USBP agents, near POEs where concentrated populations might live on either side of the border or have quick access to U.S. transportation routes, and in areas where there is no TI to deter illegal cross-border activity.

The Proposed Action is needed to provide USBP agents with the tools necessary to strengthen control of the U.S. borders between POEs in the USBP El Paso Sector. It is designed to help deter illegal cross-border activities within the USBP El Paso Sector by improving enforcement abilities, thus preventing terrorists and terrorist weapons from entering the U.S., reducing the flow of illegal drugs, and enhancing agents' response time, while providing a safer work environment for USBP agents.

1.4 PROPOSED ACTION ALTERNATIVE

The Proposed Action Alternative would install approximately 56.7 miles of primary pedestrian fence along the north side of the USIBWC levee from a point 0.9 mile west of Ascarate Park in El Paso to a point located 2.8 miles east of the Fort Hancock POE (Figure 1-1). Existing chain link fence would be replaced with primary pedestrian fence for the portion of the project corridor labeled K-2A (see Figures 2-1a to 2-1d). An additional 21 miles of permanent lights would be installed from the Riverside Canal diversion to a point 1 mile east of the Fabens POE (see Figures 2-1d to 2-1j). Eight bridges across the irrigation canals on the U.S. side of the levee would be constructed within the project corridor, and approximately 2 miles of existing dirt road would be improved with an all-weather surface within the same area. Gates would be installed in

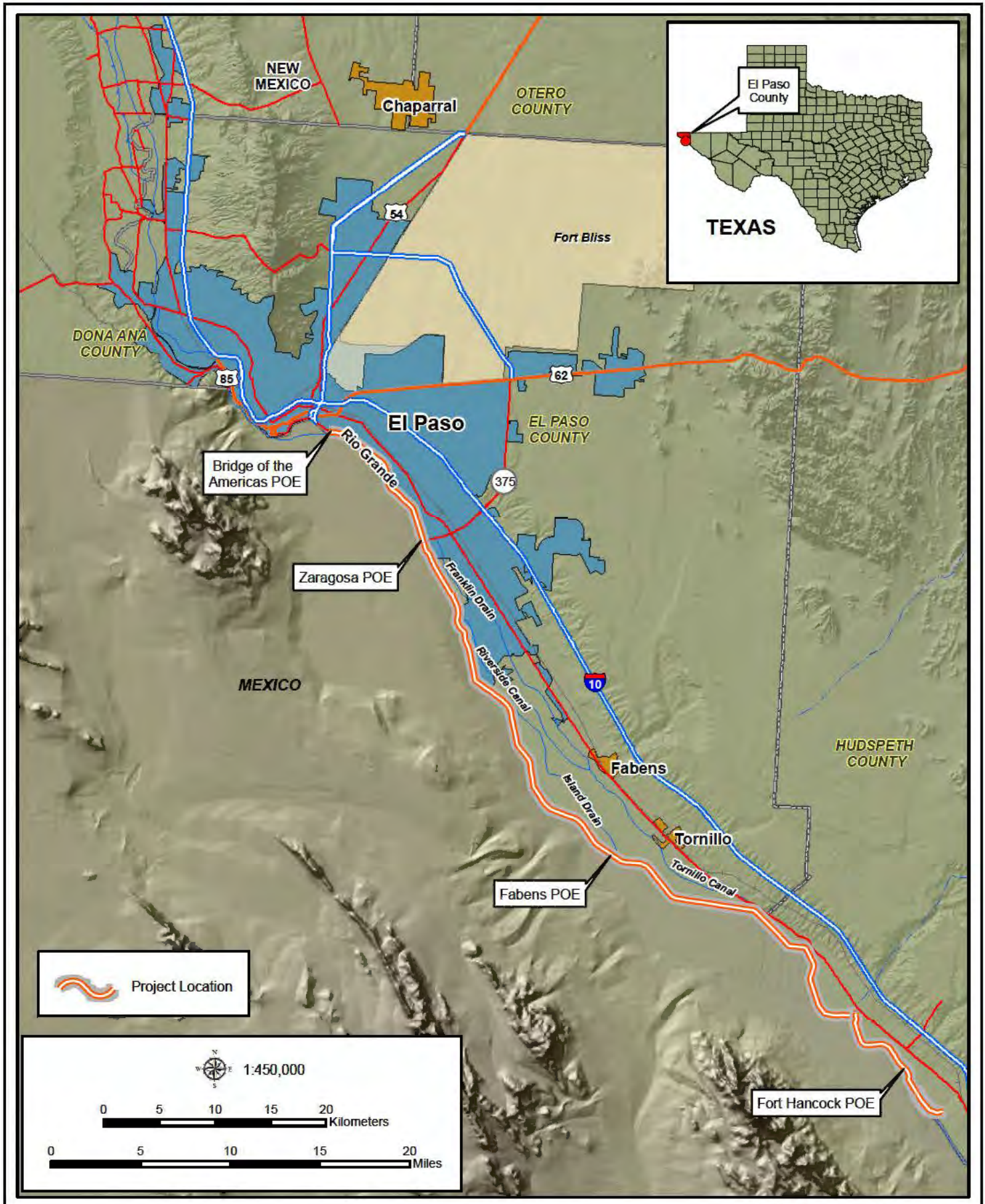

Figure 1-1: Vicinity Map

GSRC

January 2008

the fence at each bridge crossing to provide access to the USIBWC levee and the Rio Grande floodplain. Temporary construction staging areas would occur both in the Rio Grande floodplain and at discrete locations north of the levee along the project corridor.

The proposed locations of TI are based on a USBP El Paso Sector assessment of local operational requirements where such infrastructure would assist USBP agents in reducing illegal cross-border activities. The Fiscal Year (FY) 2007 U.S. Department of Homeland Security (DHS) Appropriations Act (Public Law [P.L.] 109-295) provided $1,187,565,000 under the Border Security Fencing, Infrastructure, and Technology appropriation for the installation of fencing, infrastructure, and technology along the border (CRS 2006).

1.5 PUBLIC INVOLVEMENT

1.5.1 Agency Coordination

A Notice of Availability (NOA) for this draft EA and draft Finding of No Significant Impact (FONSI) will be published in the *El Paso Times.* This is done to solicit comments on the Proposed Action Alternative and involve the local community in the decision-making process. Comments from the public and other Federal, state, and local agencies will be incorporated into the Final EA and included in Appendix F.

This Draft EA also serves as a public notice regarding impacts on floodplains. Executive Order (EO) 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a specific process must be followed to comply with EO 11988. This eight-step process is detailed in the Federal Emergency Management Agency (FEMA) document “Further Advice on EO 11988 Floodplain Management.” The eight steps are as follows:

1. Determine whether the action will occur in, or stimulate development in, a floodplain.
2. Receive public review/input of the Proposed Action.

3. Identify and evaluate practicable alternatives to locating in the floodplain.
4. Identify the impacts of the Proposed Action (when it occurs in a floodplain).
5. Minimize threats to life, property, and natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values.
6. Reevaluate alternatives in light of any new information that might have become available.
7. Issue findings and a public explanation.
8. Implement the action.

Steps 1, 3, and 4 have been undertaken as part of this Draft EA and are further discussed in Section 3.5. Steps 2 and 6 through 8 are being conducted simultaneously with the EA development process, including public review of the Draft EA. Step 5 relates to mitigation and is currently undergoing development.

Throughout the National Environmental Policy Act (NEPA) process, the public may obtain information concerning the status and progress of the EA via the project web site at www.BorderFenceNEPA.com, by emailing information@BorderFenceNEPA.com, or by written request to Mr. Charles McGregor, Environmental Manager, U.S. Army Corps of Engineers (USACE), Fort Worth District, Engineering and Construction Support Office (ECSO), 819 Taylor Street, Room 3B10, Fort Worth, TX 76102; and Fax: (225) 761- 8077.

1.6 COOPERATING AGENCIES

1.6.1 U.S. Section, International Boundary and Water Commission

The Proposed Action Alternative will take place between a point 0.9 mile west of Asacarte Park and a point 2.8 miles east of the Fort Hancock POE on property owned by USIBWC (see Figure 1-2 and 1-3). Because most construction activities would take place on USIBWC property, USIBWC agreed to be a cooperating agency for this EA.

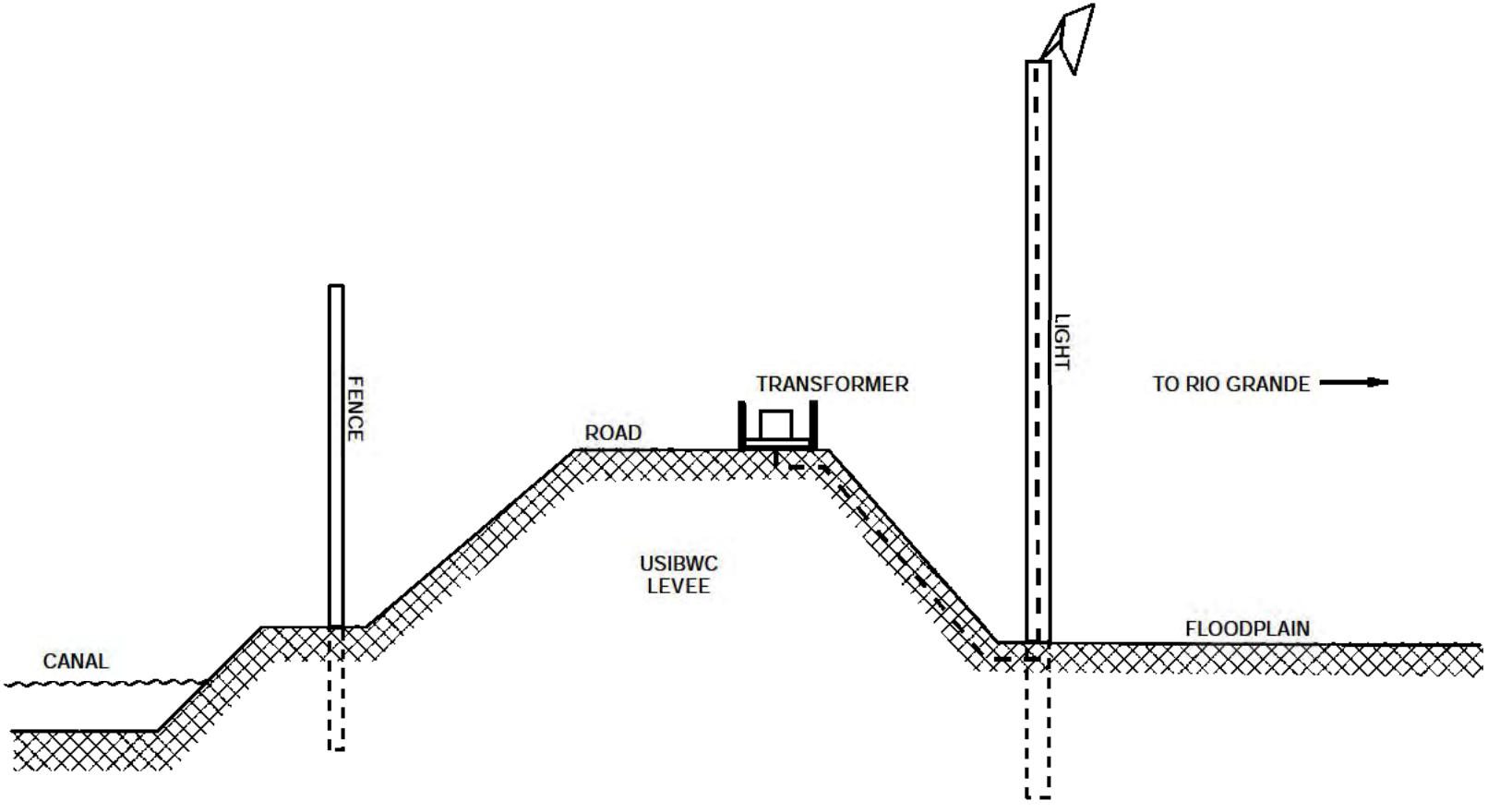

Figure 1-2: Typical Schmatic Cross Section, Proposed Action

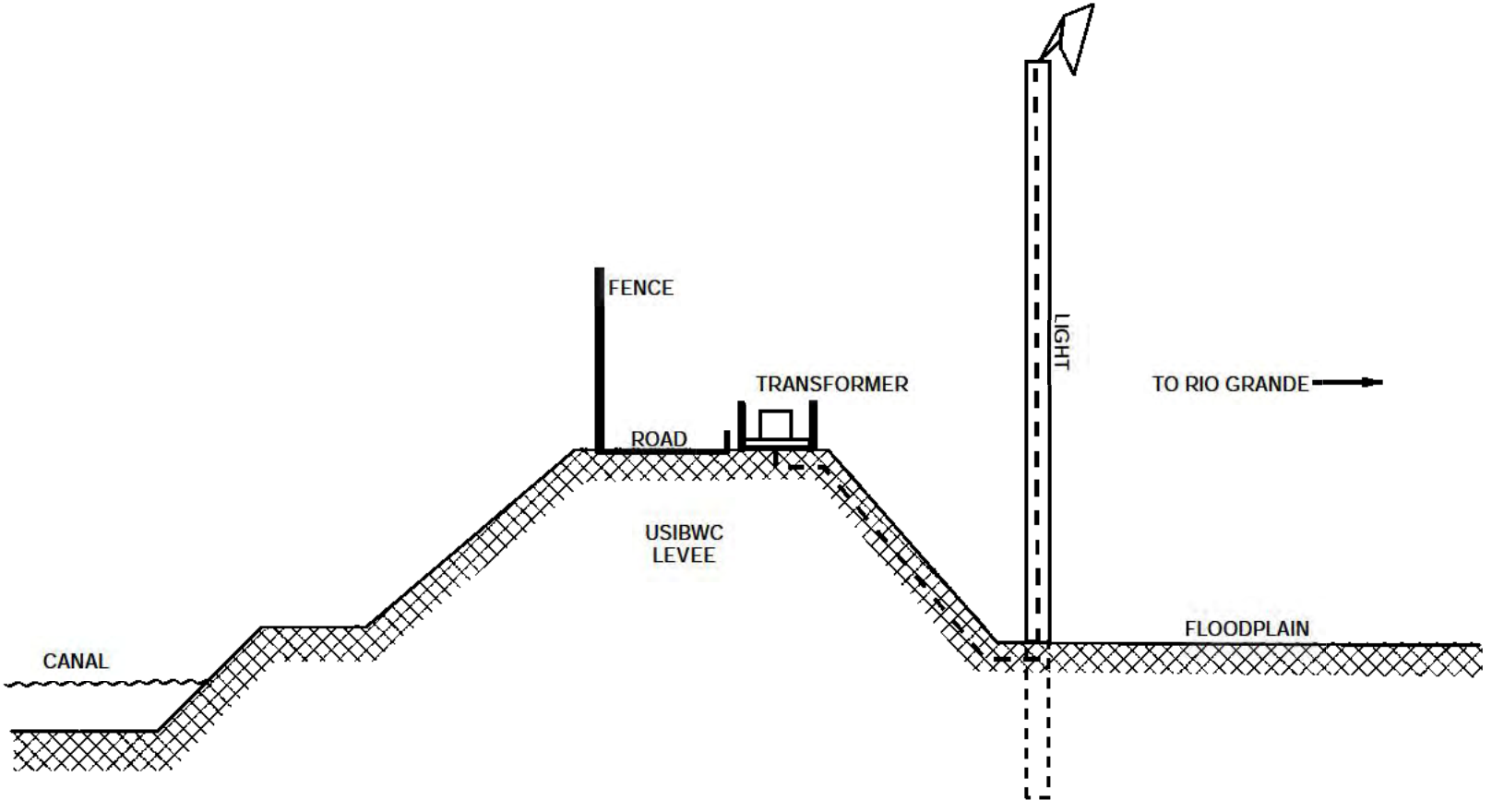

Figure 1-3: Typical Schmatic Cross Section, Floating Foundation Fence

1.6.2 U.S. Department of the Interior

The U.S. Department of the Interior (DOI) has agreed to be a cooperating agency for this EA. DOI cooperating agencies include National Park Service, U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management, Bureau of Reclamation, and Bureau of Indian Affairs. A Memorandum of Agreement (MOA) was signed indicating a commitment to work closely with CBP on this and other consultations regarding CBP projects along the U.S.-Mexico border. USFWS would coordinate with CBP during the Section 7 consultation, to identify the nature and extent of potential effects, and to jointly develop measures that would avoid or reduce potential effects on listed species.

1.6.3 Joint Task Force North

Joint Task Force-North (JTF-N) provides support to CBP using active duty, Reserve, and National Guard units from all military branches. CBP obtains military assistance through support requests forwarded to the Border Patrol Special Coordination Center, who then forwards the support request to JTF-N for sourcing. JTF-N staffs the request and, with appropriate approval, identifies a unit that is willing and capable of providing the skill sets necessary to support the request. Proposed projects must be able to satisfy the training requirements of the participating military unit. A portion of each unit's respective Mission-Essential Task List must be accomplished during each JTF-N operation. JTF-N forces may be utilized to construct all or portions of the proposed TI; therefore, JTF-N has been invited to be a cooperating agency for this EA.

1.6.4 U.S. Army Corps of Engineers, Albuquerque District

USACE, Albuquerque District is charged with facilitating real estate actions for the Proposed Action, and is a cooperating agency for this EA.

1.7 FRAMEWORK FOR ANALYSIS

NEPA is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. NEPA also established the Council on Environmental Quality (CEQ), which is charged

with the development of implementing regulations and ensuring agency compliance with NEPA. CEQ regulations mandate that all Federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that might affect the environment. This process evaluates potential environmental consequences associated with a Proposed Action Alternative and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decisions.

The process for implementing NEPA is codified in 40 Code of Federal Regulations (CFR) 1500–1508, Regulations for Implementing the Procedural Provisions of NEPA, and DHS Management Directive (MD) 5100.1, Environmental Planning Program. CEQ was established under NEPA to implement and oversee Federal policy in this process. CEQ regulations specify that the following must be accomplished when preparing an EA:

- Briefly provide evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a FONSI;
- Aid in an agency's compliance with NEPA when an EIS is unnecessary; and
- Facilitate preparation of an EIS when one is necessary.

To comply with NEPA, the planning and decision-making process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decision maker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action Alternative. According to CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

In addition to NEPA, additional authorities that will be addressed during the preparation of this EA will include Immigration Reform and Illegal Immigrant Responsibility Act (IIRIRA), Secure Fence Act (SFA), Clean Air Act, Clean Water Act (CWA) (including a National Pollutant Discharge Elimination System [NPDES] storm water discharge permit), Noise Control Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Archaeological Resources Protection Act, Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act, Environmental Quality Improvement Act of 1970, as amended, and Migratory Bird Treaty Act (MBTA).

Executive Orders (EOs) bearing on the Proposed Action Alternative include EO 11988 (Floodplain Management), EO 11990 (Protection of Wetlands), EO12088 (Federal Compliance with Pollution Control Standards), EO 12580 (Superfund Implementation), EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks), EO 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), EO 13175 (Consultation and Coordination with Indian Tribal Governments), EO 13148 (Greening the Government through Leadership in Environmental Management), EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds), EO 11514 (Protection and Enhancement of Environmental Quality, as amended by EO 11991); EO 12114 (Environmental Effects Abroad of Major Federal Actions); EO 13101 (Greening the Government through Waste Prevention, Recycling, and Federal Acquisition); EO 13123 (Greening the Government through Efficient Energy Management); and EO 13149 (Greening the Government through Federal Fleet and Transportation Efficiency).

1.7.1 Federal, State and Local Permits, Licenses and Fees

Prior to construction, a Storm Water Pollution Prevention Plan (SWPPP) would be developed for the entire project area, and an appropriate storm water construction permit would be acquired from the responsible state or local agency.

There are no jurisdictional Waters of the U.S. (WUS) or regulated wetlands within the project footprint, and no Section 404 permit or Section 401 Water Quality Certification would be required from the U.S. Army Corps of Engineers (USACE) or the Texas Commission on Environmental Quality (TCEQ).

1.8 RELATED ENVIRONMENTAL DOCUMENTS

"*Installation of Fencing, Lights, Cameras, Guardrails, and Sensors along the American Canal Extension El Paso District, El Paso, Texas*": EA and FONSI prepared by INS, June 4, 1999.

"Supplemental Programmatic Environmental Impact Statement, Immigration and Naturalization Service and JTF-6 Activities on the Southwest U.S./Mexican Border U.S. Army Corps of Engineers, Fort Worth District, Fort Worth, Texas" prepared by INS, June 2001

"*Programmatic Environmental Assessment For Proposed Tactical Infrastructure, U.S. Border Patrol, El Paso Sector, Texas Stations*": PEA and FONSI prepared by USBP, October 2006.

"*Final Environmental Assessment, Rio Grande Rectification Project: Flood Control Improvements, International Dam to Riverside Diversion Dam, El Paso County, Texas*": EA and FONSI prepared by USIBWC, May 2007.

"*Draft FONSI and Draft Environmental Assessment for El Paso County Riverside Canal and Structure Improvement Project*": EA and FONSI prepared by U.S. Department of the Interior, Bureau of Reclamation, January 2007.

SECTION 2.0
PROPOSED ACTION ALTERNATIVE AND ALTERNATIVES

2.0 PROPOSED ACTION AND ALTERNATIVES

This section provides detailed information on CBP's proposal to construct, operate, and maintain TI along the U.S.-Mexico border within the USBP El Paso Sector, Texas. The range of reasonable alternatives considered in this EA is constrained to those that would meet the purpose and need described in Section 1.3 to provide USBP agents with the tools necessary to maintain effective control of the border in the USBP El Paso Sector. Such alternatives must also meet essential technical, engineering, and economic threshold requirements to ensure that each alternative is environmentally sound, economically viable, and complies with governing standards and regulations.

2.1 SCREENING CRITERIA FOR ALTERNATIVES

The following screening criteria were used to develop the Proposed Action Alternative and evaluate potential alternatives. These criteria are presented in no particular order of priority.

- *USBP Operational Requirements:* The selected alternative must support USBP mission needs to hinder or delay individuals crossing the border; once they have entered an urban area or suburban neighborhood, it is much more difficult for USBP agents to identify and apprehend suspects engaged in unlawful border entry. Additionally, around populated areas it is relatively easy for cross border violators to find transportation into the interior away from the USBP patrol areas. For these reasons, primary border fencing could be constructed in urban population centers adjacent to the border. However, other operational criteria are also considered, including deterrence of illegal aliens from remote areas with harsh conditions and protection of natural resource areas north of the border.
- *Threatened or Endangered Species and Critical Habitat:* The selected alternative would be designed to minimize adverse impacts on threatened or endangered species and their critical habitat to the maximum extent practicable. USBP is working with the USFWS to identify potential conservation and mitigation measures.
- *Wetlands and Floodplains:* The selected alternative would be designed to avoid and minimize impacts on wetlands and floodplain resources to the maximum extent practicable.

- *Cultural and Historic Resources:* The selected alternative would be designed to minimize impacts on cultural and historic resources to the maximum extent practicable. USBP will coordinate with the State Historic Preservation Officer (SHPO) to identify potential conservation and mitigation measures.
- *Suitable Landscape:* Some areas of the border have steep topography, have highly erodible soils, are in a floodway, or have other characteristics that could compromise the integrity of fence or other TI. For example, in areas susceptible to flash flooding, fence and other TI might be prone to erosion that could undermine the fence's integrity. Areas with suitable landscape conditions would be prioritized.

2.2 ALTERNATIVES ANALYSIS

CBP evaluated a range of possible alternatives to be considered for the Proposed Action Alternative. During the early planning staging and public involvement process described in Section 1.5, the following potential alternatives were proposed: (1) stronger enforcement and harsher penalties for employers that hire illegal immigrants, (2) additional USBP agents in lieu of primary pedestrian fence, and (3) manned towers and electronic surveillance in lieu of primary pedestrian fence. Alternative fence designs were also proposed to make the fence taller, wider, or more impenetrable.

The following sections describe the alternative analysis for this Proposed Action Alternative. Sections 2.2.1 through 2.2.8 describe alternatives considered but eliminated from further detailed analysis. Sections 2.2.9 and 2.2.10 provide specific details of the Proposed Action Alternative and the Floating Foundation Fence Alternative, both of which will be carried forward for analysis. Section 2.2.11 presents the No Action Alternative. Section 2.3 is the identification of the preferred alternative.

2.2.1 Stronger Enforcement and Harsher Penalties for Employers That Hire Illegal Immigrants

Public comments that have been submitted regarding other TI projects have encouraged CBP to consider stronger enforcement of current immigration laws and harsher penalties for employers that hire illegal immigrants. This alternative was not studied in detail primarily because it would not meet the USBP El Paso Sector's

purpose and need and the screening criteria established for viable alternatives. The Proposed Action Alternative is needed to provide USBP agents with the tools necessary to strengthen their control of the U.S. border between POEs in the USBP El Paso Sector. USBP enforces current laws to the maximum extent practical. The alternative of stronger enforcement and harsher penalties would not prevent terrorists and terrorist weapons from entering the U.S., reduce the flow of illegal drugs, provide a safer work environment for USBP agents, or meet the USBP operational screening criteria of hindering or delaying individuals crossing the border illegally. For these reasons, this alternative is not a practical alternative to the construction of TI in the USBP El Paso Sector and will not be carried forward for detailed analysis.

2.2.2 Additional USBP Agents in Lieu of Tactical Infrastructure

CBP considered the alternative of increasing the number of USBP agents assigned to the U.S.-Mexico border as a means of gaining more effective control of the U.S.-Mexico border. Under this alternative, USBP would hire and deploy a significantly larger number of agents than are currently deployed along the U.S.-Mexico border and increase patrols to apprehend cross-border violators. USBP would deploy additional agents as determined by operational needs. Patrols might include the use of 4-wheel drive vehicles, all-terrain vehicles, helicopters, or fixed-wing aircraft. Currently, USBP maintains an aggressive hiring program and a cadre of well-trained agents.

This alternative was determined not to meet the screening criteria of USBP operational requirements. The physical presence of an increased number of agents could provide an enhanced level of deterrence against illegal entry into the U.S., but the use of additional agents alone, in lieu of the proposed TI, would not provide a practical solution to achieving the level of effective control of the border necessary in the USBP El Paso Sector. The use of physical barriers has been demonstrated to slow cross-border violators and provide USBP agents with additional time to make apprehensions (USACE 1994). Additionally, as TI is built, agents could be more effectively redeployed to secure other areas.

A Congressional Research Service (CRS) report concluded that USBP border security initiatives such as the 1994 San Diego Sector's "Operation Gatekeeper" or El Paso Sector's Operation "Hold the Line" required a 150 percent increase in USBP manpower, lighting, and other equipment. The report states that "It soon became apparent to immigration officials and lawmakers that USBP needed, among other things, a 'rigid' enforcement system that could integrate infrastructure (i.e., multi-tiered fence and roads), manpower, and new technologies to further control the border region" (CRS 2006).

Increased numbers of patrol agents would aid in interdiction activities, but not to the extent anticipated by the construction of primary pedestrian fence and other TI along sections within the El Paso Sector area of operations (AO). As such, this alternative is not practical in the USBP El Paso Sector and will not be carried forward for further detailed analysis.

2.2.3 Technology in Lieu of Tactical Infrastructure

CBP does and would continue to use various forms of technology to identify cross-border violators. The use of technology is a critical component of USBP efforts to maintain control of the U.S.-Mexico border in certain areas, and an effective force multiplier that allows USBP to monitor large areas and deploy agents to where they would be most effective and to apprehend cross-border violators. However, due to the large urban areas in Mexico along the U.S.-Mexico border in the USBP El Paso Sector, physical barriers represent the most effective means to control illegal entry into the U.S. The use of technology alone would not provide a practical solution to achieving the level of effective control of the U.S.-Mexico border necessary in the USBP El Paso Sector. Current USBP El Paso Sector operations include the use of technology to identify cross-border violations and deploying agents to make apprehensions. This alternative would not meet the purpose and need for increased safety for USBP agents and physical barriers to cross-border violators as described in Section 1.3, and will not be carried forward for further detailed analysis.

2.2.4 Fence and Light Placement on the Flood Side of the USIBWC Levee

Placement of the primary pedestrian fence along the toe of the south side (flood side) of the USIBWC levee was considered, but eliminated from further consideration for the following reasons:

- USIBWC determined that placement of the fence within the floodplain of the Rio Grande would interfere with flood water flows and would trap debris during high water stages.
- USIBWC is planning to raise the height of the levee in the future and, due to space constraints on the north side (protected side) of the levee, any expansion of the levee footprint during the elevation of the levee would have to occur on the south side; therefore, the fence placement on the south side of the levee would interfere with those efforts.

Because implementation of this alternative would conflict with flood control programs and planned improvements under the control of the property owner (USIBWC), it was eliminated from further consideration.

2.2.5 Conventional Fence Placement at the Top of the USIBWC Levee

Placement of the primary pedestrian fence along the crest of the USIBWC levee with a conventional foundation was considered, but was eliminated from further consideration. The installation of the fence on the crest of the USIBWC levee would require boring and filling within the levee structure, and USIBWC determined that the levee structure might be weakened by those activities. The potential weakening would result in an increased possibility of levee failure during flood events in the Rio Grande. Due to these increased risks of levee failure, and the consequent environmental and socioeconomic damages that could result, this alternative was eliminated from further consideration.

2.2.6 Installation of Primary Pedestrian Fence Only Without Lights

Installation of primary pedestrian fence only along the project corridor would have an effect of delaying and deterring IA traffic along the project corridor. However, it would not provide increased visibility for USBP agents during nighttime periods when most IA activity occurs, and it would not provide increased safety for USBP agents operating after dark in the area. Because this alternative does not meet the USBP agent safety

requirements, as stated in the purpose and need of the project, it was eliminated from further consideration.

2.2.7 Installation of Lights Only Without the Primary Pedestrian Fence

Installation of permanent lights along the project corridor would increase the visibility for USBP agents during hours of darkness, and would provide some benefit by providing an increased level of safety for USBP agents by allowing them to see IAs and drug smugglers in the illuminated areas. However, it would not provide much benefit for the enhanced apprehension of IAs crossing the project corridor, since there would be no physical barrier to prevent or delay IA movement sufficient to allow USBP agents to apprehend them more efficiently. This alternative also does not meet the requirements of recent Federal legislation. Because this alternative does not meet the purpose and need of the project, it was eliminated from further consideration.

2.2.8 Secure Fence Act Alternative

The Secure Fence Act (SFA) of 2006 (P.L. 109-367) authorized USBP to construct at least two layers of reinforced fencing along the U.S.-Mexico international border. Under the SFA Alternative, two layers of fence, known as primary and secondary fence, would be constructed approximately 130 feet apart along the same route as the Proposed Action Alternative. Due to the close proximity of the USIBWC levee, the irrigation canals and the public roads located adjacent to the canals on the north side, it would not be feasible to construct two layers of fencing as authorized by the SFA without interfering with operation of the irrigation canals, restricting floodwater conveyance with the Rio Grande floodplain, or restricting access to public roads. Therefore, this alternative was eliminated from further consideration.

2.2.9 Proposed Action Alternative

A primary pedestrian fence (Photograph 2-1) would be installed for approximately 56.7 miles on the north (protected) side of the USIBWC levee, from a point 0.9 mile west of Ascarate Park in El Paso to a point 2.8 miles east of the Fort Hancock POE (Figure 2-1). Existing chain link fence would be replaced with primary pedestrian fence for the portion of the project length identified as K-2A (see Figures 2-1a through 2-1d). Installation would require excavation and ground disturbance to install the fence. The fence would be constructed with a conventional concrete foundation along the entire length of the project. Fence designs that would be installed in this area are included in Appendix C. Based upon performance specifications established at the time of construction, fence placement would be similar to the design shown in Figure 1-2. Gates would be installed in the fence at canal bridge locations and at set intervals for emergency rescues within the canal and the Rio Grande for ingress/egress of USBP agents and USIBWC personnel. USBP would be responsible for maintenance of the fence.

Photograph 2-1: Typical primary pedestrian fence

Preliminary design performance measures dictate that the fence must:

- extend 15 to 18 feet above ground and 3 to 6 feet below ground;
- be capable of withstanding an impact from a 10,000-pound gross weight vehicle traveling at 40 miles per hour (mph);
- be resistant to vandalism, cutting, or penetrating;
- be semi-transparent, as dictated by operational need;
- be designed to survive extreme climate changes of a desert environment;
- not impede the natural flow of water.

Lights would be installed within the project corridor for a distance of approximately 21 miles along the USIBWC levee from the end of the Phase II Project, as described in the

June 1999 EA (INS 1999), near the City of El Paso water treatment plant at Rio Bosque to a point 1 mile east of the Fabens POE. The light standards would be steel poles approximately 45 feet high and installed at the south toe (flood side) of the USIBWC levee, within the floodplain. Transformers would be placed on the ground near the top of the levee on the south side, and six metal bollards, approximately 4 feet high, would be installed for protection (Photograph 2-2). El Paso Electric (EPE) would install the poles, lights, and transformers. Sections of the lights would be fitted with a switch so that lights could be turned off during Ysleta del Sur Pueblo Tribal ceremonies. The lights and fence for Phase II were described in a MOA with USIBWC, and a similar MOA would be executed between USBP and USIBWC for the proposed fence and lighting included in the Proposed Action Alternative.

Photograph 2-2. Typical light standard and transformer installation

The lights would be dual 1000 watt high pressure sodium (HPS) or metal halide lights installed at 150-foot intervals and directed toward the river. The power lines would be underground with the possible exception of any lateral feeds from the local grid. The locations of these lateral feeds are not known at present. EPE would be responsible for installing the power lines and connections to the existing grid, and for the maintenance of the lights and light standards.

In addition, approximately 2 miles of road improvements would be constructed on levee/ditch bank roads that are owned by the EPCWID1 and others. The roads are currently dirt roads, and become impassable during inclement weather. The roads are integral access points and patrol roads for USBP near the center of the project corridor. The proposed improvements would entail grading/leveling and application of an all-

weather aggregate surface. USBP would be responsible for maintenance of the all-weather surface on the roads once the improvements are made.

Up to eight bridges would be installed over the EPCWID1 and HCCRD1 irrigation canals at locations shown in Figures 2-1a through 2-1p. These bridges would be designed to extend across the canal with no structures or pilings within the canal, and would not require substantial ground disturbance. Some locations for the new bridges are the sites of previous canal bridges, which have been destroyed or removed for various reasons. The bridges would provide additional access points to the USIBWC levee and Rio Grande floodplain, and enhance the response time of USBP agents, thus increasing the apprehension rate for IAs in the area and providing enhanced response time for IA rescue in the Rio Grande floodplain during times of high water, when many IAs attempt to cross the river.

Photograph 2-3. Typical floodplain between the levee and the Rio Grande

As part of the construction efforts for the fence and lights installation, temporary turnarounds and staging areas would be used approximately every mile along the project corridor between the USIBWC levee and the Rio Grande (Photograph 2-3). Approximately 40 10,000 square foot staging areas would be located adjacent to the flood side of the levee on previously disturbed sites, as much as possible. Additional staging areas would be located north of the levee on private lands for the purpose of staging equipment and maintenance activities. An approximately 2-acre staging area would be temporarily disturbed at the south end of each bridge location. Figures 2-1a through 2-1p show the location of the proposed project components on topographic maps of the project corridor. The project corridor is divided into sections, designated K-2A through K-5, to designate contract and construction sections.

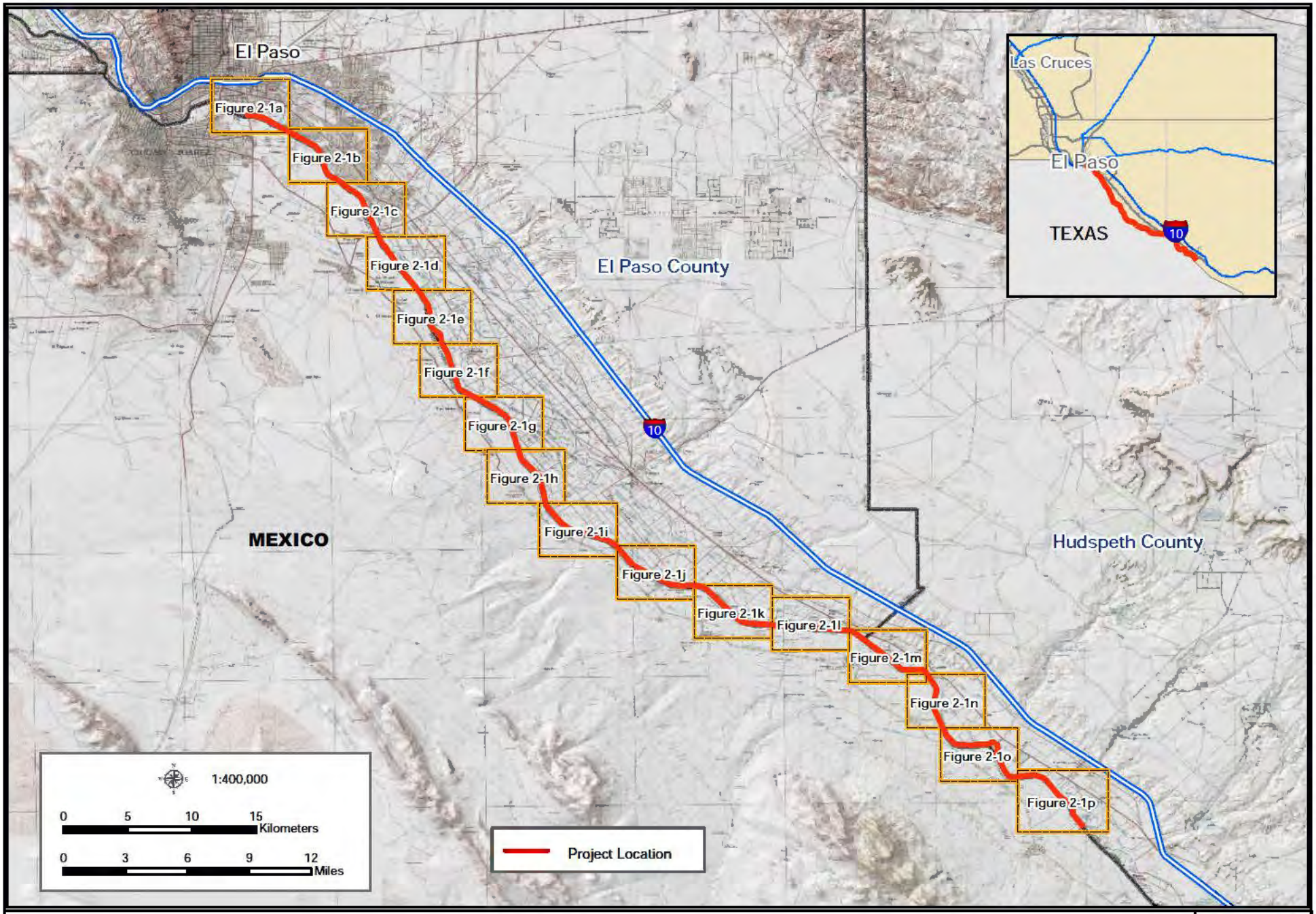

Figure 2-1: Project Area Index Map

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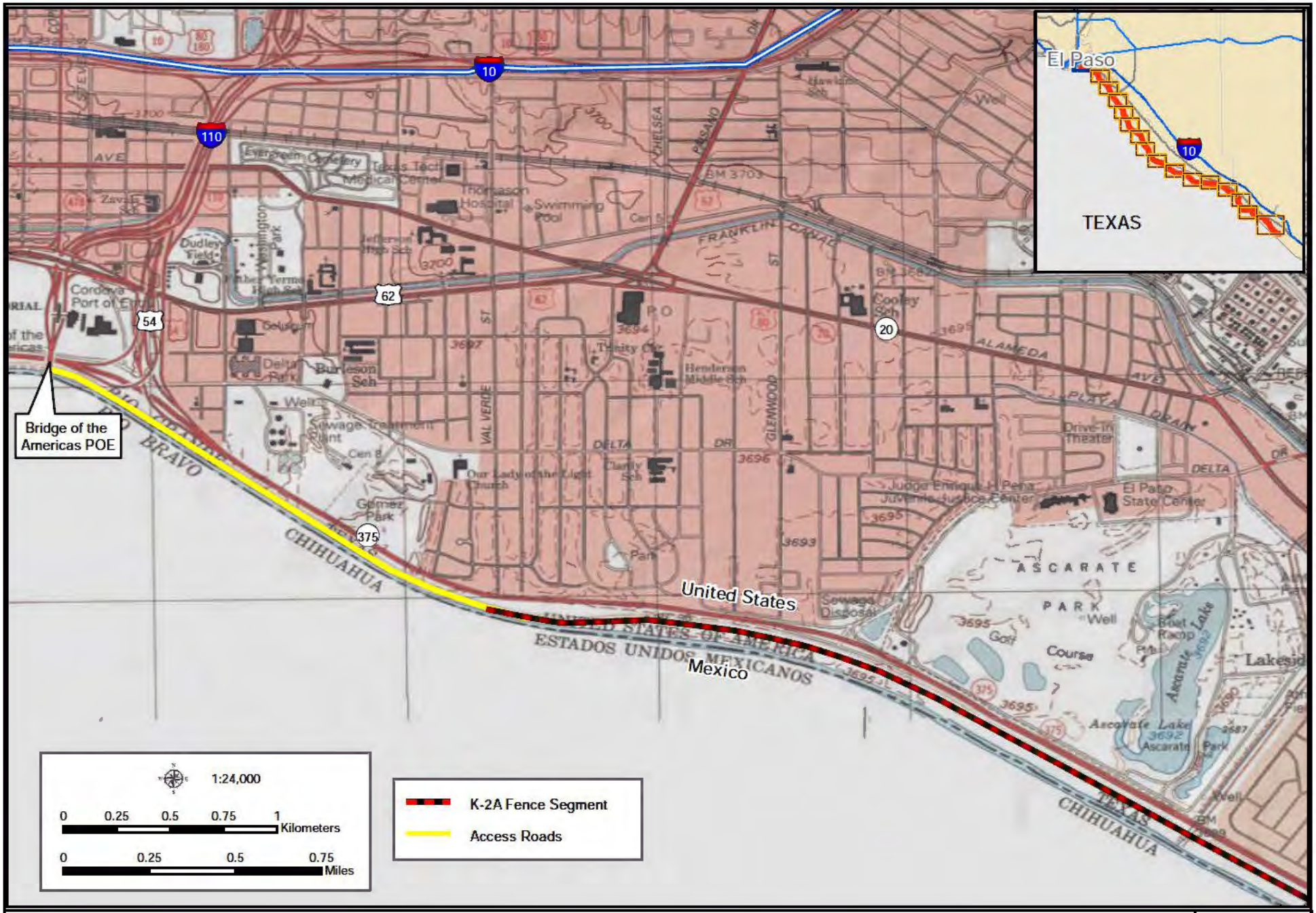

Figure 2-1a: Project Area Map

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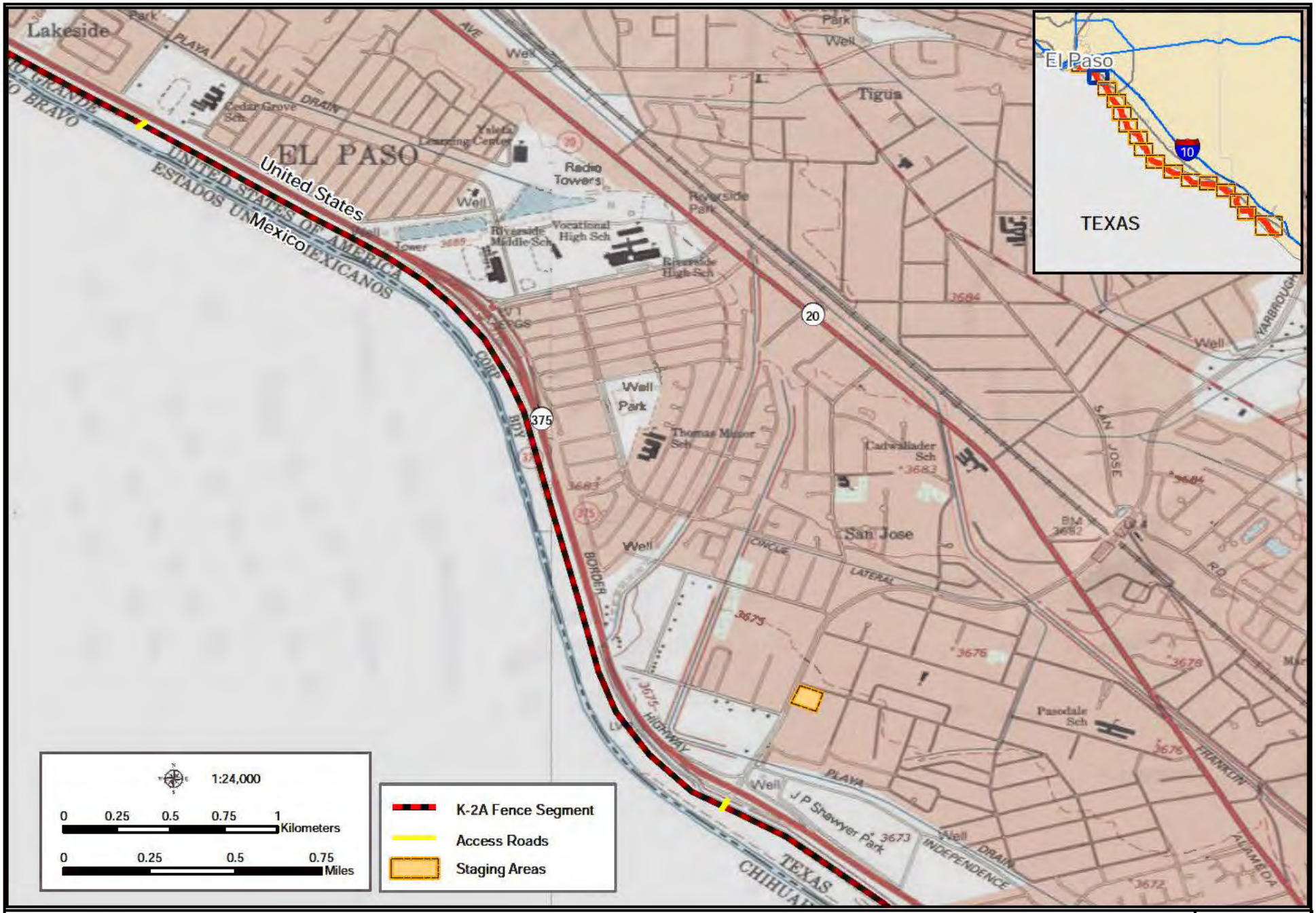

Figure 2-1b: Project Area Map

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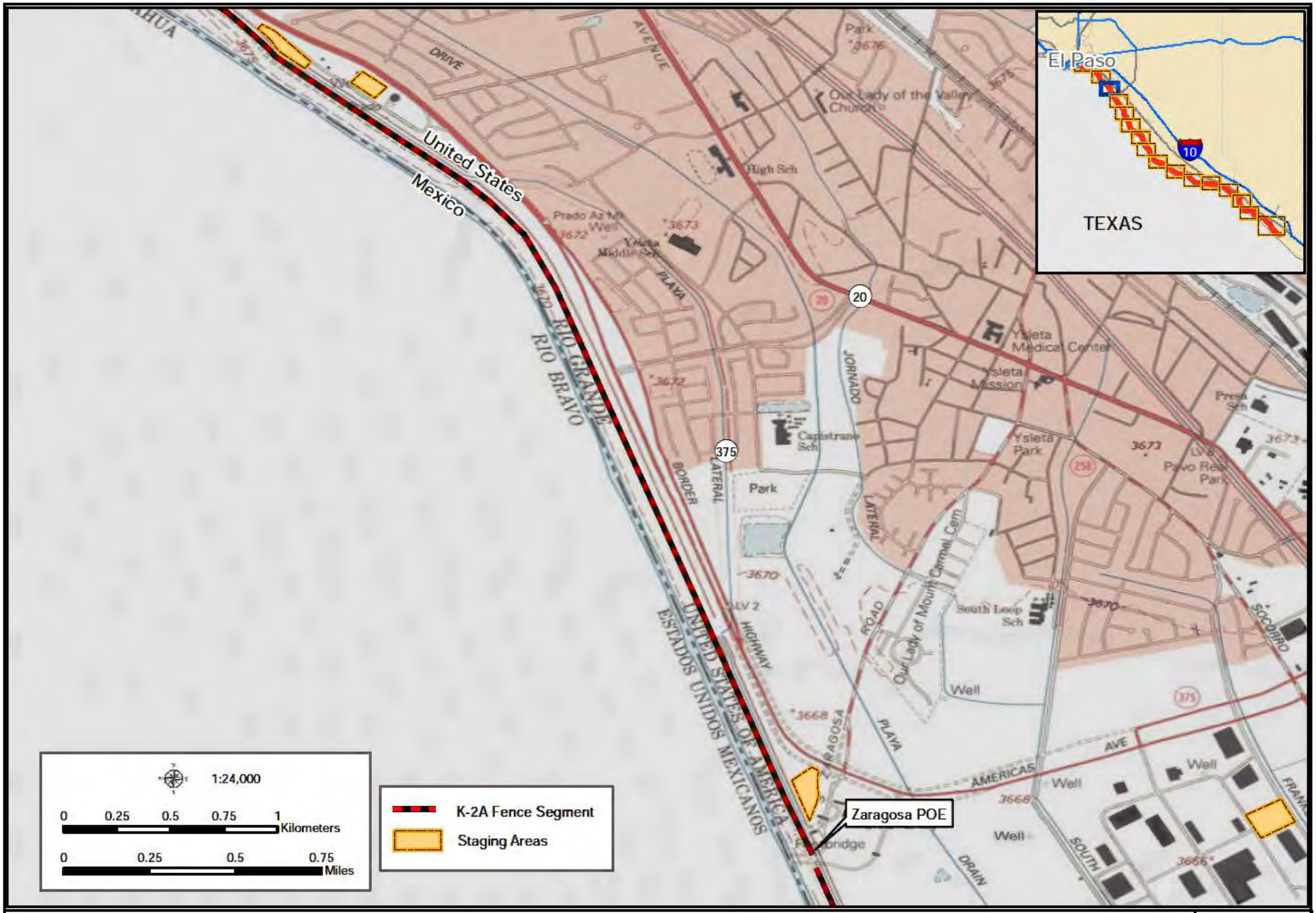

Figure 2-1c: Project Area Map

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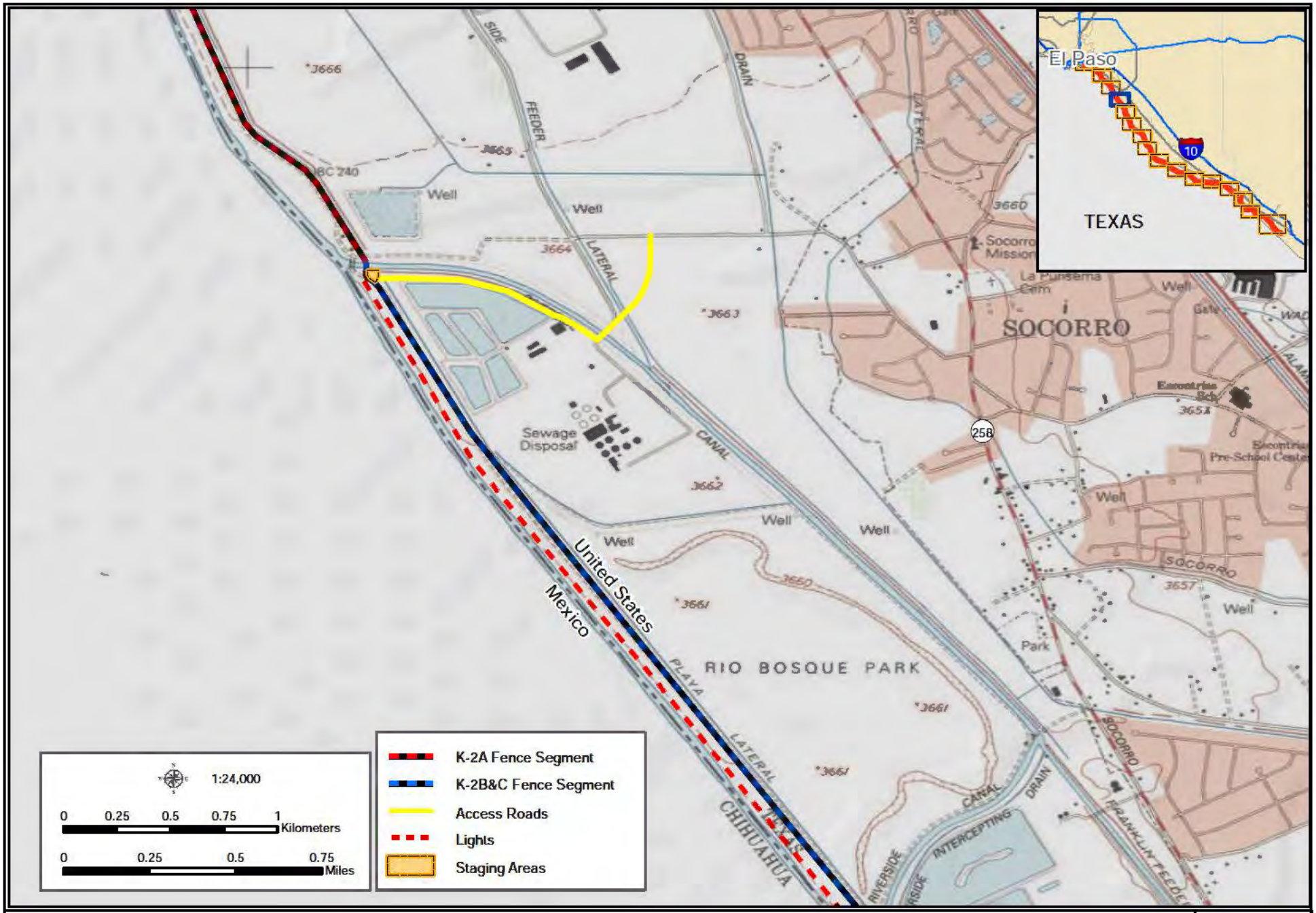

Figure 2-1d: Project Area Map

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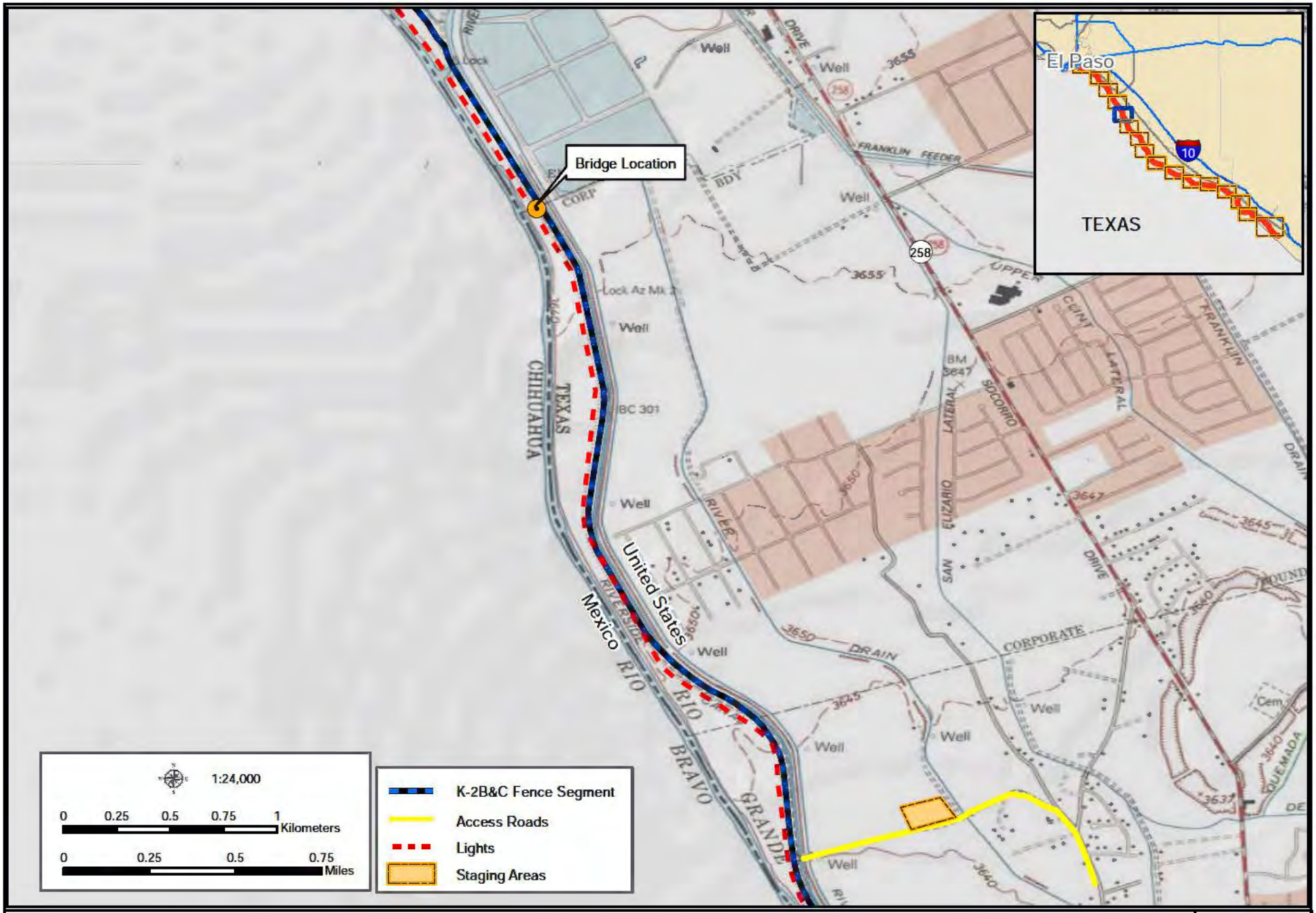

Figure 2-1e: Project Area Map

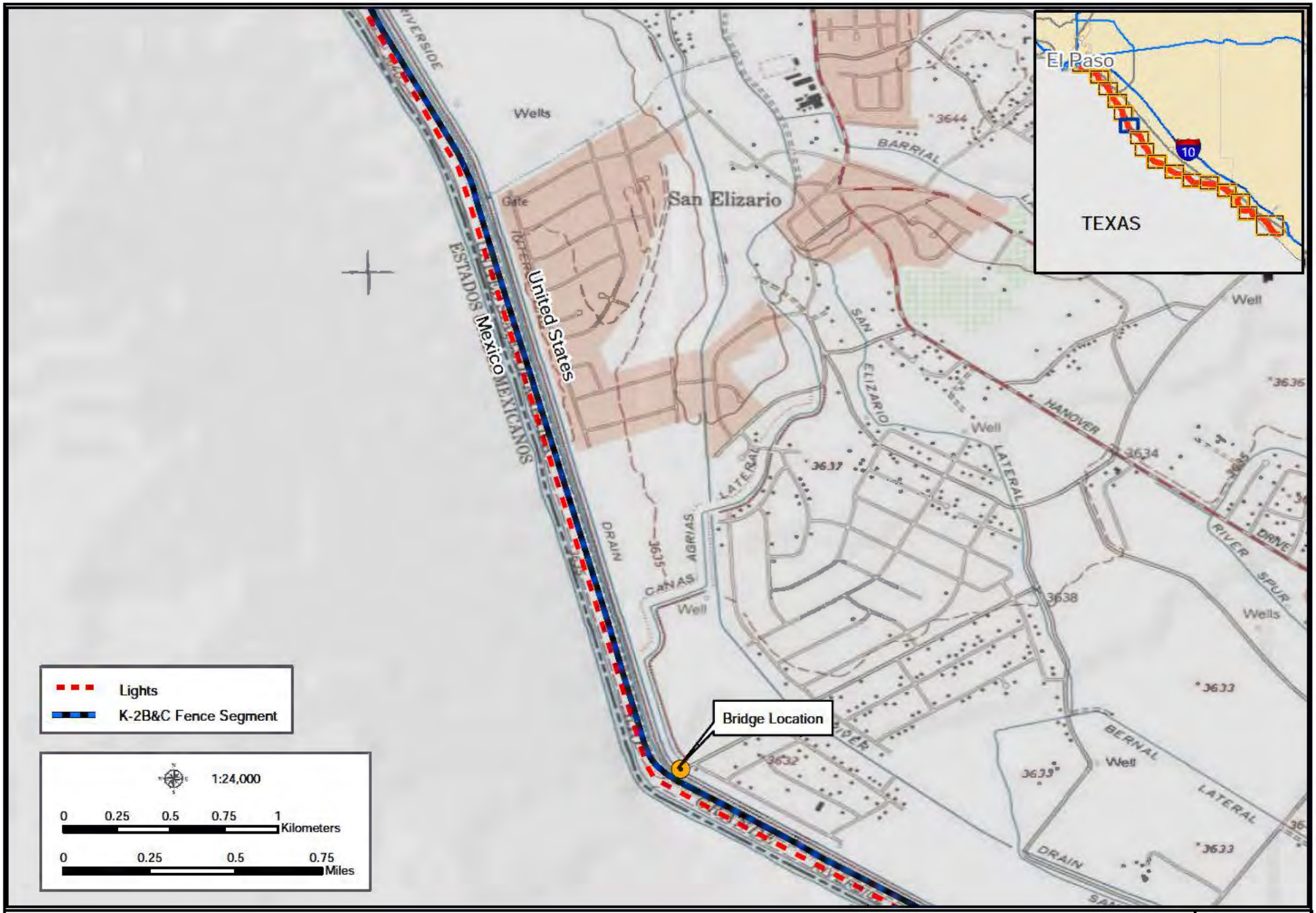

Figure 2-1f: Project Area Map

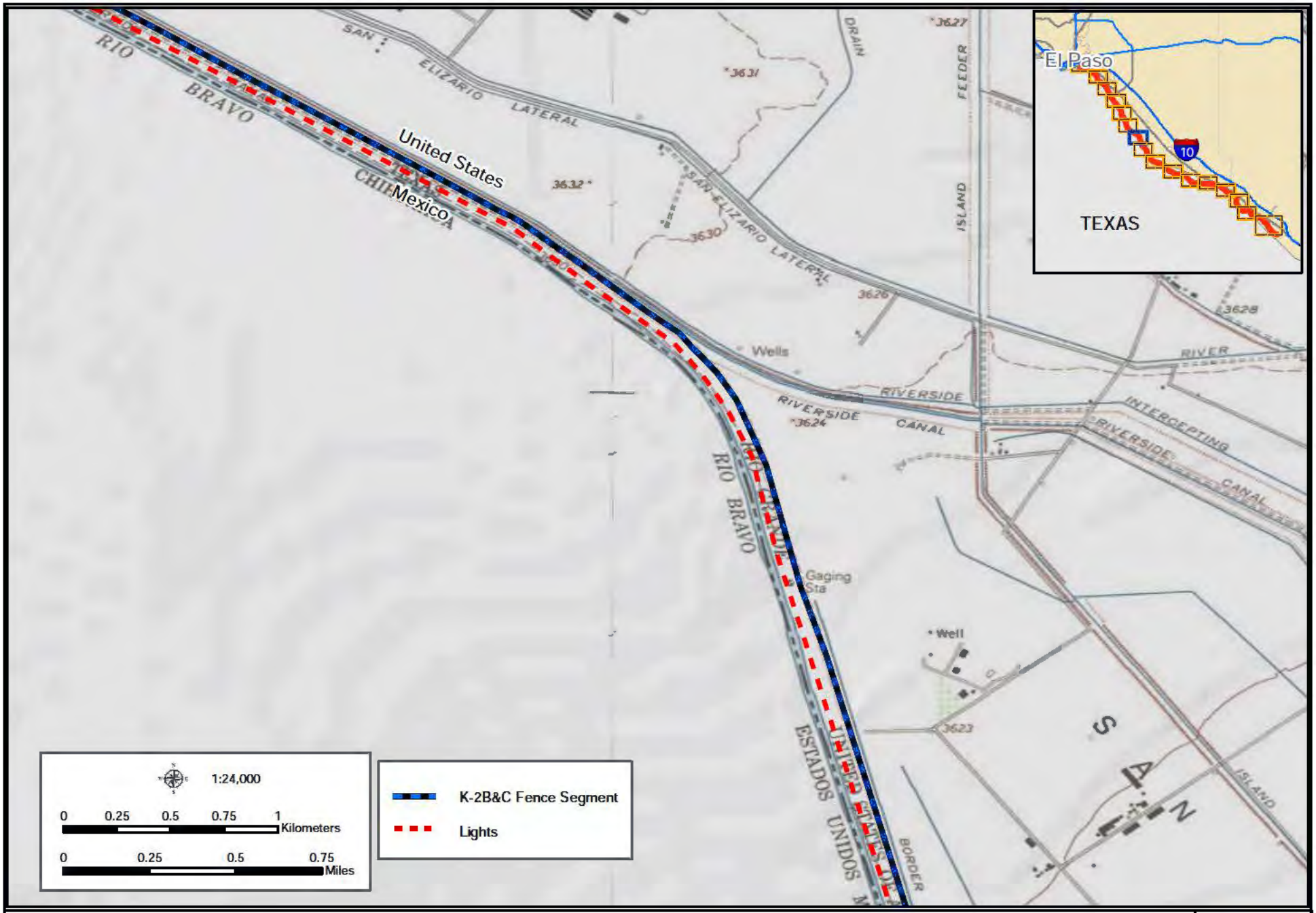

Figure 2-1g: Project Area Map

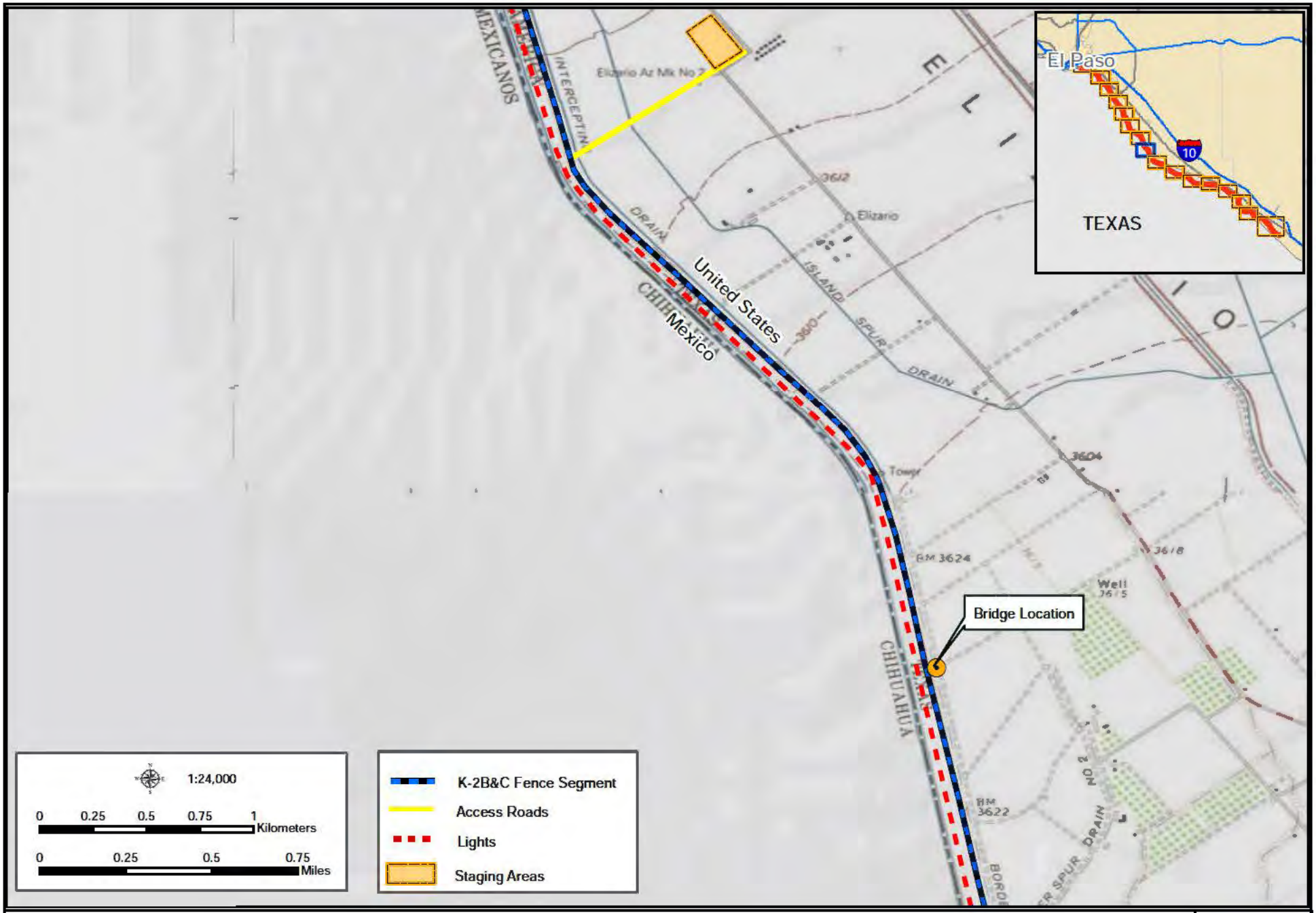

Figure 2-1h: Project Area Map

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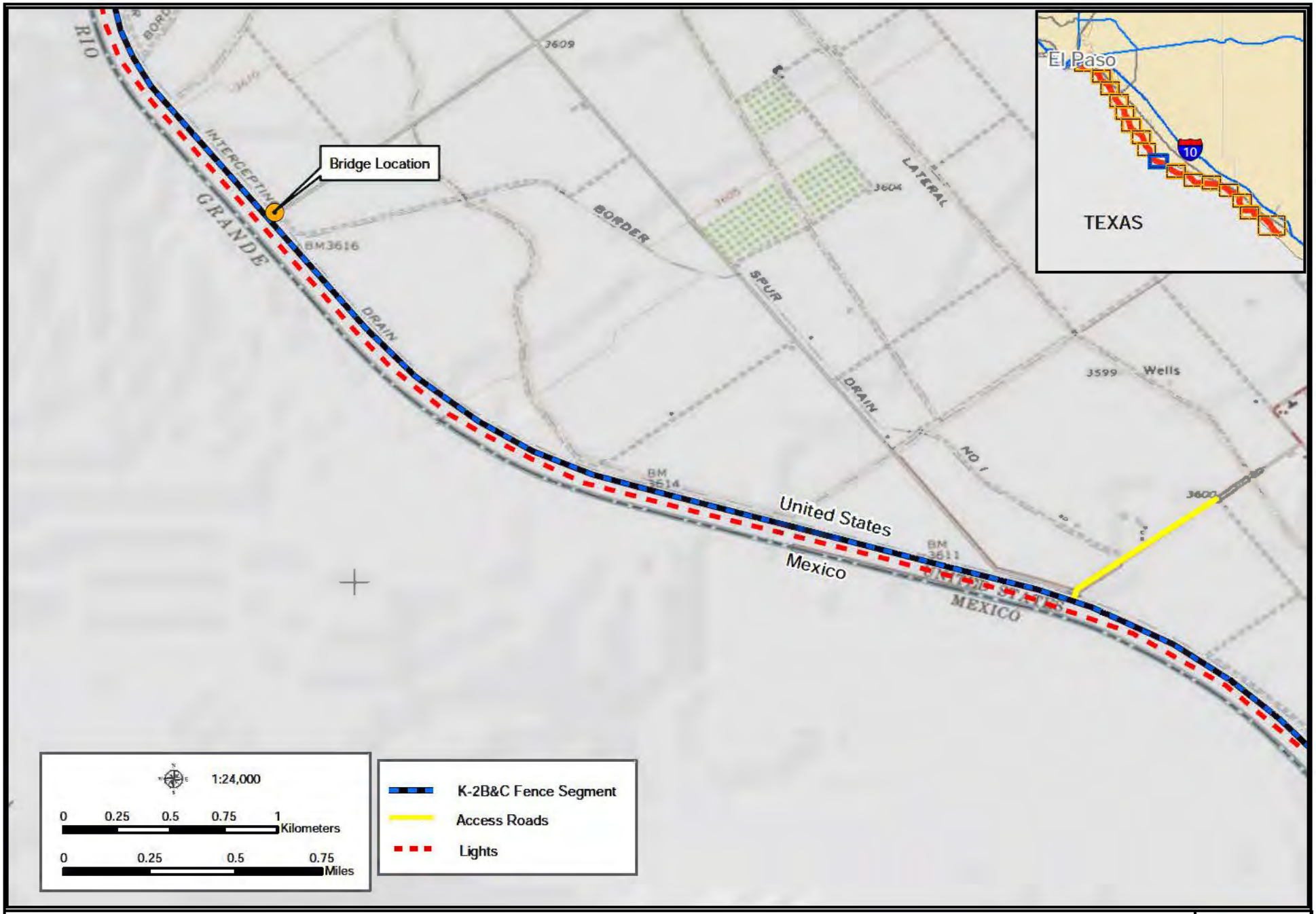

Figure 2-1i: Project Area Map

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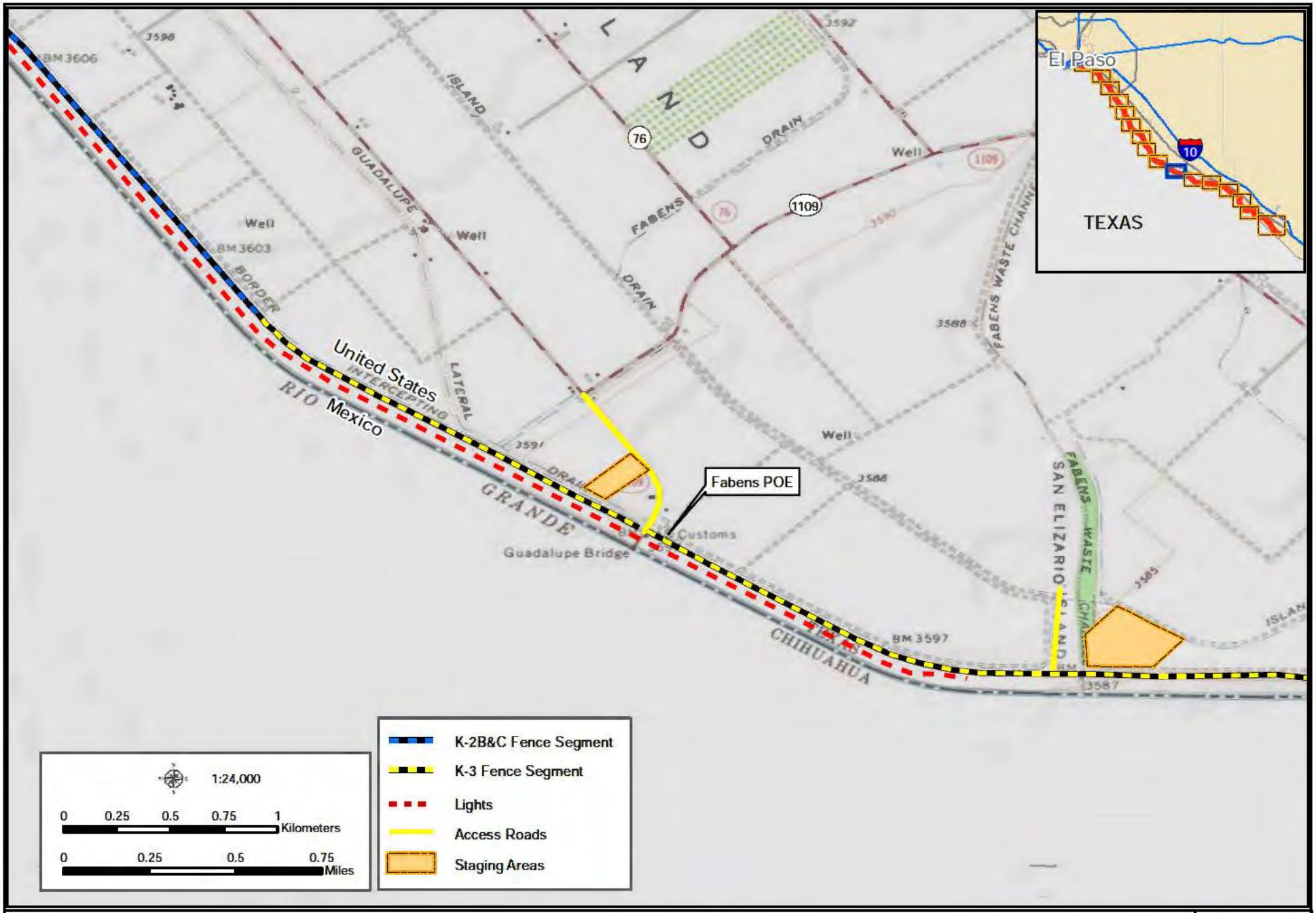

Figure 2-1j: Project Area Map

Figure 2-1k: Project Area Map

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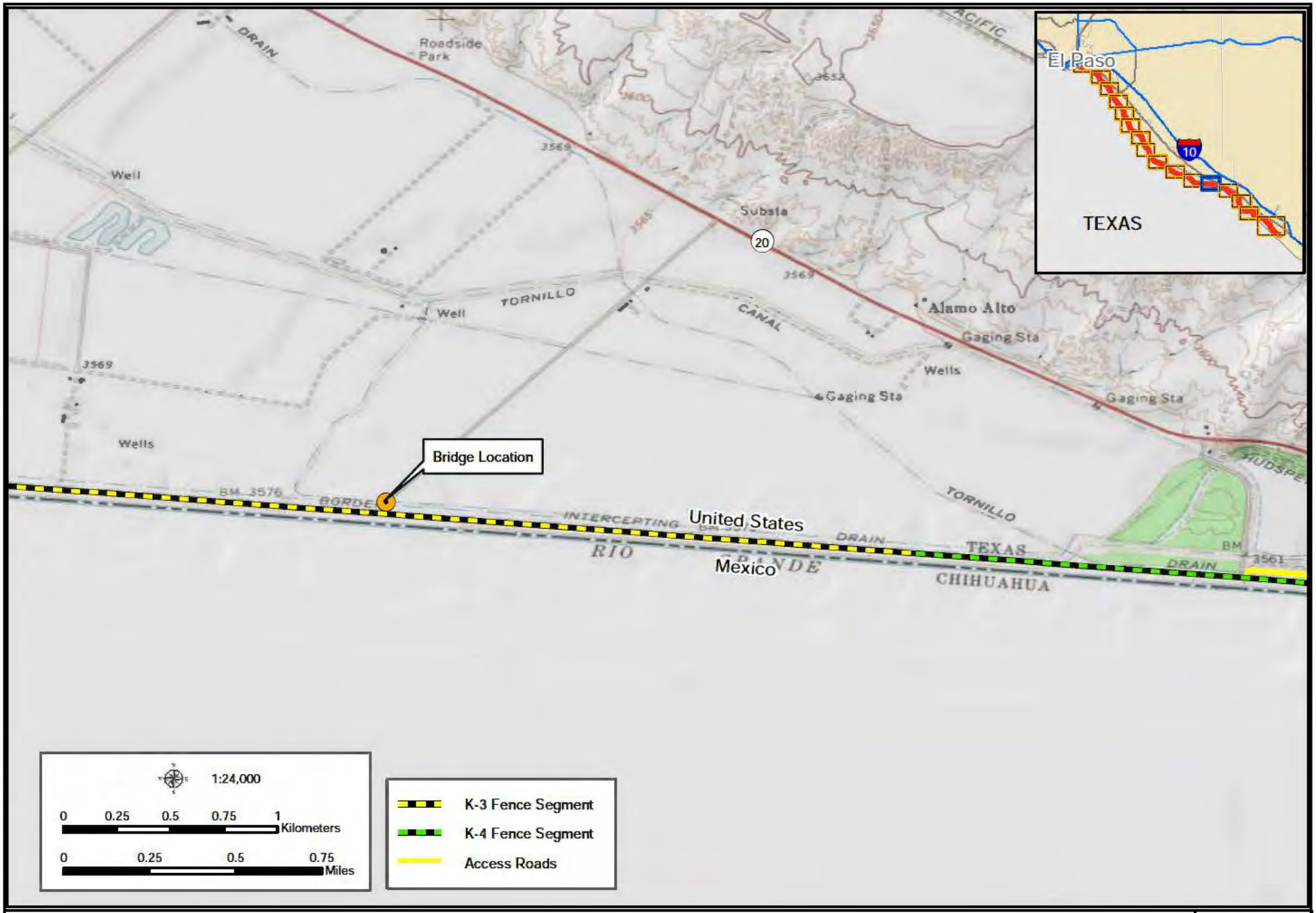

Figure 2-1l: Project Area Map

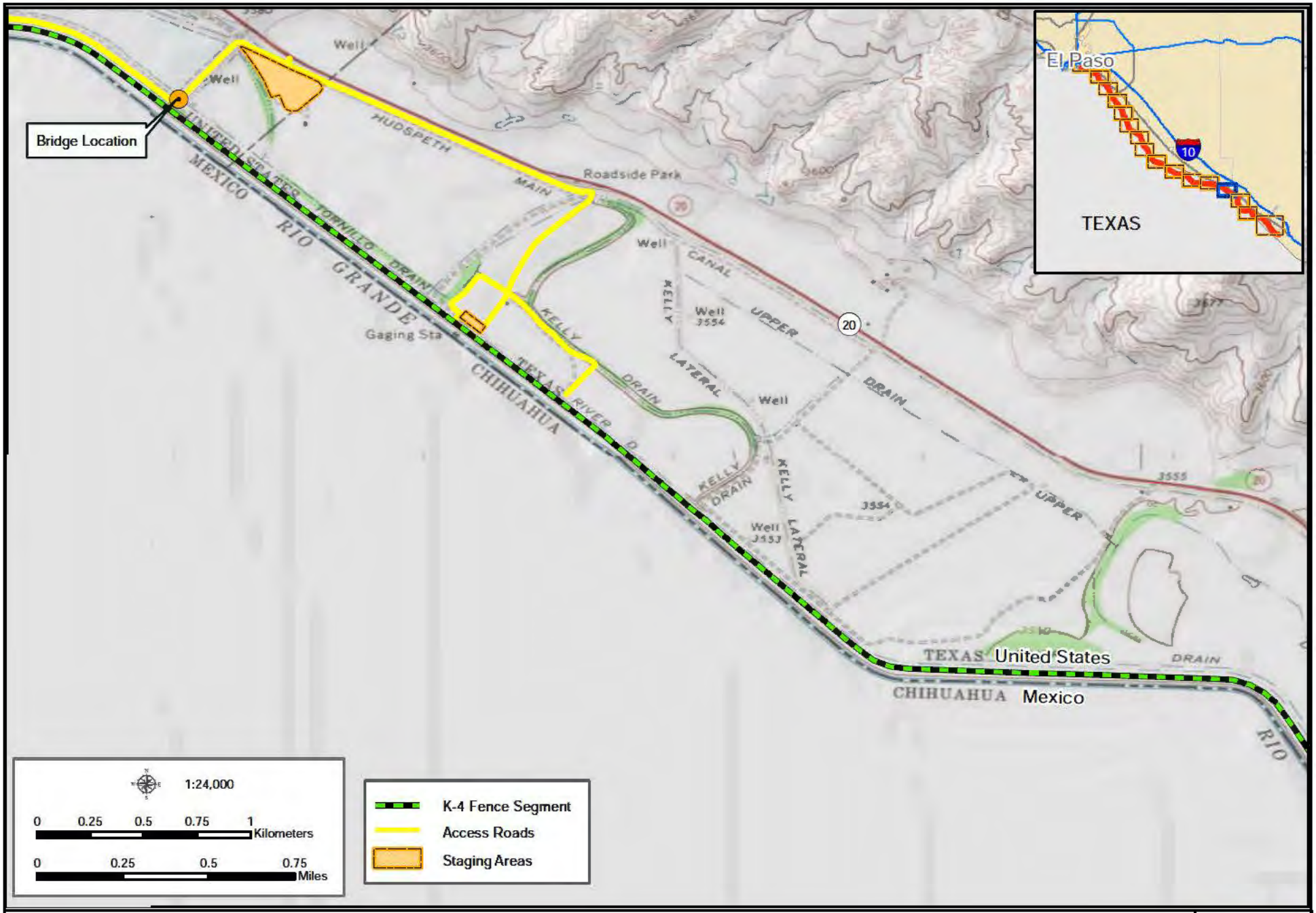

Figure 2-1m: Project Area Map

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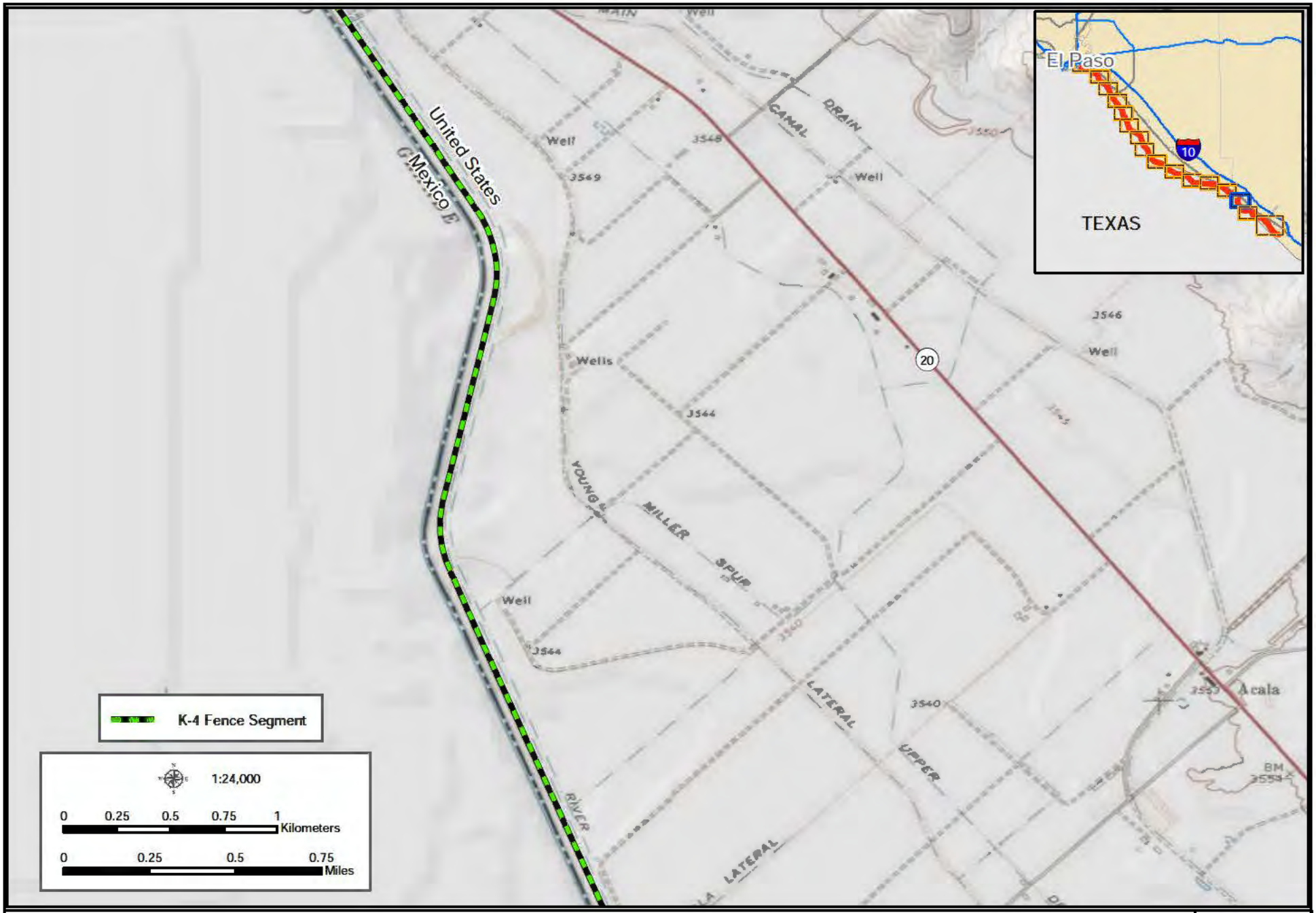

Figure 2-1n: Project Area Map

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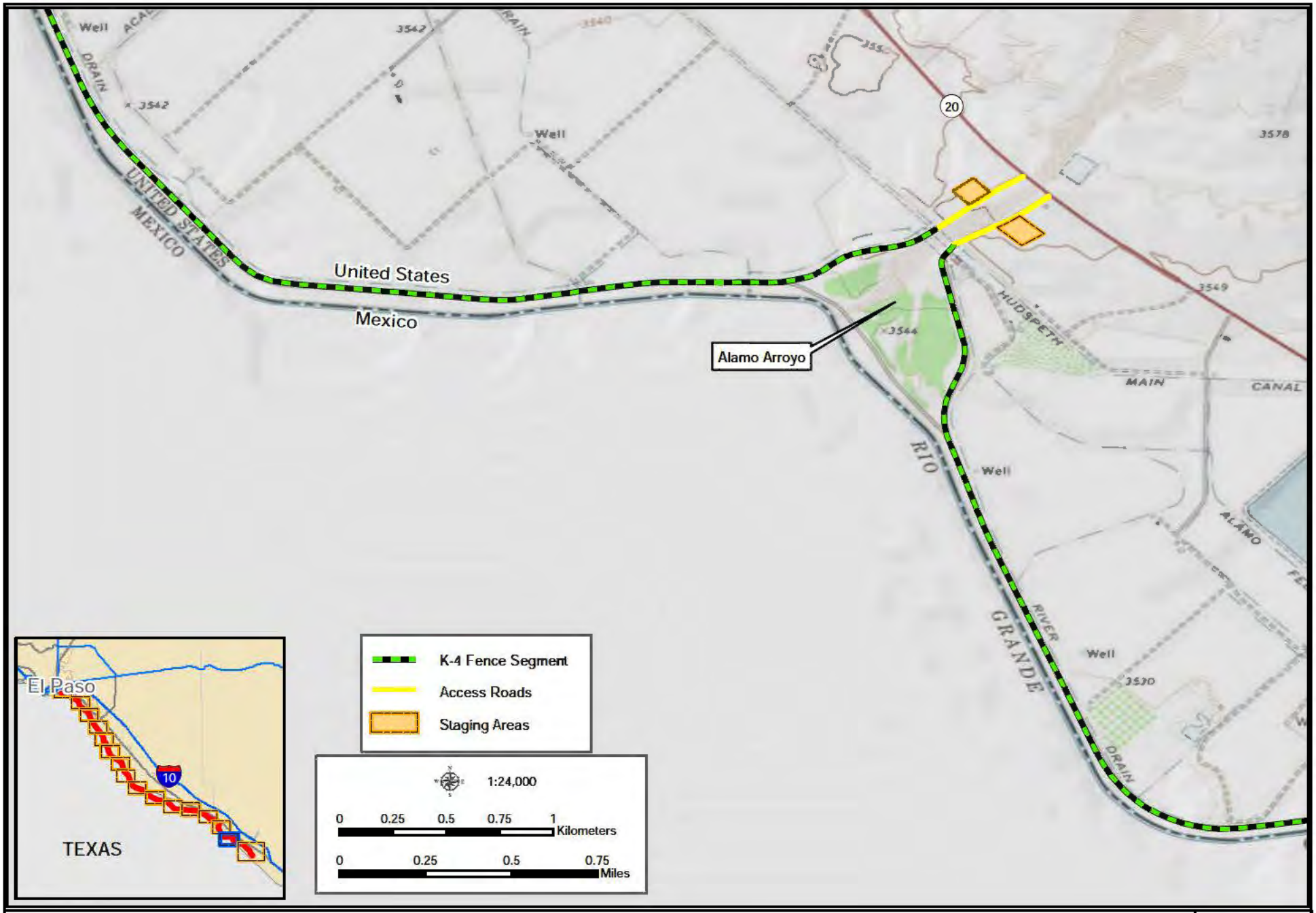

Figure 2-1o: Project Area Map

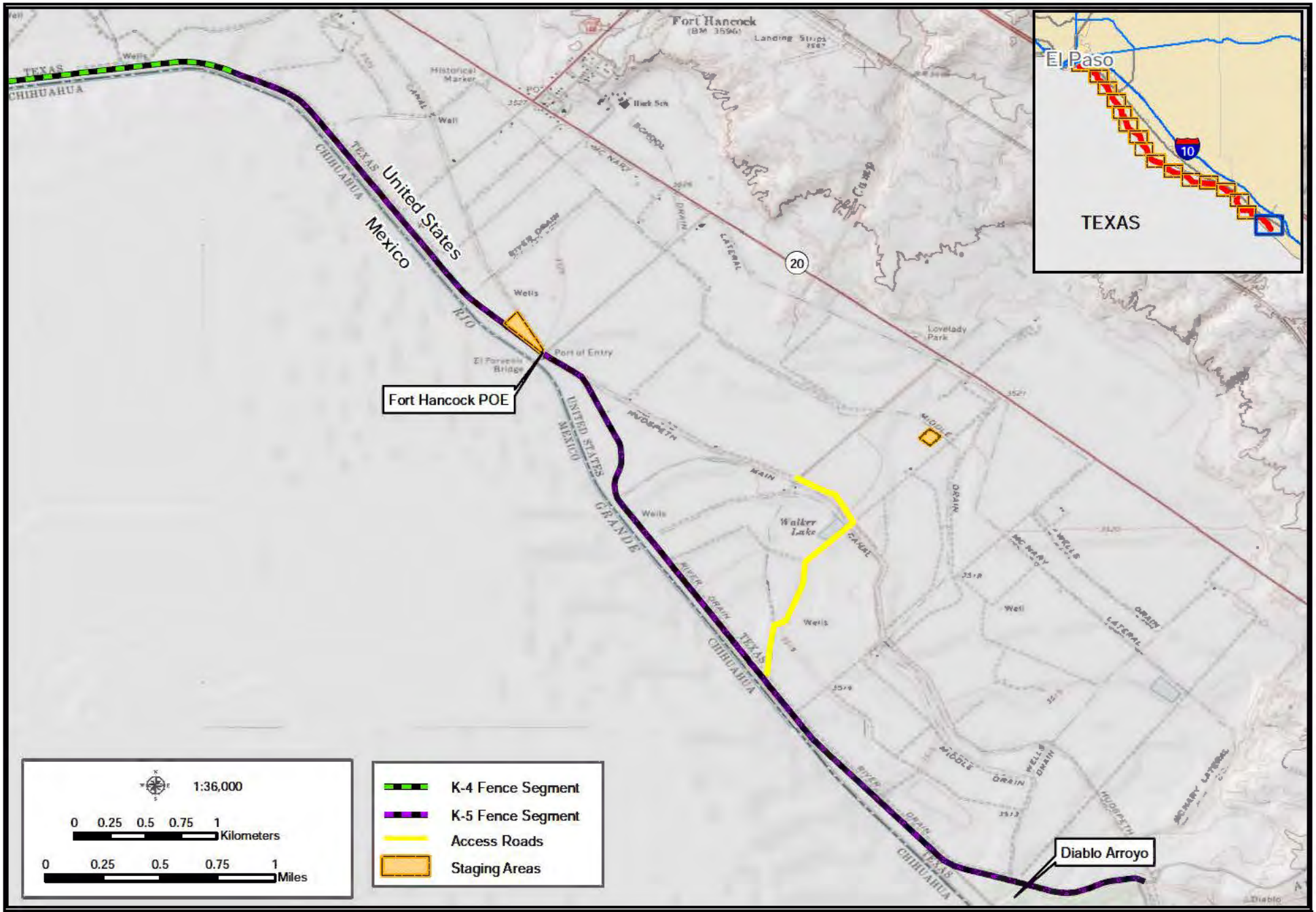

Figure 2-1p: Project Area Map

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Table 2-1, below, presents the general locations and lengths of each section of the proposed fence.

Table 2-1. Proposed Fence Segments for USBP El Paso Sector

Map Number	Border Patrol Station	General Location	Land Ownership	Length (mi) of Fence Segment
K-2A	El Paso	El Paso, west of Ascarate Park to Rio Bosque	USIBWC	9.6
K-2B&C	Ysleta/Fabens	Rio Bosque to 1 mile west of Fabens POE	USIBWC	19.42
K-3	Fabens	1 mile west of Fabens POE to 8.2 miles east of Fabens POE	USIBWC	9.02
K-4	Fabens/Fort Hancock	8.2 miles east of Fabens POE to 1.5 miles west of Ft. Hancock POE	USIBWC	13.48
K-5	Fort Hancock	1.5 miles west of Ft. Hancock POE to 2.8 miles east of Ft. Hancock POE	USIBWC	5.21
Total				56.73

2.2.10 Floating Foundation Fence Alternative

This alternative would install a fence constructed to the same performance specifications as the Proposed Action Alternative. The fence would be pre-fabricated in modular sections off-site, and would be transported in sections to the work site, and placed and secured along the top of the levee with no ground disturbance other than leveling the surface for placement. A road parallel to the fence would be cast into each modular foundation segment, and would be integral to the design. The lights, bridges and road improvements would occur as described in the Proposed Action Alternative. A schematic diagram of the Floating Foundation Fence Alternative design is shown in Figure 1-3. The included hard surface road may limit use of some USIBWC equipment and may limit vehicle ingress and egress from the road due to its location on top of the levee. USBP might need to implement this alternative at some point in the future, in the event an agreement between USIBWC, EPCWID1, HCCRD1 and CBP cannot be reached in a timely fashion for the construction of the Proposed Action Alternative. Thus, it is carried forward as a viable action alternative. The Floating Foundation Fence Alternative could also be used interchangeably with the Proposed Action, as necessary, in any section of the project corridor.

2.2.11 No Action Alternative

CEQ regulations require inclusion of the No Action Alternative. Under the No Action Alternative, the lights, fence, bridges and road improvements would not be constructed. Implementation of the No Action Alternative would not meet the USBP mission or operational needs. The No Action Alternative will serve as a baseline against which the impacts of the other action alternatives can be evaluated.

2.3 IDENTIFICATION OF THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

CEQ's implementing regulation 40 CFR 1502.14(c) instructs NEPA preparers to "Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference." USBP has identified its Preferred Alternative as the Proposed Action Alternative. Throughout the remainder of this EA, Preferred Alternative and Proposed Action Alternative are synonymous.

Implementation of Proposed Action Alternative would meet USBP's purpose and need described in Section 1.2. The No Action Alternative would not meet USBP's purpose and need. The Floating Foundation Fence Alternative would meet USBP's purpose and need, but would have greater operational issues for both USIBWC and USBP compared to the Proposed Action Alternative. As indicated above, the Floating Foundation Fence Alternative design could also be used for discrete sections of the project corridor, in lieu of the Proposed Action Alternative design.

2.4 SUMMARY

Table 2-2 provides a matrix of alternatives analyzed and their relationship with the purpose and need for the project. Table 2-3 summarizes the potential impacts to environmental resources for the Proposed Action Alternative, Floating Foundation Fence Alternative and the No Action Alternative.

Table 2-2. Alternatives Matrix

Purpose and Need	No Action Alternative	Proposed Action Alternative	Floating Foundation Fence Alternative
To comply with the Federal legislation.	O	●	●
To provide USBP agents with the tools necessary to prevent terrorists and terrorist weapons from entering the U.S.	O	●	●
To provide a safer work environment for USBP agents.	O	●	●
To enhance the response time of USBP agents and to reduce the flow of illegal drugs.	O	●	●

Legend: O NO ● YES

Table 2-3. Summary of Effects for the Proposed Action Alternative and Other Alternatives

Impacted Resource	No Action Alternative	Proposed Action Alternative	Floating Foundation Fence Alternative
Land Use	No adverse effects	There would be no change in land use, and no adverse effects.	There would be no change in land use, and no adverse effects.
Water Resources	No adverse effects	There are no WUS in the project footprint, no wetlands in project area, no significant increase in water resources demand, and BMPs would minimize erosion and surface water effects.	There are no WUS in the project footprint, no wetlands in project area, no significant increase in water resources demand, and BMPs would minimize erosion and surface water effects.
Native Vegetation	No adverse effects	The area is already highly disturbed, and vegetation would re-colonize, thus, there would be no long-term effects.	The area is already highly disturbed, and vegetation would re-colonize, thus, there would be no long-term effects.
Common Wildlife Species	No adverse effects	The wildlife habitat is highly disturbed, thus there would be negligible effects.	The wildlife habitat is highly disturbed, thus there would be negligible effects.
Threatened/Endangered Species	No adverse effects	Habitat in the project area is highly disturbed, and no listed species are present, thus there would be no adverse effects. Lights would be designed and installed to avoid illumination of the riparian areas along the Rio Grande.	Habitat in the project area is highly disturbed, and no listed species are present, thus there would be no adverse effects. Lights would be designed and installed to avoid illumination of the riparian areas along the Rio Grande.
Cultural Resources	No adverse effects	The area is heavily disturbed, and no adverse effects are anticipated.	The area is heavily disturbed, and no adverse effects are anticipated.
Air Quality	No adverse effects	The area is rural, effects would be temporary and negligible, BMPs would minimize adverse effects.	The area is rural, effects would be temporary and negligible, BMPs would minimize adverse effects.
Noise	No adverse effects	Portions of the project corridor are adjacent to sensitive receptors; however, BMPs would reduce adverse effects to less than significant.	Portions of the project corridor are adjacent to sensitive receptors; however, BMPs would reduce adverse effects to less than significant.
Utilities and Infrastructure	No adverse effects	No significant effects	No significant effects
Aesthetics	No adverse effects	Effects would be negligible due to remote site locations and existing visual impacts.	Effects would be negligible due to remote site locations and existing visual impacts.
Socioeconomics	No adverse effects	No adverse effects would occur.	No adverse effects would occur.
Hazardous Materials	No adverse effects	No adverse effects would occur, since no hazardous waste is present, and BMPs will be used during construction.	No adverse effects would occur, since no hazardous waste is present, and BMPs will be used during construction.

Impacted Resource	No Action Alternative	Proposed Action Alternative	Floating Foundation Fence Alternative
Human Health and Safety	Long-term adverse effects for USBP and general public	There would be long-term beneficial effects for USBP and the general public.	There would be long-term beneficial effects for USBP and the general public.
Cumulative Effects	Adverse cumulative effects on crime rate and public safety	Minor cumulative effects would occur due to construction of all USBP projects.	Minor cumulative effects would occur due to construction of all USBP projects.

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SECTION 3.0
AFFECTED ENVIRONMENT AND CONSEQUENCES

3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 PRELIMINARY IMPACT SCOPING

This section of the EA describes the existing natural and human environment in the study corridor within El Paso and Hudspeth counties. All of the proposed infrastructure projects would take place in previously disturbed areas between the Rio Grande and the canal (see Figure 1-2). Where data for resources are typically provided on a county-wide basis (e.g., socioeconomics), the affected environments for those resources are described by county. Otherwise, where possible, resources were described for the project corridor.

Data were derived from the most recent sources (e.g., land use maps, soil surveys, groundwater basin maps), and all area calculations for resource categories were conducted by overlaying the boundaries of the projects in the project corridor on to the data source and determining the area of the affected resource category in Geographic Information Systems (GIS).

Impacts to the human and natural environment can be characterized as beneficial or adverse, and can be direct or indirect based upon the result of the action. Impacts are also characterized as being permanent or temporary, where temporary impacts are defined as those that occur immediately during or after construction, and permanent impacts are those caused by the placement, use, and operation of infrastructure.

Impacts can vary in magnitude from a slight to a total change in the environment. The impact analysis presented in this EA is based upon existing regulatory standards, scientific and environmental knowledge and best professional opinions. The impacts on each resource are described as significant, moderate, minor (minimal), insignificant or no impact. Significant impacts are those effects that would result in substantial changes to the environment (as defined by 40 CFR -1508.27). All impacts described are adverse unless otherwise noted.

Only those parameters and resources that have the potential to be affected by the Proposed Action Alternative, Floating Foundation Fence Alternative or the No Action Alternative are described. The resources listed below would not be affected by any of the alternatives considered in this EA, and therefore will not be discussed further:

Physiography

The physiography of the project area was discussed in the 2006 PEA (USBP 2006), and that discussion is incorporated herein by reference. The topography of the project area is generally flat, associated with the floodplain of the Rio Grande. Man-made alterations to the topography consist of the EPCWID1 and HCCRD1 canals which are excavated and maintained on the U.S. side of the river, and the USIBWC levee which separates the canals from the Rio Grande floodplain. Practically the entire landscape within the project area is altered to some degree by development. No alteration of the topography of the project area would occur as a result of the Proposed Action Alternative; therefore, physiography impacts will not be discussed further.

Geology and Soils

Geological resources include physical surface and subsurface features of the earth such as geological formations, and the seismic activity of the area. The Proposed Action Alternative and Floating Foundation Fence Alternative involve only disturbances to the topsoil layers, and in the case of creating holes for either fence posts or light poles, the impacts will occur to only a very small surface area, not substantially altering the geology of the region. Additionally, all roads proposed for improvement within the project corridor are preexisting, and would, therefore, not require substantial modifications to the area's topography (i.e., road cuts). There are no critical geologic resources or sensitive seismic areas located in the vicinity of the project corridor; therefore, geologic resources will not be discussed further.

Soil components within the project area were described in the 2006 PEA (USBP 2006), and those descriptions are incorporated herein by reference. Soils in the project area consist of fine sandy and silty clay loams associated with the Rio Grande floodplain. All

of the soils have been disturbed by canal excavation, levee and road construction, and general grading and leveling of the area around the river and the canals. On the U.S. side of the canal system, the soils are tilled and irrigated in rural areas for agricultural crop production. No unique or prime farmland soils are located within the project corridor, and soils in staging areas outside the construction corridor would not be permanently disturbed; therefore soils and soil impacts will not be discussed further.

Climate

None of the alternatives considered in this EA would affect or be affected by climate, so climate impacts will not be discussed further.

Roadways/Traffic

All of the activities proposed by the Proposed Action Alternative and Floating Foundation Fence Alternative would take place on the levees and canals along the U.S.-Mexico border, and no activities would take place on public roadways, other than normal transport of goods and personnel on an intermittent basis. Therefore, impacts to roadways and traffic will not be discussed further.

Communications

None of the action alternatives would affect communications systems in the area.

Sustainability and Greening

EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007) promotes environmental practices, including acquisition of bio-based products, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, and maintenance of cost-effective waste prevention and recycling programs in government facilities. The Proposed Action Alternative would use minimal amounts of resources during construction and maintenance and there would be minimal changes in USBP operations. Therefore, the Proposed Action Alternative would have negligible impacts on sustainability and greening.

Wild and Scenic Rivers

None of the alternatives would affect any designated Wild and Scenic Rivers because no rivers designated as such are located within or near the project corridor.

3.2 LAND USE

3.2.1 Affected Environment

The entire project corridor is owned and maintained by USIBWC, EPCWID1 and HCCRD1. It is maintained for flood control and irrigation water diversion, and the general public does not generally access the area, except in the adjacent Rio Bosque Wetland Park. The adjacent areas on the U.S. side of the EPCWID1 and HCCRD1 canals range from developed residential and commercial/industrial property in the City of El Paso to tilled and irrigated agricultural land south and east of the city in El Paso County. In Hudspeth County, the adjacent areas on the U.S. side of the levee and canal are tilled and irrigated agricultural land.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

The No Action Alternative would have no direct adverse impacts, since no fence or lighting would be installed, and no new bridges would be constructed.

3.2.2.2 Proposed Action Alternative

The Proposed Action Alternative would occur within the property owned and managed by USIBWC, EPCWID1 and HCCRD1, and currently used for USBP enforcement activities; therefore, the proposed use is compatible with the existing land use, and no direct effect on land use in the region would occur. Indirect beneficial effects would occur due to reduced illegal traffic from crossing IAs and resulting damage to adjacent agricultural fields.

3.2.2.3 Floating Foundation Fence Alternative

The Floating Foundation Fence Alternative would also occur within property owned and managed by USIBWC, EPCWID1 and HCCRD1, and currently used for USBP enforcement activities; therefore, the proposed use is compatible with the existing land use, and no direct effect on land use in the region would occur. Indirect beneficial effects would occur due to reduced illegal traffic from crossing IAs and resulting damage to agricultural fields.

3.3 HYDROLOGY AND GROUNDWATER

3.3.1 Affected Environment

Subsurface aquifers within the project area were described and discussed in the 2006 PEA (USBP 2006), and those descriptions and discussions are incorporated herein by reference.

Subsurface water resources within the project area are found in the Hueco Basin, which is recharged by storm water, and in the Rio Grande aquifer system, which is recharged by stream flow originating as precipitation in the mountains of Colorado and northern New Mexico, as well as by irrigation-return recharge. The primary loss of subsurface water resources in the project area is through wells which extract groundwater for municipal and irrigation uses.

The average daily water demand for the City of El Paso was 97 million gallons per day in 2006 (El Paso Water Utilities 2007), and annual water use in El Paso County and Hudspeth County was 11.1 billion gallons and 5.5 billion gallons, respectively, in 2004 (Texas Water Development Board 2007). Available water supply for El Paso County in 2005 was 49 billion gallons, and for the lower portion of Hudspeth County it was approximately 200 billion gallons. Neither county is experiencing water shortages due to excess demand over water supply.

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

There would be no additional use of subsurface water resources.

3.3.2.2 Proposed Action Alternative

Local subsurface water resources would be utilized for dust control and all-weather surfacing of roads in the project area, and water would be obtained from existing suppliers. Water would also be used for mixing and preparing concrete used to construct the fence footings and to install the light standards. It is estimated that approximately 12 to 14 million gallons of water would be used over the 56.7-mile length of the project during the course of construction (approximately 2 years). Because the water required for the Proposed Action Alternative would be considered insignificant when compared to the very large average water use and availability of the City of El Paso and El Paso and Hudspeth counties, and the increased water use would be temporary during the construction period, no significant impact on water resources would result from implementation of the Proposed Action Alternative.

3.3.2.3 Floating Foundation Fence Alternative

Groundwater resources impacts for implementation of the Floating Foundation Fence Alternative would be similar to or slightly greater than those described above for the Proposed Action Alternative, but impacts would still be insignificant. It is anticipated that more concrete would be used, resulting in more water required for the fence portion of the project. However, it has not been decided where the construction of the fence/road pre-cast sections would take place, and construction could take place outside of the region.

3.4 SURFACE WATERS AND WATERS OF THE U.S.

3.4.1 Affected Environment

Surface water resources in the area consist of the Rio Grande and various canals which divert the river water flow for irrigation and flood control purposes. The Rio Grande is

located adjacent to, but not within, the project corridor. The EPCWID1 and HCCRD1 canals are located directly adjacent to the project area, and would be crossed by the eight proposed bridges. No waters of the U.S. (WUS) are located within the project corridor.

The only wetlands in the vicinity of the project area are found in the Rio Grande, the Rio Bosque Wetland Park, the Alamo Arroyo near Fort Hancock and the Diablo Arroyo at the east end of the project corridor. None of these wetland areas are located within the proposed project construction footprint; however, the Rio Bosque Wetland Park, the Alamo Arroyo and the Diablo Arroyo are located adjacent to the project corridor.

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

Under the No Action Alternative, no new infrastructure would be constructed in the project area, and there would be no impacts to surface water resources and wetlands.

3.4.2.2 Proposed Action Alternative

The Proposed Action Alternative is not expected to directly impact surface water resources, and no activities would take place in jurisdictional WUS, including wetlands. No construction is planned within Alamo Arroyo or Diablo Arroyo that would require fill within the jurisdictional portions of these drainages. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared prior to construction, and BMPs would be implemented in order to minimize impacts to surface water resources resulting from erosion during construction or fluids spills/leaks from construction equipment. Therefore, impacts to surface water resources would be minimal.

3.4.2.3 Floating Foundation Fence Alternative

Surface water resources impacts from the implementation of this alternative would be similar to those described above for the Proposed Action Alternative.

3.5 FLOODPLAINS

3.5.1 Affected Environment

The current floodplain of the Rio Grande on the U.S. side of the river is defined by the Rio Grande and the USIBWC flood control levee. The floodplain is characterized by relatively flat ground, vegetated by various bunch-type grasses and invasive species which are routinely mowed by USIBWC for flood control, and to improve visibility for USBP operations. The only natural vegetation remaining in the floodplain is a narrow strip of riparian vegetation immediately adjacent to the Rio Grande. A dirt road runs along the unprotected side of the levee within the floodplain.

Pursuant to the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4001 et seq.), and the Flood Disaster Protection Act of 1973 (P.L. 93-234, 87 Stat. 975), EO 11988, Floodplain Management, requires that each Federal agency take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and preserve the beneficial values which floodplains serve. EO 11988 requires that agencies evaluate the potential effects of actions within a floodplain and to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a planning process is followed to insure compliance with EO 11988. This process includes the following steps:

- Determination of whether or not the action is in the regulatory floodplain;
- conduct early public notice;
- identify and evaluate practicable alternatives, if any;
- identify impacts of the action;
- minimize the impacts;
- reevaluate alternatives;
- present the findings and a public explanation; and
- implementation of the action.

This process is further outlined on the Federal Emergency Management Agency's (FEMA), Environmental Planning and Historic Preservation Program web site (FEMA 2006). As a planning tool, the NEPA process incorporates floodplain management

through analysis and public coordination, ensuring that the floodplain management planning process is adhered to. In addition, floodplains are managed at the local municipal level through the assistance and oversight of FEMA.

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

Because no construction activities would take place under the No Action Alternative, there would be no impacts to the Rio Grande floodplain.

3.5.2.2 Proposed Action Alternative

The Proposed Action Alternative would install light poles within the Rio Grande floodplain at the base of the USIBWC levee. The poles would not impede flood water flow within the floodplain, and would not impact the integrity of the levee, so floodplain impacts would be minimal. Installation of the light standards on the levee would result in increased risks of levee failure. Installation of the lights north of the levee would require that the lights be substantially more powerful to provide an equivalent level of illumination within the floodplain, where it is needed for enforcement and safety reasons. This would result in much larger area illuminated and a higher potential for light trespass into sensitive areas (e.g. Rio Bosque Wetland Park) and residential areas. Thus, installation within the floodplain is the only practicable alternative. Some equipment or material staging could occur within the Rio Grande floodplain as well, but this would be temporary, and no equipment or materials would be left during high water events. All other activities (installation of fence and bridges) would occur outside of the floodplain.

3.5.2.3 Floating Foundation Fence Alternative

Floodplain impacts for the Floating Foundation Fence Alternative would be the same as for the Proposed Action Alternative.

3.6 VEGETATIVE HABITAT

3.6.1 Affected Environment

A general vegetation species survey conducted by the USACE on a portion of the project corridor was completed on February 4, 2003. Vegetation observed consisted mainly of bunch-type grasses, Russian thistle (*Salsola kali*), saltcedar (*Tamarix ramisissima*), dandelion (*Taraxacum* spp.), and cottonwood (*Populus* spp.). Various willows (*Salix* spp.) were located within the floodplain of the Rio Grande adjacent to the river.

A second vegetation species survey was conducted on January 17, 2007. In addition to those species identified above, vegetation observed included the following: tree cholla (*Opuntia imbricata*), four-winged saltbush (*Atriplex canescens*), mesquite *(Prosopsis* sp.), cattail (*Typha* sp.) and prickly pear (*Opuntia* spp.).

The levee system grasses are mowed regularly to ensure suitable design flood features and slope protection, and to provide clearance for maintenance equipment and USBP vehicles. The banks and bed of the EPCWID1 and HCCRD1 canals are regularly maintained by dredging to remove excess sediment and debris, and to clear bank vegetation to improve flow characteristics. Vegetation between the canal and the river has been either cut and removed, or is routinely mowed to provide visibility for USBP operations. Only a very narrow riparian corridor (approximately 0-8 feet wide) remains along the top banks of the Rio Grande.

The Rio Bosque Wetland Park is a wetland restoration project constructed in 1997, and managed by the University of Texas at El Paso (UTEP) (Photograph 3-1). The bosque area was restored, and wetland hydrology was introduced through a series of channels and basins connected to the adjacent irrigation canals. The park now supports a wide variety of native wetland and riverside flora (UTEP-Center for Environmental Resource Management [CERM] 2007).

Photograph 3-1. Rio Bosque view from the USIBWC levee

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

The No Action Alternative would preclude any construction or installation of TI, so there would be no impacts to vegetative habitat.

3.6.2.2 Proposed Action Alternative

Because the project corridor has already been disturbed from levee and canal construction, impacts to native vegetation would be negligible. Construction activities which would disturb vegetation would be kept to a minimum, and existing vegetation would be left in place wherever possible. Temporarily disturbed areas along the construction access roads in the Rio Grande floodplain and in the temporary staging areas would be allowed to revegetate naturally, and no herbicides would be used. No activities would take place within the Rio Bosque Wetland Park, the Alamo Arroyo or the Diablo Arroyo. Beneficial, indirect effects on the Rio Bosque Wetland Park would be expected as illegal traffic through the park is reduced or eliminated once the TI is completed.

3.6.2.3 Floating Foundation Fence Alternative

Vegetative habitat impacts resulting from the Floating Foundation Fence Alternative would be minimal, since the fence would be placed on top of the levee with no vegetated ground disturbance

3.7 WILDLIFE AND AQUATIC RESOURCES

3.7.1 Affected Environment

A general animal species survey was conducted by USACE on February 4, 2003. Animal species observed during the survey consisted of: redtail hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), great blue heron (*Ardea herodias*), cattle egret (*Bubulcus ibis*), muskrat (*Ondantra zibethicus*), peregrine falcon (*Falco peregrinus*), common black hawk (*Buteogallus anthracinus*), greater roadrunner (*Geococcyx californianus*), northern goshhawk (*Accipiter gentiles*), mallard (*Anas platyrhynchos*), black-tailed jackrabbit (*Lepus californicus*), blue-winged teal (*Anas discors*), mule deer (*Odocoileus hemionus*) tracks, and fox (*Vulpes spp.* or *Urocyon cinereoargenteus*) tracks. A group of wading birds and raptors (no owls) of varying color phases and sizes were observed, but positive identifications of these were not made.

In the January 17, 2007 survey, conducted by GSRC, species observed included mallard, Swainson's hawk (*Buteo swansoni*), killdeer (*Charadrius vociferus*), northern harrier (*Circus cyaneus*), wood duck (*Aix sponsa*), Chihuahuan raven (*Corvus cryptoleucus)*, loggerhead shrike (*Lanius ludoviscianus*), American kestrel, great-tailed grackle (*Quiscalus mexicanus*), cattle egret, mourning dove (*Zenaida macroura*), great blue heron and common moorhen (*Gallinule chloropus*).

Burrowing owls (*Athene cunicularia*) have been observed by USBP agents and during surveys of the levee by USIBWC personnel (USIBWC 2007). This species may use existing burrows in the levee flanks year around. The burrows might also be used for nesting.

Within the Rio Bosque Wetland Park, over 216 species of birds utilize the park wetland areas, including 39 species of conservation concern (UTEP-CERM 2007).

There are no aquatic resources within the project corridor. The water in the irrigation canals is pumped from the river and screened. In addition, the canals are sometimes dry during droughts and non-irrigation seasons, and thus would not support a viable aquatic fauna population.

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

Under the No Action Alternative, no construction would take place; therefore, there would be no impacts to wildlife.

3.7.2.2 Proposed Action Alternative

Direct impacts to wildlife resulting from the operation of the high intensity lighting at night could potentially occur. Approximately 21 additional miles of the floodplain along the Rio Grande would be illuminated under this alternative. The increase in lights along the border could also produce some long-term behavioral effects, although the magnitude of these effects in some areas is not presently known. Artificial lighting can disrupt terrestrial animal dispersal movement or increase the risk of a small animal being killed by a predator; however, many animals would simply choose to move away from the lights (Beier 2006).

The use of high pressure sodium vapor lamps does not attract insects to the extent of mercury vapor lamps. These lamps will still attract bats to forage, but the light–attracted insects would be impacted to a lesser extent (Rydell 2006). Artificial lighting may influence species movements or impact migration corridors; however, for species that are susceptible to light attraction or disorientation, shielding would reduce the impact to less than significant levels (Longcore and Rich 2006).

An illumination study was prepared by EPE detailing the contours for illumination levels of the proposed lights. The results of this study can be found in Appendix B. The lights would be spaced 125 to 150 feet apart and are back shielded so that the illumination is directed forward and downward away from the levee. Furthermore, the design of the lighting is such that it would only illuminate 175 feet in front of the lights. The Rio Grande is approximately 230 feet from the lighting source, leaving approximately 50 feet of the Rio Grande floodplain closest to the river illuminated only by natural light. The lighting system is also designed in such a way that the lights will not illuminate the top of the levee or behind it; therefore, there would be no impacts to wildlife north of the levee or beyond 175 feet south of the lights.

Short-term construction activities may temporarily disturb wildlife on adjacent properties; the levees and existing agricultural fields within and adjacent to the project area provide suitable habitat for burrowing owls. If construction activities begin between March 1 and September 1, a field survey would be conducted by a qualified biologist to determine if active burrowing owl nests are present in the construction zone or within a buffer of 150 meters (approximately 500 feet). If no active nests are found during the survey, construction activities may proceed. Also, mitigation measures identified in Section 5.0 would be implemented and the birds would be relocated to habitat outside of the project area, thus, avoiding a significant impact to the owls.

Species that could be affected by construction noise would include passerine birds, such as song sparrow (*Melospiza melodia*), black-throated sparrow (*Amphispiza bilineata*) or western kingbird (*Tyrannus veticalis*); and small mammals such as kangaroo rats (*Dipodomys* spp.), ground squirrels (*Spermophilus* spp.) or striped skunk (*Mephitis mephitis*). Since the highest period of movement for most wildlife species occurs during night time or low daylight hours, and construction activities would be conducted during daylight hours to the maximum extent practicable, temporary noise impacts on wildlife species are expected to be insignificant.

Noise generated during construction would impact wildlife resources in the Rio Bosque Wetland Park; however, attenuation of noise levels prior to reaching the Rio Grande riparian corridor would reduce impacts to wildlife in the riparian corridor to less than a significant level, and the impacts would be temporary.

To comply with the MBTA, additional surveys for nesting migratory birds would occur during the typical nesting season (February 15 through September 15), and active nests would be marked and avoided to the extent practical.

The presence of a continuous canal north of the USIBWC levee, in addition to the Rio Grande, constitutes an existing impediment to the migration of terrestrial wildlife north from Mexico. Furthermore, the heavily developed and populated areas south of the Rio Grande in Mexico would also discourage wildlife migration from north to south in the project area. Therefore, the addition of a fence south of the canal would not significantly increase impediments to north-south migration of terrestrial wildlife in the area.

3.7.2.3 Floating Foundation Fence Alternative

Wildlife impacts resulting from the Floating Foundation Fence Alternative would be the same as the Proposed Action Alternative.

3.8 THREATENED AND ENDANGERED SPECIES

3.8.1 Affected Environment

The Federally threatened and endangered species section for El Paso County is herein incorporated by reference from the 2006 PEA (USBP 2006). There are five Federally endangered (E) and threatened (T) species known to occur in the El Paso area, and two of those species (Northern aplomado falcon and Southwestern willow flycatcher) also occur in Hudspeth County. A list of these species is presented in Table 3-1.

Table 3-1. Federally Listed Species for El Paso County, Texas.

Common Name	Scientific Name	Federal Status
Plants		
Sneed's pincushion cactus	*Coryphantha sneedii var. sneedii*	E
Birds		
Northern aplomado falcon**	*Falco femoralis septentrionalis*	E
Interior least tern	*Sterna antillarum*	E
Southwestern willow flycatcher**	*Empidonax traillii extimus*	E
Mexican spotted owl**	*Strix occidentalis lucida*	T

** Also listed for Hudspeth County, Texas

The Sneed's pincushion cactus grows on limestone ledges at elevations between 3,900 to 7,000 feet above mean sea level. The northern aplomado falcon prefers open grasslands terrain with relatively low ground cover and scattered shrubs and yucca for nesting. The interior least tern, although preferring nearly bare ground for nesting, has had its habitat severely disturbed by channelization projects and constant traffic associated with urban areas. Suitable habitat may occur for the interior least tern and the southwestern willow flycatcher intermittently along the Rio Grande adjacent to the project corridor. Finally, no preferred habitat exists within the project limits for the Mexican spotted owl, which prefers remote, shaded canyons of coniferous mountain woodlands (pine and fir).

The state threatened and endangered species section for El Paso County is herein incorporated by reference from the 2006 PEA (USBP 2006), and several of the listed species also occur in Hudspeth County. Many of the species listed as endangered or threatened by TPWD for El Paso and Hudspeth counties would not occur in the study area. There are two endangered state listed species that possibly occur in the project area; the interior least tern and the southwestern willow flycatcher, and their habitat and occurrence were described above. In addition, the Texas horned lizard (*Phrynosoma cornutum*), listed as threatened, may occur in the project corridor. The Big Bend slider (*Trachemys gaigeae*) and the western burrowing owl may occur in the project corridor, and are listed as rare, but with no regulatory listing status (TPWD 2006).

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

The No Action Alternative would have no direct adverse impacts to threatened and endangered species, since no additional TI would be constructed.

3.8.2.2 Proposed Action Alternative

No Federally threatened or endangered species were observed within the project area during the biological surveys performed in 2003 and 2007. Also, no designated critical habitat for any protected species occurs within the project corridor. Since the artificial lighting would not reach the Rio Grande riparian corridor, there would be no effect to the southwest willow flycatcher or the interior least tern.

Noise generated during construction of the lights would temporarily increase in the area north of the Rio Grande riparian corridor; however, the amount of noise reaching the river would be between 65 and 75 dBA (A-weighted decibel, see Section 3.11) at a maximum on an intermittent basis, and would not constitute a significant impact on bird species that might be present in the riparian corridor. Construction of the fence would occur on the north side of the USIBWC levee, and the levee would help to shield the Rio Grande riparian corridor from excess noise during construction.

Open holes during construction would be checked each day for Texas horned lizards, and any lizards or other wildlife species found would be removed. Mitigation measures described in Section 3.7.2 above would be implemented to avoid impacts to burrowing owls.

3.8.2.3 Floating Foundation Fence Alternative

Impacts to threatened and endangered species resulting from the Floating Foundation Fence Alternative would be the same as the Proposed Action Alternative.

3.9 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

3.9.1 Affected Environment

An overview of the cultural resources history of the project area was presented in the 2006 PEA (USBP 2006), and that discussion is incorporated herein by reference. Preliminary investigations of the files at the Texas Archaeological Research Laboratory indicated that portions of the project cross the features of the EPCWID1 Historic District and sites 41EP4678 and 41EP4679, the Riverside Intercepting Drain and Riverside Canal, respectively. The EPCWID1 Historic District has been listed on the National Register of Historic Places (NRHP) under criteria A and C. Both 41EP4678 and 41EP4679 are recommended potentially eligible under criterion A.

Given that the area of the proposed infrastructure has been previously and deeply disturbed by the construction of the USIBWC levee and the EPCWID1 and HCCRD1 irrigation canals, there is a low probability for intact prehistoric cultural deposits in the project area.

The Ysleta del Sur Pueblo requires an unlighted landscape near the Rio Grande for tribal ceremonies. A MOA between USBP and the Tribe signed in 2005 requires switches on banks of the lights near their ceremonial areas so that the lights can be turned off when necessary. A new MOA would need to be negotiated with the Ysleta de Sur Pueblo to address the added length of the project corridor and the addition of primary pedestrian fence to the Proposed Action.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

Under the No Action Alternative no ground disturbance would take place within the project area; therefore, no impacts to cultural resources would occur.

3.9.2.2 Proposed Action Alternative

Implementation of the Proposed Action Alternative would result in ground disturbance in the form of excavation of the toe of the levee to accept placement of the fence foundations, use of temporary staging areas during construction, and excavation within the project area to install light poles; however, all of the ground surface within the project area has already been disturbed by construction of the USIBWC levee, the EPCWID1 and HCCRD1 canals and numerous dirt roads. The likelihood for discovery of any intact prehistoric cultural material is very remote.

Archaeological monitoring during the installation of all light poles and fence foundations within the project corridor would be conducted to ensure no deeply buried archaeological deposits would be impacted during the installation of the lights and fence. Should any deeply buried resources be discovered, work would cease in the area of the discovery until an archaeologist can determine the significance of the resource. The Texas State Historic Preservation Officer (SHPO) would be contacted, and a mitigation plan prepared, if necessary.

It is not anticipated that the proposed infrastructure installation would impact the integrity of the EPCWID1 Historic District. Replacement of the bridges over the irrigation systems would occur in areas where pre-existing bridges have deteriorated or been removed, and that are noted as ancillary structures in the EPCWID1 Historic District form. Other bridge placement locations are at the ends of existing roads where canal crossovers would be logically placed. SHPO would be allowed to review the proposed bridge designs to be sure that they do not diminish the integrity of the Historic District.

Given that the area of the proposed infrastructure has been previously disturbed in the past by the construction of the USIBWC levee and EPCWID1 and HCCRD1 canals, there is a low probability for intact buried cultural deposits. Furthermore, an archaeological monitor will be present during the installation of all lights and fence foundations. Therefore, no adverse impacts to historic properties are anticipated from

implementation of the Proposed Action Alternative. Additionally, the Section 106 process will be completed, and concurrence from SHPO will be received prior to construction (see correspondence in Appendix D).

In order to prevent interference with Ysleta del Sur Pueblo ceremonial activities along the river, sections of the lights would be equipped with switches to allow them to be turned off when necessary, as required by the MOA between CBP and the Tribe.

3.9.2.3 Floating Foundation Fence Alternative

The placement of the fence on the top of the levee would be done so that it would not impact the structural integrity of the irrigation systems, and would provide protection for the irrigation systems from illegal vehicle and pedestrian traffic through the area. Impacts to cultural resources as a result of implementation of the Floating Foundation Fence Alternative would be the same as described above for the Proposed Action Alternative. All activities would occur in previously disturbed areas, and the likelihood for discovery of any intact prehistoric cultural material is very remote.

3.10 AIR QUALITY

3.10.1 Affected Environment

Federal and state standards for air quality and the status of air quality within the project corridor were discussed in the 2006 PEA (USBP 2006), and those discussions and definitions are incorporated herein by reference.

El Paso County is classified as a non-attainment area for the particulate matter (PM-10) and carbon monoxide (CO) air quality standards. PM-10 are small particles (less than 10 micrometers) in the air that originate from internal combustion engines, unpaved roads, fires, and dry exposed soils that are disturbed during construction activities. Hudspeth County is classified as an attainment area for all air quality standards.

Exposure to PM-10 can lead to detrimental health effects such as:

- Coughing, wheezing, shortness of breath
- Aggravated asthma
- Lung damage (including decreased lung function and lifelong respiratory disease)
- Premature death in individuals with existing heart or lung diseases

CO is a colorless, odorless and poisonous gas produced by incomplete burning of carbon in fuels. When CO enters the bloodstream, it reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease, particularly those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability and performance of complex tasks (EPA 2006).

3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

No direct impacts to air quality would be expected under the No Action Alternative, since there would be no new construction activities in the project area. There would continue to be fugitive dust from vehicles on the roads along the levee.

3.10.2.2 Proposed Action Alternative

Calculations were performed to estimate the total air emissions from the new construction activities. Calculations were made for standard construction equipment such as bulldozers, excavators, pole trucks, front end loaders, back hoes, cranes, and dump trucks using emission factors from AP-42 Chapter 3 Vol. 1 (EPA 1995).

Fugitive dust calculations were made for disturbing the soils while grading, driving, and building the fence, installing lights, rebuilding bridges and resurfacing the patrol road. Large amounts of dust can arise from the mechanical disturbance of surface soils. Dust generated from these open sources is termed "fugitive" because it is not discharged to the atmosphere in a confined flow stream. Fugitive dust emissions were calculated

using emission factors from Mid-Atlantic Regional Air Management Association (MARAMA 2006).

The total air quality emissions were calculated to determine the applicability of the General Conformity Rule. The General Conformity rule applies to areas that have been designated as a non-attainment zone for an air pollutant, such as the El Paso area. Regulations set forth in 40 CFR 51 Subpart W-Determining Conformity of the General Federal Action to State or Federal Implementation Plans determine if additional permits are needed. According to 40 CFR 51.853(b), Federal actions require a Conformity Determination for each pollutant where the total of direct and indirect emissions in a non-attainment or maintenance area caused by a Federal action would equal or exceed any of the rates (*de minimis* thresholds) in paragraphs 40 CFR 51.853(b)(1) or (2). Assumptions were made regarding the type of equipment, duration of the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used. The assumptions, emission factors, and resulting calculations are presented in Appendix A. A summary of the total emissions are presented in Table 3-2. As can be seen from this table, the proposed construction activities do not exceed *de minimis* thresholds and, thus, do not require a Conformity Determination.

Table 3-2. Total Air Emissions (tons/year) from Construction Activities vs. the *de minimis* Levels

Pollutant	Total	*de minimis* Thresholds
Carbon monoxide (CO)	44.03	100
Particulate matter (PM-10)	20.36	100

Source: 40 CFR 51.853 and GSRC

Impacts from combustible air emissions from USBP traffic and commuting to work are expected to be the same before and after the proposed the installation of lights and resurfacing of the road. Construction workers for the Proposed Action would temporarily increase the combustible emissions in the air shed during their commute to

and from work. Their emissions were calculated in the air emission analysis (Appendix A), and those emissions are included in the totals in Table 3-2.

During the construction of the proposed project, proper and routine maintenance of all vehicles and other construction equipment would be implemented to ensure that emissions are within the design standards of all construction equipment. Dust suppression methods would be implemented to minimize fugitive dust. While there would continue to be dust emissions from USBP and other traffic on the dirt road on the top of the levee, air emissions from the Proposed Action Alternative would be temporary and would not significantly impair air quality in the region.

3.10.2.3 Floating Foundation Fence Alternative

All emissions factors and calculations described above for the Proposed Action Alternative would also apply to the Floating Foundation Fence Alternative. Impacts to air quality would also be temporary and would not significantly impair air quality in the region, since the emissions would not be expected to exceed *de minimis* levels. Since the current dirt road on the top of the USIBWC levee would be replaced by a hard surface road integrated with the new fence foundation, long-term dust emissions due to vehicle traffic on the top of the levee would be expected to be reduced substantially.

3.11 NOISE

3.11.1 Affected Environment

Noise is generally described as unwanted sound, which can be based either on objective effects (i.e., hearing loss, damage to structures, etc.) or subjective judgments (e.g., community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB. A discussion of noise measurement and classification was presented in the 2006 PEA (USBP 2006), and that discussion is incorporated herein by reference.

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA (A-weighted decibel is a measure of noise at a given, maximum level or constant state level) louder than the same level of intrusive noise during the day, at least in terms of its potential for causing community annoyance. This perception is largely because background environmental sound levels at night in most areas are also about 10 dBA lower than those during the day.

Acceptable noise levels have been established by the U.S. Department of Housing and Urban Development (HUD) for construction activities in residential areas:

- **Acceptable** (not exceeding 65 dB) – The noise exposure may be of some concern but common building construction will make the indoor environment acceptable and the outdoor environment will be reasonably pleasant for recreation and play.
- **Normally Unacceptable** (above 65 but not greater than 75 dB) – The noise exposure is significantly more severe; barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable, and; special building constructions may be necessary to ensure that people indoors are sufficiently protected from outdoor noise.
- **Unacceptable** (greater than 75 dB) – The noise exposure at the site is so severe that the construction costs to make the indoor noise environment acceptable may be prohibitive and the outdoor environment would still be unacceptable.

As a general rule of thumb, noise generated by a stationary noise source, or “point source,” will decrease by approximately 6dB over hard surfaces and 9dB over soft surfaces for each doubling of the distance. For example, if a noise source produces a noise level of 85 dBA at a reference distance of 50 feet over a hard surface, then the noise level would be 79 dBA at a distance of 100 feet from the noise source, 73 dBA at a distance of 200 feet, and so on. To estimate the attenuation of the noise over a given distance the following relationship is utilized (Department of Environment and Conservation [DEC] New South Wales 2000):

Equation 1: $dBA_2 = dBA_1 - 20 \log^{(d2/d1)}$

Where:

dBA_2 = dBA at distance 2 from source (predicted)

dBA_1 = dBA at distance 1 from source (measured)

d_2 = Distance to location 2 from the source

d_1 = Distance to location 1 from the source

Within the project area there are neighborhoods and parks located adjacent to the project corridor in the northern portion of the project corridor that would constitute receptors for noise generated during construction of the Proposed Action Alternative. The remainder of the project corridor is located adjacent to rural farm land with few noise sensitive receptors nearby.

3.11.2 Environmental Consequences

3.11.2.1 No Action Alternative

Under the No Action Alternative, the noise receptors near the project corridors would not experience additional noise events; however, they would continue to experience ambient noise disturbances in excess of 65 dBA from trains, trucks and cars traveling in the area.

3.11.2.2 Proposed Action Alternative

The project corridor stretches approximately 56.7 miles along the border. About 75 percent of the area is rural or industrial with no sensitive noise receptors. In San Elizario, the project corridor passes within 230 feet of three residential neighborhoods for a total of 2 miles (Figure 3-1d and 3-1e) where there is currently no fence or lights installed. The projection of the noise emissions from construction equipment to the three neighborhoods in San Elizario was determined using equations described previously in Section 3.11.1. Table 3-3 describes noise emission levels for construction equipment which range from 70 dBA to 85 dBA (FHWA 2007).

The Rio Grande riparian corridor is located approximately 230 feet from the project construction corridor, and noise levels reaching the riparian corridor would be temporary and would not exceed 73 dBA. For a discussion of noise impacts to wildlife, see Section 3.7.

Table 3-3. A-Weighted (dBA) Sound Levels of Construction Equipment

dBA	Actual Measured Lmax at a distance of 50 feet
78	Backhoe
81	Crane
76	Dump Truck
81	Excavator
79	Front end loader
73	Generator
79	Concrete mixer truck
85	Auger drill rig
82	Bull dozer

Source: Dept. of Transportation Federal Highway Administration 2007

Assuming the worst case scenario of 85 dBA, the noise model projected that noise levels of 85 dBA from construction equipment would have to travel 500 feet before it would attenuate to acceptable levels of 65 dBA. The distance of the nearest residential properties to the project corridor is approximately 230 feet; thus a portion of these residential properties would experience Normally Unacceptable (less than 75 dBA and greater than 65 dBA) noise levels of 72 dBA during construction activities. Figures 3-1d and 3-1e show modeled noise projections emitting from construction equipment and the distance that noise will travel before it attenuates to 75 dBA and 65 dBA (Acceptable).

The construction activities are expected to create noise impacts above Acceptable levels; however, the noise emissions are expected to be minor (<75 dBA) and short-term in duration. Construction activities near the San Elizario neighborhoods are estimated to last 2 to 3 months. To minimize this impact, it is recommended that construction activities in the San Elizario neighborhoods be limited to daylight hours during the work week when most of the residents are at school or at work. More specifically, construction activities should be limited to hours between 7:00 am and 7:00

pm on Monday through Friday where neighborhoods are located within 500 feet of the project corridor. Likewise, visitors to the Rio Bosque Wetland Park would experience intermittent and temporary minor noise emissions during construction.

At the western end of the project, primary pedestrian fence would be installed replacing existing chain link fence. Lights are already installed in this portion of the project corridor. This portion of the project corridor also parallels the Border Highway, a four-lane divided highway directly adjacent to the irrigation canal, which separates the fence construction area from residential neighborhoods. While the houses in these neighborhoods are located approximately 270 feet from the proposed fence construction zone (see Figures 3-1a, 3-1b, and 3-1c), construction noise from fence construction would not exceed the current ambient highway noise generated by traffic on the Border Highway. Therefore, there would be no significant impacts on these receptors from the Proposed Action Alternative.

3.11.2.3 Floating Foundation Fence Alternative

Discussions of noise impacts and mitigation measures for the Proposed Action Alternative would also apply to the Floating Foundation Fence Alternative.

3.12 UTILITIES AND INFRASTRUCTURE

3.12.1 Affected Environment

Currently, electrical power for the project corridor is provided by EPE through its regional power grid. In the rural portions of the project corridor, electric power supply is available adjacent to the irrigation canals to support scattered rural farm homes and intermittent irrigation pumping equipment along the project corridor. EPE provides power to an approximately 10,000-square-mile area of Texas and New Mexico, and participates in balance area agreements with surrounding power companies, including those in Mexico, to provide additional power during peak user times. The 2006 peak

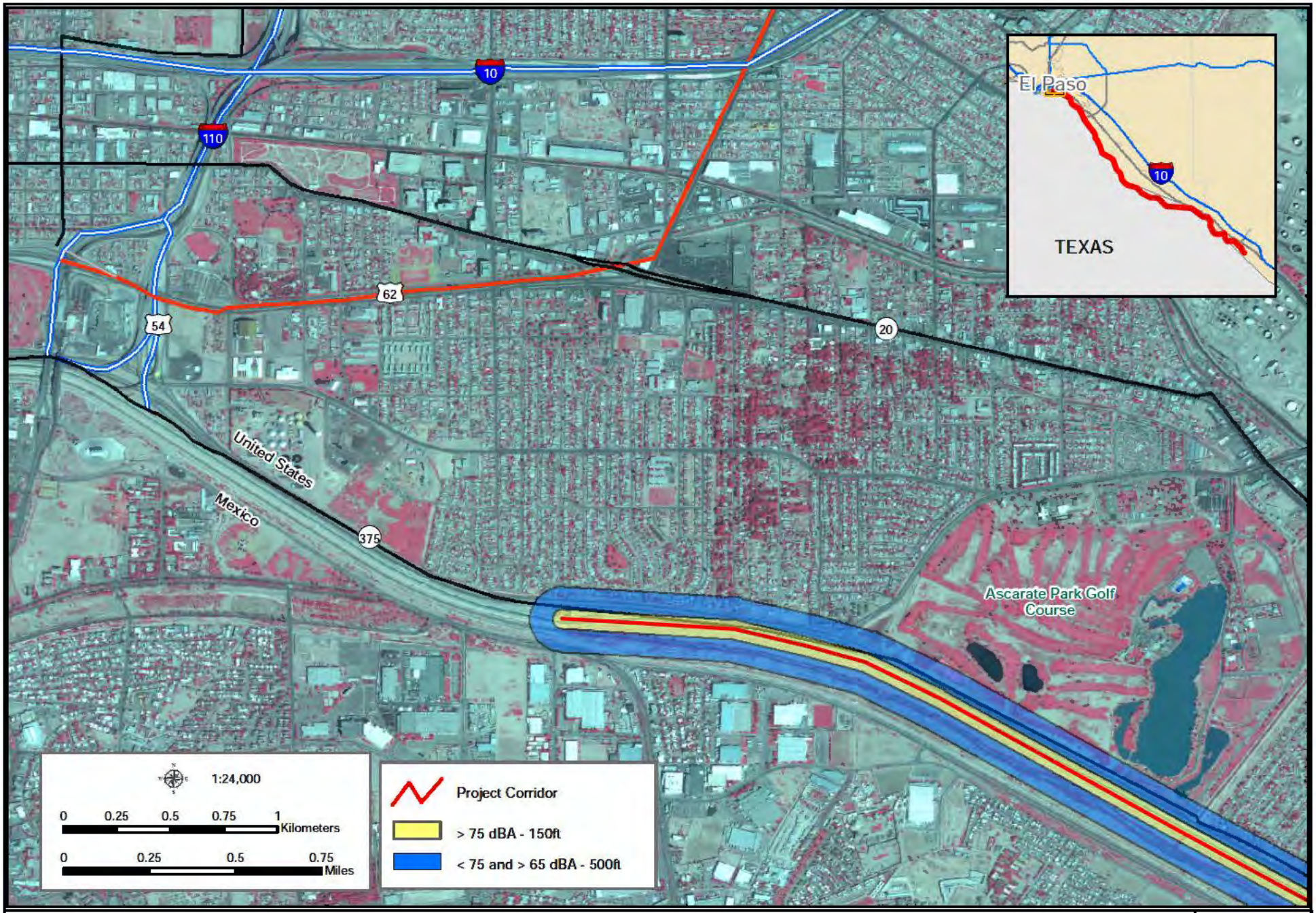

Figure 3-1a: Noise Attenuation of Construction Equipment

GSRC

January 2008

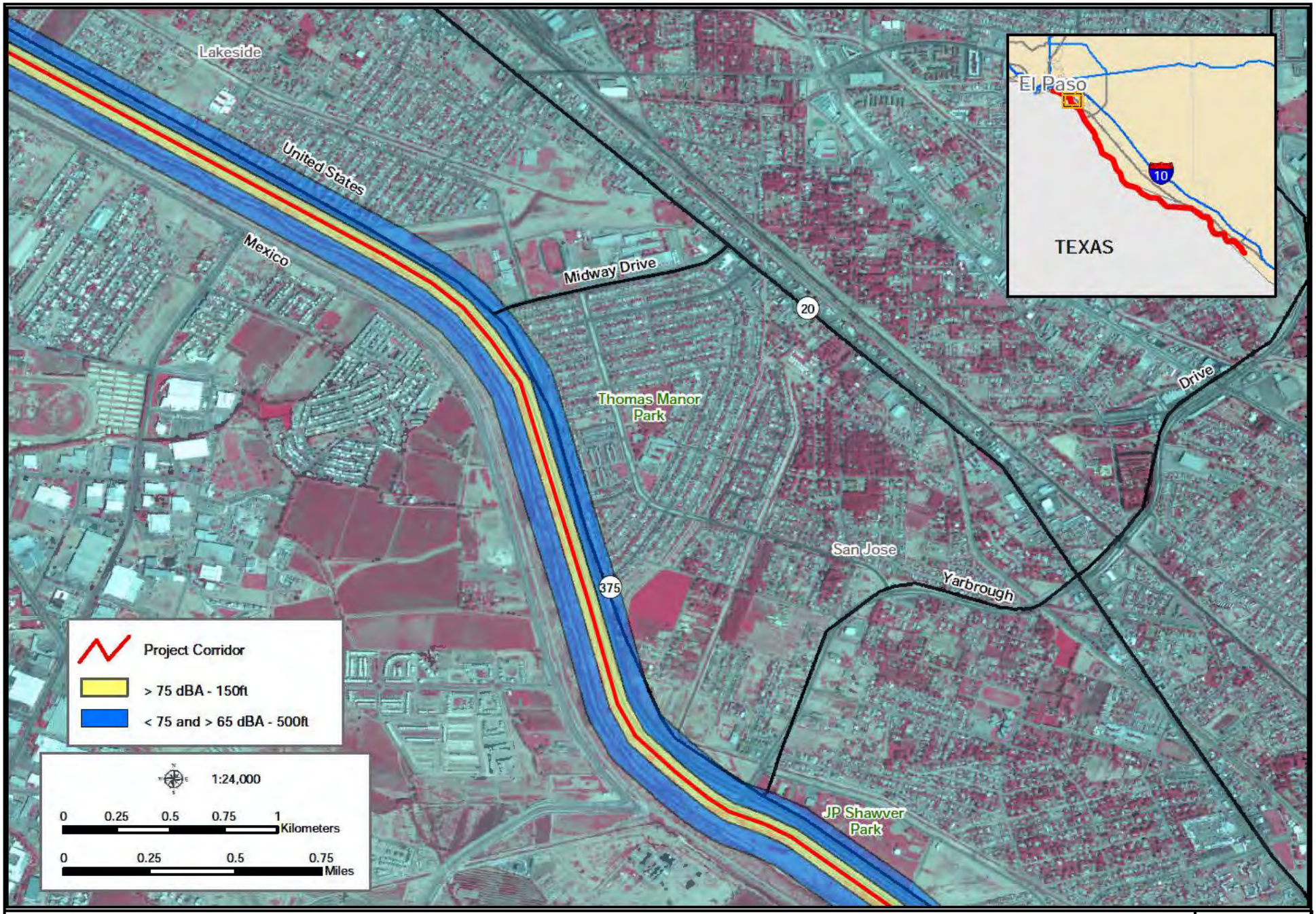

Figure 3-1b: Noise Attenuation of Construction Equipment

GSRC

January 2008

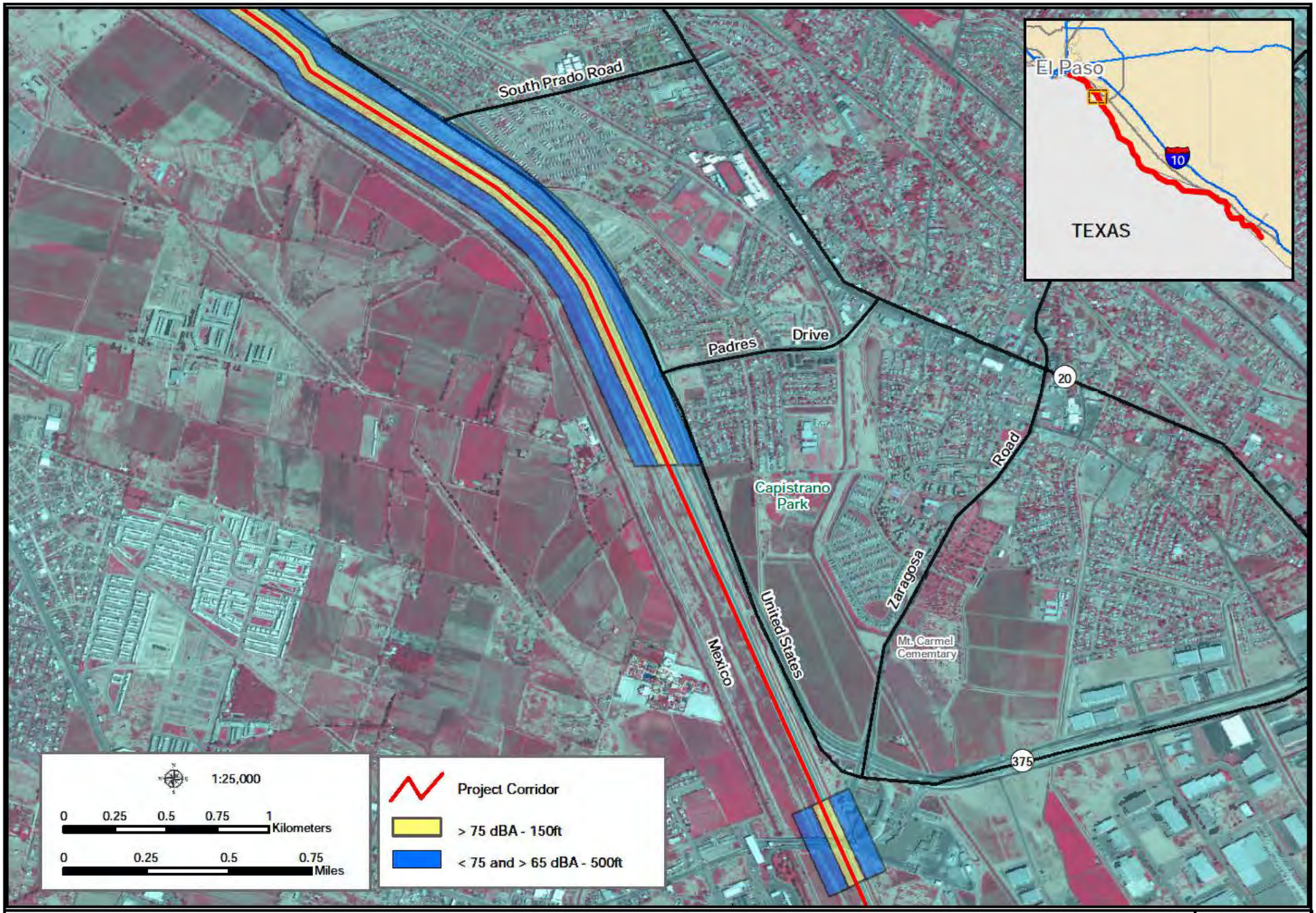

Figure 3-1c: Noise Attenuation of Construction Equipment

GSRC

January 2008

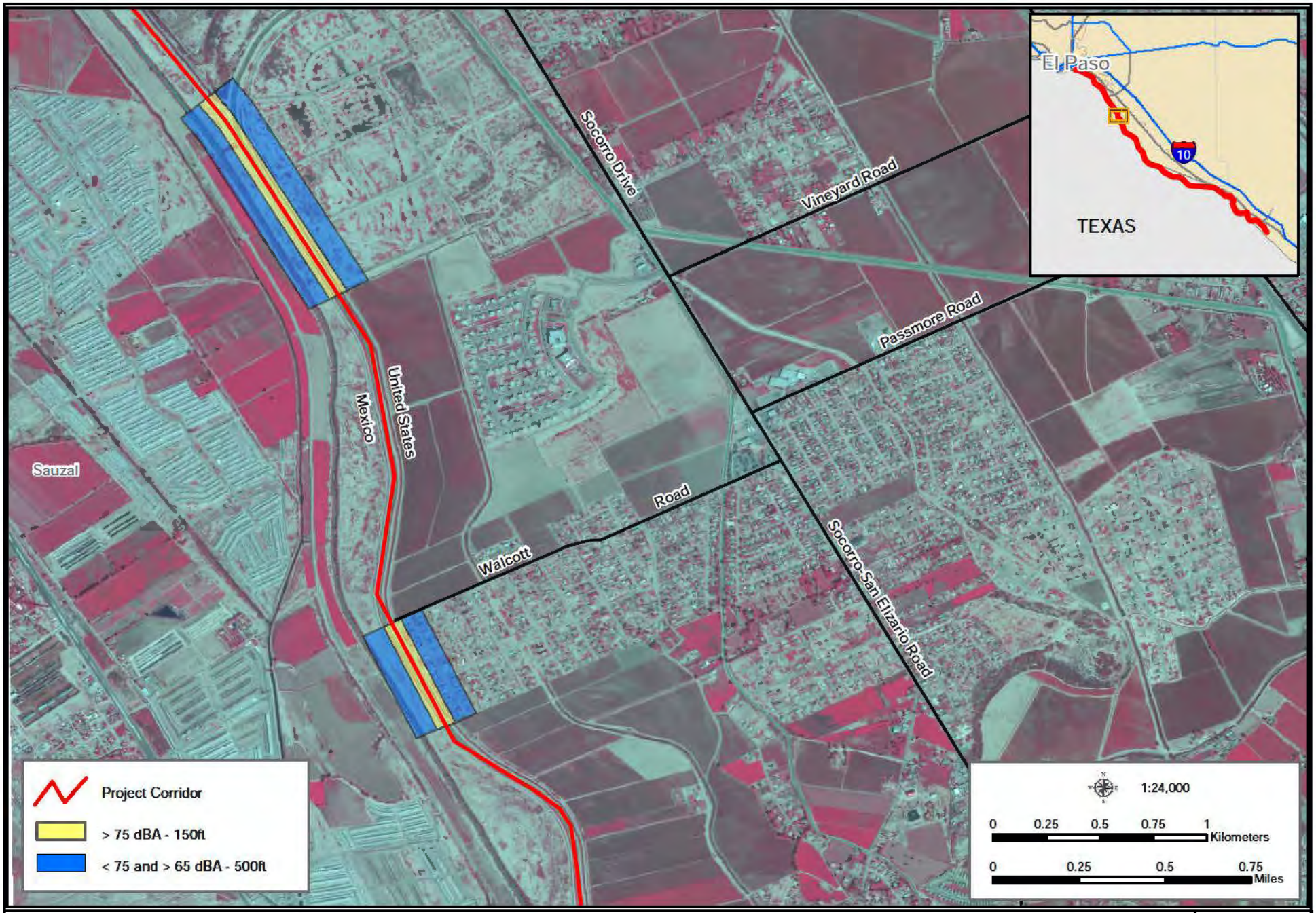

Figure 3-1d: Noise Attenuation of Construction Equipment

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January 2008

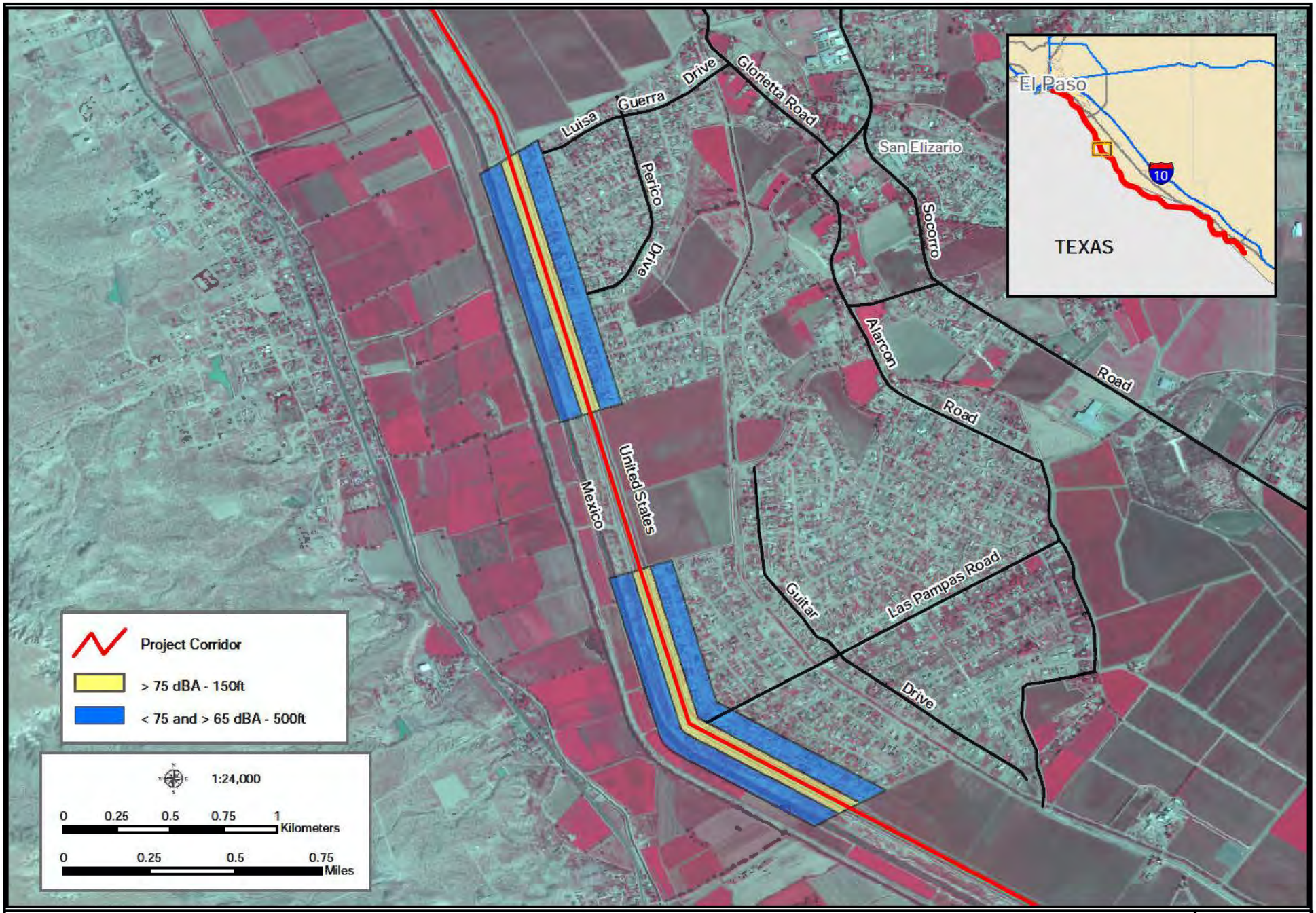

Figure 3-1e: Noise Attenuation of Construction Equipment

GSRC

January 2008

daily demand for EPE was 1,376 megawatts (North American Electric Reliability Council 2006). EPE maintains a 16 percent margin of available power above firm peak demand (El Paso Regional Economic Development Corporation [REDCO] 2006).

3.12.2 Environmental Consequences

3.12.2.1 No Action Alternative

There would be no impacts to electric power utilities under the No Action Alternative, since there would be no additional installation of lights in the area.

3.12.2.2 Proposed Action Alternative

Installation of permanent lights along 21 miles of the project corridor by EPE would require additional installation of power grid feeds from the local network, and installation of power line support poles and transformers. Installation of this additional power infrastructure would result in minor impacts on soils and minor noise impacts where infrastructure is installed adjacent to residential neighborhoods. All of the soil disturbance would occur in existing disturbed ROWs, and the noise impacts would be no different than those resulting from normal power infrastructure maintenance operations; thus, the impacts would be considered insignificant.

The power required for operation of the permanent lights would be roughly equivalent to the amount required to power a small high school (approximately 7.7 million kilowatt hours annually). The substations that would be serving the additional lighting have ample capacity to serve the additional load (EPE 2008). This would not be considered a significant amount when compared to the overall electric power available in the local power grid and the 16 percent power reserve maintained by EPE. The lights would be installed and maintained by EPE as part of their overall public light maintenance program.

3.12.2.3 Floating Foundation Fence Alternative

Impacts of the Floating Foundation Fence Alternative on utilities and infrastructure would be the same as those of the Proposed Action Alternative.

3.13 AESTHETIC AND VISUAL RESOURCES

3.13.1 Affected Environment

The project area contains a man-made canal and levee system that has altered the natural topography. The cities of El Paso and Juarez are located north and southwest of the project area in the U.S. and Mexico, respectively. Properties adjacent to the levee system are primarily developed, consisting of industrial, agricultural, commercial and residential development. USBP shelters located approximately every mile and the USBP lights are the only structures between the levee and the Rio Grande. The levee is cleared and mowed regularly to maintain flood control features, and it is topped by a dirt and gravel road. The only natural landscapes in the area are the Rio Bosque Wetland Park, which is a wetland mitigation area that is being restored with native flora, and the Alamo Arroyo and Diablo Arroyo drains, located approximately 4 miles northwest of the Fort Hancock POE and at the east end of the project corridor, respectively.

The view of the Rio Grande and the floodplain is obscured by the presence of the USIBWC levee, and access to the levee is restricted, so that views of the Rio Grande are not generally available to the general public.

3.13.2 Environmental Consequences

3.13.2.1 No Action Alternative

The No Action Alternative would result in no additional infrastructure construction along the project corridor, so there would be no additional impacts on the aesthetic qualities of the area.

3.13.2.2 Proposed Action Alternative

The USIBWC levee already interrupts the view of the Rio Grande from the U.S. side of the border. The addition of a fence along the toe levee would not detract appreciably from this current view. Access for the Ysleta de Sur Pueblo to the unrestricted Rio

Grande floodplain south of the levee would be provided through gates at specified locations.

The installation of permanent lights along the flood side of the levee would have an impact on the nighttime appearance of the area due to the illumination of the south side of the levee and the area between the levee and the river. The lights would be directed to illuminate only the ground area beneath and to the south of the light standards, and would be shielded to prevent light trespass north of the levee, into areas currently inhabited by U.S. citizens. Roads and developed areas already border the north side of the EPCWID1 and HCCRD1 canals, and, where development is absent, rural farm land is the predominant land use. Therefore, the addition of lights in this area would have minimal effect on the aesthetics of the area on the U.S. side of the canal. Design criteria and illumination diagrams for the proposed lights can be found in Appendix B.

The proposed bridges would be constructed in the same footprint as previous bridges across the EPCWID1 and HCCRD1 canals and at logical canal crossing points at the ends of established roads and, therefore, would not detract from the appearance of the area.

A proposed pedestrian walkway along the Rio Grande through El Paso and connecting to the Rio Bosque Park could not be constructed in the floodplain if the Proposed Action Alternative is implemented, since the fence would prevent any pedestrian connection between the river and the area north of the USIBWC levee. Since the existing portions of this trail system are located north of the border fence in El Paso, this restriction should not result in a significant impact. USBP will coordinate with the city and the county to ensure that future expansion of the existing trail and the proposed fence do not conflict with each other. No visitors are allowed in the Rio Bosque Wetland Park at night, so there would be no significant impacts on appearance from lights along the levee.

3.13.2.3 Floating Foundation Fence Alternative

Impacts of the Floating Foundation Fence Alternative on aesthetic and visual resources would be similar to those of the Proposed Action Alternative. Because the fence would be at a higher elevation on the top of the levee, visual impacts would be slightly greater than those of the Proposed Action Alternative, but still less than significant.

3.14 HAZARDOUS MATERIALS

3.14.1 Affected Environment

Solid and hazardous waste occurrence in the general area of the project corridor was discussed in the 2006 PEA (USBP 2006), and that discussion is incorporated herein by reference. As determined by a reconnaissance survey of the project corridor, there are no industrial or other commercial facilities near the project corridor that would contain hazardous materials or hazardous waste. Construction equipment used to implement the Proposed Action Alternative would contain fuel and petroleum fluids and lubricants that would be considered hazardous if released into the environment.

3.14.2 Environmental Consequences

3.14.2.1 No Action Alternative

There would be no impacts under the No Action Alternative, since no construction activity would take place in the project area, and no solid waste or hazardous waste would be generated.

3.14.2.2 Proposed Action Alternative

Implementation of the Proposed Action Alternative would involve the use of various types of heavy construction equipment. BMPs would be implemented to minimize the possibility that lubricating fluids or fuel would be discharged into the environment from this equipment. The BMPs are described in detail in Section 5.0 of this EA. In addition, a Spill Prevention, Control and Countermeasures Plan (SPCCP) would be developed and implemented prior to the start of construction on the project.

3.14.2.3 Floating Foundation Fence Alternative

Impacts due to implementation of the Floating Foundation Fence Alternative and proposed BMPs would be the same as those described above for the Proposed Action Alternative.

3.15 SOCIOECONOMICS

3.15.1 Affected Environment

The socioeconomic environment for the project region is described in detail in the USBP Programmatic EA, and is incorporated herein by reference (USBP 2006). In summary, the USBP Programmatic EA examined population structure, housing, environmental justice and protection of children. Only those portions of the socioeconomic environment that have changed since the USBP Programmatic EA are discussed in this EA. Table 3-4 illustrates the difference in socioeconomic data for those indices which have changed between the current EA and the USBP Programmatic EA in 2006. The region of influence (ROI) examined is El Paso County and Hudspeth County, Texas.

Table 3-4. Socioeconomic Data for El Paso and Hudspeth Counties

Index	El Paso County		Hudspeth County	
	USBP 2006 Data	Current Data	USBP 2006 Data	Current Data
Total population	702,609 (2000)	736,310 (2006)	3,257 (2000)	3,344 (2006)
Total number of jobs	240,723 (2000)	349,204 (2005)	1,228 (2000)	1,551 (2005)
Percent annual unemployment rate	5.2 (2000)	6.7 (2006)	4.3 (2000)	7.4 (2006)
Total personal income	$14.7B (2003)	$16.8B (2005)	$53.7M (2003)	$48.9M (2005)
Per capita personal income, in thousands	$20,875 (2003)	$23,256 (2005)	$16,482 (2003)	$14,804 (2005)
Percentage of all ages in poverty	23.8 (2000)	24.6 (2004)	35.8 (2000)	26.6 (2004)

Source: Bureau of Economic Analysis (BEA) 2005 a, b, c, and d, Census Bureau 2004, USBP 2006, Texas County Information Project 2006 a and b
B= billion, M=million

In 2005, El Paso County had a per capita personal income (PCPI) of $23,256 (BEA 2005c). This PCPI ranked 184th in the State of Texas, and was 72 percent of the state average of $32,460, and 67 percent of the National average of $34,471. The average

annual growth rate of PCPI from 1995 to 2005 was 4.6 percent. This average annual growth rate was higher than the growth rate for the state (4.4 percent) and higher than that for the Nation (4.1 percent). In 2005, El Paso County had a total personal income (TPI) of $16.8 billion. This TPI ranked 9th in the state and accounted for 2.3 percent of the state total. The 2005 TPI reflected an increase of 6.6 percent from 2004, which was lower than the 2004-2005 state change of 7.8 percent and the national change of 5.2 percent. In El Paso County during 2004, 24.6 percent of the population was living below the poverty level, which is higher than the 16.2 percent of the state population in poverty (U.S. Census Bureau 2004).

In 2005, Hudspeth County had a PCPI of $14,804 (BEA 2005d). This PCPI ranked 249th in the State of Texas, and was 46 percent of the state average of $32,460, and 43 percent of the national average of $34,471. The average annual growth rate of PCPI from 1995 to 2005 was 3.7 percent. This average annual growth rate was lower than the growth rate for the state (4.4 percent) and lower than that for the nation (4.1 percent). In 2005, Hudspeth County had a TPI of $48.9 million, which ranked 234th in the state. The 2005 TPI reflected a decrease of 7.1 percent from 2004, which was lower than the 2004-2005 state increase of 7.8 percent and the national increase of 5.2 percent. In Hudspeth County during 2004, 26.6 percent of the population was living below the poverty level, which is higher than the 16.2 percent of the state population in poverty (U.S. Census Bureau 2004).

3.15.2 Environmental Consequences

3.15.2.1 No Action Alternative

There would be no direct impacts on socioeconomic resources under the No Action Alternative, since no construction of lights, primary pedestrian fence or bridges would occur in the project area. There would continue to be indirect impacts on local crime rates as a result of IA and drug smuggling activities in the vicinity of the project corridor, as well as on law enforcement costs associated with those activities.

3.15.2.2 Proposed Action Alternative

The Proposed Action Alternative would utilize USBP staff, JTF-N or National Guard units, or private contractors to construct the permanent lights, fence and bridges; therefore, there would be no effects on population, personal income, or housing unless private contractors were used. In this event, a temporary increase in personal income may occur. Most materials and other project expenditures would be obtained from within the local community, providing minor temporary, direct economic benefits. Adequate housing is available in the El Paso area, and no displacement is predicted to result from this action; therefore, there would be no direct impacts on housing in the region. The proposed fence and lights along the USIBWC levee should not impact recreational activities south of the levee, since access to the Rio Grande floodplain is already restricted by existing fences and gates, as well as USBP patrols. No significant, permanent or long-lasting socioeconomic impacts would be anticipated as a result of the construction activity.

3.15.2.3 Floating Foundation Fence Alternative

Socioeconomic effects of the Floating Foundation Fence Alternative would be the same as those for the Proposed Action Alternative.

3.16 ENVIRONMENTAL JUSTICE

3.16.1 Affected Environment

EO 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) was signed in February 1994. This order was intended to direct Federal agencies "…to make achieving environmental justice part of its mission by identifying and addressing… disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the [U.S.]…" To comply with the EO, minority and poverty status in the vicinity of the project was examined to determine if any minority and/or low-income communities would potentially be disproportionately affected by implementation of the

Proposed Action Alternative and other alternatives. Both low-income and minority populations are present within the ROI.

3.16.2 Environmental Consequences

3.16.2.1 No Action Alternative

Under the No Action Alternative, continuing IA migration through the area would have adverse impacts on all populations in the ROI.

3.16.2.2 Proposed Action Alternative

No significant adverse environmental effects have been identified for any resource area or population (minority, low-income, or otherwise) analyzed in this EA. There would be no displacements of residences or businesses.

Elimination of illegal cross-border activities would benefit the entire population of El Paso and Hudspeth counties, regardless of age, nationality, ethnicity, or economic status. Thus, the Proposed Action Alternative would be in compliance with EO 12898.

3.16.2.3 Floating Foundation Fence Alternative

The effects of the Floating Foundation Fence Alternative, relative to EO 12898 would be the same as the Proposed Action Alternative.

3.17 PROTECTION OF CHILDREN

3.17.1 Affected Environment

EO 13045 requires each Federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children; and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. Special risks to children related to construction activity may include safety, noise, pollutants, and

hazardous materials. Children would be more likely to be present in residential neighborhoods adjacent to the project corridor rather than in the less populated agricultural areas.

3.17.2 Environmental Consequences

3.17.2.1 No Action Alternative

Under the No Action alternative, continuing IA migration through the area would have adverse impacts on all populations in the ROI, including children.

3.17.2.2 Proposed Action Alternative

Safety precautions to protect children in areas surrounding the work sites for the Proposed Action Alternative would include adequate measures to restrict access, minimization of hazards associated with construction activities, and proper handling and disposal of hazardous materials. Such mitigation measures would serve to offset any potential for impacts to children. All of the construction activity, with the exception of bridge construction, would occur south of the EPCWID1 and HCCRD1 canals, where access is currently restricted. With the implementation of mitigation measures, no impacts or special risks to children would be associated with the Proposed Action Alternative, thus, the Proposed Action Alternative would be in compliance with EO 13045.

3.17.2.3 Floating Foundation Fence Alternative

The effects of the Floating Foundation Fence Alternative implementation would be the same as those described for the Proposed Action Alternative, and no special risks to children would be expected.

3.18 HUMAN HEALTH AND SAFETY

3.18.1 Affected Environment

Currently, the safety of USBP agents in the area of the Proposed Action Alternative is compromised by a lack of visibility at night along the canal and levee, and the inability to

readily access portions of the patrol area between the canal and the Rio Grande. Substantially more patrols are necessary due to the absence of TI components, such as fences and lights, to provide some level of safety for USBP agents and IAs.

The health and safety of IAs attempting to cross the river and the EPCWID1 and HCCRD1 canals are at risk, especially during periods of high water, due to the lack of deterrent structures and the inability to judge water depth and current strength at night, when most crossing attempts are made. Emergency rescue attempts are hindered by a lack of bridge access to the area between the canal and the river and the lack of visibility at night. The safety of residents and property in the U.S. along the project corridor during floods is also diminished due to lack of access for USIBWC, EPCWID1 and HCCRD1 maintenance and flood fighting personnel.

3.18.2 Environmental Consequences

3.18.2.1 No Action Alternative

Under the No Action Alternative, there would be no primary pedestrian fence, lights or bridges constructed in the project area. The safety of USBP agents operating in the area at night would still be compromised by the inability to see IAs and drug smugglers during hours of darkness, when most illegal activities occur. Rescue efforts in the EPCWID1 and HCCRD1 canals and the Rio Grande floodplain during flood events would remain hampered by a lack of bridge access and a lack of nighttime visibility. The lack of an effective physical deterrent to IA movement across the border (i.e., fence) would result in increased public health and safety concerns and law enforcement concerns due to the increasing numbers of IAs crossing the border, and the concomitant increase in associated criminal activity in the community.

3.18.2.2 Proposed Action Alternative

Impacts to human health and safety would be limited to those normally encountered during construction activities. An approved Health and Safety Plan would be developed prior to initiating construction activities to minimize those impacts. Construction site safety is largely a matter of adherence to regulatory requirements imposed for the

benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The Occupational Safety and Health Administration (OSHA) and EPA issue standards that specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits with respect to workplace stressors.

Construction workers at any of the proposed construction sites would be exposed to safety risks from the inherent dangers at construction sites. Contractors would be required to establish and maintain safety programs at the construction site. The proposed construction would not expose members of the general public to increased safety risks.

Increased nighttime visibility of the border area and the added deterrent of border fencing would have long-term beneficial effects for USBP employees operating in the El Paso, Ysleta, Fabens and Fort Hancock AOs.

Medical services, fire protection and police service would not be changed from the current standards for the area. The Proposed Action Alternative would not create any additional burden on any health and safety services. The safety of persons in distress in the area between the canal and the Rio Grande would be enhanced by the added access for emergency personnel afforded by the new bridges, and the increased visibility resulting from the lighting of the area.

The design and location of the primary pedestrian fence footings would not compromise the integrity of either the USIBWC levee or the EPCWID1 and HCCRD1 canals, and the flood protection and irrigation afforded by these structures would not be diminished.

3.18.2.3 Floating Foundation Fence Alternative

Impacts to human health and safety of the Floating Foundation Fence Alternative would be the same as those of the Proposed Action Alternative.

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SECTION 4.0
CUMULATIVE EFFECTS

4.0 CUMULATIVE EFFECTS

This section of the EA addresses the potential cumulative impacts associated with the implementation of the alternatives and other projects/programs that are planned for the region. The CEQ defines cumulative impacts as "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" (40 CFR 1508.7). This section continues, "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The cumulative impacts associated with USBP activities such as those addressed by this EA were previously addressed in the 2006 PEA (USBP 2006), and are incorporated herein by reference. This EA is tiered from that 2006 PEA, and the Proposed Action Alternative is of the type addressed in that PEA. The Proposed Action Alternative or Floating Foundation Fence Alternative would have numerous cumulative beneficial impacts, including the long-term reduction of flow of illegal drugs into the U.S. and the concomitant effects upon the nation's health and economy, drug-related crimes, community cohesion, property values and traditional family values.

Future projects are being planned by CBP throughout the El Paso Sector. In 2006, a Programmatic EA was prepared to address proposed construction of TI along the U.S.-Mexico border in the Texas portion of the El Paso Sector (USBP 2006). The TI involves improvements or construction of up to 19 Remote Video Surveillance System (RVSS), improvements to or construction of approximately 99 miles of all-weather patrol roads and approximately 40 miles of drag roads, installation of permanent pedestrian barriers, installation of permanent lights, construction of ancillary structures (i.e., low water crossings, access gates, pipe gates, bridges), vegetation management, and permanent vehicle barriers. It is anticipated that the projects would be implemented over the next 10 years and disturb a total of 571 acres. An additional 3.6 miles of pedestrian fence along

the levee in El Paso is also planned for construction with minimal impacts on 7 acres of previously disturbed land.

The Texas Mobile project would install 12 fixed tower systems, 12 vehicle mobile surveillance systems, and unattended ground sensors (UGSs) within the USBP Ysleta, Fabens, and Fort Hancock stations AOs. Access roads in and near the proposed towers would be constructed or improved as necessary. The project would permanently disturb approximately 1.79 acres for the construction of all towers and roads, of which 0.34 acre has been previously disturbed. Additionally, approximately 7.26 acres would be temporarily affected by the proposed construction activities.

CBP is also planning several facilities projects in the sector. These include the construction of new USBP stations in Fort Hancock, Texas (14 acres) and Lordsburg, New Mexico (25 acres), and the construction of two forward operating bases (FOB) in New Mexico along New Mexico Highway 9, one in the Deming Station AO and the other in the Lordsburg Station AO. The approximate footprint for each FOB is 10 acres. USBP also plans to install 10 emergency beacons in the Lordsburg and Deming stations AOs.

Three USBP checkpoints in El Paso Sector are being enlarged or relocated on Interstate 25 (I-25) and Interstate 10 (I-10) in New Mexico, and on Highway 62/180 near Ysleta in Texas. A total of 30 additional acres would be acquired and potentially disturbed outside of the existing footprint at the three sites.

The Texas Department of Transportation (TxDOT) El Paso District has several construction projects in progress or in planning stages.

- **I-10 Southern Relief Route** - TxDOT is studying the feasibility of a Southern Relief Route for I-10 along the southern corridor of Loop 375 in El Paso.
- **I-10 E3 rail project/closure update** - permanent concrete railings will be built, and high mast illumination lights will be installed on I-10, between Schuster Drive and Raynolds Street.

- **Northeast Parkway Project** - TxDOT, in cooperation with the New Mexico Department of Transportation, has recently completed the design schematic for a 21-mile long, limited access highway connecting Loop 375 in northeast El Paso near Railroad Drive to I-10 in Anthony, New Mexico.
- **I-10 Americas Interchange** - the I-10/Americas Interchange project will involve improving the existing cloverleaf interchange; constructing the Loop 375 main lanes over I-10 to the Socorro Independent School District's Activities Center at Bob Hope Drive; and adding directional ramps/connections between Loop 375 and I-10.
- **I-10 East Corridor Study** - TxDOT has completed the 22-mile I-10 East Corridor Study from just west of US 54 at Piedras Street to Farm to Market (FM) 1110 at the Town of Clint. The corridor also included portions of FM 76 (North Loop Road) from FM 1281 (Horizon Boulevard) to FM 1110, and SH 20 (Alameda Avenue) from just east of Loop 375 to FM 1110, and FM 1110 between I-10 and FM 76. The I-10 East Corridor Study, designed as a comprehensive multi-modal study, has resulted in recommended strategies to address identified long-term transportation and corridor needs through 2025.

The El Paso County Road and Bridge Department has an ongoing road paving schedule. All of these streets are 24 feet in width. Paving projects in the Fabens area include:

- Wingo Reserve Road from Jeff Harris Road to Rawls Road - 0.8 mile
- Rawls Road from Wingo Reserve Road to Isla Road - 0.1 mile
- Island Road from Lower Island Road to Newman Road - 1.4 miles
- Highland Street from 5th Street to the end of Highland Street - 0.6 mile
- Tornillo Avenue from OT Smith Road to 5th Street - 0.3 mile
- Florinda Drive from Cobb Avenue to Linda Drive - 0.3 mile
- Flor Del Rio Drive from Cobb Avenue to Linda Drive - 0.3 mile
- Florelia Drive from Gaby Road to Linda Drive - 0.1 mile
- Flor Bella Lane from Linda Drive to the end of Flor Bella Lane - 0.1 mile
- Linda Drive from Feed Penn Road to Henderson Street - 0.3 mile
- Los Lettunich Road from Henderson Street to Feed Penn Road - 0.3 mile
- Chamizo Road from Feed Penn Road to Henderson Street - 0.3 mile

The Base Realignment and Closure Act (BRAC) proposed several potential changes and force increases for Fort Bliss, located in El Paso, north of the proposed project corridor. These potential force increases would result in moderate to significant impacts to numerous resources, but the impacts could be mitigated to less than significant (U.S.

Army Environmental Command [USAEC] 2007). Cumulative impacts to utilities and infrastructure from alternatives considered for this EA would not add significantly to those resulting from the BRAC actions at Fort Bliss.

Neither the Proposed Action Alternative or Floating Foundation Fence Alternative would significantly contribute to the cumulative construction projects and impacts within the ROI; however, the net effect of all USBP projects would be minor when compared to the overall effect of other construction in the vicinity of El Paso, the major populated area in the ROI. Therefore, cumulative impacts from past, present and future developments as a result of the Proposed Action Alternative or Floating Foundation Fence Alternative would be minor.

The No Action Alternative would have no immediate effect on the existing human environment, but the lack of upgraded USBP access and the lack of deterrent features, such as lighting and pedestrian fences along the USIBWC levee, would have future cumulative adverse effects due to increased illegal immigration and importation of drugs, potential public safety problems, and the consequential degradation of quality of life in the ROI.

A summary of the anticipated cumulative impacts of the Proposed Action Alternative is presented in the following sections. Discussions are presented for each of the resources described previously.

4.1 LAND USE

There would be a significant impact if any action is inconsistent with adopted land use plans or if any action would substantially alter those resources required for, supporting, or benefiting the current use. Since there would be no change in land use as a result of the Proposed Action Alternative or Floating Foundation Fence Alternative, there would be no cumulative impacts on land use.

4.2 WATER RESOURCES

The significance threshold for water resources includes any action that substantially depletes ground water supplies or interferes with groundwater recharge, substantially alters drainage patterns, or results in the loss of WUS that cannot be compensated. No significant cumulative impacts on surface water resources would occur as a result of the construction and maintenance of the proposed primary pedestrian fence and lights. No cumulative impacts on WUS would be expected as no WUS occur within the project corridor. The required SWPPP measures would reduce erosion and sedimentation during construction to negligible levels, and would eliminate post-construction erosion and sedimentation from the site. The same measures would be implemented for other local and regional construction projects; therefore, cumulative impacts would not be significant.

There are no significant effects on water supplies or water availability identified in the EA as a result of any alternatives considered, therefore there would be no significant cumulative impacts to water supplies or availability if the Proposed Action Alternative or Floating Foundation Fence Alternative are implemented.

4.3 NATIVE VEGETATION

The significance threshold for biological resources includes a substantial reduction in ecological processes, communities, or populations that would threaten the long term viability of a species or result in the substantial loss of a sensitive community that could not be offset. Since no extensive native vegetation communities occur within the project corridor, there would be no significant direct or cumulative adverse impact on vegetation communities if the Proposed Action Alternative or Floating Foundation Fence Alternative were implemented. Other USBP projects, including the vegetation clearing and additional lighting, would result in cumulative adverse impacts on native vegetation.

4.4 WILDLIFE

Since no additional native vegetation communities would be impacted under the Proposed Action Alternative or Floating Foundation Fence Alternative, insignificant cumulative impacts on wildlife populations would be expected. Cumulative impacts due to fragmentation of habitat would be considered minor, since the USIBWC levee and the EPCWID1 and HCCRD1 canal system already inhibit north-south migration of terrestrial species. In addition, prior to construction, site surveys for migratory species and appropriate mitigation measures would be implemented. The loss, when combined with other ground disturbing or development projects in the project region, would not result in significant cumulative negative impacts on the region's biological resources.

4.5 THREATENED SPECIES AND CRITICAL HABITAT

Since no Federally threatened or endangered species would be affected by the Proposed Action Alternative or Floating Foundation Fence Alternative, there would be no cumulative impacts when considered with other USBP projects in the El Paso Sector.

4.6 CULTURAL RESOURCES

Since no impacts on cultural resources are anticipated from implementation of the Proposed Action Alternative or Floating Foundation Fence Alternative, there would be no cumulative effect on cultural resources when considered with other USBP projects in the El Paso Sector.

4.7 AIR QUALITY

Impacts to air quality would be considered significant if the action results in a violation of air quality standards, obstructs implementation of an air quality plan, or exposes sensitive receptors to substantial pollutant concentrations. The emissions generated

during and after the construction of the primary pedestrian fence and lights would be short-term and minor. BMPs designed to reduce fugitive dust have been and will continue to be standard operation procedure for USBP construction projects. Therefore, no cumulative impacts are anticipated due to implementation of the Proposed Action Alternative or Floating Foundation Fence Alternative.

4.8 NOISE

Actions would be considered to cause significant impacts if they permanently and substantially increase ambient noise levels over 65 dBA (current ambient conditions). Most of the noise generated by the Proposed Action Alternative or Floating Foundation Fence Alternative would occur during construction and, thus, would not contribute to cumulative impacts to ambient noise levels. Routine maintenance of the fence would result in slight temporary increases in noise levels, which would continue to sporadically occur over the long term. Potential sources of noise from other projects are not enough (temporal or spatial) to increase ambient noise levels above the 65 dBA range along the proposed corridor. Thus, the noise generated by the construction and maintenance of the primary pedestrian fence and lights, when considered with the other existing and proposed projects in the region, would not be considered as a significant cumulative adverse effect.

4.9 UTILITIES AND INFRASTRUCTURE

Since no significant impacts to utilities and infrastructure would occur due to implementation of the Proposed Action Alternative or Floating Foundation Fence Alternative, there would be no significant cumulative effect on utilities and infrastructure when considered with other USBP projects in the El Paso Sector. Although the City and County of El Paso are expected to continue to experience development over the next 5 years, particularly in regards to troop realignment to Fort Bliss, the electrical capacity provided by EPA is more than sufficient to ensure that no significant adverse cumulative

effect would occur. As discussed previously, EPE maintains a 16 percent reserve power capacity above firm peak demand.

4.10 AESTHETIC RESOURCES

Actions that cause the permanent loss of the characteristics that make an area visually unique or sensitive would be considered to cause a significant impact. No major impacts to visual resources would occur from implementing the Proposed Action Alternative or Floating Foundation Fence Alternative, due in part to the surrounding development, agricultural operations, and the existing levee and canal structures. Construction and maintenance of the proposed primary pedestrian fence and lights, when considered with existing and proposed developments in the surrounding area, would not result in a significant cumulative negative impact on the visual quality of the region.

Cumulative visual impacts to the project corridor, when viewed from the Rio Bosque Wetlands Park, would be long-term; but would not be considered significant when considered with the surrounding development, including the levees and the adjacent wastewater treatment plant. The long-term reduction of illegal traffic and the synergistic effects (e.g., trash, trails, etc.) would provide cumulative beneficial visual effects within the park.

Cumulative impacts to the view of the Rio Grande floodplain across the USIBWC levee from the Ysleta del Sur Pueblo would be less than significant, since there is a fence located there already, and the proposed primary pedestrian fence would be of mesh construction, providing some view of the river and the floodplain.

4.11 SOCIOECONOMICS

Significance threshold for socioeconomic conditions includes displacement or relocation of residences or commercial buildings, increases in long term demands to public

services in excess of existing and projected capacities, and disproportionate impacts to minority and low income families. Construction of the proposed primary pedestrian fence, bridges and lights would result in temporary, minor and beneficial impacts to the region's economy. Loss of potential recreational use of the levee and Rio Grande floodplain due to non-construction a proposed pedestrian walkway corridor would result in No impacts to residential areas, population, or minority or low-income families would occur. These effects, when combined with the other projects currently proposed or on-going within the region, would not be considered as significant cumulative impacts.

4.12 HAZARDOUS MATERIALS

Significant impacts would occur if an action creates a public hazard; the site is considered a hazardous waste site that poses health risks, of if the action would impair the implementation if an adopted emergency response or evacuation plans. Only minor increases in the use of hazardous substances would occur as a result of the construction and maintenance of the proposed primary pedestrian fence and lights. No health or safety risks would be created by the Proposed Action Alternative or Floating Foundation Fence Alternative. These effects, when combined with other on-going and proposed projects in the region, would not be considered a significant cumulative effect.

4.13 HUMAN HEALTH AND SAFETY

Long-term beneficial effects on human health and safety for the public would result from implementation of the Proposed Action Alternative or Floating Foundation Fence Alternative due to decreased adverse impacts from IA migration through the area and associated criminal activity. Long-term beneficial effects on safety for USBP agents would also result from increased nighttime visibility and the deterrent effect of the primary pedestrian fence on IA migration in the El Paso Sector. When considered with other USBP actions in the El Paso Sector, moderate beneficial effects would occur to human health and safety due to implementation of the Proposed Action Alternative or Floating Foundation Fence Alternative.

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SECTION 5.0
MITIGATION MEASURES

5.0 MITIGATION MEASURES

It is CBP's policy to reduce impacts through the sequence of avoidance, minimization, mitigation, and finally, compensation. Mitigation efforts vary and include activities such as restoration of habitat in other areas, acquisition of lands, and implementation of appropriate BMPs. CBP coordinates its environmental design measures with the appropriate Federal and state resource agencies, as appropriate.

This section describes those measures that could be implemented to reduce or eliminate potential adverse impacts on the human and natural environment. Many of these measures have been incorporated by USBP as standard operating procedures on past projects. Environmental design measures are presented for each resource category that would be potentially affected. It should be emphasized that these are general mitigation measures; development of specific mitigation measures would be required for certain activities implemented under the action alternatives. The proposed mitigation measures would be coordinated through the appropriate agencies and land managers or administrators, as required.

The 2006 PEA (USBP 2006) described numerous BMPs and environmental design measures that would be implemented to reduce impacts to resources. Those BMP and design measure descriptions are incorporated herein by reference. In particular, BMPs and mitigation measures will be implemented to address impacts to the following resources.

5.1 WATER RESOURCES

A SWPPP, as part of the Texas Pollution Discharge Elimination System (TPDES) permit process, and a SPCCP will be developed for the area affected during construction procedures. To minimize potential impacts from solid and hazardous materials, all fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary

containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein. The refueling of machinery will be allowed only as described in the SPCCP, and all vehicles would have drip pans during storage to contain minor spills and drips. Although it would be unlikely for a major spill to occur, any spill of 5 gallons or more will be contained immediately with the application of an absorbent material (e.g., granular, pillow, sock). Furthermore, any petroleum liquids (e.g., fuel) or material listed in 40 CFR 302 Table 302.4 of a reportable quantity must be cleaned up and reported to the appropriate Federal and state agencies. Reportable quantities of those substances listed on 40 CFR 302 Table 302.4 will be included as part of the SPCCP. A SPCCP will be in place prior to the start of construction and all personnel will be briefed on the implementation and responsibilities of this plan.

All used oil and solvents will be recycled if possible. All non-recyclable hazardous and regulated wastes will continue to be collected, characterized, labeled, stored, transported, and disposed of as regulated by the EPA and managed by CBP, pursuant to compliance with the Resources Conservation and Recovery Act (RCRA) P.L. 94-580, 90 Statute 2795 (1976), and other Federal guidelines and regulations.

The SWPPP will include BMPs to control erosion and fugitive dust emissions, including the use of silt fencing and hay bales adjacent to open water, such as the canals, and dust suppression by watering haul roads and construction areas.

5.2 AIR QUALITY

During the construction of the proposed project, proper and routine maintenance of all vehicles and other construction equipment will be implemented to ensure that emissions are within the design standards of all construction equipment. Dust suppression methods, such as watering of roads and construction areas, will be implemented to minimize fugitive dust.

5.3 CULTURAL RESOURCES

All excavation activities will be monitored for possible buried cultural resources. Although no buried cultural resources are known within the project areas, should any evidence of cultural resources be observed during construction, work will stop in the immediate vicinity, the resource will be protected, and SHPO will be notified within 24 hours of the discovery. If, in consultation with SHPO, it is determined that the resource is significant, and cannot be avoided, a mitigation plan will be developed and implemented before construction is resumed.

Light switches will be installed, as specified in an MOA with the Ysleta del Sur Pueblo, so that lights can be turned off when necessary during tribal ceremonies along the river. Access to the river will be provided with gates in the fence at prescribed intervals.

5.4 HEALTH AND SAFETY

A health and safety plan will be developed prior to construction to direct construction activities in accordance with OSHA requirements. Construction sites will be barricaded to prevent unauthorized entry.

Fence designs will be coordinated with USIBWC, EPCWID1 and HCCRD1 so that fence footings will not be constructed in any ways that could compromise the levee or irrigation canal structural integrity.

5.5 BIOLOGICAL RESOURCES

Since construction or clearing activities cannot be scheduled to avoid the migratory bird nesting season (typically February 15 through September 15), surveys will be performed to identify active nests. If construction activities would result in the take of a migratory bird, then coordination with the USFWS and TPWD would be initiated, and applicable permits would be obtained prior to construction or clearing activities. Monitoring for the

presence of burrowing owls in the sides of the levee will be conducted, and relocation of owls present would be accomplished outside of the nesting season. An incidental take permit would be obtained if this is not possible. Monitoring of open holes would take place daily to reduce or avoid impacts on Texas horned lizards.

SECTION 6.0
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6.0 REFERENCES

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APPENDIX A
Air Quality Calculations

CALCULATION SHEET

Personal Vehicle Estimated Emissions

	Emission Factors								
Pollutants	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile	Mile/day	Day/yr	Number of cars	Number of trucks	Total Emisssions Cars tns/yr	Total Emissions Trucks tns/yr	Total
VOCs	1.36	1.61	60	208	20	20	0.37	0.44	0.82
CO	12.4	15.7	60	208	20	20	3.41	4.32	7.73
NOx	0.95	1.22	60	208	20	20	0.26	0.34	0.60
PM-10	0.0052	0.0065	60	208	20	20	0.00	0.00	0.00
PM 2.5	0.0049	0.006	60	208	20	20	0.00	0.00	0.00
							-		

POV Source: EPA 2005 Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks. EPA 420-F-05-022 August 2005
Fleet Charactorization: 80 POVs commuting to work were 50% are pick up trucks and 50% passenger cars

Conversion factor: gms to lbs
0.002204

Emissions from Combustion Engines: Preferred Alternative-Yselta Lights

Construction Emissions:			Calculation Assumptions			
Construction Equipmen	Units	Working Days/yr	Hrs/ day	Horse power	Type of Fuel	Total hp-hr
Dump truck	1	208	10	340	Diesel	707,200
Excavator	1	20	10	463	Diesel	92,600
Bull dozer	1	20	10	324	Diesel	64,800
Cement truck	3	208	10	215	Diesel	1,341,600
Water truck-fugitive dus	1	208	6	270	Diesel	336,960
Pole truck	1	208	10	320	Diesel	665,600
Diesel generators	5	208	10	30	Diesel	312,000
Compressors	5	208	10	25	Diesel	260,000
Employee commute	40	208	1 hr-60 miles	POV(1)	Gasoline	NA

Construction Emissions:			Calculation Results for NOx		
Construction Equipment	Emission Factor	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.031	b/hp-hr	707,200	21,923	10.96
Excavator	0.031	b/hp-hr	92,600	2,871	1.44
Bull dozer	0.031	b/hp-hr	64,800	2,009	1.00
Cement truck	0.031	b/hp-hr	1,341,600	41,590	20.79
Water truck-fugitive dust	0.031	b/hp-hr	336,960	10,446	5.22
Pole truck	0.031	b/hp-hr	665,600	20,634	10.32
Diesel generators	0.031	b/hp-hr	312,000	9,672	4.84
Compressors	0.031	b/hp-hr	260,000	8,060	4.03
Employee commute	1.22	g/mile	NA	NA	0.60
Total Emissions					**59.20**

Construction Emissions:			Calculation Results for CO		
Construction Equipment	Emission Factor	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.00668	b/hp-hr	707,200	4,724	2.36
Excavator	0.00668	b/hp-hr	92,600	619	0.31
Bull dozer	0.00668	b/hp-hr	64,800	433	0.22
Cement truck	0.00668	b/hp-hr	1,341,600	8,962	4.48
Water truck-fugitive dust	0.00668	b/hp-hr	336,960	2,251	1.13
Pole truck	0.00668	b/hp-hr	665,600	4,446	2.22
Diesel generators	0.00668	b/hp-hr	312,000	2,084	1.04
Compressors	0.00668	b/hp-hr	260,000	1,737	0.87
Employee commute	15.7	g/mile	NA	NA	7.73
Total Emissions					**20.36**

Emissions from Combustion Engines: Preferred Alternative-Yselta Lights

Construction Emissions:			Calculation Results for SOx		
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.00205	b/hp-hr	707,200	1,450	0.72
Excavator	0.00205	b/hp-hr	92,600	190	0.09
Bull dozer	0.00205	b/hp-hr	64,800	133	0.07
Cement truck	0.00205	b/hp-hr	1,341,600	2,750	1.38
Water truck-fugitive dust	0.00205	b/hp-hr	336,960	691	0.35
Pole truck	0.00205	b/hp-hr	665,600	1,364	0.68
Diesel generators	0.00205	b/hp-hr	312,000	640	0.32
Compressors	0.00205	b/hp-hr	260,000	533	0.27
Employee commute	NA		NA	NA	
Total Emissions					**3.88**

Construction Emissions:			Calculation Results for PM-10		
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.0022	b/hp-hr	707,200	1,556	0.78
Excavator	0.0022	b/hp-hr	92,600	204	0.10
Bull dozer	0.0022	b/hp-hr	64,800	143	0.07
Cement truck	0.0022	b/hp-hr	1,341,600	2,952	1.48
Water truck-fugitive dust	0.0022	b/hp-hr	336,960	741	0.37
Pole truck	0.0022	b/hp-hr	665,600	1,464	0.73
Diesel generators	0.0022	b/hp-hr	312,000	686	0.34
Compressors	0.0022	b/hp-hr	260,000	572	0.29
Employee commute	0.0065	g/mile	NA	NA	0.00
Total Emissions					**4.16**

Construction Emissions:			Calculation Results for VOCs		
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emissions	Total in tns/yr
Dump truck	0.0025141	b/hp-hr	707,200	1,778	0.89
Excavator	0.0025141	b/hp-hr	92,600	233	0.12
Bull dozer	0.0025141	b/hp-hr	64,800	163	0.08
Cement truck	0.0025141	b/hp-hr	1,341,600	3,373	1.69
Water truck-fugitive dust	0.0025141	b/hp-hr	336,960	847	0.42
Pole truck	0.0025141	b/hp-hr	665,600	1,673	0.84
Diesel generators	0.0025141	b/hp-hr	312,000	784	0.39
Compressors	0.0025141	b/hp-hr	260,000	654	0.33
Employee commute	1.61	g/mile			
Total Emissions					**4.75**

Emission Factor Source: AP 42, Fifth Edition, Volume 1 Chapter 3: Table 3.3-1

1. POVs=Personally Operated Vehicles i.e. rucks, SUVs,etc. trucks

POV Source: EPA 2005 Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks. EPA 420-F-05-022 August 2005

CALCULATION SHEET

Proposed Action Construction Emissions for Criteria Pollutants (tons per year)

Emission source	PM-10	CO	NOx	VOC	SO_2
Combustable Emissions	4.16	20.36	59.20	4.75	3.88
Construction Site-fugitive PM-10	39.87	NA	NA	NA	NA
Total emissions	44.03	20.36	59.20	4.75	3.88
De minimis threshold	100.00	100.00	NA	NA	NA

CALCULTION SHEET

Fugitive Dust Emissions (PM-10) fo New Construction Site.				
Construction Site	Emission Factor tons/acre/month	Total Area-Construction Site (acres)	Months/yr	Total PM-10 Emissions tns/yr
Resurface Road	0.11	7.27	3	2.4
Install lights	0.11	1.62	12	2.1
Staging area	0.11	2.07	12	2.7
Fence	0.11	24.24	12	32.0
Bridges	0.11	0.92	6	0.6
Transformers	0.11	0.01	4	0.0
Total		36.1		39.9

Source: Mid-Atlantic Regional Air Management Association (MARAMA). Fugitive Dust-Construction Calculation Sheet can be found online at: http://www.marama.org/visibility/Calculation_Sheets/

Soil surface area disturbed				
	Dementions (ft)			
Construction Site	Width	Length	Units	Total acres
Resurface Road	30	10,560	1	7.27
Install lights	10	10	704	1.62
Staging areas	300	300	1	2.07
Fence	10	105,600	1	24.24
Bridges	100	100	4	0.92
Transformers	10	10	4	0.01

Conversion factors	
ft2 per acre	0.000022957
ft per mile	5280

Number of lights to be installed	704

APPENDIX B
Lighting Specifications and Diagrams

Field Measurements on the River taken 7/11/02 with Raul Guel.
The following illuminance (foot-candle) values were measured @ 10:00 PM
with a Greenlee Digital Light Meter 93-172.
The values in this table were taken between 2 lighting poles.
Each pole has 2 1000 Watt HPS Floodlights with a 7x7 beam spread.
The floodlights are mounted approximately 38' above ground.
The floodlights are aimed approximately 15 degrees to each other and tilted 65 degrees up.
The values below represent a symmetrical pattern that approximates the values to be found along the river.

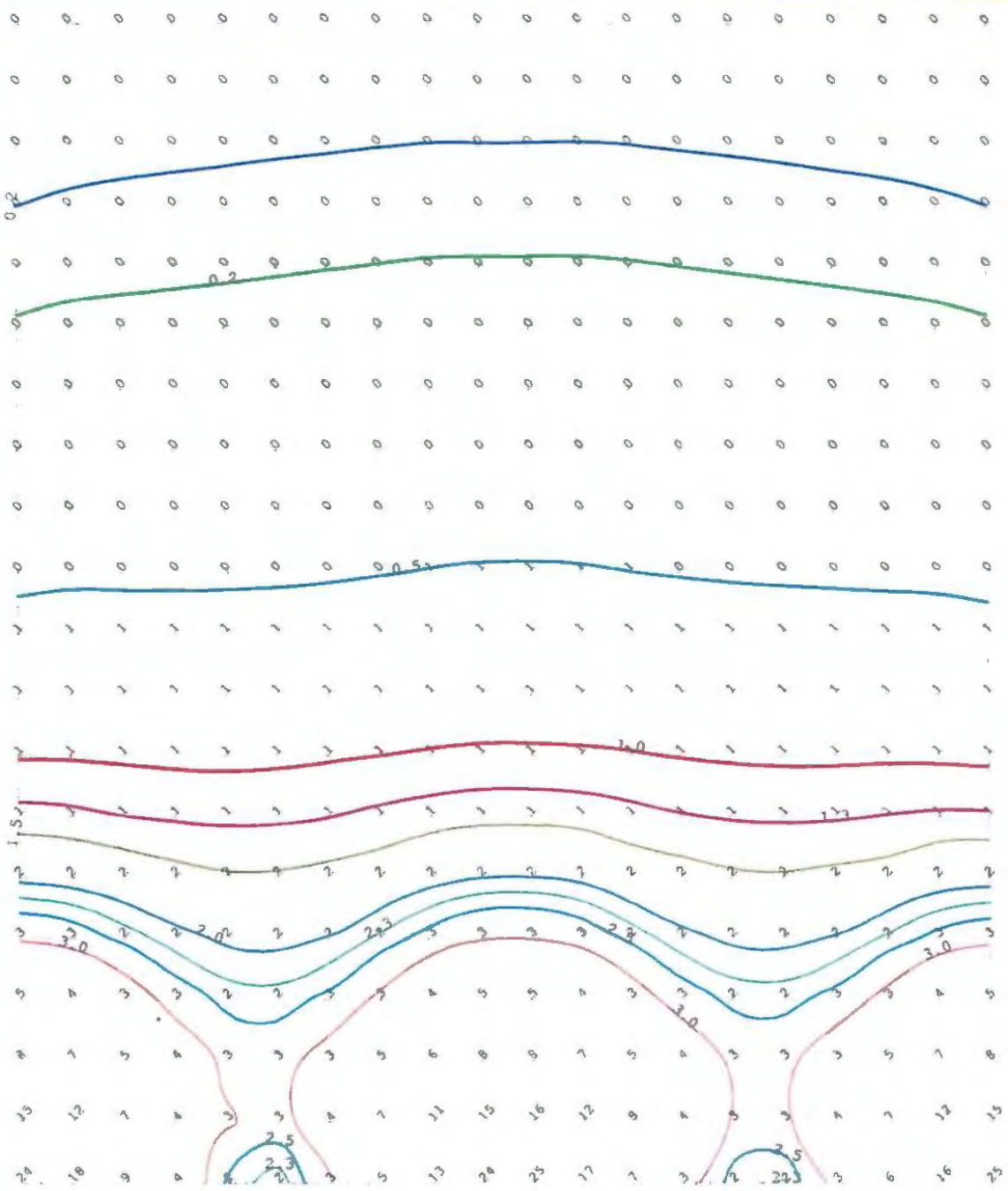
	Longitudinal distance to adjacent poles			
Drop in Elevation From Base of Pole	1/2 Distance 62.5'	1/4 Distance 31.25'	In Line to Pole 0'	Transverse Distance From the Pole
10'-9"	1.67	1.15	2.15	120'
	1.70	1.45	2.48	105'
	1.65	2.29	3.23	90'
	2.09	2.42	3.78	75'
10'-2"	2.12	3.78	6.13	60'
	2.38	4.00	8.88	45'
8'-9"	2.23	4.98	10.93	30'
4'-7"	1.39	2.82	11.57	15'
	0.46	0.80	6.23	0'
	0.15	0.12	0.80	-15' (Behind Pole)
	Foot-candles	Foot-candles	Foot-candles	

Other Data:
@ (0',120') 3.57 FC @ 5' above ground.
@ (0', 220'); .4 FC on ground; 1.7 FC @ 5' above ground.
@ (62.5', 220'); .5 FC on ground; 1.6 FC @ 5' above ground.

Points of Reference:
Light on ground on a moonlight night: .017 FC
Average light on ground on a residential street: .3 FC
Average light on ground on a Freewway: 1.3 FC
Average light on a parking lot for security purposes: .2 to .8 FC

DSR/ 7/11/02

Border Patrol Project 125' Spacing



Site
Calculation Grid: Arbitrary Grid
Horizontal Illuminance

Grid Name: Arbitrary Grid
Grid Type: Horizontal Illuminance
Grid Units: Footcandles

Grid Origin: (0.00, 0.00)
Grid Orient:
Grid Elev.: 0.00

Grid Surface: n/a
Grid Hinge: 0
Grid Azimuth: 0

Statistical Area Summary

Stat. Area	Ave	Max	Min	Ave/Min	Max/Min	Std. Dev.
Arbitrary Grid	1.86	25.18	0.10	18.60	251.80	3.60

Calculation Grid

	6.23	18.70	31.17	43.64	56.11	68.58	81.05	93.52	105.98	118.45	130.92	143.39	155.86	168.33	180.80	193.27	205.74
291.12	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11
276.19	0.11	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.12
261.26	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.14
246.33	0.15	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.16
231.40	0.17	0.18	0.18	0.19	0.19	0.20	0.20	0.20	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.19	0.19
216.47	0.20	0.21	0.22	0.22	0.22	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.23	0.22
201.54	0.24	0.25	0.26	0.26	0.27	0.27	0.28	0.28	0.29	0.29	0.29	0.29	0.28	0.28	0.27	0.27	0.26
186.62	0.29	0.30	0.31	0.31	0.32	0.32	0.33	0.34	0.34	0.35	0.35	0.35	0.34	0.33	0.33	0.32	0.31
171.69	0.36	0.37	0.37	0.38	0.38	0.39	0.40	0.41	0.42	0.42	0.42	0.42	0.41	0.40	0.39	0.39	0.38
156.76	0.44	0.45	0.46	0.46	0.47	0.47	0.48	0.50	0.51	0.52	0.52	0.51	0.50	0.49	0.48	0.47	0.47
141.83	0.55	0.57	0.57	0.58	0.58	0.59	0.60	0.61	0.63	0.64	0.64	0.64	0.62	0.61	0.60	0.59	0.58
126.90	0.70	0.72	0.73	0.73	0.73	0.74	0.75	0.77	0.79	0.81	0.81	0.80	0.78	0.77	0.75	0.74	0.74
111.97	0.92	0.94	0.94	0.93	0.93	0.94	0.96	0.99	1.02	1.04	1.04	1.03	1.01	0.98	0.96	0.95	0.95
97.04	1.27	1.27	1.24	1.20	1.19	1.19	1.23	1.29	1.35	1.40	1.41	1.38	1.32	1.26	1.22	1.21	1.22
82.11	1.83	1.79	1.60	1.54	1.49	1.49	1.56	1.65	1.85	1.98	1.99	1.91	1.70	1.62	1.54	1.53	1.57
67.18	2.79	2.62	2.29	1.99	1.86	1.86	1.97	2.28	2.63	2.93	2.96	2.76	2.40	2.08	1.94	1.92	2.02
52.25	4.62	4.02	3.21	2.60	2.31	2.28	2.53	3.08	3.90	4.68	4.80	4.18	3.33	2.70	2.41	2.38	2.63
37.32	8.12	6.67	4.84	3.47	2.73	2.66	3.24	4.49	6.25	8.03	8.31	6.85	4.98	3.60	2.87	2.83	3.48
22.39	15.43	11.97	7.56	4.20	2.74	2.67	3.60	6.70	10.75	15.21	15.61	12.21	7.75	4.37	2.89	2.85	4.13

125'

Calculation Grid

	218.20	230.67	243.14
291.12	0.11	0.10	0.10
276.19	0.12	0.12	0.11
261.26	0.14	0.14	0.13
246.33	0.16	0.16	0.15
231.40	0.19	0.18	0.18
216.47	0.22	0.21	0.21
201.54	0.26	0.25	0.25
186.62	0.31	0.31	0.30
171.69	0.38	0.37	0.36
156.76	0.46	0.46	0.44
141.83	0.58	0.57	0.56
126.90	0.74	0.73	0.71
111.97	0.96	0.95	0.93
97.04	1.26	1.28	1.28
82.11	1.62	1.80	1.85
67.18	2.30	2.62	2.80
52.25	3.20	4.00	4.62
37.32	4.80	6.60	8.11
22.39	7.43	11.76	15.39

Calculation Grid

125'

	6.23	18.70	31.17	43.64	56.11	68.58	81.05	93.52	105.98	118.45	130.92	143.39	155.86	168.33	180.80	193.27	205.74
7.46	24.98	16.26	6.64	3.22	2.18	2.09	2.84	5.32	13.07	24.13	25.18	16.68	6.88	3.35	2.29	2.24	3.20

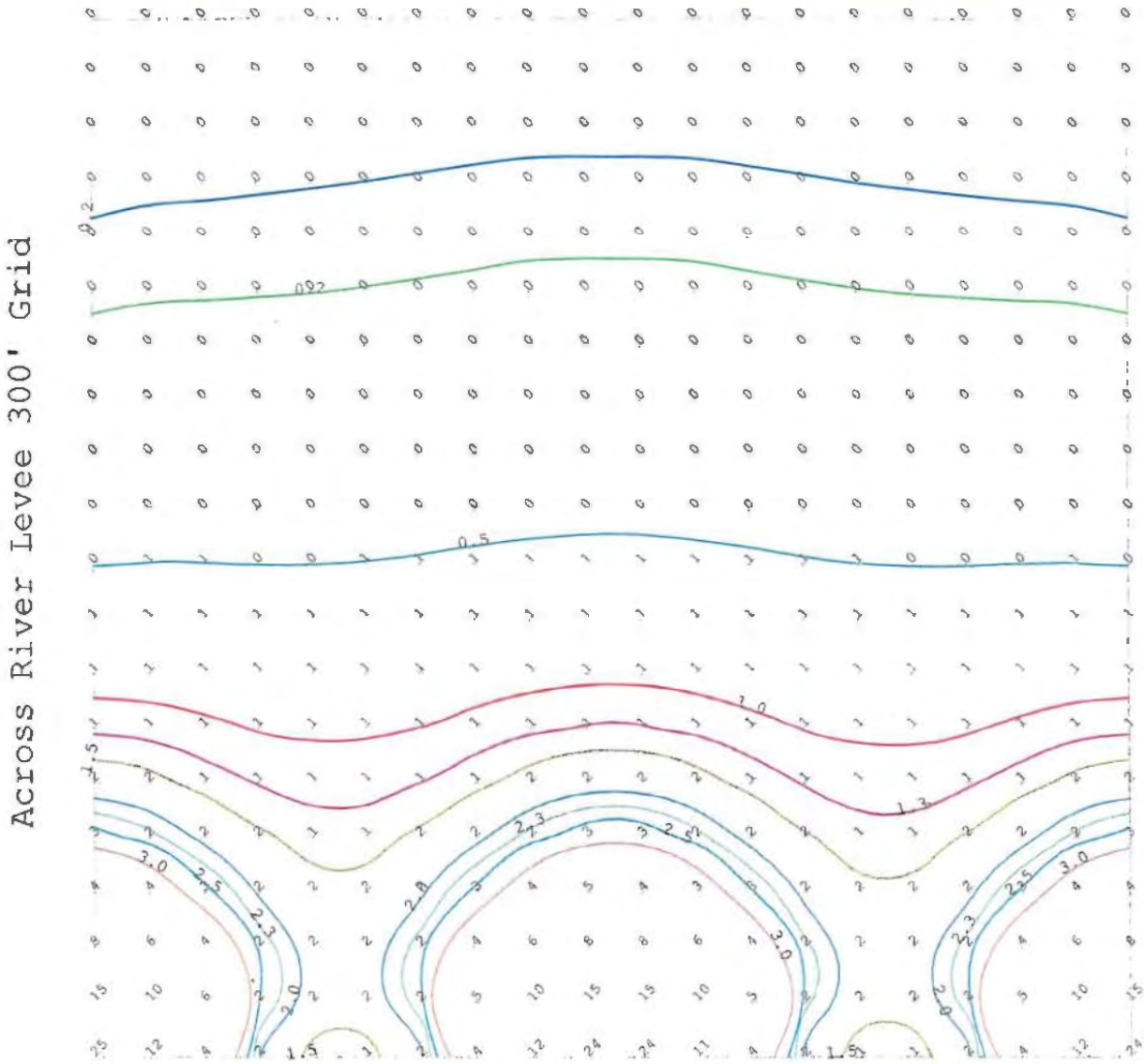
125'

Calculation Grid

	218.20	230.67	243.14
7.46	6.37	15.64	24.85

Site: Arbitrary Grid, Horizontal Illuminance | Scale: Scale to Fit

Border Patrol Project 150' Spacing



150'

Site
Calculation Grid: Arbitrary Grid
Horizontal Illuminance

Grid Name: Arbitrary Grid
Grid Type: Horizontal Illuminance
Grid Units: Footcandles

Grid Origin: (0.00, 0.00)
Grid Orient:
Grid Elev.: 0.00

Grid Surface: n/a
Grid Hinge: 0
Grid Azimuth: 0

Statistical Area Summary

Stat. Area	Ave	Max	Min	Ave/Min	Max/Min	Std. Dev.
Arbitrary Grid	1.56	24.57	0.09	17.33	273.00	3.29

Calculation Grid

	7.50	22.50	37.50	52.50	67.50	82.50	97.50	112.50	127.50	142.50	157.50	172.50	187.50	202.50	217.50	232.50	247.50
292.50	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10
277.50	0.10	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11
262.50	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.13
247.50	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.14
232.50	0.16	0.16	0.17	0.17	0.17	0.17	0.18	0.18	0.19	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.17
217.50	0.19	0.19	0.19	0.20	0.20	0.20	0.21	0.21	0.22	0.22	0.22	0.22	0.21	0.21	0.20	0.20	0.20
202.50	0.22	0.23	0.23	0.23	0.23	0.24	0.24	0.25	0.26	0.26	0.26	0.26	0.25	0.24	0.24	0.23	0.23
187.50	0.26	0.27	0.27	0.28	0.28	0.28	0.29	0.30	0.30	0.31	0.31	0.30	0.29	0.29	0.28	0.28	0.27
172.50	0.32	0.33	0.33	0.33	0.33	0.34	0.35	0.35	0.37	0.37	0.37	0.36	0.35	0.34	0.34	0.33	0.33
157.50	0.39	0.40	0.40	0.40	0.41	0.41	0.42	0.43	0.44	0.45	0.45	0.44	0.43	0.42	0.41	0.40	0.40
142.50	0.49	0.50	0.50	0.50	0.50	0.50	0.52	0.53	0.55	0.56	0.56	0.54	0.53	0.51	0.50	0.49	0.50
127.50	0.64	0.64	0.63	0.62	0.62	0.62	0.64	0.67	0.69	0.70	0.70	0.69	0.66	0.64	0.62	0.61	0.62
112.50	0.85	0.84	0.81	0.79	0.77	0.78	0.81	0.84	0.89	0.93	0.93	0.89	0.84	0.80	0.77	0.76	0.78
97.50	1.19	1.14	1.06	0.98	0.95	0.96	1.00	1.10	1.20	1.27	1.27	1.19	1.08	0.99	0.95	0.94	0.97
82.50	1.73	1.61	1.38	1.24	1.15	1.16	1.25	1.42	1.65	1.82	1.81	1.63	1.40	1.23	1.14	1.13	1.22
67.50	2.67	2.35	1.90	1.56	1.38	1.39	1.56	1.91	2.38	2.75	2.74	2.35	1.87	1.53	1.36	1.36	1.53
52.50	4.44	3.59	2.60	1.95	1.62	1.62	1.94	2.59	3.58	4.50	4.47	3.50	2.52	1.89	1.58	1.58	1.91
37.50	7.89	5.87	3.79	2.44	1.77	1.75	2.39	3.71	5.78	7.90	7.80	5.63	3.58	2.31	1.69	1.72	2.37
22.50	15.15	10.27	5.58	2.49	1.76	1.75	2.41	5.36	9.91	15.13	14.99	9.51	5.06	2.31	1.68	1.70	2.40

150'

Calculation Grid

	262.50	277.50	292.50
292.50	0.10	0.09	0.09
277.50	0.11	0.11	0.10
262.50	0.12	0.12	0.12
247.50	0.14	0.14	0.14
232.50	0.17	0.16	0.16
217.50	0.19	0.19	0.19
202.50	0.23	0.23	0.22
187.50	0.27	0.27	0.26
172.50	0.33	0.33	0.32
157.50	0.40	0.40	0.39
142.50	0.50	0.50	0.49
127.50	0.63	0.64	0.64
112.50	0.80	0.84	0.85
97.50	1.05	1.14	1.19
82.50	1.37	1.60	1.73
67.50	1.88	2.34	2.67
52.50	2.57	3.56	4.45
37.50	3.71	5.81	7.91
22.50	5.43	10.09	15.12

150

Calculation Grid

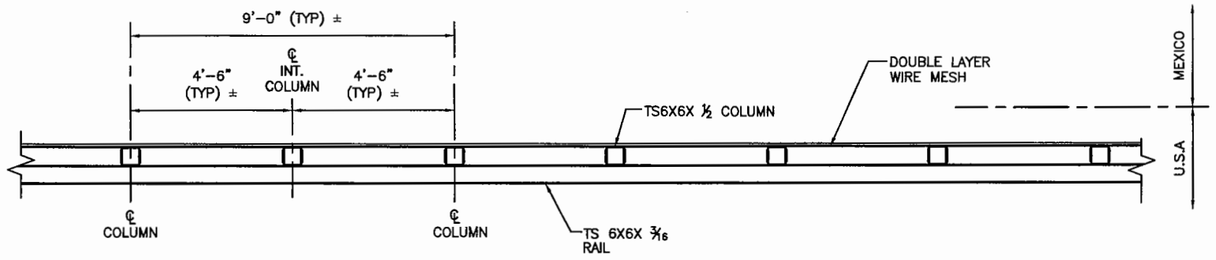
	7.50	22.50	37.50	52.50	67.50	82.50	97.50	112.50	127.50	142.50	157.50	172.50	187.50	202.50	217.50	232.50	247.50
7.50	24.57	12.45	4.19	1.99	1.37	1.36	1.94	3.96	11.58	24.34	23.98	10.67	3.72	1.85	1.31	1.32	1.91

150'

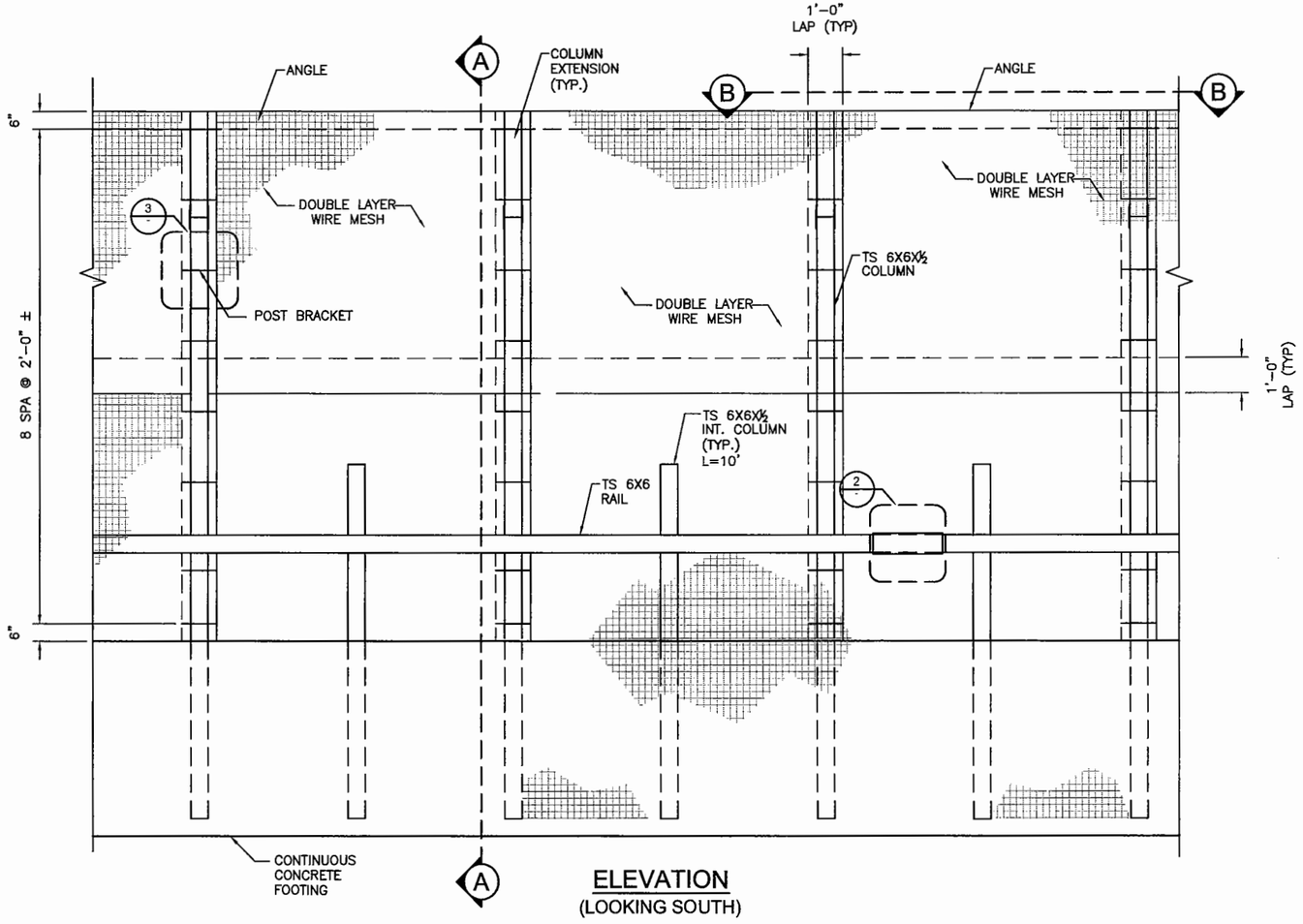
Calculation Grid

—	262.50	277.50	292.50
7.50	3.99	12.11	24.42

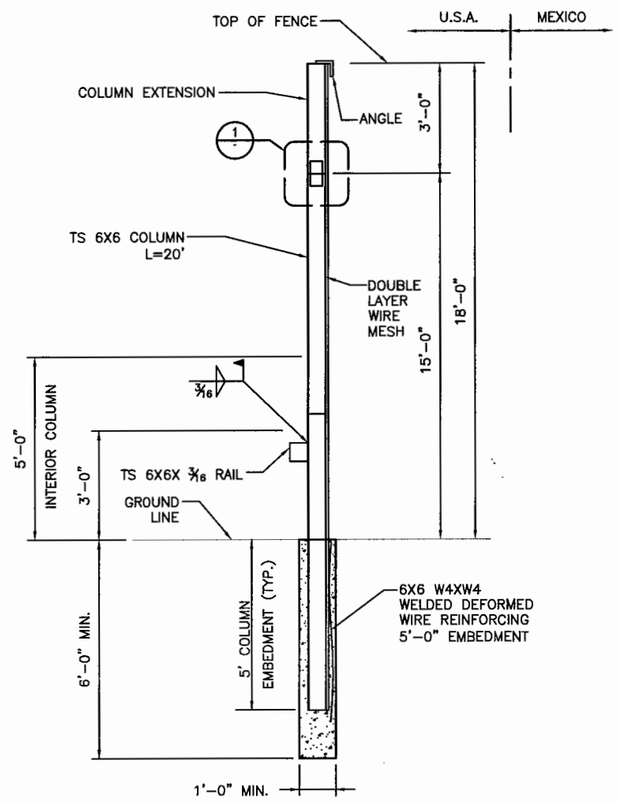
APPENDIX C
Fence Specifications



PLAN VIEW



ELEVATION
(LOOKING SOUTH)



SECTION A-A

NOTES:
1. VALID FOR 90 MPH WIND.

2. FOUNDATION DETAILS SHOWN REPRESENT MINIMUM DIMENSIONAL REQUIREMENTS AND SHALL BE INCREASED IF NECESSARY BASED ON FOUNDATION DESIGN.

US Army Corps of Engineers
Fort Worth District

SCHEMATIC NOT FOR CONSTRUCTION

Baker
MICHAEL BAKER JR., INC
2929 NORTH CENTRAL AVENUE
SUITE 800
PHOENIX, AZ 85012

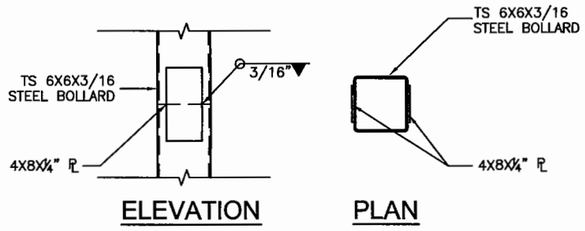
Designed by: KAS	Date:	Rev.
Dwn by: KAS/MC	Ckd by: JWB	Submitted by: Michael Baker Jr., Inc.
Reviewed by: TQ		Plot date: 11/18/07
		Baker Project No: 112319

PF225 CONCEPTUAL FENCE DESIGNS

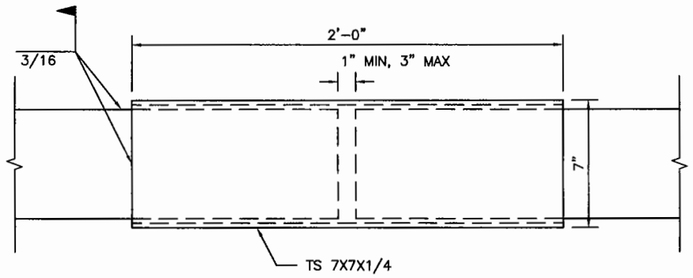
PERSONNEL - VEHICLE TYPE 2A

SHEET NUMBER
PV-2A

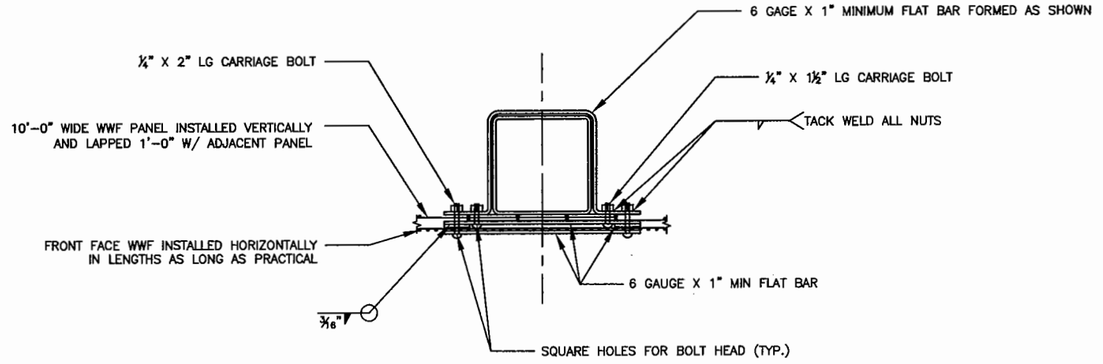
t:\projects\usace\pf225\drawings\acad 2006\pv-2a-1.dwg



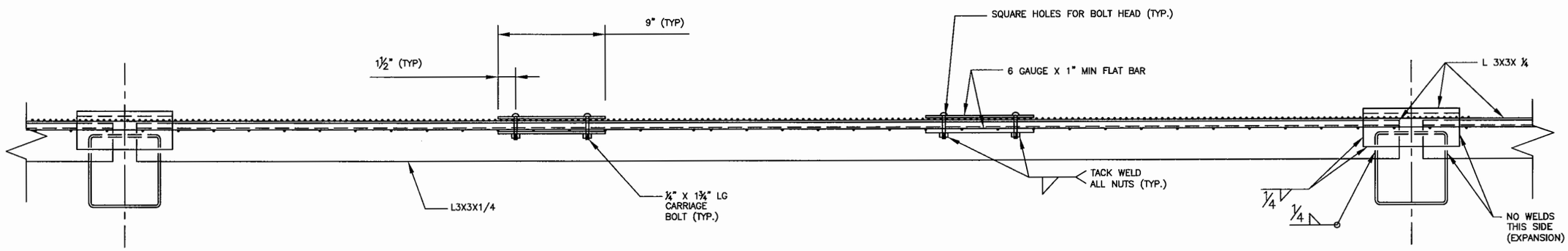
DETAIL 1
OPTIONAL SPLICE



DETAIL 2
RAIL SPLICE (36' MAX SPACE)



DETAIL 3
POST BRACKET



SECTION B-B
TOP HORIZONTAL RAIL DETAIL

US Army Corps of Engineers
Fort Worth District

No.	Description	Date	Appr.

SCHEMATIC
NOT FOR
CONSTRUCTION

Baker
MICHAEL BAKER JR., INC
2929 NORTH CENTRAL AVENUE
SUITE 1600
PHOENIX, AZ 85012

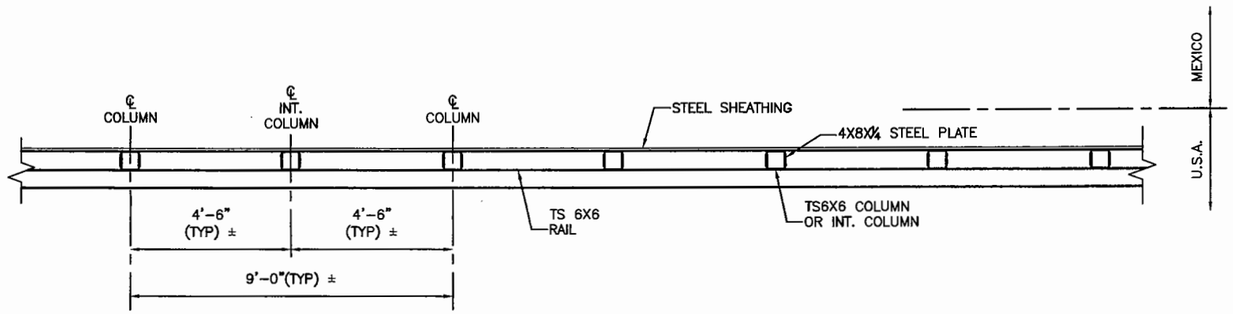
Designed by: KAS
Drawn by: KAS
Checked by: JWB
Reviewed by: TQ
Date:
Submitted by: Michael Baker Jr., Inc.
Rev.
Plot date: 11/18/07
Baker Project No: 112319

PF225
CONCEPTUAL
FENCE
DESIGNS

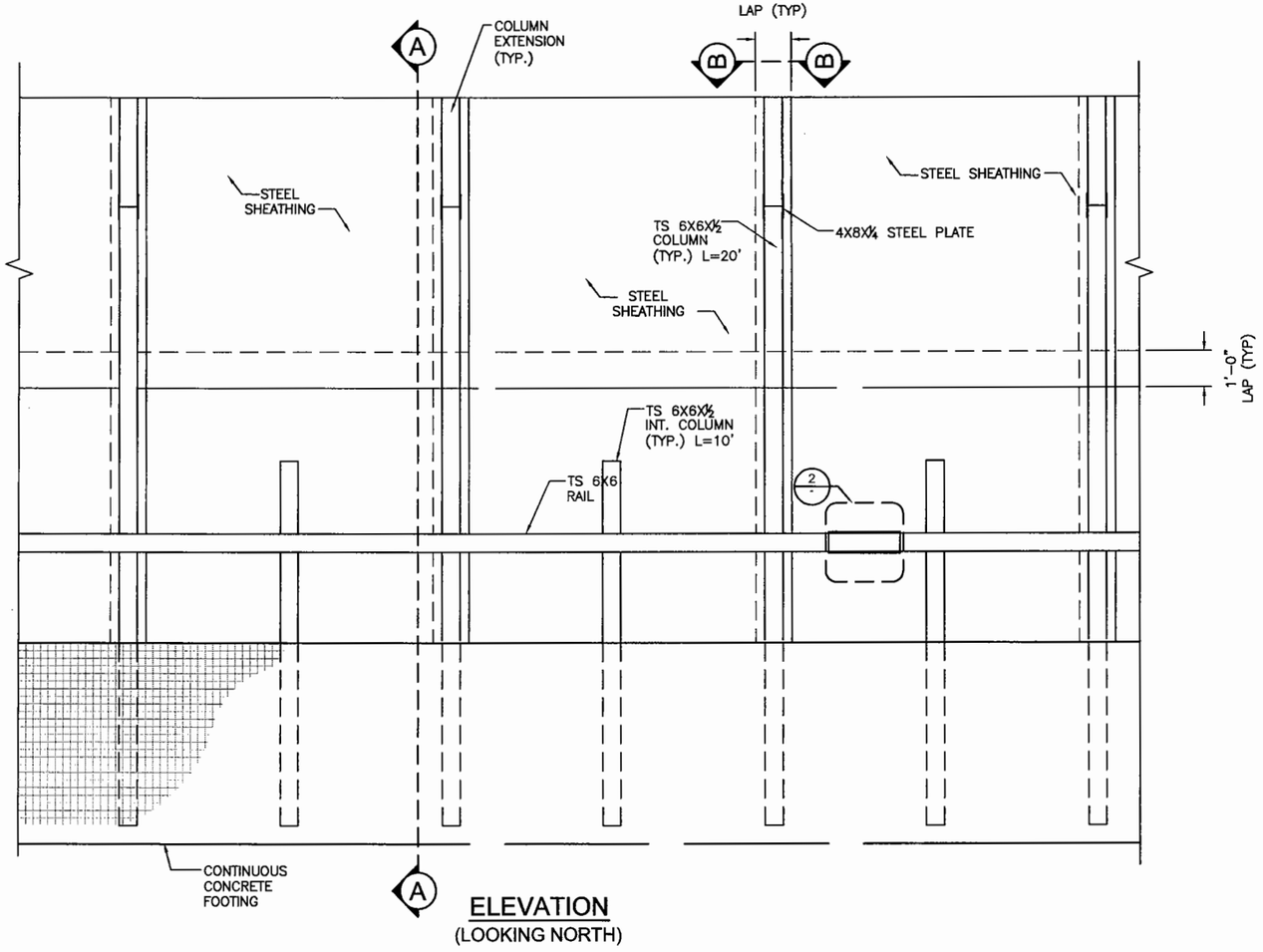
PERSONNEL -
VEHICLE
TYPE 2A

SHEET REFERENCE NUMBER
PV-2A

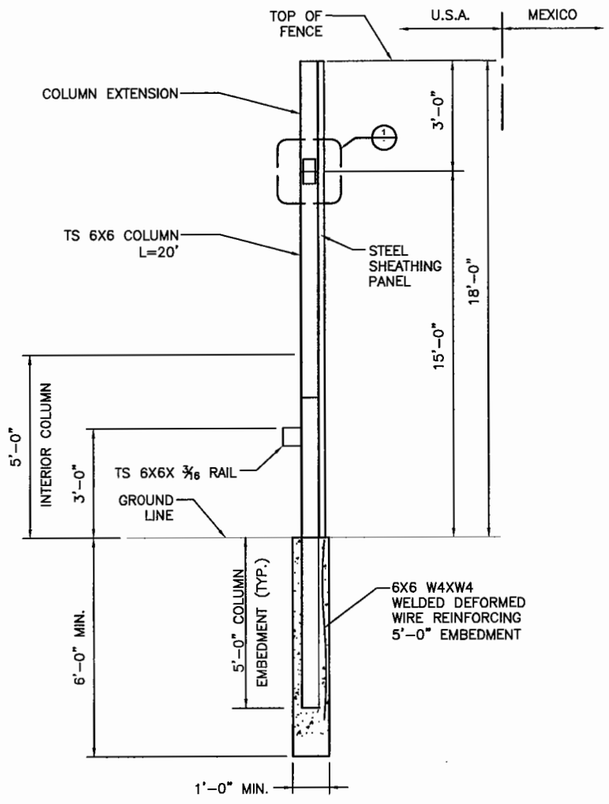
k:\projects\sussex\pf225\dwg\rgl\sead 2006\pv-2a-1.dwg



PLAN VIEW



ELEVATION
(LOOKING NORTH)



SECTION A-A

NOTE:
1. VALID FOR 90 MPH WIND

2. FOUNDATION DETAIL REQUIREMENTS SHOWN REPRESENT MINIMUM DIMENSIONS. FOUNDATION DESIGN REQUIRED BASED ON SITE SPECIFIC SOIL PROPERTIES.

US Army Corps of Engineers
Fort Worth District

SCHEMATIC NOT FOR CONSTRUCTION

Baker
MICHAEL BAKER JR., INC
A JACOBS COMPANY
2929 NORTH CENTRAL AVENUE
SUITE 960
PHOENIX, AZ 85012

Mark	Description	Date	Appr.

Designed by: KAS	Ckd by: JWB	Date:	Rev.
Dwn by: MC	Reviewed by: TQ	Submitted by: Michael Baker Jr., Inc.	
		Plot date: 11/18/07	Baker Project No: 112319

PF225 CONCEPTUAL FENCE DESIGNS

PERSONNEL - VEHICLE TYPE 2B

SHEET REFERENCE NUMBER
PV-2B

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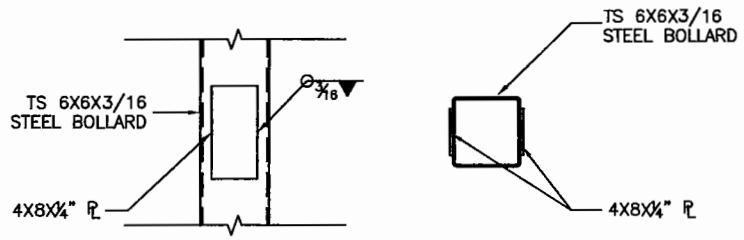
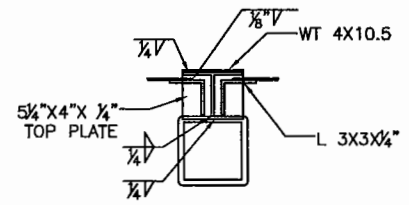
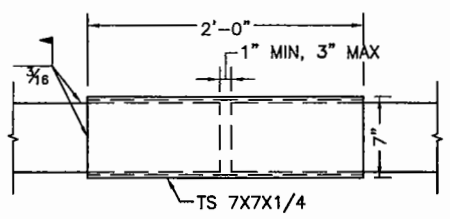


ELEVATION PLAN

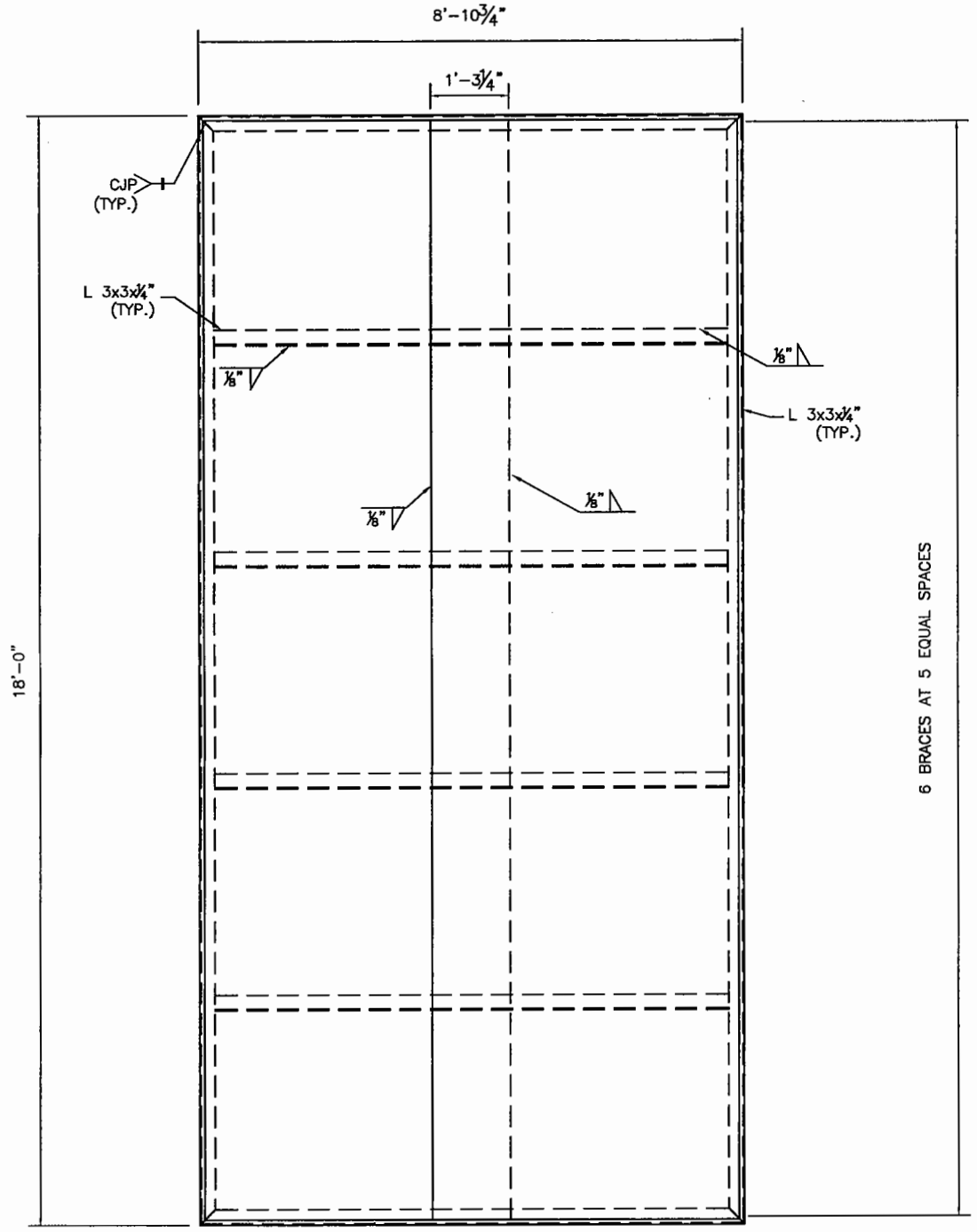
DETAIL 1
OPTIONAL SPLICE



SECTION B-B



DETAIL 2
RAIL SPLICE (36' MAX SPACE)



STANDARD STEEL SHEATHING PANEL

US Army Corps of Engineers
Fort Worth District

Mark	Description	Date	Appr.

SCHEMATIC NOT FOR CONSTRUCTION

Baker
MICHAEL BAKER JR., INC
2325 NORTH CENTRAL AVENUE SUITE 900
PHOENIX, AZ 85012

Designed by: KAS	Date:	Rev.:
Dwn by: KAS	Ckd by: JWB	Submitted by: Michael Baker Jr., Inc.
Reviewed by: TQ		Plot date: 11/18/07

Baker Project No: 112319

PF225 CONCEPTUAL FENCE DESIGNS

PERSONNEL - VEHICLE TYPE 2B

SHEET REFERENCE NUMBER
PV-2B

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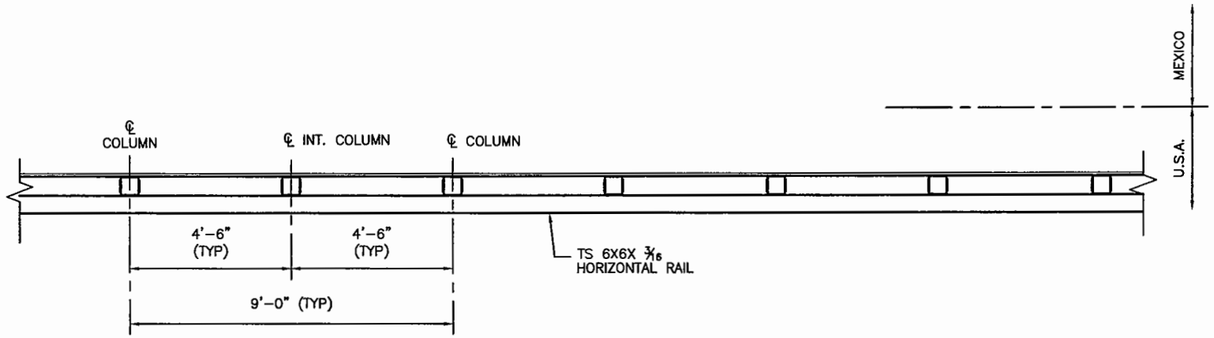
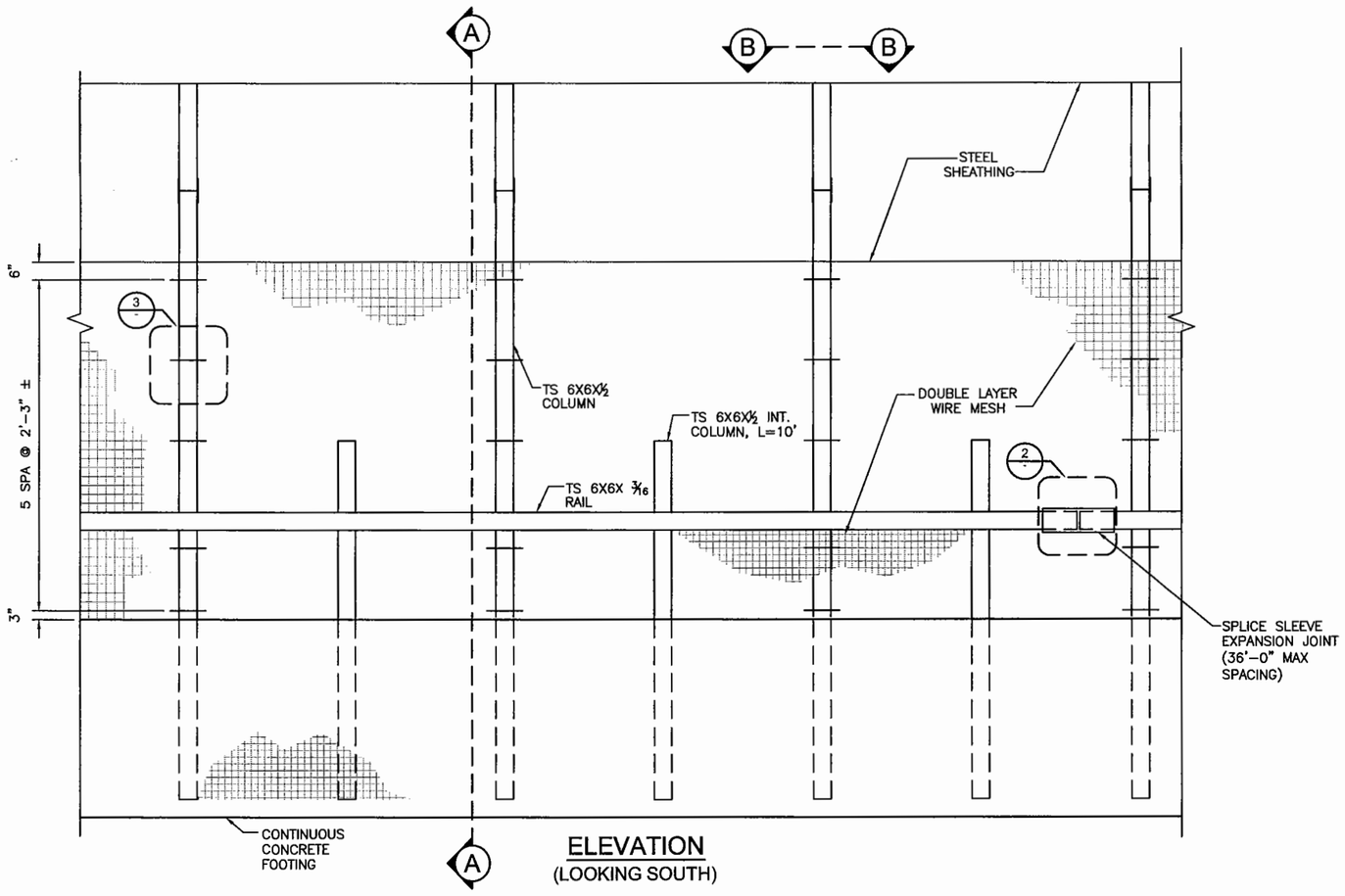
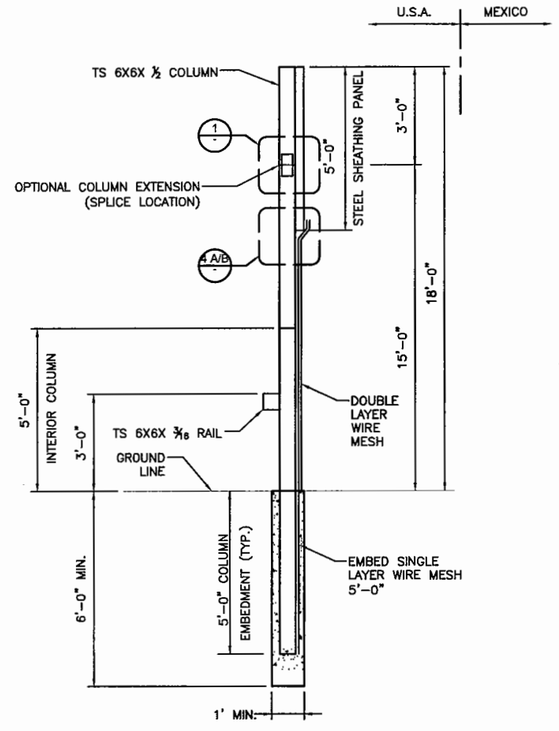


PLAN VIEW



ELEVATION
(LOOKING SOUTH)



SECTION A-A

NOTE:
1. DESIGN VALID FOR 90 MPH WIND

2. FOUNDATION DETAIL REQUIREMENTS SHOWN REPRESENT MINIMUM DIMENSIONS AND MAY NEED INCREASED BASED ON FOUNDATION DESIGN.

US Army Corps of Engineers
Fort Worth District

Mark	Description	Date	Appr.

SCHEMATIC NOT FOR CONSTRUCTION

Baker
MICHAEL BAKER JR., INC
2929 NORTH CENTRAL AVENUE
SUITE 1600
PHOENIX, AZ 85012

Date: | Rev.
Submitted by: Michael Baker Jr., Inc.
Plot date: 11/18/07 | Baker Project No: 112319
Designed by: RB
Drawn by: JN
Chkd by: TEQ
Reviewed by: DJL

PF225 CONCEPTUAL FENCE DESIGNS

PERSONNEL - VEHICLE TYPE 2C

SHEET REFERENCE NUMBER
PV-2C

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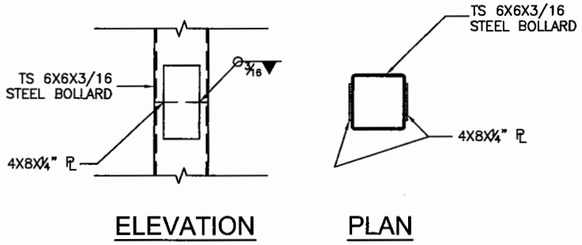
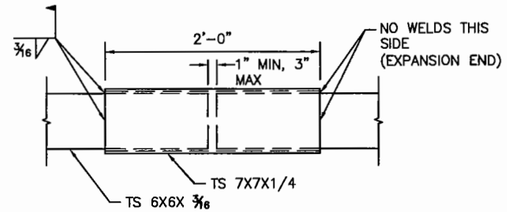
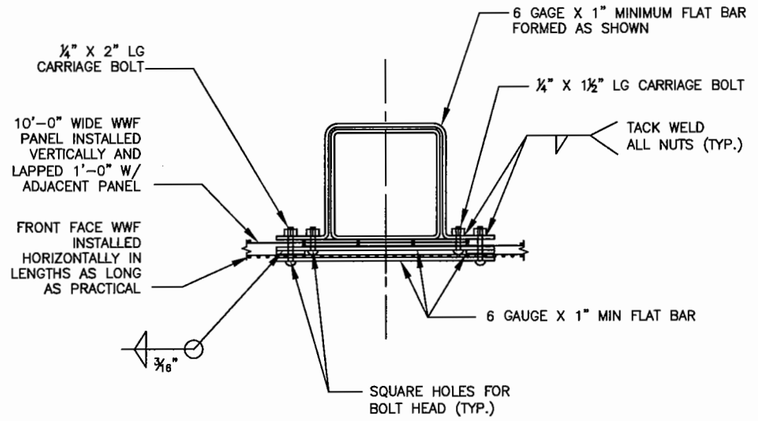


DETAIL1
OPTIONAL COLUMN SPLICE



DETAIL 2
HORIZONTAL RAIL EXPANSION JOINT
36'-0" MAXIMUM SPACING



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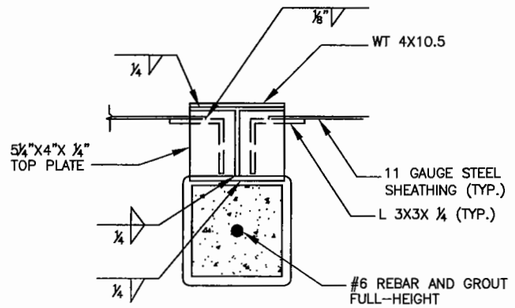
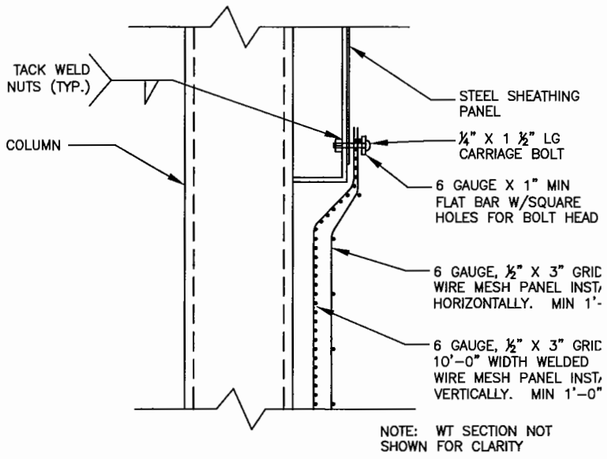
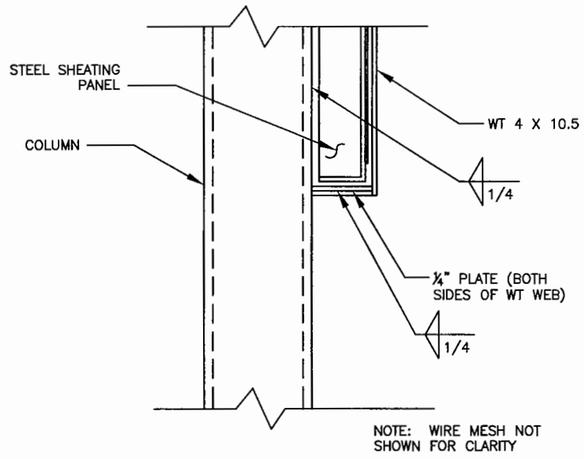
POST BRACKET



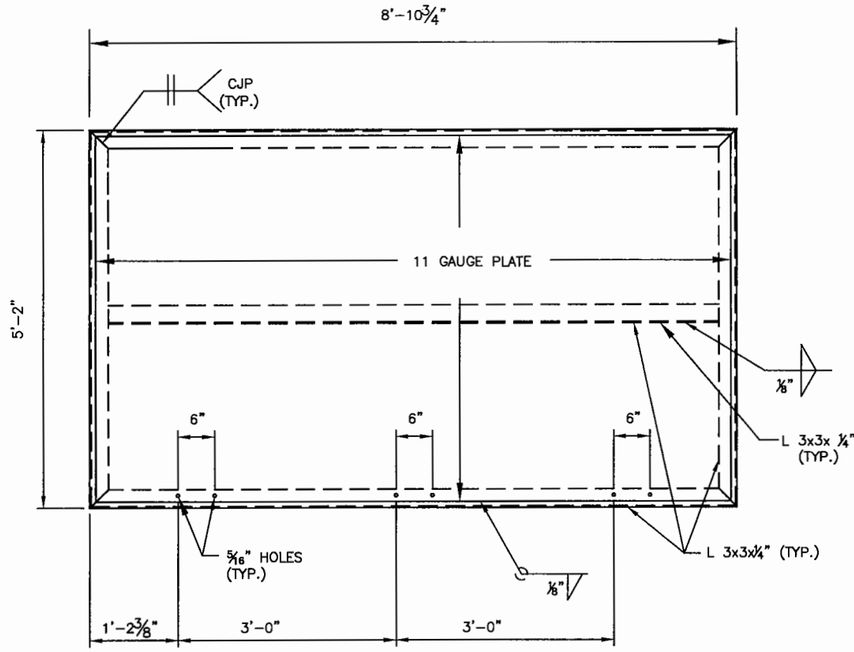
SECTION B-B



DETAIL 4 (A)
MESH - STEEL SHEATING PANEL ATTACHMENT BETWEEN COLUMNS



DETAIL 4 (B)
STEEL SHEATING PANEL SUPPORT (AT COLUMNS)



STEEL SHEATHING PANEL DETAIL

US Army Corps of Engineers
Fort Worth District

Mark	Description	Date	Appr.

SCHEMATIC NOT FOR CONSTRUCTION

Baker
MICHAEL BAKER JR., INC
2929 NORTH CENTRAL AVENUE
SUITE 1600
PHOENIX, AZ 85012

Designed by: RB	Date:
Drwn by: JN	Ckd by: TEQ
Reviewed by: DJL	Submitted by: Michael Baker Jr., Inc.
Rev.	Plot date: 11/18/07
	Baker Project No: 112319

PF225
CONCEPTUAL FENCE DESIGNS

PERSONNEL - VEHICLE TYPE 2C

SHEET REFERENCE NUMBER
PV-2C

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APPENDIX D
Correspondence

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

July 11, 2007

Planning, Environmental and Regulatory Division

SUBJECT: Supplemental Environmental Assessment for the Proposed Construction of Fence, Lights and Road Improvements along the International Boundary and Water Commission Levee in El Paso County

United States International Boundary and Water Commission
ATTN: Mr. Doug Echlin
U.S. Section, IBWC
417 North Mesa Street, C-310
El Paso, TX 79902

Dear Mr. Echlin:

On behalf of U.S. Customs and Border Protection (CBP) and Department of Homeland Security, the U.S. Army Corps of Engineers (USACE) intends to prepare a Supplemental Environmental Assessment (SEA) for the proposed construction of up to 21 miles of pedestrian fence, border lighting, and road improvements along a section of the United States Section, International Boundary and Water Commission (USIBWC) levee near the Rio Grande from the Rio Bosque to the Fabens Port of Entry (POE) in El Paso County, Texas. In addition, four bridges over the District irrigation canal would also be replaced.

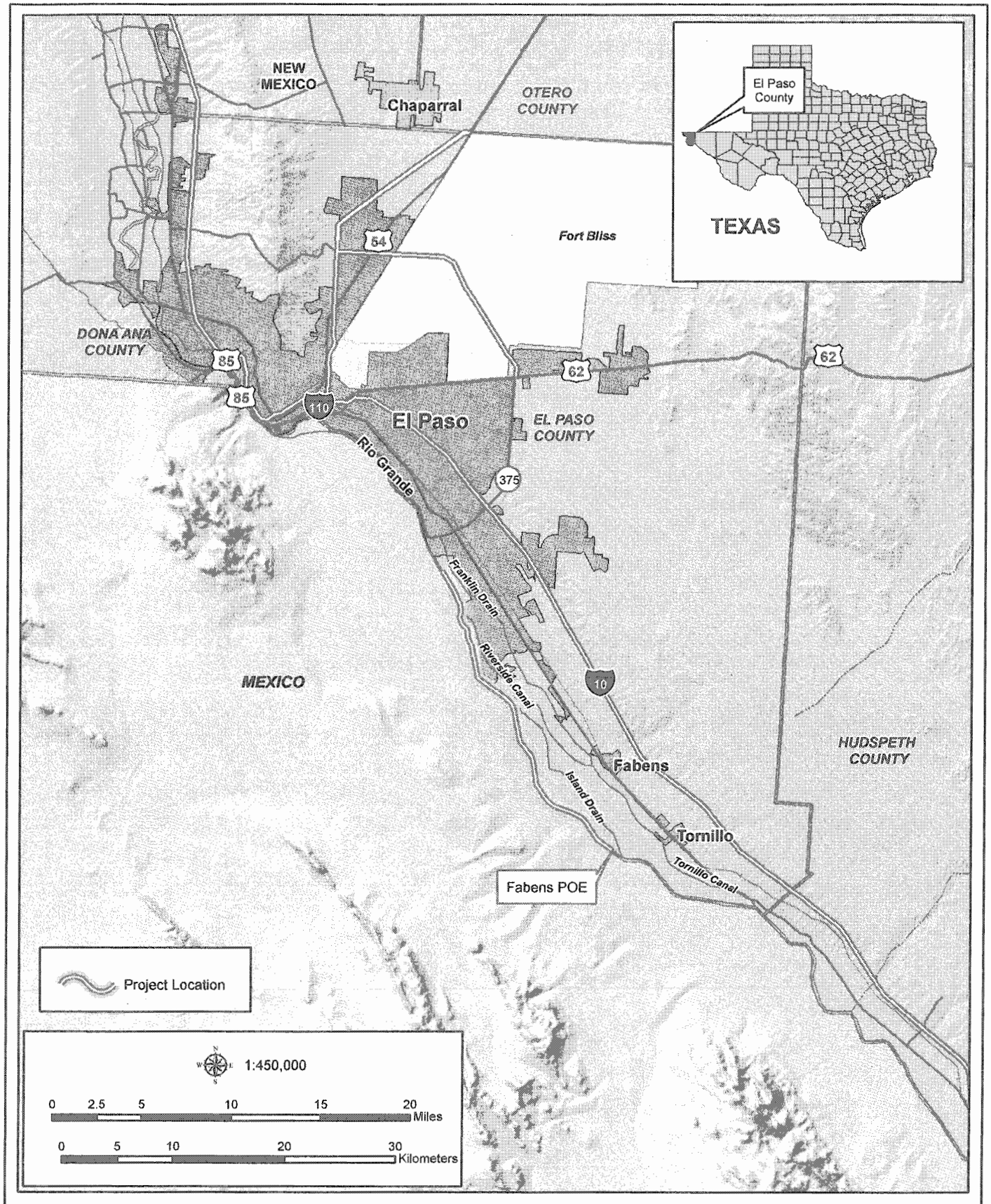
The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed action. The SEA is tiered from the 2006 Programmatic Environmental Assessment (PEA) for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations.

We are currently in the process of gathering the most current information available regarding environmental resources and other areas of concern occurring within this area. We respectfully request that your agency provide input regarding unique or environmentally sensitive areas or other issues that you believe may be affected by the proposed OBP activities.

We intend to provide your agency with a copy of the Draft SEA for the proposed action once completed. Please let us know if additional copies are needed. Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division



Project Location Map

GSRC

July 2007

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

November 5, 2007

Mr. Charles McGregor
United States Army Corps of Engineers
Fort Worth District
Engineering Construction Support Office
P.O. Box 17300
Fort Worth, TX 76102-0300

Dear Mr. McGregor:

Reference is made to various letters dated October 18, 2007, from Mr. Robert F. Janson, U.S. Customs and Border Protection, requesting us to become a cooperating agency with regard to the development of National Environmental Policy Act (NEPA) environmental documentation for the proposed construction, maintenance, and operation of tactical infrastructure throughout the international boundary. According to the letters, the following projects are being considered:

1) Environmental Impact Statement for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector;

2) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector;

3) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol El Centro Sector;

4) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Yuma Sector;

5) Supplemental Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol El Paso Sector;

6) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Marfa Sector;

7) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Del Rio Sector; and

8) Environmental Impact Statement for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector.

The United States Section, International Boundary and Water Commission (USIBWC) accepts your request to become a cooperating agency in the NEPA process. We look forward to working with you on issues related to the international boundary, specifically international treaties and agreements, issues related to USIBWC jurisdiction, and USIBWC real property. Due to the overwhelming list of Border Patrol initiatives along the international boundary, I have designated Mr. Richard Peace, Division Engineer, Operations and Maintenance Division, as the agency single point of contact for matters related to these projects. Mr. Peace can be reached at (915) 832-4158 for overall project coordination. If you have any questions feel free to contact me at (915) 832-4101.

Sincerely,

Carlos Marin, P.E.
Commissioner

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

July 11, 2007

Planning, Environmental and Regulatory Division

SUBJECT: Supplemental Environmental Assessment for the Proposed Construction of Fence, Lights and Road Improvements along the International Boundary and Water Commission Levee in El Paso County

U.S. Fish and Wildlife Service
ATTN: Mr. Allen Strand
6300 Ocean Drive, Campus Box 338
Corpus Christi, TX 78412

Dear Mr. Strand:

On behalf of U.S. Customs and Border Protection (CBP) and Department of Homeland Security, the U.S. Army Corps of Engineers (USACE) intends to prepare a Supplemental Environmental Assessment (SEA) for the proposed construction of up to 21 miles of pedestrian fence, border lighting, and road improvements along a section of the United States Section, International Boundary and Water Commission (USIBWC) levee near the Rio Grande from the Rio Bosque to the Fabens Port of Entry (POE) in El Paso County, Texas. In addition, four bridges over the District irrigation canal would also be replaced.

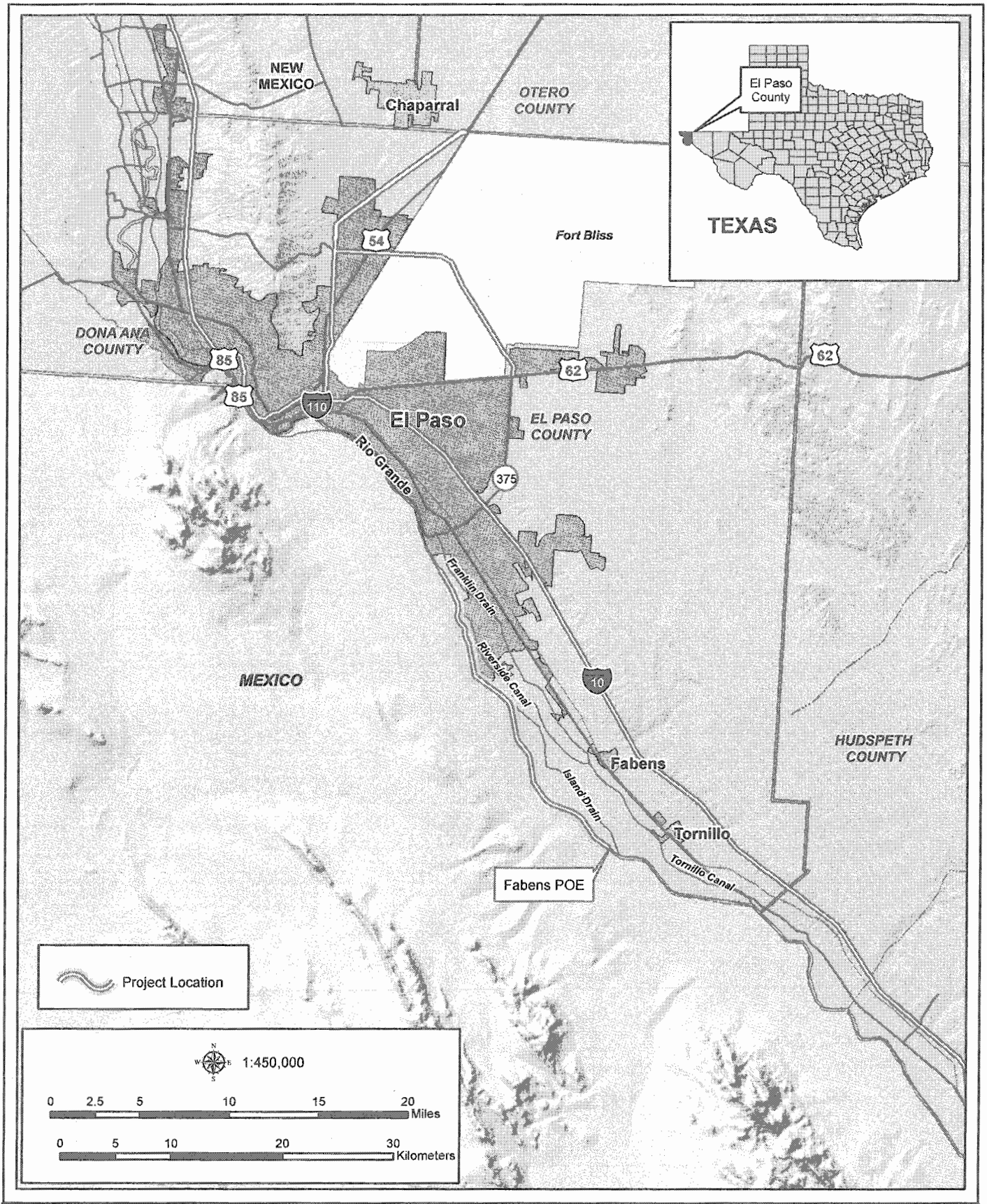
The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed action. The SEA is tiered from the 2006 Programmatic Environmental Assessment (PEA) for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations.

Enclosed is a map showing the location of the project corridors for both PEAs. We are currently in the process of gathering the most current information available regarding Federally and state listed species potentially occurring within this area. We respectfully request that your agency provide input regarding protected species, designated critical habitat, descriptions of the sensitive resources (*e.g.*, rare or unique plant communities, threatened and endangered and candidate species), and unique or environmentally sensitive areas that you believe may be affected by the proposed OBP activities.

We intend to provide your agency with a copy of the Draft SEA for the proposed action once completed. Please let us know if additional copies are needed. Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division



Project Location Map

GSRC

July 2007

United States Department of the Interior

FISH AND WILDLIFE SERVICE
10711 Burnet Road, Suite 200
Austin, Texas 78758
512 490-0057
FAX 490-0974

AUG 0 7 2007

-WT
PER-E
-EE

William Fickel, Jr.
Chief Planning, Environmental, and Planning Division
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Consultation #: 21450-2007-TA-0216

Dear Mr. Fickel:

Thank you for your July 11, 2007, letter to the U. S. Fish and Wildlife Service's (Service) Corpus Christi Field Office regarding your intent to develop a Supplemental Environmental Assessment for the proposed construction of fence, lights, and road improvements along the United States Section, International Boundary and Water Commission (USIBWC) levee in El Paso County. Please note that for your convenience, we have established a single point of contact for border security projects in Texas. Please continue to send all future correspondence to Mr. Allan Strand, Field Supervisor, Corpus Christi Ecological Services Field Office, U.S. Fish and Wildlife Service, c/o TAMU-CC, 6300 Ocean Drive, Campus Box 338, Corpus Christi, TX 78412. However, you may receive letters signed by myself or Allan Strand, depending upon the geographic location of the project. For your convenience, please find enclosed a map of both offices' jurisdictions on a county-by-county basis.

According to your letter, the proposed project may include up to 21 miles of pedestrian fence, border lighting, and road improvements along a section of the USIBWC levee near the Rio Grande from the Rio Bosque to Fabens Port of Entry in El Paso County, Texas. In addition, four bridges over the District irrigation canal will be replaced.

We are providing the following information to assist consultants and/or Federal action agencies in assessing, avoiding, and minimizing adverse effects to species listed as threatened or endangered according to the Endangered Species Act of 1973, as amended (16 United States Code [U.S.C.] 1531 *et seq.*), designated critical habitat, as well as migratory birds protected by the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), and designated wetlands.

Federally Listed Species

According to Section 7(a)(2) of the Endangered Species Act and its implementing regulations, it is the responsibility of each Federal agency to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any Federally-listed species. In this case, the responsibility belongs to the U.S. Customs and Border Patrol or their designated representative.

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10 Aug 2007

A county-by-county listing of Federally-listed threatened and endangered species that occur within this office's work area can be found at http://www.fws.gov/southwest/es/EndangeredSpecies/lists/. You should use the county-by-county listing and other current species information to determine whether suitable habitat for a listed species is present at your project site. If suitable habitat is present, a qualified individual should conduct surveys to determine whether a listed species is present. After completing a habitat evaluation and/or any necessary surveys, you should evaluate the project for potential effects to listed species and make one of the following determinations:

1) *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation; however, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.

2) *May affect, but is not likely to adversely affect* – the appropriate determination when a proposed action's anticipated effects are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. "Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if it would result in the death or injury of wildlife by removing essential habitat components or impairing essential behavior patterns, including breeding, feeding or sheltering. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.

3) *May affect, is likely to adversely affect* – the appropriate determination if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Endangered Species Act requirements for your projects at http://endangered.fws.gov/consultations/s7hndbk/s7hndbk.htm.

If a "may affect" determination is made, the Federal action agency shall initiate the formal section 7 consultation process by writing to: Field Supervisor; U.S. Fish and Wildlife Service; c/o TAMU-CC, Campus Box 338; 6300 Ocean Drive; Corpus Christi, Texas 78412. If no effect is evident, no further consultation is needed; however, we would appreciate it if you could submit a copy of your determination for our files.

Non-Federal representatives (i.e. consultants, state agencies, county or local officials) may request and receive species lists, prepare environmental documents, biological assessments, and provide information for formal consultations. However, the Service requires the action agency to designate the non-Federal representative in writing. If not designated, we recommend non-Federal

representatives provide a complete record of their evaluation to the Federal action agency so that they may make a determination of effect and, if necessary, consult with the appropriate Service office on the proposed action.

The Service recommends the action agency and/or non-Federal representative maintain a complete record that identifies steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), Fountain Park Plaza Building, Suite 100, 3000 South IH-35, Austin, Texas 78704 (telephone 512/912-7011) for information concerning fish, wildlife, and plants of State concern or visit their website at http://www.tpwd.state.tx.us/nature/Ending/animals/mammals/.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to commencing work. If a nest is found, and if possible, the Service recommends a buffer of vegetation ($\geq$ 164 feet [ft] for songbirds, $\geq$ 328 ft for wading birds, and $\geq$ 590 ft for terns, skimmers and birds of prey) remain around the nest until young have fledged or the nest is abandoned. A list of migratory birds may be viewed at http://migratorybirds.fws.gov/intrnltr/mbta/proposedbirdlist.pdf.

Wetlands

Wetlands and riparian zones provide valuable fish and wildlife habitat and contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provide food and cover for wildlife, stabilize banks, and decrease soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses.

Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and

follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils. No permanent structures should be placed in the 100-year floodplain.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, TX 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs and herbaceous species that are adaptable, drought tolerant and conserve water.

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have effects to threatened and endangered species.

Thank you for your concern for endangered and threatened species and other resources, and we appreciate the opportunity to comment on the proposed project. If we can be of further assistance, or if you have any questions about these comments, please contact Larisa Ford at 361-994-9005. Please refer to the Service Consultation number listed above in any future correspondence regarding the proposed construction of fence, lights, and road improvements along the USIBWC levee in El Paso County.

Sincerely,

Adam Zerrenner
Field Supervisor

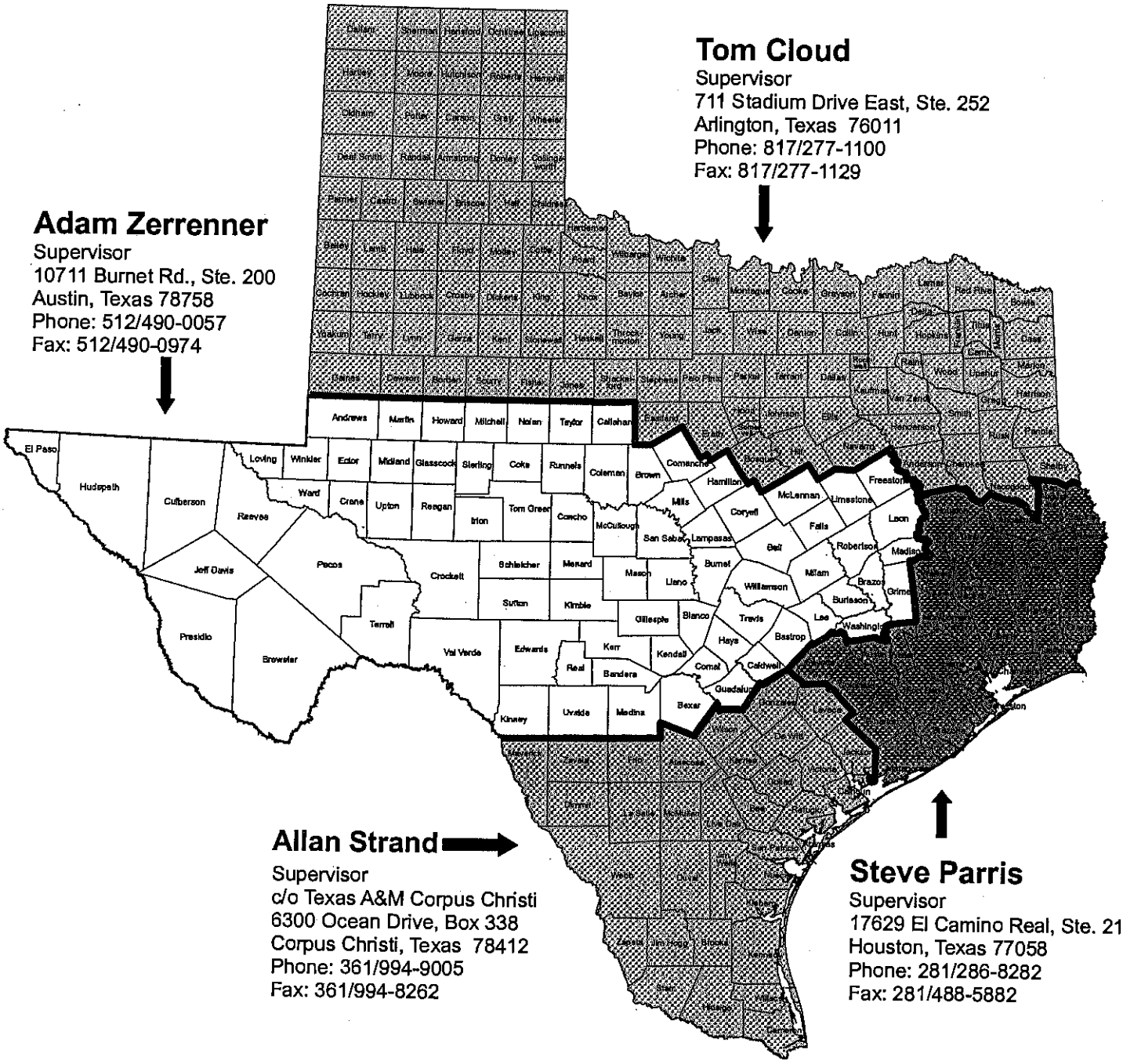
Enclosure

cc: Allan Strand, Corpus Christi ESFO, Corpus Christi, Texas

U. S. Fish and Wildlife Service

Ecological Services Field Offices
Areas of Responsibility

Joy Nicholopoulos
Texas State Administrator for Ecological Services
8027 Exchange Drive
Austin, Texas 78754
Phone 512/927-3557
Fax 512/927-3590



Tom Cloud
Supervisor
711 Stadium Drive East, Ste. 252
Arlington, Texas 76011
Phone: 817/277-1100
Fax: 817/277-1129

Adam Zerrenner
Supervisor
10711 Burnet Rd., Ste. 200
Austin, Texas 78758
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Fax: 512/490-0974

Allan Strand
Supervisor
c/o Texas A&M Corpus Christi
6300 Ocean Drive, Box 338
Corpus Christi, Texas 78412
Phone: 361/994-9005
Fax: 361/994-8262

Steve Parris
Supervisor
17629 El Camino Real, Ste. 211
Houston, Texas 77058
Phone: 281/286-8282
Fax: 281/488-5882

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

June 21, 2007

Planning, Environmental and Regulatory Division

SUBJECT: Section 106 consultation for the proposed Phase III installation of lighting, a pedestrian fence, road maintenance and the replacement of four bridges.

Mr. F. Lawerence Oaks
Attn: Ms. Debra Beene
Texas Historical Commission
1511 Colorado St.
Austin, Texas 78701

Dear Mr. Oaks,

On behalf of the U.S. Customs and Border Protection (CBP), Office of Border Patrol, El Paso Sector, the U.S. Army Corps of Engineers, Fort Worth District is preparing a Supplemental Environmental Assessment for the proposed installation of various infrastructure within an approximately 20-mile long corridor along the U.S.-Mexico border from the City of El Paso water treatment plant east to the Fabens port of entry (POE) (Figures 1-6).

Flood lights would be installed for a distance of 20 miles along the U.S. Section, International Boundary and Water Commission (USIBWC) levee from the end of the existing light corridor constructed as part of CBP's Phase II tactical infrastructure project (near the City of El Paso water treatment plant at Rio Bosque) to the Fabens POE at the Guadalupe Bridge. The light standards would be steel poles approximately 45 feet high and installed at the south toe of the USIBWC levee, within the Rio Grande floodplain. Transformers would be placed on the ground near the southern edge of the top side of the levee, and six metal bollards, approximately 4 feet high, would be installed for protection (Photograph 1). The power lines for the light poles would be underground with the possible exception of lateral feeds from the local grid. The location of these lateral feeds is not known at this time. Archaeological monitoring during the installation of all light poles within the 20-mile long project corridor would be conducted to ensure no deeply buried archaeological deposits would be impacted during the installation of the lights.

A pedestrian fence would be installed at the base of the north slope of the USIBWC levee, within the 2- to 8-foot wide corridor between the levee and the existing irrigation ditch (Photograph 2), for the entire length of the project (approximately 20 miles). The fence would be between 15 and 16 feet tall, and designed to withstand an impact by a 10,000-pound (gross weight) vehicle traveling at 40 miles per hour. Gates would be installed at set intervals for emergency rescues within the irrigation canal and the Rio Grande floodplain. Given the disturbance from past construction activities associated with the USIBWC levee and the irrigation ditch, it is not anticipated that any intact cultural material would be impacted by the construction of the fence.

In addition, approximately 2 miles of road improvements would be conducted on the levee/ditch bank roads that are owned by the El Paso County Water Improvement District No. 1 (EPCWID1). The road is currently a dirt road that often becomes impassable during inclement weather. The proposed road improvements would entail grading and leveling the road and the application of an all-weather aggregate surface. This would take place in an area that has been impacted by the past construction of the road, levee and irrigation ditch. As a result, there is a little probability that intact cultural deposits are present in this area.

Finally, up to four bridges would be replaced over the EPCWID1 irrigation canal. The locations of the bridges would be at sites where previous canal bridges were located, but have since been removed (Photographs 3-6). A 300 by 300 foot temporary staging area would be utilized at the south end of each bridge location.

Preliminary investigations of the files at the Texas Archaeological Research Laboratory indicated that portions of the project cross the features of the EPCWID1 Historic District and sites 41EP4678 and 41EP4679, the Riverside Intercepting Drain and Riverside Canal Respectively. The EPCWID1 Historic District has been listed on the National Register of Historic Places (NRHP) under criteria A and C. Both 41EP4678 and 41EP4679 are recommended potentially eligible under criterion A. It is not anticipated that the proposed infrastructure installation would impact the integrity of these historic properties. Replacement of the four bridges over the irrigation systems would be limited to areas where there were pre-existing bridges and that are noted as ancillary structures in the EPCWID1 Historic District form. The placement of the fence would be done so it would not impact the structural integrity of the irrigation systems, and would provide protection for the irrigation systems from illegal vehicle and pedestrian traffic through the area. A cross section of the proposed infrastructure and its relationship to the USIBWC levee and irrigation canal is shown in Figure 7.

Given that the area of the proposed infrastructure has been previously disturbed in the past by the construction of the USIBWC levee and irrigation canal, roads and bridges; that there is a low probability for intact cultural deposits; and that an archaeological monitor will be present during the installation of all lights, no adverse impacts to historic properties are anticipated. In accordance with 36 CFR Part 800.4(d)(1) we ask for your concurrence that no historic properties will be affected by the proposed project as planned. We plan to consult with appropriate Federally recognized Native American Tribes on this action and will coordinate any concerns for traditional cultural places or sacred sites that come to light through that consultation. If you have any questions pertaining to this project please do not hesitate to contact Ms. Nancy Parrish at (817) 886-1725 or via email at nancy.a.parrish@swf02.usace.army.mil.

Sincerely,

William Fickel, Jr.,
Chief, Planning, Environmental
and Regulatory Division

Enclosures

ATTACHMENT

From: Parrish, Nancy A SWF [mailto:Nancy.A.Parrish@swf02.usace.army.mil]
Sent: Monday, July 23, 2007 4:06 PM
To: Debra Beene
Cc: Eric Webb; John Lindemuth
Subject: Ysleta Lights Project

Hi Debra-
Sorry it took me a while to get this back to you today, I was hoping to get the info on the depths of excavation for the light posts and fence to add to this, but I can't get the engineer on the phone.

Anyway, in reference to the planned CBP infrastructure along the canal in the Ysleta Station area of operations, we will ensure the 300 x 300 foot staging areas are located outside the boundary of the NRHP-eligible canal site. If possible, we will select staging areas that have previously been disturbed. If that is not possible, then we will have the areas surveyed by a professional archaeologist prior to use as a staging area. The staging areas are only meant to serve as a location to park heavy equipment and supplies such as steel or prefabricated fence/barriers, light posts, etc. \and should not require significant blading, grading or excavation.

Bridge construction should not impact any sort of intact deposits as they will be located in areas where previous bridges have been situated. I will ask the engineer what the plans are for any remaining/existing footings. If necessary, extant bridges can be documented (HABS/HAER?) before they are replaced since they are cited as contributing elements to the NRHP canal sites. The new bridges can also be designed to mimic the old design so as to not create visual impacts to the site.

I will get back to you about the depths of excavation.

Thanks for the call. I look forward to working together in the future.
Nancy

****

Nancy Parrish
Archaeologist
BRAC NEPA Support Team
US Army Corps of Engineers
Fort Worth District
819 Taylor Street, Room 3A14
Fort Worth, TX 76102
Ph. 817.886.1725
Fax 817.886.6499
Cell 817.229.3371

CONCUR
by William A. Martin
for F. Lawerence Oaks
State Historic Preservation Officer
Date 7/26/07
Track# 200710143

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

July 11, 2007

REPLY TO
ATTENTION OF:
Planning, Environmental and Regulatory Division

SUBJECT: Supplemental Environmental Assessment for the Proposed Construction of Fence, Lights and Road Improvements along the International Boundary and Water Commission Levee in El Paso County

University of Texas at El Paso
Center for Environmental Resource Management
Mr. John Sproul, Manager
Rio Bosque Wetlands Park
500 West University Avenue
El Paso, TX 79968-0684

Dear Mr. Sproul:

On behalf of U.S. Customs and Border Protection (CBP) and Department of Homeland Security, the U.S. Army Corps of Engineers (USACE) intends to prepare a Supplemental Environmental Assessment (SEA) for the proposed construction of up to 21 miles of pedestrian fence, border lighting, and road improvements along a section of the United States Section, International Boundary and Water Commission (USIBWC) levee near the Rio Grande from the Rio Bosque to the Fabens Port of Entry (POE) in El Paso County, Texas. In addition, four bridges over the District irrigation canal would also be replaced.

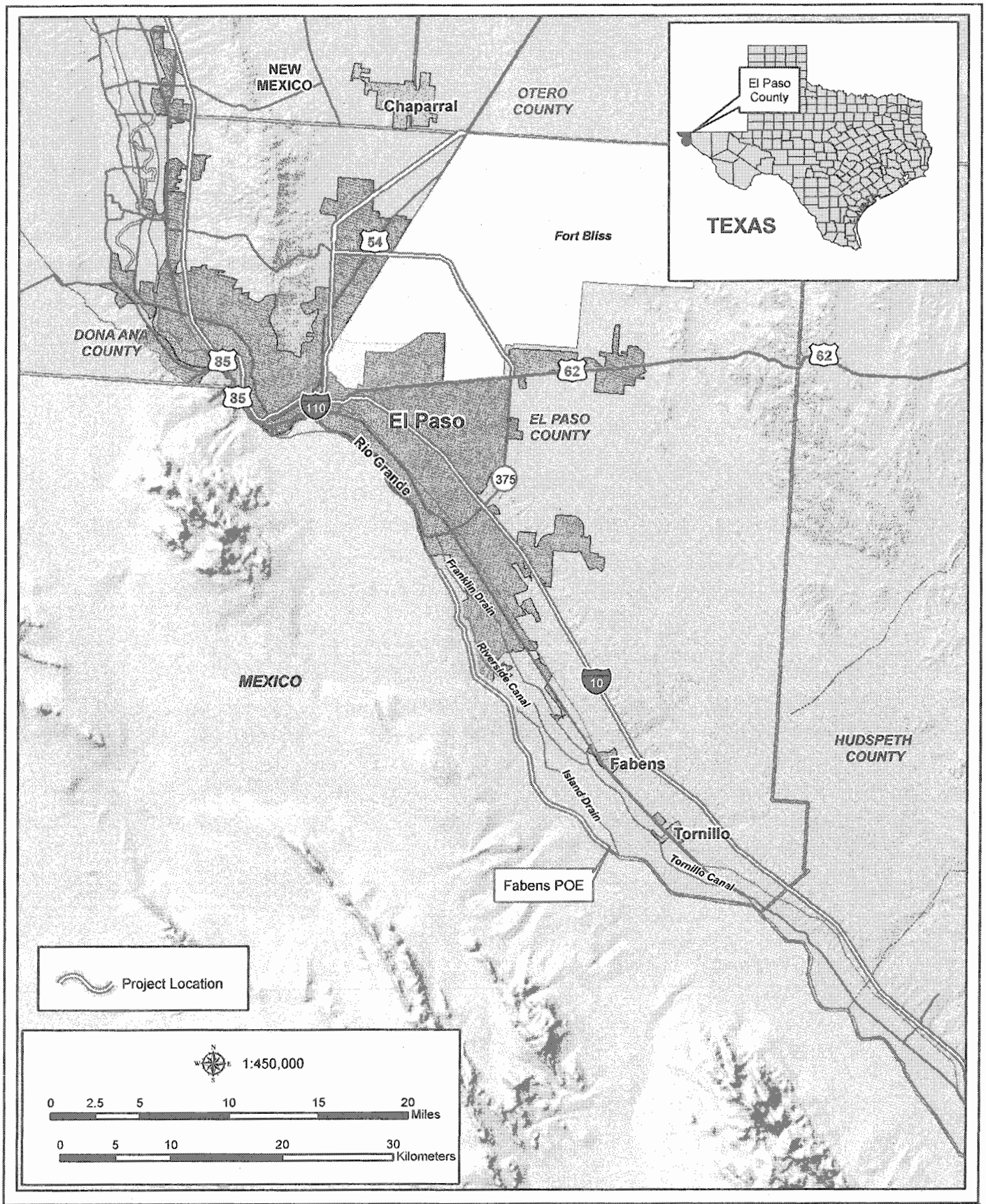
The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed action. The SEA is tiered from the 2006 Programmatic Environmental Assessment (PEA) for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations.

We are currently in the process of gathering the most current information available regarding environmental resources and other areas of concern occurring within this area. We respectfully request that your agency provide input regarding unique or environmentally sensitive areas or other issues that you believe may be affected by the proposed OBP activities.

We intend to provide your agency with a copy of the Draft SEA for the proposed action once completed. Please let us know if additional copies are needed. Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division



Project Location Map

GSRC

July 2007

THE UNIVERSITY OF TEXAS AT EL PASO

VM
PER-E

September 18, 2007

Center for
Environmental
Resource
Management

Mr. William Fickel, Jr., Chief
Planning, Environmental and Regulatory Division
U.S. Army Corps of Engineers, Fort Worth District
P.O. Box 17300
Fort Worth, TX 76102-0300

Re: Supplemental Environmental Assessment for the Proposed Construction of Fence, Lights and Road Improvements along the International Boundary and Water Commission Levee in El Paso County, Texas

Dear Mr. Fickel:

Thank you for giving us the opportunity to provide input to the Supplemental Environmental Assessment (SEA) that will be prepared for construction of up to 21 miles of fence, border lighting and road improvements along the Rio Grande levee from the vicinity of Rio Bosque Wetlands Park to the Fabens Port of Entry in El Paso County, Texas. We offer these comments to assist you in your work.

Rio Bosque Wetlands Park as a Unique, Environmentally Sensitive Area

Rio Bosque Wetlands Park is a City of El Paso park located immediately east of the Rio Grande levee in the project area. At 372 acres, it is the largest city park in El Paso. The University of Texas at El Paso manages the site under a license agreement with the City.

The Rio Grande valley in the El Paso area is a highly modified environment. The wetlands, riparian forests and other productive native habitats once found in the valley are today largely gone. Rio Bosque Wetlands Park is the largest and most significant parcel of relatively natural land remaining along the river in this region.

Since 1999, UTEP has been working at Rio Bosque to establish, over time, approximate examples of the native plant and animal communities characteristic of the Rio Grande and its floodplain in pre-settlement days. This work is guided by a Biological Management Plan that you can access through our website, **www.riobosque.org**.

This ecological restoration effort began with a project to create a shallow-water emergent wetland as mitigation for construction of the American Canal Extension, a concrete-lined canal that parallels the Rio Grande upriver from the Park. The U.S. Section of the International Boundary and Water Commission did the site-preparation work for this mitigation project in 1997.

The work involved building a winding channel through the Park that follows the former alignment of the Rio Grande before it was channelized as part of the Rio Grande Rectification Project in the mid-1930s. Also built were a series of large, shallow impoundments that can be flooded by diverting water from the main channel. In total, approximately 100 acres

Burges Hall
500 W. University Ave.
El Paso, Texas
79968-0684
(915) 747-5494
FAX: (915) 747-5145
www.cerm.utep.edu

(27% of the Park) can be flooded. The source of water for flooding these areas is treated effluent from the adjacent Roberto Bustamante Wastewater Treatment Plant. El Paso County Water Improvement District No. 1 and El Paso Water Utilities cooperate to provide this water to the Park when it is not being used for irrigation.

The ecological restoration effort at Rio Bosque is a long-term undertaking, but it has already enjoyed significant progress. The landscape at the Park has changed dramatically over the past 10 years. With each passing year, native plant associations are becoming increasingly prominent, and wildlife numbers and species richness are increasing. To date, 219 bird species, 20 mammal species, 16 reptile species and 4 amphibian species have been recorded at the Park. Lists of these species can be found at **www.riobosque.org**.

Impacts to Wildlife and Wildlife Movement

Due to a unique combination of circumstances, the segment of the Rio Grande downstream of the site of the former Riverside Diversion Dam for several miles supports a narrow band of riparian vegetation, much of it native cottonwood and willow, that is more extensive than the riparian vegetation found along other segments of the river near El Paso. For approximately one mile, Rio Bosque Wetlands Park is immediately east of this portion of the river floodway.

The link between Rio Bosque and the river floodway is an important one. Currently, there is an unimpeded connection between the two. Terrestrial wildlife can move readily between the Park and the floodway. The floodway also provides opportunities for movement of native wildlife between the Park and other pockets of suitable habitat along the river. A fence would sever these connections and adversely affect wildlife use of the Park. Accordingly, we ask that you fully evaluate in the SEA the impacts of any fencing, lighting or road improvements on wildlife and wildlife movement, especially with respect to Rio Bosque Wetlands Park.

Aesthetic Impacts

Rio Bosque Wetlands Park is managed as a natural area. We want to offer visitors a chance to experience what the river valley once was like, before intensive land-use and water-management practices began transforming it into the highly modified environment we see today. A fence and a series of light towers paralleling the Park can be expected to detract from this experience. Please address in the SEA the aesthetic impact of any fencing, lighting or road improvements.

Recreational Impacts

Since 1999, the City and County of El Paso have pursued a vision of a trail that winds along or near the Rio Grande throughout the length of El Paso County. Upriver of El Paso, a portion of this trail is complete. Ultimately, the trail would link many river-valley cultural, historic and environmental features, including Rio Bosque Wetlands Park. Please address in the SEA the impact of any fencing, lighting or road improvements on the proposed Rio Grande Trail System.

Alternatives

Given the potential impacts – both at Rio Bosque and elsewhere – of the proposed project on wildlife, wildlife movement, aesthetics and recreational opportunity, the use of sensors and cameras to provide a "virtual fence" in place of a physical fence deserves consideration for all or portions of the project area. Please fully evaluate such an alternative in the SEA.

We also recommend that the SEA explore approaches to lighting that will minimize impacts to Rio Bosque Wetlands Park and other sensitive sites along the project alignment, including:

- shielding and other appropriate design features to prevent light trespass on the Park, and
- design and placement of the light poles to eliminate or minimize their visibility from the Park during daytime.

In your letter of July 11, 2007, you state that the SEA is to be tiered from the 2006 Programmatic Environmental Assessment for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations. We would appreciate obtaining a copy of that document to better understand how the proposed project might relate to Rio Bosque Wetlands Park.

Thank you for the opportunity to contribute to the SEA for the proposed project. Please keep us informed of its progress, and please feel free to contact me if you have questions or need more information.

Very truly yours,

John Sproul
Program Coordinator/Manager
Rio Bosque Wetlands Park
(915) 747-8663
(915) 747-5145 fax
jsproul@utep.edu

c: Deborah Hamlyn, Deputy City Manager, Quality of Life Services, City of El Paso
Barry Russell, Acting Director, Parks and Recreation Dept., City of El Paso

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

July 11, 2007

Planning, Environmental and Regulatory Division

SUBJECT: Supplemental Environmental Assessment for the Proposed Construction of Fence, Lights and Road Improvements along the International Boundary and Water Commission Levee in El Paso County

El Paso Water Improvement District No. 1
ATTN: General Manager
P. O. Box 17489
El Paso, TX 79917-7489

Dear Gentlemen:

On behalf of U.S. Customs and Border Protection (CBP) and Department of Homeland Security, the U.S. Army Corps of Engineers (USACE) intends to prepare a Supplemental Environmental Assessment (SEA) for the proposed construction of up to 21 miles of pedestrian fence, border lighting, and road improvements along a section of the United States Section, International Boundary and Water Commission (USIBWC) levee near the Rio Grande from the Rio Bosque to the Fabens Port of Entry (POE) in El Paso County, Texas. In addition, four bridges over the District irrigation canal would also be replaced.

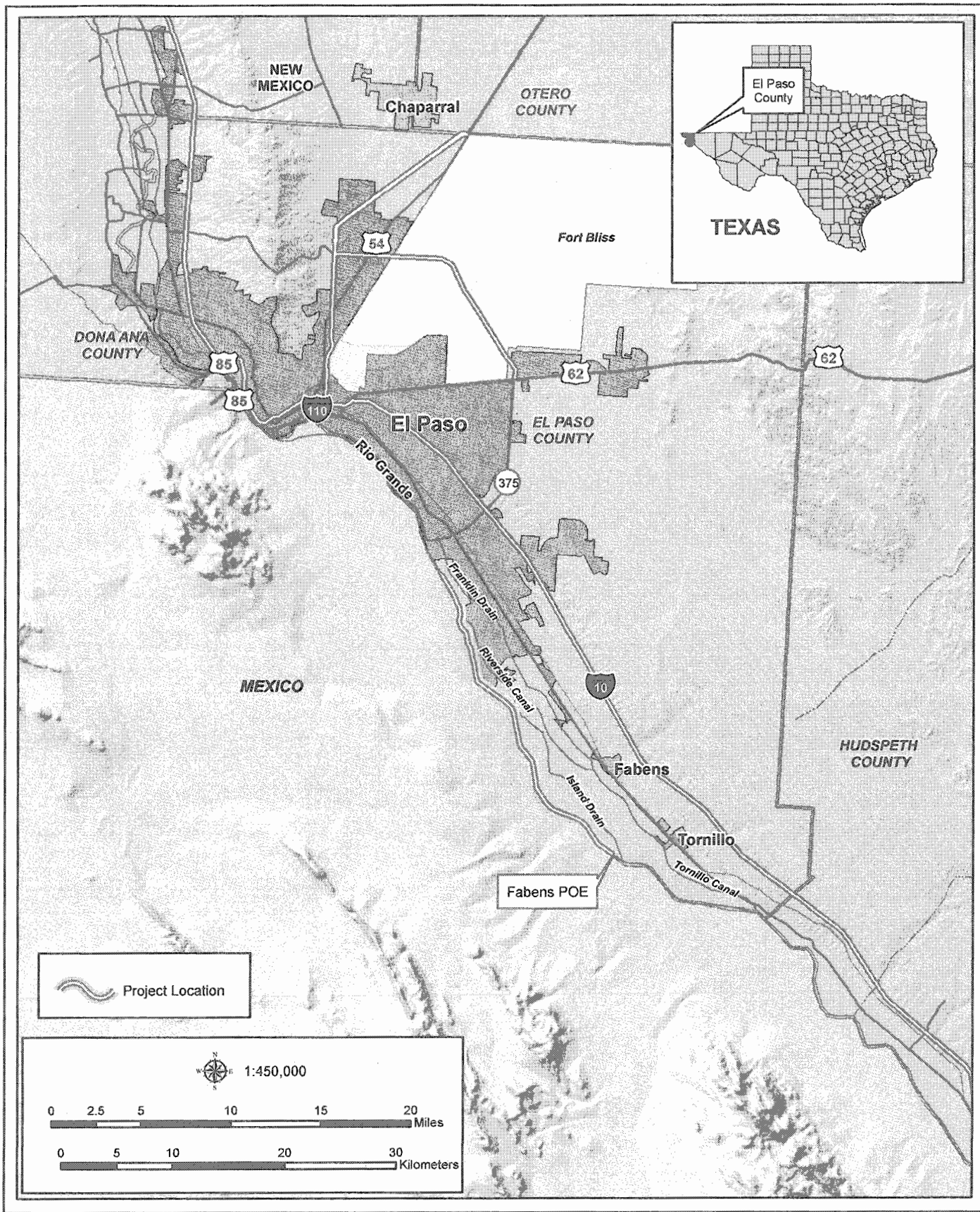
The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed action. The SEA is tiered from the 2006 Programmatic Environmental Assessment (PEA) for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations.

We are currently in the process of gathering the most current information available regarding environmental resources and other areas of concern occurring within this area. We respectfully request that your agency provide input regarding unique or environmentally sensitive areas or other issues that you believe may be affected by the proposed OBP activities.

We intend to provide your agency with a copy of the Draft SEA for the proposed action once completed. Please let us know if additional copies are needed. Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division



Project Location Map

GSRC

July 2007

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

July 11, 2007

Planning, Environmental and Regulatory Division

SUBJECT: Supplemental Environmental Assessment for the Proposed Construction of Fence, Lights and Road Improvements along the International Boundary and Water Commission Levee in El Paso County

Texas Parks and Wildlife
West Texas Wildlife District
ATTN: Mr. Tim Bone, Natural Resource Specialist
109 South Cockrell
Alpine, TX 79830

Dear Mr. Bone:

On behalf of U.S. Customs and Border Protection (CBP) and Department of Homeland Security, the U.S. Army Corps of Engineers (USACE) intends to prepare a Supplemental Environmental Assessment (SEA) for the proposed construction of up to 21 miles of pedestrian fence, border lighting, and road improvements along a section of the United States Section, International Boundary and Water Commission (USIBWC) levee near the Rio Grande from the Rio Bosque to the Fabens Port of Entry (POE) in El Paso County, Texas. In addition, four bridges over the District irrigation canal would also be replaced.

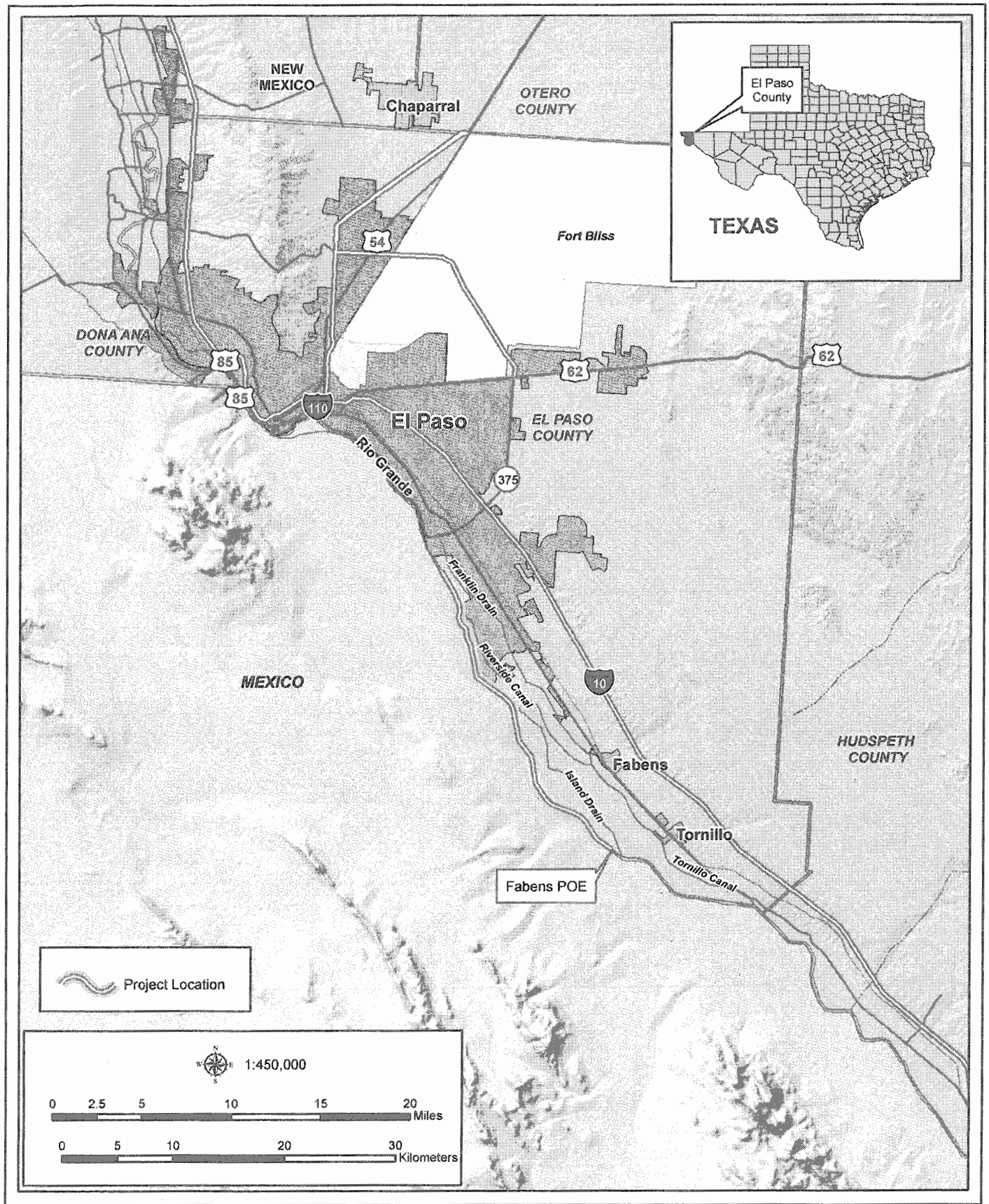
The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed action. The SEA is tiered from the 2006 Programmatic Environmental Assessment (PEA) for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations.

We are currently in the process of gathering the most current information available regarding environmental resources and other areas of concern occurring within this area. We respectfully request that your agency provide input regarding unique or environmentally sensitive areas or other issues that you believe may be affected by the proposed OBP activities.

We intend to provide your agency with a copy of the Draft SEA for the proposed action once completed. Please let us know if additional copies are needed. Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division



Project Location Map

GSRC

July 2007

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

July 11, 2007

Planning, Environmental and Regulatory Division

SUBJECT: Supplemental Environmental Assessment for the Proposed Construction of Fence, Lights and Road Improvements along the International Boundary and Water Commission Levee in El Paso County

Texas Commission on Environmental Quality
ATTN: Ms. Patty Reeh
1921 Cedar Bend Drive, Suite 150
Austin, TX 78758

Dear Ms Reeh:

On behalf of U.S. Customs and Border Protection (CBP) and Department of Homeland Security, the U.S. Army Corps of Engineers (USACE) intends to prepare a Supplemental Environmental Assessment (SEA) for the proposed construction of up to 21 miles of pedestrian fence, border lighting, and road improvements along a section of the United States Section, International Boundary and Water Commission (USIBWC) levee near the Rio Grande from the Rio Bosque to the Fabens Port of Entry (POE) in El Paso County, Texas. In addition, four bridges over the District irrigation canal would also be replaced.

The SEA will analyze the potential for significant adverse or beneficial impacts of the proposed action. The SEA is tiered from the 2006 Programmatic Environmental Assessment (PEA) for Proposed Tactical Infrastructure, Office of Border Patrol, El Paso Sector, Texas Stations.

We are currently in the process of gathering the most current information available regarding environmental resources and other areas of concern occurring within this area. We respectfully request that your agency provide input regarding unique or environmentally sensitive areas or other issues that you believe may be affected by the proposed OBP activities.

We intend to provide your agency with a copy of the Draft SEA for the proposed action once completed. Please let us know if additional copies are needed. Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585.

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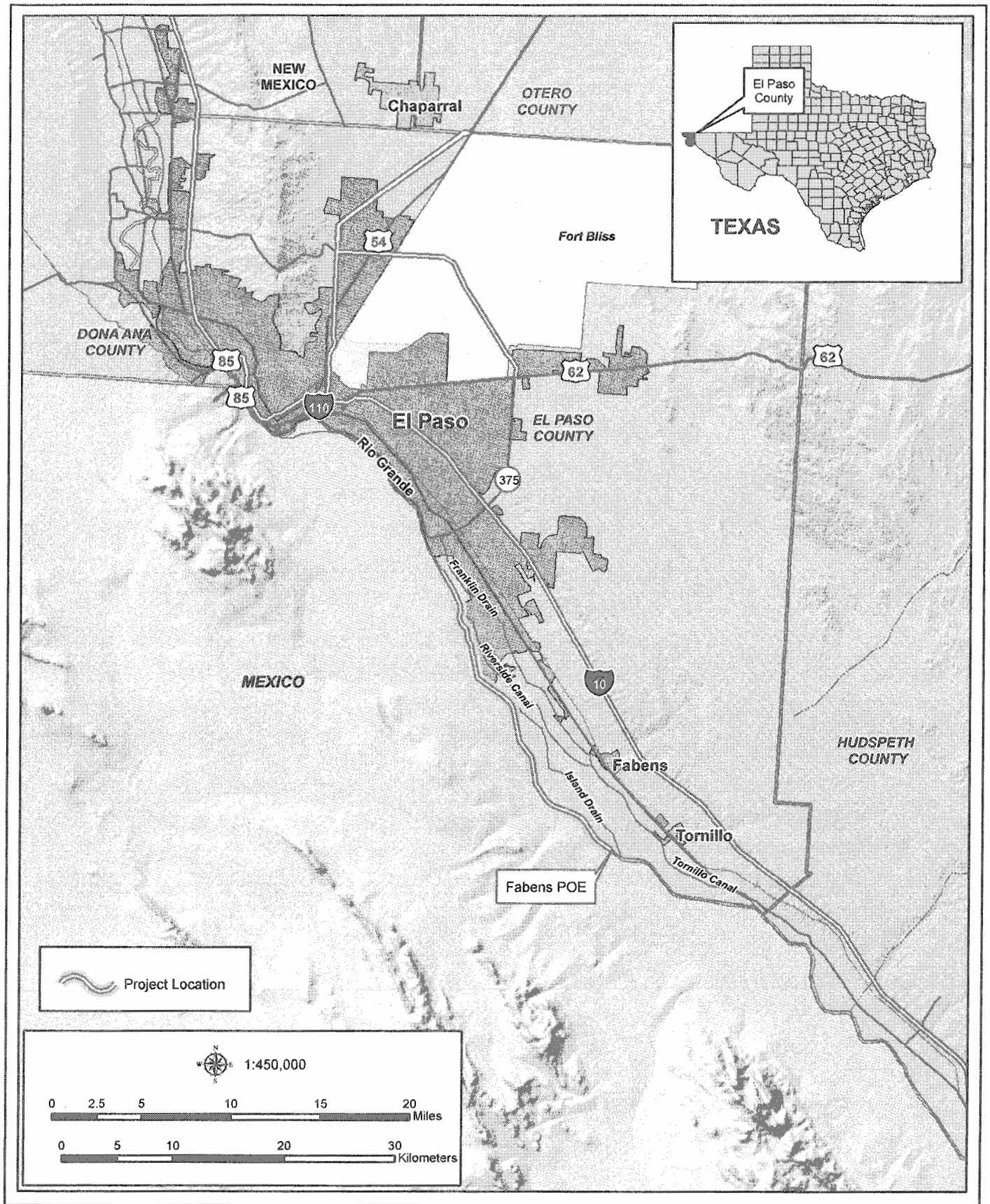

Project Location Map

GSRC

July 2007

APPENDIX E
List of Preparers

The following people were primarily responsible for preparing this report.

Name	Discipline/Expertise	Experience	Role In Preparing Report
Stephen Oivanki	Geologist Environmental Assessment	20 years of environmental assessment and remediation experience	Project manager, EA preparation
Greg Lacy	Wildlife Biology	10 years NEPA and natural resources studies	Biological Field Survey
John Lindemuth	Archaeology	15 years professional archaeologist	Cultural Resources evaluation
Chris Ingram	Biology and Ecology	25 years EA/EIS studies	EA review
Suna Adam Knaus	Forestry/Wildlife	17 years natural resources	EA review
Shanna McCarty	Ecology/Botany	2 years environmental studies	Socioeconomics
Steve Kolian	Water and Air Quality	10 years environmental studies	Noise and Air Quality
Chris Cothron	GIS/Graphics	1 year GIS analysis	GIS and Graphics
Sharon Newman	GIS/Graphics	13 years GIS analysis	GIS and Graphics
Eric Webb	Biology and Ecology	15 years NEPA and related studies	EA review

APPENDIX F
Public Notice and Comments

Notice of Availability and Public Open House Announcement

Draft Environmental Assessment (EA)
For the Construction, Operation, and Maintenance of Tactical Infrastructure
U.S. Border Patrol (USBP) El Paso Sector, Texas, El Paso, Ysleta, Fabens and Fort Hancock Stations Areas of Operation

The U.S Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP) announces the availability of, and invites public comment on, the Draft EA. Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq. (NEPA), CBP has prepared the Draft EA to identify and assess the potential impacts associated with the proposed construction, operation, and maintenance of tactical infrastructure, to include primary pedestrian fence, permanent lights, access roads, patrol roads, and bridges, along approximately 56.7 miles of the U.S./Mexico international border within USBP El Paso Sector, Texas (the Proposed Action). The Proposed Action would be implemented in five sections, ranging from approximately 5.2 to 19.4 miles in length. The purpose of the Proposed Action is to assist USBP agents in gaining effective control of the U.S. border between Ports of Entry in the USBP El Paso Sector.

The Draft EA complies with NEPA, the Council on Environmental Quality (CEQ) regulations in 40 CFR Parts 1500–1508, and DHS Management Directive 5100.1 (Environmental Planning Program). Copies of the Draft EA can be downloaded from the project Web site at *www.BorderFenceNEPA.com* or *https://ecso.swf.usace.army.mil/Pages/Publicreview.cfm*, or can be requested by e-mailing: *information@BorderFenceNEPA.com*. To request a hard copy of the Draft EA, you may call toll-free (888) 275-9740. Hard copies of the Draft EA can be reviewed at the El Paso Public Library, Richard Burges Branch, 9600 Dyer, El Paso, Texas 79901, (915) 759-2400; El Paso Public Library, Ysleta Branch, 9321 Alameda, El Paso, Texas 79907, (915) 858-0905; and Fort Hancock Public Library, 101 School Road, Fort Hancock, Texas 79839, (915) 769-3811.

CBP invites public comment on the Draft EA. A public open house will be held on February 28, 2008, from 4:30 p.m. to 8:00 p.m. at the Ambassador Ballroom, located at 10921 Pellicano Drive, El Paso, Texas.

Pursuant to the CEQ's regulations, CBP invites public participation in the NEPA process. In order for comments to be considered for inclusion in the Final EA, comments on the Draft EA must be received by March 19, 2008. Please provide comments using only one of the following methods:

(a) Attend and submit comments at the public open house to be held from 4:30 p.m. to 8:00 p.m. on February 28, 2008 at the Ambassador Ballroom, 10921 Pellicano Drive, El Paso Texas.

(b) Electronically through the Web site at: *www.BorderFenceNEPA.com*

(c) By e-mail to: *EPEAcomments@BorderFenceNEPA.com*

(d) By mail to: El Paso Sector Tactical Infrastructure EA, c/o Gulf South Research Corporation, 8081 GSRI Avenue, Baton Rouge, Louisiana 70820

(e) By Fax to: (225) 761-8077

When submitting comments, please include your name and address, and identify your comments as for the El Paso Sector Draft EA. Requests for information may be submitted to: Charles McGregor, U.S. Army Corps of Engineers, Engineering and Construction Support Office, 819 Taylor Street, Room 3B10, Fort Worth, Texas 76102; and by Fax to: (225) 761-8077.

← *continued from front cover*

NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PCPI	Per Capita Personal Income
PEA	Programmatic Environmental Assessment
P.L.	Public Law
PM-10	Particulate matter less than 10 microns
POE	Port of Entry
POL	petroleum, oil, or lubricants
PVB	Permanent vehicle barrier
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
ROW	Right-of-Way
RVSS	Remote Video Surveillance System
SBI	Strategic Border Initiative
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Officer
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SPEIS	Supplemental Programmatic Environmental Impact Statement
SWPPP	Storm Water Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
THPO	Tribal Historic Preservation Officer
TI	Tactical infrastructure
TPDES	Texas Pollution Discharge Elimination System
TPI	Total Personal Income
TPWD	Texas Parks and Wildlife Department
TxDOT	Texas Department of Transportation
U.S.	United States
USAEC	U.S. Army Environmental Command
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USIBWC	U.S. Section, International Boundary and Water Commission
UTEP	University of Texas at El Paso
WUS	Waters of the U.S.

Draft

ENVIRONMENTAL IMPACT STATEMENT

FOR CONSTRUCTION, MAINTENANCE, AND OPERATION OF TACTICAL INFRASTRUCTURE

Rio Grande Valley Sector, Texas

U.S. Department of Homeland Security
U.S. Customs and Border Protection
U.S. Border Patrol

November 2007

COVER SHEET

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR CONSTRUCTION, MAINTENANCE, AND OPERATION OF TACTICAL INFRASTRUCTURE RIO GRANDE VALLEY SECTOR, TEXAS

Responsible Agencies: U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP).

Cooperating Agencies: U.S. Army Corps of Engineers (USACE) Galveston District and the U.S. Section of the International Boundary and Water Commission (IBWC).

Affected Location: U.S./Mexico international border in southernmost portions of Starr, Hidalgo, and Cameron counties, Texas.

Proposed Action: The Proposed Action includes the construction, maintenance, and operation of tactical infrastructure to include pedestrian fencing, patrol roads, and access roads along approximately 70 miles of the U.S./Mexico international border within the USBP Rio Grande Valley Sector, Texas. The Proposed Action would be implemented in 21 discrete sections. Individual sections would range from approximately 1 mile to more than 13 miles in length.

Report Designation: Draft Environmental Impact Statement (EIS).

Abstract: CBP proposes to construct, maintain, and operate approximately 70 miles of tactical infrastructure, including pedestrian fencing, patrol roads, and access roads along the U.S./Mexico international border in southernmost portions of Starr, Hidalgo, and Cameron counties, Texas.

The Proposed Action includes the installation of tactical infrastructure in 21 discrete sections along the international border in the vicinity of Roma, Rio Grande City, McAllen, Progreso, Mercedes, Harlingen, and Brownsville, Texas. Individual tactical infrastructure sections would range from approximately 1 mile to more than 13 miles in length. For much of its length, the proposed tactical infrastructure would follow the International Boundary and Water Commission (IBWC) levee along the Rio Grande. Some portions of the tactical infrastructure would encroach upon privately owned land parcels and would cross multiple land use types, including rural, agricultural, suburban, and urban land. It would also encroach upon portions of the Lower Rio Grande Valley National Wildlife Refuge and Texas state parks in the Rio Grande Valley.

The EIS process will serve as a planning tool to assist agencies with decisionmaking authority associated with the Proposed Action and ensure that the required public involvement under the National Environmental Policy Act (NEPA) is accomplished. The EIS presents potential environmental impacts

associated with the Proposed Action and provides information to assist in the decisionmaking process addressing whether and how to implement the Proposed Action.

Throughout the NEPA process, the public may obtain information concerning the status and progress of the Proposed Action and the EIS via the project web site at *www.BorderFenceNEPA.com*, by emailing *information@BorderFenceNEPA.com*, or by written request to Mr. Charles McGregor, Environmental Manager, U.S. Army Corps of Engineers (USACE), Fort Worth District, Engineering Construction Support Office (ECSO), 814 Taylor Street, Room 3B10, Fort Worth, TX 76102; and Fax: (757) 282-7697.

You may submit written comments to CBP by contacting the SBI Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) Electronically through the web site at: www.BorderFenceNEPA.com;

(b) By email to: RGVcomments@BorderFenceNEPA.com;

(c) By mail to: Rio Grande Valley Tactical Infrastructure EIS, c/o e²M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) By fax to: (757) 282-7697.

Privacy Notice

Your comments on this document are due by December 31, 2007. Comments will be addressed in the Final EIS and made available to the public. Any personal information included in comments will therefore be publicly available.

DRAFT

ENVIRONMENTAL IMPACT STATEMENT
FOR
CONSTRUCTION, MAINTENANCE, AND OPERATION OF TACTICAL INFRASTRUCTURE
RIO GRANDE VALLEY SECTOR, TEXAS

U.S. Department of Homeland Security
U.S. Customs and Border Protection
U.S. Border Patrol

NOVEMBER 2007

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

The U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP) proposes to construct, maintain, and operate approximately 70 miles of tactical infrastructure, including pedestrian fence and associated patrol roads, and access roads along the U.S./Mexico international border in the USBP Rio Grande Valley Sector, Texas.

The mission of CBP is to prevent terrorists and terrorist weapons from entering the United States, while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the border of the United States. USBP's mission strategy consists of five main objectives:

- Establish substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between the Ports of Entry (POEs)
- Deter illegal entries through improved enforcement
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband
- Leverage "smart border" technology to multiply the effect of enforcement personnel
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

This Draft Environmental Impact Statement (EIS) has been prepared through coordination with Federal and state agencies to identify and assess the potential impacts associated with the proposed construction, maintenance, and operation of tactical infrastructure. This EIS is also being prepared to fulfill the requirements of the National Environmental Policy Act (NEPA) of 1969.

PURPOSE AND NEED

The purpose of the Proposed Action is to increase border security within the USBP Rio Grande Valley Sector through the construction, operation, and maintenance of tactical infrastructure in the form of fences, roads, and supporting technological and tactical assets. The USBP Rio Grande Valley Sector has identified several areas along the border that experience high levels of illegal cross-border activity. This activity occurs in areas that are remote and not easily accessed by USBP agents, near POEs where concentrated populations might live on either side of the border, contain thick vegetation that can provide concealment, or have quick access to U.S. transportation routes.

The Proposed Action is needed to provide USBP agents with the tools necessary to strengthen their control of the U.S. borders between POEs in the USBP Rio Grande Valley Sector. The Proposed Action would help to deter illegal cross-border activities within the USBP Rio Grande Valley Sector by improving enforcement, preventing terrorists and terrorist weapons from entering the United States, reducing the flow of illegal drugs, and enhancing response time, while providing a safer work environment for USBP agents.

PUBLIC INVOLVEMENT

CBP initiated the public scoping process for this Draft EIS on September 24, 2007, with the publication in the *Federal Register* of a Notice of Intent (NOI) to prepare an EIS. The NOI requested public comments on the scope of the EIS and provided information on how the public could submit comments by mail, facsimile, electronic mail, or through the project-specific Web site. Public comments submitted as part of the scoping process were considered during the development of this Draft EIS. Additional opportunities for public involvement will occur throughout the EIS development process.

DESCRIPTION OF THE PROPOSED ACTION

CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence and associated patrol roads, and access roads along the U.S./Mexico international border in the USBP Rio Grande Valley Sector, Texas. Proposed tactical infrastructure includes installation of fence sections in areas of the border that are not currently fenced. The proposed locations of tactical infrastructure are based on a USBP Rio Grande Valley Sector assessment of local operational requirements where tactical infrastructure would assist USBP agents in reducing illegal cross-border activities. The Fiscal Year (FY) 2007 DHS Appropriations Act (Public Law [P.L.] 109-295) provided $1,187,565,000 under the Border Security Fencing, Infrastructure, and Technology appropriation for the installation of fencing, infrastructure, and technology along the border.

ALTERNATIVES ANALYSIS

Alternative 1: No Action Alternative

Under the No Action Alternative, the proposed tactical infrastructure would not be built and there would be no change in fencing, roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP Rio Grande Valley Sector. The No Action Alternative would not meet USBP mission or operational needs. However, inclusion of the No Action Alternative is prescribed by the Council on Environmental Quality (CEQ) regulations implementing NEPA and will be carried forward for analysis in this Draft EIS. The No Action Alternative also serves as a baseline against which to evaluate the impacts of the Proposed Action.

Alternative 2: Routes A and B

Under this alternative, proposed tactical infrastructure would be constructed in 21 distinct sections along the international border within the USBP Rio Grande Valley Sector in the southernmost portions of Starr, Hidalgo, and Cameron counties, Texas. Individual fence sections might range from approximately 1 mile in length to more than 13 miles in length.

Two alternatives for the alignment of the infrastructure (Route Alternatives) are being considered under Alternative 2. Route A is the route initially identified by the USBP Rio Grande Valley Sector as meeting its operational requirements. Route B was developed through coordination with Federal and state agencies and incorporates input received through the public scoping period. The Route B alignment meets current operational requirements with less environmental impact, and is CBP's Preferred Alternative.

Alternative 3: Secure Fence Act Alignment Alternative

Under this alternative, two layers of fence, known as primary and secondary fence, would be constructed approximately 130 feet apart along the same alignment as Route B. This alternative would be most closely aligned with fence described in the Secure Fence Act of 2006, P.L. 109-367, 120 Stat. 2638, codified at 8 United States Code (U.S.C.) 1701.

This alternative would also include construction and maintenance of access and patrol roads. The patrol roads would be constructed between the primary and secondary fences. The design of the tactical infrastructure for this alternative would be similar to that of Alternative 2.

SUMMARY OF ENVIRONMENTAL IMPACTS

Table ES-1 provides an overview of potential impacts anticipated under each alternative considered, broken down by resource area. **Section 4** of this Draft EIS addresses these impacts in more detail.

USBP would follow design criteria to reduce adverse environmental impacts and would implement mitigation measures to further reduce or offset adverse environmental impacts. Design criteria to reduce adverse environmental impacts include selecting a location for tactical infrastructure that would avoid or minimize impacts on environmental and cultural resources, consulting with Federal and state agencies and other stakeholders to avoid or minimize adverse environmental impacts and develop appropriate Best Management Practices (BMPs), and avoiding physical disturbance and construction of solid barriers in wetlands/riparian areas and streambeds. BMPs would include implementation of a Construction Mitigation and Restoration (CM&R) Plan; Spill Prevention Control and Countermeasures (SPCC) Plan; Dust Control Plan; Fire Prevention and Suppression Plan; and Unanticipated Discovery Plan for Cultural Resources to protect natural and cultural resources.

Table ES-1. Summary of Anticipated Environmental Impacts, by Alternative

Resource Area	Alternative 1: No Action Alternative	Alternative 2		Alternative 3: Secure Fence Act Alignment
		Route A	Route B (Preferred Alternative)	
Air Quality	No new impacts would occur.	Short- and long-term negligible to minor adverse impacts.	Short- and long-term negligible to minor adverse impacts.	Impacts would be similar to, but greater than, the impacts described under Alternative 2.
Noise	No new impacts would occur.	Short-term moderate adverse impacts would be expected.	Short-term moderate adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Land Use	Long-term minor to major adverse impacts would continue to occur.	Short- and long-term minor adverse and long-term beneficial impacts would occur.	Short- and long-term minor adverse and long-term beneficial impacts would occur.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Geology and Soils	Long-term minor adverse impacts would continue to occur.	Short- and long-term negligible to minor adverse impacts would be expected.	Short- and long-term negligible to minor adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Water Resources	Long-term minor adverse impacts would continue to occur.	Short-term and long-term negligible to minor adverse impacts would be expected.	Short-term and long-term negligible to minor adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.

Resource Area	Alternative 1: No Action Alternative	Alternative 2		Alternative 3: Secure Fence Act Alignment
		Route A	Route B (Preferred Alternative)	
Vegetation	Long-term minor to major adverse impacts would continue to occur.	Short- and long-term negligible to major beneficial and adverse impacts would be expected.	Short- and long-term negligible to major beneficial and adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Wildlife and Aquatic Resources	Long-term minor adverse impacts would continue to occur.	Short- and long-term negligible to moderate adverse and minor beneficial impacts would be expected.	Short- and long-term negligible to moderate adverse and minor beneficial impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Special Status Species	Long-term minor to moderate adverse impacts would continue to occur.	Short- and long-term minor to major adverse and long-term negligible to minor beneficial impacts would be expected.	Short- and long-term minor to moderate adverse and long-term negligible to minor beneficial impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Cultural Resources	Long-term minor adverse impacts would continue to occur.	Long-term minor to major adverse impacts would be expected.	Long-term minor to major adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Aesthetics and Visual Resources	No new impacts would occur.	Short- and long-term minor to major adverse impacts would be expected.	Short- and long-term minor to major adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.

Resource Area	Alternative 1: No Action Alternative	Alternative 2		Alternative 3: Secure Fence Act Alignment
		Route A	Route B (Preferred Alternative)	
Socioeconomic Resources, Environmental Justice, and Safety	Long-term minor to major adverse impacts would continue to occur.	Short- and long-term minor to moderate adverse and short-term beneficial impacts would be expected.	Short- and long-term minor to moderate adverse and short-term beneficial impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Utilities and Infrastructure	No new impacts would occur.	Short-term negligible to minor adverse impacts would be expected.	Short-term negligible to minor adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.
Hazardous Materials and Waste	No new impacts would occur.	Short-term negligible adverse impacts would be expected.	Short-term negligible adverse impacts would be expected.	Impacts would be similar to, but slightly greater than, the impacts described under Alternative 2.

1

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DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR CONSTRUCTION, MAINTENANCE, AND OPERATION OF TACTICAL INFRASTRUCTURE RIO GRANDE VALLEY SECTOR, TEXAS

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SECTION 1

Introduction

1. INTRODUCTION

The U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP) proposes to construct, maintain, and operate approximately 70 miles of tactical infrastructure, including 21 discrete sections of pedestrian fence and associated patrol roads, and access roads along the U.S./Mexico international border in the USBP Rio Grande Valley Sector, Texas.

The Proposed Action includes the installation of tactical infrastructure in 21 discrete fence sections (designated O-1 through O-21) along the international border with Mexico in the vicinity of Roma, Rio Grande City, McAllen, Progreso, Mercedes, Harlingen, and Brownsville, Texas (see **Figure 1-1**). The locations of the individual tactical infrastructure sections were proposed based on the situational and operational requirements of the USBP Rio Grande Valley Sector. Although some of the fence sections would be contiguous, each fence section would represent an individual project and could proceed independent of the other sections. Detailed descriptions of the fence sections are presented in **Section 2.2.2**. Individual sections would range from approximately 1 mile to more than 13 miles in length. For much of its length, the proposed tactical infrastructure would follow the International Boundary and Water Commission (IBWC) levee along the Rio Grande. The IBWC enforces and oversees the boundary and water treaties of the United States and Mexico and settles differences that arise in their application (IBWC 2007a). The tactical infrastructure would cross multiple land use types, such as agricultural, rural, suburban, and urban. Impacted parcels are both publicly and privately owned. The Proposed Action would also encroach upon portions of the Lower Rio Grande Valley National Wildlife Refuge (LRGVNWR) and Texas state parks in the Rio Grande Valley. A detailed description of the Proposed Action and the alternatives considered is presented in **Section 2**.

This Draft Environmental Impact Statement (EIS) is divided into eight sections and appendices. **Section 1** provides background information on USBP missions, identifies the purpose of and need for the Proposed Action, describes the area in which the Proposed Action would occur, and explains the public involvement process. **Section 2** provides a detailed description of the Proposed Action, alternatives considered, and the No Action Alternative. **Section 3** describes existing environmental conditions in the areas where the Proposed Action would occur. **Section 4** identifies potential environmental impacts that could occur within each resource area under the alternatives evaluated in detail. **Section 5** discusses potential cumulative impacts and other impacts that might result from implementation of the Proposed Action, combined with foreseeable future actions. **Sections 6** and **7** provide references and acronyms, respectively. **Section 8** identifies the preparers of the Draft EIS.

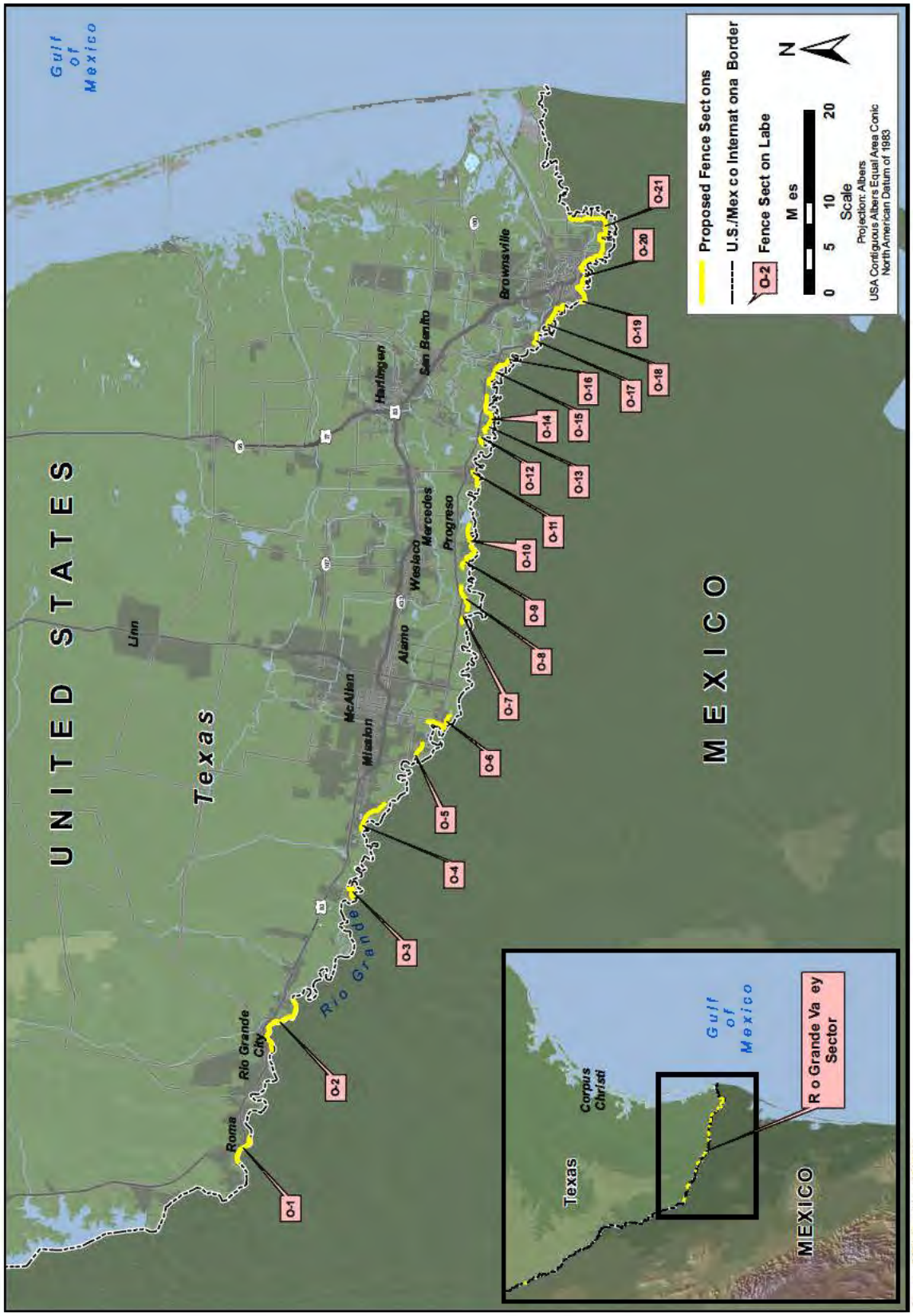

Figure 1-1. General Location of the Proposed Action – Rio Grande Valley Sector, Texas

Appendix A contains a listing of those laws, regulations, and executive orders potentially applicable to the Proposed Action. **Appendix B** presents the Scoping Summary Report which includes the *Federal Register*, Notice of Intent (NOI), the newspaper ads posted in local papers, and agency coordination letters. **Appendix C** will present materials related to the Draft EIS comment process and public involvement. **Appendix D** contains a detailed description of the 21 proposed tactical infrastructure sections along Routes A and B. **Appendix E** provides potential fence designs and a description of the proposed tactical infrastructure. **Appendix F** contains detailed maps of each of the 21 proposed tactical infrastructure sections. **Appendix G** contains detailed soil maps of each of the 21 proposed tactical infrastructure sections. **Appendix H** contains a detailed summary of soils in Starr, Hidalgo, and Cameron counties. **Appendix I** contains the Draft Biological Survey Report. **Appendix J** contains preliminary cultural resource findings. **Appendix K** presents air quality information.

1.1 USBP BACKGROUND

The mission of CBP is to prevent terrorists and terrorist weapons from entering the United States, while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the border of the United States. USBP's mission strategy consists of five main objectives:

- Establish substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between the Ports of Entry (POEs)
- Deter illegal entries through improved enforcement
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband
- Leverage "smart border" technology to multiply the effect of enforcement personnel
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

USBP has nine administrative sectors along the U.S./Mexico international border. Each sector is responsible for implementing an optimal combination of personnel, technology, and infrastructure appropriate to its operational requirements. The Rio Grande Valley Sector is responsible for 17,000 square miles of land in southeastern Texas, including the following counties: Cameron, Willacy, Hidalgo, Starr, Brooks, Kenedy, Kleberg, Nueces, San Patricio, Jim Wells, Bee, Refugio, Calhoun, Goliad, Victoria, Dewitt, Jackson, and Lavaca (CBP 2007). The areas affected by the Proposed Action include the southernmost portions of Starr, Hidalgo, and Cameron counties, Texas, within the Rio Grande Valley Sector.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to increase border security within the USBP Rio Grande Valley Sector through the construction, operation, and maintenance of tactical infrastructure in the form of fences, roads, and supporting technological and tactical assets. The USBP Rio Grande Valley Sector has identified 21 discrete areas along the border that experience high levels of illegal cross-border activity. This activity occurs in areas that are remote and not easily accessed by USBP agents, near POEs where concentrated populations might live on either side of the border, contain thick vegetation that can provide concealment, or have quick access to U.S. transportation routes.

The Proposed Action is needed to provide USBP agents with the tools necessary to strengthen their control of the U.S. borders between POEs in the USBP Rio Grande Valley Sector. The Proposed Action would help to deter illegal cross-border activities within the USBP Rio Grande Valley Sector by improving enforcement, preventing terrorists and terrorist weapons from entering the United States, reducing the flow of illegal drugs, and enhancing response time, while providing a safer work environment for USBP agents.

1.3 PROPOSED ACTION

USBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence and associated patrol roads, and access roads along 21 discrete areas of the U.S./Mexico international border in the USBP Rio Grande Valley Sector, Texas (examples of pedestrian fence are included in **Appendix E**). Proposed tactical infrastructure includes installation of fence sections in areas of the border that are not currently fenced. The proposed locations of tactical infrastructure are based on a USBP Rio Grande Valley Sector assessment of local operational requirements where such infrastructure would assist USBP agents in reducing illegal cross-border activities. The Fiscal Year (FY) 2007 DHS Appropriations Act (Public Law [P.L.] 109-295) provided $1,187,565,000 under the Border Security Fencing, Infrastructure, and Technology appropriation for the installation of fencing, infrastructure, and technology along the border (CRS 2006). **Figure 1-1** illustrates the location of the proposed tactical infrastructure within the Rio Grande Valley Sector. Details of the Proposed Action are included in **Section 2.2.2**.

1.4 FRAMEWORK FOR ANALYSIS

The process for implementing the National Environmental Policy Act (NEPA) is codified in Code of Federal Regulations 40 (CFR) Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, and DHS's related Management Directive (MD) 5100.1, *Environmental Planning Program*. The Council on Environmental Quality (CEQ) was established under NEPA to implement and oversee Federal policy in this process.

An EIS is prepared when a proposed action is anticipated to have potentially "significant" environmental impacts, or a proposed action is environmentally controversial. An EIS generally presents separate chapters specifically tailored to address the following:

- The purpose and need for the Proposed Action
- Reasonable alternatives to the Proposed Action
- A characterization of the affected environment
- The nature and extent of potential environmental impacts associated with the Proposed Action and alternatives (including the No Action Alternative)
- A listing of agencies and persons contacted during the EIS preparation process and public involvement efforts.

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an Environmental Assessment (EA) or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

Within the framework of environmental impact analysis under NEPA, additional authorities that may be applicable include the Clean Air Act (CAA), Clean Water Act (CWA) (including a National Pollutant Discharge Elimination System [NPDES] storm water discharge permit and Section 404 permit), Section 10 of the Rivers and Harbors Act of 1899, Noise Control Act, Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), National Historic Preservation Act (NHPA), Archaeological Resources Protection Act, Resource Conservation and Recovery Act, Toxic Substances Control Act, and various Executive Orders (EOs). A summary of laws, regulations, and EOs that might be applicable to the Proposed Action are shown in **Appendix A**. **Table 1-1** lists major Federal and state permits, approvals, and interagency coordination required to construct, maintain, and operate the proposed tactical infrastructure.

The Proposed Action and analysis in this Draft EIS is complementary to that in a recent EIS prepared by CBP. The *Environmental Impact Statement for Operation Rio Grande,* April 2004 (DHS 2004), was prepared to address tactical infrastructure needs within the Rio Grande Valley Sector (formerly McAllen Sector) associated with Operation Rio Grande. Operation Rio Grande is a strategy that was initiated in August 1997 to aid in reducing illegal immigration

Table 1-1. Major Permits, Approvals, and Interagency Coordination

Agency	Permit/Approval/Coordination
U.S. Department of the Interior, U.S. Fish and Wildlife Service (USFWS)	Section 7 ESA consultation MBTA coordination Special Use Permits for access to National Wildlife Refuge areas
U.S. Environmental Protection Agency (USEPA)	CWA NPDES permit
U.S. Army Corps of Engineers	CWA Section 404 permit Rivers and Harbors Act of 1899, Section 10
Texas Commission on Environmental Quality (TCEQ)	CWA Section 401 State Water Quality Certification CAA permit consultation
Texas General Land Office (TxGLO)	Coastal Zone Management Act (CZMA) - Consistency Determination
Texas Parks and Wildlife Department (TPWD)	Texas Endangered Species Act coordination
National Park Service	NHPA Section 106 consultation for National Historic Landmarks (NHLs)
Texas Historical Commission (THC)	NHPA Section 106 consultation
Federally recognized American Indian Tribes	Consultation regarding potential effects on cultural resources
Advisory Council on Historic Preservation (ACHP)	NHPA Section 106 consultation

and drug trafficking along the Rio Grande corridor of the Rio Grande Valley Sector. The tactical infrastructure proposed and analyzed in the Operation Rio Grande EIS includes permanent and portable lighting, road improvement, fence construction, boat ramp construction, and maintenance mowing. The Record of Decision (ROD) for the Operation Rio Grande EIS was signed on April 15, 2005. The discussion and analysis in the Operation Rio Grande EIS are incorporated into this EIS by reference because the proposals analyzed in each EIS are complementary to each other.

1.5 PUBLIC INVOLVEMENT

Agency and public involvement in the NEPA process promotes open communication between the public and the government and enhances the decisionmaking process. All persons or organizations having a potential interest in the Proposed Action are encouraged to participate in the decisionmaking process.

prior to any decisionmaking on what actions are to be taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process.

Public scoping activities for this EIS were initiated on September 24, 2007, when a NOI to prepare this EIS was published in the *Federal Register* (72 FR 184, pp. 54276–77, see **Appendix B**). Besides providing a brief description of the Proposed Action and announcing CBP's intent to prepare this EIS, the NOI also established a 20-day public scoping period. The purpose of the scoping process was to solicit public comments regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS. Public comments received during the public scoping period were taken into consideration as part of the preparation of this Draft EIS (see **Appendix B**).

In addition to the NOI published in the *Federal Register*, newspaper notices coinciding with the NOI was published in *The Monitor, The Brownsville Herald*, and *The Valley Morning Star* on September 24 and 30, 2007. A notice was also published in Spanish in *La Frontera* and *El Nuevo Heraldo* on September 24, 2007. Copies of the newspaper notices are included in **Appendix B**.

The U.S. Environmental Protection Agency (USEPA) will publish the Notice of Availability (NOA) for this Draft EIS in the *Federal Register*. The purpose of the USEPA NOA is to announce to the public the availability of this Draft EIS, and to begin a 45-day public comment period. In addition to the USEPA NOA, CBP will publish a separate NOA in the *Federal Register* announcing the dates, times, and places for public informational meetings and to request comments on the Draft EIS. All comments received will be taken into consideration in the development of the Final EIS and subsequent to this draft will also be included in **Appendix C**. Upon completion, CBP will make the Final EIS available to the public for 30 days. At the conclusion of the 30-day period, a Record of Decision (ROD) regarding the Proposed Action can be signed and published in the *Federal Register*.

Through the public involvement process, USBP also notified relevant Federal, state, and local agencies of the Proposed Action and requested input on environmental concerns they might have regarding the Proposed Action. The public involvement process provides USBP with the opportunity to cooperate with and consider state and local views in its decision regarding implementing this Federal proposal. As part of the EIS process, USBP coordinated with the USEPA; U.S. Fish and Wildlife Service (USFWS); Texas State Historic Preservation Office (SHPO); and other Federal, state, and local agencies (see **Appendix B**). Input from responses received by these agencies has been incorporated into the analysis of potential environmental impacts.

This Draft EIS also serves as a public notice regarding impacts on floodplains. EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable

alternative is to site in a floodplain, a specific process must be followed to comply with EO 11988. This eight-step process is detailed in the Federal Emergency Management Agency (FEMA) document "Further Advice on EO 11988 Floodplain Management." The eight steps are as follows:

1. Determine whether the action will occur in, or stimulate development in, a floodplain
2. Receive public review/input of the Proposed Action
3. Identify and evaluate practicable alternatives to locating in the floodplain
4. Identify the impacts of the Proposed Action (when it occurs in a floodplain)
5. Minimize threats to life, property, and natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values
6. Reevaluate alternatives in light of any new information that might have become available
7. Issue findings and a public explanation
8. Implement the action.

Steps 1, 3, and 4 have been undertaken as part of this Draft EIS and are further discussed in **Sections 3.6** and **4.6**. Steps 2 and 6 through 8 are being conducted simultaneously with the EIS development process, including public review of the Draft EIS. Step 5 relates to mitigation and is currently undergoing development.

Anyone wishing to provide written comments, suggestions, or relevant information regarding the Proposed Action may submit comments to CBP by contacting SBI, Tactical Infrastructure Program Office. To avoid duplication, please use only <u>one</u> of the following methods:

(a) Electronically through the web site at: www.BorderFenceNEPA.com;

(b) By email to: RGVcomments@BorderFenceNEPA.com;

(c) By mail to: Rio Grande Valley Tactical Infrastructure EIS, c/o e²M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) By fax to: (757) 282-7697.

Throughout the NEPA process, the public may obtain information concerning the status and progress of the EIS via the project web site at *www.BorderFenceNEPA.com*, by emailing *information@BorderFenceNEPA.com*, or by written request to Mr. Charles McGregor, Environmental Manager, U.S. Army Corps of Engineers (USACE), Fort Worth District, Engineering Construction Support Office (ECSO), 814 Taylor Street, Room 3B10, Fort Worth, TX 76102; and Fax: (757) 282-7697.

1.6 COOPERATING AND COORDINATING AGENCIES

The USACE-Galveston District and the IBWC as cooperating agencies, and the USFWS as a coordinating agency, also have decisionmaking authority for components of the Proposed Action and intend for this EIS to fulfill their requirements for compliance with NEPA. The CEQ regulations implementing NEPA instruct agencies to combine environmental documents to reduce duplication and paperwork (40 CFR 1506.4).

The USACE-Galveston District Engineer has the authority to authorize actions under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899 (33 United States Code [U.S.C.] 403). Applications for work involving the discharge of fill material into waters of the United States and work in, or affecting, a navigable water of the United States will be submitted to the USACE-Galveston District Regulatory Program Branch for review and a decision on issuance of a permit will be reached.

Section 7 of the ESA (16 U.S.C. Section 1531–1544) states that any project authorized, funded, or conducted by any Federal agency should not "…jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined … to be critical." The USFWS is a coordinating agency regarding this Proposed Action to determine whether any federally listed, proposed endangered, or proposed threatened species or their designated critical habitats would be adversely impacted by the Proposed Action. As a coordinating agency, the USFWS will assist in completing the Section 7 consultation process, identifying the nature and extent of potential effects, and developing measures that would avoid or reduce potential effects on any species of concern. The USFWS will prepare the Biological Assessment and will issue the Biological Opinion (BO) of the potential for jeopardy to species of concern. If the USFWS determines that the project is not likely to jeopardize any listed species, it can also issue an incidental take statement as an exception to the prohibitions in Section 9 of the ESA.

The Proposed Action would encroach upon multiple component parcels of the LRGVNWR. In order to proceed with geotechnical studies, and natural and cultural resources surveys prior to fence and road construction on LRGVNWR lands, the USFWS would need to issue special use permits for the proposed studies and surveys to commence.

For much of the proposed fence sections, the tactical infrastructure would follow the Rio Grande levee rights-of-ways (ROWs) administered by the IBWC. The IBWC is an international body composed of a U.S. Section and a Mexican Section, each headed by an Engineer-Commissioner appointed by their respective president. Each Section is administered independently of the other. The U.S. Section of the IBWC is a Federal government agency headquartered in El Paso, Texas, and operates under the foreign policy guidance of the

Department of State (IBWC 2007a). The U.S. Section of the IBWC would provide access and ROWs to construct proposed tactical infrastructure along its levee system within the Rio Grande Valley Sector. It will also ensure that design and placement of the proposed tactical infrastructure does not impact flood control process and does not violate treaty obligations between the United States and Mexico. For purposes of the analysis in this EIS, the phrase "north of the proposed project corridor" refers to the area on the U.S. side of the tactical infrastructure.

SECTION 2

Proposed Action and Alternatives

2. PROPOSED ACTION AND ALTERNATIVES

This section provides detailed information on USBP's proposal to construct, maintain, and operate tactical infrastructure along the U.S./Mexico international border in the Rio Grande Valley Sector, Texas. The range of reasonable alternatives considered in this EIS is constrained to those that would meet the purpose and need described in **Section 1** to provide USBP agents with the tools necessary to achieve effective control of the border in the Rio Grande Valley Sector. Such alternatives must also meet essential technical, engineering, and economic threshold requirements to ensure that each is environmentally sound, economically viable, and complies with governing standards and regulations.

2.1 SCREENING CRITERIA FOR ALTERNATIVES

The following screening criteria were used to develop the Proposed Action and evaluate potential alternatives. The USBP Rio Grande Valley Sector is working to develop the right combination of personnel, technology, and infrastructure to meet its objective to gain effective control of the border in the Rio Grande Valley Sector.

- *USBP Operational Requirements*. Pedestrian border fencing must support USBP mission needs to hinder or delay individuals crossing the border illegally. Once individuals have entered an urban area or suburban neighborhood, it is much more difficult for USBP agents to identify and apprehend suspects engaged in unlawful border entry. In addition, around populated areas it is relatively easy for cross-border violators to find transportation into the interior of the United States.
- *Threatened or Endangered Species and Critical Habitat*. The construction, maintenance, and operation of the proposed tactical infrastructure would be designed to minimize adverse impacts on threatened or endangered species and their critical habitat to the maximum extent practical. USBP is working with the USFWS to identify potential conservation and mitigation measures.
- *Wetlands and Floodplains*. The construction, maintenance, and operation of the proposed tactical infrastructure would be designed to avoid and minimize impacts on wetlands, surface waters, and floodplain resources to the maximum extent practicalable. USBP is working with the USACE-Galveston District and IBWC to avoid, minimize, and mitigate potential impacts on wetlands, surface waters, and floodplains.
- *Cultural and Historic Resources.* The construction, maintenance, and operation of the proposed tactical infrastructure would be designed to minimize impacts on cultural and historic resources to the maximum extent practical. USBP is working with the Texas SHPO to identify potential conservation and mitigation measures.

- *Suitable Landscape*. Some areas of the border have steep topography, highly erodible soils, unstable geology, or other characteristics that could compromise the integrity of fence or other tactical infrastructure. For example, in areas susceptible to flash flooding, fence and other tactical infrastructure might be prone to the effects of erosion that could undermine the fence's integrity. Areas with suitable landscape conditions would be prioritized.

2.2 ALTERNATIVES ANALYSIS

The following sections describe the alternative analysis for this Proposed Action. **Section 2.2.1** presents the No Action Alternative, **Section 2.2.2** provides specific details of the Proposed Action, and **Section 2.2.3** discusses the Secure Fence Act Alternative. **Section 2.3** discusses alternatives considered but not analyzed in detail, **Section 2.4** is a summary comparison of the alternatives, and **Section 2.5** is the identification of the preferred alternative.

2.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the Rio Grande Valley Sector. The No Action Alternative would not meet USBP mission or operational needs. However, inclusion of the No Action Alternative is prescribed by the CEQ regulations implementing NEPA and will be carried forward for analysis in the EIS. The No Action Alternative also serves as a baseline against which to evaluate the impacts of the alternatives.

2.2.2 Alternative 2: Routes A and B

USBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, patrol roads, and access roads along the U.S./Mexico international border in the Rio Grande Valley Sector, Texas. Congress has appropriated funds for the construction of the proposed tactical infrastructure. Construction of additional tactical infrastructure might be required in the future as mission and operational requirements are continually reassessed.

The proposed tactical infrastructure would be constructed in 21 distinct sections along the border within the Rio Grande Valley Sector in Starr, Hidalgo, and Cameron counties, Texas. Individual fence sections might range from approximately 1 mile in length to more than 13 miles in length. Each proposed tactical infrastructure section would be an individual project and could proceed to completion independent of the other sections. These 21 sections of pedestrian fence are designated as Sections O-1 through O-21 on **Figures 2-1** through **2-3** and are shown in more detail in **Appendix F**. **Table 2-1** presents general information for each of the 21 proposed sections.

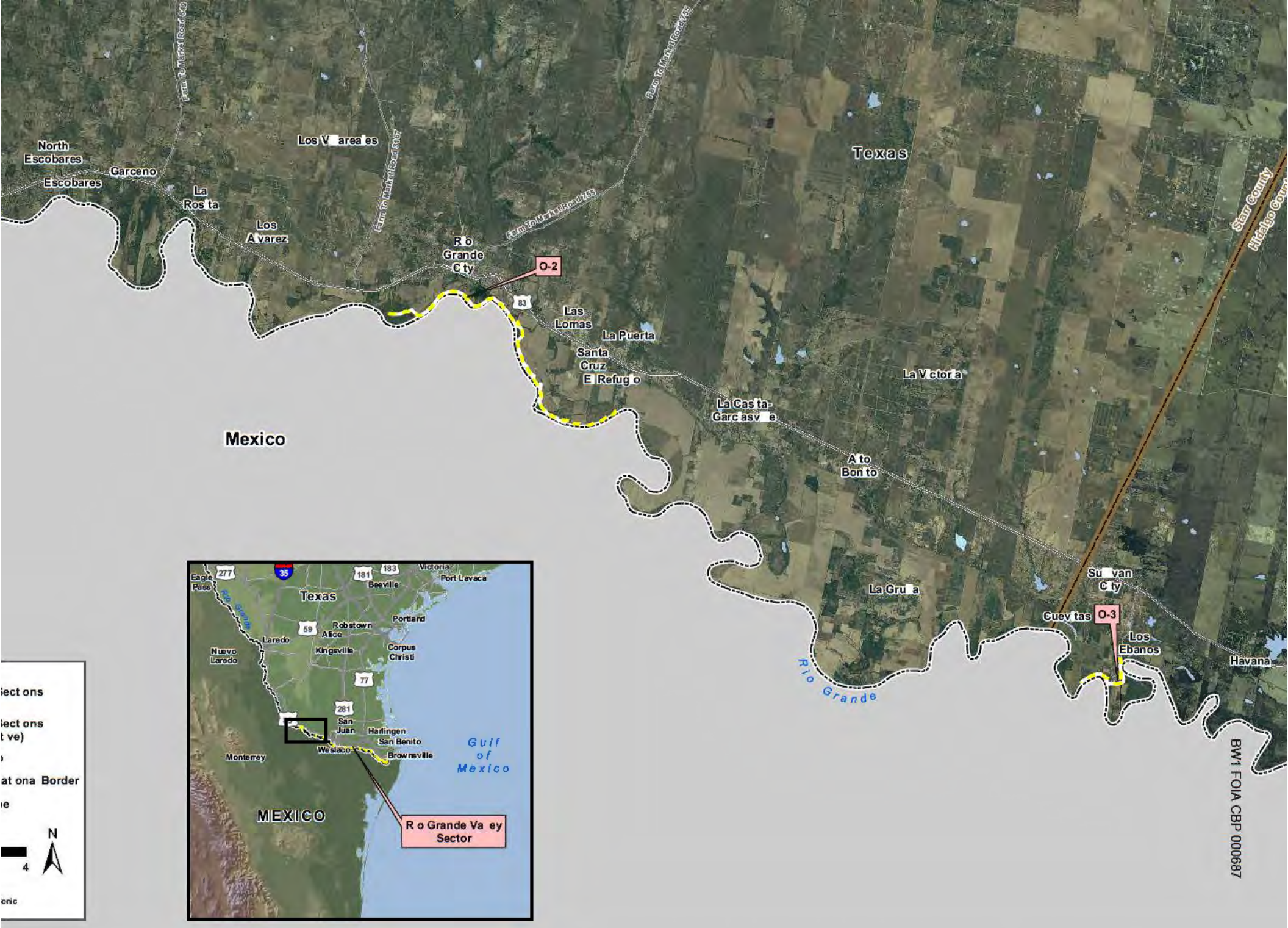

Figure 2-1 Locations of the Proposed Rio Grande Valley Sector Tactical Infrastructure (Map 1 of 3)

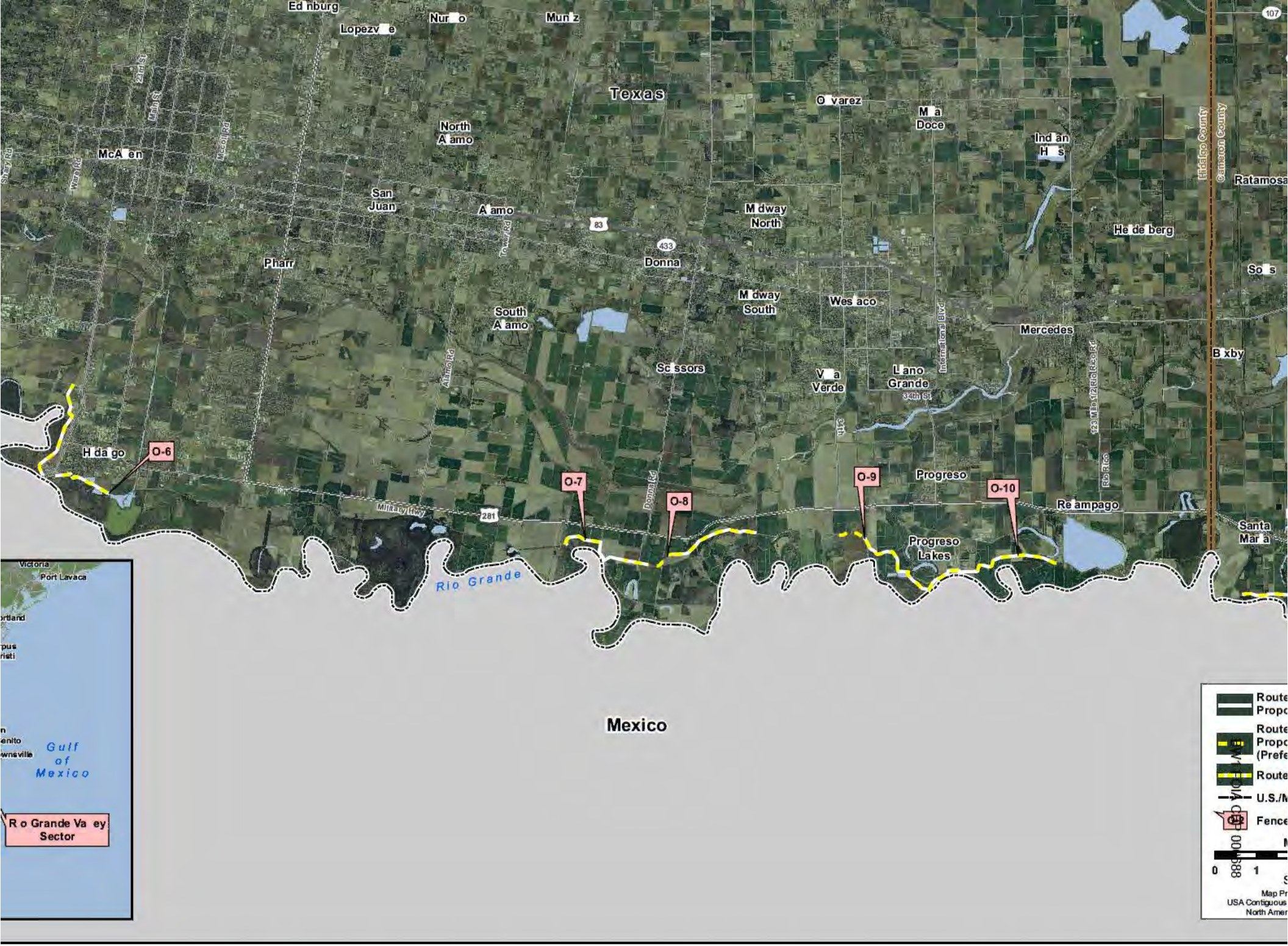

Figure 2-2. Locations of the Proposed Rio Grande Valley Sector Tactical Infrastructure (Map 2 of 2)

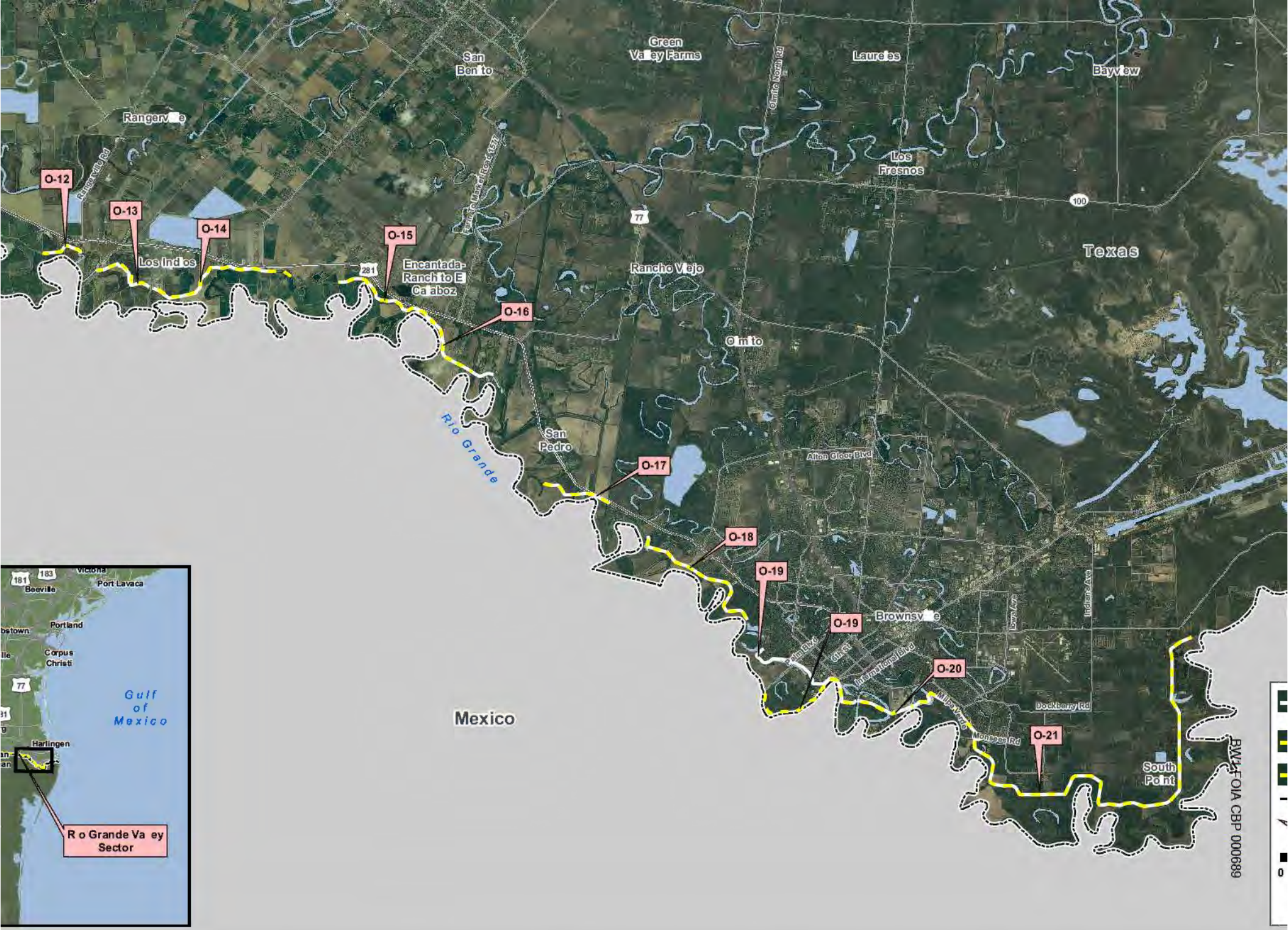

Figure 2-2. Locations of the Proposed Rio Grande Valley Sector Tactical Infrastructure (Map 2 of 2)

Table 2-1. Proposed Fence Sections Under the Proposed Action

Fence Section Number	Associated Border Patrol Station	General Location	Length of Fence Section (in miles)	
			Route A	Route B
O-1	Rio Grande City	Near Roma POE	5.26	3.75
O-2	Rio Grande City	Near RGC POE	7.30	8.74
O-3	McAllen	Los Ebanos POE	1.86	1.90
O-4	McAllen	From Penitas to Abram	4.35	4.35
O-5	McAllen	Future Anzalduas POE	1.73	1.76
O-6	McAllen	Hidalgo POE	3.86	3.85
O-7	Weslaco	Proposed Donna POE	2.43	0.90
O-8	Weslaco	Retamal Dam	2.05	3.25
O-9	Weslaco	West Progreso POE	3.02	3.87
O-10	Weslaco	East Progreso POE	2.43	2.33
O-11	Harlingen	Joe's Bar - Nemo Road	2.33	2.31
O-12	Harlingen	Weaver's Mountain	0.96	0.92
O-13	Harlingen	West Los Indios POE	1.58	1.58
O-14	Harlingen	East Los Indios POE	3.07	3.59
O-15	Harlingen	Triangle - La Paloma	1.93	1.93
O-16	Harlingen	Ho Chi Minh - Estero	2.97	2.97
O-17	Brownsville	Proposed Carmen Road Freight Train Bridge	1.63	1.61
O-18	Brownsville	Proposed Flor De Mayo POE to Garden Park	3.58	3.58
O-19	Brownsville	Brownsville/Matamoros (B&M) POE to Los Tomates	3.33	3.37
O-20	Brownsville	Los Tomates to Veterans International Bridge	0.91	0.93
O-21	Fort Brown	Veterans International Bridge to Sea Shell Inn	13.30	12.99
		Total	**69.87**	**69.84**

Design criteria that have been established based on USBP operational needs specify that, at a minimum, any fencing must meet the following requirements:

- Built 15 to 18 feet high and extend below ground
- Capable of withstanding vandalism, cutting, or various types of penetration

- Semi-transparent, as dictated by operational need
- Designed to survive extreme climate changes
- Designed to reduce or minimize impacts on small animal movements
- Engineered to not impede the natural flow of surface water
- Aesthetically pleasing to the extent possible.

Typical pedestrian fence designs that could be used are included in **Appendix E**. The combined preliminary estimate to construct the proposed individual tactical infrastructure sections is approximately $210 million.

Two alternatives for the alignment of the infrastructure (Route A and B) are being considered under Alternative 2. Route A is the route initially identified by the USBP Rio Grande Valley Sector as meeting its operational requirements. Route B was developed through coordination with Federal and state agencies and incorporates input received through the public scoping period. The Route B alignment continues to meet current operational requirements with less environmental impact, and is USBP's Preferred Alternative. Differences between Routes A and B are shown in **Figures 2-1** through **2-3** and are presented in detail in **Appendices D** and **F**.

Routes A and B would follow the IBWC levee system associated with the Rio Grande along Sections O-4 through O-21. In most cases, the proposed section alignments along the IBWC levee would be placed approximately 30 feet from the toe of the levee (i.e., lowest point of the base of the structure facing away from the Rio Grande). This configuration would allow the proposed infrastructure to be placed in an existing levee ROW without disturbing current IBWC operations or USBP patrol roads. However, several proposed locations along the levee ROW would require the relocation of private residences or other structures that encroach upon the levee ROW.

Under both route alternatives, the tactical infrastructure within several of the 21 sections would also encroach on multiple privately owned land parcels. Some proposed fence sections could also encroach upon portions of the LRGVNWR and Texas state parks in the Rio Grande Valley.

The proposed project corridor would impact an approximate 60-foot-wide corridor. This corridor would include fences and patrol roads. Vegetation would be cleared and grading would occur where needed. The area that would be permanently impacted by the construction of tactical infrastructure (both Routes A and B) would total approximately 508 acres. Unavoidable impacts on jurisdictional waters of the United States, including wetlands, would be mitigated. Wherever possible, existing roads and previously disturbed areas would be used for construction access and staging areas. **Figure 2-4** shows a schematic of typical impact areas for tactical infrastructure for both Route A and B.

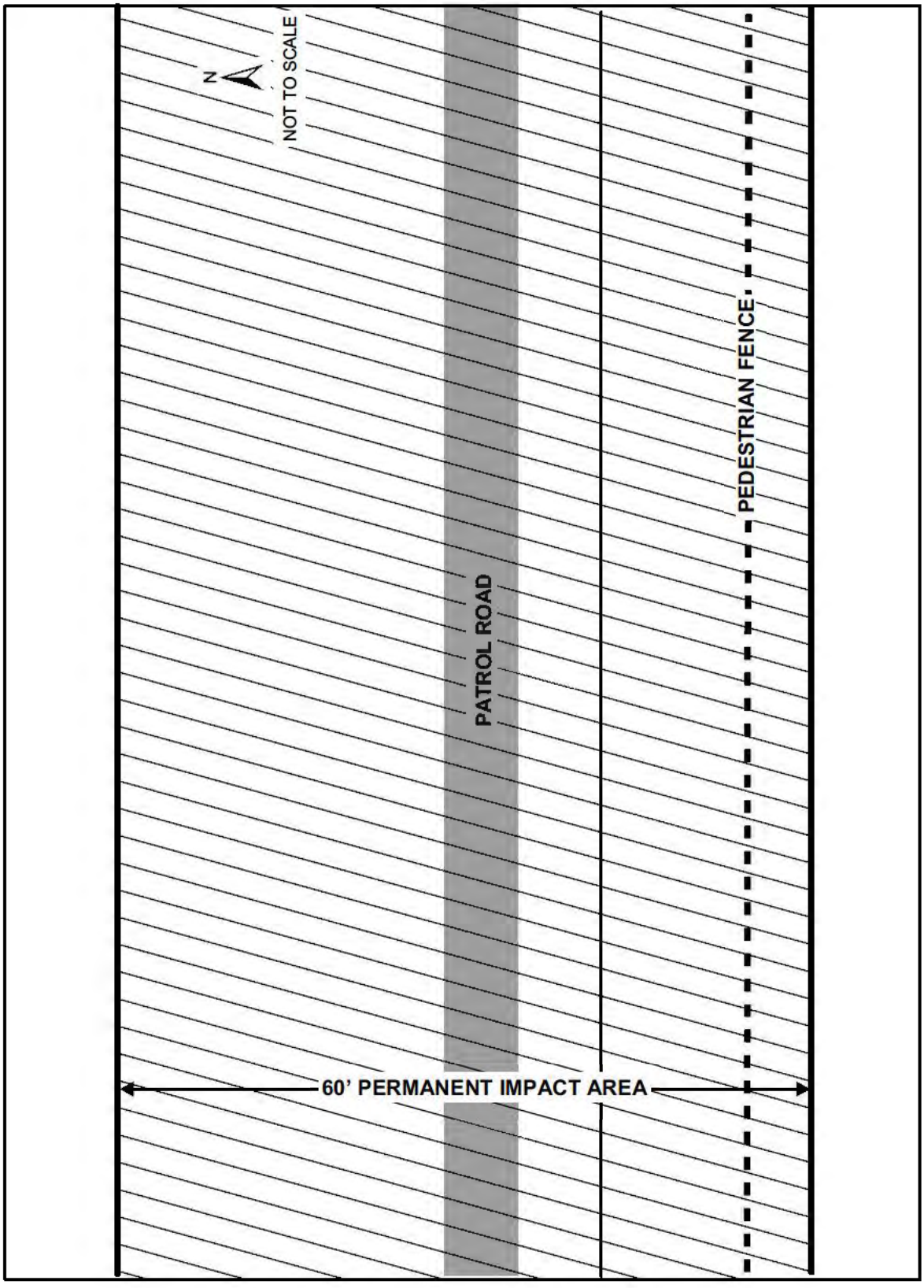

Figure 2-4. Schematic of Proposed Project Corridor – Alternative 2

Rio Grande Valley Sector activities routinely adapt to operational requirements, and would continue to do so under this alternative. Overall, the Rio Grande Valley Sector operations would retain the same flexibility to most effectively provide a law enforcement resolution to illegal cross-border activity.

USBP is working closely with local landowners and others potentially affected by the proposed infrastructure. For both Route Alternatives, gates would be constructed to allow USBP personnel and landowners access to land, the Rio Grande and other water resources, and infrastructure. Route B would include the construction of approximately 90 secure access gates (see **Appendix D**). In agricultural areas, gates would be wide enough to allow access for necessary farming equipment. In other cases, gates would be situated to provide access to existing recreational amenities; water resources, including pump houses and related infrastructure; grazing areas; existing parks; and other areas. On a case-by-case basis, the USACE might purchase the land between the fence and the Rio Grande on behalf of USBP, if operationally necessary.

If approved, construction of the proposed tactical infrastructure would begin in Spring 2008 and continue through December 2008.

To the extent that additional actions in the study area are known, they are discussed in this EIS in **Section 5**, Cumulative Impacts. Both Routes A and B under Alternative 2 are viable and are carried forward for detailed analysis in this EIS.

2.2.3 Alternative 3: Secure Fence Act Alignment Alternative

In addition to Routes A and B described above, an alternative of two layers of fence, known as primary and secondary fence, is analyzed in this EIS. Under this alternative, the two layers of fence would be constructed approximately 130 feet apart along the same alignment as Route B and would be most closely aligned with the fence description in the Secure Fence Act of 2006, P.L. 109-367, 120 Stat. 2638, codified at 8 U.S.C. 1701. This alternative would also include construction and maintenance of access and patrol roads. The patrol road would be between the primary and secondary fences.

Figure 2-5 shows a schematic of typical project corridor areas for this alternative. The design of the tactical infrastructure for this alternative would be similar to that of Alternative 2.

Construction of the proposed tactical infrastructure would impact an approximate 150-foot wide corridor for 70 miles along the 21 fence sections. This construction corridor would accommodate fencing and patrol and access roads. Vegetation would be cleared and grading would occur where needed. Unavoidable impacts on jurisdictional waters of the United States, including wetlands, would be mitigated. Wherever possible, existing roads would be used for construction

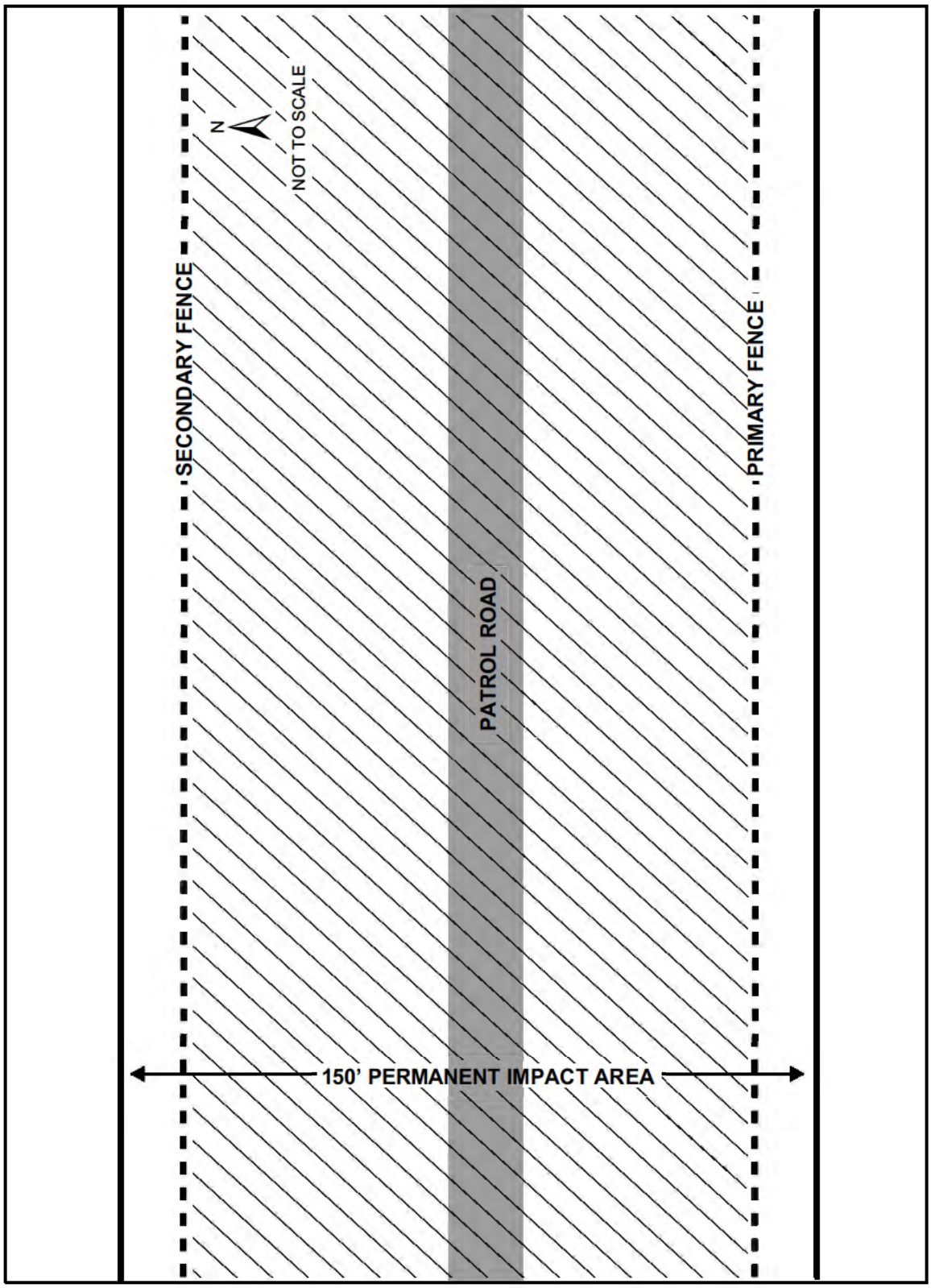

Figure 2-5. Schematic of Proposed Project Corridor – Alternative 3

access. This is a viable alternative and is carried forward for detailed analysis in this EIS.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DETAILED ANALYSIS

USBP evaluated possible alternatives to be considered for the Proposed Action. This section addresses options that were reviewed but not carried forward for detailed analysis.

2.3.1 Additional USBP Agents in Lieu of Tactical Infrastructure

USBP considered the alternative of increasing the number of USBP agents assigned to the border as a means of gaining effective control of the border. Under this alternative, USBP would hire and deploy a significantly larger number of agents than are currently deployed along the U.S./Mexico international border and increase patrols to apprehend cross-border violators. USBP would deploy additional agents as determined by operational needs, but might include 4-wheel drive vehicles, all terrain vehicles, helicopters, or fixed-wing aircraft. Currently, USBP maintains an aggressive hiring program and a cadre of well-trained disciplined agents.

This alternative was determined not to meet the screening criteria of USBP operational requirements. The physical presence of an increased number of agents could provide an enhanced level of deterrence against illegal entry into the United States, but the use of additional agents alone, in lieu of the proposed tactical infrastructure, would not provide a practical solution to achieving effective control of the border in the Rio Grande Valley Sector. The use of physical barriers has been demonstrated to slow cross-border violators and provide USBP agents with additional time to make apprehensions (USACE 2000).

A Congressional Research Service (CRS) report (CRS 2006) concluded that USBP border security initiatives such as the 1994 “Operation Gatekeeper” required a 150 percent increase in USBP manpower, lighting, and other equipment. The report states that “It soon became apparent to immigration officials and lawmakers that the USBP needed, among other things, a ‘rigid’ enforcement system that could integrate infrastructure (i.e., multi-tiered fence and roads), manpower, and new technologies to further control the border region” (CRS 2006).

Tactical infrastructure, such as a pedestrian fence, is a force multiplier to allow USBP to deploy agents efficiently and effectively. As tactical infrastructure is built, some agents would be redeployed to other areas of the border within the sector. Increased patrols would aid in interdiction activities, but not to the extent anticipated by the Proposed Action. As such, this alternative is not practical in the USBP Rio Grande Valley Sector and will not be carried forward for further detailed analysis.

2.3.2 Technology in Lieu of Tactical Infrastructure

USBP would use various forms of technology to identify cross-border violators. The use of technology in certain sparsely populated areas is a critical component of SBI*net* and an effective force multiplier that allows USBP to monitor large areas and deploy agents to where they will be most effective. However, the apprehension of cross-border violators is still performed by USBP agents and other law enforcement agents. In the more densely populated areas within the Rio Grande Valley Sector, physical barriers represent the most effective means to control illegal entry into the United States, as noted above. The use of technology alone would not provide a practical solution to achieving effective control of the border in the Rio Grande Valley Sector. Therefore, this alternative would not meet the purpose and need as described in **Section 1.2** and will not be carried forward for further detailed analysis.

2.3.3 Native Thorny Scrub Hedge in Lieu of Tactical Infrastructure

During the public scoping process, an alternative was proposed to maintain a 200- to 300-yard-wide mowed area outside the Rio Grande floodplain and plant a 100-yard-wide hedge of dense, short native thorny scrub brush (a hedge row) within the mowed area. This alternative would also incorporate technology such as sensors, cameras, and lights pointed towards the Rio Grande from the cleared area. The primary benefit associated with this alternative would be its ability to provide suitable habitat for the endangered ocelot (*Leopardus (=Felis) pardalis*) and jaguarundi (*Herpailurus (=Felis) yaguarondi*), which would find suitable habitat along the riverbank travel corridor and within the hedge. The hedge could also serve to connect the LRGVNWR units into a larger habitat area.

The primary deficiency with this alternative is that a hedge would not be as durable as a fence (pathways could be cut or burned through or under the hedge), it would be relatively slow to grow, and it might require more maintenance than a fence. USBP experience indicates that cross-border violators are willing to traverse dangerous terrain to avoid being caught. A 100-yard-wide hedge could become a haven where they could hide. If a cross-border violator was to become injured and trapped in the hedge, USBP agents would likely have to cut through the hedge to rescue the person, damaging or destroying the hedge in the process. For these reasons, this alternative was determined to not meet the screening criteria of USBP operational requirements, is not a viable alternative, and was not carried forward for further detailed analysis.

2.3.4 Fence Within the Rio Grande

During the public scoping process, an alternative was proposed to construct a fence in the middle of the Rio Grande. This alternative would consist of installing poles in the river with cables stretched between the poles. A screen fence could be suspended from the cables and anchored to the river bottom. This alternative

was not considered in detail due to multiple concerns, including technical uncertainty, regulatory and permitting challenges, cost considerations, the likelihood of significantly altering the natural flow of the river and impacting additional aquatic resources, and the potential to cause violations of international treaty obligations. Therefore, this alternative would not meet the screening criteria of USBP operational requirements and will not be carried forward for additional analysis.

2.3.5 Brownsville Weir and Reservoir Project in Lieu of Tactical Infrastructure

During the public scoping process, the proposed Brownsville Weir and Reservoir Project was identified as an alternative in lieu of portions of the proposed tactical infrastructure. The Public Utilities Board of Brownsville, Texas, is proposing to construct a weir and reservoir system on the Rio Grande as a water conservation project. Under this alternative, it was suggested that the resulting reservoir would create a body of water large enough that it would serve as an effective deterrent to cross-border violators.

The Brownsville Weir and Reservoir Project (Department of Army Permit Number 21977) would not create a permanent body of water large enough to serve as an effective deterrent to illegal border crossing. The reservoir was designed as a temporary retention basin, not a permanent detention basin. It would only fill with water during localized heavy rain events or during upstream releases from the Falcon or Amistad Reservoirs, which are further up the Rio Grande basin. The temporal nature of this option means it would only exist during wet years, and be nonexistent during drought conditions. Even when full, the reservoir project would not significantly increase the river width and would represent only a 100-yard obstacle at its widest point when full of water. This alternative also might flood sabal palm groves, flood the riparian vegetation along more than a dozen miles of the river, disturb the movements of the jaguarundi and ocelot along the river, and disturb a key estuary where the Rio Grande enters the Gulf of Mexico. In addition, a larger water barrier might not deter cross-border violators but rather only lead to a potentially larger numbers of drownings. For these reasons, this alternative was determined not to meet the screening criteria of USBP operational requirements, was not considered a viable alternative, and will not be carried forward for further detailed analysis.

2.3.6 Raising Levees in Lieu of Tactical Infrastructure

During the public scoping process, an alternative was proposed to reconstruct river levees as 18-foot-high reinforced earthen barriers. USBP considered an alternative of constructing concrete barriers into the levees and installing an additional fence on top of those concrete barriers. There are numerous legal obstacles to this alternative, such as concerns over levee ownership and maintenance, which were identified by the U.S. Section of the IBWC during coordination. The U.S. Section of the IBWC also informed USBP that it would

not support any construction near the international boundary that increases, concentrates, or relocates overland drainage flows into Mexico or the United States. Therefore, because of legal and infrastructure uncertainties, this alternative did not meet the screening criteria of USBP operational requirements, was not considered a viable alternative, and will not be not carried forward for further detailed analysis.

2.4 SUMMARY COMPARISON OF ACTION ALTERNATIVES

Table 2-2 presents a summary comparison of the action alternatives carried forward for analysis in the EIS.

Table 2-2. Comparison of Action Alternatives

	Alternative 2		Alternative 3: Secure Fence Act Alignment Alternative
	Route A	**Route B**	
Description	21 individual tactical infrastructure sections comprised of pedestrian fence, patrol roads, and access roads	21 individual tactical infrastructure sections comprised of pedestrian fence, patrol roads, and access roads	21 individual tactical infrastructure sections comprised of primary and secondary pedestrian fence constructed 130 feet apart, patrol roads between fences, and access roads
Proposed Total Route Length	69.87 miles	69.84 miles	69.84 miles
Proposed Project Corridor	60 feet	60 feet	150 feet
Acreage of Proposed Project Corridor	508 acres	508 acres	1,270 acres

2.5 IDENTIFICATION OF THE PREFERRED, LEAST-DAMAGING PRACTICABLE ALTERNATIVE

CEQ's implementing regulation 40 CFR 1502.14(c) instructs EIS preparers to "Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference." USBP has identified the environmentally preferred, least-damaging practicable alternative as Alternative 2, Route B.

Implementation of Alternative 2, Route B would meet USBP's purpose and need described in **Section 1.2**. The No Action Alternative would not meet USBP's purpose and need. Alternative 2, Route A would meet the purpose and need described in **Section 1.2**, but it would cause environmental impacts greater than the impacts identified for Alternative 2, Route B. Alternative 3 would meet USBP's purpose and need described in **Section 1.2** but would have greater environmental impacts compared to the Preferred Alternative. USBP might need to implement this alternative at some point in the future depending on future USBP operational requirements. While USBP believes that this level of tactical infrastructure is not required at this time it is a viable alternative and will be carried forward for detailed analysis.

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SECTION 3

Affected Environment

3. AFFECTED ENVIRONMENT

3.1 INTRODUCTION

All potentially relevant resource areas were initially considered in this EIS. In compliance with NEPA, the CEQ guidelines, and DHS MD 5100.1, the following evaluation of environmental impacts focuses on those resource areas and conditions potentially subject to impacts and on potentially significant environmental issues deserving of study, and deemphasizes insignificant issues. Some environmental resource areas and conditions that are often selected for analysis in an EIS have been omitted from detailed analysis in this EIS. Some were eliminated from detailed examination because of their inapplicability to this proposal. The following paragraphs provide the basis for such exclusions.

Climate. The Proposed Action would neither affect nor be affected by the climate. However, air emissions and their impacts on air quality are discussed in **Section 3.2** and **Section 4.2**.

Sustainability and Greening. EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007) promotes environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, and maintaining cost-effective waste prevention and recycling programs in Federal facilities. The Proposed Action would use minimal amounts of resources during construction and maintenance. Therefore, the Proposed Action would have negligible impacts on sustainability and greening.

Construction Safety. Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The Occupational Safety and Health Administration (OSHA) and the USEPA issue standards that specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits with respect to workplace stressors.

Construction workers at any of the proposed construction sites would be exposed to greater safety risks from the inherent dangers at construction sites. Contractors would be required to establish and maintain safety. The proposed construction would not expose members of the general public to increased safety risks. Therefore, because the proposed construction would not introduce new or unusual safety risks, and assuming construction protocols are carefully followed, detailed examination of safety is not included in this EIS.

3.2 AIR QUALITY

National Ambient Air Quality Standards. In accordance with Federal CAA requirements, the air quality in a given region or area is measured by the concentrations of various pollutants in the atmosphere. The measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm), milligrams per cubic meter (mg/m^3), or micrograms per cubic meter ($\mu g/m^3$). The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

The CAA directed USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to impact human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards.

The Federal CAA and USEPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. The State of Texas has adopted the NAAQS as the Texas Ambient Air Quality Standards (TAAQS) for the entire state of Texas. **Table 3.2-1** presents the primary and secondary USEPA NAAQS that apply to the air quality in the State of Texas. The Texas Commission on Environmental Quality (TCEQ) has established air pollution control regulations. These regulations are contained in Texas Administrative Code (TAC) Title 30. The TCEQ has also promulgated rules regulating the emissions of toxic substances which are defined as those chemicals listed in TAC Title 30, Chapter 113 plus any other air pollutant that is considered a health hazard, as defined by OSHA.

These air pollutant control programs are detailed in State Implementation Plans (SIPs), which are required to be developed by each state or local regulatory agency and approved by USEPA. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by USEPA.

Table 3.2-1. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
CO			
8-hour Average [a]	9 ppm	(10 mg/m^3)	Primary and Secondary
1-hour Average [a]	35 ppm	(40 mg/m^3)	Primary
NO_2			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m^3)	Primary and Secondary
O_3			
8-hour Average [b]	0.08 ppm	(157 µg/m^3)	Primary and Secondary
1-hour Average [c]	0.12 ppm	(240 µg/m^3)	Primary and Secondary
Pb			
Quarterly Average		1.5 µg/m^3	Primary and Secondary
PM_{10}			
Annual Arithmetic Mean [d]		50 µg/m^3	Primary and Secondary
24-hour Average [a]		150 µg/m^3	Primary and Secondary
$PM_{2.5}$			
Annual Arithmetic Mean [e]		15 µg/m^3	Primary and Secondary
24-hour Average [f]		35 µg/m^3	Primary and Secondary
SO_2			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m^3)	Primary
24-hour Average [a]	0.14 ppm	(365 µg/m^3)	Primary
3-hour Average [a]	0.5 ppm	(1,300 µg/m^3)	Secondary

Source: USEPA 2007a

Notes: Parenthetical values are approximate equivalent concentrations.

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

[b] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

[c] The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1. As of June 15, 2005, USEPA revoked the 1-hour ozone standard in all areas except the 14 8-hour ozone nonattainment Early Action Compact Areas.

[d] To attain this standard, the expected annual arithmetic mean PM_{10} concentration at each monitor within an area must not exceed 50 µg/m^3.

[e] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.

[f] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3.

USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR according to whether the concentrations of criteria pollutants in ambient air exceed the primary or secondary NAAQS. All areas

within each AQCR are therefore designated as either "attainment," "nonattainment," "maintenance," or "unclassified" for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS, nonattainment indicates that criteria pollutant levels exceed NAAQS, maintenance indicates that an area was previously designated nonattainment but is now attainment, and unclassified means that there is not enough information to appropriately classify an AQCR, so the area is considered in attainment.

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

The General Conformity Rule applies only to actions in nonattainment or maintenance areas and considers both direct and indirect emissions. The rule applies only to Federal actions that are considered "regionally significant" or where the total emissions from the action meet or exceed the *de minimis* thresholds presented in 40 CFR 93.153. An action is regionally significant when the total nonattainment pollutant emissions exceed 10 percent of the AQCR's total emissions inventory for that nonattainment pollutant. If a Federal action does not meet or exceed the *de minimis* thresholds and is not considered regionally significant, then a full Conformity Determination is not required.

Title V of the CAA Amendments (CAAA) of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, base, or activity) that can emit more than 100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant, or 25 tpy of any combination of hazardous air pollutants. However, lower pollutant-specific "major source" permitting thresholds apply in nonattainment areas. For example, the Title V permitting threshold for an "extreme" O_3 nonattainment area is 10 tpy of potential volatile organic compound (VOC) or nitrogen oxide (NO_x) emissions. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be "significant" if (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 $\mu g/m^3$ or more [40 CFR 52.21(b)(23)(iii)]. A Class I area includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. PSD regulations also define ambient air increments, limiting the allowable increases to any area's baseline air contaminant concentrations, based on the area's class designation (40 CFR 52.21(c)).

Greenhouse Gases. Many chemical compounds found in the Earth's atmosphere act as "greenhouse gases." These gases allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth's surface, some of it is reflected back towards space as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere. Over time, the trapped heat results in the phenomenon of global warming.

In April 2007, the U.S. Supreme Court declared that carbon dioxide (CO_2) and other greenhouse gases are air pollutants under the CAA. The Court declared that the USEPA has the authority to regulate emissions from new cars and trucks under the landmark environment law.

Many gases exhibit these "greenhouse" properties. The sources of the majority of greenhouse gases come mostly from natural sources but are also contributed to by human activity. Additional information on sources of greenhouse gases is included in **Appendix K**.

Route A

The Proposed Action is within the southernmost portions of Starr County, Hidalgo County, and Cameron County, Texas, within the Brownsville-Laredo Intrastate Air Quality Control Region (BLIAQCR). The BLIAQCR is composed of Cameron County, Hidalgo County, Jim Hogg County, Starr County, Webb County, Willacy County, and Zapata County, Texas. The BLIAQCR is classified as being in attainment/unclassified for all criteria pollutants.

Route B

Route B would also be within the BLIAQCR. Therefore, the affected environment for air quality associated with Route B is the same as described for Route A.

3.3 NOISE

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on a rooftop. Sound is measured with instruments that record instantaneous sound levels in decibels. A-weighted sound level measurement is used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency range for what the average human ear can sense when experiencing an audible event. C-weighted sound level measurement correlates well with physical vibration response of buildings and other structures to airborne sound. Impulsive noise resulting from demolition activities and the discharge of weapons are assessed in terms of C-weighted decibels (dBC).

Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense

enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. How an individual responds to the sound source will determine if the sound is viewed as music to one's ears or as annoying noise. Affected receptors are specific (i.e., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists. Predictors of wildlife response to noise include noise type (i.e., continuous or intermittent), prior experience with noise, proximity to a noise source, stage in the breeding cycle, activity, and age. Potential impacts of noise on wildlife are discussed in **Section 4.8**.

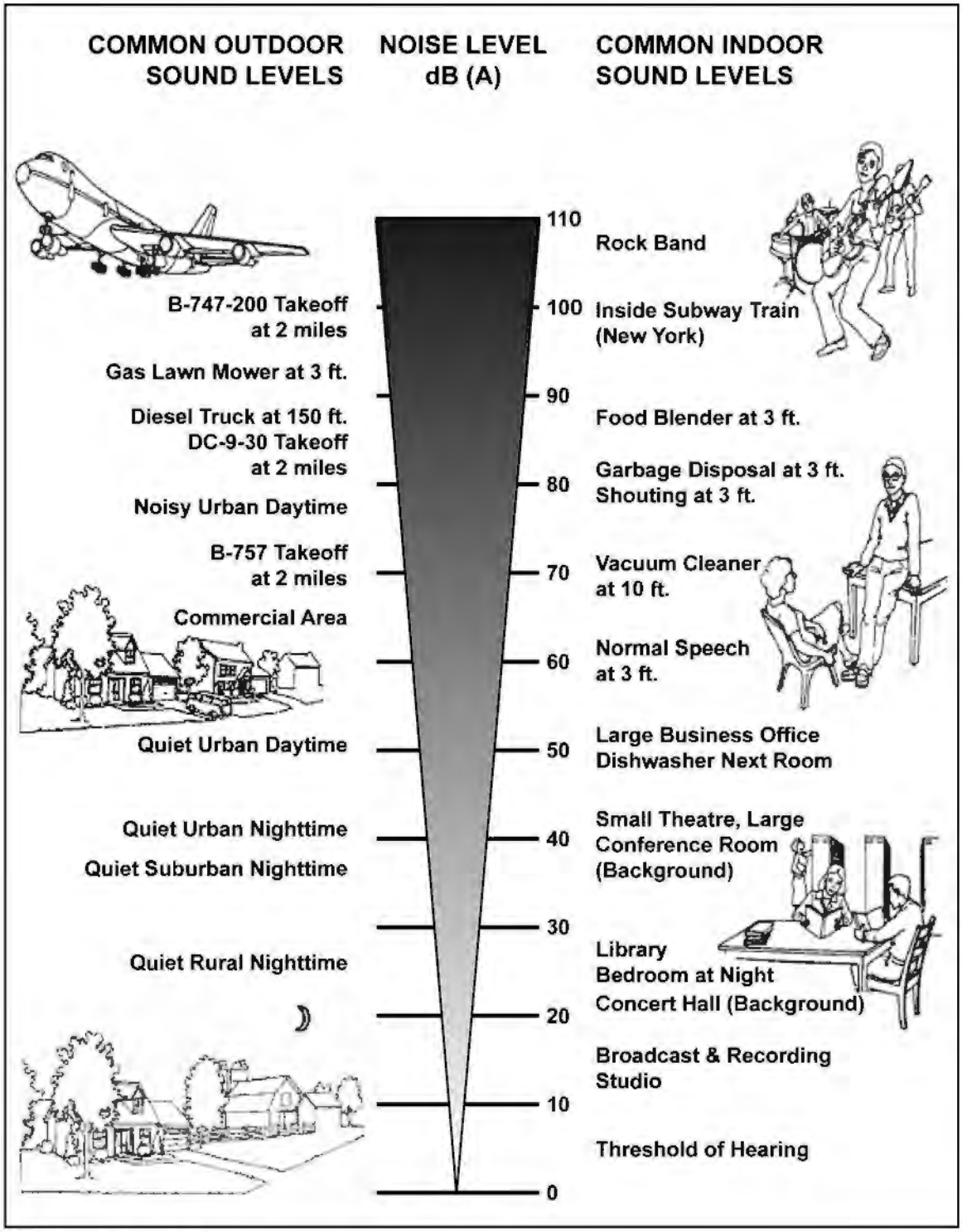
Most people are exposed to sound levels of 50 to 55 A-weighted decibels (dBA) or higher on a daily basis. Studies specifically conducted to determine noise impacts on various human activities show that about 90 percent of the population is not significantly bothered by outdoor sound levels below 65 dBA (USEPA 1974). Studies of community annoyance in response to numerous types of environmental noise show that A-weighted Day Night Average Sound Level (ADNL) correlates well with impact assessments and that there is a consistent relationship between ADNL and the level of annoyance.

Ambient Sound Levels. Noise levels in residential areas vary depending on the housing density and location. As shown in **Figure 3.3-1**, a suburban residential area is about 55 dBA, which increases to 60 dBA for an urban residential area, and 80 dBA in the downtown section of a city.

Construction Sound Levels. Building construction, modification, and demolition work can cause an increase in sound that is well above the ambient level. A variety of sounds come from graders, pavers, trucks, welders, and other work processes. **Table 3.3-1** lists noise levels associated with common types of construction equipment that are likely to be used under the Proposed Action. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

Route A

The proposed tactical infrastructure for the USBP Rio Grande Valley Sector passes through areas with different acoustical environments. The ambient acoustical environment in the USBP Rio Grande Valley Sector is primarily impacted by vehicular traffic, aircraft operations, agricultural equipment, and industrial noise sources.



Source: Landrum & Brown 2002

Figure 3.3-1. Common Noise Levels

Table 3.3-1. Predicted Noise Levels for Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)
Clearing and Grading	
Bulldozer	80
Grader	80–93
Truck	83–94
Roller	73–75
Excavation	
Backhoe	72–93
Jackhammer	81–98
Building Construction	
Concrete mixer	74–88
Welding generator	71–82
Pile driver	91–105
Crane	75–87
Paver	86–88

Source: USEPA 1971

The Rio Grande Valley area is composed of many different cities, towns, and communities. The City of Brownsville is in the eastern section of the Rio Grande Valley project area, and Rio Grande City is on the western edge of the project area. In between these two cities lie the municipalities of McAllen, Alamo, Weslaco, Progreso, Mercedes, Harlingen, and San Benito. Several subdivisions and smaller communities also exist along the border. Each of these cities and towns has its own ambient sound level depending on the size of the municipality and the nearby activities.

State Route (SR) 83 passes in the vicinity of Rio Grande City and SR 281 is adjacent to Progreso, Texas. County Route (CR) 433 traverses the towns of McAllen, Alamo, Weslaco, and Mercedes. SR 77 traverses the cities of Harlingen and Brownsville. CR 56 is also a major transportation route into the Rio Grande Valley. Traffic along each of these roads contributes to the ambient acoustical environment in the Rio Grande Valley.

Brownsville/South Padre Island International Airport is approximately 4 miles east of the city of Brownsville. An average of 126 aircraft operations are performed at the Brownsville/South Padre Island International Airport daily (AirNav 2007a). There is a railroad track on the west side of Brownsville that traverses north from the U.S./Mexico international border. The B&M Railroad, MP Railroad, and Union Pacific Railroad are stationed at this location. In addition, there are numerous industrial facilities in the city. It is estimated that proposed sites near

Brownsville have ambient noise levels comparable to an urban environment (50–80 dBA). McAllen Miller International Airport is approximately 2 miles south of the city of McAllen (Section O-6). An average of 172 aircraft operations occur daily at McAllen Miller International Airport (AirNav 2007b).

Along the U.S./Mexico international border in areas west of Brownsville, agricultural activities are prominent. Agricultural equipment used in these areas can produce noise levels up to 100 dBA (OSU 2007). While farms are generally spread out, noise from agricultural activities is likely to extend past the farm boundaries. Agricultural activities contribute to the ambient acoustical environment in the USBP Rio Grande Valley Sector. The proposed project corridor also crosses and borders remote wildlife areas such as the LRGVNWR. These areas and the USBP Rio Grande Valley Sector in general likely have ambient noise levels that are comparable to rural or suburban areas (25 to 55 dBA) (see **Figure 3.3-1)**.

Route B

Route B would be within the same ambient acoustical environment as described for Route A. Therefore, the affected environment associated with Route B is the same as described for Route A.

3.4 LAND USE

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels,” and definitions vary among jurisdictions.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans/management plans and zoning regulations. In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential impacts on a project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its “permanence.”

Recreational resources are both natural and improved lands designated by Federal, state, and local planning entities to offer visitors and residents diverse opportunities to enjoy leisure activities. Natural recreational resources are those

places or amenities set aside as parklands, trails (e.g., hiking, bicycling, equestrian), open spaces, aesthetically pleasing landscapes, and a variety of other locales. Manmade recreational resources can include parks, manmade lakes, recreational fields, or sport or recreational venues. National, state, and local jurisdictions typically have designated land areas with defined boundaries for recreation. Other less structured activities like hunting are performed in broad, less-defined locales. A recreational setting might consist of natural or manmade landscapes and can vary in size from a roadside monument to a multimillion-acre wilderness area.

Route A

Major land uses within the Rio Grande Valley include agriculture, rangeland, recreation/special use, urban, and water. Specific land uses in each classification are described below (USACE 1994).

- Agriculture – Specific land uses within this classification include highly developed croplands, pasture, small grains, forage crops, hay production, and orchards. The land may be irrigated or non-irrigated.
- Rangeland – Specific land use includes the grazing of cattle, horses, sheep, goats, and other domestic animals. This is based on the presence of naturally occurring grasses, grasslike plants and forbs, or shrubs suitable for grazing and browsing. This classification would include natural grasslands, savannas, some wetlands, and other areas with the potential to support certain forb and shrub communities under prudent and normally accepted land management practices.
- Recreation/Special Use – This land use classification includes barren land, or land with sparse vegetation cover during most of the year. Areas of sand dunes or shifting soil would also be included. This classification includes tourist recreation and natural and wildlife management areas.
- Urban – Specific land uses within this classification include residential, industrial, transportation, commercial, educational, medical, recreational, open space for environmental protection (i.e., floodway, utility easements, and ROW), and underdeveloped land within political boundaries (i.e., cities, towns, and villages).
- Water – This land use classification includes naturally occurring and man-made lakes, reservoirs, gulfs, bays, rivers, streams, and coastal wetlands.

The existing land use in the Rio Grande Valley ranges from well developed urban centers of commerce (i.e., Laredo and Brownsville), to areas of intensive agricultural activities, to extensive areas of recreation and wildlife management activities. The following is a brief description of the existing land use in Cameron, Hidalgo, and Starr Counties (USACE 1994).

- Cameron County – A large percentage of Cameron County is devoted to highly intensive and specialized farming (54 percent). Major crops are

citrus, cool-season vegetables, cotton, and grain sorghum. A large portion of the urban land is devoted to recreation activities. The county supports fishing, hunting, water sports, and a variety of other recreational activities year round. Major recreational activities are centered around South Padre Island and National Wildlife Refuges (i.e., Santa Ana). Major urban areas are Brownsville, Harlingen, and San Benito.

- Hidalgo County – The major land use is agriculture (63 percent). Agricultural crops include cotton, grains, vegetables, citrus, and sugar cane. Rangeland (26 percent) is used primarily for cattle production. Commercial activities include food processing, shipping, tourism, and mineral operations. Tourism peaks during the winter season and centers around the Bentson-Rio Grande Valley State Park, Santa Ana National Wildlife Refuge, and other recreational facilities. Major urban areas are McAllen, Pharr, and Edinburg.
- Starr County – Rangeland constitutes 87 percent of the county's land use with the majority of the activities involving the production of cattle, sheep, hogs, and horses. Most agricultural land (12 percent) is irrigated and is used for the production of sorghum, cotton, and vegetables. Rio Grande City is the county seat and a major urban center. A major recreational area is International Falcon Reservoir.

The Rio Grande Valley contains numerous recreational/special land use areas. Most of these special land use areas are outside of highly urbanized centers. These lands have been established for various recreational activities but also for flood control, scenic, historic, and wildlife management uses. **Figure 3.4-1** presents parks and refuges in the Rio Grande Valley. **Appendix F** presents detailed maps of the areas surrounding the proposed fence sections. **Section 3.11** describes the aesthetics and visual resources of the Rio Grande Valley.

Route B

Route B would traverse the same land uses as described for Route A. Therefore, the affected environment associated with Route B is the same as described for Route A.

3.5 GEOLOGY AND SOILS

Geology and soils resources include the surface and subsurface materials of the earth. Within a given physiographic province, these resources typically are described in terms of topography, soils, geology, minerals, and paleontology, where applicable.

Topography is defined as the relative positions and elevations of the natural or human-made features of an area that describe the configuration of its surface. Regional topography is influenced by many factors, including human activity,

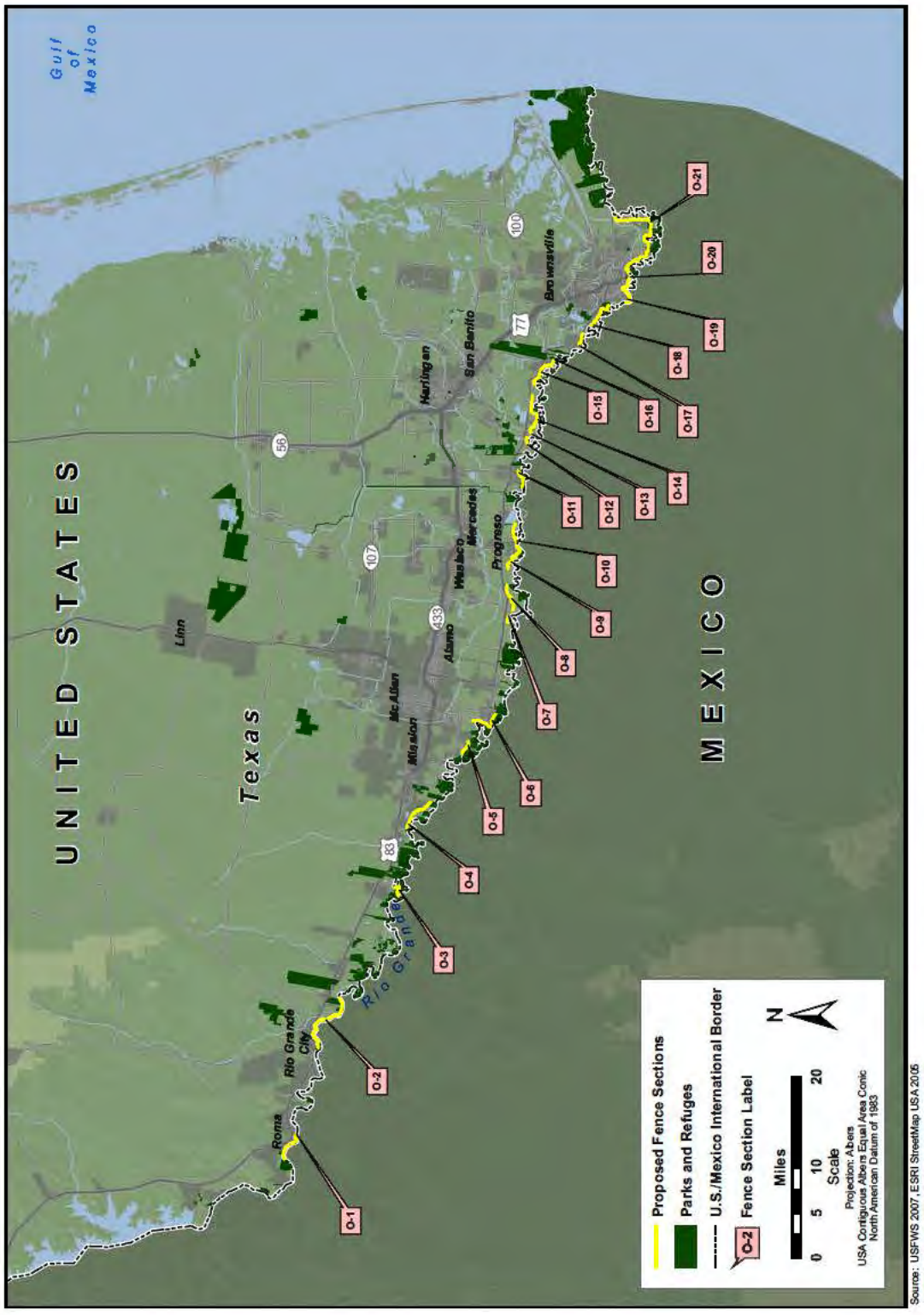


Figure 3.4-1. Parks and Refuges in the Rio Grande Valley

seismic activity of the underlying geologic material, climatic conditions, and erosion. Information describing topography typically encompasses surface elevations, slope, and physiographic features (i.e., mountains, ravines, hills, plains, deltas, or depressions).

Site-specific geological resources typically consist of surface and subsurface materials and their inherent properties. Principal factors influencing the ability of geologic resources to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), topography, and soil stability.

Soils are the unconsolidated materials overlying bedrock or other parent material. They develop from the weathering processes of mineral and organic materials and are typically described in terms of landscape position, slope, and physical and chemical characteristics. Soil types differ in structure, elasticity, strength, shrink-swell potential, drainage characteristics, and erosion potential, which can affect their ability to support certain applications or uses. In appropriate cases, soil properties must be examined for compatibility with particular construction activities or types of land use.

Prime and unique farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Unique farmland is defined as land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of a specific crop when treated and managed according to acceptable farming methods. Soil qualities, growing season, and moisture supply are needed for well-managed soil to produce a sustained high yield of crops in an economic manner. The land could be cropland, pasture, rangeland, or other land, but not urban built-up land or water. The intent of the FPPA is to minimize the extent that Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The FPPA also ensures that Federal programs are administered in a manner that, to the extent practicable, will be compatible with private, state, and local government programs and policies to protect farmland.

The implementing procedures of the FPPA and Natural Resources Conservation Service (NRCS) require Federal agencies to evaluate the adverse impacts (direct and indirect) of their activities on prime and unique farmland, as well as farmland of statewide and local importance, and to consider alternative actions that could avoid adverse impacts. Determination of whether an area is considered prime or unique farmland and potential impacts associated with a proposed action is based on preparation of the Farmland Conversion Impact Rating Form AD-1006 for areas where prime farmland soils occur and by applying criteria established at Section 658.5 of the FPPA (7 CFR Part 658). The NRCS is responsible for

overseeing compliance with the FPPA and has developed the rules and regulations for implementation of the Act (see 7 CFR Part 658, 5 July 1984).

Route A

Physiography and Topography. The USBP Rio Grande Valley Sector occupies Starr, Hidalgo, and Cameron counties in Texas along the U.S./Mexico international border. The USBP Rio Grande Valley Sector occurs in a subtropical semi-arid zone in the Gulf Coastal Plains Physiographic Province of Texas. The proposed project corridor would occur in the Coastal Prairies and Interior Coastal Plains subprovinces, of the larger Gulf Coastal Plains. Fence Sections O-7 to O-21 occur in the Coastal Plains subprovince, which is characterized by young deltaic sands, silts, and clays that have eroded to nearly imperceptible slopes occupied by flat grasslands. Trees are uncommon except along streams; on coarser underlying sediments of ancient streams; within fencerows; on lands protected as refuges; and along the Rio Grande, where sugarberry, Texas ebony, honey mesquite, Mexican palm trees, and citrus plantations can be found. Sections O-1 to O-7 occur in the Interior Coastal Plains subprovince, which is characterized by alternating belts of resistant uncemented sands among weaker shales that erode into long, sandy ridges. In the proposed project corridor, trees are few, and barretal shrublands dominate (Wermund 2007). The topographic profile of the surrounding area is a nearly level to rolling, slightly to moderately dissected plain that has formed between the Balcones Escarpment to the north, the Rio Grande to the southwest, and the Gulf of Mexico to the southeast. Elevations in the proposed project corridor range from approximately mean sea level (MSL) to 10 feet above MSL along Section O-21 and grade gently higher with slightly steeper topography to the west to approximately 50 to 80 feet above MSL along Section O-1 (TopoZone.com 2007).

Geology. The surface geology of the Gulf Coastal Plains is characterized by broad subparallel bands of sedimentary rocks deposited in the Tertiary and Quaternary Periods of the Cenozoic Era. The western end of the proposed project corridor is in the Breaks of the Rio Grande, a region of steep-sided, narrow, and deep valleys created as the north-south trending Rio Grande tributaries eroded the resistant Tertiary formations. The Breaks of the Rio Grande terminate near the Starr-Hidalgo County line and define the beginning of the Rio Grande Valley, which consists of Quaternary alluvial sediments. From oldest to youngest (west to east), the Tertiary-deposited sediments include the Jackson Group (made up of the Whitsett, Manning, Wellborn, Caddell, Yazoo, and Moodys Branch formations), the Catahoula and Frio formations undivided, the Goliad Formation, and Uvalde gravels. Quaternary-deposited sediments of the Rio Grande Valley include fluviatile terrace deposits, the Lissie and Beaumont formations, wind-blown deposits, and the most recent alluvium deposits (DHS 2004).

The Jackson Group consists of volcanic and marine sediments deposited during the Eocene Epoch of the Tertiary Period. It is composed mostly of sandstone

and tuffaceous clay with some crossbeds of white volcanic ash. The Jackson Group is overlain by the Catahoula and Frio formations, which are composed of mudstone; sandstone; light-brown clays; gray sandy clays; and, in the basal layer, dark greenish sandy clays. Towards the end of the Tertiary period, large river systems deposited calcareous muds formed from Cretaceous-age marls and limestones, over broad areas of the low coastal plain. Overlaying the Catahoula and Frio formations is the Goliad Formation and Uvalde gravels. The Goliad Formation includes clay, sand, marble, and caliche with abundant reworked Cretaceous Period invertebrate fossils; the caliche is locally popular, used to surface roads. The Uvalde gravels are found on interstream ridges and divides and are composed of rounded flint pebbles and cobbles weathered from Lower Cretaceous-age formations (DHS 2004).

During the Quaternary period, a series of interglacial and glacial periods produced an active environment of fluviatile deposition and subsequent erosion. Ancient river systems transported enormous quantities of suspended sand and mud and, during interglacial periods, deposited the sediments into accumulating deltas and fluvial plains at the Gulf of Mexico. During glacial periods, the drop in sea level eroded underlying fluvial deposits creating new deltas miles into the gulf. During this time, the ancestral Rio Grande cut through the older Tertiary formations and remnant meander scars in the floodplain were converted into 3 to 10 foot high river terraces composed of unsorted coarse sand and gravel (DHS 2004).

The Lissie Formation consists of thick beds of sand interbedded with clay and silt with the clays predominating in the upper part. It contains thin lenses of rounded gravels composed of ferruginous sandstones, quartz, and other siliceous rocks. Large amounts of silicified wood are found among the gravel sheets. This formation is characterized by many undrained circular or irregular depressions and relict windblown sand and clay dunes that are stabilized in a northwest-trending direction. The sands and clays of the Lissie formation are overlain by the bluish-gray clays of the Beaumont Formation, which were deposited by ancient rivers in the form of deltas or natural levees. Broad faint ridges, containing more sand than the flats between them, are the remnants of natural levees that formed as the ancient river shifted across the coastal lowlands. The flat lowlands of the Beaumont Formation form a featureless and often marshy plain, called the Coastal Prairie, as it approaches the Gulf Coast (DHS 2004).

The recent alluvial deposits of the Rio Grande Valley are composed of sedimentary rocks resulting from dissection of previous sedimentation and floodplain deposition during the Modern-Holocene Period. In the Pleistocene Epoch, interglacial deltas formed by the Rio Grande were combined into a larger delta that extended farther beyond the current Gulf Coast. The modern coastal barrier island system was formed by the subsidence and compaction of this ancient delta. During the sea level rise of the Holocene, brackish water inundated the ancient valley, creating an estuarine environment that was

eventually replaced by fertile floodplain deposits of the Rio Grande Valley as it graded to its present level (DHS 2004).

Soils. Generally the soils occurring in the proposed project corridor are loamy to clayey, moderately to slowly permeable, and occur on nearly level to gentle slopes. None of the soil map units occurring within the portion of the proposed project corridor in Starr County are designated as farmland of importance. Hydric soils are soils that are saturated, flooded, or have ponding long enough during the growing season to develop anaerobic (oxygen-deficient) conditions in upper horizons. The presence of hydric soil is one of the three criteria (i.e., hydric soils, hydrophytic vegetation, and wetland hydrology) used to determine that an area is a wetland based on the USACE *Wetlands Delineation Manual*, Technical Report Y-87-1 (USACE 1987).

In Hidalgo County, soils of the Camargo, Cameron, Laredo, Matamoros, Olmito, Reynosa, Rio Grande, and Runn series within the proposed project corridor are classified as prime farmland soils; and soils of the Arents and Raymondville series within the proposed project corridor are classified as prime farmland soils if irrigated. In Cameron County, soils of the Camargo, Cameron, Laredo, Matamoros, Olmito, and Rio Grande series within the proposed project corridor are classified as prime farmland soils; and the Harlingen series and Laredo-Olmito complex soils within the proposed project corridor are classified as prime farmland soils if irrigated. In Starr County, no soils that potentially occur within the proposed project corridor are classified as hydric. In Hidalgo County, soils of the Grulla series occur within the proposed project corridor and are classified as partially hydric. In Cameron County, Ustifluvents and soils of the Chargo, Grulla, and Sejita series occur within the proposed project corridor soils and are classified as partially hydric (NRCS 2007).

See **Appendix G** for maps of soil units within the project area. The properties of soil map units identified within the proposed project corridor in Starr, Hidalgo, and Cameron counties can be found in **Appendix H**.

Route B

The physiographic, topographic, and geologic resources associated with Route B are similar to Route A. The soil resources of Route B are largely similar to Route A with the exception of the Tiocano soil series of Cameron County which occurs only in the eastern portion of Section O-13 in Route B. This soil series is classified as partially hydric (NRCS 2007).

3.6 WATER RESOURCES

Hydrology and Groundwater. Hydrology consists of the redistribution of water through the processes of evapotranspiration, surface runoff, and subsurface flow. Hydrology results primarily from temperature and total precipitation that determine evapotranspiration rates, topography which determines rate and

direction of surface flow, and soil properties that determine rate of subsurface flow and recharge to the groundwater reservoir. Groundwater consists of subsurface hydrologic resources. It is an essential resource that functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater typically can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations.

Surface Water and Waters of the United States. Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale.

The CWA (33 U.S.C. 1251 *et seq*.) established the Federal authority for regulating discharges of pollutants into waters of the United States. Section 404 of the CWA (33 U.S.C. 1344) establishes a Federal program to regulate the discharge of dredged and fill material into waters of the United States. The USACE administers the permitting program for authorization of actions under Section 404 of the CWA. Section 401 of the CWA (33 U.S.C. 1341) requires that proposed dredge and fill activities permitted under Section 404 be reviewed and certified by the designated state agency that the proposed project will meet state water quality standards. The Federal permit under Section 404 is not valid until it has received Section 401 water quality certification. Section 402 of the CWA authorizes the discharge of any pollutant, or combination of pollutants, into navigable waters of the United States under an NPDES permit. Pursuant to Texas Water Code 26.040 and CWA Section 402, all construction that would result in a soil disturbance of greater than 5 acres requires authorization under the TCEQ Construction General Permit (TXR150000). Section 303(d) of the CWA requires states and USEPA to identify waters not meeting state water-quality standards and to develop Total Maximum Daily Loads (TMDLs) and an implementation plan to reduce contributing sources of pollution.

Waters of the United States are defined within the CWA of 1972, as amended. USEPA and the USACE assert jurisdiction over (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-around or have continuous flow at least seasonally, and (4) wetlands that directly abut such tributaries.

The CWA (as amended in 1977) established the basic structure for regulating discharges of pollutants into the waters of the United States. The objective of the CWA is restoration and maintenance of chemical, physical, and biological integrity of U.S. waters. To achieve this objective several goals were enacted, including (1) eliminate discharge of pollutants into navigable waters by 1985; (2) achieve water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water by 1983; (3) prohibit discharge of toxic pollutants in toxic amounts; (4) provide

Federal financial assistance to construct publicly owned waste treatment works; (5) develop and implement the national policy that areawide waste treatment management planning processes to ensure adequate control of sources of pollutants in each state; (6) establish the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into navigable waters, waters of the contiguous zone, and the oceans; and (7) establish the national policy that programs developed and implemented in an expeditious manner so as to enable the goals to be met through the control of both point and nonpoint sources of pollution. The USACE regulates the discharge of dredge and fill material (e.g., concrete, riprap, soil, cement block, gravel, sand) into waters of the United States including wetlands under Section 404 of the CWA and work on or structures in or affecting navigable waters of the United States under Section 10 of the Rivers and Harbors Act of 1899.

Wetlands are an important natural system and habitat, performing diverse biologic and hydrologic functions. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat provision, unique flora and fauna niche provision, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are considered as a subset of the waters of the United States under Section 404 of the CWA. The term "waters of the United States" has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The USACE defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR Part 328).

Floodplains. Floodplains are areas of low-level ground and alluvium adjacent to rivers, stream channels, or coastal waters. Such lands might be subject to periodic or infrequent inundation due to runoff of rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed upstream from the floodplain. Flood potential is evaluated by FEMA, which defines the 100-year floodplain. The 100-year floodplain is the area that has a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to be constructed in either the 100- or 500-year floodplain, including hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, requires Federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of appropriate FEMA Flood Insurance Rate Maps

(FIRMs), which contain enough general information to determine the relationship of the project area to nearby floodplains. EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a specific step-by-step process must be followed to comply with EO 11988 outlined in the FEMA document "Further Advice on EO 11988 Floodplain Management." As a planning tool, the NEPA process incorporates floodplain management through analysis and public coordination of the EIS.

Coastal Zone Management. The CZMA of 1972 gives states with federally approved coastal management programs the responsibility of reviewing Federal agency actions and activities to ensure that they are consistent with the state program's goals and policies. Any project that is in or may affect land and water resources in the Texas coastal zone and that requires a federal license or permit, is a direct activity of a federal agency, or is federally funded, must be reviewed for consistency with the Texas Coastal Management Program. The purpose of the Texas Coastal Management Program (CMP) is to improve the management of the state's coastal natural resource areas and to ensure the long-term ecological and economic productivity of the coast. The Coastal Coordination Council was established as a forum for coordinating Federal, state, and local programs and activities of the Texas coast (TxGLO 2007).

CBP has determined that a portion of Section O-19, and all of Sections O-20 and O-21 are within the Texas coastal zone. Therefore, a consistency certification and application for consistency review will be made to the Texas CMP office. This review process, overseen by the Texas Consistency Review Coordinator, will compliment the CWA Section 404 permit process, and the CWA Section 401 state water quality certification process, if required.

Route A

Hydrology and Groundwater. The proposed project corridor is in the Rio Grande Drainage Basin, which composes an area of approximately 355,500 square miles. Much of the Rio Grande drainage basin is composed of rural, undeveloped land used primarily for farming and ranching. Water development projects in the Rio Grande Valley have disrupted natural flow regimes, including structures such as Anzalduas Dam, Falcon Dam, and Amistad Dam. Substantial quantities of surface water are diverted from the Rio Grande to meet municipal, industrial, and agricultural demands in Texas and Mexico, with a significant portion used in the Rio Grande Valley for farming and urban applications. Most of the water diverted in the Rio Grande Valley is not returned to the river as irrigation tailwater or treated wastewater effluent because the land naturally slopes away from the river channel. The return flows are usually discharged into constructed drainage ditches/channels and floodways that eventually flow into the Laguna Madre estuary, and ultimately into the Gulf of Mexico (Moore et al. 2002).

The major aquifer in the Rio Grande Valley is the Gulf Coast Aquifer. The aquifer consists of alternating beds of clay, silt, sand, and gravel that are hydrologically connected to form a large, leaky, artesian system. Challenges related to withdrawal of groundwater from the Gulf Coast Aquifer include land-surface subsidence, increased chloride content in the groundwater from the southwestern portion of the aquifer, and saltwater intrusion along the coast (USACE 2000).

In Cameron County, the major source of groundwater is the Rio Grande Valley Alluvium Aquifer, which consists of recent deposits of unconsolidated sand, silt, gravel, and clay. This aquifer is close to the Rio Grande in an area bounded by the river on the south and Highway 83 on the north. Water in the Rio Grande Valley Alluvium Aquifer is characterized by high concentrations of chloride, dissolved solids, boron, and sodium. This water does not meet U.S. drinking water standards and is used primarily for agricultural uses (USACE 2000).

Surface Waters and Waters of the United States. The predominant surface water feature in the area is the Rio Grande (called the Rio Bravo in Mexico). The Rio Grande drainage is one of the longest rivers in North America, and an important river basin to both the United States and Mexico. The allocation of Rio Grande water between the two countries is governed by a treaty signed in 1944.

The main channel of the Rio Grande lies south of the proposed project corridor (Moore et al. 2002). In 1932, an agreement was reached between the United States and Mexico to develop a coordinated plan to protect the Rio Grande Valley against flooding from the Rio Grande in both countries (IBWC 2007b). This agreement was developed by the IBWC and resulted in the Lower Rio Grande Flood Control Project (LRGFCP) (IBWC 2007b).

The LRGFCP is designed for flood protection of urban, suburban, and highly developed irrigated farm lands in the Rio Grande delta in both countries. The LRGFCP levees are grass-covered earthen structures, with a distance between the U.S. and Mexico levees ranging from approximately 400 feet to 3 miles. The LRGFCP is jointly operated by the U.S. IBWC and Mexican IBWC to convey excess floodwaters of the Rio Grande to the Gulf of Mexico via the river channel and U.S. and Mexican interior floodways (IBWC 2007b). The LRGFCP includes approximately 180 miles of levees in the Rio Grande Valley.

Surface water features that could be potentially classified as waters of the United States in the proposed project corridor include arroyos, resacas, lakes, ponds, drainage canals, channelized streams, and wetlands including those formed from irrigation wastewater flows or groundwater seepage (see **Appendix F**). Arroyos are deep, narrow intermittently flooded drainages that flow down bluff faces into the Rio Grande. Resacas are oxbow lakes that have formed in historic floodplain channels of the Rio Grande. Dams and levees for flood control and water storage along the Rio Grande have severed the natural surface water connection between the river and most of the resacas, although groundwater flows are

thought to be intact. Resacas are typically filled by pumping water from the Rio Grande, rainfall, or input of irrigation return flows.

The proposed project corridor for Sections O-1, O-2, and O-3 are characterized by rugged river banks and steep bluffs, arroyos, and rapid erosion; there are no levees constructed within these sections. The proposed project corridor for Sections O-4 through O-21 are characterized by lakes, ponds, levees, public water canals, irrigation canals, and drainage ditches.

Some surface water features occur adjacent to or within the proposed project corridor associated with Route A (see **Appendix F**). Approximately 1.01 miles of Section O-1 would follow the Rio Grande to the Arroyo Mesa annex of the LRGVNWR and approximately 0.33 mile would follow the Rio Grande to the Los Negro Creek Annex of the LRGVNWR. Section O-2 crosses arroyos. Approximately 0.70 miles of Section O-3 would follow the Rio Grande boundary of the Los Ebanos annex of the LRGVNWR. Section O-5 would run from the intersection of the northern levee and the Anzalduas Park access road and follow the levee for 1.73 miles, crossing an irrigation canal. Section O-6 would follow the Pharr San Juan Main Canal. Section O-7 would follow the Donna Canal to the Donna pump station. Section O-9 would cross between an irrigation district settling basin and Moon Lake in the Progress Lakes area. Section O-11 would begin at a point where the IBWC levee meets the Santa Maria Canal and would continue following the levee to the La Feria Canal, crossing over the canal. Section O-12 would cross over the Harlingen Canal and follow the north side of the canal. Section O-13 would begin at a point where the IBWC crosses the San Benito Canal. Section O-18 would begin at a point where the IBWC levee intersects the Los Fresnos pump canal on the east side of the canal. Section O-21 would run a short distance along the El Jardin Canal.

Wetlands are also potentially jurisdictional waters of the United States and can be associated with all of the above surface water features. Potential jurisdictional wetlands have been identified along the proposed project corridor based on vegetation and hydrology. Wetland indicator species are listed in **Appendix I** and include (1) Mule's Fat Shrubland, (2) Black Willow Woodland/Shrubland, (3) Giant Reed Herbaceous Vegetation, (4) Common Reed Herbaceous Vegetation, (5) Alkali Sacaton Herbaceous Vegetation, (6) Narrowleaf Cattail, and (7) Smartweed Herbaceous Vegetation. A few floating aquatic communities have also become established on some small ponds. A more complete description of these potential wetland communities is presented in **Appendix I**. Mule's Fat Shrubland is associated with near to surface groundwater or occasional standing water, characterized by stands in Sections O-3 and O-13. Black Willow Woodland/Shrubland is associated with Rio Grande canals, drainage ditches, and ponds, characterized by stands in Sections O-3, O-8, O-13, O-14, and O-20. Giant Reed Herbaceous Vegetation is associated with ditch and canal banks, standing water in ditches, and near to surface groundwater, characterized by stands in Sections O-2, O-9, and O-14. Common Reed Herbaceous Vegetation was observed in narrow strips along canal banks and is relatively rare within the

proposed project corridor. Alkali Sacaton Herbaceous Vegetation occupies shallow depressions that likely capture runoff, and was observed only in Section O-4. Narrowleaf Cattail stands occur along perennial water bodies, specifically pond shorelines as characterized in Section O-8. Smartweed Herbaceous Vegetation was observed in the bottom of one canal or large irrigation ditch in Section O-14.

The most current information available to identify wetlands within the proposed project corridor is the National Wetland Inventory (NWI) (USFWS 2007a), presented on the figures provided in **Appendix F**. No NWI coverage is currently available for Sections O-1, O-2, O-3, O-5, O-6, O-7, and O-8. Approximately 7 acres of wetlands are within the remaining sections of the proposed project corridor of Route A (see **Table 3.6-1)**.

Table 3.6-1. NWI Identified Wetlands that Occur Within the Proposed Project Corridor for Route A

Section	Wetland Type	Acreage
O-4	Freshwater Pond	0.1
O-9	Freshwater Pond	negligible
	Freshwater Emergent Wetland	0.8
O-10	Freshwater Emergent Wetland	0.7
O-13	Riverine	0.4
	Freshwater Emergent Wetland	0.3
	Freshwater Emergent Wetland	0.2
O-15	Freshwater Emergent Wetland	1.4
O-17	Freshwater Emergent Wetland	0.8
O-18	Freshwater Emergent Wetland	negligible
O-20	Freshwater Emergent Wetland	0.6
	Freshwater Emergent Wetland	0.7
O-21	Freshwater Emergent Wetland	0.8
	Freshwater Pond	0.2

Source: USFWS 2007a

Note: Wetland acreage is based on NWI data. No NWI coverage is currently available for Sections O-1, O-2, O-3, O-5, O-6, O-7, O-8.

Identification and delineation of waters of the United States (i.e., jurisdictional wetlands and waters) within the proposed project corridor is an ongoing process. Wetland delineations will be finalized once rights of entry (ROEs) and LRGVNWR Special Use Permits have been obtained. The unavoidable impacts on jurisdictional waters and wetlands will be reviewed as part of the USACE Section 404 permit process. The proposed tactical infrastructure would be

designed to avoid or minimize impacts on wetlands and drainages, and to prevent impounding or otherwise altering waters.

Wetland delineations will be conducted using the *USACE Wetlands Delineation Manual, Technical Report Y-87-1.* The parameters required when performing wetland boundary assessment typically include (1) the predominance (greater than 50 percent) of hydrophytic (wetland) vegetation, (2) the presence of hydric (wetland) soils, and (3) evidence of wetland hydrology. In undisturbed field conditions for wetlands, all three of these diagnostic criteria must be present to fulfill wetlands classification criteria (USACE 1987). The Cowardin classification of wetlands will then be used to characterize aquatic resource habitats (wetlands and streams) in the project area. The Cowardin wetland classification uses a hierarchical classification approach, beginning with Systems and Subsystems, and narrows to a more specific level of Classes, Subclasses, and Dominance Types based on habitat types. Each System is a "complex of wetlands and deepwater habitats that share the influence of similar hydrologic, geomorphic, chemical, or biological factors" (Cowardin et al. 1979). There are five Systems in the Cowardin wetland classification nomenclature: Marine, Estuarine, Riverine, Lacustrine, and Palustrine. Once completed, wetland delineations are followed by a jurisdictional determination (JD) by the USACE prior to any construction activities.

The use of irrigation and application of fertilizers, pesticides, and herbicides has resulted in the contamination of agricultural drainage ditches and resacas in the Rio Grande Valley. These waters are eventually discharged into the Laguna Madre (USFWS 1991). Because resacas are also integral parts of the urban storm water drainage system in the Rio Grande Valley, they are subject to urban nonpoint source pollution such as pesticides (e.g., chlordane), automotive oil, grease, metals, fertilizers, sewage, and dissolved salts. Resacas are also affected negatively if they receive contaminated river water for municipal water storage or irrigation. In addition, illegal dumping into resacas has contributed to the contamination within these waterways (DOI 1996).

Floodplains. The proposed project corridor associated with Section O-1 is depicted as occurring in the 100-year floodplain of the Rio Grande, as identified on the January 24, 1978, FEMA FIRM Panel No. 4805750010A for Starr County, Texas. The proposed project corridor associated with Section O-2 is depicted as occurring in the 100-year floodplain of the Rio Grande, as identified on the January 24, 1978, FEMA FIRM Panel Nos. 4805750014A and 4805750015A for Starr County, Texas. Sections O-1 and O-2 are designated as Zone A. Zone A areas on FEMA flood insurance maps indicate areas that correspond to the 100-year floodplain determined in the Flood Insurance Study (FIS) by approximate methods (FEMA 1987, FEMA undated). Due to the uncertainty of the methodology, it cannot be determined if portions of the proposed project corridor associated with Sections O-1 and O-2 occur in the 100-year floodplain, as they are located on bluffs and the valley rim. As described in **Section 3.5.2**, the

topography of these sections is characterized by rugged river banks (at the Rio Grande), arroyos, and heavy erosion with no levees.

The proposed project corridor associated with Section O-3 is also depicted as occurring in the 100-year floodplain of the Rio Grande, as identified on the January 2, 1981, FEMA FIRM Panel No. 4803340375B for Hidalgo County, Texas. Section O-3 would be within FEMA Zone A23, which is one of the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods (FEMA 1987, FEMA undated). The topography and surface waters of Section O-3 are similar to that of Sections O-1 and O-2.

The proposed project corridor associated with Sections O-4 through O-21 does not lie within the 100-year floodplain. These proposed fence sections would follow either privately owned or the IBWC levee system as discussed in **Section 2.3**, and would be outside the current FEMA 100-year flood zone and the IBWC international drainage. Areas outside the 100-year flood zone are generally zoned B, C, and X. FEMA defines Zones B, C, and X as zones that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees (FEMA 1987, FEMA undated).

Route B

Groundwater and Hydrology. The groundwater and hydrology associated with the proposed project corridor of Route B would be identical to Route A.

Surface Waters and Waters of the United States. There are several differences between the surface water features that occur adjacent or within the proposed project corridors for Routes A and B. Section O-1 of Route B would traverse less riparian areas than Route A. Section O-2 of Route B would avoid some arroyos that would be crossed by Route A. Section O-3 of Route B represents adjustments to avoid some natural riparian areas along the Rio Grande. Section O-5 of Route B represents a slight realignment where the proposed project corridor would cross over the irrigation canal. Section O-7 would end at the Donna Canal, and would not cross over the canal or run along it. Section O-11 for Route B represents an alternative to realignment for crossing La Feria Canal. Section O-21 of Route B represents a slight realignment around El Jardin Canal compared to Route A.

The wetland communities for Sections of O-1 through O-21 of Route B are very similar to Route A. The most current information available to identify wetlands in Route B is the NWI (USFWS 2007a), presented in **Appendix F**. No NWI coverage is currently available for Sections O-1, O-2, O-3, O-5, O-6, O-7, and O-8. Approximately 7.3 acres of wetlands are within the remaining sections of the proposed project corridor of Route B (see **Table 3.6-2)**.

Table 3.6-2. NWI Identified Wetlands that Occur within the Proposed Project Corridor for Route B

Section	Wetland Type	Acreage
O-4	Freshwater Pond	0.2
O-9	Freshwater Pond	negligible
	Freshwater Emergent Wetland	0.8
O-10	Freshwater Emergent Wetland	0.7
	Lake	0.1
O-11	Freshwater Forested/Shrub Wetland	negligible
O-13	Riverine	0.2
	Freshwater Emergent Wetland	0.3
	Freshwater Emergent Wetland	0.2
	Freshwater Emergent Wetland	0.8
O-15	Freshwater Emergent Wetland	0.8
O-17	Freshwater Emergent Wetland	0.8
O-19	Riverine	0.5
O-20	Freshwater Emergent Wetland	0.9
	Freshwater Forested/Shrub Wetland	negligible
O-21	Freshwater Emergent Wetland	0.8
	Freshwater Pond	0.2

Source: USFWS 2007a

Note: Wetland acreage is based on NWI data. No NWI coverage is currently available for Sections O-1, O-2, O-3, O-5, O-6, O-7, O-8.

Floodplains. The floodplains associated with the proposed project corridor of Route B would be identical to Route A.

3.7 VEGETATION

Vegetation resources include native or naturalized plants and serve as habitat for a variety of animal species. This section describes the affected environment for native and nonnative vegetation, including the climate that drives the development of plant communities in this region, basic classification of these plant communities, and a summary of plant species and communities documented within the proposed project corridor during surveys conducted in 2007. More detailed information on the vegetation resources documented during field surveys conducted in 2007, including methodologies and classification schemes, is presented in the Draft Biological Survey Report (see **Appendix I**).

Route A

The climate within the proposed project corridor is semiarid-subtropical/subhumid within the Modified Marine climatic type, in which summers are long and hot and winters are short, dry, and mild (Larkin and Bomar 1983, Bailey 1995). The marine climate results from the predominant onshore flow of tropical maritime air from the Gulf of Mexico. Onshore air flow is modified by a decrease in moisture content from east to west and by intermittent seasonal intrusions of continental air.

Average temperatures in Brownsville range from a low of 50 degrees Fahrenheit [°F] in January to a low of 76 °F in July, and a high of 64 °F in December to a high of 97 °F in August. Annual low and high temperatures for Brownsville range from 12 °F to 63 °F and 93 °F to 107 °F, respectively. The average annual precipitation of the Rio Grande Delta recorded in Brownsville ranges from 22 to 30 inches (Brownsville recorded 21.68 inches for 2006), and the distribution of rainfall is irregular. Wind speeds are stable ranging from 10.4 miles per hour (mph) to 17.3 mph during the year. A long growing season is experienced for the proposed project region, from 314 to 341 days. The evaporation rate during the summer season is high, about twice the amount of precipitation.

The vegetation of the Rio Grande Delta of southern Texas has generally been classified under the Dry Domain, Tropical/Subtropical Steppe Division (Bailey 1995). The area surrounding the proposed project corridor is more finely classified as the Southwestern Plateau and Plains Dry Steppe and Shrub Province. The Texas Parks and Wildlife Department (TPWD 2007a) provides discussion and describes vegetation geography to biotic provinces and natural regions using topographic features, climate, vegetation types, and terrestrial vertebrates. This system places the project area in the Tamaulipan Biotic Province, South Texas Brush Country (Rio Grande Basin) Natural Region, and the Level III Ecoregions of the Southern Texas Plains and Western Gulf Coastal Plain.

Occurring within the Rio Grande Valley (technically a delta) of southern Texas and northern Mexico, Tamaulipan Brushland represents a unique ecosystem (USFWS 1988). The characteristic natural vegetation is dense and thorny, and plant species distribution can be correlated with geologic formations. The Rio Grande floodplain supports tall, dense riparian forest, woodland, shrubland, and herbaceous vegetation while the xeric upland areas support mostly spiny shrubs, short-stature trees, and dense nonnative grasslands. Between the 1920s and 1980s more than 95 percent of the native brushland and 90 percent of the riparian vegetation had been converted to agriculture and urban land use (USFWS 1988). In 1988, it was estimated that 98 percent of the lush, subtropical region of the Rio Grande Delta had been cleared of native vegetation in the United States and a large but unknown percentage cleared in Mexico.

NatureServe (2007) has defined ecological systems to represent recurring groups of biological communities that are found in similar physical environments and are influenced by similar dynamic ecological processes such as fire or flooding. Ecological systems represent classification units that are readily identifiable by conservation and resource managers in the field. For this reason, the results of the field surveys conducted in 2007 are presented in terms of ecological systems as defined by NatureServe (2007): (1) Tamaulipan Calcareous Thornscrub, (2) Tamaulipan Mesquite Upland Scrub, (3) Tamaulipan Mixed Deciduous Thornscrub, (4) Tamaulipan Savanna Grassland, (5) Tamaulipan Arroyo Shrubland, (6) Tamaulipan Floodplain, (7) Tamaulipan Palm Grove Riparian Forest, and (8) North American Arid West Emergent Marsh. Further details on these ecological systems, including photodocumentation, are provided in **Appendix I**.

Habitats observed, sampled, and photographed within the proposed project corridor range from upland thorn-scrub on the western end of Section O-1, upper and mid-valley riparian forest and woodland communities throughout the proposed middle sections, and sabal palm and mid-delta thorn forests within Section O-21. Much of the vegetation cover along the sections consists of nonnative grassland species that are themselves dominant or often support an overstory of honey mesquite, retama, or huisache shrubs or small trees. Agricultural fields occur along much of the corridor as proposed and include sugar cane, sorghum, Johnsongrass, sunflowers, cotton, row crop vegetables particularly onions, citrus trees (grapefruit and orange), or fields that were fallow at the time of site visit. Urban development and private property with single homes occurs adjacent to several tactical infrastructure sections.

A description of each plant community observed within the proposed project corridor is provided in **Appendix I**. **Table 3.7-1** provides a summary of the ecological systems observed in the proposed project corridor during the 2007 survey addressed in **Appendix I**.

Plant species recorded within the proposed project corridor for Sections O-1 through O-21 and their wetland indicator status (NRCS 2007) when appropriate are included in **Appendix I**. A total of 236 plant species were recorded. Of these 236 species, 129 were found in one fence section, and 6 (huisache, Bermuda grass, prickly pear, switchgrass, buffelgrass, and honey mesquite) were found in all 21 sections.

Section O-1 was the most species diverse, with 145 plant species recorded. This was the only section in which Taumalipan Calcareous Thornscrub was observed. This species rich ecological system contributed to the high number of plants recorded for this section.

Table 3.7-1. Ecological Systems Present in Each Proposed Tactical Infrastructure Section

Ecological System	Fence Sections																				
	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21
Tamaulipan Calcareous Thornscrub	X																				
Tamaulipan Mesquite Upland Scrub	X	X	X	X	X			X		X							X	X			
Tamaulipan Mixed Deciduous Thornscrub	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tamaulipan Savanna Grassland						X							X					X			
Tamaulipan Arroyo Shrubland	X	X																			
Tamaulipan Floodplain	X	X	X			X		X	X	X	X	X	X	X						X	X
Tamaulipan Palm Grove Riparian Forest																					X
North American Arid West Emergent Marsh				X				X	X					X							
Non-native species	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Section O-2 was the second-most diverse with 82 plant species recorded. This section presented all the ecological systems that Section O-1 did, with the exception of the species rich Taumalipan Calcareous Thornscrub; hence its lower diversity.

Numbers of plant species for Sections O-3 through O-21 ranged from 9 (Section O-19) to 47 (Section O-14), with an average of 30 plant species per fence section. Section O-21 contained Tamaulipan Palm Grove Riparian Forest, the only other ecological system besides Taumalipan Calcareous Thornscrub to be represented in only one section.

Route B

Route B shares the same general habitat descriptions as Route A. However, Route B would avoid some habitat rich areas, including the Arroyo Ramirez annex of the LRGVNWR (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16). In Section O-2, Route B would completely traverse the Los Velas West and Los Velas annexes to the LRGVNWR, whereas Route A would only partially encroach into the Los Velas West annex.

3.8 WILDLIFE AND AQUATIC RESOURCES

Wildlife and aquatic resources include native or naturalized animals and the habitats in which they exist.

Route A

The Rio Grande Valley is a highly distinctive subregion of the South Texas Plains. The South Texas Plains ecoregion consists mostly of level to rolling terrain characterized by dense brush. Usually defined as Cameron, Willacy, Hidalgo, and Starr counties, the Rio Grande Valley contains the only subtropical area in Texas. The Rio Grande Valley brushland is considered an ecological transition zone between Mexico and the United States. This key community supports many rare, threatened, and endangered species and is a stopover for migrating neotropical birds (TPWD 2007a).

Most of the 70 miles of the proposed project corridor has been heavily disturbed by agriculture and grazing; however, some high-quality habitat was identified during an October 2007 survey (see **Appendix I**). Unique habitat includes wetlands, riparian areas, arroyos, the LRGVNWR, Texas state parks, and Wildlife Management Areas (WMA).

There are presently three National Wildlife Refuges (NWRs) in the Rio Grande Valley: the Santa Ana NWR and LRGVNWR, which form a complex rather than two separate entities; and Laguna Atascosa NWR, which is outside the project area.

Santa Ana NWR contains one of the largest remaining tracts of subtropical riparian forest and native brushland in south Texas and provides habitat for more endangered and threatened species than any other U.S. NWR (USFWS 1988).

The LRGVNWR, established February 2, 1979, is a component of a multipartner effort attempting to connect and protect blocks of rare and unique habitat, known locally as a Wildlife Corridor. The Wildlife Corridor partnership includes the USFWS, the Texas Parks and Wildlife Department (TPWD), National Audubon Society, and private owners. Found within the lower four counties of Texas, the refuge currently contains more than 90,000 acres and is considered a top priority acquisition area by the USFWS. The refuge provides breeding and foraging habitat for numerous coastal wetland, inland wetland, and upland migratory bird species, and numerous other amphibians, reptiles, and mammal species (USFWS 2007b). Biotic communities located along the survey corridor are described in **Section 3.7**.

There are several tracts of land owned by TPWD and private conservation organizations throughout the Rio Grande Valley. The TPWD administers the Las Palomas WMA in Cameron, Hidalgo, Presidio, Starr, and Willacy counties. Bentsen-Rio Grande State Park is southwest of McAllen adjacent to the Rio Grande. The National Audubon Society's Texas Sabal Palm Sanctuary is south of Brownsville along the Rio Grande (USFWS 1988).

The fauna representative of the Rio Grande Valley region is characterized as semi-tropical, with some tropical species at the northern limit of their ranges and, additionally, some Chihuahuan desert species. This region was once open grassland with a scattering of shrubs, low trees, and wooded floodplains along rivers. Overgrazing, the suppression of prairie fires, and other changes in land use patterns have transformed most of the grasslands into a thorn forest, covered with subtropical shrubs and trees (CBP 2003).

Common wildlife species observed during the October 2007 surveys are listed in **Appendix I.** Ninety-one species of vertebrates were recorded during an October 2007 survey, including 2 species of fish, 7 amphibians, 6 reptiles, 63 birds, and 13 mammals (see **Appendix I**). Section O-1, as with vegetation, was the most species-rich with 26 wildlife species recorded.

Past collections of fish from the Rio Grande suggest two indigenous faunal assemblages, upstream and downstream. A total of 104 species of fish have been recorded from the Rio Grande (Falcon Reservoir to Boca Chica). The upstream fauna is dominated by minnows and sunfishes, while the downstream fauna includes dominant estuarine and marine species of herrings, drums, and jacks (USACE 1994).

Two fish species, Texas cichlid (*Herichthys cyanoguttatus*) and mosquito fish (*Gambusia affinis*), were observed in irrigation ditches during an October 2007 survey (see **Appendix I**).

Route B

The description of the affected environment for Route B is generally similar to that for Route A. However, Route B would avoid some habitat rich areas, including the Arroyo Ramirez annex of the LRGVNWR (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16). In Section O-2, Route B would completely traverse the Los Velas West and Los Velas annexes to the LRGVNWR, whereas Route A would only partially encroach into the Los Velas West annex.

3.9 SPECIAL STATUS SPECIES

Three groups of special status species are addressed in this EIS: Federal-threatened and -endangered species, state-threatened and -endangered species, and migratory birds. Each group has its own definitions, and legislative and regulatory drivers for consideration during the NEPA process; these are briefly described below.

The ESA, as amended (16 U.S.C. 1531–1544 *et seq*.) provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the United States or elsewhere. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. Section 7 of the ESA outlines procedures for Federal agencies to follow when taking actions that could jeopardize listed species, and contains exceptions and exemptions. Criminal and civil penalties are provided for violations of the ESA.

Section 7 of the ESA directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of Federal lands as well as other Federal actions that could affect listed species, such as approval of private activities through the issuance of Federal permits, licenses, or other actions.

Under the ESA, a Federal endangered species is defined as any species that is in danger of extinction throughout all or a significant portion of its range. The ESA defines a Federal threatened species as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

In 1973, the Texas legislature authorized the TPWD to establish a list of endangered animals in the state. State endangered species are those species which the Executive Director of the TPWD has named as being “threatened with statewide extinction.” Threatened species are those species which the TPWD has determined are likely to become endangered in the future (TPWD 2007b).

In 1988 the Texas legislature authorized TPWD to establish a list of threatened and endangered plant species for the state. An endangered plant is one that is "in danger of extinction throughout all or a significant portion of its range." A threatened plant is one that is likely to become endangered within the foreseeable future (TPWD 2007b).

TPWD regulations prohibit the taking, possession, transportation, or sale of any of the animal species designated by state law as endangered or threatened without the issuance of a permit. State laws and regulations prohibit commerce in threatened and endangered plants and the collection of listed plant species from public land without a permit issued by TPWD. Listing and recovery of endangered species in Texas is coordinated by the TPWD. The TPWD Wildlife Permitting Section is responsible for the issuance of permits for the handling of listed species (TPWD 2007b).

The MBTA (16 U.S.C. 703–712) as amended, implements various treaties for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful without a valid permit. Under EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, the USFWS has the responsibility to administer, oversee, and enforce the conservation provisions of the MBTA, which includes responsibility for population management (e.g., monitoring), habitat protection (e.g., acquisition, enhancement, and modification), international coordination, and regulations development and enforcement. The MBTA defines a migratory bird as any bird listed in 50 CFR 10.13, which includes nearly every native bird in North America.

The MBTA and EO 13186 require Federal agencies to minimize or avoid impacts on migratory birds listed in 50 CFR 10.13. If design and implementation of a Federal action cannot avoid measurable negative impact on migratory birds, EO 13186 requires the responsible agency to consult with the USFWS and obtain a Migratory Bird Depredation Permit.

3.9.1 Route A

Federal Species

Although 19 federally listed species have the potential to occur within the proposed project corridor (**Table 3.9-1**), the following 14 are not anticipated to be impacted by the proposed construction, maintenance, and operation of the tactical infrastructure:

- Green sea turtle (*Chelonia mydas*)
- Hawksbill sea turtle (*Eretmochelys imbricata*)
- Kemp's Ridley sea turtle (*Lepidochelys kempii*)
- Leatherback sea turtle (*Dermochelys coriacea*)
- Loggerhead sea turtle (*Caretta caretta*)
- Brown pelican (*Pelecanus occidentalis*)

Table 3.9-1. Federal- and State-Threatened and Endangered Species in Texas, by County

Common Name	Scientific Name	County	Federal Status	State Status
FISH				
Blackfin goby	*Gobionellus atripinnis*	C		T
Opossum pipefish	*Microphis brachyurus*	C		T
Rio Grande silvery minnow	*Hybognathus amarus*	S, H, C		E
River goby	*Awaous banana*	H, C		T
AMPHIBIANS				
Black spotted newt	*Notophthalmus meridionalis*	S, H, C		T
Mexican burrowing toad	*Rhinophrynus dorsalis*	S		T
Mexican treefrog	*Smilisca baudinii*	S, H, C		T
Sheep frog	*Hypopachus variolosus*	S, H, C		T
South Texas siren (large form)	*Siren sp 1*	S, H, C		T
White-lipped frog	*Leptodactylus labialis*	S, H, C		T
REPTILES				
Black-striped snake	*Coniophanes imperialis*	H, C		T
Green sea turtle	*Chelonia mydas*	C	E	T
Hawksbill sea turtle	*Eretmochelys imbricata*	C	E	E
Kemp's Ridley sea turtle	*Lepidochelys kempii*	C	E	E
Leatherback sea turtle	*Dermochelys coriacea*	C	E	E
Loggerhead sea turtle	*Caretta caretta*	C	T	T
Indigo snake	*Drymarchon corais*	S, H, C		T
Northern cat-eyed snake	*Leptodeira septentrionalis septentrionalis*	S, H, C		T
Reticulate collared lizard	*Crotaphytus reticulatus*	S, H		T
Speckled racer	*Drymobius margaritiferus*	H, C		T
Texas horned lizard	*Phrynosoma cornutum*	S, H, C		T
Texas scarlet snake	*Cemophora coccinea lineri*	C		T
Texas tortoise	*Gopherus berlandieri*	S, H		T
BIRDS				
American peregrine falcon	*Falco peregrinus anatum*	S, H, C		E
Arctic peregrine falcon	*Falco peregrinus tundrius*	S, H, C		T
Brown pelican	*Pelecanus occidentalis*	C	E	E
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	S, H, C		T
Common black-hawk	*Buteogallus anthracinus*	S, H, C		T
Eskimo curlew	*Numenius borealis*	C		E
Gray hawk	*Asturina nitida*	S, H, C		T
Least tern	*Sterna antillarum*	S, H, C	E	E

Common Name	Scientific Name	County	Federal Status	State Status
BIRDS (continued)				
Mexican hooded oriole	*Icterus cucullatus cucullatus*	S		T
Northern Aplomado falcon	*Falco femoralis septentrionalis*	H, C	E	E
Northern beardless-tyrannulet	*Camptostoma imberbe*	S, H, C		T
Piping plover	*Charadrius melodus*	H, C	T	T
Reddish egret	*Egretta rufescens*	H, C		T
Rose-throated becard	*Pachyramphus aglaiae*	S, H, C		T
Sooty tern	*Sterna fuscata*	C		T
Texas Botteri's sparrow	*Aimophila botterii texana*	H, C		T
Tropical parula	*Parula pitiayumi*	S, H, C		T
White-faced ibis	*Plegadis chihi*	H, C		T
White-tailed hawk	*Buteo albicaudatus*	S, H, C		T
Whooping crane	*Grus americana*	S, H, C	E	E
Wood stork	*Mycteria americana*	S, C		T
Zone-tailed hawk	*Buteo albonotatus*	S, C		T
MAMMALS				
Coues' rice rat	*Oryzomys couesi*	S, H, C		T
Gulf Coast jaguarundi	*Herpailurus (=Felis) yaguarondi*	S, H, C	E	E
Ocelot	*Leopardus (=Felis) pardalis*	S, H, C	E	E
Southern yellow bat	*Lasiurus ega*	H, C		T
White-nosed coati	*Nasua narica*	S, H, C		T
PLANTS				
Ashy dogweed	*Thymophylla tephroleuca*	S	E	E
Johnston's frankenia	*Frankenia johnstonii*	S	E	E
South Texas ambrosia	*Ambrosia cheiranthifolia*	C	E	E
Star cactus	*Astrophytum asterias*	S, H,C	E	E
Texas ayenia	*Ayenia limitaris*	H,C	E	E
Walker's manioc	*Manihot walkerae*	S, H	E	E
Zapata bladderpod	*Lesquerella thamnophila*	S	E	E

Sources: TPWD 2007a and USFWS 2007b
Notes:
S = Starr County, Texas
H = Hidalgo County, Texas
C = Cameron County, Texas
E = Endangered
T = Threatened

- Least tern (*Sterna antillarum*)
- Northern Aplomado falcon (*Falco femoralis septentrionalis*)
- Piping plover (*Charadrius melodus*)
- Whooping crane (*Grus americana*)

- Ashy dogweed (*Thymophylla tephroleuca*)
- Johnston's frankenia (*Frankenia johnstonii*)
- South Texas ambrosia (*Ambrosia cheiranthifolia*)
- Star cactus (*Astrophytum asterias*)

Sea turtles and brown pelican are coastal species, occupying habitats geographically separate from the proposed project corridor and any reasonably predictable impacts of fence construction, maintenance, and operation. While the historic ranges of the remaining species included this region of South Texas, available data indicate no known records of these species within or proximal to the proposed project corridor. Therefore, these 14 species are dismissed from further consideration.

The following sections provide brief descriptions of the known distribution and habitat preferences of, and threats to, the federally listed species considered further in this EIS. Additional details on the biology of these species are provided in **Appendix I.**

Gulf Coast jaguarundi *(Herpailurus [=Felis] yaguarondi).* The Gulf Coast jaguarundi, listed as endangered on June 14, 1976, is a secretive species for which little about its exact distribution in Texas is known. The only documented sighting of a jaguarundi in Texas was a road-killed specimen found in Cameron County. Possible counties where the jaguarundi might exist include Cameron, Duval, Hidalgo, Jim Wells, Kenedy, Kleberg, Live Oak, Nueces, San Patricio, Starr, Willacy, and Zapata. Jaguarundi still roam Latin and South America in greater numbers than seen in the United States (USFWS 1990).

The habitat of the jaguarundi is similar to the ocelot and is found within the Tamaulipan Biotic Province which includes several variations of subtropical thornscrub brush. Potential habitat includes four areas of the Rio Grande Valley: Mesquite-Granjeno Parks, Mesquite-Blackbrush Brush, Live Oak Woods/Parks, and Rio Grande Riparian. Jaguarundi prefer dense thornscrub habitats with greater than 95 percent canopy cover.

The greatest threat to jaguarundi populations in the United States is habitat loss and fragmentation in southern Texas. The jaguarundi requires a large hunting area and appropriate habitat is being lost to development and agriculture. This creates islands of habitat where the jaguarundi cannot migrate from area to area, leaving them vulnerable.

Ocelot *(Leopardus [=Felis] pardalis).* The ocelot, listed as endangered on March 28, 1972, is found from the southern extremes of Texas and Arizona and northern Mexico into northern Argentina, Paraguay, and Uruguay. Little is known of the exact distribution of the ocelot in Texas. Ocelots recorded by trapping or photo documentation include several areas within five counties: Cameron, Willacy, Kenedy, Jim Wells, and Hidalgo. Counties that have been identified as having potential ocelot habitat include Cameron, Duval, Hidalgo, Jim Wells,

Kenedy, Kleberg, Live Oak, Nueces, San Patricio, Starr, Willacy, and Zapata (USFWS 1990).

The habitat of the ocelot is found within the Tamaulipan Biotic Province which includes several variations of subtropical thornscrub brush. Potential habitat includes four areas of the Rio Grande Valley: Mesquite-Granjeno Parks, Mesquite-Blackbrush Brush, Live Oak Woods/Parks, and Rio Grande Riparian. Ocelots prefer dense thornscrub habitats with greater than 95 percent canopy cover.

Habitat loss and fragmentation especially along the Rio Grande pose a critical threat to the long-term survival of the ocelot. Efforts are underway to preserve key habitat and biological corridors necessary for ocelot survival (USFWS 1990).

Texas ayenia *(Ayenia limitaris).* The Texas ayenia was listed as endangered on September 23, 1994. This plant is an endemic species of southern Texas and northern Mexico whose historical range included Cameron and Hidalgo counties, Texas, and the states of Coahuila, Nuevo Leon, and Tamaulipas in Mexico. The status of Mexican populations is unknown at the time. The only confirmed population of the Texas ayenia lies on private property within Hidalgo County.

The Texas ayenia occupies dense subtropical woodland communities at low elevations. The current population occupies a Texas Ebony – Anacua (*Pithecellobium ebano-Ehretia anacua*) plant community. This plant community occurs on well-drained riparian terraces with canopy cover close to 95 percent. Species found in this community include la coma *(Bumelia celastrina),* brasil *(Condalia hookeri),* granjeno (*Celtis pollicki),* and snake-eyes *(Phaulothamnus spinesceris).* La coma was not documented in the proposed project corridor, but granjeno was common throughout most of the proposed project corridor and co-occurred with brasil and snake-eyes in Sections O-1 and O-2, indicating that these areas might provide suitable habitat for Texas ayenia. However, no Texas ayenia were observed during the October 2007 survey (see **Appendix I**).

Habitat loss and degradation from agriculture or urban development have reduced the Texas Ebony – Anacua vegetation community by greater than 95 percent. Texas ayenia has been reduced to one known population of 20 individuals that is extremely vulnerable to extinction.

Walker's manioc *(Manihot walkerae).* Walker's manioc was listed as endangered on October 2, 1991. This plant is an endemic species of the Rio Grande Valley of Texas and northern Mexico. One population exists in Tamaulipas, Mexico, and one population has been observed in the United States in Hidalgo County, Texas. However, it consists of only one plant (USFWS 1993). High-quality habitat for Walker's manioc was observed in the proposed project corridor for Section O-1; however, no individuals of this species were found.

Walker's manioc usually grows among low shrubs, native grasses, and herbaceous plants, either in full sunlight, or in partial shade of shrubs. It is found in sandy, calcareous soil, shallowly overlying indurated caliche and conglomerate of the Goliad Formation on rather xeric slopes and uplands, or over limestone.

More than 95 percent of Walker's manioc native brush habitat has been cleared in the United States for agriculture, urban development, and recreation. The United States population has been reduced to a single plant that makes the species extremely vulnerable to extinction in the United States (USFWS 1993).

Zapata bladderpod *(Lesquerella thamnophila).* The Zapata bladderpod was listed as endangered on November 22, 1999. This plant is an endemic species to southern Texas and possibly northern Mexico. Four populations are known in Starr County: two populations are found on the LRGVNWR and two occur on private land. Three populations are known from Zapata County: two are located on highway ROWs between the towns of Zapata and Falcon and another lies near Falcon Lake (USFWS 2004). High-quality habitat for Zapata bladderpod was observed in the survey corridor for Section O-1; however, no individuals of this species were found.

The Zapata bladderpod occurs on graveled to sandy-loam upland terraces above the Rio Grande floodplain. It is associated with highly calcareous sandstones and clays. The bladderpod is a component of an open *Leucophyllum fretescens – Acacia berlanderi* shrubland alliance. The shrublands are sparsely vegetated and include the following species *Acacia ridigula*, *Prosopis* sp., *Celtis pallida*, *Yucca treculeana*, *Zizyphus obtusifolia*, and *Guaiacum angustifolium* (USFWS 2004).

Habitat modification and destruction from increased road and highway construction and urban development; increased oil and gas exploration and development; and conversion of plant communities to improve pastures, overgrazing, and vulnerability due to low population numbers are all threats to the Zapata bladderpod (USFWS 2004).

State Species

There are 52 state-listed species that have the potential to occur within or proximal to the proposed project corridors in the southernmost portions of Starr, Hidalgo, and Cameron counties: 4 fish, 6 amphibians, 8 reptiles, 22 birds, 5 mammals, and 7 plants (see **Table 3.9-1**). Of these, 12 are also federally listed species: 3 birds; 2 mammals; and 7 plants. No Federal threatened or endangered species were observed during an October 2007 survey (see **Appendix I**). State-listed species observed during an October 2007 survey included the Mexican treefrog (*Smilisca baudinii*) and the Texas horned lizard (*Phrynosoma cornutum*). Potential habitats for the white-lipped frog (*Leptodactylus labialis*) and Mexican burrowing toad (*Rhinophrynus dorsalis*) were observed in Sections O-8 and O-2, respectively.

The following paragraphs provide brief descriptions of the distribution and habitat of state-listed species for which individuals or suitable habitat were observed during the October 2007 survey (see **Appendix I**).

Mexican treefrog *(Smilisca baudinii).* The Mexican treefrog is found along the coast of the Gulf of Mexico and inland from South Texas into northern Mexico. In Texas, it is found in the extreme southern tip of the state. This nocturnal frog prefers subhumid regions and breeding occurs year-round with rainfall. It is seen near streams and in resacas. It finds shelter under loose tree bark or in damp soil during the heat of the day (University of Texas 1998). This species was observed in Section O-10.

Texas horned lizard (*Phrynosoma cornutum).* The Texas horned lizard ranges from the south-central United States to northern Mexico, throughout much of Texas, Oklahoma, Kansas, and New Mexico. It can be found in arid and semiarid habitats in open areas with sparse plant cover. Because horned lizards dig for hibernation, nesting, and insulation purposes, they commonly are found in loose sand or loamy soils (TPWD 2007c). This species was observed in Section O-2.

White-lipped frog *(Leptodactylus labialis).* The white-lipped frog is found in the extreme southern tip of Texas. This frog's habitat consists of various moist places including roadside ditches, irrigated fields, and low grasslands. This nocturnal frog burrows in the damp soil during the day and forages at night. Breeding takes place in the Spring with heavy rains (University of Texas 1998). Potential habitat for this species was observed in Section O-8, but no individuals were found (see **Appendix I**).

Mexican burrowing toad *(Rhinophrynus dorsalis).* The Mexican burrowing toad is found in extreme South Texas. This nocturnal toad prefers low areas with loose soil (e.g., cultivated fields) and feeds on termites and ants. Breeding occurs after heavy rains (University of Texas 1998). Potential habitat for this species was observed in Section O-2, but no individuals were found (see **Appendix I**).

Migratory Birds

The Rio Grande Valley provides important habitat for migratory birds. The Central and Mississippi flyways meet here and the most southern tip of Texas is also the northernmost range for many bird species (USFWS 2001). Nearly 500 bird species, including neotropical migratory birds, shorebirds, raptors, and waterfowl, can be found in the Rio Grande Valley. For species such as the plain chachalaca, green jay, great kiskadee, and least grebe, this is the only area in the nation in which they can be observed (USFWS 2001).

3.9.2 Route B

The description of the affected environment for Route B is generally similar to that for Route A. However, Route B would avoid some habitat rich areas, including the Arroyo Ramirez annex of the LRGVNWR (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16). In Section O-2, Route B would completely traverse the Los Velas West and Los Velas annexes to the LRGVNWR, whereas Route A would only partially encroach into the Los Velas West annex.

3.10 CULTURAL RESOURCES

Cultural resources are commonly subdivided into archaeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing), architectural resources (buildings or other structures or groups of structures that are of historic, architectural, or other significance), and traditional cultural resources (e.g., traditional gathering areas, locations referenced in origin myths or traditional stories).

Archaeological resources comprise areas where human activity has measurably altered the earth or where deposits of physical remains of human activity are found. Architectural resources include standing buildings, bridges, dams, and other structures of historic, architectural, engineering, or aesthetic significance. Traditional cultural resources include traditional cultural properties (TCPs), which are properties eligible for or listed in the National Register of Historic Places (NRHP) that Native Americans or other groups consider essential for the preservation of traditional cultures. Examples of TCPs are archaeological resources, prominent topographic features, habitat, plants, minerals, or animals and their physical location or resource referent.

The NRHP is the official listing of properties significant in U.S. history, architecture, or prehistory, and includes both publicly and privately owned properties. The list is administered by the National Park Service (NPS) on behalf of the Secretary of the Interior. Cultural resources that are listed in or eligible for listing in the NRHP (36 CFR 800.16(l)) are called historic properties. Properties are determined to be eligible for listing in the NRHP by the Secretary of the Interior (NPS) or by consensus of a Federal agency official and the SHPO. Generally, resources must be more than 50 years old to be considered for listing in the NRHP. More recent resources, such as Cold War-era buildings, might warrant listing if they have the potential to gain significance in the future or if they meet “exceptional” significance criteria. NRHP-listed properties of exceptional national significance can also be designated as National Historic Landmarks (NHLs) by the Secretary of the Interior.

Buildings, structures, sites, objects, or districts are property types that might be historic properties. To be listed in or eligible for listing in the NRHP, a resource

must be one of these property types, generally should be at least 50 years of age or older, and must meet at least one of the four following criteria (36 CFR 60.4):

- The resource is associated with events that have made a significant contribution to the broad pattern of history (Criterion A).
- The resource is associated with the lives of people significant in the past (Criterion B).
- The resource embodies distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic value; or represents a significant and distinguishable entity whose components might lack individual distinction (Criterion C).
- The resource has yielded, or could be likely to yield, information important in prehistory or history (Criterion D).

In addition to meeting at least one of the above criteria, a historic property must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. Integrity is defined as the authenticity of a property's historic identity, as evidenced by the survival of physical characteristics it possessed in the past and its capacity to convey information about a culture or group of people, a historic pattern, or a specific type of architectural or engineering design or technology. Resources that might not be considered individually significant can be considered eligible for listing on the NRHP as part of a historic district. According to the NPS, a historic district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects that are historically or aesthetically united by plan or physical development.

Route A

Area of Potential Effect. According to 36 CFR Part 800, the Area of Potential Effect (APE) of a Federal undertaking is defined as the geographical area within which impacts on historic properties might occur if such properties hypothetically exist. The APE should account for both direct and indirect impacts. 36 CFR 800.5(a)(2) specifically cites visual impacts and changes to the setting of a historic property where the setting contributes to the significance of the property as adverse. Other possible adverse impacts include damage or destruction of historic properties due to grading, construction, noise, or vibrations.

Under Alternative 2, direct construction impacts would occur within a 60-foot-wide corridor that accounts for grading of vegetation and fence construction. Under Alternative 3, the construction APE would directly affect a 150-foot-wide corridor. A larger APE has been developed for both Alternatives 2 and 3 for impacts to architectural resources. Topography, type and density of vegetation and intervening development, orientation of streets and properties in relation to

the alternatives, traffic patterns, and surrounding development all are factors to be considered in the definition of this latter APE.

Several Native American tribes with ancestral ties to lands within the Rio Grande Valley Sector have been contacted for input into the cultural resources survey as required under NHPA (see **Appendix B**).

Archaeological and Historical Overview. The history of the Rio Grande Valley is rich, unique, and important. The Rio Grande has been a critical conduit for trade and transportation, and a natural border between interests to the north and the south. Evidence of human occupation in the region is abundant. The area's archaeological record is dominated by open-air sites, burned rock middens, lithic artifact scatters, clay dunes in the Rio Grande delta, and shell middens near the coast. These sites are difficult to identify and date because of heavy erosion, shallow soil horizons, and extensive artifact removal by collectors. The lack of excavation of deeply stratified subsurface sites means that the chronology of the south Texas plains is poorly understood.

The pre-Contact history of the South Texas plains can be divided into three general cultural periods:

1. The Paleoindian period represents the first documented human occupation of the region. Evidence of the earliest Paleoindian complexes, Clovis and Folsom, has been found throughout South Texas, although most of this evidence is from surface collections of the distinctive fluted points that characterize these complexes.
2. The Archaic period in South Texas is divided into the early, middle, and late subperiods based on subtle changes in material cultural and settlement patterns. During this period, hunting and gathering continued as the primary means of subsistence, but populations responded to fluctuations in regional climate by exploiting an increasingly wide range of plant and animal resources and geographic settings for settlement and subsistence. Late Archaic sites are relatively common in the project area, suggesting increasing population density through time (Hester et al. 1989).
3. The Late Prehistoric period (A.D. 700–European Contact) is well-documented in the region and is characterized by the appearance of pottery and the bow and arrow, although point typologies have not been formalized (Hester et al. 1989).

The post-Contact history of the region is typically broken into the Spanish colonial period (ca. 1519–1822), Early Anglo-European period (1822–1845), the Texas Republic period (1836–1846), and the American period (1848–present). A detailed discussion of these periods can be found in **Appendix J**, Preliminary Cultural Resources Findings.

Known Resources within the APE. The proposed project corridor would cross two historic districts that are designated NHLs: the Roma Historic District and Fort Brown. It would extend adjacent to or within the bounds of four additional NRHP-listed properties: Fort Ringgold Historic District, Louisiana-Rio Grande Canal Company Irrigation System Historic District (including Hidalgo Pumphouse), Neale House, and Old Brulay Plantation. It would be in the general vicinity of many other NRHP-listed properties, such as the Rancho Toluca Historic District, the La Lomita Historic District, the Gems Building, and the Stillman House. It is known that additional architectural resources eligible for the NRHP but not formally nominated for listing also occur in the vicinity of the proposed project corridor. Other resources that meet the NRHP eligibility criteria but that have not been inventoried or evaluated are expected. Historic-era property types in the Rio Grande Valley area include historic residential, commercial, and institutional buildings both in settled communities and in rural contexts; military forts; transportation resources (ferry crossing and ferry, suspension bridge); cemeteries; religious complexes; industrial resources (irrigation systems and associated water pumphouses); and farmsteads, plantations, and ranch complexes. These might occur as standing structures or historic archaeological sites.

In general, historic archaeological sites might be expected to include forts, shipwrecks, early Republic and American-period sites, homesteads, industrial archaeological sites such as potteries and early irrigation and agricultural sites and features, and historic trash scatters. It also is possible that early Spanish and Mexican colonial remains might be found. Additional types of historic archaeological sites might be identified upon further research. Two historical archaeological sites previously recorded within the APE are listed on the NRHP (Fort Ringgold and Fort Brown, the latter designated an NHL). A detailed discussion of these historic resources can be found in **Appendix J**.

Previously reported prehistoric archaeological resources within a mile of the proposed project corridor are primarily open-air campsites and lithic scatters. Temporal and cultural affiliations of the sites are unclear, and few sites are very extensive. The recorders did not evaluate the NRHP eligibility of most of them. Additional prehistoric sites are expected to be found. Should any sites be found through archaeological surveys, they will be considered for various treatment options such as redesigning the project or data recovery.

An archaeological survey of a 150-foot-wide corridor for each proposed tactical infrastructure section (inclusive of the direct impact APEs for both Alternatives 2 and 3) is in progress, as well as an architectural survey. The goal of these surveys is to identify historic properties potentially affected by the Proposed Action. The preliminary findings of surveys within the proposed tactical infrastructure sections completed to date are presented in **Appendix J**. The completed surveys and final findings will be provided in the Final EIS. Information about previously recorded archaeological, historical, and architectural sites within the 150-foot survey corridor and within a 1-mile radius of the corridor

was gathered from the Texas Historical Commission (THC) Historic Sites Atlas and Archaeological Sites Atlas. This information was plotted on project maps, aerial photographs, and topographic maps to identify areas of interest for further identification and evaluation.

Consultations with tribes is ongoing; as of November 2007, no resources of traditional, religious, or cultural significance to Native American tribes have been identified within the APE (direct construction impacts) (see **Appendix B**).

Route B

The historic context and cultural resource setting for Route B is generally the same as that described for Route A. However, to the extent that the impacts to specific cultural resources may be different along Route B, those specific resource differences are described in **Section 4.10.2**.

3.11 AESTHETICS AND VISUAL RESOURCES

USBP does not currently have a standard methodology for analysis and assessment of impacts on visual resources. Accordingly a standard methodology developed by another Federal agency was adopted for the analysis and assessment of impacts on visual resources for this EIS. Methodologies reviewed included those developed by the NPS, the Bureau of Land Management (BLM), and the Federal Highway Administration (FHWA). It was determined that the FHWA methodology was the most applicable for this analysis due to its focus on linear corridors that include a variety of features and cross-cut a variety of landscapes. The FHWA methodology examines visual resources in similar ways (texture, contrast, visual quality) as those of NPS and BLM, but unlike those methodologies, the FHWA does not tie the assessment to the management goals for a given parcel of land (i.e., BLM- and NPS-owned land parcels typically have specific management goals and the assessment of impacts on visual resources within a given parcel is tied to the management priorities for those parcels).

The discussion in the following paragraphs summarizes the methology presented in FHWA Publication No. FHWA-HI-88-054: *Visual Impact Assessment for Highway Projects* (USDOT undated). Under the FHWA approach, the major components of the visual analysis process include establishing the visual environment of the project, assessing the visual resources of the project area, and identifying viewer response to those resources.

Establishing a Visual Environment. Two related steps are performed to characterize the visual environment: (1) develop a framework for visual assessment that will help compare project alternatives and (2) define the physical limits of the visual environment that each alternative might affect. The landscape classification process establishes the general visual environment of a project and its place in the regional landscape. The starting point for the classification is an

understanding of the landscape components that make up the regional landscape, which then allows comparisons between landscapes. Regional landscapes consist of landforms (or topography) and land cover. It should be noted that land cover is not equivalent to land use, as that term is defined and used in **Section 3.4**. Land cover is essential of identification of what features (e.g., water, vegetation, type of man-made development) dominate the land within a given parcel. Examples of land cover would include agricultural field, housing development, airport, forest, grassland, and reservoir. While there is some overlap with land use, land cover does not distinguish function or ownership of parcels.

Relatively homogenous combinations of landforms and land cover that recur throughout a region can be considered landscape types. To provide a framework for comparing the visual impacts of the project alternatives, regional landscape is divided into distinct landscape units; these are usually enclosed by clear landform or land cover boundaries and many of the views within the unit are inward-looking. Landscape units are usually characterized by diverse visual resources, and it is common for several landscape types to be in view at any one time.

Assessing the Visual Resources. An assessment of the visual resources within a project area involves characterization of the character and quality of those resources. Descriptions of visual character can distinguish at least two levels of attributes: pattern elements and pattern character. Visual pattern elements are primary visual attributes of objects; they include form, line, color, and texture. Awareness of these pattern elements varies with distance. The visual contrast between a project and its visual environment can frequently be traced to four aspects of pattern character: dominance, scale, diversity, and continuity.

Visual quality is subjective, as it relies on the viewer's enjoyment or interpretation of experience. For example, there is a clear public agreement that the visual resources of certain landscapes have high visual quality and that plans for projects in those areas should be subject to careful examination. Approaches to assessing visual quality include identifying landscapes already recognized at the national, regional, or local level for their visual excellence (e.g., NHLs, National Scenic Rivers); asking viewers to identify quality visual resources; or looking to the regional landscape for specific resource indicators of visual quality. One evaluative approach that has proven useful includes three criteria: vividness (the visual power or memorability of the landscape), intactness (the visual integrity of the natural and man-made landscape and its freedom from encroaching elements), and unity (the visual coherence and compositional harmony of the landscape considered as a whole). A high value for all three criteria equates to a high visual quality; combinations of lesser values indicate moderate or low visual quality. It should be noted that low visual quality does not necessarily mean that there will be no concern over the visual impacts of a project. In instances such

as urban settings, communities might ask that projects be designed to improve existing visual quality.

Identifying Viewer Response. An understanding of the viewers who might see the project and the aspects of the visual environment to which they are likely to respond is important to understanding and predicting viewer response to the appearance of a project. The receptivity of different viewer groups to the visual environment and its elements is not equal. Viewer sensitivity is strongly related to visual preference; it modifies visual experience directly by means of viewer activity and awareness, and indirectly by means of values, opinions, and preconceptions. Because viewers in some settings are more likely to share common distractions, activities, and awareness of their visual environment, it is reasonable to distinguish among project viewers located in residential, recreational, and industrial areas.

Visual awareness is the extent to which the receptivity of viewers is heightened by the immediate experience of visual resource characteristics. Visual change heightens awareness, for example, a landscape transition, such as entering a mountain range or a major city, can heighten viewer awareness within that particular viewshed. Measures that modify viewer exposure, such as selective clearing or screening, can also be deliberately employed to modify viewer awareness. Viewers also tend to notice and value the unusual, so they might see more value in preserving the view towards a particularly dramatic stand of trees than the view towards more ubiquitous landscape features.

Local values and goals operate indirectly on viewer experience by shaping view expectations, aspirations, and appreciations. For example, at a regional or national level, viewers might be particularly sensitive to the visual resources and appearance of a particular landscape due to its cultural significance, and any visual evidence of change might be seen as a threat to these values or resources. Concern over the appearance of the Proposed Action often might be based on how it will affect the visual character of an area rather than on the particular visual resources it will displace.

Aesthetics is the science or philosophy concerned with the quality of visual experience. One cannot meaningfully assess the impacts of an action on visual experience unless one considers both the stimulus (visual resources) and the response (viewers) aspects of that experience.

Visual Environment. Based on the Physiographic Map of Texas (University of Texas 2006), the proposed project corridor crosses portions of the Coastal Prairies and Interior Coastal Plains subprovinces of the Gulf Coast Plains physiographic province. Within the Coastal Prairies subprovince (Sections O-7 through O-21), young deltaic sands, silts, and clays erode to nearly flat grasslands that form almost imperceptible slopes to the southeast. Minor steep slopes, from 1 foot to as much as 9 feet high, result from subsidence of deltaic sediments along faults. The Interior Coastal Plains subprovince (Sections O-1

through O-6) composes alternating belts of resistant uncemented sands among weaker shales that erode into long, sandy ridges.

Primary landform types present within the APEs include the Rio Grande channel, its active floodplain and terraces, the man-made levee and floodway system, arroyos feeding into the Rio Grande, low to moderate height cliffs formed through subsidence, soil erosion, downcutting of arroyos into the soft sediments, various irrigation canals and ditches, vegetation-covered dunes, small ponds, and low sand ridges. Within the relict floodplain are a number of abandoned meander loops, some containing water (ponds) and some only visible as traces on aerial photographs. The terraces and floodplain of the Rio Grande, which are parallel or adjacent to the river, range from extremely narrow landforms to broad level expanses as much as 3 miles wide in places. Flooding on the nearly level terraces along the Rio Grande is controlled by seven watershed structures built under P.L. 566.

Landcover overlying these landforms can be simplified into four primary types: agriculture, park/refuge, developed, and undeveloped. Each type can be broken down further (e.g., developed lands could be separated by the density or type of development, such as town vs. city, or residential vs. commercial). There are also certain features that cross-cut or link landcover types, such as transportation features (e.g., highways, paved and unpaved roads, bridges) or flood control features (e.g., the levee system).

At the macro level of analysis, the Rio Grande Valley is a distinct land unit. Within that larger land unit, combinations of landform types with the range of land cover types form smaller land units:

- Park/refuge land unit. This unit includes portions of the Rio Grande floodplain and terraces that have been subject to minimal development, so that the natural vegetation and topography dominate. Landcover types subsumed within this land unit include park/refuge and undeveloped. Landforms include the Rio Grande floodplain and terrace, vegetated dune ridges, arroyos, and cliffs. Transportation features include paved and unpaved roads, bridges, and trail networks; flood control features include the levee and floodway. This land unit can also include occasional structures and buildings. Primary examples are the discontiguous sections of the LRGVNWR (see **Figure 3.11-1**). This land unit is present within the proposed project corridor Sections O-1, O-2, O-3, O-4, O-5, O-7, O-8, O-10, O-11, O-13, O-16, O-18, and O-21.

Figure 3.11-1. Photograph View of Arroyo within Wildlife Refuge (Section O-1)

- Rural land unit. This unit includes the terraces of the Rio Grande where they are overlain by agriculture and range lands; however, the character of the underlying landforms is still clearly visible and plays a role in the placement of overlying features (see **Figure 3.11-2**). Typical features include field breaks, irrigation features, unpaved roads, occasional farmsteads or ranches typically located in clusters of trees, occasional water towers, and larger metal utility towers. This land unit is present within all 21 proposed tactical infrastructure sections.

Figure 3.11-2. Photograph View of Typical Rural Land Unit (Section O-17)

- Town/Suburban Development land unit. This unit includes the terraces of the Rio Grande where they are overlain by low- to moderate-density development, often connected with gridded road networks (paved and unpaved). The underlying landforms are visible in places but, except for water sources (e.g., ponds, reservoirs, or lakes), the topography and form of the land do not play a significant role in the layout or location of overlying features. Typical features include houses, small outbuildings, driveways, planned landscaping, clumps or lines of trees, small commercial buildings, water towers, and overhead power lines on poles

rather than towers. Examples would be the town of Los Ebanos in Section O-3 (see **Figure 3.11-3**), the town of Granjeno in Section O-5, and the subdivisions of Joann and Galaxia in Section O-18. This land unit is present within the proposed project corridor Sections O-1, O-3, O-4, O-5, O-6, O-9, O-14, O-15, O-16, O-17, O-18, O-19, O-20, and O-21.

Figure 3.11-3. Photograph View of Town of Los Ebanos (Section O-3)

- Urban/Industrial land unit. This unit includes the terraces of the Rio Grande where they are overlain by moderate- to high-density mixed use development. The underlying landforms are almost completely masked by man-made features and play little or no role in the layout or location of overlying features. Typical features include buildings of varying heights, sizes, and materials; a mixture of gridded and more organic road networks (primarily paved); planned park areas (often near water sources); open paved areas (e.g., parking areas); the larger POEs; industrial and commercial areas; overhead utility lines on poles; elevated roadways and overpasses; and elevated signage. Examples include the city of Roma in Section O-1, Rio Grande City in Section O-2 (see **Figure 3.11-4**), and Hidalgo in Section O-6. This land unit is present within the proposed project corridor Sections O-2, O-4, O-6, O-10, O-14, O-17, O-19, O-20, and O-21.

Figure 3.11-4. Photograph View of Rio Grande City POE (Section O-2)

Character and Quality of Visual Resources. **Tables 3.11-1** and **3.11-2** provide summaries of the visual character and quality, respectively, of visual resources observed within the land units within the Rio Grande Valley Sector. Values reflect visual character and visual quality of resources visible from distances of 50 feet to 1,000 feet (see **Figure 3.11-5**). It should also be noted that, at these distances, direct views of the Rio Grande and active floodplain are typically seen only from the vantage of riverfront parks, refuge trails, bridges across the river (POEs), tall office or residential buildings, or from the top of the levee. For viewers not occupying one of these vantage points, typical views toward the proposed fences are obstructed by the levees, buildings, or vegetation.

Additionally, the amount of visual clutter between the viewer and the proposed project corridors increases with distance.

In terms of visual quality, the analysis presumes that any view that includes the Rio Grande constitutes a high-quality view, except for views dominated by industrial or commercial elements (e.g., views of the POEs). Similarly, given that quality of view can be somewhat subjective, it is possible to find at least one low- and one high-quality view within any land unit type. For example, someone with an interest in old railroad bridges might find the view of the bridge in Section O-17 to be memorable, while other viewers might only see a large rusted metal structure blocking an otherwise natural view. Rather than simply provide a range of ratings of low to high for each, the quality of the most common views within a given land unit type was used.

In addition to these averaged assessments of visual character and quality of resources within each land unit type, there are a number of specific visual resources considered to be of particular importance because of their natural or cultural value, such as those listed in the following:

Table 3.11-1. Character of Visual Resources within Typical Rio Grande Valley Land Units (Current Conditions)

Land Unit	Line	Color	Form	Texture
Park/Refuge	Mostly horizontal and gentle curves	Earthy (browns, greens) punctuated by seasonal brightness	Mostly curved, organic shapes	Low to moderate variety depending on mix of vegetation and inclusion of water elements
Rural	Primarily horizontal lines (fields, roads, canals), with occasional vertical elements (silos, utility towers, tree lines, buildings)	Earthy colors (bare earth and crops)	Mixture of angled and curved forms (roads and buildings vs. rolling hills and meandering river)	Relatively subtle variations in texture (mostly bare earth or crops)
Town/Suburban Development	Mixed vertical (trees, utility poles, water towers, buildings) and horizontal (similar heights of buildings, lines of trees or shrubs, roads, lawns) lines	Variety of colors due to mix of man-made and natural elements	Variety of forms due to mixture of man-made and natural elements	Variety of textures due to mix of man-made and natural elements
Urban/Industrial	Vertical lines more prominent than horizontal	Often a high variety of colors associated with buildings, signs, green spaces	Primarily rectilinear forms but can be punctuated by curves from more elaborate architecture or organic shapes of natural elements	Variety of textures related to different building materials against natural textures in green spaces

Table 3.11-2. Quality of Visual Resources within Typical Rio Grande Valley Land Units (Current Conditions)

	Vividness	Intactness	Unity	Rating
Park/Refuge	Moderate/High	Moderate/High	Moderate/High	Moderate/High
Rural	Moderate	Moderate/High	Moderate/High	Moderate/High
Town/Suburban Development	Moderate	Low/Moderate	Low/Moderate	Low/Moderate
Urban/Industrial	Low to High	Moderate	Low to High	Moderate

- LRGVNWR (Sections O-1, O-2, O-11, O-13, O-16, O-18, O-20, and O-21)
- Roma World Birding Center and Overlook (Section O-1)
- Roma Historic District and NHL (Section O-1)
- Fort Ringgold Historic District/Site 41SR142 (earthworks) (Section O-2)
- Los Ebanos Ferry Crossing (Section O-3)
- Peñitas Cemetery (Section O-4)
- Bentsen Rio Grande Valley State Park (Section O-4)
- La Lomita Historic District (Section O-5)
- Town of Granjeno and Granjeno Cemetery (Section O-5)
- Old Hidalgo Pumphouse Nature Park (Section O-6)
- Louisiana-Rio Grande Canal Company Irrigation System Historic District (Section O-6)
- Toluca Ranch Historic District (Section O-10)
- Sabas Cavazos Cemetery (Section O-13)
- Hope Park (Section O-19)
- Neale House (Section O-19)
- Fort Brown Historic District and NHL (Section O-19)
- City of Brownsville Lincoln Park (Section O-20)
- Stillman House (Section O-20)
- Santa Rosalia Cemetery (Section O-21)
- Audubon Texas Sabal Palm Sanctuary (Section O-21)

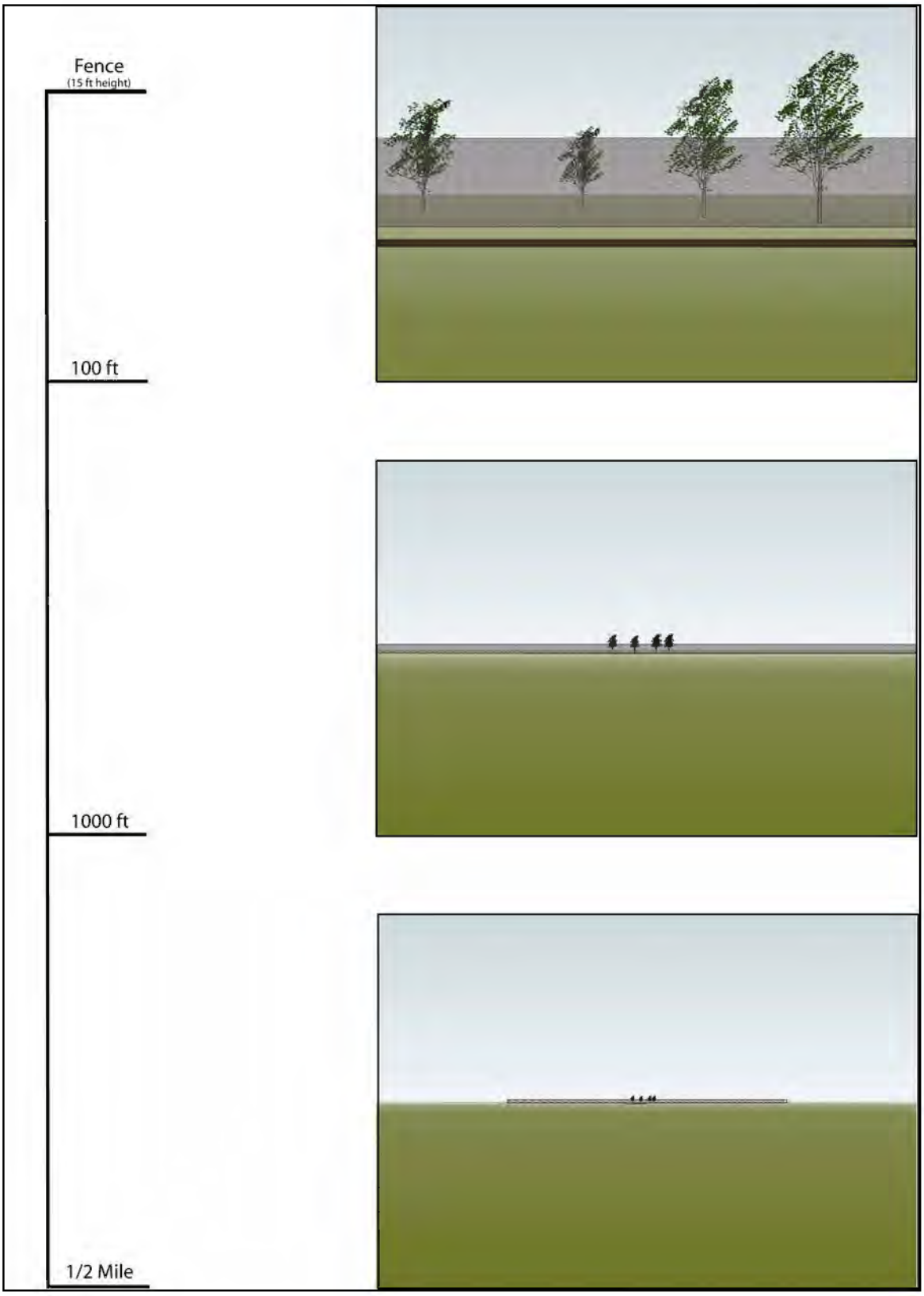


Figure 3.11-5. Schematic Showing Visibility of Fencing at Various Distances

- Berry Farms Cemetery (Section O-21)
- Old Brulay Plantation Historic District and Brulay Cemetery (Section O-21).

Viewer Response. The pool of viewers making up the affected environment includes single individuals, such as rural landowners on whose property the fence would be constructed, and groups of individuals such as residents of the towns of Los Ebanos or Granjeno, business owners within the City of Hidalgo, or recreational users of public access recreation areas. Viewers could also include avocational groups such as local historical societies or local chapters of the National Audubon Society that have interests in preserving the settings of cultural or natural resources. These viewers are likely to have both individual responses to specific resources related to their experiences and emotional connection to those resources, as well as collective responses to visual resources considered to be important on a regional, state, or national level. Although individual viewer responses will be captured where possible from viewer comments, for the purposes of this analysis, the pool of affected viewers will be grouped into the following general categories:

- Residential viewers
  - Rural landowners, primarily farmers and ranchers
  - Town lots and suburban developments
  - Urban residents
- Commercial viewers
  - Rural farms, ranches, and isolated businesses
  - Town-based businesses
  - Urban businesses
- Industrial viewers
  - Rural industries (e.g., pump stations, pipeline monitors)
  - Town and urban
- Recreational viewers
  - Visitors to parks and wildlife refuges
  - Tourists visiting towns and cities
- Special interest viewers
  - Native American tribes
  - Local historical societies
  - Local chapters of conservation societies (e.g., Audubon Society)
  - Park commissions
  - Regulatory agencies (e.g., USFWS, THC)

- Intermittent viewers (view primarily from transportation corridors)
  - Commuters
  - Commercial (e.g., truck drivers, railroad operators, ferry operator).

Within each of these categories, viewer response will also vary depending on the typical duration of exposure to visual resources and the typical distance from which they view those resources. For example, a residential viewer who currently has an unobstructed view of a high-quality resource from their backyard will be impacted differently than a residential viewer who lives several streets away and already has an obstructed view of those resources. Similarly, a viewer that only views a resource such as the LRGVNWR from the highway as they pass through the region will have a different viewer response relative to that resource than a viewer that regularly hikes the trails within the LRGVNWR.

3.12 SOCIOECONOMIC RESOURCES, ENVIRONMENTAL JUSTICE, AND SAFETY

Socioeconomic Resources. Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly characteristics of population and economic activity.

Socioeconomic data in this section are presented at the community and county levels to characterize baseline socioeconomic conditions in the context of regional and state trends. Data have been collected from previously published documents issued by Federal, state, and local agencies; and from state and national databases (e.g., U.S. Census Bureau).

Environmental Justice, Protection of Children, and Safety. There are no Federal regulations specifically addressing socioeconomics; however there is one EO that pertains to environmental justice issues. This EO is included in the socioeconomics section because it relates to various socioeconomic groups and the health effects that could be imposed on them. On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The purpose of the EO is to ensure the 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 groups 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. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the

vicinity of a proposed action. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

EO 13045, *Protection of Children From Environmental Health Risks and Safety Risks,* addresses the Federal policy of protection of children from exposure to disproportionate environmental health and safety risks. This EO established that each agency has a responsibility to ensure that its policies, programs, activities, and standards address risk to children that result from environmental health risks or safety risks.

Route A

CBP proposes to construct, maintain, and operate tactical infrastructure in the southernmost portions of Starr, Hidalgo, and Cameron counties in Texas. Therefore, these counties constitute the study area for the Region of Influence (ROI). The proposed project corridor would cross multiple land use types, including rural, urban, suburban, and agricultural.

Population Growth and Characteristics. Cameron, Hidalgo, and Starr counties, Texas, have a total population of 1.15 million. According to the U.S. Census Bureau, Cameron County has a population of 387,717, and is home to Brownsville, the city with the largest population in the ROI (U.S. Census Bureau 2007a). Hidalgo County has the largest county population of 700,634 in 2006. Starr County at the western end of the ROI is the least populated of the three counties, with an estimated population of 61,780 in 2006 (U.S. Census Bureau 2007a).

The population in the ROI has grown rapidly since 1980, increasing by 31 percent in the 1980s and 39 percent in the 1990s (BEA 2007). Over the past 6 years, some portions of the ROI have been among the fastest growing areas in the United States. Both Hidalgo County and Brownsville in Cameron County had a 23 percent increase in population between 2000 and 2006 (U.S. Census Bureau 2007a). Brownsville has had the 24th highest growth rate of any city with more than 100,000 residents in the United States. **Table 3.12-1** compares population trends in the ROI with the state of Texas between 1980 and 2006. **Table 3.12-2** extrapolates continued trends in the ROI as compared to the rest of Texas through the year 2020.

Cameron County has more than 40 miles of beaches along its eastern side, including the southernmost section of Padre Island. Brownsville, with a 2006 population of 172,437, is the southernmost city in Texas, and is across the Rio Grande from the City of Matamoros, Mexico (U.S. Census Bureau 2007a). Other large cities in the county include Harlingen and San Benito; however, these cities are farther away from the proposed project corridor. Together these three cities account for 68 percent of the county's population. Cameron County also

Table 3.12-1. State and County Population Trends Comparison in the ROI 1980 to 2006

Year	State of Texas	Cameron County	Hidalgo County	Starr County
1980	14,338,208	211,944	286,540	27,666
1985	16,272,722	245,894	341,145	34,274
1990	17,056,755	261,728	387,200	40,805
1995	18,958,751	304,928	487,593	49,598
2000	20,851,820	335,227	569,463	53,597
2006	23,507,783	387,717	700,634	61,780
Change 1980 to 1990	19.0%	23.5%	35.1%	47.5%
Change 1990 to 2000	22.2%	28.1%	47.1%	31.3%
Change 2000 to 2006	12.7%	15.7%	23.0%	15.3%

Source: BEA 2007

Table 3.12-2. County Population Trends, 2000 to 2020

Year	State of Texas	Cameron County	Hidalgo County	Starr County
2000	20,851,820	335,227	569,463	53,597
2005	22,928,508	378,905	678,652	60,479
2010	24,330,612	415,307	752,909	67,528
2015	26,156,715	457,255	854,936	74,905
2020	28,005,788	499,380	959,669	82,205
Projected Change 2000 to 2010	16.7%	23.9%	32.2%	26.0%
Projected Change 2010 to 2020	15.1%	20.2%	27.5%	21.7%

Sources: BEA 2007; U.S. Census Bureau 2006a and 2007b; TSDC 2006

comprises the Brownsville-Harlingen-San Benito Metropolitan Statistical Area (MSA). Five other cities and nine towns, including La Feria, South Padre Island, and Bayview, account for another 10 percent of the county population. The remaining county population (22 percent) lives outside of these cities and towns. The county is home to the University of Texas at Brownsville and Texas Southmost College (U.S. Census Bureau 2007a).

In Hidalgo County, the McAllen-Edinburg-Mission MSA includes the entire county area and is made up of the three principal cities of McAllen, Edinburg, and Mission. McAllen and Mission do not border Mexico, but are less than 10 miles from the Mexican city of Reynosa. Other larger cities in the county include Pharr,

San Juan, and Weslaco. Sixteen other cities have populations ranging from 311 (Granjeno) to 16,287 (Alamo) and make up 15 percent of the county population. The remaining county population lives in outlying rural areas or unincorporated communities and makes up 31 percent of the county's population (U.S. Census Bureau 2007a). The bulk of the county's population is in the southern half of the county within 20 miles of the Mexican border. The county is home to the University of Texas–Pan American (U.S. Census Bureau 2007a).

The largest cities in Starr County are Rio Grande City and Roma. These cities, plus the smaller La Grulla, are at or near the Mexican border, with the Mexican cities of Camargo and Miguel Aleman just a short distance away. Outside of these three cities, the population of 34,945 represents 57 percent of the county population (U.S. Census Bureau 2007a). The largest employer in the county is Starr Produce with 1,500 to 2,000 employees, followed by the county, school districts and Wal-Mart. Rio Grande City is home to the South Texas Community College, and the University of Texas–Pan American has a campus there.

Population projections through 2010 from the Texas state demography office show a 29 percent growth rate and continued growth of 25 percent through the following decade (TSDC 2006). Key factors contributing to the rapid growth include both domestic and international migration related to the expanding availability of job opportunities, an influx of retirees, and an increasing number of children related to the many younger households that have migrated into the area, particularly in Hidalgo County.

While the ROI's population growth has more than doubled since 1980, the ROI's racial and ethnic characteristic remains predominantly Hispanic (U.S. Census Bureau 2007b) (see **Table 3.12-3**). While the non-Hispanic population has increased 8 percent in the past 6 years, the Hispanic population has grown by more than 20 percent over the same period (U.S. Census Bureau 2007b). The proportion of Hispanics in the ROI is 88.7 percent, about 2.5 times the proportion of Hispanics in the state of Texas. Estimates for 2006 indicate that the ROI is 9.9 percent non-Hispanic whites, and only 1.3 percent other races (U.S. Census Bureau 2007b).

Employment and Income

Starr, Hidalgo, and Cameron counties have seen great improvement in the local economy in the past two decades. The total number of jobs in the ROI has increased by 236 percent since 1980, and as of 2005 there were approximately 443,000 jobs in the ROI (BEA 2007).

As a result, the unemployment rate has dropped more than 20 percent, to 7.3 percent (BLS 2007). Per capita income (adjusted for inflation) has increased 18 percent in Starr County, 19 percent in Hidalgo County, and 18 percent in Cameron County.

Table 3.12-3. Racial and Ethnic Characteristics in the ROI, 2000 to 2006

	2000 Census	2006 Estimate	Change 2000 to 2006	Portion of Total Population: 2006 Estimate
State of Texas	**20,851,820**	**23,507,783**	**12.7%**	**100.0%**
Hispanic	6,669,666	8,385,139	25.7%	35.7%
Non-Hispanic Population by Race:				
White Alone	10,986,965	11,351,060	3.3%	48.3%
Black Alone	2,378,444	2,687,401	13.0%	11.4%
Asian	567,528	763,381	34.5%	3.2%
Other Races	249,217	320,802	28.7%	1.4%
Cameron County	**335,227**	**387,717**	**15.7%**	**100.0%**
Hispanic	282,736	333,733	18.0%	86.1%
Non-Hispanic Population by Race:				
White Alone	49,133	49,460	0.7%	12.8%
Black Alone	923	1,311	42.0%	0.3%
Asian	1,568	1,996	27.3%	0.5%
Other Races	867	1,217	40.4%	0.3%
Hidalgo County	**569,463**	**700,634**	**23.0%**	**100.0%**
Hispanic	503,100	626,742	24.6%	89.5%
Non-Hispanic Population by Race:				
White Alone	60,033	63,641	6.0%	9.1%
Black Alone	1,976	3,133	58.6%	0.4%
Asian	3,261	5,126	57.2%	0.7%
Other Races	1,093	1,992	82.3%	0.3%
Starr County	**53,597**	**61,780**	**15.3%**	**100.0%**
Hispanic	52,278	60,193	15.1%	97.4%
Non-Hispanic Population by Race:				
White Alone	1,111	1,294	16.5%	2.1%
Black Alone	8	26	225.0%	0.0%
Asian	141	202	43.3%	0.3%
Other Races	59	65	10.2%	0.1%

Source: U.S. Census Bureau 2007b

Note: Census 2000 population differs slightly in the estimates file as compared to the Census 2000 data.

Several industries have seen substantial growth thus creating local jobs in the ROI. The biggest employers include the private industry, health care, retail and tourism, and local manufacturing. **Table 3.12-4** details employment by industrial sector.

Private employment has increased by 17 percent across the ROI from 2001 to 2005 (as compared to 6 percent for the State of Texas) (BEA 2007).

The health care industry has been a key economic driver in terms of job growth. With the population 65 years and older increasing by 17 percent from 2000 to 2006 and other increases in demands for health services, this sector has grown by nearly 40 percent in the ROI and now makes up 18 percent of the area's jobs (BEA 2007).

Retail trade accounts for 13 percent of the ROI's jobs in 2005, a 12 percent increase since 2001. This expansion has also been important to the regional economy and is due in part to retirees coming into the ROI in the winter and shopping in the border areas. Mexican nationals also cross the border legally to enjoy the broad selection of products at retail outlets in the ROI (BEA 2007, FRDB 2005).

The local manufacturing sector has declined by nearly 30 percent from 2001 to 2005 in terms of employment (BEA 2007). Manufacturing jobs now make up 4 percent of the ROI's economy. However, the border economy benefits from maquiladoras, manufacturing and assembly establishments in Mexico that use U.S. inputs, and then import finished products and sub-assemblies via POE crossings in these counties for further distribution. Related to this are jobs in the wholesale trade, transportation, and warehousing industries, which make up another 6 percent of the ROI's jobs and that have increased by 9 percent since 2001 (BEA 2007).

Other growth sectors are related to the general boom in housing and population. Construction jobs make up 7 percent of the jobs in the 2005 economy in the ROI, increasing in number by 9 percent since 2001 (BEA 2007). Large increases have also been seen in finance and insurance (22 percent growth) and real estate (28 percent growth) (BEA 2007).

Cameron County is the home of South Padre Island, which attracts many tourists over the winter and early spring. Besides vacationers at the beach, Cameron County is also home to nine World Bird Centers (developed by the Texas Department of Parks and Recreation to boost tourism in the area) and the National Audubon Society's (Audubon Texas) Sabal Palms Sanctuary in Brownsville. Tourism-related businesses have experienced an expansion in the past 5 years with growth in the arts, entertainment, and recreation industries at 9 percent and growth in accommodation and food services at 11 percent. These industries now make up about 7 percent of the ROI's jobs (BEA 2007).

Table 3.12-4. Employment by Industrial Sector in the ROI, 2005

Sector or Summary Level	Texas	Percent of Texas Total	Cameron County	Hidalgo County	Starr County	ROI Total	Percent of ROI Total, 2005
TOTAL EMPLOYMENT	***13,088,946***	***100.0***	***156,193***	***267,366***	***20,365***	***403,194***	***100***
Wage and salary employment	**10,269,066**	**78**	**127,700**	**215,817**	**13,768**	**329,749**	**82**
Proprietors employment	**2,819,880**	**22**	**28,493**	**51,549**	**6,597**	**73,445**	**18**
Farm employment	**281,727**	**2**	**1,714**	**3,057**	**1,217**	**3,554**	**1**
Nonfarm employment	**12,807,219**	**98**	**154,479**	**264,309**	**19,148**	**399,640**	**99**
Private employment	**10,979,216**	**84**	**126,595**	**215,653**	**13,832**	**328,416**	**81**
Forestry, fishing, related activities, and other	68,253	1	2,897	6,925	(D)	(D)	n/a
Mining	244,837	2	216	2,282	114	2,384	1
Utilities	51,045	0	322	783	45	1,060	0
Construction	899,172	7	8,748	18,234	1,777	25,205	6
Manufacturing	951,778	7	7,808	9,355	211	16,952	4
Wholesale trade	530,192	4	4,167	8,417	239	12,345	3
Retail Trade	1,417,748	11	19,205	35,027	2,217	52,015	13
Transportation and warehousing	469,746	4	5,628	8,638	491	13,775	3
Information	262,195	2	1,489	3,252	46	4,695	1
Finance and insurance	631,849	5	4,204	8,171	284	12,091	3
Real estate, rental, leasing	524,931	4	4,958	6,574	199	11,333	3
Professional and technical services	828,786	6	4,601	7,678	346	11,933	3

Sector or Summary Level	Texas	Percent of Texas Total	Cameron County	Hidalgo County	Starr County	ROI Total	Percent of ROI Total, 2005
Management of companies and enterprises	69,896	1	323	472	40	755	0
Administrative and waste services	843,486	6	8,327	13,823	626	21,524	5
Educational services	178,321	1	1,479	1,946	103	3,322	1
Health care and social assistance	1,168,205	9	28,803	46,870	4,243	71,430	18
Arts, entertainment, and recreation	200,551	2	1,895	2,225	(D)	(D)	n/a
Accommodation and food services	879,593	7	11,406	17,687	(D)	(D)	n/a
Other services, except public administration	758,632	6	10,119	17,294	1,733	25,680	6
Government and government enterprises	**1,828,003**	**14**	**27,884**	**48,656**	**5,316**	**71,224**	**18**
Federal, civilian	181,107	1	2,352	2,710	396	4,666	1
Military	161,205	1	984	1,530	136	2,378	1
State government	337,769	3	4,021	5,265	132	9,154	2
Local government	1,147,922	9	20,527	39,151	4,652	55,026	14

Source: BEA 2007

Note: D = Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

Large increases in jobs have also been seen in information industry, professional and technical services, management companies and enterprises, and administrative and waste services. These four industries have had growth rates of more than 20 percent and together make up 9 percent of the jobs in the ROI (BEA 2007).

Government employment has increased by 8 percent in the ROI. Federal civilian employment has increased by 7 percent, and these jobs now make up 1 percent of the area's employment (BEA 2007). State employment over the period has increased by only 1 percent while local government employment has seen the largest increase by 10 percent (BEA 2007). As a portion of total jobs, local government makes up 14 percent of the total economy, and local school districts and other local government entities are among the biggest employers in these counties (BEA 2007).

Although the economy has improved in the ROI, the area remains relatively poor. The unemployment rate in the ROI is high (7.3 percent) when compared to the Texas unemployment rate of 4.9 percent (BLS 2007). **Table 3.12-5** shows how the unemployment rate in the ROI compares with the state. The 2005 per capita income of $16,490 for the ROI is about half of the per capita income of the rest of the State of Texas ($32,460) (BEA 2007).

Table 3.12-5. State and ROI Labor Force and Unemployment Rate Averages

	2000	2003	2004	2005	2006
State of Texas					
Labor Force	10,347,847	10,999,132	11,127,293	11,282,845	11,487,496
Unemployment Rate	4.4%	6.7%	6.0%	5.4%	4.9%
Cameron County					
Labor Force	127,011	143,231	143,439	142,204	144,709
Unemployment Rate	7.0%	9.6%	8.8%	7.6%	6.6%
Hidalgo County					
Labor Force	210,984	247,486	257,511	264,251	269,586
Unemployment Rate	9.2%	10.4%	9.1%	7.9%	7.4%
Starr County					
Labor Force	17,722	21,308	21,625	21,471	21,758
Unemployment Rate	16.8%	15.9%	14.5%	13.0%	11.7%

Source: BLS 2007

According to the U.S. Census Bureau's Small Area Income and Poverty Estimates program, the poverty rate among all individuals has dropped in the area from 44.8 percent in 1989 to 30.3 percent in 2004. However, **Table 3.12-6**

shows the ROI's poverty rate is still almost twice the 16.2 percent poverty rate for the State of Texas (U.S. Census Bureau 2006b).

Table 3.12-6. Poverty Rates and Median Income

Geographic Area	Overall Poverty Rate	Child Poverty Rate (Under 18)	Median Income (2004 dollars)
State of Texas	16.2%	22.7%	$41,645
Cameron County	29.4%	40.4%	$26,719
Hidalgo County	30.5%	41.2%	$26,375
Starr County	34.8%	46.6%	$19,775

Source: U.S. Census Bureau 2006b

Agriculture

Higher poverty rates in the area are attributed in part to the agriculture industry. Moreover, the counties in the vicinity of the proposed project corridor have a very low median income when compared to the State of Texas. Although nonfarm private sector employment has increased by nearly 17 percent, farm employment has declined by 12 percent from 2001 to 2005 across these three counties, now accounting for slightly more than 1 percent of the area's 2005 jobs (BEA 2007). Though Texas might be famous for cattle, farm income from crops far outweighs income from livestock in Cameron and Hidalgo counties. In the ROI, crops made up 73 percent of the 2005 farm income as compared to 12 percent for livestock and related products (BEA 2007). In the 2002 Agricultural Census, 41 percent of the farms raised cattle in the ROI, and 56 percent of the land was identified as cropland. Sugar cane is a major crop in the proposed project corridor (USDA 2004). **Table 3.12-7** characterizes local farms.

Selected Public Services

Public Education. School enrollment and the demographics of school enrollment generally match those of the population of the three counties. In Cameron County, 10 school districts provide educational services to 98,010 students in 130 schools in school year 2007 (TEA 2006a). In Hidalgo County, 20 school districts, including five charter school districts, provide educational services to 190,501 students in school year 2007. In Starr County, three school districts provide educational services to 16,645 students in 23 schools in school year 2007 (TEA 2006a). Similar to demographics of the area, the demographic characteristics of the students enrolled in these schools are predominantly Hispanic and predominantly low income (TEA 2006b). **Table 3.12-8** provides detailed ethnic information by county and school district in the ROI.

Table 3.12-7. Characteristics of Local Agriculture, 2002

Description	Texas Counties			ROI Total
	Cameron	Hidalgo	Starr	
Number of Farms	1,120	2,104	870	4,094
Acres in Farms	350,437	593,158	570,430	1,514,025
Total Cropland (acres)	253,571	405,094	193,688	852,353
Harvested Cropland (acres)	151,923	277,406	41,759	471,088
Farms by Size, 2002				
1 to 9 Acres	191	393	5	589
10 to 49 Acres	470	866	50	1,386
50 to 179 Acres	184	401	281	866
180 Acres or more	275	444	534	1253
Farms by Value of Sales, 2002				
Less than $5,000	603	958	573	2,134
$5,000 to $49,999	294	814	263	1,371
$50,000 or more	223	332	34	589
Principal Occupation, 2002				
Farming	666	1,115	492	2,273
Other	454	989	378	1,821
Hired Farm Labor				
Farms with hired workers	337	671	341	1,349
Farms with 1 worker	201	295	103	599
Farms with 2 or more workers	136	376	238	750
Select Livestock, 2002				
Farms with Cattle/Calves	402	614	671	1,687

Source: USDA 2004

Law Enforcement. Law enforcement and other community services are provided by 40 law enforcement agencies in the ROI. Cameron County is served by 16 different agencies with 628 commissioned officers. Hidalgo County is served by 21 different agencies with 1,052 commissioned officers. Starr County is served by 3 different agencies with 77 commissioned officers (TDPS 2006). **Table 3.12-9** shows the breakdown of non-Federal law enforcement by county and agency.

Table 3.12-8. Ethnic and Racial Distribution by County and Independent School District (ISD) in the ROI

School District	School Year 2007 Enrollment	Total Schools	Percent Hispanic 2004	Percent White 2004	Percent Other Races 2004	Percent Economically Disadvantaged 2004
Cameron County						
Brownsville ISD	48,334	49	98.0%	2.0%	0.0%	93.1%
Harlingen CISD	17,684	24	88.0%	11.0%	1.0%	71.8%
La Feria ISD	3,186	8	91.0%	9.0%	0.0%	79.2%
Los Fresnos CISD	8,935	10	93.0%	6.0%	1.0%	85.5%
Point Isabel ISD	2,597	4	85.0%	15.0%	0.0%	88.3%
Rio Hondo ISD	2,292	5	95.0%	5.0%	0.0%	81.9%
San Benito CISD	10,694	18	98.0%	2.0%	0.0%	83.9%
Santa Maria ISD	633	5	100.0%	0.0%	0.0%	97.8%
Santa Rosa ISD	1,195	3	97.0%	3.0%	0.0%	96.8%
South Texas ISD	2,460	4	76.0%	16.0%	8.0%	53.1%
Hidalgo County						
Donna ISD	13,363	17	99.0%	1.0%	0.0%	91.3%
Edcouch-Elsa ISD	5,598	9	99.0%	0.0%	1.0%	90.6%
Edinburg CISD	28,772	36	97.0%	3.0%	0.0%	85.2%
Hidalgo ISD	3,331	6	100.0%	0.0%	0.0%	92.2%
Idea Academy	2,073	1	94.0%	6.0%	0.0%	82.2%
La Joya ISD	25,130	27	100.0%	0.0%	0.0%	90.5%
La Villa ISD	615	4	100.0%	0.0%	0.0%	89.8%
McAllen ISD	24,570	32	89.0%	8.0%	3.0%	69.5%
Mercedes ISD	5,279	10	99.0%	1.0%	0.0%	92.1%
Mid-Valley Academy	252	2	94.0%	6.0%	0.0%	84.2%
Mission CISD	15,462	20	98.0%	2.0%	0.0%	84.3%
Monte Alto ISD	603	2	96.0%	3.0%	1.0%	88.6%
One Stop Multiservice Charter School	5,536	3	97.0%	3.0%	0.0%	92.8%
Pharr-San Juan-Alamo ISD	28,868	36	99.0%	1.0%	0.0%	90.0%
Progreso ISD	1,989	5	100.0%	0.0%	0.0%	94.2%
Sharyland ISD	8,208	9	85.0%	13.0%	2.0%	52.6%
Technology Education Charter High	451	1	97.0%	3.0%	0.0%	85.8%
Valley View ISD	4,099	5	100.0%	0.0%	0.0%	94.1%
Vanguard Academy	369	1	93.0%	7.0%	0.0%	87.4%
Weslaco ISD	15,933	20	97.0%	2.0%	1.0%	86.5%
Starr County						
Rio Grande City CISD	9,969	11	100.0%	0.0%	0.0%	84.5%
Roma ISD	6,417	10	100.0%	0.0%	0.0%	89.2%
San Isidro ISD	259	2	95.0%	5.0%	0.0%	81.1%

Source: TEA 2006a, TEA 2006b

Table 3.12-9. Law Enforcement Agencies and Personnel in the ROI [*]

	Commissioned	Civilian	Total
Cameron County			
Cameron County Sheriff's Office	94	258	352
Local Police Departments (15)	534	234	768
Total	**628**	**492**	**1,120**
Hidalgo County			
Hidalgo County Sheriff's Office	217	435	652
Local Police Departments (20)	835	346	1,181
Total	**1,052**	**781**	**1,833**
Starr County			
Starr County Sheriff's Office	33	57	90
Local Police Departments (2)	34	14	58
Total	**77**	**71**	**148**

Source: TDPS 2006
Note: [*] Does not include Federal law enforcement.

Environmental Justice

The CEQ oversees the Federal government's compliance with EO 12898 and the NEPA process. Based on CEQ guidance, this EIS uses the following three-step methodology to evaluate potential environmental justice impacts:

- Identify potential environmental justice populations located in the project area or that could otherwise be affected by the Proposed Action
- Identify the potential human health and environmental effects of the proposed alternatives
- Assess whether there are potential significant adverse effects on minority and low-income populations that would be disproportionately high and adverse.

A demographic analysis assessed the presence of a potential environmental justice prescribed population living near the project area. Census 2000 information is available for racial, ethnic, and economic characteristics at the census tract level. The census tracts in which the proposed project corridor would be located were identified. All are just north of the Rio Grande. Some of these census tracts have a substantial amount of land and population in areas removed from the proposed project corridor; however, these census tracts have demographic characteristics similar to those of the persons living at or near the proposed construction activities. In some cases, the population in the census tract closest to the project area would seem to be lower in income than the population in the same census tract farther away from the river. **Table 3.12-10** identifies the minority populations associated with the project area and its associated composition.

Table 3.12-10. Racial and Ethnic Population Composition in Geographic Comparison Areas

Geographic Area by Census Tract	Percentage of Total Population						
	White and not Hispanic or Latino (A)	Asian and not Hispanic or Latino (B)	Black or African American and not Hispanic or Latino (C)	Other Races, Two or More Races, and not Hispanic or Latino (D)	Hispanic or Latino Ethnicity (E)	Total Racial and Ethnic Minorities (B) + (C) + (D) + (E)	Difference in Percent Minority Population Above/Below the State Average
United States	69.1%	3.6%	12.0%	2.8%	12.5%	30.9%	-16.7%
Texas	52.4%	2.6%	11.3%	1.7%	32.0%	47.6%	--
Cameron County	14.5%	0.4%	0.3%	0.3%	84.5%	85.5%	37.9%
Census Tracts Included in Project Area	**7.6%**	**0.0%**	**0.0%**	**0.1%**	**92.2%**	**92.3%**	**44.8%**
Census Tracts Not Included in Project	15.3%	0.5%	0.4%	0.3%	83.5%	84.7%	37.1%
Hidalgo County	10.4%	0.5%	0.4%	0.3%	88.4%	89.6%	42.0%
Census Tracts Included in Project Area	**6.3%**	**0.0%**	**0.1%**	**0.1%**	**93.5%**	**93.7%**	**46.1%**
Census Tracts Not Included in Project	10.7%	0.6%	0.4%	0.3%	88.1%	89.3%	41.8%

Geographic Area by Census Tract	Percentage of Total Population						Difference in Percent Minority Population Above/Below the State Average
	White and not Hispanic or Latino (A)	Asian and not Hispanic or Latino (B)	Black or African American and not Hispanic or Latino (C)	Other Races, Two or More Races, and not Hispanic or Latino (D)	Hispanic or Latino Ethnicity (E)	Total Racial and Ethnic Minorities (B) + (C) + (D) + (E)	
Starr County	1.6%	0.3%	0.0%	0.0%	98.1%	98.4%	50.8%
Census Tracts Included in Project Area	**2.0%**	**0.0%**	**0.0%**	**0.0%**	**98.0%**	**98.0%**	**50.4%**
Census Tracts Not Included in Project	1.4%	0.4%	0.0%	0.0%	98.2%	98.6%	51.0%
ROI	11.3%	0.5%	0.3%	0.3%	87.6%	88.7%	41.1%

Source: U.S. Census Bureau 2002a

As shown in **Table 3.12-11**, each census tract has a potential environmental justice community based upon its racial and ethnic characteristic of being more than 50 percent minority and also a substantially higher percentage than the general population in both Texas and the United States. Each census tract has a potential environmental justice community based upon the presence of a large proportion of persons with incomes at or below the poverty level and based upon this proportion being meaningfully greater than the proportion of persons with incomes at or below the poverty rate for the general populations in both the State of Texas and the United States. Based upon Census 2000 information, the population living in each of these census tracts meet these two criteria as a potential environmental justice population.

Table 3.12-11. Census Tract Detail of Demographic Characteristics Relevant to Environmental Justice

Geographic Area	Proportion of Total Population: Racial and Ethnic Minorities	Difference in Proportion of Minority Population above the State Proportion	Proportion of Total Population: Below Poverty Level	Difference in the Proportion of Low Income Population above the State Proportion
Cameron County Census Tracts				
119.03	98.0%	50.4%	46.5%	31.2%
121	79.1%	31.5%	35.4%	20.1%
125.05	95.4%	47.8%	34.5%	19.2%
125.07	96.4%	48.8%	42.0%	26.6%
125.08	89.3%	41.7%	29.8%	14.4%
128	97.4%	49.8%	33.5%	18.2%
133.07	100.0%	52.4%	55.2%	39.8%
140.01	93.4%	45.8%	57.6%	42.2%
141	96.9%	49.3%	32.4%	17.1%
Hidalgo County Census Tracts				
213.01	98.1%	50.5%	43.8%	28.4%
228	96.2%	48.6%	45.6%	30.2%
242.01	98.6%	51.0%	52.1%	36.7%
242.02	87.3%	39.7%	37.1%	21.7%
Starr County Census Tracts				
9501.02	97.8%	50.2%	42.3%	26.9%
9501.03	97.9%	50.3%	53.9%	38.6%
9502.02	98.4%	50.8%	45.7%	30.4%

Source: U.S. Census Bureau 2002a and 2002b

Route B

The affected environment for socioeconomic resources, environmental justice, and safety in the ROI looks at resources at the census tract, community, county, and state level. Therefore, the ROI for Route B would be the same for Route A for socioeconomic, environmental justice, and safety resources.

3.13 UTILITIES AND INFRASTRUCTURE

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as "urban" or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. Below is a brief overview of each infrastructure component that could be affected by each alternative.

Route A

Water Supply Systems. The principal source of water for irrigation and municipal water in the proposed project corridor is the Rio Grande. Approximately 74,000 acres of agricultural lands are irrigated in the Rio Grande Valley (Fipps and Pope 1998). The irrigation system is characterized by approximately 642 miles of canals, 10 miles of pipelines, and 45 miles of resacas (i.e., former channels or oxbows of the Rio Grande) (Fipps and Pope 1998). Pumps and pump houses are also part of the irrigation system.

Municipal water systems in the Rio Grande Valley take raw water from the water distribution networks of irrigation districts. In Hidalgo and Cameron counties, 39 municipal treatment plants take raw water from 14 irrigation districts. These municipal supply networks consist of 92 miles of lined canals, 168 miles of unlined canals, 25 miles of pipelines, 377 acres of resacas, and 3,845 acres of reservoirs (Fipps 2004). Known water supply infrastructure that occurs in the proposed project corridor is presented in **Table 3.13-1**.

Drainage Systems. Agricultural irrigation return and storm water runoff in the area of the proposed project corridor in Hidalgo and Cameron Counties drain into the Arroyo Colorado and eventually into the Laguna Madre (TSSWCB undated). Irrigation and storm water runoff is collected in drainage ditches and resacas (USFWS 1991). Numerous agricultural and storm water drainages occur within the proposed project corridor. Known drainage infrastructure that occurs in the proposed project corridor is presented in **Table 3.13-1**.

Municipal Sanitary Sewer Systems. Some municipal sanitary sewer systems in the proposed project corridor discharge into the Rio Grande. Known municipal sanitary sewer infrastructure within the proposed project corridor includes outfall pipes (see **Table 3.13-1**).

Table 3.13-1. Known Water Supply, Drainage, and Sanitary Sewer Infrastructure Within the Proposed Project Corridor

Proposed Tactical Infrastructure Section	Infrastructure
O-1	Roma intake pipes Roma sewer outfall pipes 1 private water pump
O-2	7 private water pumps
O-4	Peñitas pump house
O-6	Runs along Pharr San Juan Main Canal Old Hidalgo pump house intakes Mac Pump intakes McAllen pump house intakes
O-7	Runs along Donna Canal Pipelines
O-9	8 irrigation stand pipes Donna pump station 2 irrigation pumps Pipelines Section would end before the settling basin
O-11	Section would start at Santa Maria canal La Feria pump house La Feria Canal Irrigation pump and stand pipe Pipelines
O-12	Harlingen Canal
O-13	San Benito Canal
O-14	IBWC pump
O-16	Cameron County irrigation pump Private irrigation pumps
O-17	Irrigation stand pipes Irrigation pumps
O-18	Section would start at Los Fresnos Canal
O-19	Pump houses Pumps
O-21	El Jardin Canal El Jardin water pump for Brownsville

Solid Waste Management. Solid waste management primarily relates to the availability of landfills to support a population's residential, commercial, and industrial needs. Alternative means of waste disposal might involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and limited to, disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metals, papers, asphalt, and concrete) reduce reliance on landfills for disposal.

As of 2005, there were three active municipal landfills in Starr County, three active municipal landfills in Hidalgo County, and one active municipal landfill in Cameron County. The remaining capacity in terms of years for these landfills was determined in 2005, based on compaction rate and the amount disposed in 2005 (TCEQ 2006). The remaining capacity of these landfills as of 2005 is reported in **Table 3.13-2**.

Table 3.13-2. Remaining Capacity of Local Municipal Landfills as of 2005

Landfill Name	County	Remaining Capacity (Years)
City of Roma	Starr	30
City of La Grulla	Starr	109.67
Starr County Landfill	Starr	0.70
Edinburg Regional Sanitary Landfill	Hidalgo	21.70
Peñitas Landfill	Hidalgo	3.58
BFI Rio Grande Landfill	Hidalgo	5.30
Brownsville	Cameron	80.20

Source: TCEQ 2006

Note: Remaining capacity based on rate of compaction and amount disposed in 2005.

Transportation Systems. The Texas Department of Transportation (TDOT), in cooperation with local and regional officials, is responsible for planning, designing, building, operating, and maintaining the state's transportation system. Highway systems in the vicinity of the proposed project corridor include SR 83, State Highway 374, U.S. Highway 281, State Highway 415, SR 77, State Highway 48, and State Highway 4. In addition, there are numerous municipal city roads, farm roads, county roads, levee roads, and unpaved roads.

Electrical and Natural Gas Systems. Electrical transmission lines and natural gas distribution lines that are part of the electrical and natural gas systems for the Rio Grande Valley are in the vicinity of the proposed project corridor. The proposed tactical infrastructure sections in which utilities infrastructure occur are presented in **Table 3.13-3**.

Table 3.13-3. Location of Utility Infrastructure Located Within the Proposed Project Corridor

Fence Section	Infrastructure
O-4	1 Electric Transmission Line; 1 Gas Distribution Line
O-6	1 Electric Transmission Line; 3 Gas Distribution Lines
O-8	1 Electric Transmission Line; 2 Gas Distribution Lines
O-18	1 Electric Transmission Line, Overhead Electrical Power Line

Route B

Water Supply Systems. The general description of irrigation and municipal water supply systems is the same for Route B as it is for Route A. The known water supply infrastructure in or near the proposed project corridor for Route B is the same as Route A.

Drainage Systems. The general description of irrigation and storm water drainage systems is the same for Route B as it is for Route A. The known drainage infrastructure in or near the proposed project corridor for Route B is the same as Route A.

Municipal Sanitary Sewer Systems. The known sanitary sewer infrastructure in or near the proposed project corridor for Route B is the same as Route A.

Solid Waste Management. The description of solid waste management is the same for Route B as it is for Route A.

Transportation Systems. The description for transportation systems is the same for Route A as it is for Route B.

Electrical and Natural Gas Systems. The only difference between electrical transmission lines and natural gas distribution lines within the proposed project corridors of Route A and Route B is in Section O-7. Section O-7 of Route A has no electric transmission or natural gas distribution lines. Section O-7 of Route B has one electric transmission line and one gas distribution line.

3.14 HAZARDOUS MATERIALS AND WASTE

Hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR.

Hazardous substances are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at 42 U.S.C. 9601(14), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the TSCA. The definition of hazardous substance includes (1) any substance designated pursuant to 33 U.S.C. 1321 (b)(2)(A); (2) any element, compound, mixture, solution, or substance designated pursuant to 42 U.S.C. 9602; (3) any hazardous waste; (4) any toxic pollutant listed under 33 U.S.C. 1317(a); (5) any hazardous air pollutant listed under section 112 of the CAA (42 U.S.C. 7412); and (6) any imminently hazardous chemical substance or mixture with respect to which the Administrator of USEPA has taken action pursuant to 15 U.S.C. 2606. The term hazardous substance does not include petroleum products and natural gas.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) at 42 U.S.C. 6903(5), as amended by the Hazardous and Solid Waste Amendments, as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR 273. Four types of waste are currently covered under the universal waste regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps.

Toxic substances are regulated under TSCA (15 U.S.C. 2601 *et seq.*), which was enacted by Congress to give USEPA the ability to track the approximately 75,000 industrial chemicals currently produced or imported into the United States. USEPA screens these chemicals and can require reporting or testing of those that might pose an environmental or human-health hazard. USEPA can ban the manufacture and import of those chemicals that pose an unreasonable risk. Asbestos and polychlorinated biphenyls (PCBs) are among the chemicals regulated by TSCA.

In general, hazardous materials, hazardous substances, and hazardous wastes include elements, compounds, mixtures, solutions, and substances which, when released into the environment or otherwise improperly managed, could present substantial danger to the public health, welfare, or the environment.

Evaluation of hazardous materials and wastes focuses on underground storage tanks (USTs); aboveground storage tanks (ASTs); and the storage, transport, handling, and use of pesticides, herbicides, fuels, solvents, oils, lubricants,

asbestos containing material (ACM), and lead-based paint (LBP). Evaluation might also extend to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well-being of wildlife species, botanical habitats, soil systems, and water resources. In the event of release of hazardous materials or wastes, the extent of contamination varies based on the type of soil, topography, and water resources.

Route A

As discussed in **Section 3.4**, the area surrounding the proposed impact area is predominantly used for agriculture. Therefore, pesticides and herbicides are currently used. It is assumed that all such substances are applied according to Federal, state, and local standards and regulations. There are no known waste storage or disposal sites within the proposed project corridor (DTSC 2007). ASTs have been observed in Section O-2. There are also private buildings within the proposed project corridor. Depending on the construction date, these buildings could contain ACM or LBP. A Phase I Environmental Site Assessment would be conducted in conjunction with any real estate transactions to determine and quantify amounts of ACM or LBP.

The TCEQ is authorized by USEPA to regulate and enforce the provisions of RCRA. As such, TCEQ regulates the treatment, storage, transport, and disposal of hazardous waste. TCEQ also administers some site clean-up programs. There are no known hazardous waste sites within the proposed project corridor.

Route B

The affected environment for hazardous materials and wastes under Route B is the same as presented above for Route A.

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SECTION 4

Environmental Consequences

4. ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This section presents an analysis of the potential direct and indirect impacts each alternative would have on the affected environment as characterized in **Section 3** and by the data in the technical appendices. Each alternative was evaluated for its potential to affect physical, biological, and socioeconomic resources.

The following discussion elaborates on the nature of the characteristics that might relate to various impacts:

- *Short-term or long-term*. These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.
- *Direct or indirect*. A direct impact is caused by an alternative and occurs contemporaneously at or near the location of the action. An indirect impact is caused by an alternative and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action. For example, a direct impact of erosion on a stream might include sediment-laden waters in the vicinity of the action, whereas an indirect impact of the same erosion might lead to lack of spawning and result in lowered reproduction rates of indigenous fish downstream.
- *Negligible, minor, moderate, or major*. These relative terms are used to characterize the magnitude or intensity of an impact. Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor impact is slight, but detectable. A moderate impact is readily apparent. A major impact is one that is severely adverse or exceptionally beneficial.
- *Significance.* Significant impacts are those that, in their context and due to their intensity (severity), meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27). This EIS meets the agencies' requirements to prepare a detailed statement on major Federal actions significantly affecting the quality of the human environment (42 U.S.C. 102.2(c)).
- *Adverse or beneficial*. An adverse impact is one having adverse, unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.

- *Context*. The context of an impact can be localized or more widespread (e.g., regional).
- *Intensity.* The intensity of an impact is determined through consideration of several factors, including whether an alternative might have an adverse impact on the unique characteristics of an area (e.g., historical resources, ecologically critical areas), public health or safety, or endangered or threatened species or designated critical habitat. Impacts are also considered in terms of their potential for violation of Federal, state, or local environmental law; their controversial nature; the degree of uncertainty or unknown impacts, or unique or unknown risks; if there are precedent-setting impacts; and their cumulative impact (see **Section 5**).

4.2 AIR QUALITY

Environmental consequences on local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions compared to existing conditions and ambient air quality. Specifically, the impact in NAAQS "attainment" areas would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of 10 percent or more in an affected AQCR emissions inventory
- Exceed any Evaluation Criteria established by a SIP.

4.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, USBP would not construct or maintain new tactical infrastructure along the 21 sections in the USBP Rio Grande Valley Sector and operational activities would remain unchanged. Therefore, the No Action Alternative would not create any additional impacts on air quality beyond those that are already occurring, as described in **Section 3.2**.

4.2.2 Alternative 2: Routes A and B

Route A

Regulated pollutant emissions associated with Route A would not contribute to or affect local or regional attainment status with the NAAQS. Route A activities would generate air pollutant emissions from the proposed construction projects,

maintenance activities, and the operation of generators to supply power to construction equipment. BMPs would include a Dust Control Plan.

Proposed Construction Projects. Minor, short-term, adverse impacts would be expected from construction emissions and land disturbance associated with Route A. The proposed project would result in impacts on regional air quality during construction activities, primarily from site-disturbing activities and operation of construction equipment.

The construction projects would generate total suspended particulate and PM_{10} emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment. These emissions would be of a temporary nature. The NAAQS emissions factors and estimates were generated based on guidance provided in USEPA AP-42, Volume II, *Mobile Sources*. Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 Section 11.9. The emissions for CO_2 were calculated using emission coefficients reported by the Energy Information Administration (EIA 2007).

For purposes of this analysis, the project duration and affected project site area that would be disturbed (presented in **Section 2**) were used to estimate fugitive dust and all other pollutant emissions. The construction emissions presented in **Table 4.2-1** include the estimated annual construction PM_{10} emissions associated with Route A. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. However, the impacts would be temporary, and would fall off rapidly with distance from the proposed construction sites. As seen in **Table 4.2-1**, the emissions of NAAQS pollutant is high and could contribute to the deterioration of the air quality in the region. However, the impact of this alternative on air quality does not exceed 10 percent of the regional values.

The construction emissions presented in **Table 4.2-1** include the estimated annual emissions from construction equipment exhaust associated with Route A in Calendar Year (CY) 2008 and operation of agricultural mowers and diesel-powered generators. Early phases of construction projects involve heavier diesel equipment and earthmoving, resulting in higher NO_x and PM_{10} emissions. Later phases of construction projects involve more light gasoline equipment and surface coating, resulting in more CO and VOC emissions. However, the

Table 4.2-1. Estimates of Total Proposed Construction Emissions from Route A in Tons Per Year

Description	NO_x	VOC	CO	CO_2	SO_x	PM_{10}
Construction Emissions	470.443	70.127	549.588	55.00	9.409	662.118
Maintenance Emissions	0.042	0.005	0.021	0.20	0.010	0.005
Generator Emissions	22.777	1.859	4.907	100.0	1.498	1.601
Total Alternative 2 Route A Emissions	**493.263**	**71.992**	**554.516**	**155.200**	**10.917**	**663.724**
Federal *de minimis* Threshold	NA	NA	NA	NA	NA	NA
BLIAQCR Regional Emissions	44,137	73,577	317,422	995,000	2,940	132,788
Percent of BLIAQCR Regional Emissions	**1.118**	**0.098**	**0.175**	**0.016**	**0.369**	**.499**

Source: USEPA 2007b

impacts would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts.

Maintenance Activities. The pedestrian fence and patrol road would require mowing approximately two times per year to maintain vegetation height and allow enhanced visibility and security. It was assumed that two 40-horsepower (hp) agricultural mowers would mow the vegetation in the project area approximately 14 days per year. No adverse impacts on local or regional air quality are anticipated from these future maintenance activities.

Generators. Route A activities would require six diesel-powered generators to power construction equipment. It is assumed that these generators would be approximately 75 hp and operate approximately 8 hours per day for 190 working days. The emissions factors and estimates were generated based on guidance provided in USEPA AP-42, Volume I, *Stationary Internal Combustion Sources*. According to TAC Title 30, internal combustion engines greater than 500 brake horsepower require an operating permit (TAC 2007). Therefore, the generators that would be associated with Route A activities are exempt from requiring an operating permit from the TCEQ.

Greenhouse Gases. USEPA has estimated that the total greenhouse emissions for Texas was 189 million metric tons of carbon equivalent (MMTCE) in 1999. Of this, of this an estimated 995,000 tons of CO_2 are associated with the BLIAQCR regions. Therefore construction emissions of CO_2 represent less than 10 percent of the regional emissions (USEPA 2007c).

After construction is completed, normal border patrol schedules would continue. The vehicles used for surveillance of the existing border area are generating CO_2 that is accounted for in the Texas greenhouse gas inventory. No new sources of CO_2 would result from Route A. Therefore, no net increase of greenhouse emissions would be expected. Emissions factors, calculations, and estimates of emissions are shown in detail in **Appendix K**.

Summary. **Table 4.2-1** illustrates that the emissions from Route A would be much less than 10 percent of the emissions inventory for BLIAQCR (USEPA 2007b). The estimated annual CO_2 emissions of power plants within the BLIAQCR is 775,000 tons while vehicles add another estimated 220,000 tons. Therefore, no adverse impacts on regional or local air quality are anticipated from implementation of Route A.

According to 40 CFR Part 81, there are no Class I areas in the vicinity of the Route A. Therefore, Federal PSD regulations would not apply.

In summary, no significant adverse impacts on regional or local air quality are anticipated from implementation of Route A. A conformity determination in accordance with 40 CFR 93-153(1) is not required, as the total of direct and indirect emissions from Route A would not be regionally significant (e.g., the emissions are not greater than 10 percent of the BLIAQCR emissions inventory). Emissions factors, calculations, and estimates of emissions for Alternative 2 Route A are shown in detail in **Appendix K**.

Route B

The air quality impacts associated with Route B would be expected to be the same as those depicted for Route A. This is because the overall length of the proposed project corridors and construction emissions for Route A and Route B would be similar. Therefore, the analysis presented for Route A is applicable to Route B. **Table 4.2-2** illustrates that the emissions from Route B would be less than 10 percent of the BLIAQCR inventory (USEPA 2007b). Emissions factors, calculations, and estimates of emissions for Alternative 2 Route B are shown in detail in **Appendix K**.

4.2.3 Alternative 3: Secure Fence Act Alignment Alternative

Alternative 3 would generate air pollutant emissions from the proposed construction projects, maintenance activities, and the operation of generators to supply power to construction equipment.

Proposed Construction Projects. Major short-term adverse impacts would be expected from construction emissions and land disturbance as a result of implementing Alternative 3. The proposed project would result in impacts on regional air quality during construction activities, primarily from site-disturbing activities and operation of construction equipment.

Table 4.2-2. Estimates of Total Proposed Construction Emissions from Route B in Tons Per Year

Description	NO_x	VOC	CO	CO_2	SO_x	PM_{10}
Construction Emissions	470.443	70.127	549.588	55.00	9.409	662.118
Maintenance Emissions	0.042	0.005	0.021	0.20	0.010	0.005
Generator Emissions	22.777	1.859	4.907	100.0	1.498	1.601
Total Alternative 2 Route B Emissions	**493.263**	**71.992**	**554.516**	**155.200**	**10.917**	**663.724**
Federal *de minimis* Threshold	NA	NA	NA	NA	NA	NA
BLIAQCR Regional Emissions	44,137	73,577	317,422	995,000	2,940	132,788
Percent of BLIAQCR Regional Emissions	**1.118**	**0.098**	**0.175**	**0.016**	**0.369**	**0.499**

Source: USEPA 2007b

The construction projects would generate total suspended particulate and PM_{10} emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment. These emissions would be of a temporary nature. The emissions factors and estimates were generated based on guidance provided in USEPA AP-42, Volume II, *Mobile Sources*. Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 Section 11.9.

For purposes of this analysis, the project duration and affected project site area that would be disturbed (presented in **Section 2**) was used to estimate fugitive dust and all other criteria pollutant emissions. The construction emissions presented in **Table 4.2-3** include the estimated annual construction PM_{10} emissions associated with Alternative 3. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. However, the impacts would be temporary, and would fall off rapidly with distance from the proposed construction sites.

Table 4.2-3. Estimates of Total Proposed Construction Emissions from Alternative 3 in Tons Per Year

Description	NO_x	VOC	CO	CO_2	SO_x	PM_{10}
Construction Emissions	2,927.48	436.388	3,419.94	137.50	58.550	1,713.357
Maintenance Emissions	0.127	0.015	0.064	2.0	0.030	0.015
Generator Emissions	22.777	1.859	4.907	100.0	1.498	1.601
Total Alternative 3 Emissions	**2,950.39**	**438.26**	**3,424.958**	**239.50**	**60.078**	**1,714.973**
Federal *de minimis* Threshold	NA	NA	NA	NA	NA	NA
BLIAQCR Regional Emissions	44,137	73,577	317,422	995,000	2,940	132,788
Percent of BLIAQCR Regional Emissions	**6.68**	**0.596**	**1.079**	**0.024**	**2.04**	**1.292**

Source: USEPA 2007b

Specific information describing the types of construction equipment required for a specific task, the hours the equipment is operated, and the operating conditions vary widely from project to project. For the purposes of this analysis, these parameters were estimated using established methodologies for construction and experience with similar types of construction projects. Combustion by-product emissions from construction equipment exhausts were estimated using USEPA's AP-42 emissions factors for heavy-duty, diesel-powered construction equipment.

The construction emissions presented in **Table 4.2-3** include the estimated annual emissions from construction equipment exhaust associated with Alternative 3 in CY 2008 and operation of agricultural mowers and diesel-powered generators. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. Early phases of construction projects involve heavier diesel equipment and earthmoving, resulting in higher NO_x and PM_{10} emissions. Later phases of construction projects involve more light gasoline equipment and surface coating, resulting in more CO and VOC emissions. However, the impacts would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts.

Maintenance Activities. The pedestrian fence and patrol road would require mowing approximately two times per year to maintain vegetation height and allow enhanced visibility and security. It was assumed that six 40-hp agricultural mowers would mow the vegetation in the project area approximately 14 days per year. Emissions from these agricultural mowers would be minimal. No adverse

impacts on local or regional air quality are anticipated from these future maintenance activities.

Generators. Alternative 3 would require six diesel powered generators to power construction equipment. It is assumed that these generators would be approximately 75 hp and operate approximately 8 hours per day for 190 working days. Emissions from these diesel generators would be minimal. Operational emissions associated with Alternative 3 would not result in an adverse impact on air quality. The emissions factors and estimates were generated based on guidance provided in USEPA AP-42, Volume I, *Stationary Internal Combustion Sources*. According to TAC Title 30, internal combustion engines greater than 500 brake horsepower require an operating permit (TAC 2007). Therefore, the generators under Alternative 3 are exempt from requiring an operating permit from the TCEQ.

Summary. Since the BLIAQCR is within an area classified as being in attainment for all NAAQS criteria pollutants, General Conformity Rule requirements are not applicable to Alternative 3. **Table 4.2-3** illustrates that the emissions from Alternative 3 would be less than 10 percent of the BLIAQCR inventory (USEPA 2002b). **Table 4.2-3** illustrates that the emissions from Route B would be less than 10 percent of the BLIAQCR inventory (USEPA 2007b).

According to 40 CFR Part 81, there are no Class I areas in the vicinity of Alternative 3. Therefore, Federal PSD regulations would not apply.

Greenhouse Gases. USEPA has estimated that the total greenhouse emissions for Texas was 189 million metric tons of carbon equivalent (MMTCE) in 1999. Of this, of this an estimated 995,000 tons of CO_2 are associated with the BLIAQCR regions. Therefore construction emissions of CO_2 represent less than 10 percent of the regional emissions (USEPA 2007c).

After construction is completed, normal border patrol schedules would continue. The vehicles used for surveillance of the existing border area are generating CO_2 that is accounted for in the Texas greenhouse gas inventory. No new sources of CO_2 would result from Alternatives 3. Therefore, no net increase of greenhouse emissions would be expected. Emissions factors, calculations, and estimates of emissions are shown in detail in **Appendix K**.

4.3 NOISE

4.3.1 Alternative 1: No Action Alternative

Under the No Action Alternative, current activities as described in **Section 3.3** would be the dominant source of noise and there would be no short- or long-term changes to the noise environment.

4.3.2 Alternative 2: Routes A and B

Route A

Short-term moderate adverse impacts would be associated with Route A. Sources of noise from the implementation of Route A would include blasting, operation of construction equipment, and noise from construction vehicles. Noise from construction activities and vehicle traffic can impact wildlife as well as humans. Impacts on nesting, feeding, and migration could all occur on various species due to construction noise. For specific information regarding impacts on wildlife from noise, see **Section 4.8.2**.

Construction Noise. The construction of the fence sections and related tactical infrastructure, such as the patrol and access roads and construction staging areas, would result in noise impacts on populations in the vicinity of the proposed sites. Construction of the fence sections and the patrol roads adjacent to the fence would result in grading and construction noise. Populations that could be impacted by construction noise include adjacent residents, personnel visiting one of the wildlife refuges or recreation areas, or employees in nearby office or retail buildings. Noise levels for the construction of Route A were calculated using equipment typical of construction projects. Noise from construction assumes several different pieces of construction equipment operating simultaneously (see **Table 3.3-1**). Because noise attenuates over distance, a gradual decrease in noise level occurs the further a receptor is away from the source of noise. Construction noise levels would decrease as the distance increases from the source. At 50 feet the noise level would be 85 dBA, at 300 feet the noise level would be 70 dBA, and at 5,280 feet (i.e., 1 mile) the noise level would be 45 dBA.

Implementation of Route A would have temporary impacts on the noise environment from the use of heavy equipment during construction activities. However, noise generation would last only for the duration of construction activities and would be isolated to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). Therefore, it is anticipated that implementation of Route A would have negligible impacts as a result of the construction activities.

Route A would impact residential areas as well as recreational facilities and wilderness areas. In general, users of recreational facilities and sites anticipate a quiet environment. Noise from construction would impact the ambient acoustical environment around these sites. While construction would be a temporary source of noise, and no significant impacts would be anticipated at recreational sites or wilderness areas, noise from construction would reach areas that are anticipated to have low levels of ambient noise.

Vehicular Noise. Noise impacts from increased construction traffic would be temporary in nature. These impacts would most likely be confined to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.) and would last only as long as the construction activities were ongoing. Most of the major roadways in the

vicinity pass by residential areas. Therefore, it is anticipated that Route A would have short-term minor adverse noise impacts as a result of the increase in traffic, most notably in the areas around Brownsville, McAllen, Progreso, Santa Maria, and Relampago.

Route B

The noise impacts associated with Route B would be expected to be the same as those described above for Route A because the overall length of the proposed project corridor and duration of construction activities for Route A and Route B would be similar.

4.3.3 Alternative 3: Secure Fence Act Alignment Alternative

Short-term moderate adverse impacts would be expected under Alternative 3. Under Alternative 3, primary and secondary fences would be constructed 130 feet apart along the same route as Alternative 2, Route B. Noise impacts from Alternative 3 would be slightly greater than those discussed under Alternative 2. Residences would be closer to the secondary fence; therefore, noise impacts from construction equipment would be slightly higher than under Alternative 2.

4.4 LAND USE

4.4.1 Alternative 1: No Action Alternative

In some locations, land values and land uses (including potential development) are currently adversely affected by illegal border crossings. Under the No Action Alternative, land uses and values as described in **Section 3.4** may continue to be adversely affected and degradation could increase.

4.4.2 Alternative 2: Routes A and B

Route A

Constructing the proposed tactical infrastructure would result in long-term minor adverse impacts on land use. The severity of the impact would vary depending on the need for rezoning to accommodate the fence sections, and patrol roads. USBP might be required to obtain a permit or zoning variance based on local restrictions and ordinances. Short-term minor adverse impacts would occur from construction. Impacts on land use would vary depending on potential changes in land use and the land use of adjacent properties.

For the purposes of this EIS, a land use analysis was conducted using the National Land Cover Dataset. The National Land Cover Dataset is the first land cover mapping project with a national (conterminous) scope. It is likely the most widely used land cover dataset in the United States and no other national land cover mapping program had ever been undertaken. The National Land Cover

Dataset provides 21 different land cover classes for the lower 48 states. The 21 different land cover classes were generalized into the following 4 categories: agricultural, developed, parks and refuges, and undeveloped. The proposed project corridor is classified by approximately 22 percent agricultural, 47 percent developed, 10 percent parks and refuges, and 21 percent undeveloped land.

Table 4.4-1 outlines the proposed tactical infrastructure section by the existing communities within or adjacent to Route A that would potentially be affected by the proposed tactical infrastructure.

Table 4.4-1. Communities Potentially Affected by Route A

Proposed Tactical Infrastructure Section Number	Community Affected
O-1	Roma
O-2	Rio Grande City
O-3	Los Ebanos
O-4	Peñitas
O-5	Granjeno
O-6	Hidalgo
O-7	Agriculture south of Donna
O-8	Agriculture south of Donna
O-9	Progreso Lakes Community
O-10	Progreso
O-11	Agriculture south of Santa Maria
O-12	Los Indios
O-13	Los Indios
O-14	Los Indios
O-15	La Paloma
O-16	Encatada-Ranchito El Calaboz
O-17	San Pedro/River Bend Community
O-18	Brownsville
O-19	Brownsville
O-20	Brownsville
O-21	Brownsville

Construction of the proposed tactical infrastructure sections would require the government to acquire various interests in land. Under current law, the Secretary of Homeland Security has the authority to contract for or buy an interest in land

that is adjacent to or in the vicinity of the international land border when the Secretary deems the land essential to control and guard the boundaries and borders of the United States (8 U.S.C. 1103(b)).

Because the proposed tactical infrastructure sections would traverse both public and private lands, various methods could be used to acquire the necessary interests in land. These methods include, among other things, acquiring permanent easements, ROW, or outright purchase.

For those proposed tactical infrastructure sections that are on Federal lands, the most likely means of acquisition would be an ROW obtained from the relevant Federal land manager. On private land, the government would likely purchase the land or some interest in land from the relevant land owner. Acquisition from private landowners is a negotiable process that is carried out between the government and the landowner on a case-by-case basis. The government also has the statutory authority to acquire such interests through eminent domain.

Agricultural lands within the 60-foot proposed project corridor would not be available for future crop production. In addition, residential, industrial, commercial, and undeveloped lands within proposed project corridor would not be available for future development.

Landowners whose properties would be affected could receive a gate within the fence that would allow them to access other portions of their property to reduce potential inconvenience.

Short-term minor indirect adverse impacts on recreation would be expected during the construction activities associated with Route A. However, impacts would be localized and short-term. Long-term minor adverse impacts on recreation would be expected after construction because access to recreational areas along the proposed tactical infrastructure sections could be limited or restricted to potential users. Long-term indirect beneficial impacts on recreational areas could occur as a result of decreased cross border violators coming into these recreational areas. In addition, by reducing the amount of illegal traffic within and adjacent to the project area, disturbance to lands on the U.S. side of the proposed fence would be reduced.

Land use in the areas between the 21 proposed fence sections could be adversely impacted by the deterrent impacts the fence sections would have by the funneling of illegal cross border activities into those areas. Since the locations of the proposed tactical infrastructure sections are based on USBP operational requirements including the ability to make apprehensions, adverse impacts would be expected to be minor.

Route B

Similar impacts to those described above for Route A would be expected. The figures in **Appendix F** show the locations of the proposed tactical infrastructure sections and the proximity of adjacent and intersecting land. For the purposes of this EIS, a land use analysis was conducted using the National Land Cover Dataset. The proposed project corridor is classified by approximately 22 percent agricultural, 46 percent developed (1 percent less than Route A), 9 percent parks and refuges (1 percent less than Route A), and 23 percent undeveloped land (2 percent more than Route A).

4.4.3 Alternative 3: Secure Fence Act Alignment Alternative

Alternative 3 would have similar impacts to Alternative 2. The figures in **Appendix F** show the location of the proposed tactical infrastructure sections and the proximity of adjacent and intersecting land. For the purposes of this EIS, a land use analysis was conducted using the National Land Cover Dataset. The proposed project corridor is classified by approximately 28 percent agricultural, 41 percent developed, 9 percent parks and refuges, and 22 percent undeveloped land.

4.5 GEOLOGY AND SOILS

4.5.1 Alternative 1: No Action Alternative

The No Action Alternative would result in continuation of the existing condition of geologic resources, as discussed in **Section 3.5.1**. No impacts on geologic resources would occur as a result of the construction, operation, or maintenance of proposed tactical infrastructure. In the areas of the proposed tactical infrastructure sections, cross border violators tend to trample footpaths, leading to a minor long-term adverse impact on soils due to compaction. This condition would continue under the No Action Alternative.

4.5.2 Alternative 2: Routes A and B

Route A

Physiography and Topography. Short- and long-term minor adverse impacts on the natural topography would be expected. Grading, contouring, and trenching associated with the installation of the proposed tactical infrastructure sections would impact approximately 508 acres, which would alter the existing topography. However, the existing topography of much of the proposed project corridor was previously altered to construct the levees, provide access roads, and to level agricultural fields for irrigation.

Geology. Short- and long-term negligible to minor adverse impacts on geologic resources could occur at locations if bedrock is at the surface and blasting would

be necessary to grade for fence placement or patrol road development. Geologic resources could affect the placement of the fence or patrol roads due to the occurrence of bedrock at the surface, or as a result of structural instability. Site-specific geotechnical surveys would be conducted prior to construction to determine depth to bedrock. In most cases, it is expected that project design and engineering practices could be implemented to mitigate geologic limitations to site development.

Soils. Short-term minor direct adverse impacts on soils would be expected. Soil disturbance and compaction due to grading, contouring, and trenching associated with the installation of the proposed tactical infrastructure sections would impact approximately 508 acres.

The proposed construction activities would be expected to result in an increase in soil erosion, especially in the western portion of the proposed project corridor associated with Route A (in Sections O-1, O-2, and O-3). This area is characterized by low ridges with moderately steep-sided bluffs with narrow arroyos. Soil disturbance on steep slopes has the potential to result in excessive erosion due to instability of the disturbed soils and high runoff energy and velocity. Sediments washed from construction sites would be carried to and deposited in the Rio Grande. In addition, wind erosion has the potential to impact disturbed soils where vegetation has been removed due to the semi-arid climate of the region. Construction activities would be expected to directly impact the existing soils as a result of grading, excavating, placement of fill, compaction, and mixing or augmentation necessary to prepare the sites for development of the fence sections and patrol roads and associated utility lines. Following construction activities, the areas disturbed would be revegetated with native species to the maximum extent practicable to reestablish native plant communities and help stabilize soils.

Because proposed construction within most proposed tactical infrastructure sections would result in a soil disturbance of greater than 5 acres, authorization under TCEQ Construction General Permits (TXR150000) would be required. Construction activities subject to these permits include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permits require the development and implementation of Storm Water Pollution Prevention Plans (SWPPPs).

The SWPPPs should contain one or more site maps that show the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPPs must list BMPs the discharger will use to protect storm water runoff along with the locations of those BMPs. Additionally, the SWPPPs must contain a visual monitoring program, a chemical monitoring program for nonvisible pollutants to

be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Part III.F of the Construction General Permit describes the elements that must be contained in an SWPPP.

Long-term minor direct adverse impacts on prime farmland soils in Hidalgo and Cameron counties would occur as a result of construction activities. No soils associated with farmland of local, unique, or statewide importance are identified for Starr, Hidalgo, and Cameron counties. In areas not currently being used for agriculture, the proposed project corridor would be linear and limited in extent, therefore any impacts on the areas considered prime farmland would be considered minor. In the areas where crops, such as sorghum and sugar cane, are currently being grown in the proposed project corridor, construction would result in the permanent loss of existing cropland.

Soils in open areas between the 21 proposed tactical infrastructure sections would be adversely impacted by the funneling of cross border violators into the areas where there would be no fence. Increased foot traffic between fence sections would reduce vegetation, disturb soils, and lead to increased soil erosion. Since the locations of the 21 fence sections were based on USBP operational requirements including the ability to make apprehensions, the extent of the disturbance would be limited and the impacts would be minor, long-term, and adverse.

Route B

Route B would result in similar environmental impacts on physiographic, topographic, geologic, and soils resources as described above for Route A. Slight differences in prime farmland soil acreages impacted would be anticipated as a result of implementing Route B.

4.5.3 Alternative 3: Secure Fence Act Alignment Alternative

The Secure Fence Act Alignment Alternative would result in similar environmental impacts on physiographic, topographic, geologic, and soils resources as described above for Alternative 2. However, the magnitude of the impacts would affect a larger area, due to the additional fence and overall wider corridor. Approximately 1,270 acres would be impacted.

4.6 WATER RESOURCES

4.6.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. As a result, there would be no change from baseline conditions, as described in **Section 3.6**. Impacts on water resources could continue to occur, such as the impacts of regional drought or other natural events affecting precipitation

patterns. In addition, adverse impacts associated with water contamination due to cross border violators would continue.

4.6.2 Alternative 2: Routes A and B

Route A

Hydrology and Groundwater. Short- and long-term negligible direct adverse impacts on the hydrology of the Rio Grande would be expected to occur as a result of the grading and contouring associated with Route A in Sections O-1, O-2, and O-3. Grading and contouring would be expected to alter the topography and remove vegetation of approximately 105 acres within the floodplain of the Rio Grande, which could in turn increase erosion potential and increase runoff during heavy precipitation events. Revegetating the area with native vegetation following construction along with other BMPs to abate runoff and wind erosion could reduce the impacts of erosion and runoff. Additionally, the small increase in impervious surface within the floodplain would result in negligible increases in the quantity and velocity of storm water flows to the Rio Grande. As required by the Texas Construction General Permit (TXR150000), BMPs would be developed as part of the required SWPPPs to manage storm water both during and after construction. Therefore, impacts would be expected to be negligible.

No impacts on hydrology would be expected for Sections O-4 through O-21. These sections would be constructed and operated behind the levee system, outside the Rio Grande floodplain. Most of the levee system is operated by the IBWC, but small segments of the levee system (i.e., in Section O-19) are privately owned.

Short-term direct minor adverse construction-related impacts on groundwater resources in Starr, Hidalgo, and Cameron counties would also be expected. During construction, water would be required for pouring concrete, watering of road and ground surfaces for dust suppression, and for washing construction vehicles. Water use for construction would be temporary, and the volume of water used for construction would be minor when compared to the amount used annually in the area for municipal, agricultural, and industrial purposes.

The potential for short-term negligible adverse impacts on groundwater related to an increase in stormwater runoff would also occur. Implementation of storm water and spill prevention BMPs developed consistent with the SWPPPs and other applicable plans and regulations would minimize potential runoff or spill-related impacts on groundwater quality during construction.

Surface Water and Waters of the United States. Short- and long-term direct and indirect negligible adverse impacts on water quality would be expected. Implementation of Route A would increase impervious surface area and runoff potential. Approximately 508 acres of soil would be disturbed due to grading,

contouring, and trenching. Surface water that would be affected either directly or indirectly include the Rio Grande, arroyos (Section O-2), an irrigation canal (Section O-5), the Donna Canal (Section O-7), a settling basin and Moon Lake (Section O-9), the Santa Maria Canal (O-11), the Harlingen Canal (Section O-12), the San Benito Canal (O-13), Los Fresnos pump canal (Section O-18), and El Jardin Canal (Section O-21).

Construction activities within most of the proposed tactical infrastructure sections associated with Route A would disturb more than 5 acres of soil, and therefore would require authorization under the Texas Construction General Permits (TXR1500000). The Construction General Permits would require preparation of SWPPPs. The SWPPPs would include erosion and sediment control and storm water BMPs for activities resulting during and after construction. Based on these requirements, adverse impacts associated with storm water runoff on surface water quality would be reduced to negligible impacts.

Impacts on surface water and wetlands that are potentially jurisdictional waters of the United States would be avoided to the maximum extent practicable. Impacts that cannot be avoided would be minimized and BMPs would be established to comply with all applicable Federal, state, and local regulations. Potential impacts include filling wetlands and moving the alignment of irrigation canals and drainage ditches. Currently, wetland vegetation is routinely removed mechanically from canal banks as a maintenance action to improve flow and reduce water loss to evapotranspiration.

If wetland impacts cannot be avoided, USBP would obtain CWA Section 404 Permits and RHA Section 10 Permits, as applicable, from the USACE-Galveston District. As part of the permitting process, USBP would develop, submit, and implement a wetlands identification, mitigation, and restoration plan to avoid or minimize impacts and compensate for unavoidable impacts. The plan would be developed in accordance with USACE guidelines and in cooperation with USEPA. The plan would outline BMPs from pre-construction to post-construction activities to reduce impact on wetlands and water bodies. As part of the Section 404 permit application process, USBP will also request certification from TCEQ under Section 401 (a) of the CWA to ensure that actions will comply with state water quality standards. This certification must be received for the Section 404 authorization to be valid. Based on NWI data, a total of approximately 7 acres of wetlands would be impacted under Route A. The unavoidable impacts on waters and wetlands will be reviewed as part of the USACE 404 permit process.

Floodplains. Impacts on floodplains would be avoided to the maximum extent practicable. Acknowledging the potential shortfalls of the methodology to estimate the floodplain limits in Sections O-1 through O-3, potential short- and long-term minor adverse impacts on the Rio Grande floodplain would occur as a result of construction activities. Section O-1 impacts would include 5.26 miles of floodplain, Section O-2 would include 7.30 miles of floodplain, and Section O-3 would include 1.86 miles of floodplain. The permanent width of the impact area

would be 60 feet (see **Figure 2-4**); therefore, Route A would impact approximately 105 acres of floodplains along Sections O-1, O-2, and O-3. No impacts on floodplains or IBWC international floodways would be expected in Sections O-4 through O-21. These sections would be constructed and operated behind the levee system, outside the Rio Grande floodplain. Most of the levee system is operated by the IBWC, but small segments of the levee system (i.e., in Section O-19) are privately owned.

In accordance with the FEMA Document, *Further Advice on EO 11988, Floodplain Management*, USBP has determined that Sections O-1 through O-3 cannot be practicably located outside the floodplain. The current floodplain extends past local communities and roads strategic to the operations of USBP. In order to operate outside the existing floodplain, USBP would have to move all operations northward several miles in some areas. This would not meet USBP mission needs. The increase in impervious surface associated with fence Sections O-1, O-2, and O-3 would have no impact on the IBWC international drainage, which starts in Peñitas, Texas, in Hidalgo County. USBP would mitigate unavoidable impacts on floodplains using planning guidance developed by the USACE.

Route B

Hydrology and Groundwater. Impacts on the hydrology of the Rio Grande under Route B would be similar to those under Route A for Sections O-1 through O-3. No impacts on hydrology would be expected in Sections O-4 through O-21. The impacts of Route B on groundwater would be identical to the impacts described above for Route A.

Surface Waters and Waters of the United States. Impacts on surface waters and waters of the United States under Route B would be similar to those under Route A. Sedimentation and erosion impacts would be identical to the impacts under Route A. Surface waters that would be affected under Route B include the Rio Grande (Sections O-1, O-3, and O-6), arroyos (Section O-2), an irrigation canal (Section O-5), the Donna Canal (Section O-7), the settling basin and Moon Lake (Section O-9), the Santa Maria Canal (Section O-11), the Harlingen Canal (Section O-12), the San Benito Canal (Section O-13), Los Fresnos pump canal (Section O-18), and El Jardin Canal. There are several differences between the impacts on surface water features that occur adjacent or within the proposed project corridor for Route B, as compared to Route A. Section O-1 of Route B would impact less riparian areas than Route A. Section O-2 in Route B would avoid some arroyos that would be impacted by Route A. Where practicable, Section O-3 of Route B would avoid impacts on some natural riparian areas along the Rio Grande.

As with Route A, impacts on surface water and wetlands that are potentially jurisdictional waters of the United States would be avoided to the maximum extent practicable under Route B. Impacts that cannot be avoided would be

minimized and BMPs enacted that would comply with all applicable Federal, state, and local regulations. Potential impacts include filling wetlands and moving the alignment of irrigation canals and drainage ditches. Currently, wetland vegetation is routinely removed mechanically from canal banks as a maintenance action to improve flow and reduce water loss to evapotranspiration. Based on NWI data, a total of approximately 7.3 acres of wetlands would be impacted under Route B. The unavoidable impacts on waters and wetlands will be reviewed as part of the USACE 404 permit process.

Floodplains. Impacts on floodplains under Route B would be the same as described for Route A.

4.6.3 Alternative 3: Secure Fence Act Alignment Alternative

Hydrology and Groundwater. Impacts on hydrology in Sections O-1, O-2, and O-3 under Alternative 3 would be similar, but slightly greater than the impacts described under Alternative 2. The primary and secondary fence sections proposed under Alternative 3 would result in a larger increase in impervious surface.

Impacts on groundwater under Alternative 3 would be slightly greater than the impacts under Alternative 2 because the area of surface disturbance would be greater under this alternative. Disturbance at the ground surface would not affect groundwater aquifers directly, and post-construction runoff patterns could result in minor groundwater recharge.

Surface Waters and Waters of the United States. Alternative 3 would result in impacts on surface waters and waters of the United States similar to those described for Alternative 2. However, the magnitude of the impacts would affect a larger area due to the additional fence and wider corridor. Approximately 1,270 acres of soils would be disturbed due to grading, contouring, and trenching. As described in **Section 3.6.1**, Texas Construction General Permits would be required to address the development and implementation of SWPPPs with BMPs to reduce the impacts of storm water runoff. A larger area of wetlands would also be impacted under this alternative. Additionally, CWA Section 404, CWA Section 401(a), and RHA Section 10 authorizations will be obtained, as required, for unavoidable impacts on jurisdictional waters of the United States. A wetlands mitigation and restoration plan to compensate for unavoidable impacts will be developed by the applicant and submitted to the USACE-Galveston District Regulatory Branch for approval prior to implementation. Appropriate mitigation would be developed to compensate for unavoidable impacts.

Floodplains. Impacts on floodplains in Sections O-1, O-2, and O-3 under Alternative 3 would be slightly greater than those described under Alternative 2. The primary and secondary sections proposed under Alternative 3 would result in an increase in impervious surface, contributing slightly more surface runoff to the Rio Grande and its associated floodplain. Section O-1 would include 3.75 miles

of floodplain, Section O-2 would include 8.74 miles of floodplain, and Section O-3 would include 1.90 miles of floodplain. The permanent width of the impact area would be 150 feet (see **Figure 2-5**) and would impact approximately 262 acres of floodplains along Sections O-1, O-2, and O-3. No impacts on floodplains or IBWC international floodways would be expected for Sections O-4 through O-21. These sections would be constructed and operated behind the levee system, outside the Rio Grande floodplain. Most of the levee system is operated by the IBWC, but small segments of the levee system (i.e., in Section O-19) are privately owned.

4.7 VEGETATION

4.7.1 Alternative 1: No Action Alternative

Under the No Action Alternative, vegetation would continue to be influenced by Federal, state, and nonprofit resource agency and private land management plans, development, agricultural crop production, wildfires, drought, and floods. Native vegetation stands would continue to be adversely affected due to trampling by recreationists (primarily hunters), cross border violators, and USBP agents in pursuit of cross border violators and vehicles used off-trail during apprehension.

4.7.2 Alternative 2: Routes A and B

Route A

A 60-foot-wide corridor containing the proposed pedestrian fence and patrol road associated with Route A would be cleared during construction and a portion maintained following construction to support long-term maintenance, sight distance, and patrol activities. For the proposed length of approximately 70 miles, the proposed project corridor totals approximately 508 acres. Existing land and vegetation composing approximately 508 acres includes urban land, private residences, and agricultural land (approximately 25 percent of the proposed project corridor); nonnative grasslands and herbaceous vegetation (approximately 40 percent of the proposed project corridor); disturbed thornscrub shrublands and woodlands (approximately 25 percent of the proposed project corridor); and disturbed floodplain shrublands, woodlands, and forests (approximately 10 percent of the proposed project corridor).

The loss of vegetation from approximately 125 acres of urban and agricultural land would result in short- and long-term negligible to minor adverse impacts due to the potential of the disturbed land to become a nursery for nonnative plant species to propagate and invade surrounding plant communities. Potential impacts due to removal of individual large mature native trees of Texas ebony, sabal palm, eastern cottonwood, sugarberry, and honey mesquite could be reduced by avoidance (avoidance of these large trees would require protection of the soil and root zone at least to the canopy drip-line, a zone up to 50–75 feet

wide), or minimization by transplanting individuals (e.g., of the sabal palms) to areas selected by the USFWS or other resource agencies. However, avoidance or transplant of all such trees would likely not be feasible. Therefore, removal impacts would result in long-term moderate to major adverse impacts, because these trees are virtually irreplaceable.

The loss of approximately 200 acres of herbaceous vegetation, more than half of this area dominated by nonnative buffelgrass, Bermuda grass, and windmill grass, would result in short- and long-term minor to moderate adverse impacts due to habitat conversion.

The loss of approximately 125 acres of disturbed thornscrub shrubland and woodland habitat, predominantly honey mesquite and retama, would result in short- and long-term moderate adverse impacts due to habitat conversion. In the LRGVNWR, a portion of this acreage represents stands that were previously revegetated by the USFWS around 2002 and 2003.

In the first mile of proposed tactical infrastructure Section O-1, approximately 4.0 acres of Tamaulipan thornscrub that has become established on gravel substrate of hills and ridges would be removed, resulting in long-term major adverse impacts due to habitat conversion by disruption of the substrate. The first 0.85 acres of this habitat has been root-plowed, resulting in an invasion of the nonnative buffelgrass and loss of native vegetation cover, diversity, and community structure. Restoration of this root-plowed habitat with its loss of gravel veneer and need to eliminate invasive grass species would likely not occur. BMPs would include implementation of a Construction Mitigation and Restoration (CM&R) Plan and a Fire Prevention and Suppression Plan.

In the first 0.5 miles of proposed tactical infrastructure Section O-1, sedimentary rock outcrops on south-facing slopes would be avoided during construction, resulting in short- and long-term moderate to major beneficial impacts, due to preservation of a unique habitat that in other sites supports federally listed plant species (e.g., the Zapata bladderpod). Loss of these unique sedimentary rock outcrops would be irreplaceable.

The loss of approximately 50 acres of disturbed floodplain shrubland, woodland, and forest habitat, predominantly honey mesquite and sugarberry and to a lesser extent sabal palm, would result in short- and long-term moderate to major adverse impacts due to habitat conversion and the size and age of mature floodplain trees.

The proposed project corridor would be expected to provide some protection for vegetation in the areas north of proposed project corridor from new, continued, or increased foot traffic impacts by cross-border violators. Such protection would result in short- and long-term minor to moderate beneficial impacts.

In summary, short- and long-term adverse impacts on vegetation would range from negligible to major due to habitat loss and modification. Short- and long-term negligible to moderate (depending upon the location) beneficial impacts would be anticipated due to protection of remaining vegetation north of the proposed project corridor.

Vegetation resources between the 21 proposed tactical infrastructure sections would also be adversely impacted by the funneling of cross border violators into the areas where there would be no fence. Concentrated foot traffic around the ends of the sections would reduce vegetation in those areas. Since the locations of the 21 sections were based on USBP operational requirements including the ability to make apprehensions, the extent of the disturbance would be limited and the impacts would be minor, long-term, and adverse.

Route B

Route B would impact approximately 508 acres, similar to Route A. While Route B would cut across the lower portions of Los Velas and Los Velas West annexes of the LRGVNWR (Section O-2), it would entirely avoid the potentially more species-rich Arroyo Ramirez annex (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16) of the LRGVNWR. Finally, Route B moves the proposed fence alignment from the edge of town to along the levee in the western portion of Section O-19, potentially protecting remaining habitat north of the levee in that area. Indirect impacts on other areas between fence sections would be the same as described under Route A. Short- and long-term adverse impacts on vegetation resulting from development of Route B would be less than those for Route A, but would still fall into the negligible to major range. Short- and long-term beneficial impacts due to protection provided by the fence along Route B would also be anticipated to range from minor to moderate, depending upon the location.

4.7.3 Alternative 3: Secure Fence Act Alignment Alternative

Under the Secure Fence Act Alignment Alternative, a 150-foot-wide corridor containing the proposed primary and secondary pedestrian fences and patrol roads would be cleared during construction and would remain cleared following construction to support long-term maintenance, sight distance, and patrol activities. The cleared area totals approximately 1,270 acres over the 70-mile length of the proposed project corridor. Existing land use and vegetation in this 1,270 acres includes urban land, private residences, and agricultural land (approximately 25 percent); nonnative grasslands and herbaceous vegetation (approximately 40 percent); disturbed thornscrub shrublands and woodlands (approximately 25 percent); and disturbed floodplain shrublands, woodlands, and forests (approximately 10 percent).

The loss of vegetation from approximately 320 acres of urban and agricultural land would result in short- and long-term negligible to minor adverse impacts due

to the potential for the disturbed land to become a nursery for nonnative plant species to propagate and invade surrounding plant communities. Removal of individual large mature native trees of Texas ebony, sabal palm, eastern cottonwood, sugarberry, and honey mesquite would result in long-term, moderate to major adverse impacts, because they are virtually irreplaceable. Avoidance of these large trees would not be possible under this alternative.

The loss of approximately 505 acres of herbaceous vegetation, more than half of this area dominated by nonnative buffelgrass, Bermuda grass, and windmill grass, would result in short- and long-term moderate adverse impacts due to permanent habitat conversion. The loss of approximately 320 acres of disturbed thornscrub shrubland and woodland habitat, predominantly honey mesquite and retama, would result in short- and long-term, moderate to major, adverse impacts due to permanent habitat conversion. In the LRGVNWR, a portion of this acreage represents stands that were previously revegetated by the USFWS during 2002 and 2003.

In the first mile of proposed Fence Section O-1, approximately 9.0 acres of thornscrub that has become established on gravel substrate of hills and ridges would be permanently removed, resulting in long-term, major adverse impacts due to habitat conversion by disruption of the substrate and elimination of vegetation cover. In the first 0.5 miles of proposed fence Section O-1, sedimentary rock outcrops on south-facing slopes would be avoided during construction, resulting in short- and long-term moderate to major beneficial impacts due to preservation of a unique habitat that in other sites supports federally listed plant species (e.g., the Zapata bladderpod). Loss of these unique sedimentary rock outcrops would be irreplaceable.

The loss of approximately 125 acres of disturbed floodplain shrubland, woodland, and forest habitat, predominantly honey mesquite and sugarberry and to a lesser extent sabal palm, would result in short- and long-term, moderate to major adverse impacts due to permanent habitat conversion, the size and age of mature floodplain trees, and the endemicity of the sabal palm.

During and following construction of the proposed fence sections, the impacts of fire, drought, and flooding, as described in the No Action Alternative, would occur over time, resulting in short- and long-term minor to moderate adverse impacts on the remaining native and nonnative plant communities.

4.8 WILDLIFE AND AQUATIC RESOURCES

4.8.1 Alternative 1: No Action Alternative

Under the No Action Alternative, new tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP Rio Grande Valley Sector. Anticipated continuation or even increases in

cross border violator traffic would be expected to have some adverse impacts on habitat for wildlife and aquatic resources. These impacts are anticipated to be short- and long-term, minor, and adverse.

4.8.2 Alternative 2: Routes A and B

Route A

A 60-foot-wide corridor containing the proposed pedestrian fence and patrol road associated with Route A would be cleared during construction and a portion maintained following construction to support long-term maintenance, sight distance, and patrol activities. For the period of construction, lay-down areas for materials and equipment would be identified within the disturbed proposed project corridor. Route A would follow the IBWC levee system for the majority of its length; however, some proposed tactical infrastructure sections would encroach on portions of unique or protected habitats. Route A alignment would cross several Texas state parks and WMAs in the Rio Grande Valley and would intersect LRGVNWR at several locations (see **Appendix I**). Potential threats to wildlife in these areas include habitat conversion, noise, and potential siltation of aquatic habitats.

For the proposed length of approximately 70 miles, the area within the proposed project corridor that would be cleared of vegetation totals approximately 508 acres. The following paragraphs characterize the amount of each general habitat type that would be temporarily or permanently impacted and the impacts of that habitat conversion on wildlife species.

The loss of vegetation from approximately 125 acres of urban and agricultural land would result in short- and long-term negligible adverse impacts on wildlife species due to the disturbed land potentially becoming a nursery for nonnative plant species to propagate and invade surrounding plant communities.

The loss of approximately 200 acres of herbaceous vegetation, more than half of this area dominated by nonnative buffelgrass, Bermuda grass, and windmill grass, would result in short- and long-term, minor adverse impacts to wildlife due to habitat conversion. The loss of approximately 125 acres of disturbed thornscrub shrubland and woodland habitat, predominantly honey mesquite and retama, would result in short- and long-term moderate adverse impacts on wildlife due to habitat conversion.

In the first mile of proposed tactical Section O-1, approximately 4.0 acres of Tamaulipan thornscrub that has become established on gravel substrate of hills and ridges would be removed, resulting in long-term minor adverse impacts on wildlife due to habitat conversion.

The loss of approximately 50 acres of disturbed floodplain shrubland, woodland, and forest habitat, predominantly honey mesquite and sugarberry and to a lesser

extent sabal palm, would result in short- and long-term, minor to moderate adverse impacts on wildlife.

The proposed tactical infrastructure sections would be expected to provide some protection for wildlife and wildlife habitats in the areas north of the proposed project corridor from new, continued, or increased foot traffic impacts by cross border violators. Such protection would result in short- and long-term, minor beneficial impacts on wildlife. However, wildlife and wildlife habitat between the 21 proposed tactical infrastructure sections would be adversely impacted by the funneling of cross border violators into the areas where there would be no fence and concentrated USBP operations. The severity of the impact would vary depending on the quality of the habitat impacted. Cross border violators could be funneled into portions of the LRGVNWR. Section O-1 could funnel cross border violators west into the Arroyo Ramirez annex. Fence section O-2 could funnel cross border violators east into the Los Velas West LRGVNWR. Fence Section O-3 could funnel cross border violators west into the Los Ebanos annex. Between Sections O-5 and O-6 is the Cottam annex which could be adversely impacted by concentrating cross border violators into the area. Section O-10 could funnel cross border violators east into the Relampago annex, and Section O-18 could funnel cross border violators east into the Phillips Banco annex.

Noise created during construction would be anticipated to result in short-term, minor to moderate, adverse impacts on wildlife. These impacts would include subtle, widespread impacts from the overall elevation of ambient noise levels during construction. Noise levels after construction are anticipated to return to close to current ambient levels. Elevated noise levels during construction could result in reduced communication ranges, interference with predator/prey detection, or habitat avoidance. More intense impacts would include behavioral change, disorientation, or hearing loss. Predictors of wildlife response to noise include noise type (i.e., continuous or intermittent), prior experience with noise, proximity to a noise source, stage in the breeding cycle, activity, and age. Prior experience with noise is the most important factor in the response of wildlife to noise, because wildlife can become accustomed (or habituate) to the noise. The rate of habituation to short-term construction is not known, but it is anticipated that most wildlife would be permanently displaced from the areas where the habitat is cleared and the fence and associated tactical infrastructure constructed, and temporarily dispersed from areas adjacent to the project areas during construction periods. See **Section 4.3.2** for additional details on expected noise levels associated with Routes A and B.

Removal of vegetation and grading during construction could temporarily increase siltation in the river and therefore have short-term minor adverse impacts on fish within the Rio Grande. Under Route A, tactical infrastructure would be adjacent to the river bank, and could result in increased siltation in the Rio Grande. There is one state-listed fish species known to overlap with proposed fence sections in the Rio Grande Valley Sector. The Rio Grande silvery minnow could potentially occur in the Rio Grande in three proposed

sections (O-18, O-19, and O-21). However, implementation of standard BMPs such as use of silt fences, should reduce this potential impact to negligible.

In summary, implementation of Route A would be anticipated to have short- and long-term, negligible to moderate adverse impacts on wildlife due to habitat conversion; short-term, minor to moderate adverse impacts on wildlife due to construction noise; and negligible adverse impacts on aquatic habitats due to siltation from construction activities. Minor beneficial impacts would result from protection of wildlife and habitats on the north side of the proposed project corridor.

Route B

Route B would impact approximately 508 acres, similar to Route A. While Route B would cut across the lower portions of Los Velas and Los Velas West annexes (Section O-2), it would entirely avoid the potentially more species-rich Arroyo Ramirez annex (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16) of the LRGVNWR. Finally, Route B moves the proposed fence alignment from the edge of town to along the levee in the western portion of Section O-19, potentially protecting remaining habitat and the wildlife it supports north of the levee in that area.

Short- and long-term adverse impacts on wildlife due to habitat conversion resulting from development of Route B would be less than those for Route A, but would still fall into the negligible to moderate range. Short- and long-term beneficial impacts due to protection provided by the fence along Route B would also be anticipated to range from minor to moderate, depending upon the location. Similar to the indirect impact discussed under Route A, wildlife and wildlife habitat between the 21 proposed sections of tactical infrastructure would be adversely impacted by the deterrent effect of the fence, the funneling of illegal cross-border violators into the areas where there would be no fence, and concentrated USBP operations. The severity of the impact would vary depending on the quality of the habitat impacted. Sections O-1 and O-2 Route B would avoid potential impacts on the Arroyo Ramirez annex and the Los Velas West annex of the LRGVNWR, respectively. Fence Section O-16 could funnel cross border violators east into the Tahuachal Banco annex, whereas Route A would bisect the refuge. Adverse impacts from Route B on Sections O-3, O-5, O-6, O-10, and O-18 would be the same as Route A. Noise impacts from construction would be similar to those for Route A: short-term, minor to moderate, and adverse. Although portions of the fence would be closer to the river (e.g., Section O-19), potential short-term adverse impacts on aquatic habitats due to siltation are not anticipated to exceed negligible assuming implementation of standard BMPs during construction.

4.8.3 Alternative 3: Secure Fence Act Alignment Alternative

The nature of impacts of Alternative 3 would be similar to those of Alternative 2; however, the area impacted (1,270 acres) would be larger, resulting in greater intensity and duration of impacts.

Short- and long-term adverse impacts on wildlife due to habitat conversion resulting from implementation of Alternative 3 would be moderate to major. Short- and long-term beneficial impacts due to protection provided by the fence along Route B would range from minor to moderate, depending upon the location. Noise impacts from construction would be short-term and adverse, but would range from moderate to major in intensity. Given the larger footprint of this alternative and the correlated increased risk of runoff during storm events, the adverse impacts of this alternative on aquatic resources due to siltation could increase.

4.9 SPECIAL STATUS SPECIES

4.9.1 Federal Species

Section 7 of the ESA requires Federal agencies to consult with the USFWS when actions could affect federally listed species or designated critical habitat. Pre-consultation coordination with USFWS is underway for this project. The USFWS has provided critical feedback on the location and design of fence sections to avoid, minimize, or mitigate potential impacts on listed species or designated critical habitat. USBP is developing the Biological Assessment in coordination with the USFWS. Potential impacts of fence construction, maintenance, and operation will be analyzed in both the Biological Assessment and BO to accompany the Final EIS.

Potential impacts on federally listed species are based on currently available data. Impacts are developed from a NEPA perspective and are independent of any impact determinations made for the Section 7 consultation process. Impact categories used in this document cannot be assumed to correlate to potential impact determinations that have not yet been made.

4.9.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, new tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP Rio Grande Valley Sector. Anticipated continuation or even increases in cross border violator traffic would be expected to have some adverse impacts on federally listed species, especially plants. These impacts are anticipated to be short- and long-term, minor to moderate, and adverse.

4.9.1.2 Alternative 2: Routes A and B

Route A

Under Route A, a 60-foot-wide corridor containing the proposed pedestrian and patrol roads would be cleared during construction and a portion maintained following construction to support long-term maintenance, sight distance, and patrol activities. For the period of construction, lay-down areas for materials and equipment would be identified within the disturbed proposed project corridor. Route A would follow the IBWC levee system for the majority of its length; however, some proposed fence sections would encroach on portions of unique or protected habitats. The proposed fence alignment would cross several Texas state parks and WMAs in the Rio Grande Valley and would intersect LRGVNWR at several locations (see **Appendix I**). Potential threats to federally listed species in these areas include trampling (for plants), habitat conversion, and noise.

Approximately 508 acres of vegetation would be cleared along the proposed project corridor for the Route A. Route A approaches known locations of individuals of Texas ayenia, Walker's manioc, and Zapata bladderpod. Implementation of Route A would be anticipated to have the potential for short-term major adverse impacts on these species due to trampling or mortality during fence construction. Long-term negligible to minor beneficial impacts could result from reduction or prevention of cross-border violator traffic through habitats for and populations of these species, but funneling of cross-border violators into occurrences of Texas ayenia, Walker's manioc, and Zapata bladderpod could have long-term major adverse impacts on these species.

The loss of approximately 125 acres of disturbed thornscrub shrubland and woodland habitat, predominantly honey mesquite and retama, and of approximately 50 acres of disturbed floodplain shrubland, woodland, and forest habitat, predominantly honey mesquite and sugarberry and to a lesser extent sabal palm, would represent a loss of approximately 150 acres of potential ocelot and jaguarundi habitat. The short- and long-term loss of potential habitat for these species is anticipated to result in short- and long-term, moderately adverse impacts on ocelots and jaguarundi. Long-term beneficial impacts due to protection of habitat provided by the fence along Route A would be anticipated to range from minor to moderate, depending upon the location.

For Route A, short-term moderate adverse impacts would be anticipated for ocelots and jaguarundi due to elevated noise levels during construction. These elevated noise levels could interfere with important communications, dispersal of individuals, and predator-prey interactions.

Route B

Route B would impact approximately 508 acres, similar to Route A. While Route B would cut across the lower portions of Los Velas and Los Velas West annexes of the LRGVNWR (Section O-2), it would entirely avoid the potentially more species-rich Arroyo Ramirez annex (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16) of the LRGVNWR.

Route B pulls the proposed fence alignment further away from several known locations of Zapata bladderpod and Walker's manioc. For this reason, Route B impacts on federally listed plants are anticipated to be short-term, moderate, and adverse. Long-term negligible to minor beneficial impacts could result from reduction or prevention of cross-border violator traffic through habitats for and populations of these species.

Short- and long-term adverse impacts on federally listed species due to habitat conversion resulting from development of Route B would be less than those for Route A, but would still fall into the moderate range. Short- and long-term beneficial impacts due to protection provided by the fence along Route B would also be anticipated to range from minor to moderate, depending upon the location. Noise impacts from construction would be similar to those for Route A: short-term, moderate, and adverse.

4.9.1.3 Alternative 3: Secure Fence Act Alignment Alternative

The nature of impacts of Alternative 3 would be similar to those of Alternative 2; however, the area impacted (1,270 acres) would be larger, resulting in greater intensity and duration of impacts.

Short- and long-term adverse impacts on federally listed species due to trampling (plants) and habitat conversion resulting from implementation of Alternative 3 would be major. Short- and long-term beneficial impacts due to protection provided by the fence along Route B would range from minor to moderate, depending upon the location. Noise impacts from construction would still be short-term and adverse, but would increase to moderate to major in intensity.

4.9.2 State Species

4.9.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, new tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the Rio Grande Valley Sector. Anticipated continuation or even increases in cross-border violator traffic would be expected to have some adverse impacts on state-

listed species. These impacts are anticipated to be short- and long-term, minor to moderate, and adverse.

4.9.2.2 Alternative 2: Routes A and B

Route A

Under the Proposed Action, Route A, a 60-foot-wide corridor containing the proposed new pedestrian fence and access/patrol roads on either side would be cleared during construction and a portion maintained following construction to support long-term maintenance, sight distance, and patrol activities. For the period of construction, lay-down areas for materials and equipment would be identified within the disturbed proposed project corridor. Route A would follow the IBWC levee system for the majority of its length; however, some proposed fence sections would encroach on portions of unique or protected habitats. The proposed fence alignment would cross several Texas state parks and WMAs in the Rio Grande Valley and would intersect LRGVNWR at several locations (see **Appendix I**). Potential threats to state-listed species in these areas include habitat conversion during fence construction, increased mortality during construction and subsequent use of patrol roads, and noise.

Habitat loss or conversion for state-listed species in Sections O-1, O-2, O-8, and O-10 (i.e., Mexican treefrog, Mexican burrowing toad, Texas horned lizard, white-lipped lizard) would affect a small area and would be of little consequence to statewide viability of these species. BMPs to avoid and minimize impacts, such as pre-construction clearance surveys, are anticipated to reduce potential impacts to minor or lower in intensity. Increased heavy traffic in the short term, and patrol traffic in the long term would be anticipated to have a correlated increased potential for mortality of these species through roadkill. Noise created during construction would be anticipated to result in short-term, minor to moderate, adverse impacts on these state-listed species.

Overall, short-term minor to moderate adverse impacts from construction would be expected, while long-term minor adverse impacts from maintenance and operation would be expected due to potential mortality on associated roads. However, long-term minor beneficial impacts could result from reduced foot traffic in areas on the north side of the proposed project corridor.

There is one state-listed fish species known to overlap with proposed fence sections in the USBP Rio Grande Valley Sector. The Rio Grande silvery minnow could potentially occur in the Rio Grande in three sections (O-18, O-19, and O-21). Removal of vegetation and grading during construction could temporarily increase siltation in the river. However, implementation of standard BMPs, such as use of silt fences, should reduce this potential impact to negligible. Therefore short-term negligible adverse impacts on this species would be expected.

Habitat conversion and noise impacts on state-listed species in all other fence sections are anticipated to be negligible in both the short and long terms. These sections did not present high-quality habitat for state-listed species, and no species were observed in these sections during the surveys (see **Appendix I**).

Route B

Route B would impact approximately 508 acres, similar to Route A. While Route B would cut across the lower portions of Los Velas and Los Velas West annexes of the LRGVNWR (Section O-2), it would entirely avoid the potentially more species-rich Arroyo Ramirez annex (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16) of the LRGVNWR.

Because Route B would impact less of Section O-1, which is particularly species-rich, the impacts as a result of this alternative on state-listed species are anticipated to be less than those for Route A. Route B impacts due to construction would be short-term, negligible to minor, and adverse, while impacts from maintenance and operation would be long-term, negligible to minor, and adverse due to potential mortality on associated roads. However, long-term minor beneficial impacts could result from reduced foot traffic in areas north and south of the proposed project corridor. Impacts from noise for Route B would be similar to those for Route A.

4.9.2.3 Alternative 3: Secure Fence Act Alignment Alternative

The nature of impacts of Alternative 3 would be similar to those of Alternative 2; however, the area impacted (1,270 acres) would be larger, resulting in greater intensity and duration of impacts.

Short- and long-term adverse impacts on state-listed species due to habitat conversion and roadkill mortality resulting from implementation of Alternative 3 would be major. Noise impacts from construction would be short-term and adverse, but would range from moderate to major in intensity. Short- and long-term beneficial impacts due to protection provided by the fence along Route B would range from minor to moderate, depending upon the location.

4.9.3 Migratory Birds

4.9.3.1 Alternative 1: No Action Alternative

Under the No Action Alternative, new tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP Rio Grande Valley Sector. Anticipated continuation or even increases in cross border violator traffic would be expected to have some adverse impacts on

migratory birds. These impacts are anticipated to be short- and long-term, minor to moderate, and adverse.

4.9.3.2 Alternative 2: Routes A and B

Route A

Under Route A, a 60-foot-wide corridor containing the proposed pedestrian fence and patrol roads would be cleared during construction and a portion maintained following construction to support long-term maintenance, sight distance, and patrol activities. For the period of construction, lay-down areas for materials and equipment would be identified within the disturbed proposed project corridor. Route A would follow the IBWC levee system for the majority of its length; however, some proposed fence sections would encroach on portions of unique or protected habitats. The proposed fence alignment would cross several Texas state parks and WMAs in the Rio Grande Valley and would intersect LRGVNWR at several locations (see **Appendix I**). Potential threats to migratory birds in these areas include habitat conversion during fence construction, increased mortality during construction and subsequent use of patrol roads, and noise.

Approximately 508 acres of vegetation would be cleared along the proposed project corridor for Route A. Impacts on migratory birds could be substantial, given the potential timing of fence construction. However, implementation of BMPs to avoid or minimize adverse impacts could markedly reduce their intensity. The following is a list of BMPs recommended for reduction or avoidance of impacts on migratory birds:

- Any groundbreaking construction activities should be performed before migratory birds return to the area (approximately 1 March) or after all young have fledged (approximately 31 July) to avoid incidental take.
- If construction is scheduled to start during the period in which migratory bird species are present, steps should be taken to prevent migratory birds from establishing nests in the potential impact area. These steps could include covering equipment and structures, and use of various excluders (e.g., noise). Birds can be harassed to prevent them from nesting on the site. Once a nest is established, they cannot be harassed until all young have fledged and left the nest site.
- If construction is scheduled to start during the period when migratory birds are present, a supplemental site-specific survey for nesting migratory birds should be performed immediately prior to site clearing.
- If nesting birds are found during the supplemental survey, construction should be deferred until the birds have left the nest. Confirmation that all young have fledged should be made by a competent biologist.

Because not all of the above BMPs can be fully implemented due to time constraints of fence construction, a Migratory Bird Depredation Permit will be obtained from USFWS.

Assuming implementation of the above BMPs to the fullest extent feasible, impacts of Route A on migratory birds is anticipated to be short- and long-term, minor, and adverse due to construction disturbance and associated loss of habitat, and long-term, minor, and beneficial due to reduction of foot traffic through migratory bird habitat north of the proposed project corridor.

Route B

Route B would impact approximately 508 acres, similar to Route A. While Route B would cut across the lower portions of Los Velas and Los Velas West annexes of the LRGVNWR (Section O-2), it would entirely avoid the potentially more species-rich Arroyo Ramirez annex (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16) of the LRGVNWR. In addition, Route B borders instead of intersects the southern boundary of the Phillips Banco annex of the LRGVNWR.

As with Route A, not all of the migratory bird BMPs described above can be fully implemented due to time constraints of fence construction. Therefore, a Migratory Bird Depredation Permit will be obtained from USFWS.

Assuming implementation of the above BMPs to the fullest extent feasible, impacts of Route B on migratory birds is anticipated to be short- and long-term, minor, and adverse due to construction disturbance and associated loss of habitat, and long-term, minor, and beneficial due to reduction of foot traffic through migratory bird habitat north of the proposed project corridor.

4.9.3.3 Alternative 3: Secure Fence Act Alignment Alternative

Under this alternative, the proposed project corridor would increase to 130 feet, which is slightly more than double that associated with Alternative 2 (60 feet). Impacts on migratory bird species would be similar to those described for the Alternative 2, but more extensive in nature. Given the extensive habitat disturbance and loss associated with the larger footprint of this alternative, moderate to major short- and long-term adverse impacts would be anticipated. Long-term beneficial impacts due to reduction of foot traffic through habitat north of the proposed project corridor would remain minor.

4.10 CULTURAL RESOURCES

4.10.1 Alternative 1: No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, patrol roads, or other facilities

within the USBP Rio Grande Valley Sector. Since there would be no tactical infrastructure built, impacts on cultural, historical, and archaeological resources, including historic properties, would continue to be affected by cross border violator activities.

4.10.2 Alternative 2: Routes A and B

Route A

Section O-1 would extend along the southern boundary of the NHL-designated Roma Historic District and parallel the Rio Grande. The Roma Historic District would incur long-term major adverse impacts associated with Route A construction would atop the bluff at the western and southern edges of the historic district under Route A. The infrastructure would constitute an element out of character with the historic district and alter its historic setting and relationship to the river.

Section O-2 would cross the southern tip of the Fort Ringgold Historic District, including a portion of the archaeological component of the district. The historic buildings of Fort Ringgold are distant from the southern tip of the district, which slopes down to the Rio Grande; the impacts associated with Route A on the viewshed and setting of these buildings is thus minimized. Moreover, there is thick vegetation and intervening buildings between the historic buildings at Fort Ringgold and the Rio Grande to provide considerable visual screening. Proposed grading for access roads and patrol roads on Fort Ringgold might adversely impact archaeological resources.

Section O-3 would be near the Los Ebanos POE and ferry, and within the southern and eastern side of the community of Los Ebanos. The POE, ferry, Las Cuervas ebony, and surrounding area could be eligible for listing in the NRHP as a historic landscape, or for their historical or engineering significance. Route A would be approximately 250 feet from the ferry crossing, and would present substantial impacts on the viewshed and setting of the ferry and POE. Route A also would surround the community of Los Ebanos to its south and east. Because the Rio Grande is very close to the eastern side of the community, there would be long-term major adverse impacts on the viewshed and setting of any historic properties identified within the community. Los Ebanos has a community cemetery located on its western side. Impacts on the Los Ebanos POE, ferry, and community would be long-term, major, and adverse.

Section O-5 is approximately one-quarter to one-half mile south of the La Lomita Historic District. Because there is substantial vegetative screening at the southern and eastern portions of the historic district, impacts on the viewshed and setting of this district would be minor to moderate.

Section O-6 would extend north/south along the western boundary of the Louisiana-Rio Grande Canal Company Irrigation System Historic District. It

would be constructed adjacent to the Old Hidalgo Pumphouse on its eastern and western sides and continue easterly within the southern portion of the district for a distance of approximately 1.5 miles, crossing into an area of open irrigation canals that are contributing properties of the historic district. The proposed fence would be very visible from Levee Street and nearby streets, and from the Old Hidalgo Pumphouse grounds. However, the view of the fence would be somewhat minimized by the substantial existing landscaping of the pump house grounds. Fence designs or other construction design mitigation measures might be able to further minimize impacts on the pump house. In addition to impacts on the historic pump house, the extension of the infrastructure into the canal system would constitute a direct adverse impact on those features of the historic district. In summary, Route A would have long-term, major, and adverse direct and indirect impacts on the historic district. USBP is committed to working with the City of Hidalgo, community, and THC to identify mitigation design measures to minimize impacts on the historic district and historic Old Hidalgo Pumphouse.

Section O-10 would pass to the south of and approximately 0.3 miles from Toluca Ranch. Because the southern portion of the property has many mature trees and other vegetation, the house and other buildings would have some screening from the proposed project. Impacts on the viewshed and setting of the historic district would be moderate.

Section O-14 would pass immediately south of the Landrum House, a Recorded Texas Historic Landmark since 1978. The Landrum House is not listed in the NRHP, but would be eligible for the NRHP for its historical and architectural significance. The house was constructed in 1902 for Frances and James Landrum (THC 2007). The house and associated outbuildings would incur long-term, major adverse indirect impacts and potentially some direct impacts should the APE impact any associated archaeological deposit of this property.

Section O-17 is close to (approximately 0.25 miles north) the Sabas Cavazos Cemetery, established in 1878 with the burial of a rancher and businessman, Sabas Cavazos (THC 2007). Route A would not impact this resource.

In Section O-19, Route A curves northward close to the developed portion of Brownsville, west of the park near the POE, and continues south along the western side of the Fort Brown Historic District, a designated NHL. The proposed fence would be visible from 12th Street and portions of nearby streets. However, the infrastructure related to the POE and the park located west of the POE would somewhat minimize the impact of the proposed fence. The route continues west of the historic buildings of Fort Brown that are now integrated into the University of Texas/Texas Southmost College campus, extends north/south immediately west of the Neale House, and then takes an easterly route along the northern boundary of the historic district along the U.S. section of the IBWC levee. A golf course is located south of the levee and within the boundaries of the NHL historic district. Although there are significant historic properties in the area of Route A, there also is substantial development. The historic buildings of

Fort Brown are part of the university campus with other buildings, landscaping, streets, and parking lots. The historic buildings are located a distance from Route A. The new development provides some measure of visual screening. The integrity of the archaeological component of Fort Brown is unknown, and might have been impacted by prior activities. Additional research will be conducted including consultation with the THC on the potential adverse impacts (direct and indirect) and potential mitigation measures will be identified in the Final EIS. Route A would present major long-term indirect and possibly direct impacts on the Neale House since it would be immediately west of the house. Section O-19 would cause moderate to major, adverse, long-term impacts on the viewshed and setting of historic properties.

Section O-21 would parallel the southern boundary of the Old Brulay Plantation at a distance of approximately 100 feet or less from the historic district complex. Construction of the tactical infrastructure likely would impact the viewshed and setting of this complex, and could also directly impact historical archaeological materials related to the plantation. Impacts would be long-term, major, and adverse. The historic complex could be damaged from construction activities. The Brulay Cemetery is about 1,000 feet to the north of the alignment, but would not be impacted.

Archaeological resources between the 21 proposed tactical infrastructure sections could be adversely impacted by the funneling of cross border violators into the areas where there would be no fence. Increased foot traffic around the ends of sections of fence in remote areas would reduce vegetation, disturb soils, and could uncover and destroy unknown resources. Since the locations of the 21 sections were based on USBP operational requirements, including the ability to make apprehensions, the extent of disturbance should be minor and adverse. BMPs would include an Unanticipated Discovery Plan for Cultural Resources.

Route B

Under Route B, Section O-1, like Route A, would extend along the southern boundary of the Roma Historic District and parallel the river. The two routes are equivalent through the Roma Historic District; therefore, the major long-term adverse impacts from Route B would be the same as Route A. Route B would extend further north into the neighborhood south of bridge. The viewshed and setting of the southern end of the historic district would be adversely affected by the infrastructure as it ascends and is atop the bluff. Historic properties within the residential neighborhood south of the bridge could be directly or indirectly impacted by Route B.

Section O-2 would cross the southern tip of the Fort Ringgold Historic District, including a portion of the district's archaeological component. Route B would have the same impacts as Route A. Proposed grading for fencing and patrol roads on Fort Ringgold might adversely impact archaeological resources. Additional archaeological surveys will be conducted to evaluate the nature and

significance of the Fort Ringgold site in this area, the result of which will be presented in the Final EIS.

Section O-3 is near the Los Ebanos POE and ferry, and within the southern and eastern side of the community of Los Ebanos. Route B extends west of the community of Los Ebanos, south near the area of the ferry, and surrounds the community of Los Ebanos on its south and east. It is further away from the ferry crossing than Route A, but is closer to the western portion of the community. Route B, as proposed, would have substantial impacts on the viewshed and setting of the ferry and POE area, although less than Route A. Adverse impacts on the community of Los Ebanos would be somewhat greater under Route B compared to Route A. Los Ebanos has a community cemetery on its western side. Impacts on Los Ebanos POE, ferry, and community would be long-term, major, and adverse.

Section O-5, Route B would have the same impacts on the La Lomita Historic District as Route A. Because there is substantial vegetative screening at the southern and eastern portions of the historic district, impacts on the viewshed and setting of this district are expected to be minor to moderate.

Under Route B, Section O-6 is identical to Route A in the vicinity of the Louisiana-Rio Grande Canal Company Irrigation System Historic District and would have the same impacts as noted in the discussion of this section under Route A. USBP is committed to working with the City of Hidalgo, community, and THC to identify solutions to minimize impacts on the historic district and historic Old Hidalgo Pumphouse.

In Section O-19, Route B parallels the Rio Grande, while Route A curves northward close to the developed portion of Brownsville. Route B presents a route farther away from many historic properties in Brownsville, although its route might have greater impacts on archaeological resources because it is an area with less development and, therefore, greater potential for undiscovered archaeological resources. Near the POE, Route B adopts the same alignment as Route A. The impacts on known cultural resources associated with selection of Route B in this part of Section O-19 are, therefore, identical to those discussed for Route A. Route B would present major long-term indirect and possibly direct impacts on the Neale House since it would be immediately west of the house. Section O-19, Route B would cause moderate to major, adverse, long-term indirect impacts on historic properties.

Sections O-10, O-14, O-17, and O-21 have the same alignment under Route B as noted under Route A. The impacts on known cultural resources associated with selection of Route B are identical to those discussed for Route A.

Archaeological resources between the 21 proposed tactical infrastructure sections could be adversely impacted by the funneling of cross border violators into the areas where there would be no fence. Increased foot traffic between

sections of fence in remote areas would reduce vegetation, disturb soils, and could uncover and destroy undiscovered resources. Since the locations of the 21 sections were based on USBP operational requirements, including the ability to make apprehensions, the extent of disturbance should be minor and therefore the adverse impact would be minor, adverse, and permanent. BMPs would include an Unanticipated Discovery Plan for Cultural Resources.

4.10.3 Alternative 3: Secure Fence Act Alignment Alternative

Under Alternative 3 of the Proposed Action, a double-layered fence with the patrol road in the median would require a 130-foot-wide corridor. Impacts from Alternative 3 would be long-term, adverse, and major on historic properties, including the Roma Historic District; Fort Ringgold; Los Ebanos ferry, POE, and community; La Lomita Historic District; Rancho Toluca Historic District; Landrum House; Fort Brown; Neale House; and Old Brulay Plantation

4.10.4 Treatment of Historic Properties

USBP would identify measures to avoid, minimize, or mitigate adverse impacts on historic properties in consultation with the THC and other parties by complying with Section 106 of the National Historic Preservation Act. Other consulting parties, including the THC, federally recognized Native American tribes that might attach religious and cultural significance to historic properties affected by the project, representatives of local governments, landowners, and historic preservation groups and individuals, would be involved.

Mitigation measures could include recordation of affected architectural resources to the standards outlined by the Historic American Building Survey (HABS) or Historic American Engineering Record (HAER), or recovering archaeological data through a data recovery effort. Additionally, there are other treatment options that would be investigated. Methods for avoiding, minimizing, or mitigating impacts on resources of traditional, religious, or cultural significance to Native American tribes will be determined in consultation with tribes having ancestral ties to the USBP Rio Grande Valley Sector.

4.11 AESTHETICS AND VISUAL RESOURCES

The Proposed Action would impact visual resources both directly and indirectly. Construction of tactical infrastructure would result in the introduction of both new temporary (e.g., heavy equipment, supplies) and permanent (e.g., fencing and patrol roads) visual elements into existing viewsheds. Clearing and grading of the landscape during construction, as well as demolition of buildings and structures within the proposed project corridor corridor, would result in the removal of visual elements from existing viewsheds. Finally, the fence sections would create a physical barrier potentially preventing access to some visual resources.

Impacts on aesthetic and visual resources would include short-term impacts associated with the construction phase of the project and use of staging areas, recurring impacts associated with monitoring and maintenance, and long-term impacts associated with the completed action. Impacts can range from minor, such as the impacts on visual resources adjacent to the proposed project corridor when seen from a distance or when views of fences are obstructed by intervening elements (e.g., trees, buildings) to major, such as the intrusion of fence sections into high-quality views within the LRGVNWR or the setting of an NHL. The nature of the impacts would range from neutral for those land units containing lower quality views or few regular viewers, to adverse, for those land units containing high-quality views, important cultural or natural resources, or viewers who would have constant exposure to the fence at close distances. Beneficial impacts are also possible (e.g., addition of the fence increases the unity or dramatic impact of a view, removal of visual clutter within the proposed project corridor clarifies a view, or a viewer positively associates the fence with a feeling of greater security), but are considered to be less common.

4.11.1 Alternative 1: No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, patrol roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP Rio Grande Valley Sector. Therefore, there would be no adverse impact attributable to construction, operation, or maintenance of the proposed tactical infrastructure. Conversely, the potential beneficial impacts of unifying a cluttered landscape in some areas would not be realized, however minor or subjective this beneficial impact might be.

4.11.2 Alternative 2: Routes A and B

Under Alternative 2, a single line of fence and an associated patrol road would be constructed along either the routing depicted as Route A or Route B (see **Appendix F**). Although the choice of routing might alter the impacts on specific visual resources within the proposed project corridor (i.e., avoidance of section of park/refuge or culturally significant resource), the broader visual impacts associated with the two routes are comparable.

Route A

Project Characteristics. The primary introduced visual elements associated with Route A are the single line of fencing, gates, patrol roads, access roads, and construction clutter (stockpiles of supplies and heavy equipment during construction). Route A would also potentially remove existing visual elements, such as buildings, vegetation, and subtle landforms (through grading or filling) that occur within the 60-foot permanent proposed project corridor. Finally, the fence would act as a physical barrier between viewers and those views that can

only be viewed from vantage points on the other side of the fence (e.g., views from the tops of levees).

Of these, addition of the line of fencing and the associated patrol road, removal of existing elements from the proposed project corridor, and the loss of access to specific visual resources due to the fact that the fence is a barrier would have long-term impacts on visual resources, while the remaining elements would have temporary or short-term impacts limited to the period of construction. The nature (adverse or beneficial) and degree (minor to major) of the long-term impacts can be affected by the appearance of the fencing (width, height, materials, color), the patrol road (paved or unpaved, width), and the access roads (number, paved or unpaved, width).

Removal of existing visual elements would also constitute a long-term impact. Where the existing element adds to the visual character and quality of the resource, the impact of its removal would be adverse. Where the existing element detracts from the visual character and quality of the resource (e.g., rusted equipment or dead trees), the impact of removal could be beneficial. In all cases, removal of existing elements would have the net result of exposing more of the fence, patrol road, and other tactical infrastructure; in settings where the addition of the fence is considered to have a major adverse impact on visual resources, any benefit accruing from removal of existing elements would be outweighed by the more dominant adverse visual impact of the fence.

The impacts associated with the loss of access to specific visual resources can be affected primarily by the placement of the fence relative to those resources and inclusion of gates that allow access to those resources. USBP has already included provisions for a number of gates to allow access to agricultural fields, businesses, and cemeteries. These gates also allow access to some of the visual resources that would otherwise be blocked. Proposed gate locations are described in **Appendix D**.

Visual Resource Concerns. In **Section 3.11.2**, **Tables 3.11-1** and **3.11-2** provided a summary of the character and quality of visual resources currently present within the proposed project corridor. **Tables 4.11-1** and **4.11-2** show how implementation of Route A would likely alter the character and quality of existing visual resources within each land unit. **Figures 4.11-1** through **4.11-4** provide examples of typical impacts; these images show the impacts associated with the addition of a fence constructed using a type of pedestrian fence currently being constructed in other USBP sectors. These photographs provide approximations of the degree of alteration that would result from introduction of the fence and patrol road to these viewsheds.

In general, within park/refuge land units, the introduction of the fence and removal of vegetation from the proposed project corridor would likely constitute an adverse impact on the character and quality of visual resources. The degree

Table 4.11-1. Impact on the Character of Visual Resources within Typical Rio Grande Valley Land Units

Land Units	Line	Color	Form	Texture
Park/Refuge	The fence and patrol road also represent horizontal lines, but might disrupt existing layers and gentle curves, particularly where the fence would be taller than surrounding vegetation. Clearing and grading would introduce a visual break in the vegetation pattern.	The current fence design parameters call for fencing to be black. The vertical posts in the fence might blend with tree trunks and the transparent mesh "disappear" with distance.	The fence and patrol road are rectilinear in form and would contrast with existing forms in this land unit.	As man-made, synthetic elements, the fence and patrol road would contrast with the dominant texture of this land unit.
Rural	At short distances the fence would introduce a primarily horizontal line that might blend with other dominant horizontal lines like the levee and field breaks. The patrol road and access roads also should blend, both at short and longer distances. With greater distance, the mesh of the fence would "disappear," making the vertical bollards of the fence the dominant line. These vertical lines might blend where other vertical elements are present (power poles, silos, remote video surveillance system) depending on the height of those elements in each area. The regularity of the lines could contrast with less regular lines.	The current fence design parameters call for fencing to be black. The vertical posts in the fence might blend with tree trunks and the transparent mesh "disappear" with distance.	The fence and patrol road are rectilinear in form and might result in greater domination of rectilinear forms compared to organic forms when viewed at a distance.	As a man-made, synthetic element, the fence would contrast with the dominant textures of this land unit. The patrol roads and access roads would not significantly alter the viewshed for most rural landscapes, as a number of roads and field breaks are already present in this land unit.

Land Units	Line	Color	Form	Texture
Town/Suburban Development	Because this land unit already includes a mixture of horizontal and vertical lines, the introduction of additional vertical lines would be consistent with the existing landscape from a distance. In closer proximity, however, the height and regularity of the fence line would likely contrast with existing lines.	The current fence design parameters call for fencing to be black. This coloration might blend or contrast with its surroundings depending on the colors in the foreground and background.	Because this land unit contains a larger number of rectilinear forms than the previous land units, the rectilinear forms of the fence and associated roads are more likely to blend with the forms of this land unit. The massing of the fence (height and length) would likely contrast with most other rectilinear forms, however.	Because this land unit contains a variety of textures, the textures of the fence and associated roads are more likely to blend with the textures of this land unit at least at a distance. Up close, the fence would contrast against natural textures and be more prone to blend with man-made elements.
Urban/Industrial	Because this land unit already includes a mixture of horizontal and vertical lines, the introduction of additional vertical lines would be consistent with the existing landscape from a distance. In closer proximity, however, the height and regularity of the fence line would likely contrast with existing lines.	The current fence design parameters call for fencing to be black. This coloration might blend or contrast with its surroundings depending on the colors in the foreground and background.	Because this land unit contains a larger number of rectilinear forms than the previous land units, the rectilinear forms of the fence and associated roads are more likely to blend with the forms of this land unit. Depending on the forms in the immediate area, though, the massing of the fence (height and length) could blend or contrast with existing forms.	Because this land unit contains a variety of textures, the textures of the fence and associated roads are more likely to blend with the textures of this land unit at least at a distance. Up close, the fence would contrast against natural textures and be more prone to blend with man-made elements.

Table 4.11-2. Quality of Visual Resources within Typical Rio Grande Valley Land Units After Proposed Construction

Land Units	Vividness	Intactness	Unity	Rating
Park/Refuge	Moderate	Moderate	Moderate	Moderate
Rural	Moderate	Moderate/High	Moderate	Moderate
Town/Suburban Development	Low/Moderate	Low/Moderate	Low/Moderate	Low/Moderate
Urban/Industrial	Low to High	Low/Moderate	Low to High	Moderate

of the impact would vary depending on the height of surrounding vegetation and the presence of any other visually intrusive elements. For example, where the fence is shorter than the levee and the view towards the levee is obscured by thick vegetation, the fence would have less of a visual impact than in those areas where clearings or shorter vegetation make the fence more visible. In those sections where the park/refuge land unit is visually intruded upon by other land units (i.e., this land unit is concentrated into a small area, as in Sections O-4, O-5, O-6, O-7, O-8, O-10, O-13, and O-16), impacts on visual resources associated with this land unit would be less compared to those in sections that are dominated by the park/refuge unit.

In rural land units, the fence might blend with other linear features (e.g., levee, field breaks) to the point where the impact is neutral. The degree to which the fence contrasts with its surroundings would vary by season, as mature crops would provide a greater variety of forms and textures, as well as greater screening, of the fence compared to fallow fields. Inclusion of a larger number of other intrusive elements (visual clutter), such as utility poles or towers, water towers, and remote video surveillance system, can also reduce the overall impact on visual resources within this land unit. For this land unit, therefore, impacts could range from minor to major and neutral to adverse.

In Town/Suburban Development land units, there would likely be greater screening of the fence due to the greater variety of lines, colors, forms, and textures present; however, an 18-foot-tall fence would likely be one of the tallest man-made visual elements in this setting, reducing its ability to blend. As with the visual resources in other land units, the impact of Route A would vary depending on its immediate setting; the more exposed the fence is and the greater the contrast between it and surrounding elements, the greater the visual impact. For this land unit, therefore, impacts could range from minor to major, but would typically be adverse.

In Urban/Industrial land units, there would likely be greater screening of the fence due to the greater variety of lines, colors, forms, and textures present, and an increase in the use of other fences and more common occurrence of tall or

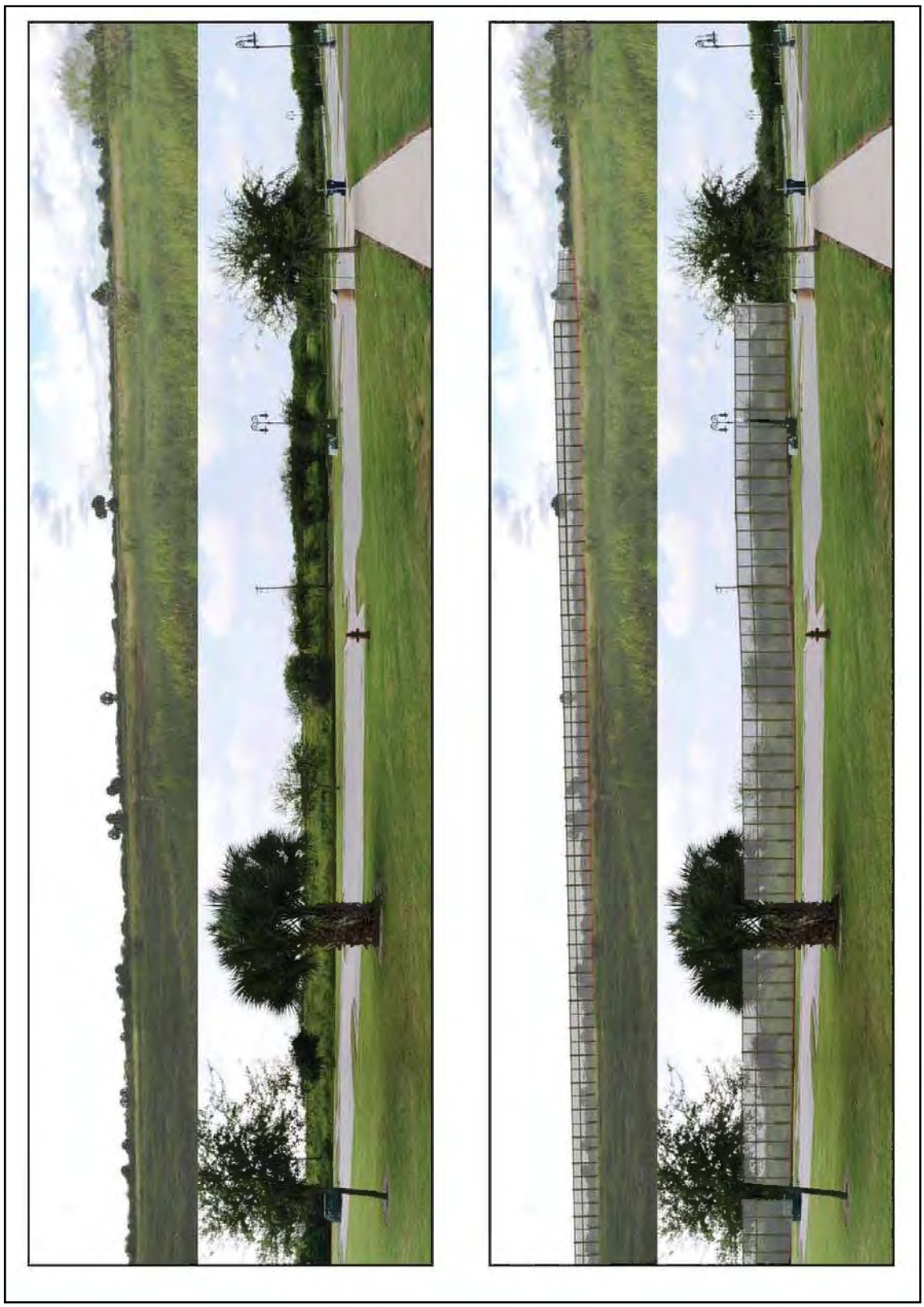

Figure 4.11-1. Typical Views Towards Proposed Project Corridor, Showing How the Park/Refuge Land Unit Would Appear with a Fence and Patrol Road

1

Figure 4.11-2. Typical Views Towards Proposed Project Corridor, Showing How the Rural Land Unit Would Appear with a Fence and Patrol Road

1

1

Figure 4.11-3. Typical Views Towards Proposed Project Corridor, Showing How the Town/Suburban Land Unit Would Appear with a Fence and Patrol Road

2

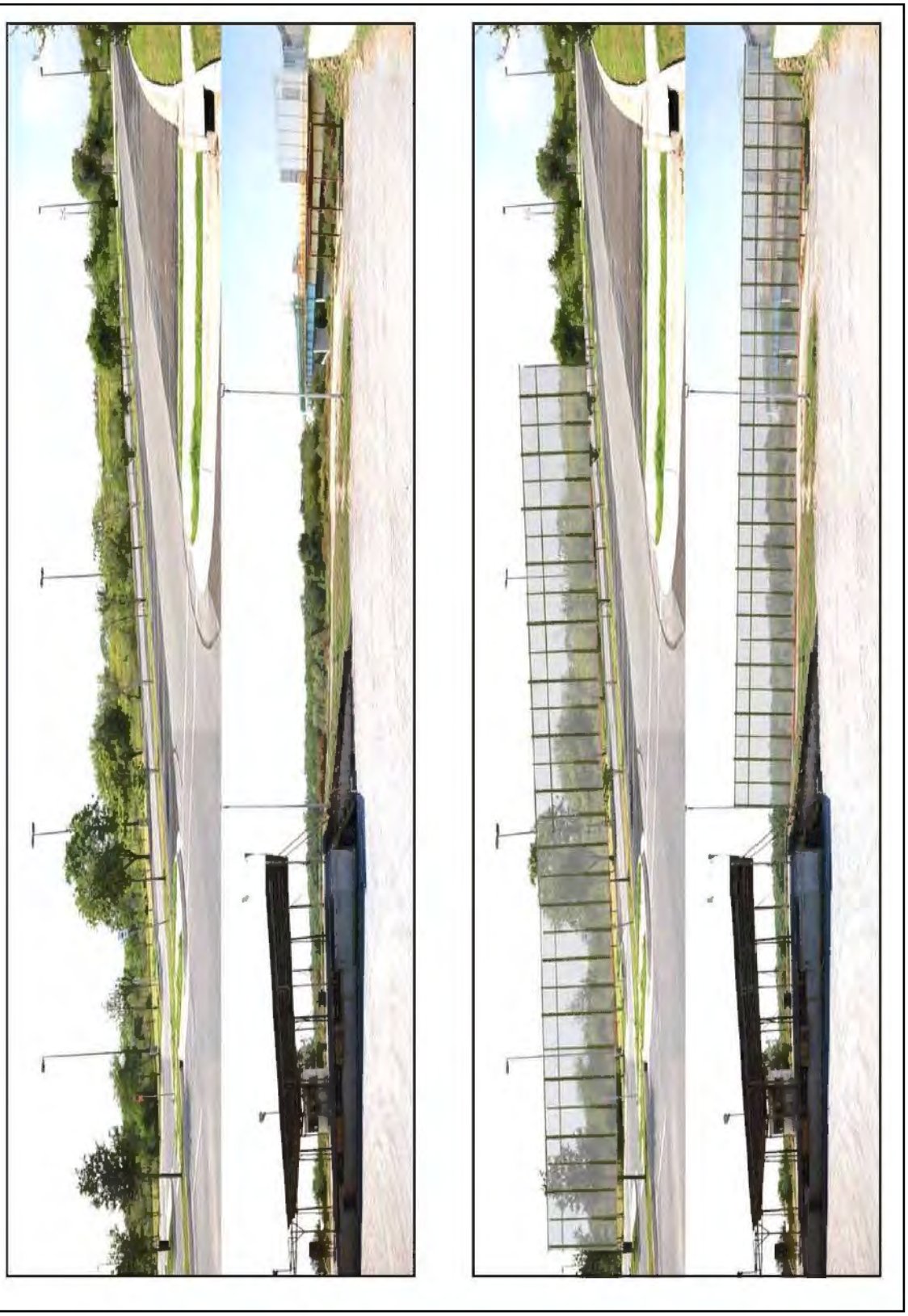

Figure 4.11-4. Typical Views Towards Proposed Project Corridor, Showing How the Urban/Industrial Land Unit Would Appear with a Fence and Patrol Road

massive forms would increase the ability of the fence to blend with its surroundings. As with the visual resources in other land units, the impact of Route A would vary depending on its immediate setting; the more exposed the fence is and the greater the contrast between it and surrounding elements, the greater the visual impact. For this land unit, therefore, impacts would range from minor to major, and neutral to adverse. The FHWA guidance (USDOT undated) cites examples where addition of a consistent aesthetic element to an urban setting helps create greater unity to the views within the land unit, thus resulting in a beneficial impact. Although this outcome is possible within this land unit type, a review of the settings along the proposed project corridor suggests that the best-case scenario would be a neutral or minor adverseimpact.

Finally, with respect to the impacts on the specific visual resources listed in **Section 3.11.1**, implementation of Route A, would likely have short- or long-term adverse impacts on the settings of those resources. The greater the distance between the resource and the intrusive visual elements (primarily the fence), and the more intervening visual elements between them, the less the degree of the impact. For example, construction of the fence at a distance of 60 feet from a historic building would typically constitute a major adverse impact, while construction of the fence several hundred feet from the resource with intervening vegetation or buildings would reduce the impact to moderate or minor. Placement of the fence within the boundaries of an NHL or historic district, particularly where there is a high degree of visual continuity between resources (few noncontributing elements) would also be considered a major adverse impact on that resource. A more detailed discussion of the impacts on the settings or viewsheds of specific cultural resources is provided in **Section 4.8.2** of this EIS.

Intrusions into the settings or viewshed of many of these resources would need to be avoided, minimized, or mitigated depending on the extent and duration of the impact. Mitigation measures could include HABS documentation of historic resources, use of different fence materials (e.g., use of brick facing on a fence where surrounding buildings are brick construction, or change of color of fencing to blend into natural settings).

Viewer Response Concerns. In **Section 3.11.1**, the pool of potential viewers was grouped into several general categories. As noted in that discussion, any single viewer would have some responses to the alteration to the visual resources in each land unit that are based on their own personal experiences and ties to those resources, and other responses tied to more common experiences (group sentiment). Specific comments received from viewers during the scoping process for this EIS identified concerns about visual impacts throughout the proposed project corridor and with some of the specific natural or cultural resources noted above, but did not identify any new visual resources of concern. It should be noted that no explicit poll of viewer responses with respect to impacts on visual resources has been conducted for this EIS.

In many respects, the principle of "not in my backyard" has a strong correlation with the responses of viewers for whom view of the fence would be regular or constant (i.e., residential, commercial, or industrial viewers). Where the fence would directly impact private property, the viewer response from the landowner is likely to be that Route A would represent a major adverse impact on visual resources visible from their property. There is also a possibility that the viewer response in this instance could be beneficial, based on a feeling of increased safety or security (e.g., fence as protection). Responses from viewers located a greater distance from the fence, particularly if their view of the fence is obstructed by other elements or is simply part of the overall visual clutter, would typically be less intense (minor) and more likely neutral, unless the fence would obstruct a visual resource considered to be of high quality or cultural importance. In general, the closer the proximity of the viewer to the fence, the more likely the response is to be major and adverse.

For viewers likely to view the fence on a less regular basis (i.e., recreational viewers, special interest viewers, intermittent viewers), viewer responses would be tied to perception of how the tactical infrastructure has altered their access (impede existing views or impede physical access to views) to valued visual resources. Although any of these groups might object on principal to any type of alteration or feel a beneficial response due to a sense of increased security, responses would be more intense and adverse where alterations downgrade the quality or character of existing visual resources. Based on the comments received during the scoping process for this EIS, viewer responses appear to range from minor to major and neutral to adverse.

As a final point, for viewers accustomed to accessing views available from the levees or from settings other than parks or refuges, the construction of the fence would place a permanent barrier between the viewer and the visual resources in those locales. By presumption, any visual resource regularly sought out by a viewer would constitute a moderate or high quality visual resource; and restricting physical access to those resources would thus constitute a long-term major adverse impact for those viewers.

Route B

Route B was developed to decrease the extent to which the fence would physically impact certain cultural and natural resources. Selection of this route thus reduces or removes some of the impacts related to access compared to Route A.

Project Characteristics. The physical characteristics of Route B are similar to those for Route A, discussed above.

Visual Resource Concerns. To the extent that Route B mirrors Route A, the concerns regarding visual resources are identical to those discussed for Route A above. Where Route B deviates from Route A, the deviation is typically done to

minimize an impact on a natural or cultural resource, resulting in a lesser visual impact relative to that resource.

- Section O-1: Route B would avoid approximately 1.01 miles of the Arroyo Mesa annex of the LRGVNWR, but could potentially impact more residential areas. The avoidance of the LRGVNWR would lessen the impacts on the high-quality views associated with this resource area; however, Route B would impact a greater number of views from private residences.
- Section O-2: To avoid some small arroyos, Route B would be extended 1.4 miles; 0.73 miles of this extra distance would cross the LRGVNWR. Route B, therefore, would impact additional visual resources within the LRGVNWR (and towards it from outside the refuge) compared to Route A.
- Section O-3: Route B represents an adjustment from the originally proposed project corridor to avoid natural areas along the Rio Grande where practical. Route B, therefore, would have fewer direct impacts on the visual resources associated with these natural areas (less removal of natural vegetation within the proposed project corridor), but would continue to visually obstruct views towards the Rio Grande and access to views along the Rio Grande.
- Section O-7: Route B represents a shortening of the originally proposed section in anticipation of the proposed Donna Canal POE. Route B would also avoid the Monterrey Banco annex of the LRGVNWR, resulting in a lessening of impacts on visual resources within the refuge.
- Section O-8: Route B represents an extension of the originally proposed section so that it meets the downriver end of the fencing to be placed for the proposed Donna POE. The increased length of fence would obstruct more visual resources compared to Route A. Tying the new fence into another fence would improve the overall consistency of the view at the tie-in point.
- Section O-9: Route B represents an extension of the originally proposed section to the west, following the IBWC levee ROW in an agricultural area. Again, an increase in the length of the section equates to an increased number of impacts on visual resources within that section compared to Route A.
- Section O-11: Route B would turn north and parallel the west side of the canal, crossing the canal farther north from the La Feria pump station. Should evaluation of the pump station determine that it represents a historic property, avoidance of this structure would have a beneficial impact on the viewshed of that resource.
- Section O-13: Route B represents a realignment of a portion of the section toward the east to avoid the Culebron Banco annex of the LRGVNWR, resulting in a lessening of impacts on visual resources within the refuge.

- Section O-14: Route B represents additional length added to the eastern end of Route A along the IBWC levee ROW. Again, an increase in the length of the section equates to an increased number of impacts on visual resources within that section compared to Route A.
- Section O-16: Route B represents a shortening of the proposed Route A to avoid traversing through approximately 0.20 miles of the Tahuachal Banco annex to the LRGVNWR, resulting in a lessening of impacts on visual resources within the refuge.
- Section O-18: Route B borders instead of intersects the Phillips Banco annex of the LRGVNWR. Although this route would reduce the impacts on visual resources within the annex, impacts would still exist relative to the views towards the annex from outside and physical access to the annex.
- Section O-19: Route B represents a realignment of the originally proposed project corridor away from an urban area on the edge of Brownsville to closer to the river bank. Route B thus minimizes the impacts on visual resources as seen from urban residences (e.g., the fence is farther away), but would still obstruct views of the Rio Grande from Brownsville and would limit access to current views along the Rio Grande.

Viewer Response Concerns. Implementation of Route B would improve viewer responses relative to impacts on specific sensitive resources, such as the LRGVNWR since Route B would avoid some of those resources. Otherwise, the viewer response concerns are comparable to those discussed for Route A.

4.11.3 Alternative 3: Secure Fence Act Alignment Alternative

Project Characteristics. In addition to those physical characteristics already noted for Alternative 2, Alternative 3 would involve addition of a second line of fencing (permanent element, long-term impact) and remove a greater number of existing visual elements due to the larger proposed project corridor. As with the single line of fencing in Alternative 2, choice of fence colors and material types could affect the nature (adverse, neutral, beneficial) or intensity (minor to major) of the impacts on visual resources in certain land units or viewshed, as could removal of existing visual elements. In general, however, having two lines of fencing amplifies the overall visual impact of Alternative 2, as does the larger proposed project corridor. Impacts related to the physical characteristics of Alternative 3 are, therefore, likely to be major and adverse compared to those of Alternative 2.

Visual Resource Concerns. Implementation of Alternative 3 would also amplify the impacts on the character and quality of visual resources within each of the land units compared to Alternative 2. The broader proposed project corridor and additional line of fencing would have a greater visual contrast and a greater chance of dominating the view in most settings, although one could argue that

parallel lines of fencing would potentially add more visual unity to some settings. Long-term impacts on the visual environment associated with Alternative 3 (permanent construction elements) would range from neutral to adverse, and moderate to major. Short-term impacts would also be more adverse and intense (moderate to major) given that construction of a double fence and wider corridor could take more time.

Viewer Response Concerns. Implementation of Alternative 3 would also amplify viewer responses, in most cases changing minor or neutral responses to moderate or major adverse responses. For the viewers with constant or close proximity exposure, a double line of fencing and larger corridor would be perceived as doubly intrusive. The proposed project corridor would intrude more closely on many landowners, increase the number of viewers that would have regular exposure, and would further complicate access to visual resources behind the far line of fencing. For viewers with less regular exposure, Alternative 3 would still likely be perceived as having a greater impact than Alternative 2, simply because it makes impacts on various visual resources more difficult to avoid.

4.12 SOCIOECONOMIC RESOURCES, ENVIRONMENTAL JUSTICE, AND SAFETY

4.12.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no change from the baseline conditions. Under this Alternative, illegal immigration, narcotics trafficking, and opportunities for terrorists and terrorist weapons to enter the United States would remain. Over time, the number of crimes committed by smugglers and some cross border violators would increase, and an increase in property damage would also be expected. If Alternative 1 were implemented, short-term local employment benefits from the purchase of construction materials and the temporary increase in construction jobs would not occur. Furthermore, money from construction payrolls that would circulate within the local economy would not be available.

4.12.2 Alternative 2: Routes A and B

Route A

Socioeconomics. Construction of proposed tactical infrastructure associated with Route A would have minor beneficial direct and indirect impacts on socioeconomics through increased employment and the purchase of goods and services. Project impacts related to employment, temporary housing, public services, and material supplies would be minor, temporary, and easily absorbed within the existing USBP Rio Grande Valley Sector regional resource and socioeconomics infrastructure. Construction would occur over approximately 8

months in 2008, with a construction workforce peaking at about 200 workers. There would be no change in the permanent workforce.

As stated in **Section 2.2.2**, the preliminary estimate to construct the proposed tactical infrastructure is approximately $210 million. This would represent approximately 8.4 percent of the estimated annual construction expenditures in the three-county region. Because much of the construction cost is in the fabrication of infrastructure components elsewhere in the United States to be shipped in, this would represent a short-term moderate beneficial impact on the local economy.

Changes in economic factors can also impact the social fabric of a community. For example, increases in permanent employment could stimulate the need for new housing units, and, as a result, increase demand for community and social services such as primary and secondary education, fire and police protection, and health care. Because there would be only a short-term increase in local employment, there would be no change in population size under this alternative. Therefore, demand for new housing units and other social services would not be expected.

Population Growth and Characteristics. Negligible short-term adverse and beneficial impacts on population growth and characteristics would be expected. Short-term moderate increases to populations would be expected in construction areas. Due to the large size of the regional construction trades industry, construction is expected to be drawn primarily from the regional workforce, with some project managers and specialized skilled workers brought in by the selected contractor. The temporary need for approximately 200 construction workers can be easily supplied by the three-county construction workforce of more than 25,000. Given the short timeframe for construction, it is unlikely that any nonlocal workers would be accompanied by their families. Therefore, the short-term nature and scale of the construction project would not induce indirect population growth in the region.

Construction of the project would require some acquisition of private property, including the potential dislocation of some property owners and tenants. Such dislocation could result in some population relocations within the region, but with little or no net change in the region's population.

Employment and Income. Minor short-term beneficial impacts, and long-term minor adverse impacts on employment and income would be expected. Each job created by implementation of Route A would generate additional jobs within companies that supply goods and services for the project. Direct and secondary jobs created would be temporary and short-term in nature. The project would not create any long-term employment in the region.

During the public scoping process, concerns were expressed that the project could hinder legitimate trade activities between the two border economies, and

that environmental impacts associated with the construction and long-term presence of the project could detract from outdoor recreation and ecotourism, particularly birding—reported to contribute $150 million to the local economy annually. Some pedestrian fence sections would be located on recreational lands. For the most part, the pedestrian fence would be approximately 30 feet from the IBWC levee system. Indirect impacts on socioeconomics from recreation and ecotourism would be tied directly to the user's perception that Route A has altered their access to valued visual or recreational resources. However, Route A would help to deter cross border violators, which would make the area safer for recreational users, ecotourists, and USBP agents in the immediate area. This could bring more users to the area that have felt it unsafe in the past. The net impacts on recreation and ecotourism are expected to be minor.

As to retail trade, research indicates cross-border trade is estimated to contribute at least $1.2 billion per year in retail trade in McAllen and Brownsville alone (Coronado and Phillips 2005). The project would not affect the operations of established border crossings and bridges, nor alter procedures affecting the ability of individuals from either the United States or Mexico to continue to travel back and forth as they now do because there is nothing inherent in the design or location of the pedestrian fence sections that would hinder or restrict normal, legal cross-border interaction. As a consequence, no long-term impacts on legitimate regional income or economic structure are anticipated.

No permanent or long-term impacts on employment, population, personal income, or poverty levels; or other demographic or employment indicators would be expected from construction. Since Route A would not measurably affect the local economy or workforce, no social impacts are expected. There would be a net short-term increase in income to the region, as the funding for the project would come from outside the area, and, as a Federal project, construction workers would be paid the "prevailing wage" under the Davis-Bacon Act, which might be higher than the average wage in the construction industry locally.

Agriculture. Overall the impact on agriculture and agricultural landowners would be adverse, moderate, and long-term. The proposed project would impact agricultural lands in two ways. First, there could be some loss of cropland along the alignment of the proposed pedestrian fence for both construction and the proposed accompanying roadways for USBP vehicles. New tactical infrastructure is expected to permanently affect a corridor 60 feet wide, although the existing levee road would serve this function on the river side of the fence. The proposal provides gates at key locations that are intended to provide landowners with access to their property, but there could be some extra distance in reaching a given field. Installation of a pedestrian fence with gates could have minor adverse impacts on landowner's access, the movement of machinery and equipment, planting and harvesting, potential problems of access for agricultural service firms (as opposed to owners/lessees), and a resulting increase in costs.

Select Public Services. Minor short-term and long-term beneficial impacts on public services would be expected. Generally, workers spend approximately 25 to 30 percent of their wages locally for food, shelter, and entertainment, which would have an indirect beneficial impact on the local economy. Other indirect impacts would be noticed through the taxes generated by purchases, as well as payroll deductions. However, based on the large size of the ROI the impacts would be minor and dispersed throughout the ROI. The objective of the pedestrian fence is to reduce illegal activity along the border. This could ease the burden of local law enforcement agencies.

Land Use. Minor to moderate adverse indirect impacts would be expected from the imminent dislocation of some families due to property acquisition. Some housing properties would either be removed or visually impaired by the pedestrian fence and adjacent patrol roads. The social aspects of dislocation could be disruptive. Many families in the proposed project corridor have lived there for decades, some even centuries, and have strong emotional ties to the family land and homes.

These impacts would be mitigated to some extent by fair compensation for the acquisition or impairment, and relocation assistance to any displaced families. However, it would still be an adverse impact on those who do not wish to relocate regardless of the level of compensation. Furthermore, renters might receive relocation assistance, but are less likely than property owners to have the resources to resettle in a comparable location.

Environmental Justice, Protection of Children, and Safety. Some adverse disproportionate impacts on minority or low-income populations would be expected. Direct beneficial impacts on safety and the protection of children are expected from the projected deterrence of cross border violators, smugglers, terrorists, and terrorist weapons from entering the United States, and therefore provide for safer communities.

The proposed infrastructure runs through or adjacent to many rural settlements, small towns, and neighborhoods within larger cities. Property owners and residents would be affected by restricted access, visual intrusion, noise and disruption during construction, and, in some cases, loss of property. In such communities as Los Ebanos (Section O-3), Granjeno (Section O-5), Peñitas (Section O-4), and others, the proposed infrastructure severs or runs at the back edge of residential properties. These communities, and the neighborhoods affected in the larger communities such as Brownsville (Section O-19) and Roma (Section O-1) are of lower income than the Census Tract of which they are a part and are clearly subject to issues of environmental justice. In cases where properties would be acquired or substantially impaired, the impact would be mitigated through purchase at a fair price.

The proposed tactical infrastructure under this alternative would have short- to long-term direct beneficial impacts on children and safety in the ROI and

surrounding areas. The addition of tactical infrastructure could increase the safety of USBP agents in the Rio Grande Valley Sector. Route A would help to deter cross-border violators in the immediate area, which in turn could prevent drug smugglers, terrorists, and terrorist weapons from entering the surrounding area.

Route B

Population Growth and Characteristics. There are no discernable differences between Routes A and B on the growth rate and characteristics of the population as in neither case is there an increase in the permanent population of the ROI.

Employment and Income. There is no discernable difference in employment or income between the two routes. To the extent that one is longer than the other, or involves more difficult construction in urban areas, one could involve a slightly different construction work force and expenditures, but at this point, there appear to be no obvious differences.

Agriculture. There are some differences in how the two routes would affect agriculture in terms of land lost and the impairment of access. But the differences vary by route among sections and neither Route A nor Route B consistently impacts agriculture in the same degree or direction. In general, sections that are longer would impact agriculture to a greater degree than would sections that are closer to the river. Thus, Route B would have a greater impact in Sections O-2, O-8, O-9, and O-14 and a lesser impact in Sections O-1 and O-7.

Select Public Services. There is no discernable difference between Route A and Route B in the impact on schools or law enforcement.

Environmental Justice, Protection of Children, and Safety. There are some moderate differences between the two routes regarding environmental justice, particularly as they affect residential properties. Again, Route A and Route B are not uniformly the same in this respect. For example, in Brownsville (Section O-19) and Los Ebanos (Section O-3), Route B is farther removed from residential properties; but in Roma (Section O-1), Route B impacts properties along Sebastian Street that are avoided by Route A.

4.12.3 Alternative 3: Secure Fence Act Alignment Alternative

Socioeconomic Resources. Short-term beneficial impacts for this alternative would be similar to those under Alternative 2. This alternative would increase the need for more construction workers and materials. Also, the USACE predicted that the 25-year life cycle costs would range from $16.4 million to $70 million per mile depending on the amount of damage sustained by the fencing (CRS 2006).

Environmental Justice, Protection of Children, and Safety. Impacts under this alternative would be similar to those discussed for Alternative 2. Direct beneficial impacts on safety and the protection of children would be expected as Alternative 3 would be designed with two layers of pedestrian fence along each section. The additional layer of fencing would deter drug smugglers, terrorists, and cross-border violators, and therefore provide for a generally safer ROI and immediate area. Environmental justice issues would be greater for Alternative 3 than for Alternative 2. Alternative 3 has a wider corridor and a more intrusive visual presence affecting the low-income, minority residents who live adjacent to the proposed infrastructure.

4.13 UTILITIES AND INFRASTRUCTURE

4.13.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no impact on utilities and infrastructure would be expected because the tactical infrastructure would not be built and therefore there is no potential for impacts on utilities and infrastructure as a result of the No Action Alternative.

4.13.2 Alternative 2: Routes A and B

Route A

Waste Supply Systems. Short-term negligible adverse impacts on the Rio Grande Valley irrigation and municipal water supply systems would be expected as a result of construction of the proposed tactical infrastructure sections near irrigation and municipal water supply infrastructure. Known infrastructure is presented in **Table 3.13-1**. All water supply infrastructure would be identified prior to construction, and impacts on these systems would be avoided to the maximum extent practical. Canals would be avoided to the maximum extent practicable. Pipelines that could not be avoided would be moved. Temporary interruptions in irrigation might be experienced when this infrastructure is moved. No long-term impacts would be expected.

Drainage Systems. Short-term negligible adverse impacts on Rio Grande Valley irrigation and storm water drainage systems would be expected. Known infrastructure is presented in **Table 3.13-1**. All drainages would be identified prior to construction and impacts on these systems would be avoided to the maximum extent practical. Adherence to proper engineering practices and applicable codes and ordinances would reduce storm water runoff-related impacts to a level of insignificance. In addition, erosion and sedimentation controls would be in place during construction to reduce and control siltation or erosion impacts on areas outside of the construction site. All storm water drainages would be identified prior to construction and impacts on these systems would be minimal.

Municipal Sanitary Sewer Systems. Short-term minor adverse impacts on municipal sanitary systems would be expected. Known infrastructure that could be impacted is presented in **Table 3.13-1**. All sanitary sewer infrastructure would be identified prior to construction and impacts on these systems would be avoided to the maximum extent practical. Any outfall pipes that would be affected by the proposed construction would be moved. No long-term impacts would be expected.

Solid Waste Management. Short-term minor adverse impacts on solid waste management would be expected. Solid waste generated from the proposed construction activities would consist of building materials such as concrete and metals (conduit and piping). The contractor would recycle construction materials to the greatest extent practical. Nonrecyclable construction debris would be taken to one or more of the Starr, Hidalgo, or Cameron County landfills permitted to take this type of waste. While some of the landfills in the Rio Grande Valley area might be at or near capacity, the remaining landfills have sufficient capacity. Solid waste generated associated with Route A would be expected to be negligible compared to the solid waste currently generated in Starr, Hidalgo, and Cameron counties, and would not exceed the capacity of any landfill.

Transportation Systems. No adverse impacts on transportation systems would be expected. The proposed construction would require delivery of materials to and removal of debris from the construction sites. Construction traffic would comprise a small percentage of the total existing traffic and many of the vehicles would be driven to and kept onsite for the duration of construction activities, resulting in relatively few additional trips. Furthermore, potential increases in traffic volume associated with proposed construction activities would be temporary. Heavy vehicles are frequently driven on local transportation systems. Therefore, the vehicles necessary for construction would not be expected to have a heavy impact on local transportation systems. No road or lane closures would be anticipated. However, if roadways or lanes are required to be closed, USBP would coordinate with TDOT and local municipalities.

Electrical and Natural Gas Systems. Short-term, minor, adverse impacts on the Rio Grande Valley electrical and natural gas systems would be expected. All electrical and natural gas infrastructure would be identified prior to construction and impacts on these systems would be avoided to the maximum extent practical. Any electrical transmission or natural gas distribution lines impacted by construction would be moved. Temporary interruptions in electrical power transmission and natural gas distribution could be experienced when this infrastructure is moved. No long-term impacts would be expected.

Route B

The potential impacts of the construction associated with Route B on infrastructure and utilities would be expected to be similar to the potential impacts described above for Route A.

4.13.3 Alternative 3: Secure Fence Act Alignment Alternative

The potential impacts of Alternative 3 on infrastructure and utilities are expected to be similar to the potential impacts of Alternative 2. However, the proposed project corridor for Alternative 3 is larger. Therefore, it is possible that a greater number of utility lines could be affected. In addition, more solid waste would be generated under Alternative 3 because two fences would be built rather than one.

4.14 HAZARDOUS MATERIALS AND WASTE

4.14.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no impacts on hazardous materials and waste management would be expected because the tactical infrastructure would not be built and would not lead to an increase in use or disposal of hazardous materials or wastes.

4.14.2 Alternative 2: Routes A and B

Route A

Short-term negligible adverse impacts would be expected. Products containing hazardous materials (such as fuels, oils, lubricants, pesticides, and herbicides) would be procured and used during construction. It is anticipated that the quantity of products containing hazardous materials used would be minimal and their use would be of short duration. Herbicides would be used along the fence to control herbaceous vegetation. Herbicides would be applied according to USEPA standards and regulations. Therefore, no long-term impacts on humans, wildlife, soils, and water would be expected.

Accidental spills could occur during construction. A spill could potentially result in adverse impacts on wildlife, soils, water, and vegetation. However, only small amounts of hazardous materials are expected. Contractors would be responsible for the management of hazardous materials and wastes. USBP would also require that the contractor keep any necessary materials and equipment onsite to quickly contain any spill or leak. The management of hazardous materials and wastes would include the use of BMPs, a pollution prevention plan, a Spill Prevention Control and Countermeasures (SPCC) Plan and a storm water management plan. All hazardous materials and wastes would be handled in accordance with applicable Federal, state, and local regulations.

ASTs have been observed within the proposed project corridor. If it is necessary to remove an AST, removal would be conducted in accordance with all applicable Federal, state, and local regulations. A Phase I Environmental Site Assessment would be conducted in conjunction with any real estate transactions associated with the Proposed Action. If ACM and LBP are identified in buildings that need to

be removed, removal and disposal would be conducted in accordance with all applicable Federal, state, and local regulations. Therefore, no impacts on humans, wildlife, soils, water, and vegetation would be expected as a result of hazardous materials and wastes. Additionally, Alternative 2 would not have an impact on Federal, state, or local hazardous wastes management or pollution prevention programs.

Route B

Impacts associated with hazardous materials and wastes for Route B would be similar to those described above for Route A.

4.14.3 Alternative 3: Secure Fence Act Alignment Alternative

Short-term minor adverse impacts would be expected. The impacts would be similar to the impacts described for Alternative 2. However, two fence layers would be constructed, so greater quantities of hazardous materials would be used for more construction. The increased risk associated with a potential leak or spill would be minor.

SECTION 5

Cumulative Impacts

5. CUMULATIVE IMPACTS

CEQ defines cumulative impacts as the "impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decisionmaking is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future projects. The geographic scope of the analysis varies by resource area. For example, the geographic scope of cumulative impacts on resources such as noise, visual resources, soils, and vegetation is very narrow and focused on the location of the resource. The geographic scope of air quality, wildlife and sensitive species, and socioeconomics is much broader and considers more county- or regionwide activities. Projects that were considered for this analysis were identified by reviewing USBP documents, news releases, and published media reports; and through consultation with planning and engineering departments of local governments, and state and Federal agencies. Projects that do not occur in close proximity (i.e., within several miles) to the proposed tactical infrastructure would not contribute to a cumulative impact and are generally not evaluated further.

Cumulative Fencing, Southern Border. There are currently 62 miles of landing mat fence at various locations along the U.S./Mexico international border (CRS 2006); 14 miles of single, double, and triple fence in San Diego, California; 70 miles of new pedestrian fence approved and currently under construction at various locations along the U.S./Mexico international border; and fences at POE facilities throughout the southern border. In addition, 225 miles of fence are proposed (including the 70 miles proposed in the USBP Rio Grande Valley Sector). Proposed new fence sections are being studied for Texas, New Mexico, Arizona, and California.

Past Actions. Past actions are those that have occurred prior to the development of this EIS. Past actions have shaped the current environmental conditions; therefore, the impacts of these past actions are generally included in the affected environment described in **Section 3**. For example, most of the proposed tactical infrastructure would follow the IBWC levee ROW or existing USBP patrol roads in the southernmost portions of Starr, Hidalgo, and Cameron counties in Texas. Consequently, some of the proposed sections would be on private lands and cross multiple land use types, including rural, urban, suburban,

and agriculture that have undergone changes as the result of commercial and residential development. These past actions are now part of the existing environment. Some recent past actions of note are as follows:

- USBP Operation Rio Grande. This operation was recently implemented on the border to reduce illegal immigration and drug trafficking along the Rio Grande corridor of the USBP McAllen Sector (renamed the Rio Grande Valley Sector), which includes USBP Rio Grande City, McAllen, Mercedes, Harlingen, Brownsville, and Port Isabel stations. USBP Operation Rio Grande included installation of lighting (permanent and portable), road improvement, fencing (5.4 miles of chain-link fencing near POEs in parts of Brownsville and Port Isabel stations), boat ramps, and maintenance mowing (DHS 2004).

- Private Residential Developments. For the past several years the Rio Grande Valley has experienced high demand for single-family homes. One example of these planned communities near the U.S./Mexico international border and the Rio Grande is Sharyland Plantation, a 6,000-acre master-planned multi-use community started in 1998 in Mission, Texas, near Fence Section O-5. A former citrus plantation, Sharyland Plantation is currently a residential, industrial, and commercial development of more than 1,400 newly constructed homes in 19 neighborhoods ranging from $160,000 to more than a $1 million (Sharyland 2007). South of Sharyland Plantation is the community of Granjeno.

Present Actions. Present actions include current or funded construction projects, USBP or other agency operations in close proximity to the proposed tactical infrastructure, and current resource management programs and land use activities within the affected areas. The following ongoing actions considered in the cumulative impacts analysis:

- Anzalduas POE. The Anzalduas POE is currently under construction in the Granjeno/Mission area. This POE is adjacent to a NWR parcel west of Granjeno and would become an extension of Stuart Road, which intersects farm to market (FM) 494. When completed, Anzalduas POE would contain elevated north- and southbound lanes. This bridge would provide access across two levees and a floodway just below Anzalduas Dam and Anzalduas County Park. The proposed fence Section O-5 would intersect this new roadway by crossing underneath the new Anzalduas POE bridge.

- University of Texas at Brownsville and Texas Southmost College Bond Program Projects. In November 2004, the City of Brownsville approved a $68 million bond package that would provide facilities necessary for growing enrollment. The bond is providing the financial resources to build seven projects.

- Texas Department of Transportation. TDOT has several ongoing road improvement projects scheduled for Cameron, Hidalgo, and Starr counties. However, the area of impacts would likely be minor, as the majority of the construction would be within existing ROWs. Projects include the widening of SR. 83 in Mercedes to a six-lane expressway with a median concrete barrier, and construction of bridges over the floodway and Mercedes Main Canal. The SR 83 Weslaco Project consists of reconstructing the expressway to six lanes from FM 1423 to FM 1015 and the construction of new overpasses.
- Road Construction San Benito. Construction for North Sam Houston Boulevard (FM 345) would expand and overlay the road, at a cost of $7.7 million. Completion is expected in 2009.

***Reasonably Foreseeable Future Actions*.** Reasonably foreseeable future actions consist of activities that have been proposed or approved and can be evaluated with respect to their effects. The following are reasonably foreseeable future actions that are related to securing the U.S./Mexico international border:

- SBI*net*. This is a comprehensive program focused on transforming border control through technology and infrastructure. The goal of the program is to field the most effective proven technology, infrastructure, staffing, and response platforms, and integrate them into a single comprehensive border security suite for DHS. Potential future SBI*net* projects include deployment of multiple technologies, command and control equipment, pedestrian fence, vehicle barriers, and any required road or components such as lighting and all-weather access roads (Boeing 2007).
- Temporary or Permanent Lighting. USBP frequently uses temporary (portable) or permanent lighting in conjunction with fences and patrol roads in urban areas near POEs. Lighting acts as a deterrent to cross-border violators and as an aid to USBP agents. Lighting locations are determined by USBP based on projected operational needs of the specific area. While specific future operational requirements are not currently known and are not reasonably certain to occur, areas that might be suitable for lighting can be identified for the purposes of the cumulative effects analysis. Approximately 450 lights could be required at fence Section O-1 adjacent to the Roma POE, Section O-2 adjacent to the Rio Grande City POE, Section O-3 adjacent to the Los Ebanos Ferry POE, Section O-6 adjacent to the Hidalgo POE, Sections O-9 and O-10 adjacent to the Progreso POE, Section O-10 adjacent to the Pharr POE, Sections O-13 and O-14 adjacent to the Los Indios Bridge POE, Section O-19 adjacent to the Brownsville/Matamoros POE, Section O-19 adjacent to the Gateway POE, and Sections O-20 and O-21 adjacent to the Veterans POE. Standard design for temporary or permanent lights is further discussed in **Appendix E**.

Table 5.0-1 presents the reasonably foreseeable future actions by proposed section of tactical infrastructure.

Cumulative Analysis by Resource Area. This section presents the resource-specific impacts related to the past, present, and reasonably foreseeable actions discussed above. Only those actions that are additive to the potential impacts associated with the Proposed Action are considered. **Table 5.0-2** presents the cumulative impacts by resource area that might occur from implementation of the Proposed Action when combined with other past, present, and future activities that are discussed in more detail below.

5.1 AIR QUALITY

Minor, short-term, adverse cumulative impacts on air quality are expected from the construction of proposed tactical infrastructure in combination with other reasonably foreseeable future actions. As discussed in **Section 4.2.2**, emissions from construction, maintenance, and operational activities would not contribute to or affect local or regional attainment status with the NAAQS, and be below thresholds established by the USEPA for CAA cumulative impact analysis. Construction equipment would temporarily increase fugitive dust and operation emissions from combustion fuel sources. Since there would be no substantive change in USBP operations, emissions from vehicles would remain constant and there would be no cumulative impact on air quality.

5.2 NOISE

Minor cumulative impacts on ambient noise are expected from the additive impacts of construction, maintenance, and operation of tactical infrastructure and anticipated residential and commercial development activities and infrastructure improvement projects that routinely occur throughout the project area. Noise intensity and duration from construction, maintenance, and operation of tactical infrastructure would be similar to construction activities from residential or commercial development, or road construction and maintenance. Because noise attenuates over distance, a gradual decrease in noise levels occurs the further a receptor is away from the source of noise. Construction, maintenance, and operation of tactical infrastructure would be distant from other substantial noise-generating activities except in suburban and urban areas. Increased noise from construction of tactical infrastructure could combine with existing noise sources or other construction activities to produce a temporary cumulative impact on sensitive noise receptors. Construction noise would not be louder, but might be heard over a greater distance or over a longer time period.

Table 5.0-1. Reasonably Foreseeable Future Actions by Proposed Tactical Infrastructure Sections for the USBP Rio Grande Valley Sector

Proposed Tactical Infrastructure Section Number	Border Patrol Station	Description of Future Action
O-3	McAllen	Plans are likely to be developed sometime in 2008 for a new POE facility. This plan is only for the POE facility itself. There are no plans to construct a bridge. The plan involves keeping the ferry operational.
O-4	McAllen	Proposed levee upgrades. According to a recently released document from IBWC, the design phase of this project is scheduled through February 2008. Construction is scheduled from March 2008 through September 2009. Work would be completed by Hidalgo County Drainage District No. 1.
O-5	McAllen	Proposed levee upgrades. Preliminary plans indicate the IBWC would rehabilitate the south floodway levee from the Anzalduas Dam area to the Hidalgo area. Construction is projected to occur from March 2008 through September 2009. Work would be completed by Hidalgo County Drainage District No. 1.
O-6	McAllen	(1) According to the Chairman of the Hidalgo County Water District No. 3, there are plans to build a reservoir just northeast of the McAllen Pump on land currently owned by the district. The plans are to integrate the reservoir into the upgraded levee in this area. Exact timeframes for this project are unknown. (2) IBWC, in conjunction with the City of Hidalgo, is planning on relocating the current levee southward toward the river in the area just east of the Hidalgo POE. These plans have recently become available and indicate the rerouting of the levee from an area near or under the Hidalgo POE Bridge to a point near the Old Hidalgo Pumphouse. The length of this relocation project is approximately 0.65 miles. (3) Additional levee rehabilitation. Construction for Phase 1 of the levee rehabilitation is anticipated to begin in April 2008 from the Common Levee (south floodway levee) to the Hidalgo POE. Construction for Phase 2 is anticipated to commence during December 2008. Phase 2 begins at the Hidalgo POE and runs downriver for approximately 1.5 miles along the levee to the 2nd street canal. Construction for the levee in the Hidalgo area would be performed by IBWC.

Proposed Tactical Infrastructure Section Number	Border Patrol Station	Description of Future Action
O-8	Weslaco	The Donna POE facility would be located south of FM 493. Construction is to start early November 2008.
O-14	Harlingen	A 40-acre parcel is proposed by TDOT for construction of a state-of-the-art Department of Public Safety inspection station for commercial truck traffic.
O-15	Harlingen	In La Paloma near FM 732 TDOT would begin construction within the next few years of the expansion of U.S. 281 from La Paloma to Brownsville. The highway would be expanded to a four-lane highway to accommodate international commercial truck traffic. Dates of construction are not known.
O-16	Harlingen	Construction of a residential subdivision is proposed adjacent to the proposed project corridor in El Ranchito, Texas. Dates of construction are unknown at this time.
O-17	Brownsville	(1) The Brownsville/Matamoros railroad bridge (Union Pacific) is being relocated just west of River Bend Resort within the next 2 years. (2) ANCLA Design and Construction is considering subdividing land and developing a new neighborhood in the project area. (3) Expansion of U.S. 281 to four lanes. Stakes in the field indicate an expansion of the hardtop of about 21-30 feet. (4) USBP is proposing to improve the Russell/Barreda Canal, frequently used by smugglers and aliens to hide. USBP proposes to have it buried (install a pipe underground rather than open canal).
O-18	Brownsville	(1) Expansion of U.S. 281 from Pharr, Texas, to FM 3248 Alton Gloor. This would be a five-lane highway. (2) New proposed commercial POE Bridge at Flor De Mayo and IBWC levee. (3) USFWS and the City of Brownsville are proposing and planning a Nature Trail Park in this area.
O-19	Brownsville	(1) A residential subdivision is currently under construction adjacent to the levee/proposed fence area. (2) Brownsville waterfront redevelopment project near Hope Park, on private property. No additional information about this proposal is available at this time.

Proposed Tactical Infrastructure Section Number	Border Patrol Station	Description of Future Action
O-21	Fort Brown	(1) Proposed East Loop, Phase II Project, would begin at U.S. 77/83 and end at FM 1419. The project is a part of the Trans Texas Corridor I-69 that would link the Rio Grande Valley to Denison, Texas. It is slated for construction in 2010 and is being funded by the City of Brownsville and the TDOT. The levee would be redirected and would be placed further south of its current location. The existing levee would become a four-lane highway which would be used to redirect commercial traffic around Brownsville. The City of Brownsville is in the process of finalizing negotiations to purchase land from private landowners in the area. The city has already acquired a majority of the land with the exception of four land parcels. (2) The Mayor of Brownsville and the Brownsville Public Utility Board (PUB) are proposing the construction of a weir and reservoir approximately 6 miles downriver of the Gateway International Bridge. The weir proposal would impound a water reservoir approximately 42 river-miles long, extending from river mile 48 to river mile 90. The reservoir would be within the existing riverbanks and inside the levees that parallel the banks of the river. The USACE has prepared an EA, concluding that the proposal would have no significant impact on the quality of the human environment. The project would impact approximately 65 acres of jurisdictional riverine habitat and wetlands on the U.S. side of the Rio Grande, and 65 acres on the Mexico side of the Rio Grande. The proponent proposes to mitigate this loss through the creation or enhancement of 130 acres of wetlands downstream of the project area. The proponent also proposes to mitigate any impacts by purchasing and protecting a 280 acre tract of land that would form a corridor between the Laguna Atascosa NWR and the Boca Chica NWR that would allow wildlife to travel between the two refuges (BPPUB 2004).

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Table 5.0-2. Summary of Potential Cumulative Effects

Resource	Past Actions	Current Background Activities	Alternative 2, Route B	Known Future Actions	Cumulative Effects
Air Quality	Attainment criteria for all criteria pollutants.	Emissions from vehicles and agricultural areas.	Fugitive dust and combustion emissions generation during construction.	Fugitive dust and increased equipment operation during construction.	Continued attainment.
Noise	None.	Current background noise from development.	Short-term noise from construction equipment and increased traffic.	Short-term noise from construction equipment and increased traffic.	Short-term adverse impacts from construction equipment and increased traffic.
Land Use	Agricultural lands impacted by development.	Development of open and agricultural lands.	USBP purchase of land or easements to construct tactical infrastructure. Natural areas developed for tactical infrastructure.	Residential and commercial development permanently alters natural areas and agricultural lands.	Moderate adverse impacts on recreational and agricultural lands.
Geology and Soils	Installation of pipelines and other features.	Installation of pipelines and other features.	Installation of fence posts and other structures.	Installation of pipelines, fencing, and other infrastructure.	Minor long-term impact from additional infrastructure.

Resource	Past Actions	Current Background Activities	Alternative 2, Route B	Known Future Actions	Cumulative Effects
Water Resources					
Hydrology and Groundwater	Degradation of aquifers to historical pollution.	Continued degradation of aquifers from pollution.	None.	Minor to moderate short- and long-term impacts.	Minor to moderate short- and long-term impacts.
Surface Waters and Waters of the United States	Point and nonpoint discharges including wastewater treatment effluent, agricultural runoff, and storm water have impacted water quality. Removal of wetland vegetation and fill of waters of the United States, including wetlands.	Point and nonpoint discharges including wastewater treatment effluent, agricultural runoff, and storm water have impacted water quality.	Construction erosion and sediment runoff, potential oil spills and leaks. Removal of wetland vegetation and fill of waters of the United States, including wetlands, and temporary degradation of water quality.	Construction erosion and sediment runoff, potential oil spills and leaks. Removal of wetland vegetation and fill of waters of the United States, including wetlands, and temporary degradation of water quality.	Moderate short- term impacts from construction activities, including removal of wetland vegetation and fill of waters of the United States, and temporary degradation of water quality. Minor long-term erosion impacts from infrastructure.
Floodplains	Permanently altered by development and safety features such as levees and dams.	None.	Adverse impacts in Sections O-1 through O-3. No other impacts.	None.	Adverse impacts in Sections O-1 through O-3. No other impacts.

Resource	Past Actions	Current Background Activities	Alternative 2, Route B	Known Future Actions	Cumulative Effects
Biological Resources					
Vegetation	Degraded historic habitat of sensitive and common wildlife species.	Continued urbanization results in loss of native species.	Minor to moderate loss of native species and habitat.	Minor to moderate loss of native species and habitat.	Moderate adverse impacts on native habitats and vegetation.
Wildlife and Aquatic Resources	Urbanization and loss of green corridors impacted habitat and food sources.	Minor to moderate loss of green corridor for wildlife.	Minor to moderate loss of green corridor and water access for wildlife.	Loss of green corridor for wildlife.	Moderate loss of green corridor and water access for wildlife.
Special Status Species	Degraded water quality and urbanization impacted sensitive species.	Urbanization and agricultural development degraded habitat for sensitive species.	Minor to moderate loss of green corridor and water access for wildlife.	Loss of habitat for sensitive species and water quality degradation.	Current and future activities would continue to delete green corridor and water access for wildlife.
Cultural Resources	Development and infrastructure improvements adversely affected cultural resources; some preservation such as Old Hidalgo Pump House and in Roma Historic District.	Development and infrastructure improvements to be adversely affected cultural resources; some preservation.	Moderate to major long-term adverse impacts on cultural resources.	Continued development and infrastructure improvements to adversely affect cultural resources; continued preservation efforts.	Moderate to major long-term adverse impacts on cultural resources.

Resource	Past Actions	Current Background Activities	Alternative 2, Route B	Known Future Actions	Cumulative Effects
Aesthetic and Visual Resources	Historical development of undeveloped lands.	Development of natural areas for community and industry infrastructure.	Constant static visual interruption at fixed points. Loss of recreational area.	Constant static visual interruption at fixed points.	Minor to moderate long-term impacts from permanent infrastructure.
Socioeconomic Resources, Environmental Justice, and Safety	Urban development throughout counties.	Strong local economy and high land values.	Minor to moderate short-term and long-term beneficial impacts on local construction.	Continued strong local economy, high land values, and expansion in counties.	Minor stimulation of local economies from construction activities. Minor adverse impact on environmental justice or protection of children or human health and safety.
Utilities and Infrastructure	Historical development and maintenance of utilities, infrastructure, and roadways in area.	Utilities, infrastructure, and roadways have been upgraded as necessary.	Minor to moderate short-term adverse impacts on local utilities, infrastructure, and roadways during construction.	Continued development and maintenance of utilities, infrastructure, and roadways in area.	None.
Hazardous Materials and Wastes	Use of hazardous substances in vehicles. Possible illegal dumping.	Use of hazardous substances in vehicles. Possible illegal dumping.	Minor use of hazardous materials during construction.	Minor use of hazardous materials during construction.	None.

5.3 LAND USE

Construction of tactical infrastructure would result in minor changes to land use. Recent activities that have most affected land use near the proposed tactical infrastructure are increased commercial and residential development of agricultural and open lands. Moderate cumulative impacts on land use are expected from the additive effects of the past, present, and reasonably foreseeable future actions, but changes in local land use would continue to be dominated by development. For example, the conversion of 508 acres to support tactical infrastructure is minimal when compared to multiple large developments such as Sharyland Plantation which converted 6,000 acres of agricultural land to residential and commercial use (Sharyland 2007). Recreational lands, residential areas, and agricultural lands would be displaced by the Proposed Action. Future development of residential areas would further alter the current land use.

5.4 GEOLOGY AND SOILS

Additive effects include minor changes in topography due to grading, contouring, and trenching; minor soil disturbance; a minor increase in erosion; and a loss of prime farmland. Construction of the tactical infrastructure would not be in close proximity to residential and commercial development and would not interact to cumulatively affect geological resources, including soils. However, each present or reasonably foreseeable future action identified has the potential for temporary erosion from construction activities.

5.5 WATER RESOURCES

Hydrology and Groundwater. Moderate impacts on hydrology and groundwater would occur from the construction of tactical infrastructure when combined with other past, present, and reasonably foreseeable future actions due to increased erosion and stream sedimentation.

Surface Water and Waters of the United States. Moderate impacts on surface water and waters of the United States could occur from increased erosion and stream sedimentation. Disturbance from construction and operation of the tactical infrastructure along with residential and commercial development have the potential for additional erosion and stream sedimentation and adverse cumulative effects. However, as discussed in **Section 4.6**, a Texas Construction General Permit would be obtained to include an SWPPP and sediment control and storm water BMPs to minimize potential impacts. Past actions, including historic and current fishing, vessel traffic, sewage, agricultural runoff, and industrial discharges have generally degraded the quality of water in the lower Rio Grande and have resulted in long-term direct moderate impacts on water quality. The Rio Grande is a CWA Section 303(d) impaired water.

Wetland losses in the United States have resulted from draining, dredging, filling, leveling, and flooding for urban, agricultural, and residential development. An

estimated 4.1 million acres of wetlands existed on the Texas coast in the mid-1950s. By the early 1990s, wetlands had decreased to less than 3.9 million acres including 3.3 million acres of freshwater wetlands and 567,000 acres of saltwater wetlands. About 1.7 million acres (52 percent) of the 3.3 million acres of freshwater wetlands were classified as farmed wetlands. The total net loss of wetlands for the region was approximately 210,600 acres, making the average annual net loss of wetlands about 5,700 acres. The greatest losses were of freshwater emergent and forested wetlands (USFWS 1997). Impacts on wetlands would be avoided to the maximum extent practicable. Approximately 8 acres of wetlands would be impacted by construction of the tactical infrastructure. USBP would obtain CWA Section 404 permits and mitigate the loss of wetlands. The cumulative impacts on wetlands would be long-term and adverse.

Floodplains. Floodplain resources can be adversely impacted by development, increases in impervious areas, loss of vegetation, changes in hydrology, and soil compaction. Construction, maintenance, and operation of tactical infrastructure has the potential for negligible to minor impacts on floodplains from further loss of vegetation, soil compaction on access roads and patrol roads, and the placement of structures in the floodplains. Floodplains were previously impacted by the construction of the levee system which controls the flow of water over low lying areas. Sections O-1, O-2, and O-3 would further regulate water flow where no levee system exists. When added to other past, present, and reasonably foreseeable future actions, impacts from the new tactical infrastructure would be minor due to the relatively small impact within floodplains. As discussed in **Sections 1.5** and **4.6**, USBP would follow the FEMA process to flood proof the structures and minimize adverse impacts on floodplain resources.

5.6 VEGETATION

Moderate impacts on native species vegetation and habitat are expected from the additive effects of past, present and reasonably foreseeable future actions. Urbanization of the area has directly reduced habitat for sensitive flora species. Indirect impacts from urbanization include changes in floodways, water quality, and the introduction of nonnative species.

Development of land for urban use would continue at an unknown pace resulting in loss of farmland and of wildlife habitat. Construction of new POEs and other border facilities would contribute to this development issue. Conversion of native upland thornscrub to grazing land by using root-plowing and other methods would continue at an unknown pace. One such tract of land was observed. Purchase of land for management as wildlife habitat and for preservation would continue. Lands already purchased are undergoing restoration at various levels of success some of these are being affected by proposed fence construction. Water rights issues could become important and affect agricultural and urban acreages and planning efforts.

5.7 WILDLIFE AND AQUATIC RESOURCES

Minor to moderate impacts on wildlife and species are expected from the additive effects of the past, present, and reasonably foreseeable future actions. Urbanization of the area has effectively reduced green corridor and water access for wildlife. Cumulative impacts would mainly result from loss of habitat as described in **Section 5.7**, habitat disturbance and degradation, construction traffic, and permanent loss of green corridors. Displaced wildlife would move to adjacent habitat if sufficient habitat exists. Since the Rio Grande Valley has experienced substantial residential and commercial development, and such development is projected to continue, the amount of potentially suitable habit will continue to decrease, producing a long-term, minor to major adverse cumulative effect. Wildlife could also be adversely impacted by noise during construction, operational lighting, and loss of potential prey species. Species would also be impacted by equipment spills and leaks. The permanent lighting could have minor, adverse cumulative impacts on migration, dispersal, and foraging activities of nocturnal species.

5.8 SPECIAL STATUS SPECIES

As discussed in **Section 4.9**, USBP has begun Section 7 preconsultation coordination with the USFWS regarding potential impacts on listed species or designated critical habitat. Potential effects of fence construction, maintenance, and operation will be analyzed in both the Biological Assessment and Biological Opinion to accompany the Final EIS. Potential direct and indirect impacts on federally listed species are based on currently available data. Impacts are developed from a NEPA perspective and are independent of any impact determinations made for the Section 7 consultation process.

Special status species are commonly protected because their historic range and habitat has been reduced and will only support a small number of individuals. Construction, maintenance, and operation of tactical infrastructure, when combined with past, present, and future residential and commercial development has the potential to result in minor to major adverse cumulative impacts on these species. Potential threats to federally listed species within the proposed project corridor include trampling (for plants), habitat conversion, and noise.

Approximately 508 acres of vegetation would be cleared along the Alternative 2 corridor. Route A approaches known locations of individuals of Texas ayenia, Walker's manioc, and Zapata bladderpod. Implementation of Route A would have the potential for short-term major adverse impacts on these species due to trampling or mortality during fence construction. While Route B would cut across the lower portions of Los Velas and Los Velas West annexes of the LRGVNWR (Section O-2), it would entirely avoid the potentially more species-rich Arroyo Ramirez annex (Section O-1), the Culebron Banco annex (Section O-13), and the Tahuachal Banco annex (Section O-16). In addition, Route B borders instead of intersects the southern boundary of the Phillips Banco annex of the

LRGVNWR. Route B pulls the proposed fence alignment further away from several known locations of Zapata bladderpod and Walker's manioc. For this reason, Route B cumulative impacts on federally listed plants are anticipated to be short-term, moderate, and adverse.

The loss of approximately 125 acres of disturbed thornscrub shrubland and woodland habitat, predominantly honey mesquite and retama, and of approximately 50 acres of disturbed floodplain shrubland, woodland, and forest habitat, predominantly honey mesquite and sugarberry and to a lesser extent sabal palm, would represent a loss of approximately 150 acres of potential ocelot and jaguarundi habitat. The long-term, cumulative adverse impact from the loss of potential habitat for these species would be moderate to major.

Habitat loss of state-listed species in Sections O-1, O-2, O-8, and O-10 (i.e., Mexican treefrog, Mexican burrowing toad, Texas horned lizard, white-lipped lizard) would affect a small area and would be a minor, adverse cumulative effect on these species. BMPs to avoid and minimize impacts, such as pre-construction clearance surveys would to reduce potential adverse impacts.

Cumulative, adverse impacts on migratory birds could be substantial due to the potential timing of fence construction. Implementation of BMPs presented in **Section 4.9** could reduce their intensity. However, past loss of habitat combined with potential construction has the potential for long-term, major, adverse cumulative impacts.

5.9 CULTURAL RESOURCES

Moderate to major adverse, long-term impacts on cultural resources are expected from the additive effects of past, present, and reasonably foreseeable future actions. Past, current, and future commercial and residential development, improvements to infrastructure such as highway and irrigation projects, and the clearing of land for agriculture have caused significant impacts on cultural resources and can be expected to continue to do so. At the same time, some past and present efforts have resulted in the preservation of some historic properties such as the Old Hidalgo Pumphouse and some properties in the Roma Historic District. Similar preservation efforts can be expected to continue. Cumulative effects on historic properties are expected to be moderate to major, adverse, and long-term.

In compliance with Section 106 of the NHPA, cultural resource surveys are underway to identify and evaluate properties listed in or eligible for listing in the NRHP that may be affected by the proposed tactical infrastructure. Consultation with Native American tribes would ensure that properties of religious and cultural significance to the tribes are addressed. It is anticipated that additional properties to be determined as eligible for listing in the NRHP will be identified that would be affected. Known historic properties would also be affected.

Impacts on cultural resources (including resources potentially eligible for inclusion in the NRHP) would be avoided, minimized, or reduced through careful planning, siting, and design of the proposed tactical infrastructure and development of special measures. For example, by locating Section O-1 below the bluff, impacts on the Roma Historic District would be substantially reduced. In other cases, special designs could be developed to reduce effects on historic properties. The integrity of areas that may have significant archaeological resources and be potentially affected by the proposed infrastructure would be studied, such as Fort Ringgold, Fort Brown, and Roma Historic District. Additional archaeological resources are expected to be identified.

5.10 AESTHETICS AND VISUAL RESOURCES

Minor to moderate impacts on aesthetics and visual resources are expected from the additive effects of past, present, and reasonably foreseeable future actions. The presence of construction equipment would produce a short-term adverse impact on visual resources. Once installed, the tactical infrastructure would create a permanent and fixed visual interruption at fixed points. Adverse cumulative effects could include temporary construction impacts and the introduction of light poles and increased night illumination during construction. Other commercial and residential development would introduce night illumination into previously open or agricultural lands. Recreational activities such as star-gazing would be adversely affected by this cumulative impact in night illumination.

5.11 SOCIOECONOMIC RESOURCES, ENVIRONMENTAL JUSTICE, AND SAFETY

Short-term beneficial impacts on local and regional socioeconomic resources are expected from the additive effects of past, present, and reasonably foreseeable future actions. Economic benefits would be realized by construction companies; their employers and suppliers; and by Cameron, Hidalgo, and Starr counties through a minor increase in tax receipts for the purchase of goods and services. Construction of tactical infrastructure has the potential for minor beneficial effects from temporary increases in construction jobs and the purchase of goods and services in Cameron, Hidalgo, and Starr counties. Approximately 25,000 workers are employed in the construction industry in the three counties. An increase of 200 construction jobs would represent only about 1 percent of construction jobs, so the cumulative effect would be minimal. Since the construction jobs would be temporary, negligible cumulative effects on population growth, income, or other services would be expected.

The Rio Grande Valley has experienced growth including residential and commercial development. The conversion of 508 acres to support tactical infrastructure is a minimal cumulative impact compared to other development.

For example, a single development, Sharyland Plantation, converted 6,000 acres of agricultural land to residential and commercial development.

Some residents might be adversely impacted by the construction and Government purchase of their property. The potential exists that some residents might have been impacted by a previous USBP action to install lights or patrol roads under Operation Rio Grande. Although no residents have been identified as being impacted this way, this would be an adverse cumulative effect.

The cumulative impacts of USBP activities to reduce the flow of illegal drugs, terrorists, and terrorist weapons into the United States and the concomitant effects upon the Nation's health and economy, drug-related crimes, community cohesion, property values, and traditional family values would be long-term and beneficial, both nationally and locally. Residents of the border towns would benefit from increased security, a reduction in illegal drug-smuggling activities and the number of violent crimes, less damage to and loss of personal property, and less financial burden for entitlement programs. This would be accompanied by the concomitant benefits of reduced enforcement and insurance costs. There could be an adverse cumulative effect on agriculture and other employers of low-income workers if the labor pool of illegal aliens was substantially reduced. Operation and maintenance of the tactical infrastructure has little potential for cumulative impacts on socioeconomics.

As discussed in **Section 4.12**, some tactical infrastructure would be constructed on or adjacent to residential properties. Of the 21 fence sections, 11 are within census bureau tracts in which a portion of the tracts have a higher proportion of minority or low-income residents. Of the proposed 70 miles of tactical infrastructure, substantially less than half is within census bureau tracts that have a higher proportion of minority or low-income residents—therefore the overall impacts of the proposed tactical infrastructure would not fall disproportionately on minority or low-income populations. Of the 16 census tracts identified in **Table 3.12-11** that have a higher proportion of minority or low-income residents, 6 of the sections have populations near fence sections that might be adversely impacted by construction or operation of the tactical infrastructure. These are section O-4 (census tract 242.02); O-5 (census tract 213.01); O-13 (census tract 121); O-15 (census tract 125.05); O-19 (census tracts 128, 133.07 and 140.01); and O-21 (census tract 141). Temporary lights approved under Operation Rio Grande along the same alignment as Section O-5 (census tract 213.01) might be installed. New tactical infrastructure when combined with the temporary lights might be a long-term, adverse cumulative impact to this population.

5.12 UTILITIES AND INFRASTRUCTURE

Residential and commercial development in Cameron, Hidalgo, and Starr counties has increased demand for utilities such as drinking water, wastewater treatment, natural gas and electric power distribution, and transportation. The construction, maintenance, and operation of tactical infrastructure would have

minimal demand for utilities and infrastructure, combining to produce a minimal adverse cumulative impact. Minor impacts on roadways and traffic are expected from the additive effects of past, present, and reasonably foreseeable future actions.

5.13 HAZARDOUS MATERIALS AND WASTE

Construction, maintenance, and operation of tactical infrastructure would require minimal quantities of hazardous materials and generate small quantities of hazardous wastes. Therefore, minimal cumulative impacts on hazardous materials and wastes would occur.

5.14 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be reversed or recovered, even after an activity has ended and facilities have been decommissioned. A commitment of resources is related to use or destruction of nonrenewable resources, and effects that loss will have on future generations. For example, if prime farmland is developed there would be a permanent loss of agricultural productivity. Construction, maintenance, and operation of tactical infrastructure involves the irreversible and irretrievable commitment of material resources and energy, land and wetland resources, biological resources, and human resources. The impacts on these resources would be permanent.

Material Resources. Material resources irretrievably utilized for the Proposed Action include steel, concrete, and other building materials (for construction of fence). Such materials are not in short supply, would not limit other unrelated construction activities, and their irretrievable use would not be considered significant.

Energy Resources. Energy resources utilized for the Proposed Action would be irretrievably lost. These include petroleum-based products (e.g., gasoline and diesel) and electricity. During construction, gasoline and diesel would be used for the operation of construction vehicles. During operations, gasoline and diesel would be used to maintain the tactical infrastructure including mowing. USBP operations would not change, and the amount of fuel used to operate government-owned vehicles might decrease slightly due to increased operational efficiencies. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant impacts would be expected.

Biological Resources. The Proposed Action would result in the irretrievable loss of vegetation and wildlife habitat. In the long term, construction of the tactical infrastructure would result in the loss of 125 acres of potential wildlife habitat, force the relocation of wildlife, and require the removal of natural

vegetation. This result would be a permanent loss or conversion of decreasing open spaces. Approximately 7.5 acres of wetlands could be permanently impacted by the Proposed Action. However, it is possible to mitigate wetland loss by re-creation of other biologically significant wetlands elsewhere.

Human Resources. The use of human resources for construction is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities, and is considered beneficial.

5.15 RELATIONSHIP BETWEEN THE SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Short-term uses of the biophysical components of the human environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity that occurs over a period of less than 5 years. Long-term uses of the human environment include those impacts that occur over a period of more than 5 years, including permanent resource loss.

Activities that could result in short-term resource uses that compromise long-term productivity include filling of wetlands, construction of tactical infrastructure on prime farmlands, and development in floodplains. Adverse impacts include destruction of cultural resources, or loss of unique habitats for rare or sensitive species. In the context of Rio Grande Valley, long-term loss of unique habitats for rare or sensitive species would be a significant adverse impact. This could include the loss of threatened or endangered or other special status species of vegetation. Although no direct impacts on special status wildlife are expected, the short- and long-term loss of potential habitat for these species could result in long-term, moderately adverse impacts on ocelots and jaguarundi.

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SECTION 6

References

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SECTION 7

Acronyms and Abbreviations

7. ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
°F	degrees Fahrenheit
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ADNL	A-weighted Day Night Average Sound Level
APE	area of potential effect
AQCR	air quality control region
AST	aboveground storage tank
BLIAQCR	Brownsville-Laredo Intrastate Air Quality Control Region
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CBP	U.S. Customs and Border Protection
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CR	County Route
CRS	Congressional Research Service
CWA	Clean Water Act
CY	calendar year
dBA	A-weighted decibels
dBC	C-weighted decibels
DHS	U.S. Department of Homeland Security
EA	Environmental Assessment
ECSO	Engineering Construction Support Office
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FM	farm to market
FPPA	Farmland Protection Policy Act
FY	fiscal year
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
hp	horsepower
IBWC	International Boundary and Water Commission
ISD	Independent School District
JD	Jurisdictional Determination
LBP	Lead-based paint
LRGFCP	Lower Rio Grande Flood Control Project
LRGVNWR	Lower Rio Grande Valley National Wildlife Refuge
MBTA	Migratory Bird Treaty Act
MD	Management Directive
mg/m^3	milligrams per cubic meter
MMTCE	million metric tons of carbon equivalent
mph	miles per hour
MSA	Metropolitan Statistical Area
MSL	mean sea level

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NWR	National Wildlife Refuge
O_3	ozone
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
Pb	lead
PCB	polychlorinated biphenyls
PM_{10}	particle matter equal to or less than 10 microns in diameter
$PM_{2.5}$	particle matter equal to or less than 2.5 microns in diameter
POE	Port of Entry
ppm	parts per million
PUB	Public Utility Board
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
ROD	Record of Decision
ROE	rights of entry
ROI	Region of Influence
ROW	right-of-way
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
TAAQS	Texas Ambient Air Quality Standards
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TCP	traditional cultural properties
TDOT	Texas Department of Transportation
THC	Texas Historical Commission
TMDL	Total Maximum Daily Load
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
TSCA	Toxic Substances Control Act
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compound
WMA	Wildlife Management Areas

SECTION 8

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APPENDIX A

Applicable Laws and Executive Orders

Table A-1. Applicable Laws and Executive Orders [1]

Title, Citation	Summary
Archaeological and Historical Preservation Act, 16 U.S.C. 469	Protects and preserves historical and archaeological data. Requires Federal agencies to identify and recover data from archaeological sites threatened by a proposed action(s).
Clean Air Act, 42 U.S.C. 7401–7671q, as amended	Establishes Federal standards for air pollutants. Prevents significant deterioration in areas of the country where air quality fails to meet Federal standards.
Clean Water Act, 33 U.S.C. 1251–1387 (also known as the Federal Water Pollution Control Act)	Comprehensively restores and maintains the chemical, physical, and biological integrity of the nation's waters. Implemented and enforced by the U.S. Environmental Protection Agency (USEPA).
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601–9675 (also known as "Superfund")	Provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and cleanup of inactive hazardous substances disposal sites. Establishes a fund financed by hazardous waste generators to support cleanup and response actions.
Endangered Species Act of 1973, 16 U.S.C. 1531–1543, as amended	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Prohibits Federal action that jeopardizes the continued existence of endangered or threatened species. Requires consultation with U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries and a biological assessment when such species are present in an area affected by government activities.
Fish and Wildlife Coordination Act, 16 U.S.C. 661–667e, as amended	Authorizes the Secretaries of the Interior and Commerce to provide assistance to and cooperate with Federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The 1946 amendments require consultation with the USFWS and the state fish and wildlife agencies involving any waterbodies that are proposed or authorized, permitted, or licensed to be impounded, diverted, or otherwise controlled or modified by any agency under a Federal permit or license.
Migratory Bird Treaty Act, 16 U.S.C. 703–712	Implements various treaties for protecting migratory birds; the taking, killing, or possession of migratory birds is unlawful.

Title, Citation	Summary
National Environmental Policy Act of 1969, 42 U.S.C. 4321–4370e, as amended	Requires Federal agencies to use a systematic approach when assessing environmental impacts of government activities. Proposes an interdisciplinary approach in a decisionmaking process designed to identify unacceptable or unnecessary impacts to the environment.
National Historic Preservation Act, 16 U.S.C. 470–470x-6	Requires Federal agencies to consider the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object eligible for inclusion, or listed in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through NRHP listing), and protection of significant historical and cultural properties.
Noise Control Act of 1972, 42 U.S.C. 4901–4918	Establishes a national policy to promote an environment free from noise that jeopardizes health and welfare. Authorizes the establishment of Federal noise emissions standards and provides relevant information to the public.
Occupational Safety and Health Act of 1970, 29 U.S.C. 651–678	Establishes standards to protect workers, including standards on industrial safety, noise, and health standards.
Resource Conservation and Recovery Act, 42 U.S.C. 6901–6992k	Establishes requirements for safely managing and disposing of solid and hazardous waste and underground storage tanks.
Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, July 14, 1982, 47 FR 30959 (6/16/82), as supplemented	Requires Federal agencies to consult with state and local governments when proposed Federal financial assistance or direct Federal development impacts interstate metropolitan urban centers or other interstate areas.
EO 12898, *Environmental Justice,* February 11, 1994, 59 FR 7629 (2/16/94), as amended	Requires certain Federal agencies, to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.

Title, Citation	Summary
EO 13148, *Greening the Government Through Leadership in Environmental Management*, April 21, 2000, 65 FR 24595 (4/26/00)	Designates the head of each Federal agency to ensure that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision making and long-term planning processes, across all agency missions, activities, and functions. Establishes goals for environmental management, environmental compliance, right-to-know (informing the public and their workers of possible sources of pollution resulting from facility operations) and pollution prevention, and similar matters.
EO 13175*, Consultation and Coordination with Indian Tribal Governments,* November 6, 2000, 65 FR 67249 (11/09/00)	Requires Federal agencies to establish an accountable process that ensures meaningful and timely input from tribal officials in developing policies that have tribal implications.
EO 13186*, Responsibilities of Federal Agencies to Protect Migratory Birds,* January 10, 2001, 66 FR 3853 (1/17/01)	Requires each agency to ensure that environmental analyses of Federal actions (required by the National Environmental Policy Act or other established environmental review processes) evaluate the effects of actions and agency plans on migratory birds, emphasizing species of concern. Agencies must support the conservation intent of migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities, and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
EO 11593, *Protection and Enhancement of the Cultural Environment*, May 13, 1971, 36 FR 8921 (5/15/71)	Requires all Federal agencies to locate, identify, and record all cultural resources, including significant archeological, historical, or architectural sites.

Note: [1] This table only reflects those laws and EOs that might reasonably be expected to apply to the Proposed Action and alternatives addressed in this EIS.

Other laws and Executive Orders potentially relevant to the construction, maintenance, and operation of tactical infrastructure include, but are not limited to, the following:

- American Indian Religious Freedom Act, 42 U.S.C. 1996, et seq.
- Antiquities Act, 16 U.S.C. 433, et seq.; Archeological Resources Protection Act, 16 U.S.C. 470 aa-ll, et seq.
- Architectural Barriers Act, 42 U.S.C. 4151, et seq.

- Community Environmental Response Facilitation Act, 42 U.S.C. 9620, et seq.
- Department of Transportation Act, P.L. 89-670, 49 U.S.C. 303, Section 4(f), et seq.
- Emergency Planning and Community Right-to-Know Act, 42 U.S.C. 11001–11050, et seq.
- Environmental Quality Improvement Act, P.L. 98-581, 42 U.S.C. 4371, et seq.
- Farmlands Protection Policy Act, P.L. 97-98, 7 U.S.C. 4201, et seq.
- Federal Insecticide, Fungicide, and Rodenticide Act, P.L. 86-139, 7 U.S.C. 135, et seq.
- Federal Records Act, 44 U.S.C. 2101-3324, et seq.
- Fish and Wildlife Act of 1956, P.L. 85-888, 16 U.S.C. 742, et seq.
- Flood Disaster Protection Act, 42 U.S.C. 4001, et seq.
- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001, et seq.
- Pollution Prevention Act of 1990, 42 U.S.C. 13101-13109, et seq.
- Safe Drinking Water Act, P.L. 93-523, 42, U.S.C. 201, et seq.
- Toxic Substances Control Act, 7 U.S.C. 136, et seq.
- Wild and Scenic Rivers Act, P.L. 90-542, 16 U.S.C. 1271, et seq.
- EO 12114, dated January 9, 1979, Environmental Effects Abroad of Major Federal Actions, 44 FR 1957
- EO 12088, dated October 13, 1978, *Federal Compliance with Pollution Control Standards*, 43 FR 47707, as amended by EO 12580, dated January 23, 1987, and revoked (in part) by EO 13148, dated April 21, 2000
- EO 13132, dated August 4, 1999, *Federalism*, 64 FR 43255
- EO 11988, dated May 24, 1977, *Floodplain Management and Protection*, 42 FR 26951, as amended by EO 12148, dated July 20, 1979, 44 FR 43239
- EO 13007, dated May 24, 1996, *Historic Sites Act*, 16 U.S.C. 46, et seq.; Indian Sacred Sites, 61 FR 26771
- EO 12372, dated July 14, 1982, *Intergovernmental Review of Federal Programs*, 47 FR 30959, as amended by EO 12416, April 8, 1983, 48 FR 15587; supplemented by EO 13132, August 4, 1999, 64 FR 43255
- EO 13112, dated February 3, 1999, *Invasive Species*, 64 FR 6183, as amended by EO 13286, February 28, 2003, 68 FR 10619

- EO 11514, dated March 5, 1970, *Protection and Enhancement of Environmental Quality*, 35 FR 4247, as amended by EO 11541, July 1,1970, 35 FR 10737 and EO 11991, May 24, 1977, 42 FR 26967
- EO 13045, dated April 21, 1997, *Protection of Children from Environmental Health and Safety Risks*, 62 FR 19885, as amended by EO 13229, October 9, 2001, 66 FR 52013 and EO 13296, April 18, 2003, 68 FR 19931
- EO 11990, dated May 24, 1977, *Protection of Wetlands*, 42 FR 26961, as amended by EO 12608, September 9, 1987, 52 FR 34617

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APPENDIX B

Scoping Report for the EIS

SCOPING REPORT

FOR THE

RIO GRANDE VALLEY TACTICAL INFRASTRUCTURE ENVIRONMENTAL IMPACT STATEMENT

Prepared for

U.S. Customs and Border Patrol

Prepared by

engineering-environmental Management, Inc. (e^2M)
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e^2M Project No.: 4100-989

OCTOBER 2007

SCOPING REPORT
RIO GRANDE VALLEY TACTICAL INFRASTRUCTURE EIS

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1. INTRODUCTION

The U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP) proposes to construct, maintain, and operate approximately 70 miles of tactical infrastructure, including pedestrian fence, access roads, patrol roads, and lights along the U.S./Mexico international border in the USBP Rio Grande Valley Sector, Texas. This report documents comments and recommendations gathered from the public scoping and other outreach activities conducted by USBP for the *Environmental Impact Statement (EIS) for Construction, Maintenance, and Operation of Tactical Infrastructure, Rio Grande Valley, Texas*.

The mission of CBP is to prevent terrorists and terrorist weapons from entering the United States, while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the border of the United States.

USBP has nine administrative sectors along the U.S./Mexico international border. Each sector is responsible for implementing an optimal combination of personnel, technology, and infrastructure appropriate to its operational requirements. The Rio Grande Valley Sector is responsible for 17,000 square miles of land in southeastern Texas, including the following counties: Cameron, Willacy, Hidalgo, Starr, Brooks, Kenedy, Kleberg, Nueces, San Patricio, Jim Wells, Bee, Refugio, Calhoun, Goliad, Victoria, Dewitt, Jackson, and Lavaca (CBP 2007). The areas affected by the Proposed Action include Starr, Hidalgo, and Cameron counties, Texas, within the Rio Grande Valley Sector.

The EIS process will serve as a planning tool to assist agencies with decisionmaking authority associated with the Proposed Action and ensure that the required public involvement under the National Environmental Policy Act (NEPA) is accomplished. The EIS presents potential environmental impacts associated with the Proposed Action and alternatives and provides information to assist in the decisionmaking process about whether and how to implement the Proposed Action.

2. THE NEPA PROCESS AND THE EIS

NEPA requires Federal agencies to evaluate the potential environmental impacts of proposed projects and policies. The primary goal of NEPA is to provide sufficient information for the decisionmakers to make an informed decision. During the NEPA process, agencies consider issues ranging from air quality and biological impacts on cultural resources and socioeconomic impacts. USBP has determined that the most appropriate NEPA process for the USBP Rio Grande Valley Tactical Infrastructure is an EIS, which is the most detailed analysis prescribed by the Council on Environmental Quality (CEQ). Public involvement is a vital component of the NEPA for vesting the public in the decisionmaking process and allowing for full environmental disclosure. Guidance for implementing public involvement is codified in Title 40 Code of Federal Regulations (CFR) 1506.6, thereby ensuring that Federal agencies make a diligent effort to involve the public in preparing NEPA documents. The public involvement process for the proposed tactical infrastructure project is outlined in the following steps:

- ***Conduct Public Scoping.*** In this phase of the process, USBP asked the public to provide feedback on the proposed project, potential environmental impacts, and analysis methods. Public scoping is critical for determining the issues to be discussed in the EIS and the methods for conducting the study. Outreach efforts included a Notice of Intent (NOI) to prepare an EIS in the *Federal Register* and announcements of the public scoping process in local newspapers in English and Spanish. A Web site (*www.BorderFenceNEPA.com*) was established and information on the Proposed Action was posted on the Web site (Appendix C.) Information on providing comments was discussed, and links to submit comments from the Web site were also provided. The agency scoping mailing list and copies of various letters are shown in Appendix D.

- ***Prepare a Draft EIS.*** The Draft EIS is the first version of the formal NEPA document. The Draft EIS will be distributed to public libraries throughout the affected area; Federal, state, regional, and local agencies; local organizations; and identified stakeholders and members of the general public. Outreach efforts will include Notice of Availability (NOA) for the Draft EIS and announcement of an open house and the 45-day public comment period in the *Federal Register* and local newspapers. At the public open house, resource experts will be present to answer questions, and the public will have an additional opportunity to enter comments and concerns into the official administrative record for the EIS.

- ***Prepare a Final EIS.*** After the close of the comment period on the Draft EIS, e²M will prepare the Final EIS on behalf of USBP to document the manner in which comments have been resolved. An NOA for the Final EIS will appear in the *Federal Register* and local newspapers. The public will have 30 days to comment on the Final EIS.

- ***Prepare a Record of Decision.*** A Record of Decision (ROD) will be prepared to document the final agency decision on the Proposed Action. Notice of the ROD will be made available on the Web site.

3. PUBLIC INVOLVEMENT PROCESS

USBP invited comments from the public to help determine the scope of the EIS by publishing an NOI in the *Federal Register* (72 FR 184) on September 24, 2007. The NOI provided background information on the Proposed Action, the EIS, a description of the scoping process, and a discussion of alternative methods for the public to provide comments. A copy of the NOI is included in Appendix A of this Scoping Report.

Announcements were published in newspapers in the Rio Grande Valley area to announce the development of the EIS. Announcements were placed in three English language newspapers the *Brownsville Herald*, *The Monitor,* and the *Valley Morning Star*, and in two Spanish language newspapers *La Frontera* and *El Nuevo Heraldo*.

A Web site was developed at *www.BorderFenceNEPA.com* to provide information to the public on the Proposed Action. Information posted on the Web site includes a description of the Proposed Action, a map of the locations of the tactical infrastructure, a photograph of the type of fence proposed, and information on the NEPA process and opportunities for public involvement. A description of the ways to submit comments on the scope of the EIS is also included (via the Web site, email, fax, or mail). A link from the Web site to submit comments is provided to facilitate comments from individuals reviewing information on the Web site.

Public scoping comments were accepted through October 15, 2007. Comments were reviewed for incorporation into the Draft EIS. Comments will continue to be accepted throughout the EIS environmental planning process, but comments received after October 15, 2007, will be evaluated following the publication of the Draft EIS.

The Public Scoping Period represents only the first of multiple opportunities for public comment. USBP plans to conduct a 45-day public comment period once the Draft EIS is released. During this time, USBP also plans to have public open houses on the Draft EIS. Comments on the Draft EIS will contribute to the refinement of the Final EIS. In addition, there will be a 30-day public comment period once the Final EIS is released. Comments on the Final EIS will contribute to the development of the ROD.

As each of these documents is released for public comment, an NOA will be published in the *Federal Register* and local newspapers.

4. PUBLIC SCOPING RESULTS

4.1 Issues and Concerns

Comments were received from 840 private individuals during the scoping period. **Table 4-1** summarizes the comments received during the public scoping period. In addition, a letter was received from the City of Brownsville, Texas. Letters were also received from several nongovernmental organizations including Defenders of Wildlife; No Border Wall; New Jersey Audubon Society; McAllen Chamber of Commerce; Gulf Coast Bird Observatory; Sierra Club, Lone Star Chapter; Rio Grande Valley Group; Nature Conservancy, Texas Chapter; Environmental Defense; American Friends Service Committee; Missionary Oblates of Mary Immaculate; Valley Nature Center; Texas Border Coalition; Border Working Group; World Birding Center; Frontera Audubon Society; and University of Texas at Brownsville.

USBP received a petition from the citizens of the city of Granjeno, Texas, containing 106 signatures. The petition stated the citizens "adamantly reject and protest the construction and erection of the Homeland Security Border Fence." The petition cited Spanish Civil Law, Republic of Texas, the 1848 Guadalupe Hidalgo Treaty, and other authorities to assert additional rights pursuant to the proposed fence. In addition, 95 letters were submitted by citizens of Granjeno stating their opposition to the proposed border fence.

Table 4-1. Summary of Comments During the Rio Grande Valley Tactical Infrastructure Scoping Comment Period

Comment Type	Summary of Concerns Raised in Scoping Comments
Alternatives suggested	• Enforce immigration laws better. • Stronger enforcement and harsher penalties for employers that hire illegal immigrants, harsher penalties for border-cross violators. • More USBP agents, hi-tech patrolling, and guard dogs in lieu of fence. • Vehicle barriers instead of pedestrian fences. • Re-examine immigration and economic policy and establish a legitimate foreign worker program. • Legalize immigration. • Raise the levees and use levees as barrier. • Create dense hedges of native thorn species. • Create a virtual wall of sensors. • Install weir dams to fill the river creating a water barrier.

Comment Type	Summary of Concerns Raised in Scoping Comments
Changes to fence design	• Fence with surveillance (e.g., camera/video, sensors, lasers, and underground sensors). • Fence should include small openings for animals.
Land Use	• Loss of agricultural land. • "No man's land" created by the fence will rapidly decline.
Geology and Soils	• Loss of prime farmland.
Water Resources	• Water supply for wildlife, livestock, and farmland will be cut off by the fence. • Rivers move over time, natural flow will be impeded by the fence. • Proposal should be moved out of the floodplain. • Rio Grande is the only source of water for wildlife in Starr County, the fence would cut off all water access. • Small canals should be built to provide water access to farmers and ranchers. • Irrigation Districts and water right fees will become more complicated once the fence cuts off access for some people. • Fence will make the entire area more prone to flooding. • Construction on top of the levees would be useless unless the levees are first reinforced. • If construction creates or exacerbates erosion along the banks of the Rio Grande, excessive sedimentation could occur, raising water temperature, reducing oxygen levels, etc. If the wall hinders sheet flow or tributary flow into the Rio Grande, less water and lower river velocities would not be able to move sediments downstream.
Biological Resources	• Water supply for wildlife, livestock, and farmland would be cut off by the fence. • Sabal Palms Sanctuary would be ruined and public access would be cut off. • 508 acres would be destroyed. • Wildlife refuges and migratory pattern of animals would be impacted (endangered species such as ocelots, jaguars, and jaguarondi). • Bird watchers would no longer come to the area to view rare birds. • Carrizo species should not be eliminated. • Impacts of wildlife movement must be mitigated. • The proposal is a violation of the Migratory Bird Treaty Act. • Impacts on species are illegal under Endangered Species Act, formal Section 7 consultation needs to be completed. • Refer to *Nesting Birds of a Tropical Frontier, the Lower Rio Grand Valley of Texas* as a reference.

Comment Type	Summary of Concerns Raised in Scoping Comments
	• Reduction of remnant river forest will threaten the rarest nesting birds in the United States. • Don't construct the fence during Spring (migratory bird nesting season). • The Santa Ana National Wildlife Refuge would be destroyed and water access would be cut off. • Will there be vegetative rehabilitation in the 60 feet cleared space? If so, low shrub cover would be low enough to hide people, but high enough for ocelots to move through screened. • Sabal Palms, Bentsen, and Santa Ana are part of a Wildlife Corridor that must be spared. • Thornscrub habitat will be destroyed and native brush stands will be fragmented and isolated. • Impacts on the Lennox Foundation Southmost Preserve and the Chihuahua Woods Preserve should be discussed. • Increased traffic and staging areas south of the wall in "no man's land" would have a greater impact on habitat and disrupt and further isolate wildlife populations. • There would be beneficial impacts from less garbage being discarded into sensitive ecosystems and from reduction in trails through sensitive areas. • How can clearing of vegetation to build the road and fence be construed as temporary – they should be addressed as permanent impacts in the EIS. • Need to address introducing additional vehicles and human activity into sensitive ecological areas. Address ancillary impacts from increased foot traffic. • Fence Section O-21 is of particular concern. It would block the public access points for both the Sabal Palm Audubon Sanctuary and the Southmost Preserve. • Impacts on the Caminos del Rio Heritage Project must be addressed. • Impacts on the IBWC vegetation maintenance requirements must be addressed. • Impacts of flood lights (important component of a lawsuit brought by the Seirra Club, Audubon Society, and Defenders of Wildlife against USBP's Operation Rio Grande in 2001) must be addressed.
Cultural Resources	• There would be a loss of unique cultural and natural heritage. • How will public access archaeological, ceremonial, and cemetery sites along the river? • How will access to ranch cemeteries be provided? • Historical and archaeological sites must be protected. What will ensure access of non-federally recognized indigenous people to their tribal land, communities, and traditional livelihood?

Comment Type	Summary of Concerns Raised in Scoping Comments
	• How will the fence impact the historic Fort Brown Site? • Impacts on the Caminos del Rio Heritage Project must be addressed. • The actual footprint of the project needs to be studied in detail to provide an accurate listing of archaeological and historical resources that might be adversely affected by the proposal's scope.
Air Quality	• Impact from emissions from construction and operation of the proposed fence would have an adverse impact on the cultural, historical, and environmental resources in the USBP Rio Grande Valley Sector. USBP operations have been known to create their own air quality problems through patrol and apprehension methods.
Climate	• Wall would block breeze and make Granjeno hot.
Noise	• Noise impacts from construction and operation of the proposed fence would have an adverse impact on the cultural, historical, and environmental resources in the USBP Rio Grande Valley Sector.
Utilities and Infrastructure	• Concerns over proposed lighting. • Concerns over impacts on use of Rio Grande for drinking water source.
Roadways and Traffic	• Concerns over proposed vehicular roads.
Aesthetics and Visual Resources	• Don't impede view of the Rio Grande below the Roma World Birding Center and Overlook (near Roma POE). • Obstruction of view, bird watchers come to view rare birds. • View of the river is scenic. • Loss of recreation (boating, fishing, hunting). • EIS should identify roads and trails to the Rio Grande that will be closed and the means and impact of creating alternate access points.
Hazardous Materials and Wastes	• None.
Socioeconomics and Environmental Justice	• Families and communities would be divided. • Millions of dollars in ecotourism (e.g. birdwatching, canoeing, kayaking, hiking) would be lost. 200,000 ecotourists annually create 2,500 jobs in the local economy. • Economic impacts from loss of farm land. • Decreased relations with Mexico. • Economic impacts from decline in property values. • Proposal will create a loss of income in the area, and will not create jobs in return.

Comment Type	Summary of Concerns Raised in Scoping Comments
	• Brownsville is the poorest city in the Nation. • How will the proposal impact University of Texas at Brownsville?
Human Health and Safety	• How will NWR/NPS personnel access their lands? • How will there be immediate access in case of fire or emergency? • In the case of a national emergency, what impacts would the wall have on emergency planning and evacuation? • Area south of the wall would become a "no man's land," where fear for safety of government staff and citizens would be a concern, as well as security of property, equipment, and facilities. • Beneficial impacts from increase in public safety at parks and recreational areas. • Foot traffic will be more heavily concentrated in certain areas, creating a "funnel" effect and possibly a greater public safety hazard.
Sustainability and Greening	• None.
Scoping Process	• Don't be surprised by lack of attendance at public meetings from those in favor of the proposal. People who support the fence will be retaliated against by those opposed. • Comment period is inadequate. • Web site was not working. Failure of the Web site has interfered with the public's ability to learn the details of the project and communicate their concerns. • Information provided on the Web site is too limited. • Alternatives are not presented on the Web site. • Fax was not working. • Hold public scoping meetings near the proposed sites. • A democratic vote should be held. • Better maps are needed to show the public where exactly the fence sections are going to be. • Will I have input on where the fence goes on my land? • The scoping process was longer and more meetings were held for the Operation Rio Grande EIS.
Scope of the EIS	• EIS should be larger in scope. • EIS should encompass the entire length of the Rio Grande. • Cumulative impacts over the entire 270 miles need to be analyzed. • Prepare a comprehensive EIS on all proposed locations for a border wall, rather than the disjointed process currently undertaken. • Are all future needs of the wall going to be analyzed (e.g., maintenance, lighting)?

Comment Type	Summary of Concerns Raised in Scoping Comments
	• The EIS should look at each specific piece of land to consider how the owners will be impacted (will new roads be built, who will build and maintain the roads, cost of driving increased distance, cost of irrigating two pieces of land). • EIS should be expanded to include all areas listed in the Secure Fence Act. The sections of the wall analyzed are merely a down payment for the proposed extensive fencing. • IBWC just completed a Draft EIS on its flood control projects. Is this being taken into account? • Is the Operation Rio Grande EIS being taken into account? • The EIS must discuss future plans to build additional border walls to comply with the Secure Fence Act. • The ongoing failure of current USBP efforts calls into question the validity of the purpose and need.
Other	• How will farmers, ranchers, and property owners be compensated? • How will farmers gain access to their land? Will land be taken out of production? How will they get their farm equipment on the other side? • Residents have been told that USBP agents will be at the gates 24x7 to let residents in and out. Is this true? Will this service be later abandoned?

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5. NEXT STEPS

USBP and their contractor (e²M) are working with resource agencies and stakeholders to prepare a Draft EIS for review. The Draft EIS will incorporate those issues discussed during the 20-day scoping comment period.

Following the publication of the NOA in the *Federal Register* for the Draft EIS, there will be a 45-day comment period and a public meeting. The public meeting will allow the general public to interface with resource agencies and other stakeholder groups. Comments pertaining to the Draft EIS during that time will be reviewed and incorporated into the Final EIS.

A final 30-day comment period will follow the *Federal Register* publication of the NOA for the Final EIS. Public comments during this time will be considered by USBP decisionmakers along with final comments by resource agencies. Following the public comment period, USBP decisionmakers will review all materials applicable to the Proposed Action and prepare a ROD. **Table 5-1** outlines the three phases of the EIS process that involve public participation.

Table 5-1. Public Input Process for the Rio Grande Valley Tactical Infrastructure EIS

Phase I ⇒	**Phase II ⇒**	**Phase III ⇒**	**Final**
Notice of Intent for an EIS	Notice of Availability of the Draft EIS	Notice of Availability of the Final EIS	**Record of Decision**
↓	↓	↓	
Public Scoping Comments	Public Meetings	Public Comments	
↓	↓	↓	
20-day Comment Period	45-day Public Comment Period	30-day Public Comment Period	

6. REFERENCES

CBP 2007 CBP. 2007. "Rio Grande Valley Sector Homepage". Available online: *<http://www.cbp.gov/xp/cgov/border security/ border patrol/border patrol sectors/rio grande valley sector/>.* Accessed 20 September 2007.

SCOPING REPORT
APPENDIX A

NOTICE OF INTENT

DEPARTMENT OF HOMELAND SECURITY

Bureau of Customs and Border Protection

Notice of Intent To Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol Rio Grande Valley (Texas) Sector

AGENCY: U.S. Customs and Border Protection, Department of Homeland Security.

ACTION: Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Request for Public Comments.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.*, (NEPA), U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate tactical infrastructure along approximately 70 miles of the international border between the United States and Mexico within the Office of Border Patrol's (OBP's) Rio Grande Valley Sector, Texas (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in high priority sections of OBP's Rio Grande Valley Sector. CBP is the decision-making agency for the Proposed Action.

Notice is hereby given that the public scoping process has been initiated to prepare an EIS that will address the impacts and alternatives of the Proposed Action. The purpose of the scoping process is to solicit public comments regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS.

FOR FURTHER INFORMATION CONTACT: Visit *http://www.BorderFenceNEPA.com* or e-mail: *information@BorderFenceNEPA.com*. Written requests for information may be submitted to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102; Phone: (817) 886–1585; and Fax: (817) 886–6404.

Background: An EIS is being prepared in support of a proposal by OBP's Rio Grande Valley Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. In order to secure our nation's borders, CBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel.

The Rio Grande Valley Sector includes the area along the international border between the United States and Mexico from Rio Grande City, Texas, to the Gulf of Mexico. In that area, CBP is proposing to install and operate tactical infrastructure consisting of pedestrian fences, supporting patrol roads, lights, and other infrastructure along approximately 70 miles of the U.S./Mexico international border (the Proposed Action). The Proposed Action includes the installation of tactical infrastructure in 21 segments along the international border in the vicinity of Rio Grande City, Texas; McAllen, Texas; Mercedes, Texas; Harlingen, Texas; Brownsville, Texas; and Fort Brown, Texas. Individual segments might range from approximately 1 mile to more than 13 miles. For much of its length, the proposed infrastructure will follow the International Boundary and Water Commission levee, but some portions will also encroach on multiple privately-owned land parcels. The infrastructure would cross multiple land use types, including rural, agricultural, suburban, and urban land. It may also encroach on portions of the Lower Rio Grande Valley National Wildlife Refuge and Texas state parks in the Rio Grande Valley.

Potential alternatives for the environmental impacts analysis will consider location, construction, and operation of tactical infrastructure. Alternatives must meet the need to gain effective control of our nation's borders, as well as essential technical, engineering, and economic threshold requirements to ensure that a proposed action is environmentally sound, economically viable, and meets all applicable laws and regulations.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (*Environmental Planning Program*).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the Proposed Action, which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (INS) (which now fall under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF–6). The *Programmatic EIS for JTF–6 Activities Along the U.S./Mexico Border*, August 1994, and its supplementing document, *Supplemental Programmatic EIS for INS and JTF–6 Activities*, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF–6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office Web site, at *https://ecso.swf.usace.army.mil;* by sending an e-mail request to *charles.mcgregor@swf02.usace.army.mil;* or by mailing a request to Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Public Participation: Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate.

Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the Proposed Action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

You may submit comments to CBP by contacting SRInet, Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) *Electronically through the Web site at: http://www.BorderFenceNEPA.com;*

(b) *By e-mail to: RGVcomments@BorderFenceNEPA.com;*

(c) *By mail to:* Rio Grande Valley PF–225 EIS, c/o e2M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) *By fax to:* (757) 282–7697.

Comments and related material must reach CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as related to the Rio Grande Valley Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

This scoping period is not the only opportunity you will have to comment. A draft EIS will be prepared, and prior to the development of a final EIS, CBP will release the draft EIS for public

review. At that time, a Notice of Availability (NOA) will be published in the **Federal Register**, the *Brownsville Herald* (Brownsville, Texas), and *The Monitor* (McAllen, Texas). The NOA will announce the availability of the draft EIS, how to obtain a copy, and the dates, times, and places of any associated public informational meetings.

Dated: September 19, 2007.

Eugene H. Schied,

Assistant Commissioner, Office of Finance.

[FR Doc. E7–18829 Filed 9–21–07; 8:45 am]

BILLING CODE 9111–14–P

SCOPING REPORT
APPENDIX B

NEWSPAPER ADS

4 Lunes ■ Septiembre 24 ■ 2007 ElNuevoHeraldo

Aviso de Intento de Preparar una Declaración de Impacto en el Medio Ambiente (EIS) y Requisición de Comentarios Públicos Relacionados con la Construcción Propuesta y Operación de Infraestructura Táctica para la oficina del U.S. Customs and Border Protection, Oficina de la Patrulla Fronteriza en el Sector del Valle del Rio Grande (Texas)

Según la Ley Nacional de Política Ambiental de 1969, 42 U.S.C. 4321 et seq., (NEPA, siglas en inglés), la oficina del U.S. Customs and Border Protection (CBP), preparará una Declaración de Impacto en el Medio Ambiente (EIS) para identificar y evaluar los impactos potenciales asociados con una propuesta para construir y operar infraestructura táctica a lo largo de aproximadamente 70 millas de la frontera internacional entre los Estados Unidos y Mexico dentro del Sector de la Oficina de la Patrulla Fronteriza (OBP, siglas en inglés) en el Valle del Rio Grande, Texas, (la Acción Propuesta). El propósito de la Acción Propuesta es fomentar la capacidad del CBP de obtener control efectivo de la frontera mediante denegar acceso a peatones y otro accesso en secciones de alta prioridad del OBP del Sector del Rio Grande.

El EIS cumplirá con la Ley Nacional de Política Ambiental de 1960 (NEPA, siglas en inglés), las regulaciones del Concilio de Calidad Ambiental en 30 CFR Partes 1500-1508, y La Directiva de Administración 5100.1 (Programa de Planeación Ambiental) del Departamento de Seguridad Nacional (DHS, siglas en inglés).

De acuerdo con 40 CFR 1508.28, el EIS analizará los impactos ambientales de la Acción Propuesta específicos al sitio, los cuales fueron ampliamente descritos en dos EIS programáticos preparados por el antiguo Departamento de Servicios de Inmigración y Naturalización (INS) (el cual ahora es parte del CBP), el Departamento de Defensa, y la Fuerza Operante Conjunta 6 (JTF-6, siglas en inglés). El documento Programmatic EIS for JTF-6 Activities Along the U.S./Mexico Border, de Agosto de 1994, y su documento suplementario, Supplemental Programmatic EIS for INS and JTF-6 Activities, de Junio de 2001, fueron preparados para abordar los efectos cumulativos de proyectos del pasado y anticipables del futuro por la JTF-6 para numerosas agencias policíacas dentros de los cuatro estados del suroeste (California, Arizona, New Mexico, y Texas). Estos documentos pueden ser obtenidos del sitio de Internet del U.S. Army Corps of Engineers, Distrito de Fort Worth, Oficina de Ingeniería de Construcción y Apoyo, en https://ecso.swf.usace.army.mil; mediante enviar una requisición por correo electrónico a charles.mcgregor@swf02.usace.army.mil; o enviando una requisición por correo a Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 34A14, Fort Worth, Texas 76102.

Según las regulaciones del Concilio de Calidad Ambiental, CBP invita al público en general a participar en el proceso NEPA. Este aviso requiere la participación del público en el proceso de análisis, establece un período para comentarios del público, y provee información de como participar. El análisis público es un proceso abierto para determinar el rango del EIS e indentificar asuntos significantes relacionados con la Acción Propuesta. Cualquier persona que desee proveer comentarios, sugerencias, o información relevante a la Acción Propuesta puede hacerlo como sigue:

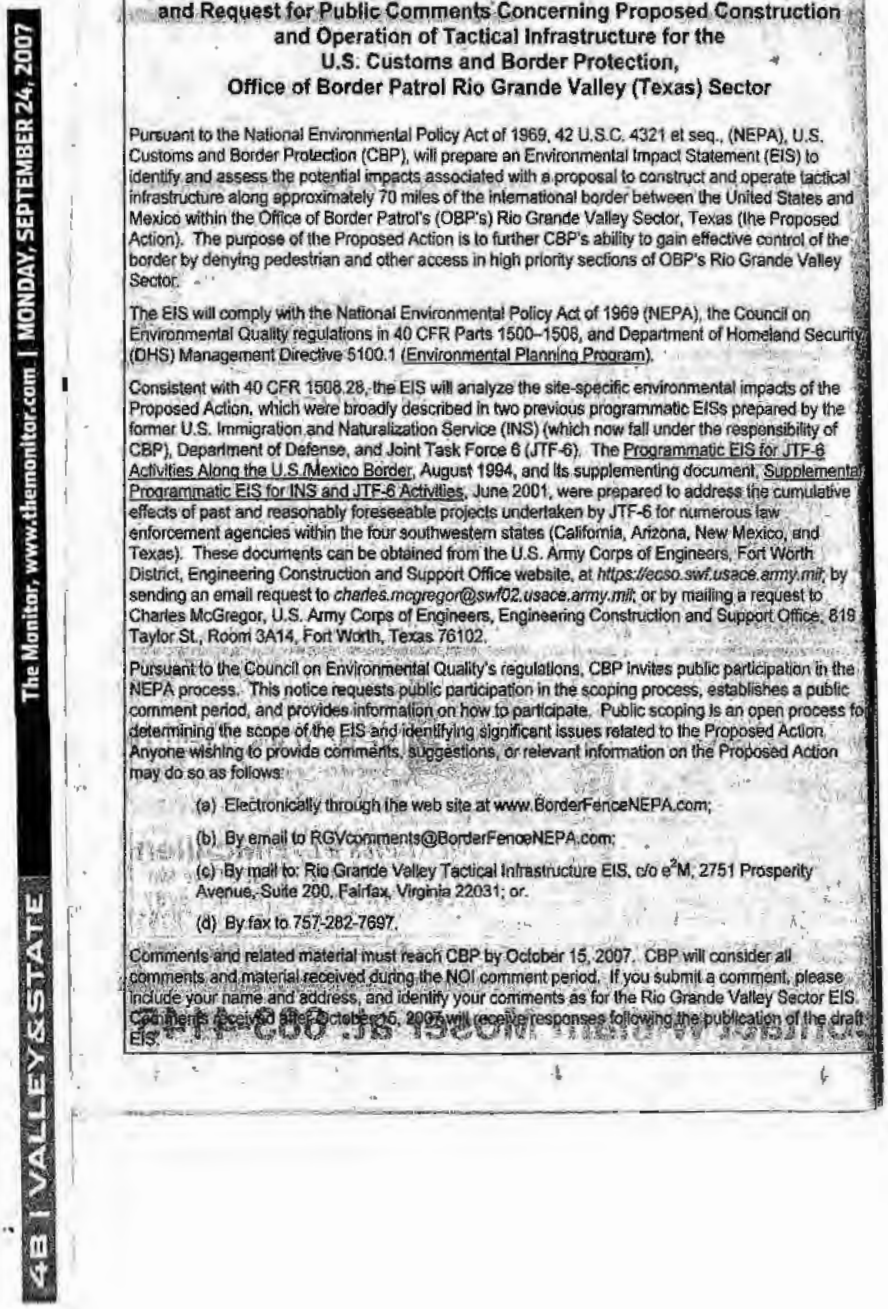
a) Electrónicamente a través del sitio de Internet www.BorderFenceNEPA.com;

b) Por correo electrónico a RGVcomments@BorderFenceNEPA.com;

c) Por correo a: Rio Grande Valley Tactical Infrastructure EIS, c/o e2M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; ó

d) Por fax al 757-282-7697.

Comentarios y materiales relacionados deberán llegar al CBP para el día 15 de Octubre del 2007. CBP considerará todos los comentarios y materiales recibidos durante el período de comentarios del NOI. Si usted remite un comentario, favor de incluir su nombre, dirección, e identificar sus comentarios para el Rio Grande Valley Sector EIS. Los comentarios recibidos después del 15 de Octubre, 2007 recibirán respuestas después de la publicación del bosquejo del EIS.



4B | VALLEY & STATE The Monitor, www.themonitor.com | MONDAY, SEPTEMBER 24, 2007

Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol Rio Grande Valley (Texas) Sector

Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq., (NEPA), U.S. Customs and Border Protection (CBP), will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate tactical infrastructure along approximately 70 miles of the international border between the United States and Mexico within the Office of Border Patrol's (OBP's) Rio Grande Valley Sector, Texas (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in high priority sections of OBP's Rio Grande Valley Sector.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (Environmental Planning Program).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the Proposed Action, which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (INS) (which now fall under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF-6). The Programmatic EIS for JTF-6 Activities Along the U.S./Mexico Border, August 1994, and its supplementing document, Supplemental Programmatic EIS for INS and JTF-6 Activities, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF-6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office website, at *https://ecso.swf.usace.army.mil*; by sending an email request to *charles.mcgregor@swf02.usace.army.mil*; or by mailing a request to Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate. Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the Proposed Action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

(a) Electronically through the web site at www.BorderFenceNEPA.com;

(b) By email to RGVcomments@BorderFenceNEPA.com;

(c) By mail to: Rio Grande Valley Tactical Infrastructure EIS, c/o e^{2}M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or,

(d) By fax to 757-282-7697.

Comments and related material must reach CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as for the Rio Grande Valley Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

Aviso de Intento de Preparar una Declaración de Impacto en el Medio Ambiente (EIS) y Requisición de Comentarios Públicos Relacionados con la Construcción Propuesta y Operación de Infraestructura Táctica para la oficina del U.S. Customs and Border Protection, Oficina de la Patrulla Fronteriza en el Sector del Valle del Río Grande (Texas)

Según la Ley Nacional de Política Ambiental de 1969, 42 U.S.C. 4321 et seq., (NEPA, siglas en inglés), la oficina del U.S. Customs and Border Protection (CBP), preparará una Declaración de Impacto en el Medio Ambiente (EIS) para indentificar y evaluar los impactos potenciales asociados con una propuesta para construir y operar infraestructura táctica a lo largo de aproximadamenta 70 millas de la frontera internacional entre los Estados Unidos y Mexico dentro del Sector de la Oficina de la Patrulla Fronteriza (OBP, siglas en inglés) en el Valle del Río Grande, Texas, (la Acción Propuesta). El propósito de la Acción Propuesta es fomentar la capacidad del CBP de obtener control efectivo de la frontera mediante denegar acceso a peatones y otro accesso en secciones de alta prioridad del OBP del Sector del Río Grande.

El EIS cumplirá con la Ley Nacional de Política Ambiental de 1969 (NEPA, siglas en inglés), las regulaciones del Concilio de Calidad Ambiental en 30 CFR Partes 1500-1508, y La Directiva de Administración 5100.1 (Programa de Planeación Ambiental) del Departamento de Seguridad Nacional (DHS, siglas en inglés).

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Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol Rio Grande Valley (Texas) Sector

Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq., (NEPA), U.S. Customs and Border Protection (CBP), will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate tactical infrastructure along approximately 70 miles of the international border between the United States and Mexico within the Office of Border Patrol's (OBP's) Rio Grande Valley Sector, Texas (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in high priority sections of OBP's Rio Grande Valley Sector.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA); the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (Environmental Planning Program).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the Proposed Action, which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (INS) (which now fall under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF-6). The Programmatic EIS for JTF-6 Activities Along the U.S./Mexico Border, August 1994, and its supplementing document, Supplemental Programmatic EIS for INS and JTF-6 Activities, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF-6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office website, at *https://ecso.swf.usace.army.mil*; by sending an email request to *charles.mcgregor@swf02.usace.army.mil*; or by mailing a request to Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

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VALLEY MORNING STAR Monday, September 24, 2007 ★ A5

Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol Rio Grande Valley (Texas) Sector

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SCOPING REPORT
APPENDIX C

WEB SITE

Border Fence NEPA

- Home
- Del Rio Sector EA
- El Centro Sector EA
- Marfa Sector EA
- Rio Grande Valley Sector EIS
- San Diego Sector EIS

Rio Grande Valley Sector EIS

Introduction

An Environmental Impact Statement (EIS) is being prepared in support of a proposal by U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol (USBP) Rio Grande Valley Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. In order to secure our nation's borders, USBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel.

The Rio Grande Valley Sector includes the area along the international border between the United States and Mexico from Rio Grande City to the Gulf of Mexico. USBP is proposing to construct, maintain, and operate tactical infrastructure consisting of fences, access roads, and patrol roads along approximately 70 miles of the U.S./Mexico international border (the Proposed Action). The Proposed Action includes the construction of tactical infrastructure in 21 segments along the international border in the vicinity of Rio Grande City, McAllen, Mercedes, Harlingen, Brownsville, and Fort Brown, Texas. Individual segments would range from approximately 1 mile to more than 13 miles. For much of its length, the proposed infrastructure will follow the International Boundary and Water Commission (IBWC) levee, but some portions will also encroach on multiple privately–owned land parcels. The IBWC applies boundary and water treaties of the United States and Mexico and settles differences that may arise in their application. Some portions of the tactical infrastructure would also encroach on multiple privately owned land parcels and would cross multiple land use types, including rural, agricultural, suburban, and urban land. It could also encroach on portions of the Lower Rio Grande Valley National Wildlife Refuge and Texas state parks in the Rio Grande Valley.

The EIS will evaluate potential environmental impacts from construction, maintenance, and operation of the proposed tactical infrastructure, consisting of:

- Tactical infrastructure includes installation of 21 primary fence (areas of the border that are not currently fenced) segments as listed in the table below and a single-lane unpaved patrol road.
- The proposed tactical infrastructure would impact an approximate 60 foot wide corridor along each fence segment. This corridor would include fences, access roads, patrol roads, and

construction staging areas. Vegetation would be cleared and grading may occur where needed. The area temporarily impacted would be approximately 508 acres. Wherever possible, existing roads would be used for construction access.

- If approved, the final design would be developed by a design/build contractor overseen by the U.S. Army Corps of Engineers (USACE) . However, design criteria that have been established based on USBP operational needs require that, at a minimum, any fencing must meet the following requirements: ❑

  - 15 feet high and extend below ground
  - Capable of withstanding a crash of a 10,000-pound (gross weight) vehicle traveling at 40 miles per hour
  - Capable of withstanding vandalism, cutting, or various types of penetration
  - Semi-transparent, as dictated by operational need
  - Designed to survive extreme climate changes
  - Designed to reduce or minimize impacts on small animal movement
  - Not impede the natural flow of water
  - Aesthetically pleasing to the extent possible.

The USACE is working with public and private land owners to obtain easements or purchase the construction corridor. In many cases, secure gates would be constructed to allow land owners access to their property near the Rio Grande. The proposed gates would be constructed to allow USBP and landowners access to land, the Rio Grande, and water resources, including pump houses and related infrastructure. In other cases, gates would be situated to provide access to existing recreational amenities; water resources, including pump houses and related infrastructure; grazing areas; existing parks; and other areas. On a case by case basis, USACE might purchase the land between the fence and the Rio Grande.

If approved, construction of the new Tactical Infrastructure would begin in Spring 2008 and continue through December 31, 2008.

Proposed Fence Segments for Border Patrol Rio Grande Valley Sector

Map Number	Border Patrol Station	General Location	Length of Fence Segment (miles)
O-1	Rio Grande City	Near Roma Port of Entry	5.26
O-2	Rio Grande City	Near RGC Port of Entry	7.30
O-3	McAllen	Los Ebanos Port of Entry	1.86
O-4	McAllen	From Penitas to Abram	4.35
O-5	McAllen	Future Anzalduas Port of Entry	1.73
O-6	McAllen	Hidalgo Port of Entry	3.86
O-7	Weslaco	Proposed Donna Port of Entry	2.43
O-8	Weslaco	Retamal Dam	2.05
O-9	Weslaco	West Progresso Port of Entry	3.02
O-10	Weslaco	East Progresso Port of Entry	2.43
O-11	Harlingen	Joe's Bar-Nemo Road	2.33
O-12	Harlingen	Weaver's Mountain	0.96
O-13	Harlingen	W Los Indios Port of Entry	1.58
O-14	Harlingen	E Los Indios Port of Entry	3.07
O-15	Harlingen	Triangle - La Paloma	1.93
O-16	Harlingen	Ho Chi Minh - Estero	2.97

SCOPING REPORT
APPENDIX D

AGENCY MAILING LIST AND LETTERS

USBP Rio Grande Valley Sector Agency Coordination Mailing List

Mr. Richard Greene
Regional Administrator, Region 6
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

COL David C. Weston
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, Texas 77553-1229

Dr. Benjamin Tuggle
Regional Director
U.S. Fish and Wildlife Service
Southwest Regional
P.O. Box 1306
Albuquerque, New Mexico 87103-1306

Commissioner Carlos Marin
International Boundary Water Commission
U.S. Section
4111 North Mesa, Suite C-100
El Paso, Texas 79902-1441

Ms. Michelle Horrocks
Texas Commission on Environmental Quality
MC 150
12100 Park 35 Circle
Austin, Texas 78753

The Honorable Wallace Coffey, Chairman
ATTN: Ms. Ruth Toahty
Comanche Nation
584 NM Bingo Road
HC 32 Box 98
Lawton, Oklahoma 73502

The Honorable Billy Evans Horse, Chairman
Kiowa Tribe of Oklahoma
Hwy 9 West
Carnegie, Oklahoma 73015

Mr. F. Lawrence Oaks
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado Street
Austin, Texas 78701

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Mr. Richard Greene
Regional Administrator, Region 6
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

OCT 1 9 2007

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector

Dear Mr. Greene:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 70 miles in length within USBP Rio Grande Valley Sector, Texas. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, install, and operate tactical infrastructure to include primary pedestrian fence and access and patrol roads in 21 distinct high priority segments along the U.S./Mexico international border. Individual segments would range from approximately 1 mile to more than 13 miles in length. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 70 miles of tactical infrastructure will be installed within USBP Rio Grande Valley Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Page 2
Mr. Richard Greene

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

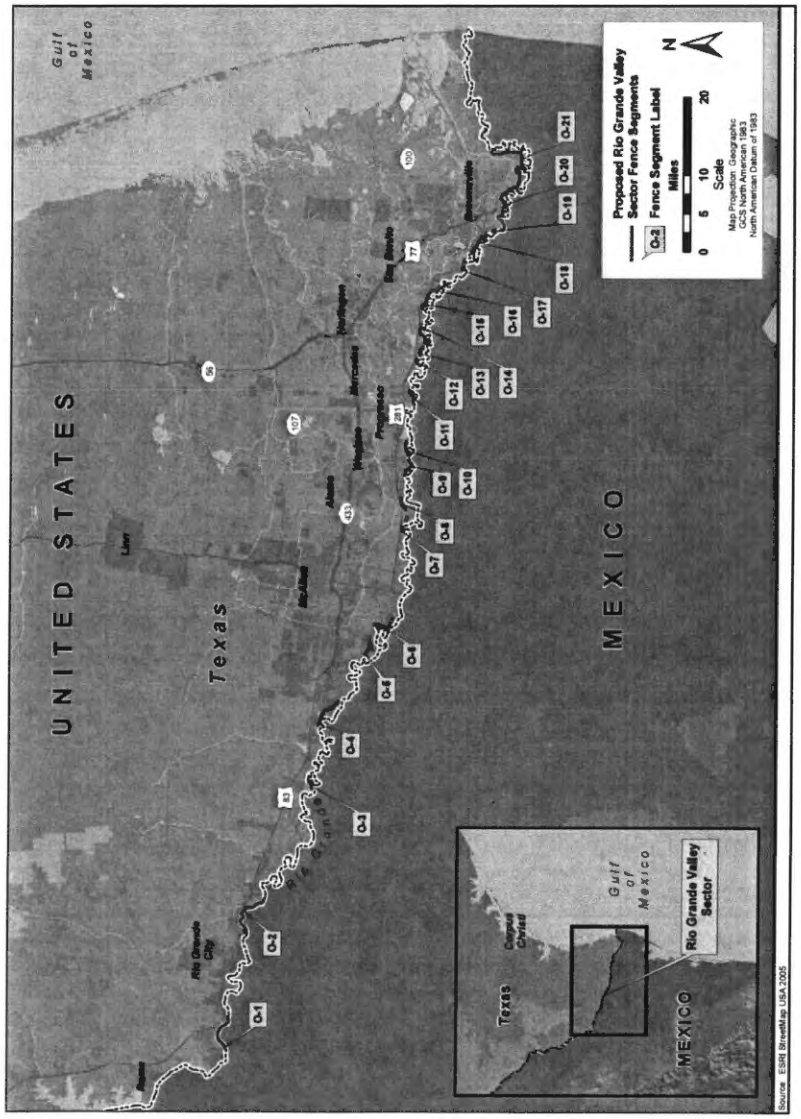
Your agency has been identified as a Federal authority with responsibilities for resources that may be affected by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervisory Border Patrol Agent René G. Zamora, USBP Rio Grande Valley Sector at (956) 289-5757.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management

Enclosure


UNITED STATES
MEXICO
Texas
Gulf of Mexico
Rio Grande
Proposed Rio Grande Valley Sector Fence Segments
Fence Segment Label
Miles
Scale
N
Rio Grande Valley Sector
Corpus Christi
Source: ESRI StreetMap USA 2005

DEPARTMENT OF HOMELAND SECURITY

Bureau of Customs and Border Protection

Notice of Intent To Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol Rio Grande Valley (Texas) Sector

AGENCY: U.S. Customs and Border Protection, Department of Homelaud Security.

ACTION: Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Request for Public Comments.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.*, (NEPA), U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate tactical infrastructure along approximately 70 miles of the international border between the United States and Mexico within the Office of Border Patrol's (OBP's) Rio Grande Valley Sector, Texas (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in high priority sections of OBP's Rio Grande Valley Sector. CBP is the decision-making agency for the Proposed Action.

Notice is bereby given that the public scoping process has been initiated to prepare an EIS that will address the impacts and alternatives of the Proposed Action. The purpose of the scoping process is to solicit public comments regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS.

FOR FURTHER INFORMATION CONTACT: Visit *http://www.BorderFenceNEPA.com* or e-mail: *information@BorderFenceNEPA.com.* Written requests for information may be submitted to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102; Phone: (817) 886–1585; and Fax: (817) 886–6404.

Background: An EIS is being prepared in support of a proposal by OBP's Rio Grande Valley Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. In order to secure our nation's borders, CBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel.

The Rio Grande Valley Sector includes the area along the international border between the United States aud Mexico from Rio Grande City, Texas, to the Gulf of Mexico. In that area, CBP is proposing to install and operate tactical infrastructure consisting of pedestrian fences, supporting patrol roads, lights, and other infrastructure along approximately 70 miles of the U.S./Mexico international border (the Proposed Action). The Proposed Action includes the installation of tactical infrastructure in 21 segments along the international border in the vicinity of Rio Grande City, Texas; McAllen, Texas; Mercedes, Texas; Harlingen, Texas; Brownsville, Texas; and Fort Brown, Texas. Individual segments might range from approximately 1 mile to more than 13 miles. For much of its length, the proposed infrastructure will follow the International Boundary and Water Commission levee, but some portions will also encroach on multiple privately-owned land parcels. The infrastructure would cross multiple land use types, including rural, agricultural, suburban, and urban land. It may also encroach on portions of the Lower Rio Grande Valley National Wildlife Refuge and Texas state parks in the Rio Grande Valley.

Potential alternatives for the environmental impacts analysis will consider location, construction, and operation of tactical infrastructure. Alternatives must meet the need to gain effective control of our nation's borders, as well as essential technical, engineering, and economic threshold requirements to ensure that a proposed action is environmentally sound, economically viable, and meets all applicable laws and regulations.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (*Environmental Planning Program*).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the Proposed Action, which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (INS) (which now fall under the responsibility of CBP), Department of Defense, end Joint Task Force 6 (JTF–6). The *Programmatic EIS for JTF–6 Activities Along the U.S./Mexico Border*, August 1994, and its supplementing document, *Supplemental Programmatic EIS for INS and JTF–6 Activities*, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF–6 for numerous law enforcement ageucies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office Web site, at *https://ecso.swf.usace.army.mil;* by sending an e-mail request to *charles.mcgregor@swf02.usace.army.mil;* or by mailiug a request to Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Public Participation: Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate.

Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the Proposed Action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

You may submit comments to CBP by contacting SBInet, Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) *Electronically through the Web site at: http://www.BorderFenceNEPA.com;*

(b) *By e-mail to: RGVcomments@BorderFenceNEPA.com;*

(c) *By mail to:* Rio Grande Valley PF–225 EIS, c/o e2M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) *By fax to:* (757) 282–7697.

Comments and related material must reech CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as related to the Rio Grande Valley Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

This scoping period is not the only opportunity you will have to comment. A draft EIS will be prepared, and prior to the development of a final EIS, CBP will release the draft EIS for public

review. At that time, a Notice of Availability (NOA) will be published in the **Federal Register**, the *Brownsville Herald* (Brownsville, Texas), and *The Monitor* (McAllen, Texas). The NOA will announce the availability of the draft EIS, how to obtain a copy, and the dates, times, and places of any associated public informational meetings.

Dated: September 19, 2007.

Eugene H. Schied,

Assistant Commissioner, Office of Finance.

[FR Doc. E7–18629 Filed 9–21–07; 8:45 am]

BILLING CODE 9111–14–P

DEPARTMENT OF HOMELAND SECURITY

Bureau of Customs and Border Protection

Notice of Intent To Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol San Diego Sector

AGENCY: U.S. Customs and Border Protection, Department of Homeland Security.

ACTION: Notice of Intent to Prepare an Environmental Impact Statement and Request for Public Comments.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.* (NEPA), U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate approximately four miles of tactical infrastructure and supporting patrol roads along the U.S./Mexico international border south of and adjacent to Otay Mountain Wilderness area in San Diego County, California (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in this high priority section of the Office of Border Patrol's (OBP's) San Diego Sector. CBP is the decision-making agency for this Proposed Action.

Notice is hereby given that the public scoping process has been initiated to prepare an EIS that will address the impacts and alternatives of the Proposed Action. The purpose of the scoping process is to solicit public comment regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS.

FOR FURTHER INFORMATION CONTACT: Visit *http://www.BorderFenceNEPA.com* or e-mail: *information@BorderFenceNEPA.com.* Written requests for information may be submitted to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102; Phone: (817) 886–1585; and Fax: (817) 886–6404.

Background: An EIS is being prepared in support of a proposal by OBP's San Diego Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. To assist Border Patrol officers, OBP is proposing to install and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, lights, and other infrastructure along approximately four miles of the U.S./Mexico international border within OBP's San Diego Sector.

In order to secure the nation's borders, CBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel. In some locations, fencing is a critical element of border security. OBP has identified this area of the border as a location where fence would significantly contribute to CBP's priority mission homeland security. As a part of this Proposed Action, two segments of fence are proposed for construction.

One segment is approximately 3.4 miles long and would start at the Puebla Tree and end at boundary monument 250. The proposed segment would be adjacent to and south of the Otay Mountain Wilderness; would follow the Pack Truck Trail; and would not connect to any existing fence. The Otay Mountain Wilderness is on public lands administered by the Bureau of Land Management (BLM), U.S. Department of the Interior in San Diego County, California. The wilderness boundary is at least 100 feet from the U.S./Mexico border, and the proposed fence would occur in this corridor between the U.S./Mexico border and the wilderness boundary. However, due to steep topography, a portion of road or other tactical infrastructure might encroach into the wilderness area.

The second segment would be approximately 0.6 miles long and would connect with existing border fence west of Tecate. This fence segment is an extension of existing fence up Tecate Peak and would pass through a riparian area. This proposed fence segment would be on privately owned land.

Potential alternatives for environmental impacts analysis will consider location, construction, and operation of tactical infrastructure. Potential alternatives must meet the need to gain effective control of our nation's borders, as well as essential technical, engineering, and economic threshold requirements to ensure that the Proposed Action is environmentally sound, economically viable, and meets all applicable laws and regulations.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (*Environmental Planning Program*).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the proposed action which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (which now falls under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF–6). The *Programmatic EIS for JTF–6 Activities Along the U.S./Mexico Border*, August 1994, and its supplementing document, *Supplemental Programmatic EIS for INS and JTF–6 Activities*, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF–6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office Web site, at *https://ecso.swf.usace.army.mil/;* by sending an e-mail to *charles.mcgregor@swf02.usace.army.mil;* or by mailing a request to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Public Participation: Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate.

Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the proposed action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 18 2007

COL David C. Weston
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77553-1229

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector

Dear COL Weston:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 70 miles in length within USBP Rio Grande Valley Sector, Texas. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, install, and operate tactical infrastructure to include primary pedestrian fence and access and patrol roads in 21 distinct high priority segments along the U.S./Mexico international border. Individual segments would range from approximately 1 mile to more than 13 miles in length. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 70 miles of tactical infrastructure will be installed within USBP Rio Grande Valley Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Page 2
COL David C. Weston

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

Your agency has been identified as a Federal authority with responsibilities for resources that may be affected by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervisory Border Patrol Agent René G. Zamora, USBP Rio Grande Valley Sector at (956) 289-5757.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management

Enclosure

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Dr. Benjamin Tuggle
Regional Director
U.S. Fish and Wildlife Service
Southwest Region
P.O. Box 1306
Albuquerque, NM 87103-1306

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector

Dear Dr. Tuggle:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 70 miles in length within USBP Rio Grande Valley Sector, Texas. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, install, and operate tactical infrastructure to include primary pedestrian fence and access and patrol roads in 21 distinct high priority segments along the U.S./Mexico international border. Individual segments would range from approximately 1 mile to more than 13 miles in length. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 70 miles of tactical infrastructure will be installed within USBP Rio Grande Valley Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Page 2
Dr. Benjamin Tuggle

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

Your agency has been identified as a Federal authority with responsibilities for resources that may be affected by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervisory Border Patrol Agent René G. Zamora, USBP Rio Grande Valley Sector at (956) 289-5757.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management

Enclosure

Cc: Mike Horton

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 18 2007

Commissioner Carlos Marin
International Boundary Water Commission
U.S. Section
4111 North Mesa, Suite C-100
El Paso, TX 79902-1441

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector

Dear Commissioner Marin:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 70 miles in length within USBP Rio Grande Valley Sector, Texas. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, install, and operate tactical infrastructure to include primary pedestrian fence and access and patrol roads in 21 distinct high priority segments along the U.S./Mexico international border. Individual segments would range from approximately 1 mile to more than 13 miles in length. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 70 miles of tactical infrastructure will be installed within USBP Rio Grande Valley Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Page 2
Commissioner Carlos Marin

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

Your agency has been identified as a Federal authority with responsibilities for resources that may be affected by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervisory Border Patrol Agent René G. Zamora, USBP Rio Grande Valley Sector at (956) 289-5757.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosure

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Ms. Michelle Horrocks
Texas Commission on Environmental Quality
MC 150
12100 Park 35 Circle
Austin, Texas 78753

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector

Dear Ms. Horrocks:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 70 miles in length within USBP Rio Grande Valley Sector, Texas. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, install, and operate tactical infrastructure to include primary pedestrian fence and access and patrol roads in 21 distinct high priority fence segments along the U.S./Mexico international border. Individual fence segments would range from approximately 1 mile to more than 13 miles in length. A map presenting the proposed project sites is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 70 miles of tactical infrastructure will be installed within USBP Rio Grande Valley Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Ms. Michelle Horrocks
Page 2

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

Your agency has been identified as a State authority with responsibilities for resources that may be affected by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering and Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervisory Border Patrol Agent René G. Zamora, USBP Rio Grande Valley Sector at (956) 289-5757.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management

Enclosures

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

September 27, 2007

Planning, Environment and Regulatory Division

Subject: Environmental Impact Statement Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector, Cameron and Hidalgo Counties, Texas

Honorable Wallace Coffey, Chairman
ATTN: Ms. Ruth Toahty
Comanche Nation
584 NW Bingo Rd
HC 32 Box 908
Lawton, Oklahoma 73502

Dear Chairman Coffey:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), on behalf of the Department of Homeland Security, U.S. Customs and Border Protection (CBP), Office of Border Patrol (OBP) is preparing an Environmental Impact Statement (EIS) for a road and fence project in Cameron and Hidalgo Counties, in the vicinity of McAllen and Brownsville, Texas (Figure 1). At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

The Proposed Action includes the construction and operation of tactical infrastructure to include primary pedestrian fence, and access and patrol roads along approximately 70 miles of the U.S./Mexico international border within the U.S. Border Patrol (USBP) Rio Grande Valley Sector, Texas. The Proposed Action would be implemented in 21 distinct high priority segments. Individual segments would range from approximately 1 mile to more than 13 miles in length.

We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey will be conducted on the project corridor and we will provide you a copy of the report for review and comment. We will also

provide a copy of the draft EIS for review and comment. If you have any questions pertaining to this project, please do not hesitate to contact Jeff Hokanson at (817) 886-1720.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division

Enclosure

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

September 27, 2007

Planning, Environment and Regulatory Division

Subject: Environmental Impact Statement Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector, Cameron and Hidalgo Counties, Texas

Honorable Billy Evans Horse, Chairman
Kiowa Tribe of Oklahoma
Hwy 9 West
Carnegie, OK 73015

Dear Chairman Evans Horse:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), on behalf of the Department of Homeland Security, U.S. Customs and Border Protection (CBP), Office of Border Patrol (OBP) is preparing an Environmental Impact Statement (EIS) for a road and fence project in Cameron and Hidalgo Counties, in the vicinity of McAllen and Brownsville, Texas (Figure 1). At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue tu use the area.

The Proposed Action includes the construction and operation of tactical infrastructure to include primary pedestrian fence, and access and patrol roads along approximately 70 miles of the U.S./Mexico international border within the U.S. Border Patrol (USBP) Rio Grande Valley Sector, Texas. The Proposed Action would be implemented in 21 distinct high priority segments. Individual segments would range from approximately 1 mile to more than 13 miles in length

We welcome your comments on this undertaking and look forward to henring any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey will be conducted on the project corridor and we will provide you a copy of the report for review and comment. We will also

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Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division

Enclosures

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

September 27, 2007

Planning, Environment and Regulatory Division

Subject: Environmental Impact Statement Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector, Cameron and Hidalgo Counties, Texas

Mr. F. Lawerence Oaks
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado Street
Austin, TX 78701

Dear Mr. Oaks:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), on behalf of the Department of Homeland Security, U.S. Customs and Border Protection (CBP), Office of Border Patrol (OBP) is preparing an Environmental Impact Statement (EIS) for a road and fence project in Cameron and Hidalgo Counties, in the vicinity of McAllen, Texas (Figure 1). USACE on behalf of CBP wishes to initiate consultation with your office, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800.

The Proposed Action includes the construction and operation of tactical infrastructure to include primary pedestrian fence with access and patrol roads along approximately 70 miles of the U.S. - Mexico international border within the U.S. Border Patrol Rio Grande Valley Sector, Texas. The Proposed Action would be implemented in 21 distinct high priority segments. Individual segments would range from approximately 1 mile to more than 13 miles in length.

A cultural resources survey will be conducted on the project corridors and we will provide you a copy of the report for review and comment. We will also provide a copy of the draft EIS for review and comment.

Prior to beginning this fast and important project, we would like to develop a Programmatic Agreement (PA) with your office. The main purpose of the PA will be to expedite the National Environmental Policy Act (NEPA) process and regulate the Section 106 process. The PA will define roles, outline the steps that will be followed to meet the objectives of Section

106, and provide possible dispute resolutions remedies. Once a draft version of the PA is complete we will forward it to your office for review.

If you have any questions pertaining to this project, please do not hesitate to contact Mr. Jeff Hokanson at (817) 886-1720.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division

Enclosures

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

November 5, 2007

Mr. Charles McGregor
United States Army Corps of Engineers
Fort Worth District
Engineering Construction Support Office
P.O. Box 17300
Fort Worth, TX 76102-0300

Dear Mr. McGregor:

Reference is made to various letters dated October 18, 2007, from Mr. Robert F. Janson, U.S. Customs and Border Protection, requesting us to become a cooperating agency with regard to the development of National Environmental Policy Act (NEPA) environmental documentation for the proposed construction, maintenance, and operation of tactical infrastructure throughout the international boundary. According to the letters, the following projects are being considered:

1) Environmental Impact Statement for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector;

2) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector;

3) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol El Centro Sector;

4) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Yuma Sector;

5) Supplemental Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol El Paso Sector;

6) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Marfa Sector;

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7) Environmental Assessment for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Del Rio Sector; and

8) Environmental Impact Statement for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol Rio Grande Valley Sector.

The United States Section, International Boundary and Water Commission (USIBWC) accepts your request to become a cooperating agency in the NEPA process. We look forward to working with you on issues related to the international boundary, specifically international treaties and agreements, issues related to USIBWC jurisdiction, and USIBWC real property. Due to the overwhelming list of Border Patrol initiatives along the international boundary, I have designated Mr. Richard Peace, Division Engineer, Operations and Maintenance Division, as the agency single point of contact for matters related to these projects. Mr. Peace can be reached at (915) 832-4158 for overall project coordination. If you have any questions feel free to contact me at (915) 832-4101.

Sincerely,

Carlos Marin, P.E.
Commissioner

APPENDIX C

Public Comments on the Draft EIS

APPENDIX C

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Comments on the Draft EIS will be included in this Appendix once received.

APPENDIX D

Detailed Descriptions of Each Discrete Fence Section Under Routes A and B

Table D-1. Detailed Description of the 21 Fence Sections for Proposed Tactical Infrastructure

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-1	R o Grande C ty	Th s fence sect on covers approx mate y 3.73 m es upr ver and 1.55 m es downr ver from the Roma, Texas Port-of-Entry (POE). Approx mate y 1.01 m es wou d fo ow the R o Grande border to the Arroyo Mesa annex of the Lower R o Grande Va ey Nat ona W d fe Refuge (LRGVNWR). Approx mate y 0.33 m es wou d fo ow the R o Grande border to the Los Negros Creek annex to the LRGVNWR.	5.26	Route B wou d avo d approx mate y 1.01 m es of the Arroyo Mesa annex of the LRGVNWR. Route B wou d mpact ess r par an areas, ess f oodp a n. Route B cou d potent a y mpact more res dent a areas.	3.75	Three gates wou d be nsta ed for access to water pump ng fac t es.
O-2	R o Grande C ty	Th s sect on covers approx mate y 3.41 m es upr ver and 3.89 m es downr ver from the R o Grande C ty, Texas POE. Approx mate y 0.16 m es wou d encroach upon the R o San Juan annex to the LRGVNWR. Approx mate y 0.26 m es wou d encroach upon the Los Ve as West annex to the LRGVNWR.	7.30	Approx mate y 1.40 m es wou d be added to the downstream end of Sect on O-2. Approx mate y 0.73 m es of th s extra d stance wou d cross the Los Ve as West and Los Ve as Annexes of the LRGVNWR.	8.74	F ve gates wou d be nsta ed for access to water pump ng fac t es.
O-3	McA en	Th s fence sect on starts from the area known as “Avocado Land ng” to about 1m e upr ver from the Los Ebanos POE. Approx mate y 0.70 m es wou d fo ow the R o Grande boundary of the Los Ebanos annex to the LRGVNWR. Approx mate y 0.09 m es wou d fo ow the boundary of the Los Ebanos annex to the LRGVNWR near the Los Ebanos POE. Approx mate y 0.03 m es wou d a so cross through th s same sect on of the LRGVNWR.	1.86	Route B represents an adjustment from the or g na y proposed project corr dor to avo d natura areas a ong the R o Grande, where pract ca .	1.90	Two gates wou d be nsta ed to prov de access to pr vate property owners, farmers, and rout ne patro act v t es.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-4	McA en	From the Abram Road extens on to the end of the evee at M tary H ghway n Peñ tas. Approx mate y 0.15 m es wou d encroach upon Texas Parks and W d fe area. Approx mate y 0.08 m es wou d encroach upon the Peñ tas annex to the LRGVNWR. Approx mate y 0.30 m es wou d fo ow the northern border of the Nature Conservancy preserve known as Ch huahua Woods.	4.35	There are no notab e d fferences between Routes A and B.	4.35	F ve gates wou d be nsta ed to prov de access for var ous and owners and water pump ng fac t es.
O-5	McA en	Th s sect on wou d run from the ntersect on of the northern f oodway evee w th the Anza duas Park access road and fo ow the f oodway evee row for 1.73 m es around the south s de of Granjeno. Sect on O-5 ends at a po nt on the f oodway evee row just south of South Shary Road. Th s sect on wou d border on the Granjeno annex to the LRGVNWR for approx mate y 0.11 m es n the construct on area of the Anza duas POE.	1.73	Route B represents a s ght rea gnment where the proposed route wou d cross the rr gat on cana n the m dd e of the route.	1.76	One gate wou d be nsta ed at the cana access road.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-6	McA en	Th s sect on wou d beg n at a po nt where the U.S. Internat ona Boundary and Water Comm ss on (IBWC) evee r ght-of-way (ROW) ntersects Guerra Road n H da go, Texas. The sect on wou d head south and t e nto ex st ng fenc ng at the upr ver s de of the H da go/Reynosa POE. Approx mate y 1.65 m es of wou d fo ow the eastern border of the Pate Bend annex to the LRGVNWR, where USFWS requests fenc ng suff c ent to b ock domest c an ma s from enter ng the refuge. Downr ver from the H da go/Reynosa POE, th s sect on wou d cont nue from the ex st ng POE fenc ng and fo ow the evee system around the O d H da go Pump House and Wor d B rd Center gardens. The sect on wou d run approx mate y 0.95 m es a ong the northern border to the H da go Bend annex of the LRGVNWR. Th s sect on wou d end at a po nt where the evee ntersects 15th Street.	3.86	Route B represents m nor adjustments to the exact p acement near the O d H da go Pump House.	3.85	F ve gates wou d be nsta ed to prov de access to pr vate and owners, ex st ng recreat on opportun t es, patro operat ons, and water pump ng fac t es.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-7	Wes aco	Proposed Donna POE. Sect on O-7 wou d beg n at a po nt on the IBWC evee row on the eastern border of the Monterrey Banco annex to the LRGVNWR and fo ow the northern border of the refuge annex to the east for approx mate y 0.90 m es, then cross over the Donna Cana . The fence sect on wou d then turn south a ong the Donna Cana to the Donna pump stat on and the area of the p anned Donna POE. From the proposed POE, the sect on wou d cont nue east a ong the IBWC evee row and end at a po nt on the evee approx mate y 0.50 m es from the Donna pump stat on.	2.43	Route B represents a shorten ng of the or g na y proposed sect on n ant c pat on of the proposed Donna POE. Th s area wou d t e nto the fence that wou d be nsta ed at the proposed Donna POE. Route B wou d a so avo d sma port ons of the Monterrey Banco LRGVNWR.	0.90	F ve gates wou d be nsta ed to prov de access to pr vate and owners, farm ng operat ons, and rout ne patro operat ons.
O-8	Wes aco	Retama Dam area. Th s sect on wou d beg n on the IBWC evee row at a po nt southeast of the ntersect on of Donna Road w th H ghway 281. The fence sect on wou d fo ow the IBWC evee row to the northeast for 2.05 m es, end ng at a po nt where the evee ex ts the eastern border of the northern panhand e of the La Coma annex to the LRGVNWR. Approx mate y 0.03 m es of th s sect on wou d fo ow the southern boundary of Texas Parks and W d fe property, and approx mate y 0.17 m es wou d traverse the La Coma annex to the LRGVNWR.	2.05	Route B represents an extens on of the or g na y proposed sect on so that t meets the downr ver end of the fenc ng to be p aced for the proposed Donna POE.	3.25	Four gates wou d be nsta ed to prov de access to pr vate and owners, patro operat ons, and water pump ng fac t es.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-9	Wes aco	West Progresso POE. Th s sect on wou d beg n at a po nt on the IBWC evee row southeast of the ntersect on of H ghway 281 w th M e 5 Road West. The sect on wou d fo ow the IBWC row for 3.02 m es and term nate on the west s de of the Progresso POE. Th s sect on wou d cross between the Progresso D str ct sett ng bas ns and Moon Lake n the Progresso Lakes area.	3.02	Route B represents an extens on of the or g na y proposed sect on to the west, fo ow ng the IBWC evee ROW n an agr cu tura area.	3.87	F ve gates wou d be nsta ed to prov de access for rout ne patro operat ons, pr vate and owners, agr cu tura , and mun c pa operat ons.
O-10	Wes aco	East Progreso POE. On the east s de of the Progreso POE, th s sect on wou d t e nto the end of the ex st ng fence at the POE and cont nue east a ong the IBWC evee row for 2.43 m es. Th s sect on wou d cross through the Rosar o Banco annex to the LRGVNWR for approx mate y 0.35 m es.	2.43	Route B represents a shorten ng of the west end of the sect on to t e nto ex st ng fenc ng at the east s de of the Progreso POE, and a s ght extens on of the east end of the segment. A s ght reduct on n overa sect on engths resu ts.	2.33	Three gates wou d be nsta ed to prov de access to pr vate and owners, rout ne patro operat ons, farm ng operat ons, and water pump ng fac t es.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-11	Har ngen	Joe's Bar-Nemo Road (n the area of the La Fer a pump stat on). Th s sect on wou d beg n at a po nt where the IBWC evee meets the Santa Mar a Cana west of R ver Road and the evee, to the south of Santa Mar a. The sect on wou d cont nue east fo ow ng the IBWC evee row to the La Fer a Cana and pump stat on, cross ng over the cana . At th s po nt, the fence sect on wou d head north for approx mate y 0.55 m es and turn west a ong Benson Road. Th s sect on wou d pass through approx mate y 0.55 m es of Texas Parks and W d fe property. Th s sect on wou d term nate at a po nt on Benson Road to the north of the V tas Banco annex to the LRGVNWR.	2.33	Route B represents an a ternat ve to where the proposed route wou d cross the La Fer a Cana . Route A wou d cross the cana c ose to the pump stat on and turn north, para e to the east s de of the cana . Route B wou d turn north and para e the west s de of the cana , cross ng the cana farther north from the pump stat on.	2.31	Three gates wou d be nsta ed to prov de access to pr vate and owners, rout ne patro operat ons, agr cu tura operat ons, and water pump ng fac t es.
O-12	Har ngen	Th s sect on wou d beg n at a po nt where the IBWC evee and Ye ow Barn Road ntersect n the area of Las Rus as. Th s proposed sect on wou d fo ow the evee row and cross over the Har ngen Cana . The sect on wou d fo ow the north s de of the cana and evee row and term nate on the west s de of Trev no Road, north of the pump stat on.	0.96	There are no notab e d fferences between Routes A and B.	0.92	No gates proposed.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-13	Har ngen	West Los Ind os POE. Th s sect on wou d beg n at a po nt where the San Ben to Cana ntersects the IBWC evee row near Weber Road south of the pump stat on n the area of Los Ind os. The sect on wou d fo ow the evee row east, then turn south through the Cu ebron Banco annex to the LRGVNWR (approx mate y 0.22 m es wou d be ns de the refuge). The sect on wou d cont nue to fo ow the evee row east a ong Av a Road and term nate at FM (farm to market) 509 on the west s de of the Los Ind os POE.	1.58	Route B represents a rea gnment of a port on of the sect on toward the east to avo d the Cu ebron Banco annex of the LRGVNWR.	1.58	Two gates wou d be nsta ed for access to water pump ng fac t es, rout ne patro operat ons.
O-14	Har ngen	East Los Ind os POE. Th s sect on wou d beg n at a po nt on the IBWC evee row near Av a Road, east of the Los Ind os POE. The sect on wou d fo ow the evee row for 3.07 m es and term nate at the ntersect on of the evee w th an area known as Landrum s house south of H ghway 281.	3.07	Route B represents add t ona ength added to the east end of Route A a ong the IBWC evee ROW.	3.59	Two gates wou d be nsta ed to prov de access for agr cu tura operat ons and rout ne patro operat ons.
O-15	Har ngen	Pedraza Road to Garza Sandp t Road. Th s sect on wou d beg n at a po nt on the IBWC evee row south of La Pa oma. The sect on wou d fo ow the evee row for 1.93 m es and term nate at a d rt road known as Garza Sandp t Road. The sect on wou d fo ow the boundary of the Vaqueter a Banco annex to the LRGVNWR for approx mate y 0.18 m es.	1.93	There are no notab e d fferences between Routes A and B.	1.93	One gate wou d be nsta ed for access to farm ng operat ons, grave p t access, and rout ne patro operat ons.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-16	Har ngen	Garza Sandp t Road to IBC Road. Th s fence sect on wou d jo n w th Sect on O-15 and cont nue to fo ow the IBWC evee r ght of way east for 2.97 m es. Th s sect on wou d term nate at a po nt where the IBWC evee r ght of way ntersects IBC Road.	2.97	Route B represents a shorten ng of the or g na y proposed Route A sect on to avo d travers ng through approx mate y 0.20 m es of the Tahuacha Banco annex to the LRGVNWR. The area where the evee cuts through the refuge may eventua y conta n v rtua fenc ng on y, w th no phys ca barr er n p ace.	2.33	Two gates wou d be nsta ed to prov de access for water pump ng fac t es, agr cu tura operat ons, and rout ne patro operat ons.
O-17	Brownsv e	Proposed Carmen Road Fre ght Tra n Br dge. Th s sect on wou d beg n at a po nt on the IBWC evee row south of San Pedro and fo ow the evee for 1.63 m es east. Th s sect on wou d term nate at a po nt where the evee turns south at the R ver Bend go d commun ty. Cameron County has p ans to re ocate the Brownsv e/Matamoros ra way POE to a po nt a ong th s segment.	1.63	There are no notab e d fferences between Routes A and B.	1.61	Four gates wou d be nsta ed to prov de government access and farm ng operat ons access.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-18	Brownsv e	Proposed F or De Mayo POE to Garden Park. Th s sect on wou d beg n at a po nt where the IBWC evee row ntersects the Los Fresnos pump cana on the east s de of the cana . Th s sect on wou d fo ow the evee row southeast for approx mate y 3.58 m es. Approx mate y 0.31 m es of th s sect on wou d fo ow the northern boundary of the Pa o B anco annex to the LRGVNWR. Approx mate y 0.35 m es wou d cut through the Ph ps Banco annex to the LRGVNWR. Another 0.71 m es wou d fo ow the southern boundary of Ph ps Banco.	3.58	There are no notab e d fferences between Routes A and B.	3.58	Seven gates wou d be nsta ed to prov de access to pr vate and owners, farm ng operat ons, and government access.
O-19	Brownsv e	Brownsv e/Matamoros (B&M) POE. Th s sect on wou d beg n at a po nt where Pa m Bou evard meets the r ver bank near Brownsv e. Th s sect on wou d cont nue across the B&M POE and fo ow the evee to the Gateway POE. At th s po nt, the fence sect on wou d turn south a ong the south s de of Fort Brown Resaca. The sect on wou d then turn east a ong the evee between Fort Brown and the go f course. Th s sect on wou d term nate on the evee just to the east of the go f course southwest of the Un vers ty of Texas Brownsv e park ng area.	3.33	Route B represents a rea gnment of the or g na y proposed corr dor away from an urban area on the edge of Brownsv e to c oser to the r ver bank. Less soc oeconom c mpacts, more env ronmenta mpacts from be ng c oser to the R o Grande. Fewer res dences wou d be mpacted.	3.37	Four gates wou d be nsta ed to prov de access to pr vate andowners, farm ng operat ons, recreat on (go f ng), and government access.

Fence Section Number	Border Patrol Station	Description of Route A	Length of Fence Section for Route A (in miles)	Difference Between Routes A and B	Length of Fence Section for Route B (in miles)	Access Gates
O-20	Brownsv e	Veterans Internat ona Br dge (Los Tomates). Th s sect on wou d jo n w th Sect on O-19 and beg n at the term nus of Sect on O-19. Th s sect on wou d then fo ow the IBWC evee on the south s de of the Un vers ty of Texas Brownsv e park ng area east to the Veterans Internat ona Br dge POE.	0.91	There are no notab e d fferences between Routes A and B.	0.93	Three gates wou d be nsta ed to prov de access for the C ty and other government access.
O-21	Fort Brown	Veterans Internat ona Br dge to Sea She Inn. Th s sect on wou d beg n on the east/south s de of the Veterans Internat ona Br dge POE (Los Tomates) and fo ow the IBWC evee row to the Impa a pump stat on. At the pump stat on, the sect on wou d cont nue south a ong the evee to Monsees Road. South of Monsees Road, the sect on wou d cont nue a ong the evee row, cross ng Bosque de a Pa ma w d fe area between George Saenz Road and South Dakota Avenue. Fo ow ng the evee, the sect on may cross through Southmost Ranch, a Nature Conservancy area. After pass ng th s area, the sect on wou d turn north a ong the evee at South Ok ahoma Avenue and term nate at the end of the evee, south of Boca Ch ca Bou evard.	13.30	Route B represents a s ght change at the east s de of the Veterans Internat ona Br dge POE to a ow for the t e- n of the proposed a gnment w th ex st ng fenc ng at the POE. Route B a so represents s ght adjustments to the proposed a gnment n the area of M pa Verde and Monsees Road.	12.99	Twenty-one gates wou d be nsta ed to prov de access to agr cu tura operat ons, pr vate andowners, water pump ng fac t es, pub c areas, commerc a areas, and rout ne patro operat ons.
		Total	**69.87**		**69.84**	**87**

APPENDIX E

Standard Design for Tactical Infrastructure

APPENDIX E

STANDARD DESIGN FOR TACTICAL INFRASTRUCTURE

A properly designed tactical infrastructure system is an indispensable tool in deterring those attempting to illegally cross the U.S. border. Tactical infrastructure is also integral to maintaining USBP's flexibility in deploying agents and enforcement operations. A formidable infrastructure acts as a force multiplier by slowing down illegal entrants and increasing the window of time that agents have to respond. Strategically developed tactical infrastructure should enable USBP managers to better utilize existing manpower when addressing the dynamic nature of terrorists, illegal aliens, and narcotics trafficking (INS 2002).

USBP apprehension statistics remain the most reliable way to codify trends in illegal migration along the border. Based on apprehension statistics, in a 2006 report on border security, the Congressional Research Service concluded that "the installation of border fencing, in combination with an increase in agent manpower and technological assets, has had a significant effect on the apprehensions made in the San Diego sector" (CRS 2006).

Since effective border enforcement requires adequate scope, depth, and variety in enforcement activity, any single border enforcement function that significantly depletes USBP's ability to satisfactorily address any other enforcement action creates exploitable opportunities for criminal elements. For example, the intense deployment of personnel resources necessary to monitor urban border areas without tactical infrastructure adversely affects the number of agents available for boat patrol, transportation check points, patrolling remote border areas, and other tasks Tactical infrastructure reduces this effect by reinforcing critical areas, allowing the agents to be assigned to other equally important border enforcement roles (INS 2002).

Fencing

Two applications for fencing have been developed in an effort to control illegal cross-border traffic: pedestrian fences that are built on the border, and secondary fences that are constructed parallel to the pedestrian fences. These fences present a formidable physical barrier which impede cross-border violators and increases the window of time USBP agents have to respond (INS 2002).

There are several types of pedestrian fence designs USBP can select for construction depending on various site conditions and law enforcement tactics employed. Each option offers relative advantages and disadvantages. Fencing composed of concrete panels, for example, is among the more cost-effective options, but USBP agents cannot see through it. USBP prefers fencing structures offering visual transparency, allowing observation of activities developing on the other side of the border.

Over the past decade, USBP has deployed a variety of types of fencing, such as pedestrian fence (see **Figures E-1** through **E-4**), pedestrian fence with wildlife migratory portals (see **Figures E-5** and **E-6**), vehicle barrier with pedestrian fence (see **Figures E-7** through **E-9**), and bollard fencing (see **Figure E-10**).

Figure E-1. Typical Pedestrian Fence Foundation

Figure E-2. Typical Pedestrian Fence Design

Figure E-3. Typical Pedestrian Fence Design

Figure E-4. Typical Pedestrian Fence Design

Figure E-5. Pedestrian Fence with Wildlife Migratory Portals

Figure E-6. Wildlife Migratory Portals

Figure E-7. Vehicle Barrier with Pedestrian Fence

Figure E-8. Vehicle Barrier with Pedestrian Fence

Figure E-9. Vehicle Barrier with Pedestrian Fence

Figure E-10. Bollard Fence

Bollard fencing has been effective in its limited deployment and can also be seen through. However, it is expensive to construct and to maintain. Landing mat fencing is composed of Army surplus carbon steel landing mats which were used to create landing strips during the Vietnam War. Chain-link fencing is relatively economical, but more easily compromised. In selecting a particular fencing design, USBP weighs various factors such as its effectiveness as a law enforcement tool, the costs associated with construction and maintenance, potential environmental impacts, and other public interest concerns. USBP continues to develop fence designs to best address these objectives and constraints.

Patrol Roads

Patrol roads provide USBP agents with quick and direct access to anyone conducting illegal activity along the border, and allow agents access to the various components of the tactical infrastructure system. Patrol roads typically run parallel to and a few feet north of the pedestrian fence. Patrol roads are typically unpaved, but in some cases "all-weather" roads are necessary to ensure continual USBP access (INS 2002).

Lighting

Two types of lighting (permanent and portable) might be constructed in specific urban locations. Illegal entries are often accomplished by using the cover of darkness, which would be eliminated by lighting. Lighting acts as a deterrent to cross-border violators and as an aid to USBP agents in capturing illegal aliens, smugglers, terrorists, or terrorist weapons after they have entered the United States (INS 2001). Lighting locations are determined by USBP based on projected operational needs of the specific area.

The permanent lighting would be stadium-type lights on approximately 30- to 40-foot high poles with two to four lights per pole. Each light would have a range of 400 to 1,000 watts, with lower-wattage bulbs used where feasible. Wooden poles, encased in concrete and steel culvert pipe to prevent them from being cut down, would most often be used, although steel poles with concrete footings might also be used. The poles might be existing poles or they might need to be installed. Electricity would be run in overhead lines unless local regulations require the lines to be underground (DHS 2004). Lights would operate from dusk to dawn. Light poles adjacent to U.S. IBWC levees would be coordinated with and approved by the U.S. IBWC. The final placement and direction of lighting has been and would continue to be coordinated with the USFWS, with the USFWS having final review over both placement and direction along each fence section.

Portable lights are self-contained units with generators that can be quickly moved to meet USBP operational requirements. Portable lights are powered by a 6-kilowatt self-contained diesel generator. Portable lights would generally operate continuously every night and would require refueling every day prior to the next night's operation. The portable light systems can be towed to the desired location by USBP vehicles, but they are typically spaced approximately 100 to 400 feet apart, depending upon topography and operational needs. Each portable light would have a light fan directed toward the fence to produce an illuminated area of 100 ft^2. The lighting systems would have shields placed over the lamps to reduce or eliminate the effects of backlighting. Effects from the lighting would occur along the entire corridor where they could be placed; however, in reality, only parts of the fence would be illuminated at a given time since the portable lights would be periodically relocated to provide the most effective deterrent and enforcement strategy (INS 2001).

References

CRS 2006 — Congressional Research Service (CRS). 2006. "Report For Congress." *Border Security: Barriers Along the U.S. International Border*. 12 December 2006.

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INS 2001 — Immigration and Naturalization Service (INS). 2001. *Final Environmental Assessment, Portable Lights within the Naco Corridor*. Cochise County, Arizona. December 2001.

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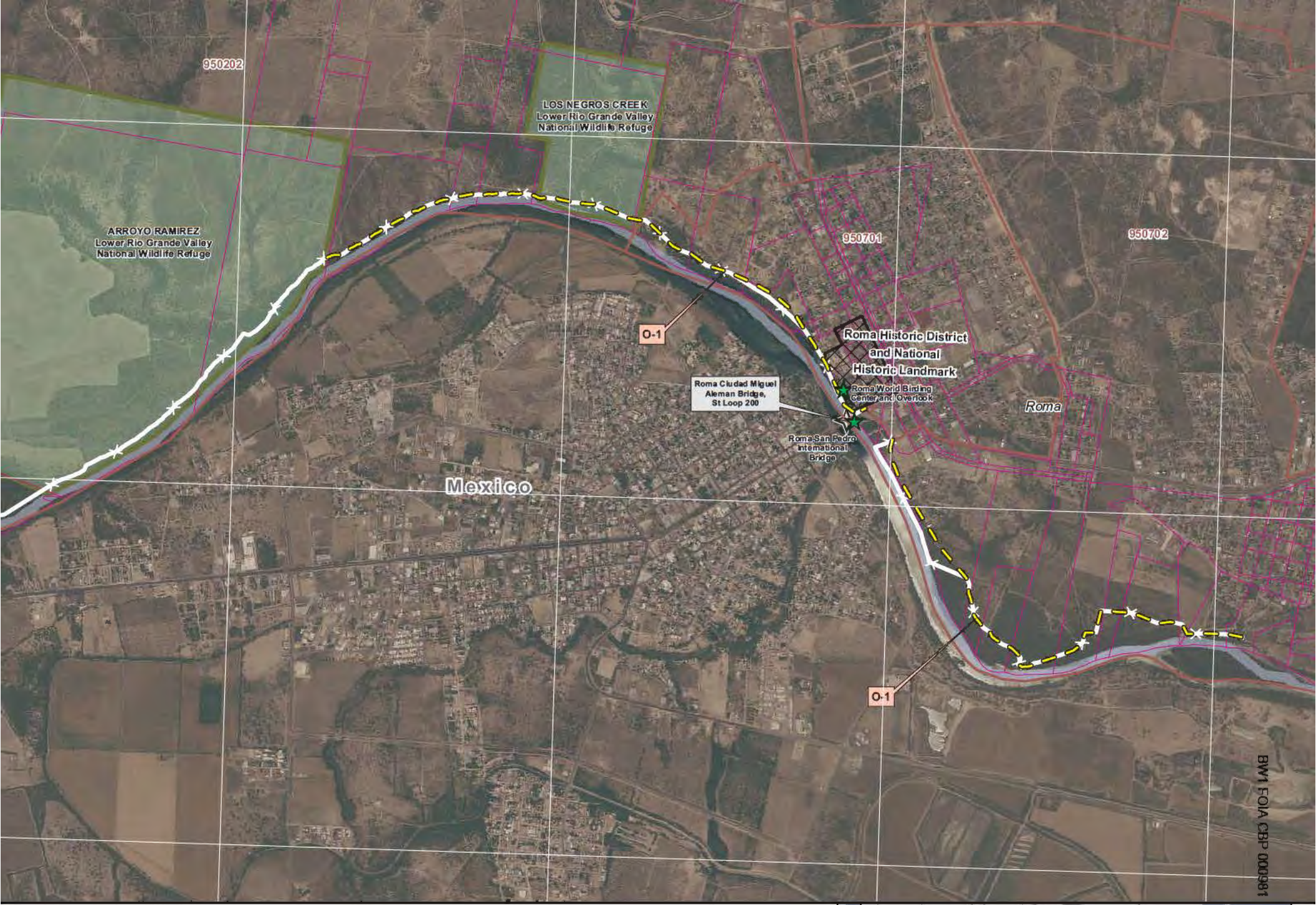
APPENDIX F

Detailed Maps of the Proposed Fence Sections



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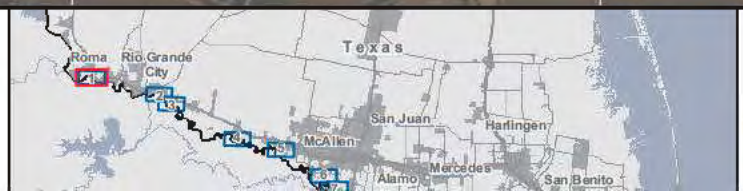

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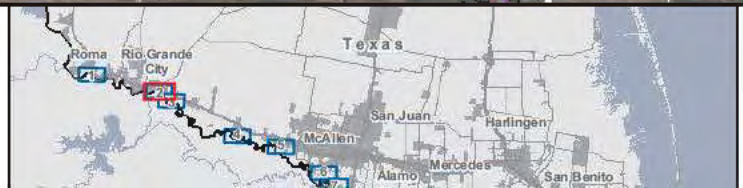

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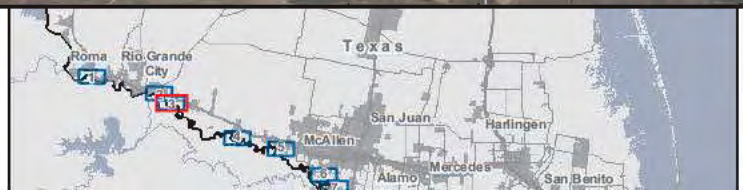

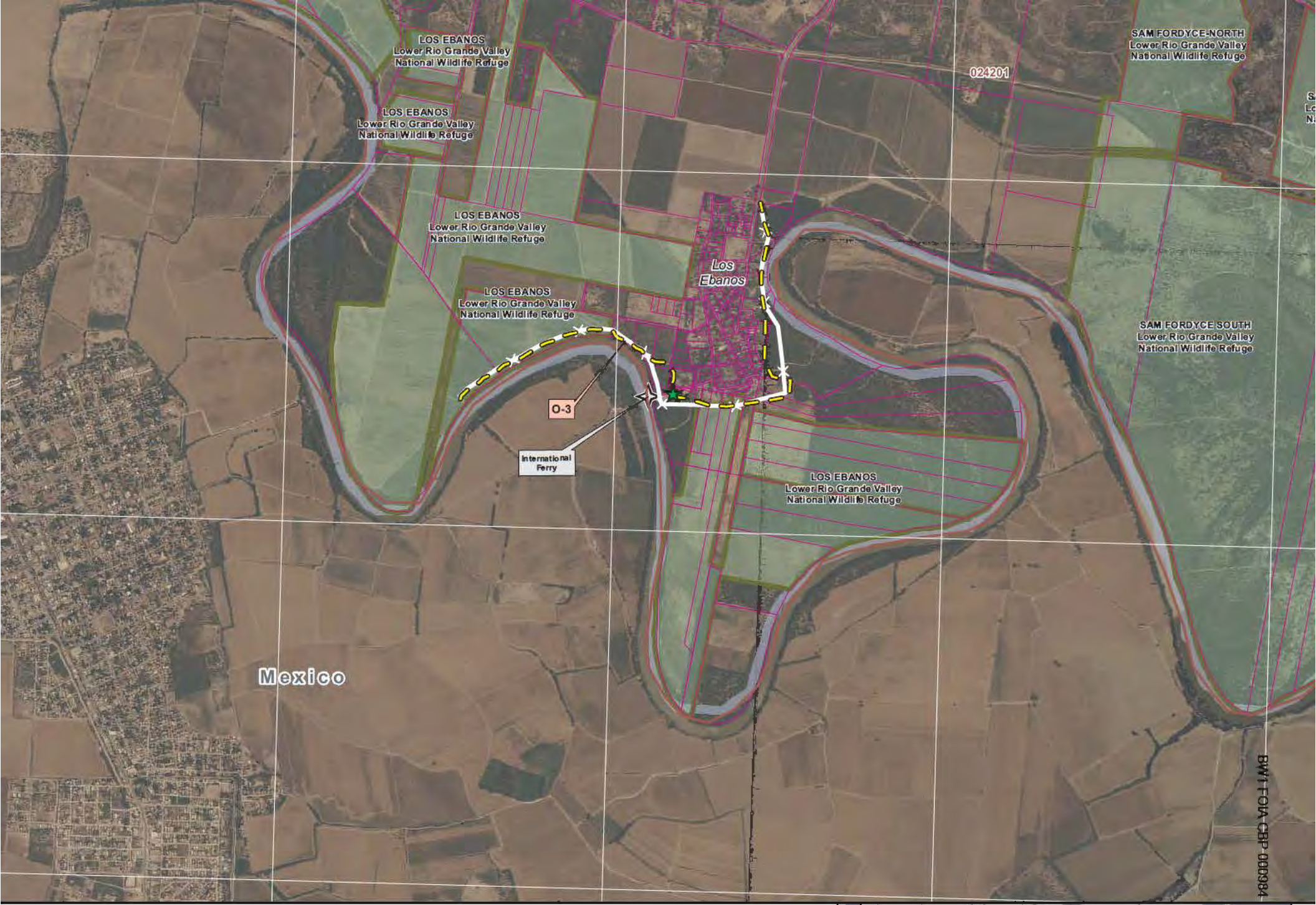

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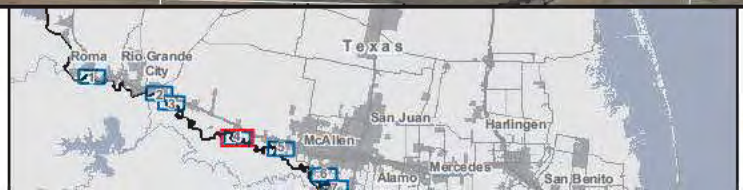

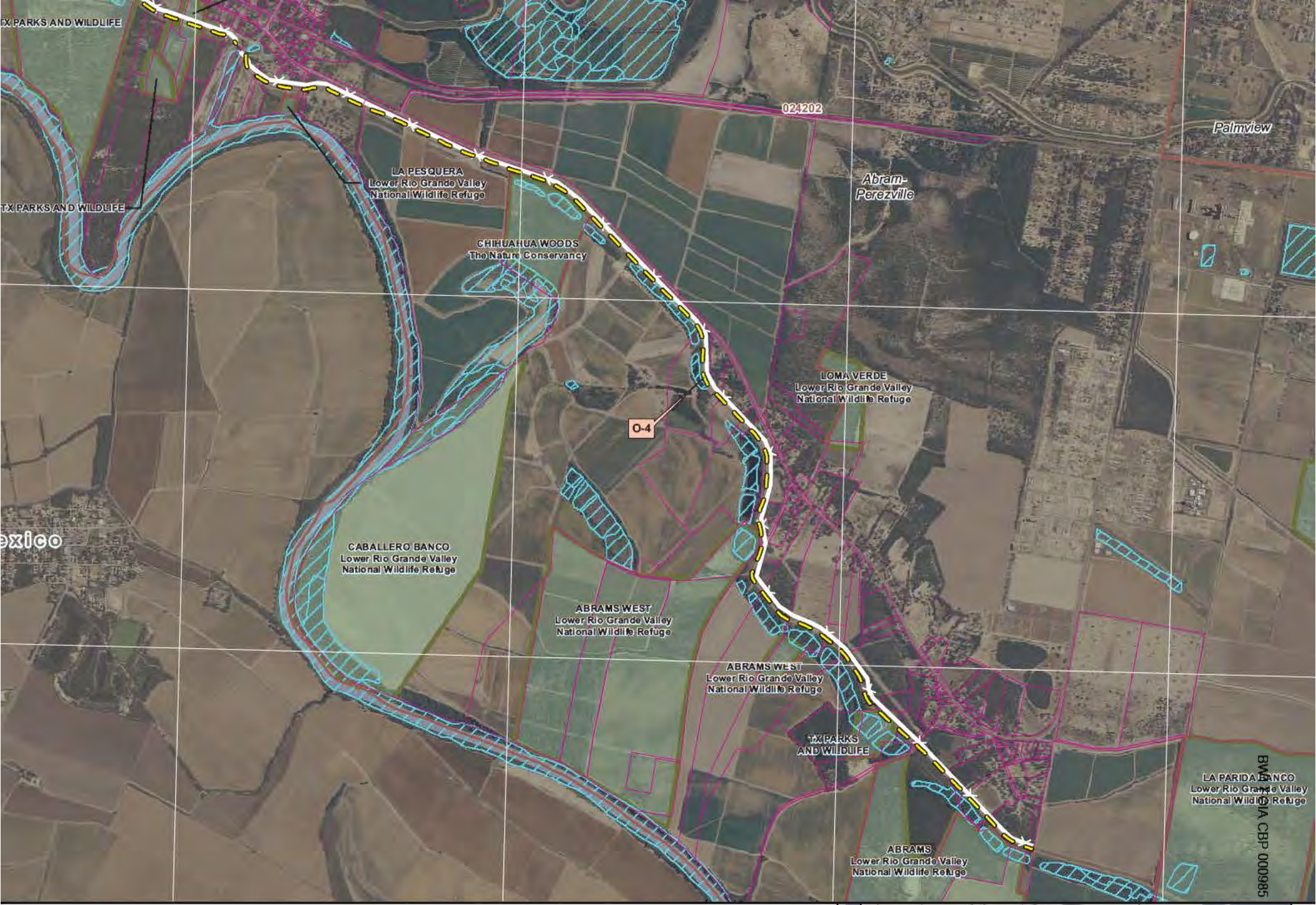

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