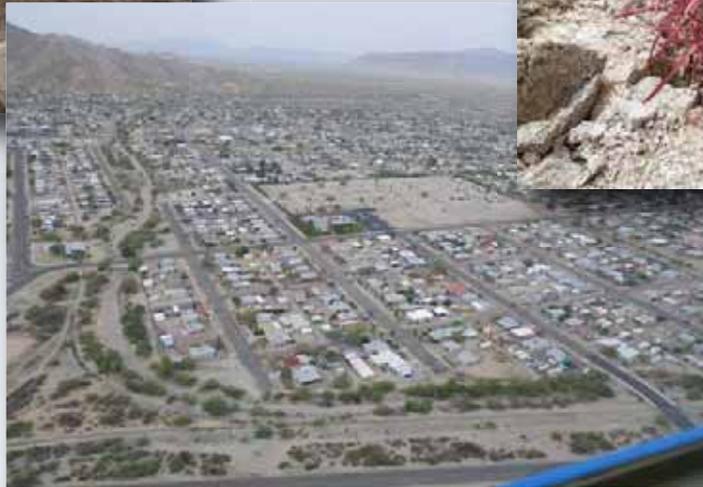




**FINAL**

**ENVIRONMENTAL ASSESSMENT  
FOR LAND MOBILE RADIO MODERNIZATION FOR TACTICAL  
COMMUNICATIONS AT BUCK PEAK, CHRISTMAS PASS,  
AND GRANITE MOUNTAIN,  
ARIZONA FOCUS AREA**

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



**SEPTEMBER 2013**

**FINDING OF NO SIGNIFICANT IMPACT**  
**Environmental Assessment for Land Mobile Radio Modernization**  
**for Tactical Communications at Buck Peak, Granite Mountain,**  
**and Christmas Pass, Arizona Focus Area,**  
**U.S. Customs and Border Protection**

**PROJECT HISTORY:** U.S. Customs and Border Protection (CBP), a component of the Department of Homeland Security (DHS), is responsible for securing the borders of the United States while facilitating the efficient movement of legitimate trade and travel. CBP serves as the front line in defending the United States against terrorists and instruments of terror and protects the United States' economic security by regulating and facilitating the lawful movement of goods and people across the United States' borders. As CBP officers and agents often work in remote areas where commercial communications do not exist, the Land Mobile Radio (LMR) communications system is critical to mission execution and vital to officer safety. CBP's existing LMR system is antiquated and fails to meet CBP's operational and functional requirements, resulting in critical coverage gaps and lack of Advanced Encryption Standard (AES) capabilities. The existing LMR communications system is susceptible to interference from other systems, is not compliant with the National Telecommunications and Information Administration (NTIA) narrowband mandates, and lacks the capacity to accommodate future growth of CBP personnel.

To improve operational effectiveness and enhance officer safety, CBP proposes to improve tactical communications (TacCom) through modernization of the existing LMR systems with state-of-the-art digital technology that complies with the Project 25 (P25) standards and provides for narrowband AES capabilities to protect law enforcement sensitive communications from scanning. The TacCom LMR Modernization Project would provide much-needed enhancements and improved operational capabilities to LMR systems for CBP personnel, Office of Border Patrol, Office of Field Operations, and Office of Air and Marine in the Arizona Focus Area. The modernized LMR system would provide improved capabilities such as interoperability, over-the-air-rekeying, and advanced encryption, and is NTIA compliant. The system would improve radio voice coverage throughout the Arizona Focus Area.

The TacCom LMR Modernization Project includes a mix of upgrades and improvements to existing communications towers and radio repeater sites, as well as the construction of new towers and radio repeater sites. Supporting infrastructure, such as equipment shelters and generator systems, would also be improved or added under this initiative. The modernization effort would result in a robust, secure communications system, allowing CBP to interoperate with public sectors of law enforcement to ensure that day-to-day operational missions are achieved.

**PROJECT LOCATION:** The affected area for this Environmental Assessment (EA) covers three locations in southern Arizona (Buck Peak, Granite Mountain, and Christmas Pass). Buck Peak and Christmas Pass are located within Yuma County, and Granite Mountain is located within Pima County.

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**PURPOSE AND NEED:** The purpose of the Proposed Action is to improve TacCom in the Arizona Focus Area for Federal agents working for CBP. The need for the Proposed Action is to provide the following:

- Adequate communications coverage in remote locations to reduce or potentially eliminate communications coverage gaps
- A state-of-the-art digital technology that complies with the P25 standards and provides for narrowband and AES capability
- Enhanced safety of CBP agents through improved communications coverage and technology
- An opportunity for future expansion of communications services as necessary
- A more safe, effective, and efficient work environment for CBP agents

The Proposed Action would significantly improve safety in the daily operations of CBP agents. The project area encompassing the Cabeza Prieta National Wildlife Refuge (CPNWR) is deficient in TacCom infrastructure for CBP activities. In the present locations, the existing radio repeaters do not provide sufficient radio coverage for reliable communications. This presents serious agent safety issues, as agents are not able to communicate between vehicles, handheld radios, and the U.S. Border Patrol (USBP) Ajo and Wellton stations' headquarters. The proposed radio repeaters would allow the use of encryption, which is critical for operational security and detection of illegal traffic in the area.

**ALTERNATIVES:** Seven alternatives were identified and considered during the planning stages of the proposed project. However, only two alternatives, the Proposed Action and the No Action Alternative, were carried forward for further evaluation.

**Proposed Action:** The Proposed Action includes obtaining a special use permit or real estate right of way for the installation, operation, repair and maintenance of radio repeater equipment at up to three locations in the CPNWR (Buck Peak, Granite Mountain, and Christmas Pass). All three sites proposed in the CPNWR may not be necessary. CBP proposes to first install the proposed TacCom LMR equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if adequate communications coverage is provided with only two sites. If communications coverage is not adequate or does not meet the requirements of the USBP Wellton or Ajo stations, USBP Yuma or Tucson sectors, or CPNWR, then the proposed TacCom LMR equipment at the Christmas Pass site would be installed. The Proposed Action also includes the implementation of conservation measures to avoid, minimize, and offset effects on protected species and other sensitive resources. The radio repeater equipment would be installed at all locations by helicopter airlift. During the installation phase of the project, equipment would be staged at the USBP Wellton Station for airlift to each site. The sites would be accessed biannually for scheduled maintenance by helicopter for Buck Peak and Granite Mountain or potentially on foot for Christmas Pass as authorized by the CPNWR Refuge Manager through a special use permit.

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**No Action Alternative:** Under the No Action Alternative, the radio repeater equipment would not be installed at the three locations identified in the Proposed Action as part of the TacCom Project. However, the existing equipment on Buck Peak, currently collocated on a CPNWR-owned and operated site, would continue to be operated and maintained. The collocated equipment would be accessed biannually for scheduled maintenance by helicopter. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action are evaluated.

**ENVIRONMENTAL CONSEQUENCES:** The Proposed Action would impact up to 7,855 square feet (0.18 acre) of Sonoran Desert. Total surface area required for the radio repeater equipment is approximately 355 square feet. The additional 7,500 square feet of working area would be temporarily disturbed during installation, emergency repair, and biannual maintenance. Adverse and beneficial indirect impacts would also occur throughout the project area as a result of the Proposed Action.

The Proposed Action would change the land use at all sites from undeveloped Sonoran Desert to CBP communications infrastructure.

The three TacCom locations proposed within the CPNWR are also within a designated wilderness area and would require a Minimum Requirements Decision Guide from the Refuge Manager at CPNWR. The TacCom equipment would have limited visibility to visitors due to its low height profile and mountaintop locations; however, the proposed equipment is man-made and would detract from the natural values of designated wilderness. Thus, installation, operation, repair, and maintenance of the proposed radio repeater equipment at three mountaintop locations in the Cabeza Prieta Wilderness would have a long-term, moderate adverse effect on the viewshed and natural values of designated wilderness. The Proposed Action would have an indirect beneficial impact on the remaining designated wilderness as a result of enhanced communications capabilities, improved interdiction capabilities, increased deterrence of cross-border violators (CBV), and a reduced enforcement zone for required interdiction activities. Communications technology combined with surveillance systems, infrastructure, and the tactics employed by agents and officers leads to increased capabilities to effect an arrest and are dependent upon the flow of traffic in any particular area. Any advancement in efficiency in any of these areas, including communications, can only increase CBP effectiveness and provide for increased certainty of arrest.

The flow of illicit activity fluctuates depending on transnational criminal organizations activity and is expected to lessen over time as CBP's effectiveness increases. CBP cannot predict apprehension locations and numbers as there are too many variables to consider and associating any one thing CBP does to a law enforcement outcome (i.e., arrests) would be misrepresentative of the systems perspective CBP is utilizing.

Installation and maintenance of the TacCom equipment at Buck Peak, Christmas Pass, and Granite Mountain are likely to adversely affect the Sonoran pronghorn (*Antilocapra americana*

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*sonoriensis*). Helicopter flights would be limited to the fewest trips practicable, and all sites would be accessed from the west to avoid overflights of preferred Sonoran pronghorn habitat. Adverse effects on Sonoran pronghorn would be short-term and minor. The potential loss of less than 24 individual agave (*Agave* spp.) plants during the installation of communications and support equipment would occur at Buck Peak. Loss of agave would be minimal and would not likely adversely affect lesser long-nosed bat populations (*Leptonycteris curasoae yerbabuena*). Adverse effects on lesser long-nosed bats would be long-term and minor. The increased noise emissions during helicopter trips for installation and maintenance could impact Sonoran desert tortoise (*Xerobates agassizii*) near the Granite Mountain site. Impacts from noise would be short-term and minor. The Proposed Action is not likely to adversely affect Sonoran desert tortoise. Long-term, beneficial effects would occur by lessening impacts of CBV activity and consequent law enforcement actions on habitats throughout the project area and surrounding areas.

The archaeological surveys and archival research for the three TacCom locations have led to a determination of no impacts on any National Register of Historic Places (NRHP) eligible aboveground or subsurface resources. The isolated occurrences discovered during the surveys do not possess any of the qualities necessary to be eligible for the NRHP. No impacts are expected on cultural resources from the Proposed Action.

Increased noise emissions associated with the installation and maintenance of the TacCom radio repeater equipment would have a long-term, moderate adverse effect on the soundscape, wildlife, and designated wilderness. No utilities would be impacted as a result of the Proposed Action. Long-term benefits to socioeconomics could occur through the expected reduction in illegal activities.

No significant adverse effects on the natural or human environment, as defined in 40 Code of Federal Regulations (CFR) Section 1508.27 of the Council on Environmental Quality's Regulations for Implementing National Environmental Policy Act, are expected from implementation of any of the action alternatives.

**BEST MANAGEMENT PRACTICES:** Best management practices (BMP) are identified for each resource category that would be potentially affected. Many of these measures have been incorporated as standard operating procedures by CBP in similar past projects. BMPs are also identified in the EA in Section 5.0.

Project Planning/Design

- CBP will site, design, and install equipment to avoid or minimize habitat loss within or adjacent to the footprint and minimize the amount of aboveground obstacles associated with the site.
- CBP will ensure that all construction will follow DHS *Directive 025-01* for Sustainable Practices for Environmental, Energy, and Transportation Management.
- All BMPs to be implemented by the project contractor will be included in the contract.

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General Construction Activities

- CBP will clearly demarcate project construction area perimeters. No disturbance outside that perimeter will be authorized.
- CBP will minimize the number of trips to the TacCom locations per day during construction to reduce the likelihood of causing disturbance or injury to animals in the area or disturbing their habitat.
- Within the designated disturbance area, CBP will minimize disturbance by limiting deliveries of materials and equipment to only the extent necessary for effective project implementation.
- CBP will notify U.S. Fish and Wildlife Service (USFWS) Ecological Services and CPNWR at least 2 weeks before any project construction and maintenance activities begin and within 1 week after project construction and maintenance activities are completed.
- All food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed in closed containers and removed daily from the project site.
- CBP will contain non-hazardous waste materials and other discarded materials, such as construction waste, until removed from the construction and maintenance sites. This will assist in keeping the project area and surroundings free of litter and reduce the amount of disturbed area needed for waste storage. Any non-hazardous waste that must remain more than 12 hours should be properly stored until disposal.
- During installation and maintenance activities on CPNWR, CBP will adhere to Leave No Trace principles regarding human waste. Solid human waste will be deposited into catholes, dug 6 to 8 inches deep.

Soils

- Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during equipment installation. All work shall cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material.
- Areas with highly erodible soils will be given special consideration when designing the proposed project to ensure incorporation of various erosion control techniques, where possible, to decrease erosion. Site rehabilitation will include the distribution of organic and geological materials (i.e., boulders and rocks) over the disturbed area to reduce erosion while allowing the area to naturally vegetate. Additionally, erosion control measures and appropriate BMPs will be implemented before, during, and after installation activities, as appropriate.

Vegetation

- CBP will minimize habitat disturbance by restricting vegetation disturbance to the smallest possible project footprint. CBP will limit the removal of trees, cacti, and brush to the smallest amount needed to meet the objectives of the project. CBP will not remove any ironwood (*Olneya tesota*), paloverde (*Parkinsonia* sp.), mesquite (*Prosopis* sp.),

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agave (*Agave* sp.), barrel cactus (*Ferocactus* sp.), saguaro (*Carnegiea gigantea*), organ pipe (*Stenocercus thurberi*), or senita (*Pachycereus schottii*) outside the permanent footprint. If vegetation other than that identified above must be removed outside the permanent project footprint, CBP will allow natural regeneration of native plants by cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

- CBP will avoid the spread of nonnative plants by not using natural materials (e.g., straw) for on-site erosion control. If natural materials must be used, the natural material would be certified weed and weed-seed free.

#### Wildlife Resources

- CBP will avoid cutting vegetation during the migration, breeding, and nesting time frame of migratory birds (February 1 through September 1). When vegetation control must be implemented during February 1 through September 1, a survey for nesting migratory birds will be conducted prior to the start of activities. If an active nest is found, a 300-foot buffer zone will be established around the nest and no activities will occur within that zone until nestlings have fledged and abandoned the nest.
- To the greatest extent practicable, anti-perching or nesting devices may be implemented to deter birds from perching or nesting on the TacCom equipment. CBP will coordinate with USFWS if this measure becomes necessary.
- CBP will not, for any length of time, permit any pets inside the project area or adjacent native habitats. This BMP does not pertain to law enforcement animals.
- Installation and maintenance flights adjacent to or low over mountain ranges will be avoided during bighorn sheep (*Ovis canadensis*) lambing season (January to April) to avoid lamb mortalities associated with the potential for ewes startled by aircraft or other human activity.

#### Protected Species

- CBP will avoid restricting water access by identifying and not creating barriers to natural water sources available to listed species.
- In Sonoran desert tortoise habitat, if a tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's (AGFD) "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects," revised October 23, 2007 (or the latest revision). Take, possession, or harassment of a desert tortoise is prohibited by state law, unless specifically authorized by AGFD.

#### *Lesser Long-nosed Bat*

- CBP will avoid agaves to the extent practicable to minimize effects on lesser long-nosed bats. Those plants that cannot be avoided will be transplanted. Salvage and transplantation will be approved by the CPNWR Refuge Manager and USFWS.

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- CBP will not implement construction, non-emergency repairs, or scheduled maintenance between May 1 and September 30, the normal period of time when lesser long-nosed bats occupy roosts in the Project Area.

*Sonoran Pronghorn*

- CBP will minimize, to the greatest extent possible, the number of TacCom sites and other infrastructure in Sonoran pronghorn habitat.
- CBP will coordinate any trips to TacCom locations for installation or maintenance activities, particularly those in important Sonoran pronghorn areas, with the CPNWR Refuge Manager and Arizona Game and Fish Department. All maintenance access will be authorized through a special use permit or right-of-way permit. CBP will seek information regarding Sonoran pronghorn locations using telemetry data periodically collected by Arizona Game and Fish Department and will avoid these locations to the extent feasible.
- Access to the Christmas Pass and Buck Peak sites will be from the west to avoid Sonoran pronghorn habitat areas. If these access routes are not possible, CBP will coordinate alternative access with CPNWR to avoid or reduced impacts to Sonoran pronghorn.
- Helicopter over flights for installation or maintenance will not take place within 1 mile of Granite Tank (N 32.331384, W113.229146).
- Helicopter access to Granite Mountain will not occur between March 15 and July 15 due to the Sonoran Pronghorn fawning season, except for in the case of emergency repairs.

Water Resources

- Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during construction. All work will 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 over-pack container(s) capable of holding the volume of the largest container stored therein. The refueling of machinery will be completed following accepted guidelines. No refueling or storage will take place within 100 feet of drainages.
- CBP will avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging, laydown, and dispensing of fuel, oil, etc., to designated upland areas.

Cultural Resources

- Should any archaeological artifacts be found during construction, CBP will notify the CPNWR Refuge Manager or his designee immediately. All work will cease until an evaluation of the discovery is made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values.

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Air Quality

- All equipment will be required to be maintained in good operating condition to minimize exhaust emissions.

Noise

- During the construction phase, short-term noise impacts are anticipated. All applicable Occupational Safety and Health Administration regulations and requirements will be followed. On-site activities will be restricted to daylight hours to the greatest extent practicable. Equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the expected short-term noise impacts to an insignificant level.

Hazardous Materials

- BMPs will be implemented as standard operating procedures during all construction 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 over-pack container(s) capable of containing the volume of the largest container stored therein. The refueling of machinery will be completed in accordance with accepted industry and regulatory guidelines. Although it is unlikely that a major spill would occur, any spill of reportable quantities 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. If a spill should occur on the CPNWR, the location, type, and amount of material spilled will be reported to the CPNWR Refuge Manager.
- To ensure pollution prevention, a Spill Prevention Control and Countermeasures Plan will be in place prior to the start of construction activities, and all personnel will be briefed on the implementation and responsibilities of this plan as is typical in CBP projects. All spills will be reported to the designated CBP point of contact for the project 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 must be cleaned up and reported to the appropriate Federal and state agencies.
- All waste oil and solvents will be recycled. 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.

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

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Ms. Diana L. Knittle  
Program Manager  
TacCom Branch  
Wireless Systems Program Office  
U.S. Customs and Border Protection

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Date

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

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Date

**FINAL**

**ENVIRONMENTAL ASSESSMENT  
FOR  
LAND MOBILE RADIO MODERNIZATION FOR TACTICAL COMMUNICATIONS  
AT BUCK PEAK, CHRISTMAS PASS, AND GRANITE MOUNTAIN, ARIZONA  
FOCUS AREA  
U.S. CUSTOMS AND BORDER PROTECTION**

**September 2013**

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Lead Agency:	Department of Homeland Security U.S. Customs and Border Protection Facilities Management and Engineering Office of Administration 1331 Pennsylvania Avenue, NW Washington, DC 20004
Cooperating Agency:	Department of the Interior U.S. Fish and Wildlife Service Cabeza Prieta National Wildlife Refuge 1611 North Second Street Ajo, AZ 85321
Point of Contact:	Ms. Jennifer DeHart Hass Director Environmental and Energy Division U.S. Customs and Border Protection 1331 Pennsylvania Avenue, NW, NP 1525 Washington, DC 20229-1106

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## EXECUTIVE SUMMARY

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### INTRODUCTION:

U.S. Customs and Border Protection (CBP), a component of the Department of Homeland Security (DHS), is responsible for securing the borders of the United States while facilitating the efficient movement of legitimate trade and travel. CBP serves as the front line in defending the United States against terrorists and instruments of terror and protects the United States' economic security by regulating and facilitating the lawful movement of goods and people across the United States' borders. As CBP officers and agents often work in remote areas where commercial communications do not exist, the Land Mobile Radio (LMR) communications system is critical to mission execution and vital to officer safety. CBP's existing LMR system is antiquated and fails to meet CBP's operational and functional requirements, resulting in critical coverage gaps and lack of Advanced Encryption Standard (AES) capabilities. The existing LMR communications system is susceptible to interference from other systems, is not compliant with the National Telecommunications and Information Administration (NTIA) narrowband mandates, and lacks the capacity to accommodate future growth of CBP personnel.

To improve operational effectiveness and enhance officer safety, CBP proposes to improve tactical communications (TacCom) through modernization of the existing LMR systems with state-of-the-art digital technology that complies with the Project 25 (P25) standards and provides for narrowband AES capabilities to protect law enforcement sensitive communications from scanning. P25 is the standard for the design and manufacture of interoperable digital two-way wireless communications products. The TacCom LMR Modernization Project would provide much-needed enhancements and improved operational capabilities to LMR systems for CBP personnel, Office of Border Patrol, Office of Field Operations, and Office of Air and Marine such as interoperability, over-the-air-rekeying, and advanced encryption, and is NTIA compliant. The system would improve radio voice coverage throughout the Arizona Focus Area.

The TacCom LMR Modernization Project includes a mix of upgrades and improvements to existing communications equipment and radio repeater sites, as well as the installation of new equipment and radio repeater sites. The TacCom LMR Modernization Project would also improve the range of communications coverage in southern Arizona. The modernization effort would result in a robust, secure communications system, allowing CBP to interoperate with

public sectors of law enforcement to ensure that day-to-day operational missions are achieved.

**PURPOSE AND NEED:** The purpose of the Proposed Action is to improve TacCom in the Arizona Focus Area for Federal agents working for CBP. The need for the Proposed Action is to provide the following:

- Adequate communications coverage in remote locations to reduce or potentially eliminate communications coverage gaps
- A state-of-the-art digital technology that complies with the P25 standards and provides for narrowband and AES capability
- Enhanced safety of CBP agents through improved communications coverage and technology
- An opportunity for future expansion of communications services as necessary
- A more safe, effective, and efficient work environment for CBP agents

The Proposed Action would significantly improve safety in the daily operations of CBP agents. The project area encompassing the Cabeza Prieta National Wildlife Refuge (CPNWR) is deficient in TacCom infrastructure for U.S. Border Patrol (USBP) activities. In the present locations, the existing radio repeaters do not provide sufficient radio coverage for reliable communications. This presents serious agent safety issues, as agents are not able to communicate between vehicles and handheld radios in the field and the USBP Ajo or Wellton stations' headquarters. The proposed radio repeaters would allow the use of encryption, which is critical for operational security and detection of illegal traffic in the area.

**DESCRIPTION OF ALTERNATIVES:**

Seven alternatives were identified and considered during the planning stages of the proposed project. However, only two alternatives, the Proposed Action and the No Action Alternative, were carried forward for further evaluation.

***Proposed Action***

The Proposed Action includes the installation, operation, repair, and maintenance of radio repeater equipment and obtaining a real estate special use permit or right of way for construction on the subject properties at up to three locations on the CPNWR (Buck Peak, Granite Mountain, and Christmas Pass). A special use permit or real estate right of way would be obtained from CPNWR as part of the Proposed Action. All three proposed sites on the CPNWR may not be necessary. CBP proposes to first install the proposed TacCom

LMR equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if adequate communications coverage is provided with only two sites. If communications coverage is not adequate, or does not meet the requirements of the USBP Wellton or Ajo stations, USBP Yuma or Tucson sectors, or CPNWR, then the proposed TacCom LMR equipment at the Christmas Pass site would be installed. CPNWR would collocate communications equipment with the TacCom LMR equipment at Buck Peak and at Christmas Pass, if this site is developed by CBP.

The Proposed Action also includes the implementation of best management practices and conservation measures to avoid, minimize, and offset effects on protected species and other sensitive resources. The radio repeater equipment would be installed at all locations by helicopter airlift. Scheduled maintenance access to the sites would occur biannually via helicopter for Buck Peak and Granite Mountain or potentially on foot for Christmas Pass.

***No Action Alternative***

Under the No Action Alternative, the radio repeater equipment would not be installed at the three locations identified in the Proposed Action as part of the TacCom Project. However, the existing equipment on Buck Peak, currently collocated on a CPNWR-owned and operated site, would continue to be operated and maintained. The collocated equipment would be accessed biannually for scheduled maintenance by helicopter. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action are evaluated.

**AFFECTED  
ENVIRONMENT AND  
CONSEQUENCES:**

The Proposed Action would impact up to 7,855 square feet (0.18 acre) of Sonoran Desert. Total surface area required for the radio repeater equipment is approximately 355 square feet. The additional 7,500 square feet of working area would be temporarily disturbed during installation, emergency repair, and biannual maintenance. Adverse and beneficial indirect impacts would also occur throughout the project area as a result of the Proposed Action.

The Proposed Action would change the land use at all sites from undeveloped Sonoran Desert to CBP communications infrastructure.

The three proposed TacCom locations within the CPNWR are also within a designated wilderness area and would require a Minimum Requirements Decision Guide from the CPNWR Refuge Manager. The TacCom equipment would have limited visibility to visitors due to its low height profile and mountaintop locations; however, the

proposed equipment is man-made and would detract from the natural values of designated wilderness. Thus, installation, operation, repair, and maintenance of the proposed radio repeater equipment at the three locations on the Cabeza Prieta Wilderness would have a long-term, moderate adverse effect on the viewshed and natural values of designated wilderness. The Proposed Action would have an indirect beneficial impact on the remaining designated wilderness as a result of enhanced communications capabilities, improved interdiction capabilities, increased deterrence of cross-border violators (CBV), and a reduced enforcement zone for required interdiction activities. Communications technology combined with surveillance systems, infrastructure, and the tactics employed by agents and officers leads to increased capabilities to effect an arrest and are dependent upon the flow of traffic in any particular area. Any advancement in efficiency in any of these areas, including communications, can only increase CBP effectiveness and provide for increased certainty of arrest.

The flow of illicit activity fluctuates depending on transnational criminal organizations activity and is expected to lessen over time as CBP's effectiveness increases. CBP cannot predict apprehension locations and numbers as there are too many variables to consider and associating any one thing CBP does to a law enforcement outcome (i.e., arrests) would be misrepresentative of the systems perspective CBP is utilizing.

Installation and maintenance of the TacCom equipment at Buck Peak, Granite Mountain, and Christmas Pass are likely to adversely affect the Sonoran pronghorn (*Antilocapra americana sonoriensis*). Helicopter flights would be limited to the fewest trips practicable, and all sites would be accessed from the west to avoid overflights of preferred Sonoran pronghorn habitat. Potential adverse effects on Sonoran pronghorn would be short-term and minor. The potential loss of up to 24 agave (*Agave* spp.) would occur at Buck Peak during installation of communications and support equipment. Agaves will be avoided or transplanted to the extent practicable, to minimize loss of forage for the lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*). Adverse effects on lesser long-nosed bats would be long-term and minor. The increased noise emissions during installation and maintenance helicopter trips could potentially impact Sonoran desert tortoise (*Xerobates agassizii*) near Granite Mountain. Impacts from noise would be short-term and minor. The Proposed Action is not likely to adversely affect Sonoran desert tortoise. Long-term, beneficial effects would occur by lessening impacts of CBV activity and consequent law enforcement actions on habitats throughout the project area and surrounding areas.

The archaeological surveys and archival research for the three TacCom locations have led to a determination of no impacts on any National Register of Historic Places (NRHP) eligible aboveground or subsurface resources. The isolated occurrences discovered during the surveys do not possess any of the qualities necessary to be eligible for the NRHP. No impacts are expected on cultural resources from the Proposed Action.

The Proposed Action would result in direct impacts on up to 7,855 square feet (0.18 acre) of Sonoran desertscrub vegetation, of which 2,625 square feet would be in a previously undisturbed area. Increased noise emissions associated with the installation and maintenance of the TacCom radio repeater equipment would have a moderate adverse effect on the soundscape, wildlife, and designated wilderness. No utilities would be impacted as a result of the Proposed Action. Long-term benefits to socioeconomics could occur. No significant adverse effects on the natural or human environment, as defined in 40 Code of Federal Regulations Section 1508.27 of the Council on Environmental Quality's Regulations for Implementing National Environmental Policy Act, are expected from implementation of the action alternative.

**FINDINGS AND  
CONCLUSIONS:**

Based upon the analyses of the Environmental Assessment and the best management practices to be implemented, the Proposed Action would not have a significant adverse effect on the environment. Therefore, no additional environmental evaluation is warranted.

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**SECTION 1.0  
BACKGROUND**



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## **1.0 BACKGROUND**

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U.S. Customs and Border Protection (CBP), a component of the Department of Homeland Security (DHS), is responsible for securing the borders of the United States while facilitating the efficient movement of legitimate trade and travel. CBP serves as the front line in defending the United States against terrorists and instruments of terror and protects the United States' economic security by regulating and facilitating the lawful movement of goods and people across the United States' borders. As the guardian of the United States' borders, CBP is specifically responsible for protecting 5,000 miles of border with Canada; 1,900 miles of border with Mexico; and the 95,000 miles of shoreline in the contiguous United States. To secure this vast terrain, more than 17,000 U.S. Border Patrol (USBP) agents; 1,000 CBP Air and Marine agents; and nearly 22,000 Customs officers and agriculture specialists, together with the Nation's largest law enforcement canine program, stand guard along the United States' borders and ports of entry (POE).

As CBP officers and agents often work in remote areas where commercial communications do not exist, the Land Mobile Radio (LMR) communications system is critical to mission execution and vital to officer safety. CBP's existing LMR system is antiquated and fails to meet CBP's operational and functional requirements, resulting in critical coverage gaps and lack of Advanced Encryption Standard (AES) capabilities. The existing LMR communications system is susceptible to interference from other systems, is not compliant with the National Telecommunications and Information Administration (NTIA) narrowband mandates, and lacks the capacity to accommodate future growth of CBP personnel.

To improve operational effectiveness and enhance officer safety, CBP proposes to improve tactical communications (TacCom) through modernization of the existing LMR systems with state-of-the-art digital technology that complies with the Project 25 (P25) standards and provides for narrowband AES capabilities to protect law enforcement sensitive communications from scanning. P25 is the standard for the design and manufacture of interoperable digital two-way wireless communications products. The TacCom LMR Modernization Project would provide much-needed enhancements and improved operational capabilities to LMR systems for CBP personnel, Office of Border Patrol, Office of Field Operations, and Office of Air and Marine in the Arizona Focus Area. The modernized LMR system would provide improved capabilities such as interoperability, over-the-air-rekeying, and advanced encryption, and is NTIA compliant. The system would improve radio voice coverage throughout the Arizona Focus Area.

The TacCom LMR Modernization Project includes a mix of upgrades and improvements to existing communications towers and radio repeater sites, as well as the construction of new towers and radio repeater sites. Supporting infrastructure, such as equipment shelters and generator systems, would also be improved or added under this initiative. The modernization effort would result in a robust, secure communications system, allowing CBP to interoperate with public sectors of law enforcement to ensure that day-to-day operational missions are achieved.

CBP is evaluating three TacCom LMR locations (Buck Peak, Granite Mountain, and Christmas Pass) within the Arizona Focus Area (USBP's Tucson and Yuma sectors) to determine the potential effects, beneficial and adverse, resulting from obtaining a special use permit and the proposed installation, operation, repair, and maintenance of radio repeater equipment. Each location provides independent coverage for CBP agents in the field while collectively providing complete coverage and minimizing the potential for communications system gaps. Secondary TacCom LMR Modernization Project goals of communications redundancy and microwave shots between LMR communications sites would be met by integrating up to three radio repeater sites into the larger LMR communications network.

## **1.1 PROJECT LOCATION**

The three TacCom LMR Modernization Project locations proposed by CBP are located in Pima and Yuma counties, Arizona. New equipment (radio repeaters) is proposed for installation at Buck Peak, Granite Mountain, and Christmas Pass (Figure 1-1).

## **1.2 PURPOSE AND NEED**

CBP proposes to obtain a special use permit or real estate rights of way from the land management agency for the installation, operation, repair, and maintenance of communications equipment at up to three locations within the Arizona Focus Area as part of the TacCom LMR Modernization Project. The purpose of the Proposed Action is to improve TacCom in the Arizona Focus Area for Federal agents working for CBP. The need for the Proposed Action is to provide the following:

- Adequate communications coverage in remote locations to reduce or potentially eliminate communications coverage gaps
- A state-of-the-art digital technology that complies with the P25 standards and provides for narrowband and AES capability
- Enhanced safety of CBP agents through improved communications coverage and technology
- An opportunity for future expansion of communications services as necessary
- A more safe, effective, and efficient work environment for CBP agents

The Proposed Action would significantly improve safety in the daily operations of CBP agents. The project area encompassing the Cabeza Prieta National Wildlife Refuge (CPNWR) is deficient in TacCom infrastructure for CBP activities, even though the USBP Ajo and Wellton stations have repeaters for field operations communications. In the present locations, the radio repeaters do not provide sufficient radio coverage for reliable communications. This presents serious agent safety issues, as agents are not able to communicate between vehicles and handheld radios in the field and the USBP Ajo or Wellton stations' headquarters. The proposed radio repeaters would allow the use of encryption, which is critical for operational security and detection of illegal traffic in the area. Other nearby, shorter hilltops were assessed for the placement of TacCom infrastructure, but higher mountains surrounding those sites would interfere with radio coverage of the area.

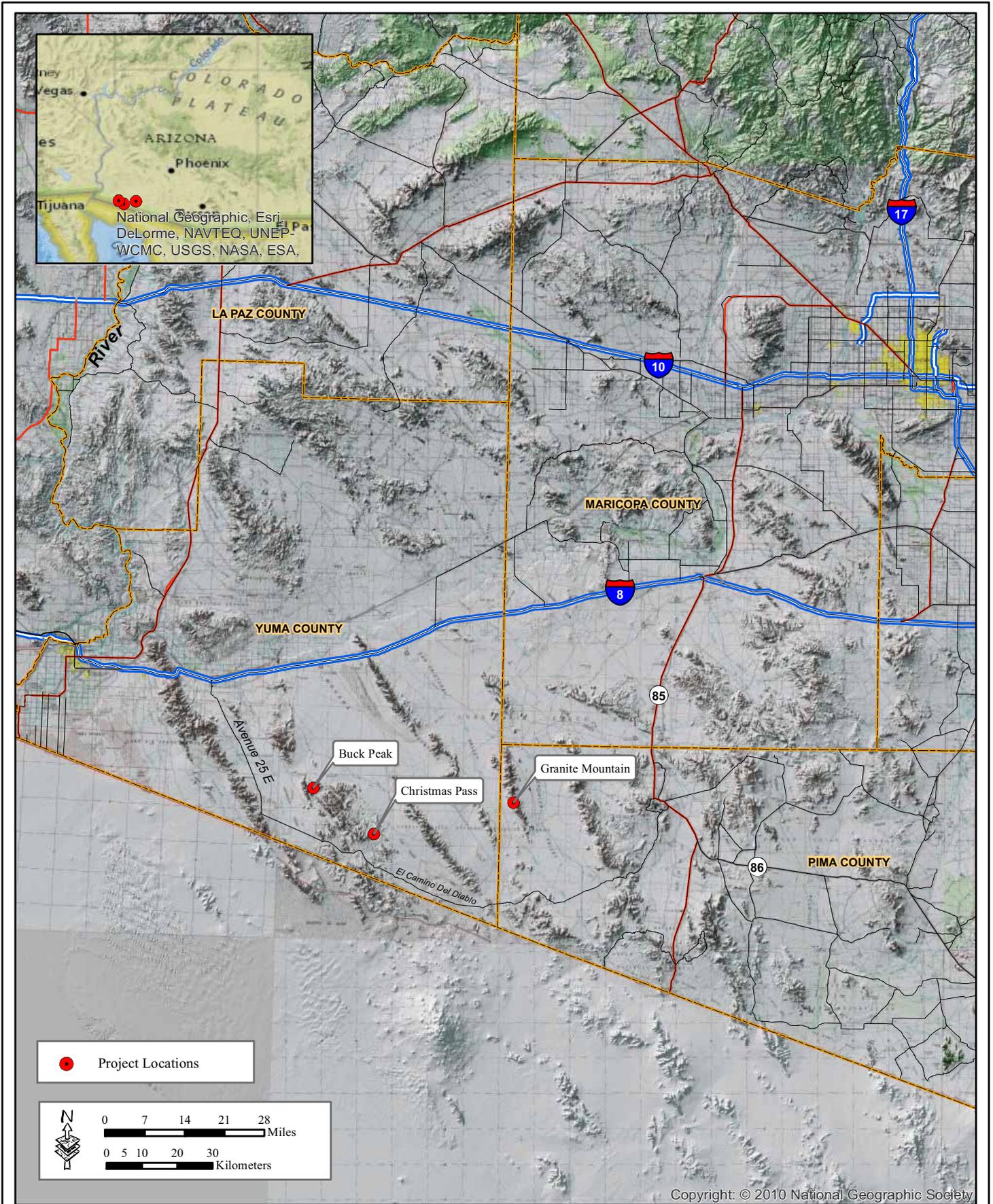


Figure 1-1: Vicinity Map

The communications coverage capabilities on the CPNWR are severely deficient. Without the proposed TacCom sites (Buck Peak, Granite Mountain, and Christmas Pass), areas with no communications coverage on the CPNWR encompass 254 square miles and approximately 636 square-mile area has no portable radio coverage. Using the three proposed mountain peaks on the CPNWR to improve communications coverage, the TacCom LMR Modernization Project would reduce the communications gaps to 49 square miles and to approximately 269 square miles of no portable radio coverage. The locations of communications gaps and portable radio coverage are CBP-sensitive information and are not provided to the public.

Cross-border violators (CBV) use the remote areas of the CPNWR and nearby Organ Pipe Cactus National Monument (OPCNM) to gain entry into the United States. That illegal traffic often damages public and private property by cutting fences and driving off established roads. Illicit cross-border activities can be detrimental to the landscape and health and safety of the public, CPNWR staff, OPCNM staff, and CBP agents. Installation of the communications sites may allow CBP to apprehend CBVs in closer proximity to the United States/Mexico border, thus reducing damage to the natural environment.

### **1.3 COOPERATING AGENCY**

#### **1.3.1 Cabeza Prieta National Wildlife Refuge (CPNWR)**

As the expert agency concerning wilderness area and natural resources within the project area, the CPNWR is a cooperating agency for this Environmental Assessment (EA). The National Wildlife Refuge System Administration Act of 1966 (16 U.S. Code [U.S.C.] 668dd-668ee) provided guidelines and directives for administration and management of the newly created system of “related lands, waters, and interests for the protection and conservation of our Nation’s wildlife resources” (Public Law [P.L.] 105-57). The U.S. Fish and Wildlife Service (USFWS) manages the 95 million-acre National Wildlife Refuge System, which encompasses 555 National wildlife refuges (USFWS 2011a). The CPNWR was established in 1939 as a “Game Range” by President Franklin Roosevelt for the recovery of desert bighorn sheep (*Ovis canadensis nelsoni*) (Executive Order [EO] 8038). The CPNWR encompasses over 800,000 acres of Sonoran Desert along the United States/Mexico border (USFWS 2005). Four subsequent EOs by President Franklin Roosevelt and two public orders signed by the Secretary of Agriculture between 1941 and 1943 withdrew nearly 3 million acres including the “Game Range” for military flight training needs for World War II (USFWS 2005). Most of the air space above the “Game Range” was used as a bombing and aerial gunnery range during World War II (1941-1946) and the Korean Conflict (activated in 1951). Until 1999, the CPNWR was included as part of the Barry M. Goldwater Range (BMGR). Some military use of refuge lands continues. Tracking stations and the use of airspace above the refuge for training is provided through a Memorandum of Understanding between the Department of the Air Force, the Department of the Navy (for the Marine Corps), and the Department of the Interior (for the USFWS).

### **1.4 SCOPE OF THE ANALYSIS**

The scope of this National Environmental Policy Act (NEPA) analysis includes the assessment of effects resulting from obtaining a special use permit/right of way from the CPNWR, installation, operation, repair, and maintenance of new radio repeater sites at up to three locations

in the Arizona Focus Area. This analysis does not include an assessment of operations conducted in the field by Federal agents. These operations would continue regardless of the modernization of communications equipment.

## **1.5 APPLICABLE ENVIRONMENTAL GUIDANCE, STATUTES, AND REGULATIONS**

This analysis was prepared by CBP in accordance with NEPA of 1969 (42 U.S.C. 4321-4347) and the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), DHS Directive 023-01, and other pertinent environmental statutes, regulations, and compliance requirements. Table 1-1 summarizes some of the applicable laws and regulations that were considered in the development of this EA. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, and historians analyzed the proposed alternatives regarding existing conditions of the region and specific radio repeater locations, and has identified relevant beneficial and adverse effects associated with the action. In addressing these effects, numerous guidelines, regulations, and EOs were considered (see Table 1-1).

## **1.6 PUBLIC INVOLVEMENT**

Consultation and coordination with Federal, state, and local agencies occurred during this NEPA analysis. Coordination was conducted with the following agencies:

- USFWS
- CPNWR
- U.S. Marine Corps
- Luke Air Force Base
- OPCNM (National Park Service [NPS])
- Arizona State Historic Preservation Officer (SHPO)
- U.S. Forest Service (USFS)
- Bureau of Land Management (BLM)
- Arizona Game and Fish Department (AGFD)
- Federal Aviation Administration (FAA)
- Native American Tribes

All correspondence sent or received during the preparation of this document is included in Appendix A. CBP provided copies of the draft EA to all coordinating state and Federal agencies and affected Native American Tribes for review and comment.

The draft EA was made available for public review for 30 days from May 31 through June 30, 2013. A Notice of Availability was published in the *Arizona Daily Star*, the *Yuma Sun*, and the *Ajo Copper News* on May 31, 2013 (Appendix A). The draft EA was available at the Yuma County Public Library – Main Branch, the Pima County Public Library – Salazar-Ajo Branch, and electronically at <http://cbp.gov/xp/cgov/about/ec/>.

**Table 1-1. Summary of Applicable Laws, Guidance, Statutes, Relevant Regulations, Oversight Agencies, and Compliance Requirements by Resource**

<b>Resource</b>	<b>Acts Requiring Permit, Approval, or Review</b>	<b>Agency</b>	<b>Permit, License, Compliance, or Review/Status</b>
<b>Wilderness</b>	Wilderness Act of 1964, 16 U.S.C. § 1131-1136, 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
<b>Soils</b>	Resource Conservation and Recovery Act of 1976, 42 U.S.C. § 6901 et seq., as amended	U.S. Environmental Protection Agency (EPA)	Proper management and, in some cases, permit for remediation
	Comprehensive, Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9601 et 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 Resources Conservation Service (NRCS)	NRCS determination via Form AD-1006, if prime or unique farmlands are present
<b>Natural Resources</b>	Endangered Species Act of 1973, 16 U.S.C. § 1531 et seq., as amended (ESA)	USFWS	Compliance by lead agency and/or consultation to assess impacts and, if necessary, develop mitigation measures
	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	Administer a National network of lands and waters for the conservation, management, and restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations. Compliance by lead agency

**Table 1-1, continued**

<b>Resource</b>	<b>Acts Requiring Permit, Approval, or Review</b>	<b>Agency</b>	<b>Permit, License, Compliance, or Review/Status</b>
<b>Natural Resources, continued</b>	Organic Act of 1916 (U.S.C. 1 2 3 and 4)	NPS	Manage units of the NPS system “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” Compliance by lead agency
<b>Cultural/ Archaeological</b>	National Historic Preservation Act of 1966 (16 U.S.C. § 470a et seq.)	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 (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
<b>Air</b>	Clean Air Act, and amendments of 1990 (42 U.S.C. § 7401 et seq.)	EPA and Arizona Department of Environmental Quality (ADEQ)	Compliance with National Ambient Air Quality Standards (NAAQS) and emission limits and/or reduction measures; conformity to <i>de minimis</i> thresholds; preparation of a Record of Non-Applicability
<b>Water</b>	Federal Water Pollution Control Act of 1977 (also known as the Clean Water Act [CWA]) (33 U.S.C. § 1251 et seq.)	EPA U.S. Army Corps of Engineers (USACE) and Arizona Department of Water Resources	Section 402(b) National Pollutant Discharge Elimination System General Permit for Storm Water Discharges for Construction Activities  Section 401/404 Permit

Table 1-1, continued

<b>Resource</b>	<b>Acts Requiring Permit, Approval, or Review</b>	<b>Agency</b>	<b>Permit, License, Compliance, or Review/Status</b>
<b>Water, continued</b>	EO 11988 (Floodplain Management), 42 Federal Register (FR) 26,951 (May 24, 1997), as amended	Water Resources Council, Federal Emergency Management Agency, CEQ	Compliance
	EO 11990 (Protection of Wetlands), 42 FR 26,691 (May 24, 1977), as amended	USACE and USFWS	Compliance
<b>Social/Economic</b>	Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) of 1994, 59 FR 7629 (February 11, 1994)	EPA	Compliance
<b>Sound/Noise</b>	Noise Control Act of 1972, 42 U.S.C. § 4901 et seq., as amended	EPA	Compliance with surface carrier noise emissions
<b>Health and Safety</b>	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

A total of eight comments and requests for additional information were received during the public review period. All letters and emails received are included in Appendix A. CBP includes the responses to the comment letters and emails in Appendix A.

A Notice of Availability will also be published in the *Arizona Daily Star*, the *Yuma Sun*, and the *Ajo Copper News* to announce the final EA and signed Finding of No Significant Impact.

## **1.7 REPORT ORGANIZATION**

This EA is organized into eight major sections, including this background discussion in Section 1.0. Section 2.0 describes all alternatives considered for the project. Section 3.0 discusses the environmental resources potentially affected by the project and the environmental consequences for each of the viable alternatives. Section 4.0 discusses cumulative impacts, and Section 5.0 provides best management practices (BMP) that will be utilized during the planning and implementation of this project in order to avoid and/or minimize impacts on environmental resources. Sections 6.0, 7.0, and 8.0 present a list of the references cited in the document, a list of acronyms and abbreviations used in the document, and a list of persons responsible for the preparation of this document, respectively. Correspondence generated during the preparation of this EA can be found in Appendix A. The Minimum Requirements Decision Guide (MRDG) and Compatibility Determination prepared by the CPNWR Refuge Manager for activities conducted within wilderness is included in Appendix B. Lists of Federal and state protected species for Pima and Yuma counties are included in Appendix C. Appendix D provides the model calculations used to determine air quality impacts for the EA.

**SECTION 2.0**  
**PROPOSED ACTION AND ALTERNATIVES**



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## **2.0 PROPOSED ACTION AND ALTERNATIVES**

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### **2.1 PROPOSED ACTION**

The Proposed Action includes the installation, operation, repair, and maintenance of radio repeater equipment and obtaining a real estate special use permit or right of way for construction on the subject properties at up to three locations on the CPNWR within designated wilderness areas (Buck Peak, Granite Mountain, and Christmas Pass) (Figure 2-1). Radio communications modeling determined the fewest equipment site locations necessary to provide the most coverage possible. Original project plans called for three sites on the CPNWR (Buck Peak, Granite Mountain, and Christmas Pass); however, after additional modeling, the communications coverage provided by Buck Peak and Granite Mountain was nearly equal to the coverage originally modeled for all three sites. CBP proposes to first install the proposed TacCom LMR equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if the models were accurate and if adequate communications coverage is provided with only two sites. Field testing involves communications checks along currently used patrol routes to determine if there are any remaining communications “dead spots.” If communications coverage is not adequate or does not meet the requirements of the USBP Wellton or Ajo stations, USBP Yuma or Tucson sectors, or CPNWR, then the proposed TacCom LMR equipment at the Christmas Pass site would be installed.

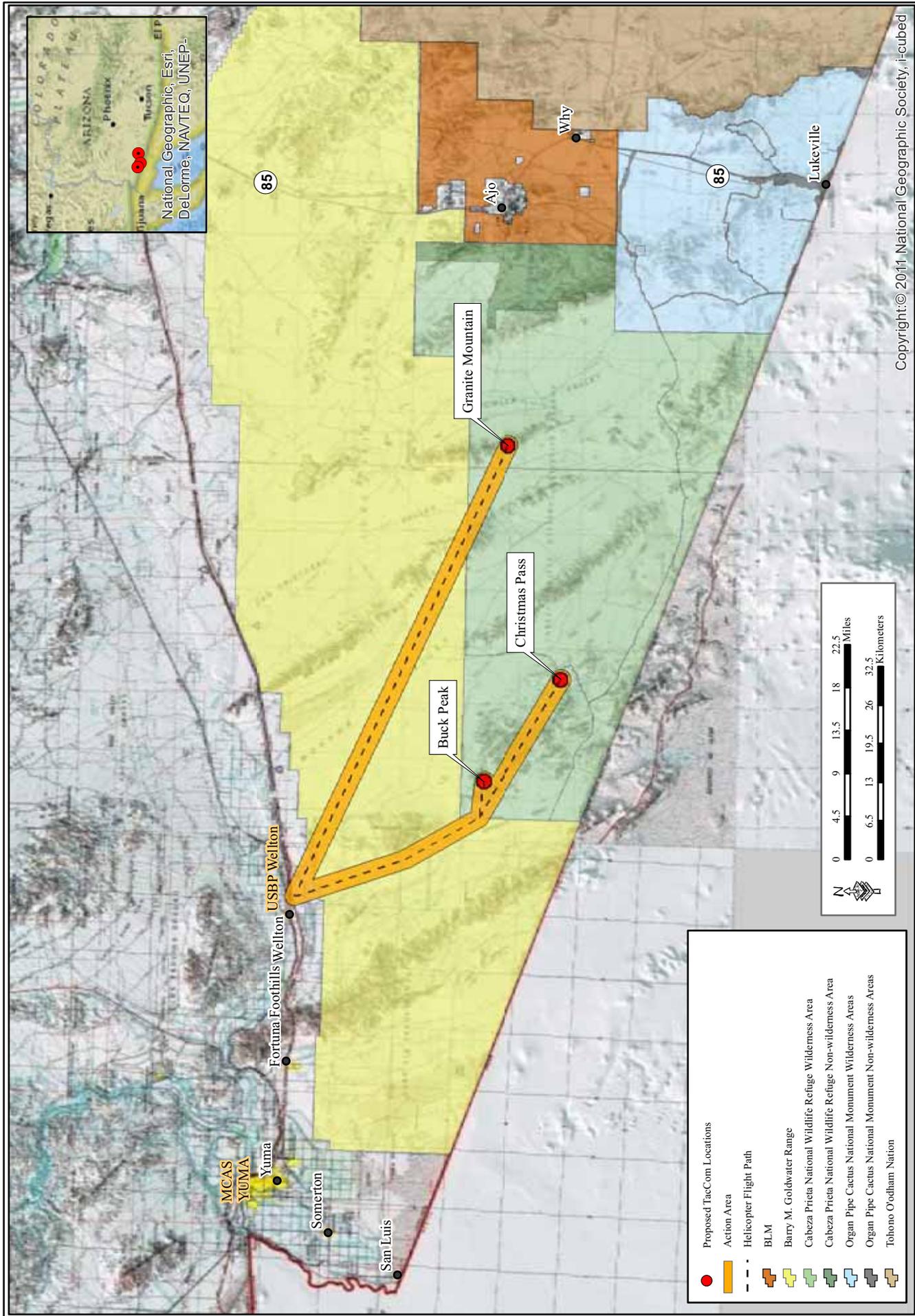
Each of the proposed TacCom equipment locations is on a remote mountaintop or ridge. None are protected by a security fence. Due to the weight of the equipment to be installed and the inaccessibility of the sites, all equipment and personnel would be airlifted to the site during the installation phase of the project. Installation would take less than 30 days at each site. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year by helicopter for Granite Mountain and Buck Peak sites or potentially on foot at the Christmas Pass site. Any replaced equipment would be recycled or otherwise disposed of properly. Trips for emergency repairs may be necessary in addition to the biannual maintenance trips.

Equipment would be staged at the USBP Wellton Station for the three sites on the CPNWR (Buck Peak, Granite Mountain, and Christmas Pass). The equipment would be airlifted directly to the installation site. Estimated flight paths are also depicted on Figure 2-1.

Each of the proposed TacCom equipment locations is discussed in detail below.

#### **2.1.1 Buck Peak**

Buck Peak is located on a ridge in the Cabeza Prieta Wilderness in Yuma County, Arizona (Figure 2-2). Buck Peak currently houses existing CBP communications equipment (one low-power repeater), which is collocated on a solar-powered radio site that is owned and operated by CPNWR. The existing equipment would be replaced because it is outdated and no longer meets CBP’s operability requirements. Communications equipment for CPNWR would be updated and collocated at the new CBP facility. The replacement of CPNWR equipment is included as part of this Proposed Action.



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April 2013

Figure 2-1: Action Area for LMR TacCom Arizona Focus Area

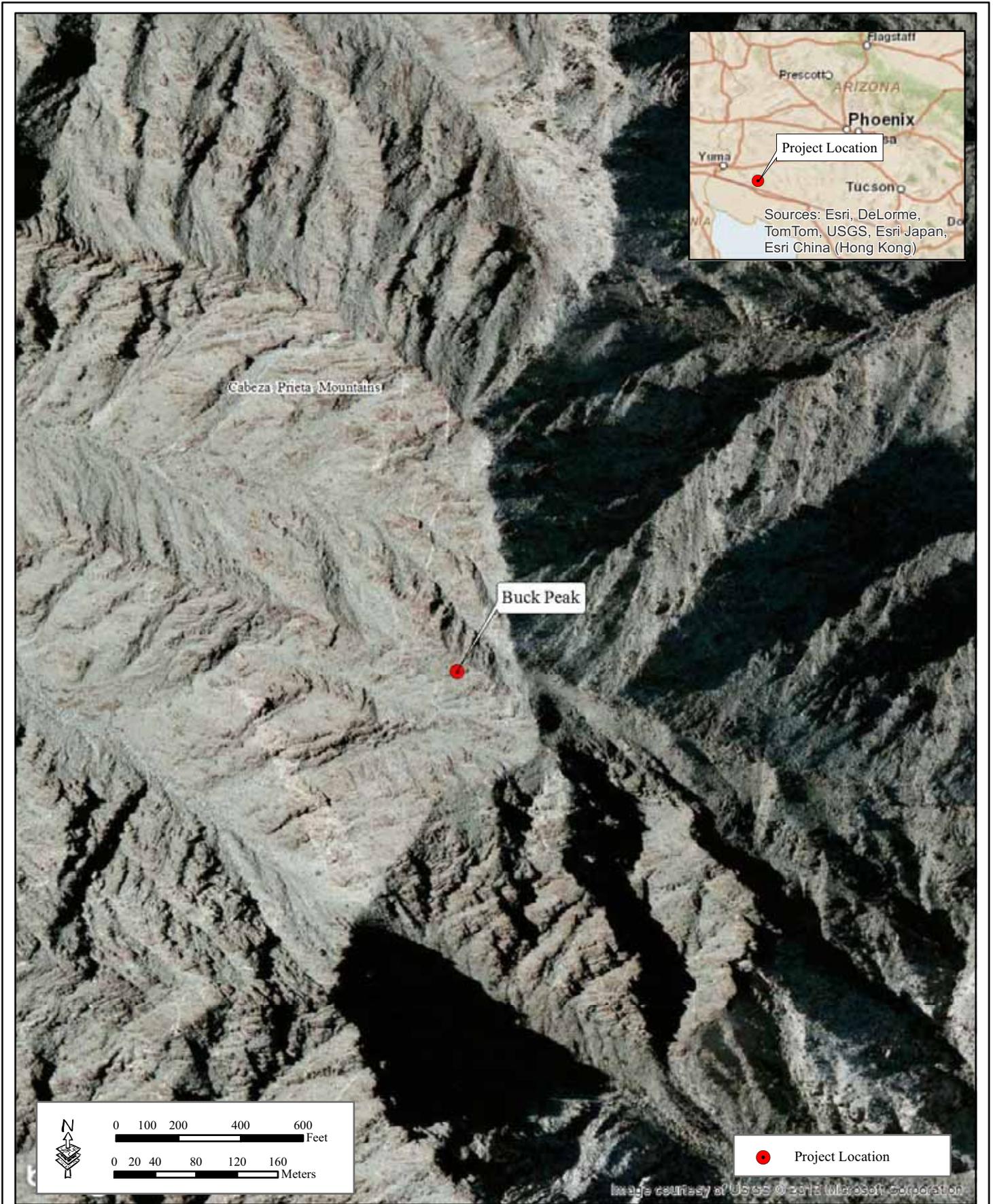


Figure 2-2: Buck Peak Project Area

The Proposed Action consists of obtaining a special use permit for the installation, operation, repair, and maintenance of communications equipment owned by CBP and CPNWR at Buck Peak. The total surface area required for the radio repeater equipment is approximately 200 square feet. A conceptual drawing of the installation is provided as Figure 2-3. An additional 2,500-square-foot working area would be temporarily disturbed during installation. Communications equipment to be installed at Buck Peak includes:

- Five minisolar array platforms that would house solar panels
- Two LMR repeaters
- One Daniel repeater (CPNWR-owned equipment)
- Duplexers
- SAFARI Commander station
- One platform-mounted battery enclosure with six batteries
- Two 10-foot-tall poles (one omni-directional dipole array and one grid parabolic antenna)
- One VHF antenna (CPNWR-owned equipment)

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be accomplished by helicopter. All helicopter access will originate from USBP Wellton Station and fly a course west of Copper Mountain, entering the CPNWR and accessing Buck Peak from the west. The western access route should eliminate any potential effects on Sonoran pronghorn (*Antilocapra americana sonoriensis*) or disturbance in proximity to Sonoran pronghorn habitat, thus allowing helicopter flights during the pronghorn fawning season (March 15 through July 15). If, for some reason, the flight access for this project is not able to follow this route, no helicopter access would occur between March 15 and July 15 to avoid the Sonoran pronghorn fawning season.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. All aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed area in the immediate vicinity of existing equipment to the greatest extent practicable. The replacement of existing equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require 16 round trips by helicopter to provide access for installation technicians, for the removal of existing equipment, and delivery of new equipment.

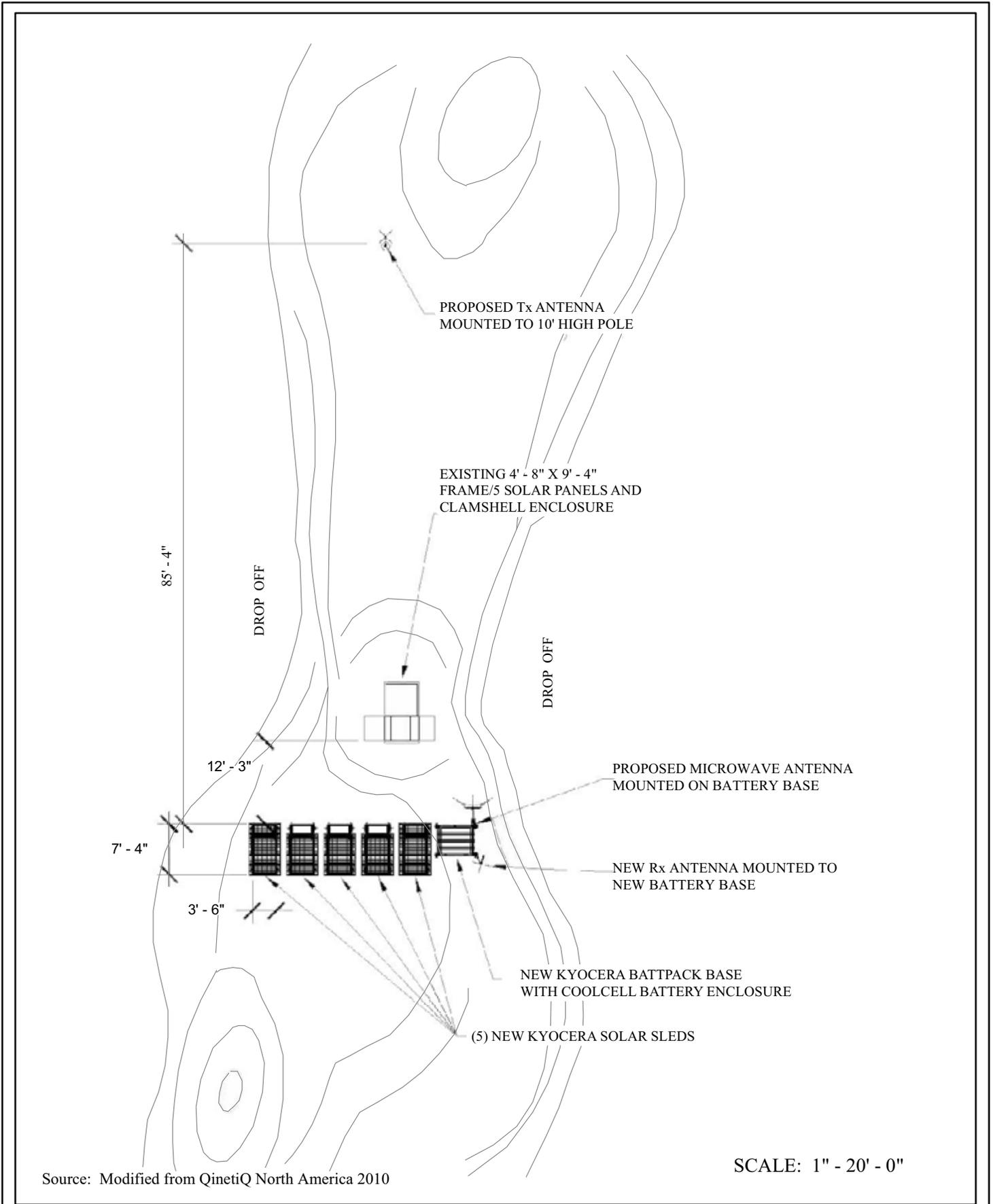


Figure 2-3: Conceptual Drawing of Buck Peak TacCom Location



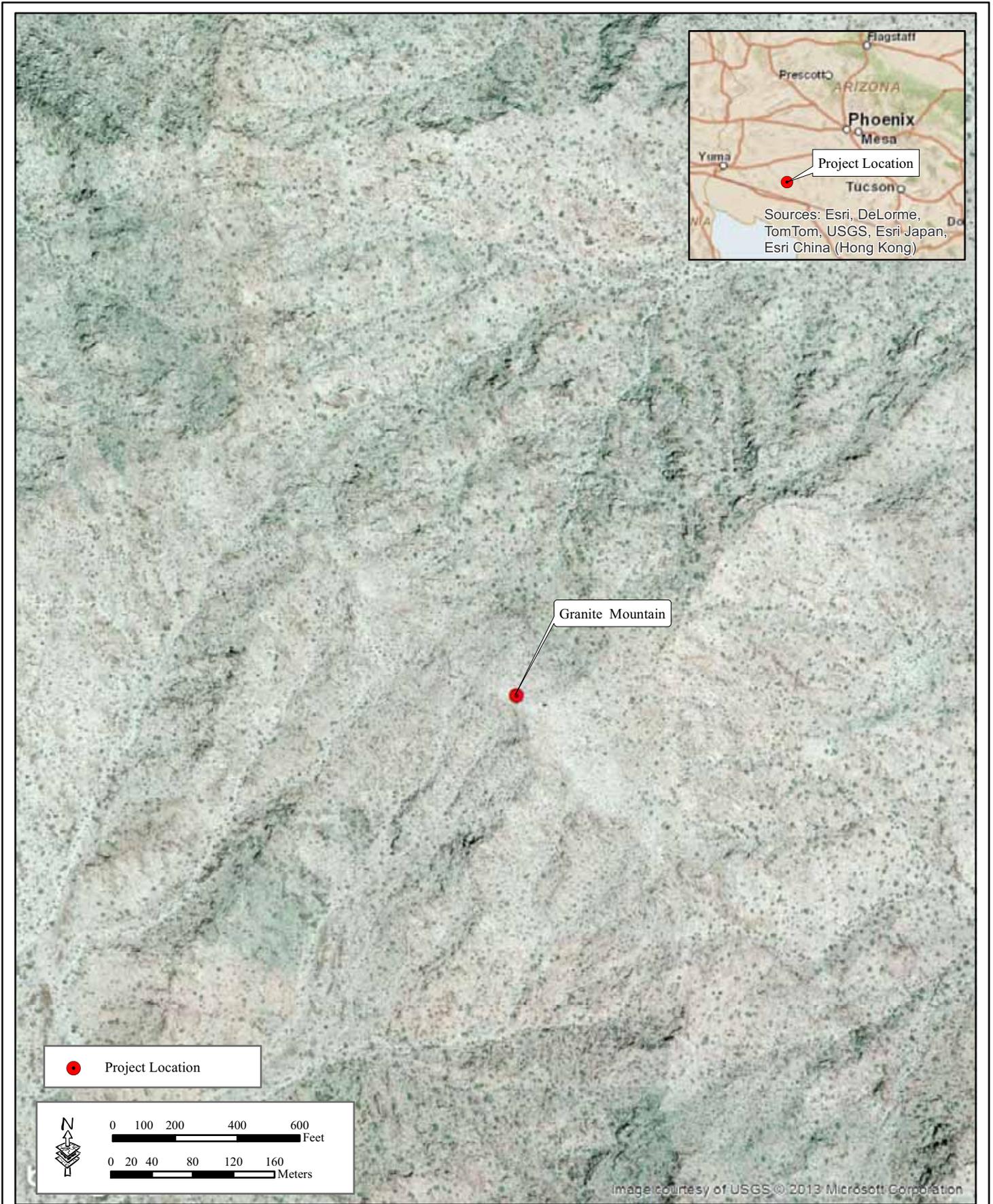


Figure 2-4: Granite Mountain Project Area

### 2.1.2 Granite Mountain

Granite Mountain is located on a remote ridge in the Cabeza Prieta Wilderness in Pima County, Arizona (Figure 2-4). Granite Mountain currently houses communications equipment owned by the U.S. Air Force (USAF) (Photograph 2-1). Collocation of the TacCom equipment within the same impact area as the USAF equipment is not possible for the following reasons: 1) the two sets of equipment run on different power systems (USAF equipment requires 48 volts, TacCom equipment requires 12 volts), 2) adding antennas and solar panels would compromise the structural integrity of the existing platform, and 3) CBP requires approximately 100 feet of horizontal separation from the USAF equipment to avoid radio frequency (RF) interference from the USAF communications equipment.



Photograph 2-1. Existing USAF communications equipment on Granite Mountain.

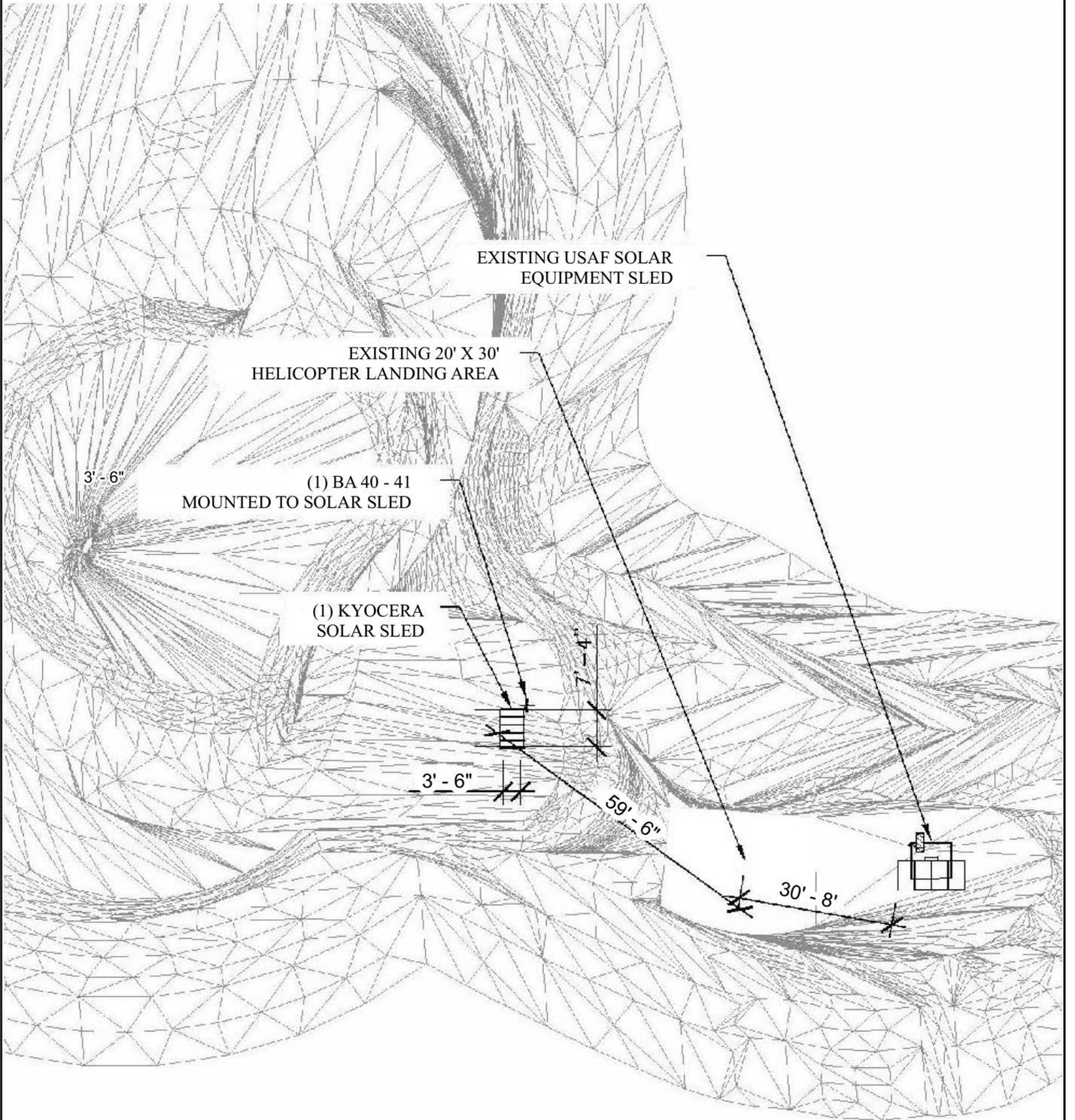
Therefore, the TacCom equipment would be located approximately 100 feet east-northeast of the existing USAF equipment.

The Proposed Action consists of obtaining a special use permit or real estate right of way for the installation, operation, repair, and maintenance of a radio repeater at Granite Mountain. The total surface area required for the radio repeater equipment is 30 square feet. An additional 2,500-square-foot working area would be temporarily disturbed during installation. A conceptual drawing of the installation is provided as Figure 2-5. Communications equipment to be installed at Granite Mountain includes:

- One 5-panel solar array platform
- One repeater
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One tripod-mounted BA40-41 VHF antenna

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be



Source: Modified from QinetiQ North America 2010

SCALE: 1" - 30' - 0"

Figure 2-5: Conceptual Drawing of Granite Mountain TacCom Location



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accomplished by helicopter; however, no helicopter access would occur between March 15 and July 15 due to the Sonoran pronghorn fawning season.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. All aspects of equipment installation, including any ground disturbance, would be limited to the previously disturbed area in the vicinity of existing equipment to the greatest extent practicable. It is estimated that surveys and installation would require seven round trips by helicopter to provide access for installation technicians and to deliver new equipment.

### **2.1.3 Christmas Pass**

Christmas Pass is located on a mountaintop in the Cabeza Prieta Wilderness in Yuma County, Arizona (Figure 2-6). Communications equipment does not currently exist at this site. This site would only be installed if it is deemed necessary to fill a communications coverage gap after the Buck Peak and Granite Mountain sites are installed. If the TacCom equipment is installed at this location, CPNWR radio repeater equipment will be collocated on the equipment sled.

The Proposed Action consists of obtaining a special use permit or real estate right of way for the installation, operation, repair, and maintenance of a radio repeater at Christmas Pass. The total surface area required for the radio repeater equipment is 125 square feet. A conceptual drawing of the installation is provided as Figure 2-7. An additional 2,500-square-foot working area would be temporarily disturbed during installation. Communications equipment to be installed at Christmas Pass includes:

- One 14-panel solar array platform
- One repeater
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One 10-foot-tall pole with an omni-directional dipole array
- One tripod-mounted BA40-41 VHF antenna

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance and repair access would be accomplished by helicopter or on foot, depending on season of year, the physical condition of the technician, and the amount of material needed to be hauled to the site. The proposed flight access for this site is a western approach that will essentially avoid effects within Sonoran

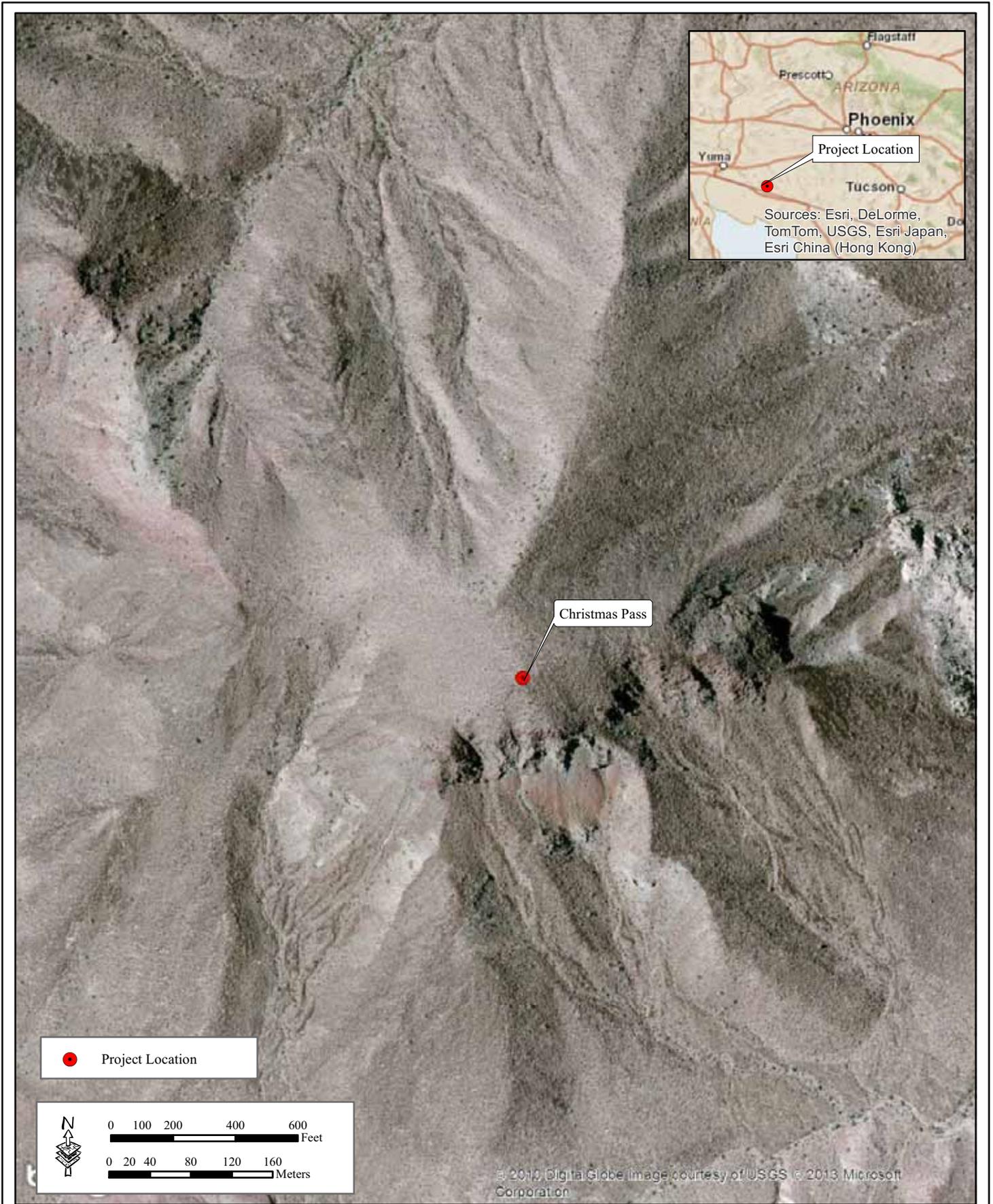
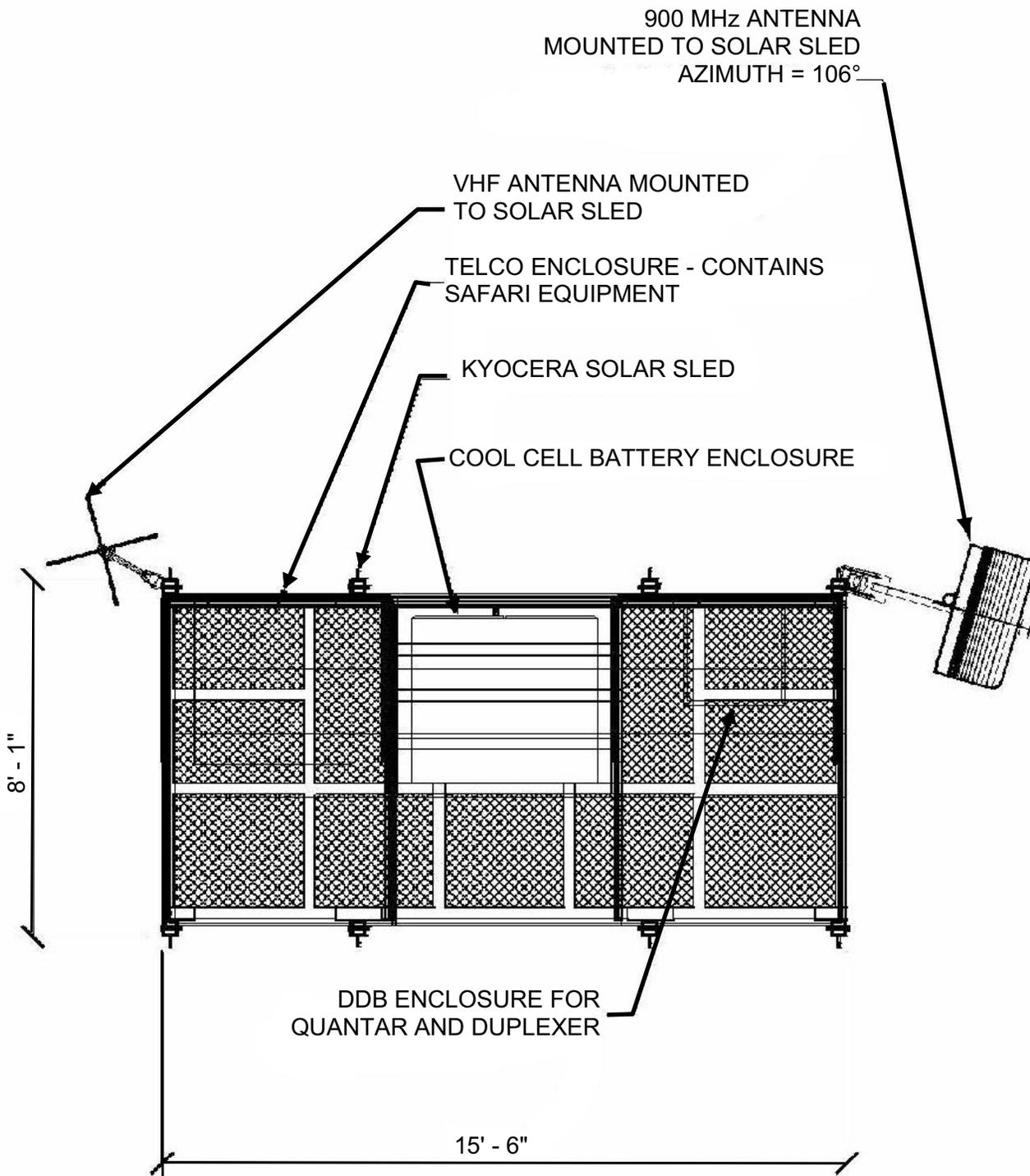


Figure 2-6: Christmas Pass Project Area



Source: Modified from QinetiQ North America 2010

Figure 2-7: Conceptual Drawing of Christmas Pass TacCom Equipment Sled



October 2012

pronghorn habitat, thus allowing flights to occur during the Sonoran pronghorn fawning season. If for some reason flight access to this site is not able to be from the proposed western approach, no helicopter access would occur between March 15 and July 15 to avoid the Sonoran pronghorn fawning season.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require seven round trips by helicopter to provide access for installation technicians and to deliver new equipment.

## **2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the communications equipment would not be installed. However, the existing equipment on Buck Peak, currently collocated on a site owned and operated by CPNWR, would continue to be operated and maintained. The collocated equipment would be accessed biannually for scheduled maintenance by helicopter or on foot. The No Action Alternative would not allow CBP to have increased communications ability. The USBP Ajo or Wellton stations' headquarters current radio repeaters do not provide sufficient radio coverage for reliable TacCom within the CPNWR, which leaves agents without the ability to call for support. This could lead to potential safety issues for CBP agents. Under the No Action Alternative, poor communications coverage would continue.

## **2.3 OTHER ALTERNATIVES CONSIDERED BUT ELIMINATED**

### **2.3.1 Technological Alternatives**

CBP evaluated various technological alternatives to achieve the required TacCom LMR Modernization Project requirements.

Alternative A – Alternative A would use satellite phones for communications instead of the proposed radio repeater. This option was found to be unsatisfactory based on two primary factors: satellite phones do not allow immediate communications, and agents are unable to use this technology during a physical confrontation. Due to the insufficient capabilities of satellite phones relative to the needs of CBP, Alternative A was excluded from further consideration and analysis.

Alternative B – Alternative B would use cellular phones for communication instead of the proposed radio repeaters. This option was unsatisfactory based on several factors: cellular phones do not allow immediate communication, agents are unable to use this technology during physical confrontation, and reception is often not available. Due to insufficient capabilities of cellular phones relative to the needs of CBP, Alternative B was excluded from further consideration and analysis.

Alternative C – Alternative C would use broadband frequencies that would allow for increased RF propagation and communications ranges. This option was unsatisfactory based on Federal

mandates that require LMR systems to operate on smaller 12.5 kilohertz (kHz) frequencies rather than the older 25 kHz systems.

The proposed P25 LMR technology is the only available communications equipment that would ensure adequate encryption for law enforcement personnel, coverage throughout the remote portions of the Arizona Focus Area, and lack of interference from other communications systems.

### **2.3.2 Siting Alternatives**

Although each radio repeater location can act independently of all other LMR sites and provide communications opportunities for the agents in the field, LMR radio repeaters are designed to communicate with other LMR radio repeaters throughout the Arizona Focus Area. Radio repeaters are sited to minimize RF coverage overlap between radio repeater sites while eliminating areas without coverage. Key radio repeater site evaluation considerations take into account constructability, operability, and environmental factors. The site selection process began with multiple conceptual field laydowns, where maximum RF propagation is achieved with a minimum number of radio repeater sites using mapping programs and a modeling and analysis process. Operationally preferred site locations were selected by CBP personnel based on their knowledge of the terrain, environment, land ownership, and operational needs. Wherever possible, CBP tried to use existing radio repeater sites for the collocation of equipment to reduce cost and impacts on the environment. New sites were only proposed when existing sites were not available for collocating equipment.

Geographical constraints also affect radio repeater siting decisions. The preferred alternative is to place the radio repeater equipment at the top of mountain peaks. Because radio system design is based on line of sight, the distance of the desired RF propagation and terrain obstacles controls the necessary height of the radio repeater. Placing a radio repeater at the top of a mountain peak provides complete coverage across the mountain and to all locations at lower elevations that are not physically blocked by another geographical feature.

Four siting alternatives were considered: hilltops outside of the CPNWR (Alternative D), repeaters positioned at the base of mountains within the CPNWR (Alternative E), Cipriano Pass as an alternate for Buck Peak (Alternative F), and Raven Butte as an alternate for Christmas Pass (Alternative G). These alternatives are discussed below.

Alternative D – Alternative D uses nearby, shorter hilltops outside of the CPNWR. CBP assessed other hilltops outside of the CPNWR for the possibility of placement of radio repeaters, but higher mountains surrounding these hilltops would interfere with the radio coverage of the area. The resulting communications coverage would be less than adequate, and areas with no communications coverage would be more extensive than that provided by siting the radio repeaters within the CPNWR. This siting alternative was determined to be inadequate and was eliminated from further consideration.

Alternative E – Alternative E uses numerous (i.e., four or more) radio repeaters positioned at the base of the mountain to achieve the same coverage as placing the site on a mountain peak. This alternative would result in substantially greater cost, and it would not take advantage of existing

sites located on mountain peaks. This siting alternative was determined to be inadequate and was eliminated from further consideration.

Alternative F – Alternative F would substitute Cipriano Pass on the nearby BMGR for Buck Peak as a location for TacCom equipment installation. Upon visual inspection of the Cipriano Pass area, there was not a suitable, level area available on the site that would be adequate for the TacCom equipment and helicopter landing. This alternative was determined to be inadequate and was eliminated from further consideration.

Alternative G – Alternative G would substitute Raven Butte on the nearby BMGR for Christmas Pass as a location for TacCom equipment installation. However, Raven Butte was determined to be a Traditional Cultural Property for the Cocopah Tribe and the Tohono O’odham Nation. The tribes do not feel that the installation of communications equipment is appropriate at Raven Butte. Also, RF coverage analysis for Ravens Butte indicated that the site would not enhance radio communications in the critical area east of the Cabeza Prieta Mountains. For both of these reasons, this alternative was eliminated from further consideration.

### **2.3.3 Collocation Alternative**

CBP is currently in the early planning stages of the USBP Wellton Station Integrated Fixed Towers (IFT) Project. The USBP Wellton Station IFT Project includes the construction, operation, repair, and maintenance of up to 24 tower sites and associated infrastructure (primarily roads) on and near those sites. All proposed tower sites would be situated within the Wellton Station Area of Responsibility (which includes the CPNWR) on privately owned, DHS/CBP-owned, or other Federal agency-owned lands along or near the United States/Mexico border, as necessary to create a border enforcement zone. This alternative would collocate TacCom equipment on IFT infrastructure where necessary on the CPNWR to provide adequate communications coverage, similar to what would be provided with the implementation of the Proposed Action of TacCom LMR Modernization Project. Due to the early planning nature of the Wellton Station IFT Project, there are no proposed IFT locations that have been vetted and approved by both CBP and the land managers. Construction for this project is estimated to begin in 2016. Due to the need established by the TacCom LMR Modernization Project to provide a safe work environment for agents and other agency law enforcement personnel by improving communications coverage, this alternative was determined to be inadequate due to schedule delays and immediate need and was eliminated from further consideration.

## **2.4 ALTERNATIVES SUMMARY**

The Proposed Action would implement the TacCom LMR Modernization Project at up to three locations in the Arizona Focus Area. It has been determined by CBP that no other alternatives meet the project’s purpose and need. Table 2-1 provides an evaluation of how the Proposed Action meets the project’s purpose and need. Table 2-2 presents a summary matrix of the impacts from the two alternatives analyzed and how they would affect the environment and environmental resources near the proposed radio repeater installation locations.

**Table 2-1. Alternatives Matrix**

<b>Purpose and Need</b>	<b>Proposed Action</b>	<b>No Action</b>
Will the alternative provide adequate communications coverage in both urban and remote locations to reduce or potentially eliminate communications coverage gaps?	Yes	No
Will the alternative provide a state-of-the-art digital technology that complies with the P25 standards and provides for narrowband, AES encryption?	Yes	No
Will the alternative provide enhanced safety for CBP agents through improved communications coverage and technology?	Yes	No
Will the alternative provide an opportunity for future expansion of communications services as necessary?	Yes	No
Will the alternative provide a more safe, effective, and efficient work environment for CBP agents?	Yes	No

**Table 2-2. Summary Matrix**

Affected Environment	Proposed Action	No Action Alternative
<p><b>Land Use (Section 3.2)</b></p>	<p>The Proposed Action would permanently change the primary use on 355 square feet of land from its current use as USFWS-designated wilderness to CBP enforcement. An additional 7,500 square feet of land would also be temporarily impacted by installation, emergency repair, and biannual maintenance activities. The TacCom LMR Modernization Project has been coordinated with CPNWR, and special use permits or real estate rights of way would be obtained by CBP prior to installing the radio repeater equipment at each location. The Proposed Action would have a long-term, negligible adverse effect on land use in the project area.</p>	<p>Illegal traffic would continue to directly and indirectly impact and disturb existing land uses within the project area. Due to CBV pedestrian and vehicle traffic, urbanized areas and natural desert areas experience increased crime and damage to native vegetation, respectively.</p>
<p><b>Wilderness (Section 3.3)</b></p>	<p>The Proposed Action would adversely affect the characteristics of designated wilderness. The audible qualities of designated wilderness would be moderately affected by noise emissions generated during the installation and maintenance of the TacCom equipment due to accessibility of the sites being limited to helicopter transportation. The visual qualities of designated wilderness would be affected by communications equipment. The TacCom equipment would have limited visibility to visitors due to its low height profile and mountaintop locations; however, the proposed equipment is man-made and would detract from the natural values of designated wilderness. Thus, obtaining a special use permit for the installation, operation, repair, and maintenance of the proposed radio repeater equipment at three mountaintop locations on the CPNWR would have a long-term, moderate adverse effect on the viewshed and natural values of designated wilderness. The Proposed Action would have an indirect beneficial impact on the remaining wilderness as a result of enhancing detection of CBVs, increasing interdiction efficiency, reducing illegal traffic, and consequently reducing the law enforcement footprint required for interdiction activities.</p>	<p>Illegal traffic would continue to directly and indirectly impact and disturb designated wilderness within the project area. Currently, portions of OPCNM and CPNWR are closed to the public due to safety and security concerns associated with CBVs.</p>
<p><b>Soils (Section 3.4)</b></p>	<p>The Proposed Action would impact up to 7,855 square feet (0.18 acre) of Quilotosa-Vaiva-Rock outcrop association soils. The disturbance to a maximum of 7,855 square feet of soils would be negligible when examined on a regional scale. Installation, operation, repair, and maintenance of the proposed TacCom equipment would have a long-term, minor adverse effect on soils and a long-term, beneficial effect as a result of reducing illegal traffic and the creation of roads and trails by CBVs. No soils classified as prime farmlands occur in the project area.</p>	<p>There would be no installation of TacCom equipment; therefore, there would be no direct impacts on geologic or soil resources of the area. Soils would continue to be degraded by the creation and use of roads and trails by CBVs.</p>

Table 2-2, continued

Affected Environment	Proposed Action	No Action Alternative
<b>Hydrology and Groundwater (Section 3.5)</b>	No direct impacts on groundwater resources are expected. The Proposed Action would have an indirect beneficial impact on hydrology and groundwater as a result of enhancing detection of CBVs, increasing interdiction efficiency, reducing illegal traffic, and consequently reducing the law enforcement footprint required for interdiction activities.	There would be no installation of TacCom equipment; therefore, there would be no direct impacts on hydrology or groundwater availability or quality. Groundwater deficits would continue as a result of water withdrawals for agricultural irrigation and municipal use. Roads and trails created by CBVs and authorized roads would continue to adversely impact surface drainage, as well as provide a source of sediment.
<b>Surface Waters and Waters of the United States (Section 3.6)</b>	Surface waters may experience temporary indirect impacts from stormwater runoff during and shortly after rain events. Temporary effects may include a temporary increase in erosion and sedimentation from rotor wash during helicopter landings. No wetlands or waters of the United States are located within the project area.	Under the No Action Alternative, surface waters and waters of the United States would not be impacted, since no construction would occur; however, the littering and debris associated with CBV foot traffic would continue. Existing and new unauthorized roads and trails and authorized roads would serve as sources of sediment.
<b>Vegetation (Section 3.7)</b>	The Proposed Action would permanently degrade approximately 355 square feet of sparsely vegetated land. An additional 7,500 square feet of land would also be temporarily impacted by installation, emergency repair, and biannual maintenance activities. The Sonoran Desert vegetation community is extremely common in the vicinity of the proposed TacCom locations, and the direct effect of degradation of vegetation would have a long-term, negligible adverse effect on the total amount of similar Sonoran Desert vegetation communities in the region.	No direct impacts would occur from the No Action Alternative. However, long-term indirect impacts on vegetation communities would continue as a result of illegal cross-border activities that create trails, damage vegetation, promote the dispersal and establishment of invasive species, and result in conditions that favor catastrophic wildfires.
<b>Wildlife and Aquatic Resources (Section 3.8)</b>	Approximately 355 square feet of Sonoran Desert habitat would be permanently impacted by the Proposed Action. An additional 7,500 square feet of habitat would also be temporarily impacted by installation, emergency repair, and biannual maintenance activities. Appropriate BMPs would be implemented to reduce migratory bird impacts. The Proposed Action would have a long-term, minor adverse effect on wildlife resources. The proposed project would have an indirect beneficial impact on wildlife as a result of improving communications, enhancing detection of CBVs, increasing interdiction efficiency, reducing illegal traffic, and consequently reducing the law enforcement footprint required for interdiction activities.	Under the No Action Alternative, no direct impacts on wildlife habitats would occur. However, illegal cross-border activity would continue to disturb wildlife and degrade wildlife habitat.

Table 2-2, continued

Affected Environment	Proposed Action	No Action Alternative
<p><b>Protected Species (Section 3.9)</b></p>	<p>Installation and maintenance of the TacCom equipment at Buck Peak, Christmas Pass, and Granite Mountain are likely to adversely affect the Sonoran pronghorn. Helicopter flights would be limited to the minimum number of trips, and all sites would be accessed from the west to avoid overflights of preferred Sonoran pronghorn habitat. Adverse effects on Sonoran pronghorn would be short-term and minor. The potential loss of agave during installation of communications and support equipment would occur at Buck Peak. Loss of agave would be minimal (less than 24 individual plants) and would not likely adversely affect lesser long-nosed bat (<i>Leptonycteris curasoae yerbabuena</i>) populations. Adverse effects on lesser long-nosed bats would be long-term and discountable. The increased noise emissions during installation and maintenance helicopter trips could potentially impact Sonoran desert tortoise (<i>Xerobates agassizii</i>) near Granite Mountain. Impacts from noise would be short-term and minor. The Proposed Action is not likely to adversely affect Sonoran desert tortoise. However, beneficial impacts would also be expected under the Proposed Action. Long-term, beneficial effects would occur by reducing impacts of CBV activities on habitats throughout the project area and surrounding areas. Appropriate conservation measures, BMPs, and offsetting measures would be implemented to minimize potential effects.</p>	<p>Under the No Action Alternative, there would be no direct impacts on threatened or endangered species or their habitats. However, the indirect and long-term impacts of illegal cross-border activity on habitats throughout the project region and surrounding areas would continue to disturb threatened or endangered species and their habitats.</p>
<p><b>Cultural Resources (Section 3.10)</b></p>	<p>The archaeological surveys and archival research for the TacCom locations have led to a determination of no impacts on any National Register of Historic Places (NRHP) eligible aboveground or subsurface resources. The isolated occurrences discovered during the surveys do not possess any of the qualities necessary to be eligible for the NRHP. No impacts are expected on cultural resources from the Proposed Action.</p>	<p>Under the No Action Alternative, no direct impacts on cultural resources would occur. However, cultural resources sites would continue to be impacted by illegal cross-border activities.</p>
<p><b>Air Quality (Section 3.11)</b></p>	<p>Temporary and minor increases in air pollution would occur from the use of a helicopter during installation and the disturbance of soils due to helicopter rotor wash. There would be no violations of air quality standards and no conflicts with the state implementation plans; therefore, impacts on air quality from the implementation of the Proposed Action would be minor.</p>	<p>No equipment would be installed, so no direct impacts from construction on air quality would occur. However, air quality in the region would continue to be affected from fugitive dust emissions associated with CBVs travelling off-road and consequent law enforcement actions.</p>

Table 2-2, continued

Affected Environment	Proposed Action	No Action Alternative
<b>Noise (Section 3.12)</b>	Noise generated by helicopters would be intermittent and last 1 to 4 weeks to install the TacCom equipment at each location, after which noise levels would return to ambient levels. Biannual maintenance may also be conducted via helicopter. The noise impacts from installation and maintenance activities would be short-term and minor. Approximately 5,122 acres of land would be within the 57 A-weighted decibel (dBA) contour.	Under the No Action Alternative, the noise receptors near the equipment installations would not experience additional noise events.
<b>Radio Frequency Environment (Section 3.13)</b>	The proposed TacCom equipment would emit RF energy and electromagnetic radiation; therefore, some minor potential for adverse effects could occur. However, any adverse effects on human safety and wildlife would be negligible due to the minimal exposure risk and the elevated locations in which the antennas would be positioned.	Under the No Action Alternative, no direct impacts on humans, wildlife, or communications would occur. Existing radio communications equipment would continue to emit RF energy and electromagnetic radiation at Buck Peak and Granite Mountain.
<b>Aesthetics (Section 3.14)</b>	Installation and maintenance of the TacCom equipment would require helicopter lifts to transport radio repeater equipment, installation materials, construction personnel, and environmental monitors to each location. Installation and maintenance of the proposed TacCom equipment would have a long-term, moderate adverse effect on the viewshed and aesthetic qualities of the CPNWR. The TacCom equipment at all installation locations would have limited visibility to CPNWR visitors due to the low height profile of the equipment and the mountaintop locations. Thus, the operation of the proposed radio repeater equipment at up to three mountaintop locations would have a long-term, minor adverse effect on the viewshed and aesthetic qualities of the CPNWR. The Proposed Action would provide long-term indirect benefits to the landscape through the reduction or elimination of new CBV-created roads and trails.	Under the No Action Alternative, the aesthetics of the project region would not be directly affected by the TacCom equipment. However, trash, graffiti, and general vandalism resulting from CBV traffic would be expected to continue to detract from the visual quality of area.
<b>Hazardous Waste (Section 3.15)</b>	The Proposed Action would not result in the exposures of the environment or public to any hazardous materials. The potential exists for minor releases of petroleum, oil, and lubricant (POL) during construction or operational activities. BMPs would be put in place to minimize any potential contamination at the proposed sites during construction activities and operation.	The No Action Alternative would not contribute any hazardous waste or materials to the project area, as no construction would take place.
<b>Socioeconomics (Section 3.16)</b>	The Proposed Action would not cause any changes to local employment rates, poverty levels, or local incomes. The Proposed Action would provide long-term, indirect benefits to the region through the reduction of societal costs due to illegal activities associated with CBVs.	Under the No Action Alternative, no direct impacts on socioeconomics would occur. However, the societal costs associated with CBVs would continue and likely increase.

Table 2-2, continued

<b>Affected Environment</b>	<b>Proposed Action</b>	<b>No Action Alternative</b>
<b>Environmental Justice (Section 3.17)</b>	Implementation of the Proposed Action would cause no direct impacts on minority or low-income populations.	Under the No Action Alternative, no impacts on minority and low-income populations would occur.
<b>Sustainability and Greening (Section 3.18)</b>	Under the Proposed Action, applicable Federal sustainability and greening practices would be implemented to the greatest extent practicable.	No construction would occur, so no direct impacts would occur.
<b>Greenhouse Gas Emissions and Climate Change (Section 3.19)</b>	Impacts from the installation, operation, repair, and maintenance of the proposed radio repeater equipment would have negligible, long-term impacts on greenhouse gas (GHG) emissions and climate change.	No construction would occur, so no direct impacts would occur.

**SECTION 3.0**  
**AFFECTED ENVIRONMENT AND CONSEQUENCES**



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## 3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

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### 3.1 PRELIMINARY IMPACT ANALYSIS

This section of the EA describes the natural and human environment that exists within the project area of the TacCom LMR Modernization 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 EA 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 area. Resources such as climate, wild and scenic rivers, geology, floodplains, utilities and infrastructure, and roads and traffic are not addressed for the following reasons:

**Climate:** The climate would not be impacted by the construction and operation of the Proposed Action.

**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.

**Prime Farmlands:** The Proposed Action would not affect Prime Farmlands as protected under the Farmland Protection Policy Act of 1980 and 1995 (7 U.S.C. 4201), because none of the soil types are identified as prime farmlands and none of the lands are currently in agricultural production.

**Geology:** The Proposed Action involves very little disturbance to topsoil layers. There are no plans for holes or excavations of any type in the installation of the radio repeater equipment. There would be no modifications of the area's topography or any impacts on geological features caused by the Proposed Action.

**Floodplains:** The Proposed Action would not increase the risk or impact of floods on human safety, health, and welfare, and would not adversely impact the beneficial values that floodplains serve. The locations proposed for TacCom equipment installations are all mountaintop locations that are not within floodplains, nor would the equipment impede the flow of stormwaters.

**Utilities and Infrastructure:** The proposed radio repeater equipment would be self-powered by photovoltaic cells; therefore, there would be no impacts on utilities or infrastructure in the project area.

**Roads and Traffic:** The proposed radio repeater equipment would be installed and maintained via helicopter airlift; therefore, there would be no impacts on roads or traffic in the project area.

Impacts (consequence or effect) 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 and Proposed Action may create temporary (lasting the duration of construction), short-term (up to 3 years), and long-term (greater than 3 years) impacts or effects.

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. Table 3-1 presents the impacts for the installation of the proposed communications equipment. Impacts include the space necessary for the communications equipment (usually less than 250 square feet) and for helicopter landing areas and work zones (up to 2,500 square feet).

**Table 3-1. Impacts (Square Feet) Resulting from the Proposed Action**

<b>Location</b>	<b>Permanent Impact (square feet)</b>	<b>Temporary Impact (square feet)</b>	<b>Total Impact (square feet)</b>
Buck Peak	200	2,500	2,700
Christmas Pass	125	2,500	2,625
Granite Mountain	30	2,500	2,530
<b>TOTAL</b>	<b>355</b>	<b>7,500</b>	<b>7,855 (0.18 acre)</b>

## 3.2 LAND USE

### 3.2.1 Affected Environment

The project area for the Proposed Action includes three mountaintop locations in Pima and Yuma counties, Arizona. Pima County is situated on the southwestern border of Arizona and encompasses 9,186 square miles (U.S. Census Bureau [USCB] 2011). Government, tourism, commercial, and Native American reservations are the county's principal land uses. BLM and USFS account for 12.1 percent of land ownership; Native American reservations, 42.1 percent; the State of Arizona, 14.9 percent; private or corporate, 13.8 percent; and other public lands, 17.1 percent (Arizona Department of Commerce [AZDC] 2008). Other public lands include those managed by USFWS and NPS. One of the proposed radio repeater locations, Granite Mountain, is on the Cabeza Prieta Wilderness in Pima County. The CPNWR was established for the recovery of the desert bighorn sheep. Approximately 93 percent of CPNWR is designated wilderness and is discussed in detail in Section 3.3.

Yuma County, Arizona, covers 5,514 square miles of the southwest corner of Arizona (USCB 2011). Land use within Yuma County is dependent upon soil characteristics and water availability. BLM accounts for 14.8 percent of land ownership; Native American reservations, 0.2 percent; State of Arizona, 7.7 percent; private or corporate entities, 10.5 percent; and other public lands, 66.8 percent (AZDC 2007). Agriculture production is the principal land use in Yuma County. Two radio repeater locations, Buck Peak and Christmas Pass, are proposed within Yuma County. Both locations are within the Cabeza Prieta Wilderness.

Currently, land uses within the project area are directly and indirectly affected by CBV pedestrian and vehicle traffic, and consequent law enforcement activities. Urbanized areas and natural desert areas experience increased crime and damage to native vegetation, respectively. Illegal cross-border activities within the project area have a negative impact on residential, commercial, wilderness, wildlife, recreation, and authorized land uses. Litter and human waste have degraded the visual and natural resources on public lands across Pima and Yuma counties (including but not limited to the OPCNM, CPNWR, numerous U.S. Armed Forces properties, and BLM lands). Davis (2005) reported that BLM estimated that each pedestrian CBV deposits an average of 8 pounds of trash. Photograph 3-1 provides an example of litter deposited by CBVs. Trash is generally distributed along major illegal routes, but is highly concentrated in passes and frequently used in areas where CBVs concentrate. Deposition of trash and human waste detracts from the wilderness aspect of OPCNM and CPNWR and from the natural quality of habitat in southern Arizona. Additionally, unauthorized vehicle routes, unauthorized trails, and man-caused fires (CBV warming fires and signal fires) disturb or destroy native vegetation and wildlife habitat.



**Photograph 3-1. Trash deposited by cross-border violators**

From 2004 to 2005, OPCNM staff documented 364 miles of off-road vehicle routes and tracks created by CBVs and consequent law enforcement activity (OPCNM 2005). On CPNWR, 500

miles of unauthorized entrenched roads and 700 more miles of unauthorized trails and loosely cut roads exist (Di Silvestro 2007; Guillot 2007). Further, illegal cross-border activities destroy fences, resulting in livestock trespassing, which results in additional damage to natural resources. Any fences damaged during required USBP interdiction activities are repaired by USBP agents following completion of the interdiction action (USBP 2009).

### **3.2.2 Environmental Consequences**

#### **3.2.2.1 Proposed Action**

Installation of the proposed radio repeater equipment would permanently change the long-term land use on approximately 355 square feet of USFWS (CPNWR) managed property. An additional 7,500 square feet of land would also be temporarily impacted by installation, emergency repair, and biannual maintenance activities. The TacCom LMR Modernization Project has been coordinated with CPNWR. CBP would obtain special use permits or real estate rights of way from the CPNWR prior to initiating the proposed project. Additionally, a compatibility determination was completed by USFWS for the three proposed radio repeater locations (i.e., Buck Peak, Granite Mountain, Christmas Pass) on the Cabeza Prieta Wilderness prior to installation. The proposed project would result in a long-term, negligible adverse effect on land use in the project area.

The TacCom LMR Modernization Project would result in indirect beneficial effects on land use as a result of reducing CBV traffic and focusing law enforcement activities in the project area. Beneficial effects would be noticeable throughout the landscape and not localized near the proposed radio repeater locations. The proposed project would enhance CBP's communications capabilities and potentially increase the efficiency of interdiction actions. Communications technology combined with surveillance systems, infrastructure, and the tactics employed by agents and officers leads to increased capabilities to effect an arrest and are dependent upon the flow of traffic in any particular area. Any advancement in efficiency in any of these areas, including communications, can only increase CBP effectiveness and provide for increased certainty of arrest. Beneficial effects would include reduced vegetation damage from unauthorized roads and trails, reduced litter and human waste on public lands, increased public safety, and decreased damage to authorized land uses (e.g., cattle fences).

The flow of illicit activity fluctuates depending on transnational criminal organizations activity and is expected to lessen over time as CBP's effectiveness increases. CBP cannot predict apprehension locations and numbers as there are too many variables to consider and associating any one thing CBP does to a law enforcement outcome (i.e., arrests) would be misrepresentative of the systems perspective CBP is utilizing.

The Refuge Manager of the CPNWR prepared a Compatibility Determination for the proposed TacCom LMR Modernization project to signify that the proposed use of CPNWR land as part of the proposed project would be compatible with the established purposes and mission of the National Wildlife Refuge System.

#### **3.2.2.2 No Action Alternative**

Under the No Action Alternative, CBP would not install the radio repeater equipment at the three proposed locations within the project area; however, maintenance on the existing equipment at

Buck Peak would continue. There would be no direct impacts on land use. Indirect impacts on land use would continue from illegal traffic and consequent law enforcement actions. Unauthorized roads and trails would continue to be made and used by CBVs attempting to avoid detection and apprehension by law enforcement personnel (e.g., USBP agents, USFWS agents, and NPS rangers) and local law enforcement personnel during interdiction activities. Illegal cross-border activities (e.g., unauthorized roads) would continue to destroy native vegetation, accelerate soil erosion, deposit trash and human waste, vandalize property (e.g., cattle fences), and detract from the landscape recreational values of OPCNM and CPNWR. Additionally, illegal cross-border activities would continue to pose a threat to the safety of Federal employees and the visiting public on these Federal lands. Under the No Action Alternative, the current status of radio communications would not improve. Federal law enforcement agents would remain beyond the reach of communications while on patrol, which limits the safety and security of staff and visitors to the public lands.

### 3.3 WILDERNESS

#### 3.3.1 Affected Environment

The Wilderness Act of 1964 (P.L. 88-577 [Wilderness Act]) allowed for the establishment of a National Wilderness Preservation System and allows for the establishment of wilderness on Federally owned lands designated by Congress. Areas designated as wilderness are to be administered in such a manner as to leave the lands undisturbed for future use and enjoyment by the public as wilderness and to provide protection of these areas for the preservation of their wilderness character. As defined by the Wilderness Act, wilderness should provide for the opportunities to experience solitude, unconfined recreation, and naturalness. To maintain the wilderness characteristics of designated wilderness areas, certain activities are prohibited, including commercial enterprise and permanent roads, and, except as necessary to meet minimum requirements for the administration of the area for the purpose of the Wilderness Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, nor use of motor vehicles, motorized equipment, or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation (16 U.S.C. 1131-1136).

#### Organ Pipe Cactus Wilderness

OPCNM Wilderness was created within OPCNM by the National Parks and Recreation Act of 1978 (P.L. 95-625). It encompasses 95 percent (312,660 acres of designated wilderness and 1,240 acres of potential wilderness) of OPCNM (Figure 3-1) and was created to celebrate the life and landscape of the Sonoran Desert (NPS 1997). OPCNM Wilderness pays tribute to the organ pipe cactus (*Stenocereus thurberi*), a rare, multi-spined cactus found in the United States. Furthermore, OPCNM Wilderness is a shelter for endangered species (e.g., the Sonoran pronghorn and lesser long-nosed bat), provides a place for the Tohono O'odham people to collect native vegetation, serves as a natural research laboratory for understanding and managing the Sonoran Desert ecosystem, and serves as a baseline indicator against which environmental changes can be identified. Management of OPCNM Wilderness is consistent with the provision in the Wilderness Act. There are no radio repeater sites proposed for installation on the OPCNM.

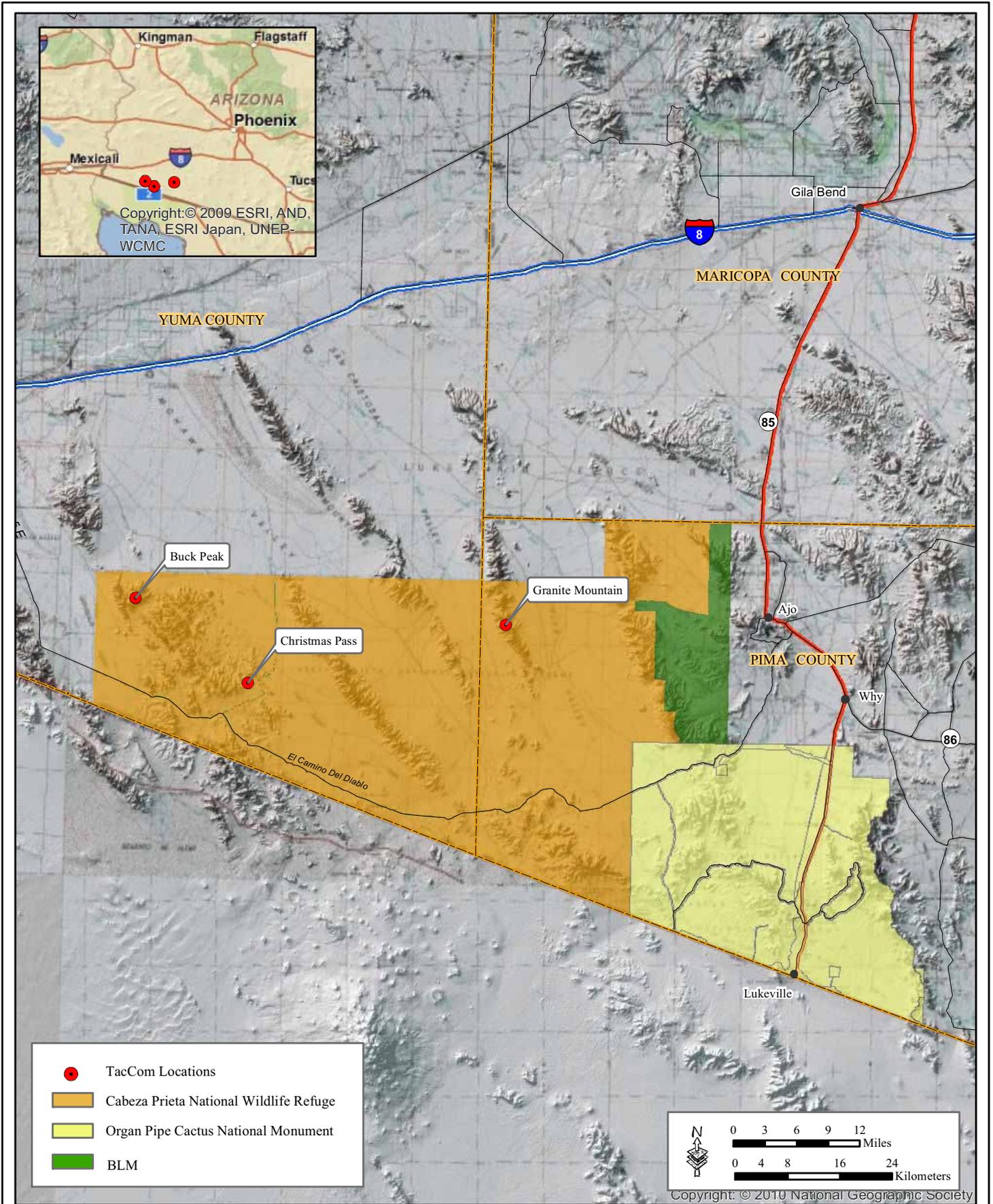


Figure 3-1. Organ Pipe Cactus National Monument and Cabeze Prieta National Wildlife Refuge

### CPNWR and Cabeza Prieta Wilderness

The CPNWR is one of 510 refuges governed by the National Wildlife Refuge System Administration Act of 1966, as amended (P.L. 106-580 [Refuge Act]), and National Wildlife Refuge System Improvement Act (P.L. 105-57). The Refuge Act consolidated the authorities relating to the areas that are administered by the Secretary of the Interior. The Act also provides for the conservation, protection, and propagation of native species of fish and wildlife, including migratory birds that are threatened with extinction and their habitats, for the benefit of present and future generations of residents of the United States. 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 (see Figure 3-1) and was created to preserve the Sonoran Desert Ecosystem. CPNWR and designated wilderness is a shelter for endangered species (e.g., the Sonoran pronghorn and lesser long-nosed bat), and seeks to protect, maintain, and restore Sonoran Desert Ecosystems. Management of the Cabeza Prieta Wilderness is consistent with the regulations and prohibitions of the Wilderness Act.

### **Minimum Requirement Decision Guide (MRDG)**

As specified under Section 4(c) of the Wilderness Act (16 U.S.C. 1131-1136), an MRDG is a process that helps an agency to determine whether an action should be completed in designated wilderness. An MRDG consists of a determination of whether a project or activity is necessary to meet the minimum requirements for the administration of the wilderness and identification of the tool(s) or method(s) that should be used to complete the project that results in the least impact on the physical resource or wilderness values. An MRDG also helps to identify, analyze, and select management actions that are the minimum necessary for wilderness without compromising safety. An MRDG from CPNWR's manager would be required for the installation, operation, repair, and maintenance of the proposed radio repeater equipment at Buck Peak, Granite Mountain, and Christmas Pass, including the use of helicopters in designated wilderness. Installation of the TacCom equipment would establish a man-made structure in designated wilderness. The MRDG process would be completed prior to installation of the TacCom equipment.

### **Existing Conditions**

As previously described in Section 3.2.1, many areas within OPCNM Wilderness and Cabeza Prieta Wilderness have been degraded as a result of illegal vehicle and pedestrian traffic, deposition of trash and human waste, and vandalism, which detract from the wilderness qualities that lead to the designation of these as wilderness. Unauthorized roads have been and continue to be created in designated wilderness as a result of motorized vehicle operations by CBV and law enforcement personnel conducting required CBV interdiction actions. Further, a large portion of OPCNM Wilderness is currently not accessible to the visiting public due to security and safety concerns.

## **3.3.2 Environmental Consequences**

### ***3.3.2.1 Proposed Action***

Three proposed radio repeater equipment installation locations, Buck Peak, Granite Mountain, and Christmas Pass, are located in Cabeza Prieta Wilderness. The vertical profile of the equipment is less than 20 feet above the ground surface. Visual impacts on wilderness character during operation of the equipment would be minor at Buck Peak and Granite Mountain due to

existing equipment at those sites and moderate at Christmas Pass, if installed. However, installation and maintenance would require the use of a helicopter. Using a helicopter (i.e., motorized transport) within a wilderness area would impact wilderness character within the Cabeza Prieta Wilderness.

Installation and maintenance of the TacCom equipment would require helicopter lifts to transport radio repeater equipment, installation materials, and construction personnel to each location and to replace existing equipment from the Buck Peak site. Helicopter lifts would be limited to 60 lifts (30 round trips [16 trips for Buck Peak, seven trips for Granite Mountain, and seven trips for Christmas Pass]) for equipment installation and replacement. An additional four lifts (two round trips) per year per site are anticipated for scheduled maintenance. Installation and maintenance of the radio repeater equipment is consistent with the administrative exception that allows activities that meet minimum requirements for the administration of designated wilderness, and an MRDG was prepared by the CPNWR Refuge Manager (Appendix B). Further, the proposed TacCom equipment is a temporary structure and would not constitute a permanent structure in designated wilderness. Installation and maintenance of the proposed TacCom equipment would have a long-term, moderate adverse effect on the viewshed and natural values within designated wilderness. Impacts are discussed below by identified wilderness characteristics.

#### **“Untrammeled”**

This action would result in the disturbance of approximately 2,700 square feet of Sonoran Desert vegetation at Buck Peak, approximately 2,625 square feet of Sonoran Desert vegetation at Christmas Pass, and approximately 2,530 square feet of Sonoran Desert vegetation at Granite Mountain. All aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed areas in the immediate vicinity of existing equipment at Buck Peak. The proposed communications equipment would not “impede the free play of the natural forces in the landscape.”

#### **“Undeveloped and Natural”**

This action will have a direct effect on approximately 125 square feet of undeveloped and natural wilderness character of the Cabeza Prieta Wilderness at the proposed Christmas Pass site. Both the Buck Peak and Granite Mountain sites are previously disturbed by existing communications equipment. The Proposed Action at Granite Mountain, located approximately 100 feet east-northeast of the existing communications site, will add approximately 30 square feet to developed areas of the Cabeza Prieta Wilderness.

During operation, the “sign of man and his works” would have limited visibility at the three sites, due to the limited vertical profile of the equipment, unless observed from an elevated point or if the sun creates a reflection from the equipment. At both Buck Peak and Granite Mountain, the addition of equipment or replacement of equipment would not have additive impacts on previously undeveloped areas. However, if the Christmas Pass site is installed, the TacCom equipment would be the only man-made structure on-site. The Christmas Pass site is currently undeveloped and provides opportunities to experience solitude, unconfined recreation, and naturalness to visitors and campers from a nearby approved camping area. A line of sight analysis was conducted for the installation at Christmas Pass. The orange shading on Figure 3-2 provides an approximate area on the ground from where an imaginary point, approximately 20

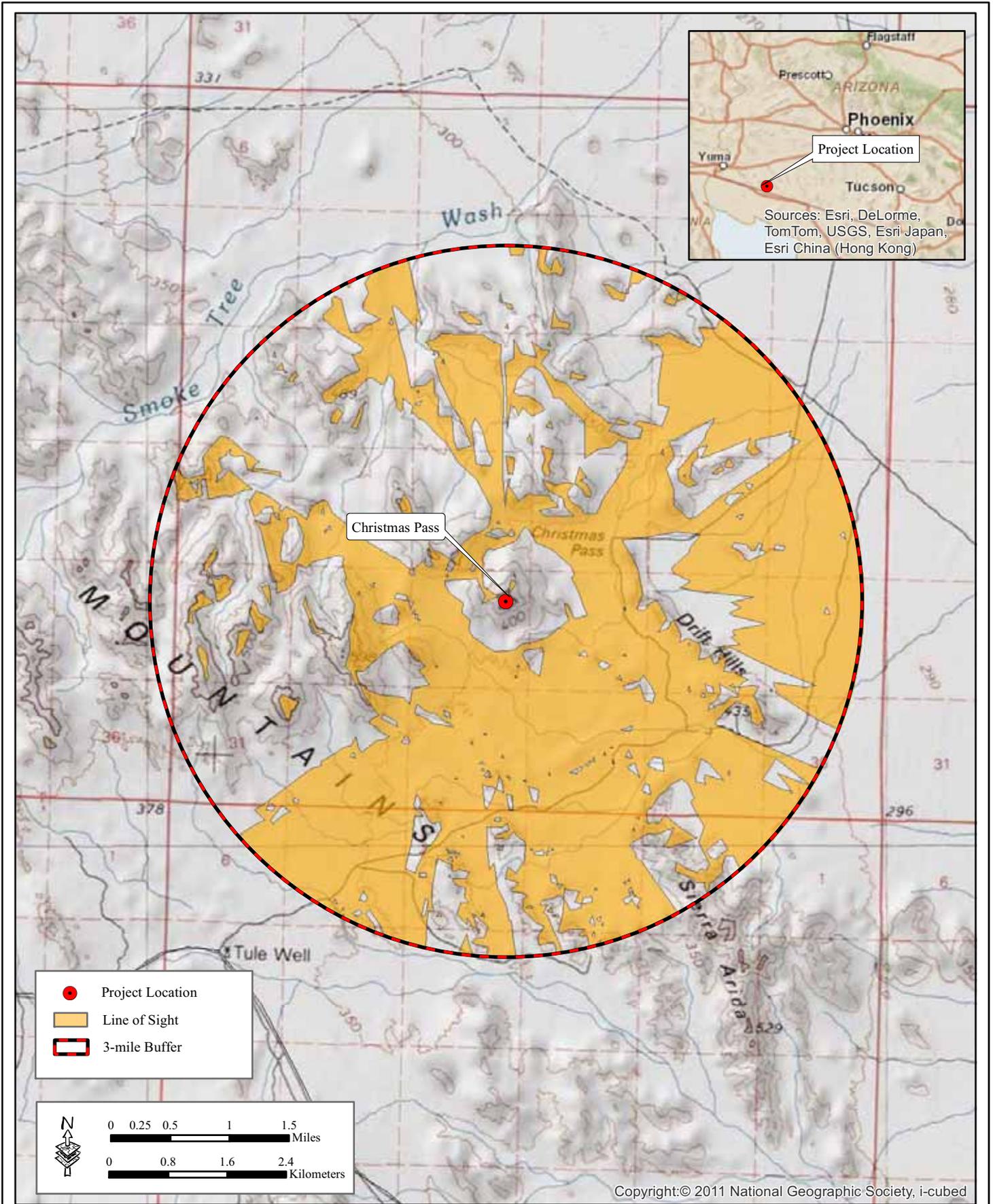


Figure 3-2. Line of Sight Analysis for the Proposed TacCom Christmas Pass Installation

feet above the proposed location of the TacCom Christmas Pass equipment, would be visible for as far away as 3 miles. The TacCom equipment at Christmas Pass would potentially be visible from a maximum of 9,696 acres.

During installation, repair, and maintenance, noise emissions associated with the use of a helicopter could indirectly affect the quality of Cabeza Prieta Wilderness. Helicopter lifts and flights would produce noise emissions that would adversely affect the undeveloped and natural qualities of designated wilderness.

Thus, installation, operation, repair, and maintenance of the proposed radio repeater equipment at Christmas Pass would have a long-term, moderate adverse effect on the undeveloped and natural values of the Cabeza Prieta Wilderness. The installation, operation, repair, and maintenance of the proposed radio repeater equipment at Buck Peak and Granite Mountain would have long-term, minor adverse effects on the undeveloped and natural values of the Cabeza Prieta Wilderness due to existing equipment at the sites.

**“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”**

The three proposed radio repeater equipment installation locations, Buck Peak, Granite Mountain, and Christmas Pass, are located in Cabeza Prieta Wilderness. The vertical profile of the equipment is less than 20 feet above the ground surface. Therefore, visual impacts on wilderness character would be limited to areas near the installation sites or in instances in which sunlight is reflected off of the equipment. Installation and maintenance would require the use of a helicopter. Using a helicopter (i.e., motorized transport) within a wilderness area would impact wilderness character within the Cabeza Prieta Wilderness.

Noise emissions associated with the TacCom equipment installation and maintenance could affect the quality of Cabeza Prieta Wilderness, which is valued for its solitude and quietness. Helicopter lifts and flights would produce noise emissions that would affect the quality of designated wilderness. The Federal Highway Administration has established a construction noise abatement criterion of 57 dBA for lands where serenity and quiet are of extraordinary significance (23 CFR 722, Table 1). A total of 5,122 acres during approach and 3,420 acres during takeoffs would be temporarily affected by noise levels above 57 dBA during TacCom equipment installation and maintenance. Noise emissions during construction and maintenance activities would have a temporary and intermittent effect on the quality of designated wilderness. There would be no noise emissions expected during the operation of the equipment.

**Other unique components that reflect the character of the wilderness**

There would be direct and indirect effects on threatened and endangered species and their habitats. These impacts are discussed further in Section 3.9 of this EA.

**Safety of Visitors, Personnel, and Contractors**

Flying in helicopters is considered a high-risk activity. However, it is safer than relaying water, equipment, supplies, etc., either on foot or by pack animal to the three installation sites over very steep, unstable, and difficult terrain. The craft and pilot will be Office of Aircraft Services certified prior to aircraft use and the personnel will take the required safety courses. All

installation crew members will be briefed regarding ground procedures when working in proximity to helicopters.

### **3.3.2.2 *No Action Alternative***

Under the No Action Alternative, there would be no direct effect on designated wilderness because the TacCom equipment would not be installed; however, maintenance on the existing equipment at Buck Peak would continue, requiring the use of a helicopter. Using a helicopter (i.e., motorized transport) within a wilderness area would impact wilderness character within the Cabeza Prieta Wilderness. Approximately four lifts (two round trips) per year are anticipated for scheduled maintenance. Maintenance of the radio repeater equipment is consistent with the administrative exception that allows activities that meet minimum requirements for the administration of designated wilderness, and an MRDG would be prepared by the CPNWR manager.

CBV traffic and consequent law enforcement actions would continue to directly and indirectly impact and disturb designated wilderness. Unauthorized roads and trails, deposition of trash and human waste, and vandalism would continue to detract from the wilderness qualities of designated wilderness in the project area. Furthermore, current status of radio communications would not improve. Federal law enforcement agents would remain beyond the reach of communications while on patrol, which limits the safety and security of staff and visitors to the public lands. The No Action Alternative would have a long-term, moderate adverse effect on designated wilderness.

## **3.4 SOILS**

### **3.4.1 Affected Environment**

There is one general soil association, Quilotosa-Vaiva-Rock Outcrop, which underlies the three proposed TacCom locations on the CPNWR. Soil associations are best described by identifying the characteristics of each soil type identified in the association name (i.e., Quilotosa, Vaiva, Rock Outcrop). The soil characteristics within the area mapped as having the Quilotosa-Vaiva-Rock Outcrop association may have any of the characteristics identified for any of the soil types listed in the association name. Quilotosa soils consist of very shallow, somewhat excessively drained soils, on hills and mountains. They are extremely gravelly, coarse sandy loams with 80 percent of the surface covered with gravel, cobble, stones, and boulders (U.S. Department of Agriculture [USDA] NRCS 2011). Quilotosa soils have a moderate to severe erosion hazard by water and a very slight erosion hazard by wind (NRCS 1999). Vaiva soils consist of very shallow, well-drained soils on hills and mountains. They are very gravelly loams with a composition of 35 to 80 percent gravel, cobble, and stones (NRCS 2011). Vaiva soils have a moderate to severe erosion hazard by water and a very slight erosion hazard by wind (NRCS 1999). Rock outcrops consist of barren rock that occurs beyond the coverage of topsoil as ledges, boulders, and cliffs (NRCS 1999). To prevent soil loss (especially those with high erosion hazards), BMPs would be implemented, as described in Section 5.0 of this document, during construction activities to avoid significant soil loss.

Soils in the project area have been and continue to be adversely affected by illegal off-road activities and consequent law enforcement actions. Roads and trails created by CBVs destroy

vegetation and disturb soils. Use of these trails and roads promotes erosion and sedimentation in downstream areas. In 2004 to 2005, OPCNM staff documented 364 miles of off-road vehicle routes and tracks created by CBVs and consequent law enforcement activities (OPCNM 2005). Additionally, new road and trails continue to be created by CBVs attempting to avoid detection and apprehension by law enforcement agents.

An example of a CBV-created road on the OPCNM is shown in Photograph 3-2. In addition, authorized roads have become degraded in sections and are a source of accelerated soil erosion and downstream sedimentation. Vehicle traffic readily compacts these soils, resulting in the vehicle routes or tracks becoming lower than the surrounding environment. Some are now deeply entrenched or are redirecting water flows away from natural channels. Erosion problems are present nearly everywhere along roads on the CPNWR and OPCNM (Rutman 1996).



**Photograph 3-2. Road created by cross-border violators on OPCNM (Courtesy of OPCNM)**

### **3.4.2 Environmental Consequences**

#### **3.4.2.1 Proposed Action**

##### **Soils**

The Proposed Action involves little disturbance to soils during installation of equipment. Helicopter rotor wash would potentially cause the highest level of impacts on soils at each location. However, all soil types have very slight wind erosion hazards due to the high percentage of rock, cobble, and gravel contents. The installation of the TacCom equipment requires no excavation; however, some of the rocks, cobble, and gravel at each site would be used to cover portions of the grounding cables. The Proposed Action would impact approximately 7,855 square feet (0.18 acre) of Quilotosa-Vaiva-Rock outcrop association soils. The disturbance to 7,855 square feet of soils would be negligible when examined on a regional scale. BMPs to reduce soil erosion would be employed during installation activities as outlined in Section 5.0. Overall, installation, operation, repair, and maintenance of the proposed TacCom equipment would have a long-term, minor adverse effect on soils.

The TacCom LMR Modernization Project would result in indirect beneficial effects on soils as a result of reducing CBV traffic and focusing law enforcement activities in the project area. Beneficial effects would be noticeable throughout the landscape and not localized near the proposed radio repeater locations. The proposed project would enhance CBP's communications capabilities and potentially increase the efficiency of interdiction actions. Communications technology combined with surveillance systems, infrastructure, and the tactics employed by agents and officers leads to increased capabilities to effect an arrest and are dependent upon the flow of traffic in any particular area. Any advancement in efficiency in any of these areas, including communications, can only increase CBP effectiveness and provide for increased certainty of arrest. The improved communications for CBP agents would improve apprehension capabilities, resulting in an eventual reduction in illegal off-road traffic and consequent law

enforcement actions. Additionally, the creation of new roads and trails by CBVs would be reduced, and existing roads and trails would be able to naturally rehabilitate.

The flow of illicit activity fluctuates depending on transnational criminal organizations activity and is expected to lessen over time as CBP's effectiveness increases. CBP cannot predict apprehension locations and numbers as there are too many variables to consider and associating any one thing CBP does to a law enforcement outcome (i.e., arrests) would be misrepresentative of the systems perspective CBP is utilizing.

#### **3.4.2.2 No Action Alternative**

Under the No Action Alternative, there would be no installation of radio repeater equipment. Direct impacts on soils associated with the creation and use of unauthorized roads and trails by CBVs would continue without the improved communications capabilities provided by the TacCom LMR Modernization Project. Disturbed soils and entrenched roads and trails associated with CBV off-road activities and required CBV interdiction actions increase wind and soil erosion. Eroded soils resulting from CBV-created roads and trails result in a long-term erosion impact on soils. Additionally, degraded authorized roads are susceptible to erosion and soil loss due to unstable road surfaces.

### **3.5 HYDROLOGY AND GROUNDWATER**

#### **3.5.1 Affected Environment**

The proposed TacCom equipment installation locations are within two Arizona Department of Water Resources (ADWR) groundwater basins: Lower Gila Basin and Western Mexican Basin. The annual groundwater recharge and annual municipal, industrial, and agricultural use in each of the basins in the project area are presented in Table 3-2.

**Table 3-2. Groundwater Basins' Municipal, Industrial, and Agriculture Use and Recharge Rate**

<b>Groundwater Basin</b>	<b>Recharge Rate (acre-feet per year)</b>	<b>Municipal, Industrial &amp; Agriculture Water Use (acre-feet per year)</b>
Western Mexican	1,000	<300 <sup>1</sup>
Lower Gila	9,000 – 88,000	251,600

Source: ADWR 2009 and Brown 1991

<sup>1</sup>Groundwater use estimate is for consumers north of the United States/Mexico border. The groundwater basin extends into Mexico.

The Lower Gila Basin (the largest basin in the Lower Colorado River planning area) is 7,309 square miles in area. The basin is characterized by plains and valleys surrounded by low-elevation mountain ranges. Vegetation types include Lower Colorado River and Arizona Upland subdivisions of Sonoran Desertscrub (ADWR 2009). The average annual rainfall ranges from 3.8 to 7.7 inches across the Lower Gila Basin where the greatest annual rainfall occurs near the town of Ajo (7.74 inches).

The Western Mexican Basin lies along the international boundary with Mexico and occupies approximately 610 square miles on the United States' side of the border. The basin is characterized by desert valleys and low-elevation mountain ranges. The average annual rainfall ranges from 4 inches per year in the western portion of the basin to 14 inches per year in the far eastern portion of the basin. Vegetation types include Lower Colorado River Valley and Arizona Uplands Sonoran Desertscrub (ADWR 2009).

On the United States' side of the Western Mexican Basin, the land use is almost exclusively Federal lands with no irrigated croplands and, therefore, the recharge rate to the aquifer is greater than the rate of withdraw. On the Mexico side of the border, the basin area (called the Sonoyta Valley aquifer) is 5,000 square miles. Land use on the Mexican side of the basin is primarily agriculture. Agricultural irrigation draws a significant portion of its water needs from the Sonoyta Valley aquifer, and the balance of water stored in the Western Mexican Basin experiences an annual deficit; the amount of groundwater stored in the basin is steadily declining (Brown 1991).

### **3.5.2 Environmental Consequences**

#### **3.5.2.1 Proposed Action**

No direct impacts on groundwater resources are expected, as no water would be used in the installation, operation, or maintenance of the TacCom equipment. As previously discussed, the TacCom LMR Modernization Project would improve communications and potentially enhance interdiction efficiency. This would allow CBP agents to plan and focus interdiction activities in non-sensitive resource areas (i.e., along roads) and ultimately reduce the enforcement footprint and move it closer to the international border. Roads and foot paths used by CBVs compact soils and alter local groundwater recharge. Additionally, the improved enforcement efficiency would potentially provide increased deterrence to illegal traffic, reducing the volume of illegal traffic on OPCNM and CPNWR in the future.

#### **3.5.2.2 No Action Alternative**

The No Action Alternative would not require the use of water. Hydrology in the region would continue to be affected under the No Action Alternative. Illegal vehicle and foot traffic and consequent law enforcement actions have created unauthorized vehicle routes and unauthorized trails. Under the No Action Alternative, these unauthorized vehicle routes and unauthorized trails would continue to be used by CBVs, and new routes and trails would likely be created by CBVs while attempting to avoid detection by law enforcement agents. These unauthorized vehicle routes and trails have the potential to alter the natural hydrology in the region as a result of altering runoff patterns and capturing or impounding sheet or drainage flows. Additionally, increased vehicle travel along authorized roads has increased as a result of CBV activities and required CBV interdiction actions. This increased volume of traffic has necessitated increased maintenance along authorized roads. The increase in road maintenance (e.g., grading) has caused some roads to become incised. These incised roads often act as channels and capture surface flows, thus permanently altering hydrology and potentially vegetation within areas adjacent to the road. Channelization of surface water within the incised roadbed results in accelerated erosion and soil loss. The No Action Alternative would have no direct impact on groundwater availability or quality; however, it would have a permanent, minor effect on hydrology in the project area.

## **3.6 SURFACE WATERS AND WATERS OF THE UNITED STATES**

### **3.6.1 Affected Environment**

The proposed radio repeater locations are located in one ADEQ watersheds, the Colorado River/Lower Gila River watershed. The proposed TacCom locations of Buck Peak and Christmas Pass are within the Lower Gila River Subbasin, and the Granite Mountain location is within the San Cristobal Wash Subbasin. 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 2009).

#### **3.6.1.1 Surface Waters**

Currently, the water quality in OPCNM and CPNWR is adversely affected by illegal off-road vehicle and foot traffic and consequent law enforcement interdiction efforts, unauthorized vehicle routes, and authorized roads. Unauthorized vehicle routes and authorized roads are potential sources of sediment. From 2004 through 2005, OPCNM staff documented 364 miles of off-road vehicle routes and tracks created by CBVs and consequent law enforcement actions on OPCNM (OPCNM 2005). These roads are used by smugglers and other CBVs attempting to travel north to paved roadways and elude detection and apprehension by law enforcement personnel (e.g., USBP agents and OPCNM rangers). The roads are often eroded and become incised over time. Once these roads are incised, they capture sheet flow and often act as drainages carrying sediments to surface water drainages downstream. Additionally, some of the authorized roads on OPCNM and CPNWR are incised and deteriorated from increased traffic volumes and maintenance activities and serve as a source of sediment. The sediment resulting from these unauthorized vehicle routes, trails, and authorized roads can have a potential adverse effect on water quality downstream.

#### **3.6.1.2 Waters of the United States and Wetlands**

Section 404 of the CWA of 1977 (P.L. 95-217) authorizes the Secretary of the Army, acting through the USACE, to issue permits for the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States (Section 328.3[2] of the CWA) are those waters used in interstate or foreign commerce, subject to ebb and flow of tide, and all interstate waters including interstate wetlands. Waters of the United States are further defined and may include waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or impoundments of waters, tributaries of waters, and territorial seas. Jurisdictional boundaries for waters of the United States are defined in the field as the ordinary high water marks, which is that line on the shore established by the fluctuations of water and indicated by physical characteristics, such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987). Although no wetlands exist within the project area, any unvegetated waters of the United States within the project area would be subject to regulations under Section 404 of the CWA.

In March 2011, Gulf South Research Corporation (GSRC) conducted surveys of the proposed TacCom equipment locations. No waters of the United States or wetlands were observed at any of the locations proposed for TacCom equipment installations.

### **3.6.2 Environmental Consequences**

#### **3.6.2.1 Proposed Action**

The proposed TacCom equipment would be installed on mountaintops with very little soil disturbance. Surface waters may experience temporary indirect impacts from stormwater runoff during and shortly after rain events. Temporary effects may include a temporary increase in erosion and sedimentation from rotor wash during helicopter landings. These effects would be minimized through the use of BMPs included as part of the EA. A General Stormwater Permit would not be required due to the limited area of disturbance (i.e., less than 1 acre). BMPs outlined in Section 5.0 would reduce potential migration of soils, oil and grease, and construction debris into local watersheds.

Once the equipment installation is completed, the disturbed areas would be allowed to revegetate naturally to mitigate the potential for non-point source pollution entering local surface waters. However, the success and time frame of revegetation of temporarily disturbed sites would vary depending on soil type and climatic conditions. Additionally, the recovery of biological crusts would be required to stabilize soils. Research has shown that the visual recovery of biological crusts can be complete in 1 to 5 years, given average climatic conditions; however, recovery of crust thickness can take up to 50 years. Limiting the size of the disturbed area also increased the rate of recovery, provided that there is a nearby source of inoculum (U.S. Geological Survey [USGS] 2006). Depending on climatic conditions, temporarily disturbed areas adjacent to proposed TacCom locations would be expected to exhibit signs of recovery within 5 years. The installation of TacCom equipment at the proposed locations would have a short-term, minor adverse effect on sedimentation and surface water quality in the region.

The proposed TacCom LMR Modernization Project would have indirect beneficial impacts on water quality within the project area. The enhanced communications capabilities and increased interdiction efficiency would allow CBP agents to focus interdiction efforts, thus reducing off-road travel required for interdiction actions. Additionally, the increased interdiction efficiency would act as a deterrent to CBVs through the certainty of detection and apprehension, reducing illegal traffic entering OPCNM and CPNWR and thus reducing the enforcement footprint. Decreases in illegal traffic and the consequent law enforcement footprint would decrease or minimize off-road travel, thus decreasing soil disturbance and consequent erosion and sedimentation.

#### **3.6.2.2 No Action Alternative**

Under the No Action Alternative, waters of the United States would not be directly impacted by the TacCom LMR Modernization Project because no construction would occur. However, indirect impacts on waters of the United States would continue to occur. Unauthorized roads and trails would continue to be created and used by CBVs and subsequently by law enforcement personnel in their required interdiction efforts. Erosion and sedimentation associated with authorized roads would also continue due to normal use and maintenance schedules. Sediment from authorized roads affects surface waters. Exposed soils on unauthorized roads and trails are

susceptible to water erosion, which has the potential to increase the transport of sediment into drainages and washes and degrades the water quality of these waterbodies. The No Action Alternative would have a long-term, moderate adverse effect on the water quality of surface waters as a result of accelerated erosion associated with unauthorized roads and trails.

### 3.7 VEGETATIVE HABITAT

#### 3.7.1 Affected Environment

Biological surveys of proposed TacCom locations were conducted by GSRC in March 2011. Upon arriving at the site, the GSRC biologist determined the boundaries of the survey area, made general observations, and conducted meandering pedestrian surveys. Flora and fauna observed on the site were noted and identified. Binoculars were used to observe any birds or nests within the proposed project area and surrounding landscape. The area surveyed varied from site to site, and descriptions of each survey are provided below.

##### 3.7.1.1 Buck Peak

On March 20, 2011, GSRC completed a biological resources survey at Buck Peak. The survey area was approximately 30 feet by 20 feet and was limited to the land that is flat enough to house equipment. The area contains several small antennas and a solar cooling unit.

Buck Peak is within the lower Colorado subdivision of the Sonoran Desert biotic community (Brown 1994). The survey area is sparsely vegetated with desert agave (*Agave deserti*), teddy bear cholla (*Cylindropuntia bigelovii*), brittlebush (*Encelia farinosa*), joint fir (*Ephedra nevadensis*), triangle-leaf bursage (*Ambrosia deltoidea*), white bursage (*A. dumosa*), creosotebush (*Larrea tridentate*), and ocotillo (*Fouquieria splendens*) (Photographs 3-3 and 3-4).



Photograph 3-3. Creosotebush present within the survey area at Buck Peak



Photograph 3-4. Vegetation present within the survey area at Buck Peak

##### 3.7.1.2 Christmas Pass

On March 20, 2011, GSRC completed a biological resources survey at Christmas Pass. The survey area was approximately 100 feet by 100 feet at the crest of a rocky slope. Christmas Pass is within the lower Colorado subdivision of the Sonoran Desert biotic community (Brown and Lowe 1994). The survey area is sparsely vegetated. Plant species noted in and around survey area include brittlebush, creosotebush, ocotillo, limberbush (*Jatropha cuneata*), little-leaf

paloverde (*Parkinsonia microphylla*), teddy bear cholla, cane cholla (*Cylindropuntia spinosior*), and Graham's nipple cactus (*Mammillaria grahamii*) (Photograph 3-5).

### 3.7.1.3 Granite Mountain

On March 20, 2011, GSRC completed a biological resources survey at Granite Mountain. The survey area is approximately 100 feet by 20 feet and encompassed the existing equipment and previously disturbed area at the site.

Granite Mountain is within the lower Colorado subdivision of the Sonoran Desert biotic community (Brown and Lowe 1994). The survey area contains preexisting infrastructure and is sparsely vegetated. Vegetation noted within the survey area included white bursage, brittlebush, desert trumpet (*Eriogonum inflatum*), white ratany (*Krameria grayi*), joint fir, limber bush, ocotillo, and barrel cactus (*Ferocactus cylindraceus*) (Photograph 3-6). Desert agave and elephant tree (*Bursera microphylla*) were noted in the vicinity, but not in the survey area.

## 3.7.2 Environmental Consequences

### 3.7.2.1 Proposed Action

The Proposed Action would permanently degrade approximately 200 square feet of Sonoran Desert vegetation at Buck Peak, approximately 125 square feet of Sonoran Desert vegetation at Christmas Pass, and approximately 30 square feet of Sonoran Desert vegetation at Granite Mountain. An additional 7,500 square feet of land would also be temporarily impacted by installation, emergency repair, and biannual maintenance activities. The Sonoran Desert vegetation community is extremely common in the vicinity of the proposed TacCom locations, and the direct effect of degradation of vegetation would have a long-term, negligible adverse effect on the total amount of similar Sonoran Desert vegetation communities in the region. All aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed area in the immediate vicinity of existing equipment at Buck Peak and Granite Mountain. Efforts to minimize the direct loss of vegetation communities are outlined in Section 5.0.

Soil disturbance and the extension of human activity into previously undisturbed areas could result in indirect effects, which could occur over a much larger area. Soil disturbance favors the establishment of non-native, invasive species where the disturbance occurs. These species can



Photograph 3-5. Vegetation present within the survey area at Christmas Pass



Photograph 3-6. Vegetation present within the survey area at Granite Mountain

compete with native vegetation and result in the displacement of individuals. Over time the replacement of native species with non-native species can result in changes to the environment (e.g., reduced resource availability, increased fuel for wildfire, loss of niche space), which can ultimately result in permanent changes in or complete loss of a vegetation community. Efforts to reduce the establishment and spread of non-native, invasive species are outlined in Section 5.0.

The Proposed Action would result in indirect and long-term beneficial impacts on vegetation by reducing the adverse impacts of CBV activity and resulting law enforcement activities on vegetation communities in the project area. Beneficial effects would be noticeable throughout CPNWR and OPCNM. The proposed project would enhance CBP's communications capabilities and increase the efficiency of interdiction actions. Enhancement of communications capabilities and interdiction efficiency would increase deterrence of CBVs and thus reduce the enforcement footprint within Federal lands.

### 3.7.2.2 *No Action Alternative*

Under the No Action Alternative, no direct impacts would occur on vegetation communities. However, long-term direct and indirect impacts on vegetation communities would continue and likely increase as a result of CBV activities that damage vegetation and promote the dispersal and establishment of non-native invasive species. The presence of CBVs and the damage they cause could result in long-term, moderate impacts on vegetation as a result of disturbance and habitat degradation.

## 3.8 WILDLIFE

### 3.8.1 Affected Environment

Many of the animals found in Sonoran Desert habitats are found throughout the warmer and drier regions of the southwestern United States. Due to a lack of available forage and extreme temperatures, most of the mammals of these habitats are small and most are nocturnal. The common mammals include several species of bats, coyote (*Canis latrans*), black-tailed jack-rabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), Merriam's kangaroo rat (*Dipodomys merriami*), white-throated woodrat (*Neotoma albigula*), and desert pocket mouse (*Chaetodipus penicillatus*). Other mammals, such as the desert kangaroo rat (*Dipodomys deserti*), Bailey's pocket mouse (*Chaetodipus baileyi*), and round-tailed ground squirrel (*Spermophilus tereticaudus*), are more limited in their distribution and, as such, are more characteristic of Sonoran Desert vegetative habitats.

Numerous birds are common throughout the desert regions, including roadrunner (*Geococcyx californianus*), mourning dove (*Zenaida macroura*), lesser nighthawk (*Chordeiles acutipennis*), cactus wren (*Campylorhynchus brunneicapillus*), black-tailed gnatcatcher (*Polioptila melanura*), phainopepla (*Phainopepla nitens*), and black-throated sparrow (*Amphispiza bilineata*). Some birds more characteristic of Sonoran desertscrub include Gambel's quail (*Callipepla gambelii*), gilded flicker (*Colaptes auratus*), and Gila woodpecker (*Melanerpes uropygialis*). Although less abundant, raptors can be common in semidesert grasslands and scavengers can be observed throughout Sonoran Desert habitats.

Reptiles are the most diverse animal group in this vegetative habitat, and many reptiles are also widespread, including the desert tortoise (*Gopherus agassizii*), chuckwalla (*Sauromalus ater*),

desert iguana (*Dipsosaurus dorsalis*), rosy boa (*Charina trivirgata*), and western shovelnose snake (*Chionactis occipitalis*). Reptiles that are common throughout the desert regions but have Sonoran Desert subspecies include the banded gecko (*Coleonyx variegatus*), desert spiny lizard (*Sceloporus magister*), glossy snake (*Arizona elegans*), western ground snake (*Sonora semiannulata*), and western diamondback (*Crotalus atrox*).

No wildlife or signs of wildlife were observed during the biological resources survey at Buck Peak or Granite Mountain. No wildlife was observed during the March 20, 2011, biological resources survey at Christmas Pass, but desert bighorn sheep scat was noted within the survey area.

### **3.8.2 Environmental Consequences**

#### **3.8.2.1 Proposed Action**

The disturbance of approximately 7,855 square feet (0.18 acre, approximately 0.000023 percent of the CPNWR) of Sonoran Desert wildlife habitat at the three sites would have a minimal impact on wildlife. Approximately 355 square feet of habitat would be permanently impacted by the communications equipment. The remaining 7,500 square feet would be temporarily impacted during installation, emergency repair, and biannual maintenance activities.

Furthermore, at Buck Peak and Granite Mountain, all aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed area in the immediate vicinity of existing equipment. Even so, soil disturbance from helicopter rotor wash and foot traffic could result in the direct loss of less mobile individuals such as lizards, snakes, and ground-dwelling species such as mice and rats by collapsing subterranean tunnels and burrows. However, most wildlife would avoid any direct harm by escaping to surrounding habitat. The direct degradation of habitat could also impact burrows and nests, as well as cover, forage, and other important wildlife resources. The disturbance of these resources could result in the displacement of individuals that would then be forced to compete with other wildlife for the remaining resources. Although this resulting competition for resources could result in a reduction of total population size, this reduction would be negligible in relation to total population size and would not result in long-term effects on the sustainability of any wildlife species. At Christmas Pass and Buck Peak, CBP will avoid installation and maintenance flights adjacent to or low over mountain ranges during desert bighorn sheep lambing season (January to April). Additional mitigation measures outlined in Section 5.0 would reduce disturbance and loss of wildlife habitats. The Proposed Action would have a short-term, minor adverse effect on wildlife resources.

There is a possibility that the proposed communications equipment would pose hazards to migratory birds. However, since no fencing, guy wires, or lighting components would be installed at the site, the potential for adverse impacts is greatly reduced. Similar to the effect of habitat degradation and loss on the sustainability of wildlife populations, the extent of the migratory flyway would be minor and would not affect sustainability of migratory bird populations in the region. There would potentially be impacts on active nests from rotor wash during helicopter approach, landing, and takeoff. The rotor wash could dislodge nests and eggs or disturb incubation. Therefore, the Proposed Action would have a long-term, minor adverse effect on migratory birds. Mitigation measures to reduce potential impacts on migratory birds are outlined in Section 5.0.

There are no access roads to the sites; all access is via helicopter or potentially on foot for the Christmas Pass site. Noise associated with helicopter trips, equipment installation, operation, repair, and maintenance would result in short-term impacts on wildlife. Elevated noise levels associated with helicopter trips and short-term installation and maintenance activities would only occur during the duration of these activities. The replacement of existing equipment at Buck Peak and installation of new radio repeater sites at Christmas Pass and Granite Mountain would occur over a 30-day installation period.

Following installation, CBP would operate and perform regular maintenance on the installed equipment twice annually. Maintenance would be accomplished either by helicopter or potentially on foot, depending on season of year (no helicopter access to Granite Mountain would occur between March 15 and July 15 due to the Sonoran pronghorn fawning season) and the weight of the equipment necessary for maintenance. Maintenance activities would include checking the equipment and repairing or in-kind replacement of faulty equipment. The effects of these disturbances on wildlife would include temporary avoidance of work areas and competition for unaffected resources. Due to the limited extent and duration of these activities, the impacts would be minor. Mitigation measures as outlined in Section 5.0 would reduce noise associated with site access.

The Proposed Action could result in indirect and long-term beneficial impacts on wildlife by reducing the adverse impacts of CBV activity and resulting law enforcement activities on wildlife habitats in the project area. Beneficial effects would be noticeable throughout CPNWR lands. The proposed project would enhance CBP's detection capabilities and increase the efficiency of interdiction actions. Enhancement of detection capabilities and interdiction efficiency would increase deterrence of CBVs and thus reduce the enforcement footprint within Cabeza Prieta Wilderness lands. Interdiction efforts are likely to increase when the proposed communications equipment becomes functional. These interdiction efforts would be more focused, and off-road interdiction activities would likely decrease over time. As the certainty of apprehension increases and consequent law enforcement efforts decrease, a reduction in potential impacts on wildlife and their habitats would be expected.

### **3.8.2.2 *No Action Alternative***

Under the No Action Alternative, no installation of new radio repeater equipment would occur; however, biannual maintenance trips to the Buck Peak site would continue. There is no access road to the site; all access is via helicopter. Noise associated with helicopter trips and maintenance would result in short-term impacts on wildlife. Elevated noise levels associated with helicopter trips and short-term maintenance activities would only occur during the duration of these activities.

Off-road CBV activity and required CBV interdiction actions would continue to degrade wildlife habitat. This degradation of vegetation communities has resulted in wildlife habitat degradation through a loss of cover, forage, nesting, and other opportunities, and potentially a loss of suitable habitat over large areas. Off-road vehicle and pedestrian traffic would continue to disturb wildlife species, cause individuals to avoid resources in areas of high illegal traffic volume, and disturb or degrade additional acres of wildlife habitat.

## **3.9 PROTECTED SPECIES AND CRITICAL HABITATS**

### **3.9.1 Affected Environment**

The ESA was enacted to provide a program for the preservation of endangered and threatened species, and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement protective measures for designated species and to use their authorities to further the purposes of the ESA. The Secretary of the Interior and the Secretary of Commerce (marine species) are responsible for the identification of a threatened or endangered species and development of any potential recovery plan.

USFWS is the primary agency responsible for implementing the ESA, and is responsible for birds and other terrestrial and freshwater species. The USFWS responsibilities under the ESA include: (1) the identification of threatened and endangered species, (2) the identification of critical habitats for listed species, (3) implementation of research on, and recovery efforts for, these species, and (4) consultation with other Federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species officially recognized by the USFWS as being in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those that have been formally submitted to Congress for official listing as threatened or endangered. Species may be considered endangered or threatened when any of the five following criteria occur: (1) current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affecting continued existence.

In addition, the USFWS has identified species that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which the USFWS has sufficient information to support proposals to list as endangered or threatened under the ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity. Although not afforded protection by the ESA, candidate species may be protected under other Federal or state laws.

Biological surveys of the proposed TacCom locations were conducted by GSRC during March 2011. These investigations included surveys for all Federally listed and state-listed species potentially occurring at or near the proposed TacCom locations.

### **3.9.2 Federal**

The unique and varied array of habitat types found in southwestern Arizona are home to a diverse assemblage of species, but the area is also one of the last places where some habitats and species can be found. Southwestern Arizona is home to many species listed as threatened or endangered. The Buck Peak and Christmas Pass sites are located in Yuma County. Within Yuma County, 10 species are Federally protected (Table 3-3; Appendix C) (USFWS 2012).

**Table 3-3. Federally Listed Species for Yuma County, Arizona**

<b>Common/Scientific Name</b>	<b>Federal Status</b>	<b>Habitat</b>	<b>Potential to Occur near Buck Peak</b>	<b>Potential to Occur near Christmas Pass</b>
<b>BIRDS</b>				
<b>Bald eagle</b> ( <i>Haliaeetus leucocephalus</i> )	Delisted*	Usually nests in trees or on cliffs near water. Hunts over estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats.	No	No
<b>Brown pelican</b> ( <i>Pelicanus occidentalis</i> )	Delisted*	Inhabits mainly coastal waters and is rarely seen inland or far out at sea. Feeds in shallow estuarine waters, less often up to 40 miles from shore. Makes extensive use of sand spits, offshore sand bars, and islets for nocturnal roosting and daily loafing, especially non-breeding individuals and during the non-nesting season.	No	No
<b>Southwestern willow flycatcher</b> ( <i>Empidonax traillii extimus</i> )	Endangered	Inhabits riparian forests, oak ( <i>Quercus</i> spp.) woodlands, and shrub willow ( <i>Salix</i> spp.) patches along high-elevation streams and meadows, and broad-leaf deciduous forest along desert streams.	No	No
<b>Yellow-billed cuckoo</b> ( <i>Coccyzus americanus</i> )	Candidate	Inhabits woodlands with dense undergrowth, overgrown orchards and pastures, moist thickets, and willow groves along stream banks.	No	No
<b>Sprague's pipet</b> ( <i>Anthus spragueii</i> )	Candidate	Winters in Arizona in grassland, pastures, and fallow cropland.	No	No
<b>Yuma clapper rail</b> ( <i>Rallus longirostris yumanensis</i> )	Endangered	Inhabits freshwater marshes containing dense stands of cattail ( <i>Typha</i> spp.) and bulrush ( <i>Juncus</i> spp.), and mature stands of emergent vegetation along margins of shallow ponds with stable water levels.	No	No
<b>MAMMALS</b>				
<b>Lesser long-nosed bat</b> ( <i>Leptonycteris curasoae yerbabuena</i> )	Endangered	Roosts in old mines and caves at the base of mountains near alluvial fans in areas vegetated with agave, yucca ( <i>Yucca</i> spp.), saguaro ( <i>Carnegia</i> spp.), and organ pipe cactus.	Yes	Yes
<b>Sonoran pronghorn</b> ( <i>Antilocapra americana sonoriensis</i> )	Endangered	Inhabits open plains of Sonoran Desert scrub in Pima, Yuma, and Maricopa counties.	Yes	Yes
<b>REPTILE</b>				
<b>Sonoran desert tortoise</b> ( <i>Gopherus morafkai</i> )	Candidate	Inhabits rocky bajadas and hillsides and incised washes between or adjacent to flat terrain at elevations ranging from 510 to 5,300 feet.	Yes	Yes

Table 3-3, continued

Common/Scientific Name	Federal Status	Habitat	Potential to Occur near Buck Peak	Potential to Occur near Christmas Pass
<b>FISHES</b>				
<b>Razorback sucker</b> ( <i>Xyraucha texanus</i> )	Endangered; Critical Habitat	Inhabits perennial fresh waters of the lower Colorado River Basin.	No	No
<b>Gila topminnow</b> ( <i>Poeciliopsis occidentalis</i> )	Endangered	Occurs naturally at 14 locations in the Gila River drainage of Arizona.	No	No
<b>Bonytail chub</b> ( <i>Gila elegans</i> )	Endangered; Critical Habitat	Inhabits the lower Colorado River Basin.	No	No

\* Delisted Taxon, Recovered, Being Monitored First 5 Years

Source: USFWS 2012

Not all of these species occur within the vicinity of the proposed TacCom sites. Three endangered species have the potential to occur within or near Buck Peak and Christmas Pass TacCom sites: the Sonoran pronghorn, lesser long-nosed bat, and Sonoran desert tortoise.

### 3.9.2.1 Sonoran Pronghorn

The Sonoran pronghorn (Photograph 3-7) was listed as Federally endangered on March 11, 1967 (32 FR 4001). Sonoran pronghorn require vast areas of open range to meet their annual needs for survival and reproduction (USFWS 2003). This includes the ability to freely travel long distances in response to localized, seasonally intermittent rainfall, which stimulates plant growth and provides forage. The diet of Sonoran pronghorn consists of a variety of plant materials common desert herbs, shrubs, and cacti. Jumping cholla (*Opuntia fulgida*) is thought to provide a large portion of food and water requirements. Visibility is a key factor in determining habitat use by Sonoran pronghorn, which prefer more open sandy areas and low hillsides with a variety of palatable forage. Beginning in December and following the winter rains, forage is abundant in the creosote-bursage communities of the alluvial valleys, and animals are commonly found in the Mohawk Valley in southern Yuma County. From February through May, does are fawning and seek areas of higher cover along wash margins. Following summer storms in July and August, new plant growth is found in the paloverde-mixed cactus vegetation communities on the bajadas of desert mountains in the OPCNM. The breeding season occurs between July and September.



Photograph 3-7. Sonoran Pronghorn  
Courtesy of NPS

Sonoran pronghorn range from the plains of central and western Sonora, Mexico, north to southwestern Arizona (USFWS 2003). In Arizona, Sonoran pronghorn occur on CPNWR, BMGR, the western portion of OPCNM, from Arizona State Route (SR) 85 west to the Cabeza Prieta Mountains and from near the Wellton-Mohawk Canal south to the United States/Mexico

border (Figure 3-3). Based on radio telemetry data and incidental visual sightings, Sonoran pronghorn most commonly occurred in the Valley of the Ajo, the foothills of the Puerto Blanco Mountains, Acuña Valley, the foothills of the Bates Mountains, Growler Valley, and San Cristobal Wash (USFWS 2004). Critical habitat for Sonoran pronghorn has not been designated (USFWS 2003).

Environmental factors such as drought, predation, and available forage, as well as human factors such as illegal hunting, fencing, and human encroachment, have all been identified as possible reasons for the decline of Sonoran pronghorn. While all of these factors may have historically contributed to the decline, drought has apparently caused most of the population fluctuations in recent time (USFWS 2004).

The USFWS established a recovery plan for the Sonoran pronghorn in 1982, and revised the plan in 1998. The final plan calls for down-listing the Sonoran pronghorn to threatened when there are an estimated 300 adults in one self-sustaining population in the United States that remains stable for a minimum of 5 years, or when numbers are determined to be adequate to sustain the population through time, and at least one other self-sustaining population is established in the United States (USFWS 1998).

In 2003, a semi-captive breeding enclosure was established to aid in the recovery efforts of the Sonoran pronghorn population. The enclosure is located in the non-wilderness portion of the CPNWR. The 640-acre pen is designed to keep predators (e.g., coyotes) out and to provide irrigated forage plots and a free water source in a drinking trough (Defenders of Wildlife 2005 and USFWS 2005). To eliminate or reduce disturbances to nursing Sonoran pronghorns and fawns during fawning season, a time when they are especially sensitive, the USFWS closed the eastern three-quarters of the CPNWR to all public access between March 15 and July 15 during 2002 through 2005 (USFWS 2005). The Sonoran pronghorn population on the CPNWR was estimated to be 33 individuals in 2003 (USFWS 2005).

In 2004, the population nearly doubled to 58 individuals (McCasland 2005). This population increase coincided with the record rainfall during the spring. The USFWS estimated the Sonoran pronghorn populations at 75 individuals in 2005 and 70 to 100 individuals in 2006 (Coffeen 2006 and Atkinson 2008). A rangewide assessment of the population estimated 70 individuals in 2008 (McCasland 2009). Currently, there are approximately 100 wild Sonoran pronghorn and 78 individuals in semi-captive breeding pens (USFWS 2011c). Individuals from this population will be released into the wild herd annually (Atkinson 2009).

### 3.9.2.2 *Lesser Long-nosed Bat*

The lesser long-nosed bat (Photograph 3-8) was listed as endangered on September 30, 1988 (53 FR 38456). The lesser long-nosed bat is a nectar, pollen, and fruit foraging species that migrates



Photograph 3-8. Lesser Long-nosed Bat  
Courtesy of USFWS

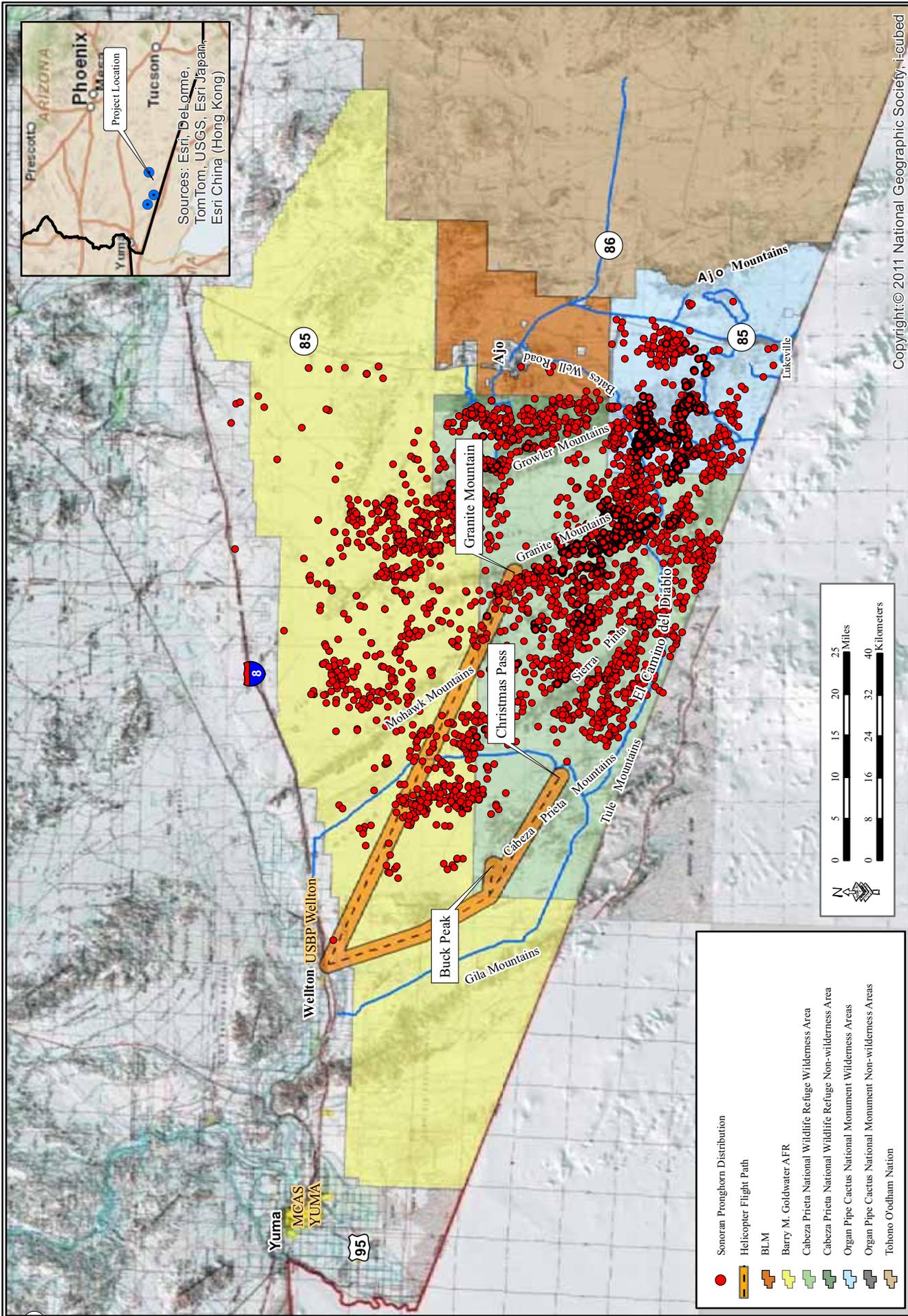


Figure 3-3: Historical Sonoran Pronghorn Location Data (1994 - 2011)

into southern New Mexico and Arizona seasonally from Mexico (AGFD 2003). They begin migrating in early April, apparently coinciding seasonally with the flowering of columnar cacti and desert agave, and return to Mexico sometime in September (USFWS 1995). The lesser long-nosed bat occurs within desert grasslands and scrublands habitat during the summer months. Typical roosting sites include, but are not limited to, caves, abandoned buildings, and mines located at the base of mountains. These locations have also been documented to coincide with bat foraging habitat (AGFD 2003).

The lesser long-nosed bat is a seasonal resident of CPNWR and OPCNM. As early as April and continuing through mid-July, female lesser long-nosed bats, most of which are pregnant, arrive at known maternity roosts in southwest Arizona. These maternity colonies begin to disband by September, and both males and females can be found in transient or maternity roosts from September to as late as early November. The bats eat nectar and fruits of columnar cacti and paniculate agaves and are considered an important dispersal and pollination vector for these species. Lesser long-nosed bats are known to travel up to 36 miles to reach suitable concentrations of forage. There are two known maternity roosts within CPNWR, one maternity roost and four non maternity roosts on the OPCNM (Figure 3-4).

The main threats to this species are the reduction in numbers of maternity colonies and decline in size of remaining colonies due to exclusion and disturbance (AGFD 2003). Large reductions in acreage of native agaves over large areas of northern Mexico due to excessive harvesting for local manufacture of mescal and tequila have resulted in the decline of this species.

The recovery plan for the lesser long-nosed bat was completed in March 1997 to provide protective actions needed for the recovery of the bat. Protection of all known roost sites and food plants within a radius of 36 miles of known roosts will help prevent this species from going extinct. The protection of food resources along migratory pathways may be important to the survival of the species (USFWS 1995). Critical habitat has not been designated for the lesser long-nosed bat.

### 3.9.2.3 *Sonoran Desert Tortoise*

The Sonoran population of the desert tortoise (Photograph 3-9) was listed as a candidate for Federal endangered species protection on December 14, 2010 (75 FR 78094). Desert tortoises that occur east and south of the Colorado River in Arizona are referred to as the Sonoran population. Sonoran desert tortoises are large herbivorous reptiles with a domed shell and round, stumpy hind legs. The carapace is a dull brown or grey color, and the plastron is unhinged, often pale yellow in coloration. Sonoran desert tortoises generally have a flatter carapace than tortoises in the Mohave population (USFWS 2011c). These tortoises are active in the spring and during the monsoon, and are dormant in winter and midsummer months.



Photograph 3-9. Sonoran Desert Tortoise  
Courtesy of USFWS

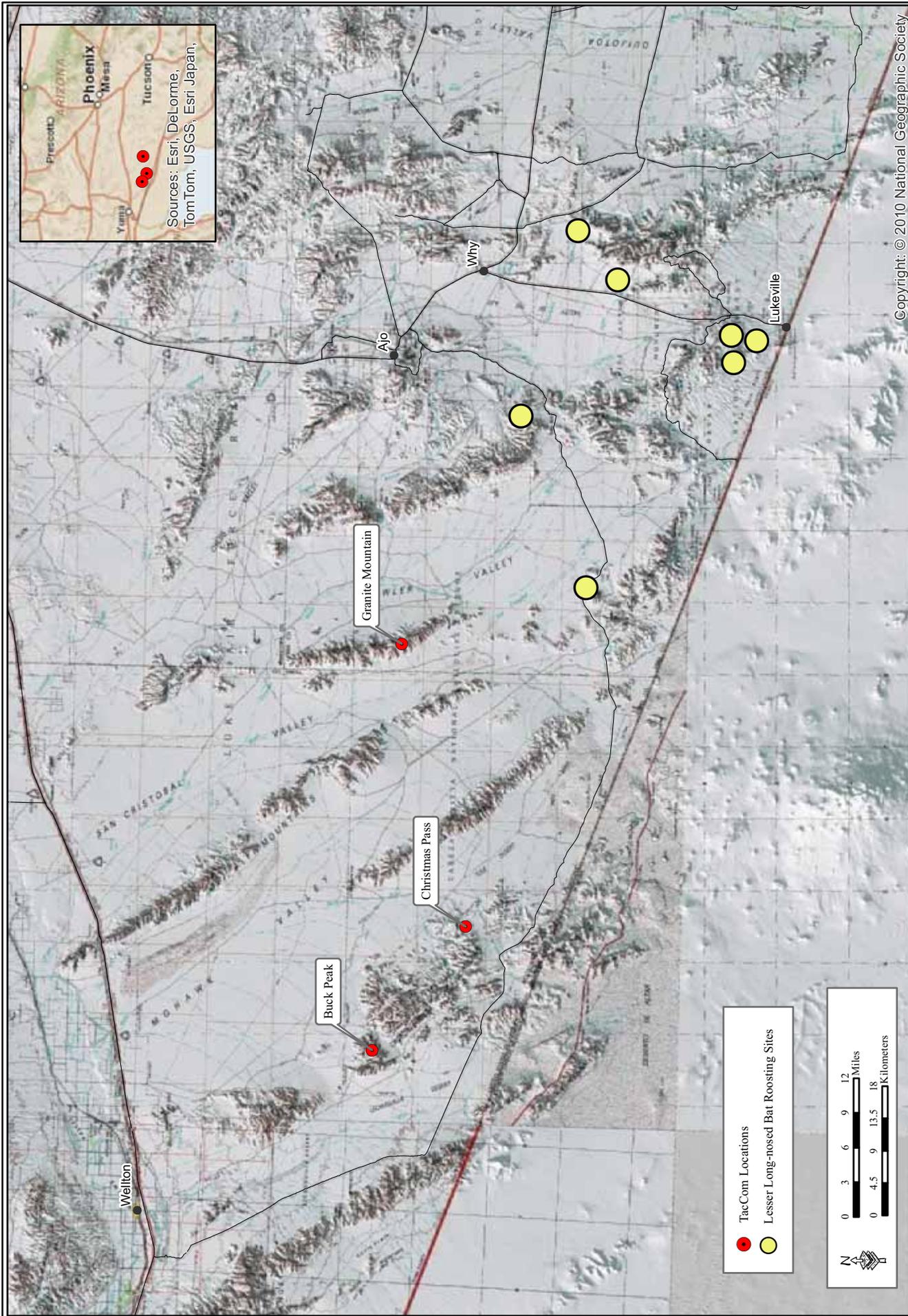


Figure 3-4: Lesser Long-nosed Bat Roosting Sites

Sonoran desert tortoises inhabit primarily rocky, often steep hillsides and bajadas of the Mohave and Sonoran desertscrub communities, but may encroach into desert grassland, juniper woodland, interior chaparral habitats, and pine communities (USFWS 2011c). Individuals are found throughout their historic range, but populations are becoming increasingly fragmented due to threats to their habitat in valley bottoms, which are used for dispersal and exchange of genetic material.

The Granite Mountain TacCom site is located in Pima County. Twenty Federally protected species are listed for Pima County, Arizona (Table 3-4; Appendix C) (USFWS 2011b).

**Table 3-4. Federally Listed Species for Pima County, Arizona**

<b>Common/Scientific Name</b>	<b>Federal Status</b>	<b>Habitat</b>	<b>Potential to Occur near Granite Mountain</b>
<b>BIRDS</b>			
<b>Mexican spotted owl</b> ( <i>Strix occidentalis lucida</i> )	Threatened, Critical Habitat	Inhabits mixed conifer forests dominated by Douglas-fir ( <i>Pseudotsuga</i> sp.), true fir, and pine, or pine with an oak or other broad-leaved understory component, often in steep forested canyons with cliffs, perennial water, and riparian vegetation.	No
<b>Southwestern willow flycatcher</b> ( <i>Empidonax traillii extimus</i> )	Endangered, Critical Habitat	Inhabits riparian forests, oak woodlands, and shrub willow patches along high-elevation streams and meadows, and broad-leaf deciduous forest along desert streams.	No
<b>Yellow-billed cuckoo</b> ( <i>Coccyzus americanus</i> )	Candidate	Inhabits woodlands with dense undergrowth, overgrown orchards and pastures, moist thickets, and willow groves along stream banks.	No
<b>MAMMALS</b>			
<b>Lesser long-nosed bat</b> ( <i>Leptonycteris curasoae yerbabuena</i> )	Endangered	Roosts in old mines and caves at the base of mountains near alluvial fans that are vegetated with agave, yucca, saguaro, and organ pipe cactus.	No
<b>Ocelot</b> ( <i>Leopardus pardalis</i> )	Endangered	Inhabits humid tropical and sub-tropical forests, savannahs, and semi-arid thornscrub.	No
<b>Sonoran pronghorn</b> ( <i>Antilocapra americana sonoriensis</i> )	Endangered	Inhabits open plains of Sonoran desertscrub in Pima, Yuma, and Maricopa counties.	Yes
<b>Jaguar</b> ( <i>Panthera onca</i> )	Endangered	Inhabits Sonoran desertscrub up through subalpine coniferous forests.	No
<b>AMPHIBIANS</b>			
<b>Chiricahua leopard frog</b> ( <i>Rana chiricahuensis</i> )	Threatened	Utilizes permanent waters in ponds, tanks, cienegas, and streams. Where water is not permanent, adult frogs may persist, but reproduction is rarely successful. Habitats with a variety of plants, depths, in-water structure, and other complexities are desired.	No

Table 3-4, continued

<b>Common/Scientific Name</b>	<b>Federal Status</b>	<b>Habitat</b>	<b>Potential to Occur near Granite Mountain</b>
<b>Arizona tree frog</b> ( <i>Hyla wrightorum</i> )	Candidate	Inhabits aquatic habitats including stock tanks, cienegas, and small streams.	No
<b>Sonora tiger salamander</b> ( <i>Ambystoma tigrinum stebbinsi</i> )	Endangered	Found in stock tanks and impounded cienegas in San Rafael Valley, Huachuca Mountains.	No
<b>REPTILES</b>			
<b>Northern Mexican garter snake</b> ( <i>Thamnophis eques megalops</i> )	Candidate	Inhabits cienegas, stock tanks, large river woodlands, and streamside gallery forest.	No
<b>Sonoran Desert tortoise</b> ( <i>Xerobates agassizii</i> )	Candidate	Found in upper bajada and rocky slopes in palo verde– mixed cacti vegetation communities.	Yes
<b>FISHES</b>			
<b>Sonora chub</b> ( <i>Gila ditaenia</i> )	Threatened	Inhabits perennial and intermittent, small to moderate streams with boulders and cliffs.	No
<b>Desert pupfish</b> ( <i>Cyprinodon macularius</i> )	Endangered, Critical Habitat	Inhabits shallow springs, small streams, and marshes.	No
<b>Gila chub</b> ( <i>Gila intermedia</i> )	Endangered, Critical Habitat	Found in pools, springs, cienegas, and streams.	No
<b>Gila topminnow</b> ( <i>Poeciliopsis occidentalis</i> )	Endangered	Inhabits small streams, springs, cienegas, and vegetated shallows.	No
<b>INSECTS</b>			
<b>Stephan's riffle beetle</b> ( <i>Heterelmis stephani</i> )	Candidate	Inhabits free-flowing springs and seeps, within Sylvester Spring in Madera Canyon on the Coronado National Forest.	No
<b>GASTROPODS</b>			
<b>Huachuca springsnail</b> ( <i>Pyrgulopsis thompsoni</i> )	Candidate	Inhabits aquatic areas, small springs with vegetation, and slow to moderate flow at Fort Huachuca.	No
<b>PLANTS</b>			
<b>Canelo Hills ladies'-tresses</b> ( <i>Spiranthes delitescens</i> )	Endangered	Found in finely grained, highly organic, saturated soils of cienegas.	No
<b>Huachuca water-umbel</b> ( <i>Lilaeopsis schaffneriana</i> var. <i>recurva</i> )	Endangered	Utilizes cienegas or marshy wetlands within Sonoran desertscrub, grasslands, or oak woodlands, and conifer forests in shallow water, saturated soil near seeps, springs, and streams.	No
<b>Pima pineapple cactus</b> ( <i>Coryphantha scheeri</i> var. <i>robustispina</i> )	Endangered	Found on ridges and alluvial fans in lower Sonoran desertscrub habitats and semi-desert grasslands.	No

Source: USFWS 2011b

One endangered species, the Sonoran pronghorn, and one candidate species, the Sonoran Desert tortoise, have the potential to occur within or near the Granite Mountain site. Both species were described previously in Section 3.9.2.

### **3.9.3 Critical Habitat**

The ESA also 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.

In Yuma County, USFWS has designated 15 reaches of the Colorado River system as critical habitat for the razorback sucker. These reaches total 1,724 miles as measured along the center line of the river to the floodplain, which delineates the lateral boundary of the critical habitat within the subject reaches. None of the proposed TacCom sites are located in designated critical habitat for the razorback sucker (USFWS 2012).

The USFWS has designated critical habitat for the desert pupfish, Gila chub, Mexican spotted owl, and southwestern willow flycatcher in Pima County, but no proposed TacCom sites are located within designated critical habitat for any of these species (USFWS 2011b).

None of the Federally protected species listed in Tables 3-3 and 3-4, which are known or presumed to occur in Yuma and Pima counties, were observed by GSRC during the March 2011 surveys within the proposed TacCom sites’ boundaries.

### **3.9.4 State**

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.

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 byproducts (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.

The State of Arizona lists 43 species as endangered, threatened, or sensitive within Yuma County (AGFD 2010a) (Appendix C). No Arizona WSC were observed within the project footprint at any of the proposed TacCom sites; however, habitat at the proposed TacCom sites was determined to be suitable for several Arizona WSC and plants. Near the Buck Peak and

Christmas Pass TacCom sites, the potential exists for the California leaf-nosed bat (*Macrotus californicus*), the Sonoran Desert tortoise, and the clustered barrel cactus (*Echinocactus polycephalus*) to be present.

Arizona lists over 60 species as endangered, threatened, or sensitive within Pima County (AGFD 2010b; Appendix C). Potential habitat for the Arizona state-protected northern gray hawk (*Asturina nitida*), crested caracara (*Caracara cheriway*), California leaf-nosed bat, brown vinesnake (*Oxybelis aeneus*), Sonoran Desert tortoise, Trelease agave (*Agave shottii* var. *trelease*), and Acuña cactus (*Echinomastus erectocentrus* var. *acumensis*) is present near the Granite Mountain TacCom site.

### **3.9.5 Environmental Consequences**

#### **3.9.5.1 Proposed Action**

Under the Proposed Action, there would be direct and indirect effects on threatened and endangered species and their habitats. Long-term, beneficial effects would occur by lessening impacts of CBV activity on habitats throughout the project area and surrounding areas. CBV activity creates trails, damages vegetation, promotes the dispersal and establishment of invasive species, and can result in catastrophic wild fires. These actions have a long-term, indirect adverse impact on threatened and endangered species by causing harm to individuals and degrading habitats occupied by these species. Species that may be affected and associated TacCom sites are discussed below.

No Federally listed species were observed during site surveys; however, there is suitable habitat for protected species at or near all three sites. The plains surrounding all three sites are suitable habitat for Sonoran pronghorn. Agave, which is a known and important food plant for lesser long-nosed bats, occurs at Buck Peak. Potential suitable habitat for Sonoran desert tortoises is present near all three sites. CBP has completed formal Section 7 consultation with USFWS Ecological Services for this project. The final Biological Opinion is provided in Appendix A.

Based on the Proposed Action plan, site survey, and database searches, CBP has concluded that the installation, operation, repair, and maintenance of TacCom equipment at Buck Peak, Granite Mountain, and Christmas Pass would potentially affect the Sonoran pronghorn due to increased helicopter traffic through habitat corridors and helicopter travel routes across landscapes known to contain Sonoran pronghorn and Sonoran pronghorn foraging grounds. It is currently estimated that up to 30 helicopter trips would be necessary for installation of the equipment at the three TacCom sites, with an additional two trips annually for necessary maintenance. This air traffic may affect, and is likely to adversely affect, the Sonoran pronghorn. Helicopter access to each mountaintop site would be from the west, with flight paths over less favorable habitat. Sonoran pronghorn would only be affected by the noise emissions of the helicopter flights during installation (a maximum of 30 days) and maintenance (2 days per year). Thus, impacts on Sonoran pronghorn would be short-term and minor.

The potential loss of agave during installation of communications and support equipment would occur at Buck Peak. The impacts on agave would be limited to less than 24 individual agave plants. Loss of agave would be long-term and negligible, and may affect, but would not likely adversely affect, lesser long-nosed bat populations. CBP will not implement construction, non-

emergency repairs, or scheduled maintenance between May 1 and September 30, the normal period of time when lesser long-nosed bats occupy roosts in the Project Area.

CBP has determined that the TacCom LMR Modernization Project may affect, but would not likely adversely affect, Sonoran desert tortoise populations at the Buck Peak, Christmas Pass, and Granite Mountain sites. Noise emissions from helicopter access would be minimal due to the altitude of flight over appropriate habitat. Installation and biannual maintenance could be scheduled during winter while the tortoises are dormant to further avoid or minimize impacts.

Potential suitable habitat for several state-listed bird, mammal, reptile, and plant species is present at the proposed TacCom sites. Prior to the placement of new equipment at the TacCom sites, BMPs and conservation measures, such as salvage and replacement of impacted agave, would be implemented to minimize impacts on lesser long-nosed bats. Measures to minimize the number of helicopter trips and to ensure appropriate helicopter flight routes to the site, as well as coordination of package delivery outside of the fawning season, would also be implemented.

In order to minimize impacts on migratory birds and state-listed bird species, surveys for active nests would be conducted if construction activities occur during the migratory bird nesting season (February 1 to September 15). Any active nests being used by migratory birds would be avoided until all chicks have fledged.

#### ***3.9.5.2 No Action Alternative***

Under the No Action Alternative, no installation of new radio repeater equipment would occur; however, biannual maintenance trips to the Buck Peak site would continue. There is no access road to the site; all access is via helicopter. Noise associated with helicopter trips and maintenance would not impact Sonoran pronghorn or lesser long-nosed bat populations within the flight path or near Buck Peak. Elevated noise levels associated with helicopter trips and short-term maintenance activities would only occur during the duration of these activities. The No Action Alternative would have no effect on the Sonoran pronghorn or lesser long-nosed bat.

The direct and long-term impacts of CBV and consequent law enforcement activities throughout the project area and surrounding areas would continue to disturb threatened or endangered species and their habitats. CBV activities create trails, damage vegetation, promote the dispersal and establishment of invasive species, and can result in catastrophic wild fires. These actions have an indirect adverse impact on threatened and endangered species by causing harm to individuals and degrading habitats occupied by these species. Specifically, CBV activities can result in the loss of forage and cover resources for Sonoran pronghorn and damage roosting sites for lesser long-nosed bats. The presence of CBVs and resulting law enforcement activities can disturb many sensitive species and result in their temporary displacement from vital resources and potentially result in the loss of individuals due to heightened response and exertion of energy. The degree of this impact would be dependent on environmental stressors (i.e., drought, season), the health of the animal, and the duration and frequency of disturbances.

## 3.10 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

### 3.10.1 Affected Environment

The archaeology of southern Arizona is relatively complex considering the various geographic and related cultural features. For purposes of clarity, the following text will present a broad overview of southern Arizona prehistory.

The periods of southern Arizona history are the Preceramic which dates from 10,000 B.C. to A.D. 200, the Ceramic period which dates from A.D. 200 to 1500, the Early Historical which dates from A.D. 1540 to 1848, Late Historical which dates from A.D. 1848-1945, and World War II and Cold War dating from 1945 to 1989 (Ahlstrom 2001). These periods are commonly subdivided into smaller temporal phases based on particular characteristics of the artifact assemblages. The prehistoric periods and corresponding phases are defined by the presence of particular diagnostic artifacts such as projectile points, certain types of pottery, and occasionally, particular site locations. For the Historic period, documentary information more often is used to distinguish certain phases; nevertheless, particular artifacts also can be used to recognize certain historic affiliations. The CPNWR is considered to lie within a cultural area known as the Western Papaguería, which includes the region bounded by the Colorado River to the west, the Gila River to the north, the Tohono O’odham Nation to the east, and Puerto Peñasco, Sonora, Mexico, to the south (Ahlstrom 2001).

The Preceramic period refers to a time when the Papaguería inhabitants relied on wild plants and animals for food and other necessary materials (Ahlstrom 2001). A “western” chronology developed in southern California, southwestern Arizona, and northwestern Sonora includes as primary units the Malpais, followed by the San Dieguito, which is further divided into San Dieguito I, II, and III. Then the Archaic Armagosa, which is further subdivided into Armagosa I, II, and III (Ahlstrom 2001). An “eastern” chronology, which in some instances has also been applied to the archaeological materials from the Papaguería, growing out of research in southeastern Arizona, includes the Paleoindian Clovis followed by the Archaic Cochise complexes and period. The Archaic has further been divided into Early, Middle, and Late (Ahlstrom 2001). The Malpais complex is defined by flaked stone tools of a chopper-scraper industry, worked-shell tools (but not ornamental), and features that include sleeping circles, trails, trail shrines, and intaglios (Ahlstrom 2001).

Following the Malpais complex is the San Dieguito I, which is interpreted as being at least partially contemporaneous with the Clovis Paleoindian complex identified in the eastern chronology. San Dieguito II and III do not occur in southwestern Arizona, at least not away from the Colorado River, and therefore are of little relevance to the prehistory of the Papaguería.

The Archaic people lived much the same way as the San Dieguito people had, but in an essentially modern, post-Pleistocene desert environment. Evidence from Archaic archaeological sites suggests a greater reliance on foraging and the processing of gathered plants. The Archaic period in southwestern Arizona can be discussed with reference to the Amargosa complex and its numbered subdivisions (predominantly in western Arizona), the Cochise culture and its named subdivisions (predominantly in eastern Arizona), as well as the chronological subdivisions of Early, Middle, and Late periods developed by Mr. Bruce Huckell. In some areas east of the

CPNWR, agricultural villages were established during the end of the Late Archaic period, which is sometimes referred to as the Early Agricultural period (Ahlstrom 2001).

The Ceramic period refers to prehistoric peoples who made pottery and farmed, which, at a minimum, implies a certain quality of sedentary lifestyle (Ahlstrom 2001). The Ceramic period in Western Papaguería consists of several different cultural traditions. The Hohokam and Patayan cultural traditions are represented in the Western Papaguería, with the Hohokam culture centered around the Gila-Salt Basin to the east, and the Patayan along the lower Colorado River. The Hohokam cultural tradition, within the Western Papaguería, is subdivided into the Pioneer and Early Colonial complexes (A.D. 200-875); the Late Colonial and Sedentary complexes, Vamori Phase (A.D. 875-1150); and the Classic complex, Sells Phase (A.D. 1150-1500), based on distinctive pottery types within the Hohokam pottery sequence. The Patayan cultural tradition (A.D. 600-1850) is subdivided into Patayan I, II, and III and is also based on distinctive pottery types within the Patayan pottery sequence. A third cultural tradition, known as Trincheras, was centered to the southeast in northern Sonora (Ahlstrom 2001). The Trincheras culture is important in the discussion of Western Papaguería prehistory for two reasons. First, it was the source of the Trincheras Purple-on-Red ceramics that occur with some Papaguerían sites, including several known sites in the southern portion of the CPNWR (Ahlstrom 2001). Second, the culture's agricultural settlements may have played one or more roles in the Western Papaguería's settlement history (Ahlstrom 2001). The Trincheras culture is further subdivided into the Atil phase (A.D. 700-?), the Altar phase (A.D. ?-1300), the El Realito phase (A.D. 1300-1450), the Santa Teresa phase (A.D. 1450-1690), the Oquito Phase (A.D. 1690-1840), and the Tohono O'odham phase (A.D. 1840-early 1900s) based on unique pottery types and archaeological features within the Trincheras sequence (Ahlstrom 2001).

The Early Historical period in the Western Papaguería is known predominantly from ethnographic accounts conducted during the late 19th and early 20th centuries, as well as from historic accounts of early Spanish explorers and missionaries. The Spaniards used the Western Papaguería mostly as a travel corridor following two primary routes, El Camino del Diablo, which runs between Caborca and Yuma, and a north-south route that connected settlements in Mexico with the Gila Bend area. Accounts of the early explorers of the area, such as those from Cabeza de Vaca and Marcos de Niza, spoke of great wealth in America's hinterlands, which sparked expeditions into the area such as those conducted by the conquistador Francisco Vasquez de Coronado (Ahlstrom 2001). The Spanish Missionary Father Eusebio Kino traveled through the area in the late 1600s and early 1700s, noting that the Tohono O'odham and the Hia C-ed O'odham people occupied Western Papaguería. Several early historic ethnographic sources identify several Native American tribes speaking languages of the Yuman family and occupying the valleys of the lower Colorado River and lower to middle Gila River. There was incessant warfare among the Yuman-speaking people of the lower Colorado River during the Early Historical period to the movement of groups to new locations along the Colorado or Gila Rivers (Ahlstrom 2001). The tribes of the Colorado River that had the most stable homelands were the Yumans, or Quechan, who lived at the delta's northern end and the Cocopah, who inhabited its southern end (Ahlstrom 2001). Three other groups occupied the area of the delta between the Quechan and Cocopah, the Halchidoma, the Cohuana, and the Halyikwamai (Ahlstrom 2001). Three Yuman-speaking groups lived on the Gila River in the early historic period, the Quechan,

whose territory extended up the lower Gila River as far as Antelope Hill, the Kaveltcadom, and the Maricopa (Ahlstrom 2001).

The Late Historical period was marked by intensifying contact between Native American groups, including the Tohono O'odham, and Euro-Americans within the Western Papaguería and surrounding areas. Mexico lost the territory north of the Gila River to the United States at the end of the Mexican-American War in 1848, and the United States acquired the area south of the Gila River through the Gadsden Purchase of 1853. This established the current border with Mexico. El Camino del Diablo continued to be used as an important transportation route to California. The construction of railroads in the area further prompted settlement, along with mining and ranching (Ahlstrom 2001). From the late 1800s to early 1900s, ranching and homesteading were pursued in the area, along with copper mining near Ajo (Ahlstrom 2001). Three groups of O'odham were recognized living in the Papaguería during the Late Historical period, the Hia C-ed O'odham, referring to the inhabitants of the Western Papaguería, the Tohono O'odham, referring to the inhabitants of desert settings in Eastern Papaguería, and the Akimel O'odham, which refers to the inhabitants of riverine settings on the border of the Eastern Papaguería. By the Late Historical period, only the Cocopah and Quechan remained in the lower Colorado River, while the Cohuana, Halyikwamai, and Halchidoma had left the lower Colorado River for the middle Gila. The Yavapai and Hopi may also have entered into the Western Papaguería from time to time during the Late Historical period (Ahlstrom 2001).

During the World War II and Cold War period, several land withdrawals were initiated that set the land boundaries for the CPNWR, which at that time was part of the BMGR. Lt. Col. Ennis Whitehead first surveyed the land west of Phoenix for the Luke Field in 1941. During World War II, the eastern range was utilized by pilots from both Luke Field and Williams Field while pilots from the Yuma Air Base utilized the western range. After World War II, the Luke Field was closed and Williams Field personnel managed the eastern range. The Yuma Air Base became Vincent Air Force Base in 1956 and subsequently Marine Corps Air Station Yuma in 1959. The CPNWR was included as part of the BMGR until 1999 (Ahlstrom 2001).

### ***3.10.1.1 Previous Archaeological Investigations***

A records search and literature review was conducted in order to determine whether previous surveys and previously recorded sites were located within a 1-mile buffer zone around each of the project areas under current investigation. This included a search of land patents and General Land Office (GLO) plat maps. A discussion of the findings for each of the project areas is presented below.

Buck Peak is located at the northern end of the Cabeza Prieta Mountains. No land patents were found for this area, and the 1944 GLO map for this location only shows large sections of unsurveyed lands. Only one previously recorded site and no documented previous surveys were discovered for this location. According to AZSITE, Site AZ Y:9:7 (Arizona State Museum [ASM]) is located in a canyon bottom, approximately 1 mile southwest of Buck Peak at the southwest edge of the Buck Mountains. The site consists of a tinaja and three bedrock grinding slicks. No other information could be found about this site.

Christmas Pass is located at the southeast end of the Cabeza Prieta Mountains. No land patents or GLO plat maps were found for this location. No previously recorded sites are located within the 1-mile buffer zone; however, a single previous survey was conducted in this area. Information obtained about this survey from AZSITE places it approximately 610 feet north-northwest and downslope of the current study area. This survey was conducted by SWCA in 2008 for communications towers for CBP. No historic or prehistoric cultural materials were located during the survey (Barr 2008).

The Granite Mountain project area lies at the southern end of the Granite Mountains. No land patents were found for this area, and the 1944 GLO map for this location only shows large sections of unsurveyed lands. A single previous survey was located within the 1-mile buffer zone of the project area. No previously recorded sites were found. AZSITE provided information on the previous survey conducted by Dames and Moore for Luke Air Force Base. The survey covered an area of 1 acre, and no cultural materials were located (Bruder and Darrington 1994).

### ***3.10.1.2 Current Investigations***

Surveys of the project locations were restricted to the inspection of the ground surface. No subsurface testing was performed. Systematic transects spaced at 65-foot intervals were used to examine all flat areas within the project areas, and the surrounding slopes were also examined for cultural materials. If artifacts were located, they were marked with a pin flag, and recorded using a handheld Trimble Global Positioning System unit. If the artifact was determined to be diagnostic or otherwise unusual, it was photographed and described.

Investigations of Buck Peak resulted in the discovery of two isolated occurrences (IOs) within the project area. Both IOs consisted of brass cap survey markers. IO 1 was a U.S. Coast and Geodetic Benchmark for “Buck” and dates to 1920. IO 2 was a U.S. Coast and Geodetic Reference Point depicting a north direction, and not dated. No historic properties, districts, or archaeological sites are located within the survey area.

The Christmas Pass survey area contained no historic properties, districts, or archaeological sites. A single IO consisting of a rock pile and a fallen wooden post with a wooden cross member near the top of the post was discovered. The IO likely dates to the 1980s and is not more than 50 years old. Modern refuse at the site, including sleeping bags, canned food from Mexico, cloth, and a small sleeping shelter, alludes to the location’s use as a CBV campsite.

The Granite Mountain survey area contained no historic properties, districts, or archaeological sites. Two IOs, both 1979 survey markers, were set into the bedrock using concrete. These markers were set by Luke Air Force Base and are identified as Station 7.

## **3.10.2 Environmental Consequences**

### ***3.10.2.1 Proposed Action***

Based on the archaeological survey and the archival research of the Buck Peak project area, there would be no impacts on any properties eligible for listing in the NRHP. The IOs encountered in the project area, however, may be subject to impacts in the form of the destruction or obstruction of these survey markers.

Based on the archaeological survey and archival research of the Christmas Pass project, the Proposed Action would have no impacts on any NRHP-eligible aboveground or subsurface resources. The IO discovered in the project area does not possess any of the qualities necessary to be eligible for the NRHP, due to its recent placement. No impacts are expected at this site from the implementation of the Proposed Action.

The Granite Mountain project area contains no historic properties, districts, traditional cultural properties, or sacred sites. The IOs encountered in the project area, however, may be subject to impacts in the form of the destruction or obstruction of these survey markers. CBP has consulted with numerous Native American tribes (Cocopah Tribe, Colorado River Indian Tribes, Gila River Indian Community, Ft. Mohave Indian Tribe, Hopi Tribe, Pascua Yaqui Tribe, Quechan Tribe-Ft. Yuma, Salt River Maricopa Indian Community, San Carlos Apache Tribe, Tohono O'odham Nation, and Ak-Chin Indian Community) and Arizona SHPO on the Proposed Action and the findings of the archaeological surveys. Tribal and SHPO correspondence, including SHPO's concurrence with CBP's determinations are included in Appendix A of this document.

### ***3.10.2.2 No Action Alternative***

The No Action Alternative would have no effect, either beneficial or adverse, on cultural resources, since construction activities associated with the TacCom LMR Modernization Project would not occur. Beneficial impacts in the form of increased knowledge of the past are realized as a result of surveys conducted in support of this EA. Under the No Action Alternative, both recorded and unrecorded cultural resources would continue to be impacted by illegal traffic through the area and the required interdiction efforts of CBP, such as off-road pursuits.

## **3.11 AIR QUALITY**

### **3.11.1 Affected Environment**

The EPA established NAAQS for specific pollutants determined to be of concern with respect to the health and welfare of the general public. Ambient air quality standards are classified as either "primary" or "secondary." The major pollutants of concern, or criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter less than 10 microns (PM-10), particulate matter less than 2.5 microns (PM-2.5), and lead. NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. The NAAQS are included in Table 3-5.

Areas that do not meet these NAAQS standards are called non-attainment areas; areas that meet both primary and secondary standards are known as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria or requirements for conformity determinations for Federal projects. The Federal Conformity Rule was first promulgated in 1993 by the EPA, following the passage of Amendments to the Clean Air Act in 1990. The rule mandates that a conformity analysis must be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQS.

**Table 3-5. National Ambient Air Quality Standards**

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Times
Carbon Monoxide (CO)	9 ppm (10 mg/m <sup>3</sup> )	8-hour <sup>(1)</sup>	None	
	35 ppm (40 mg/m <sup>3</sup> )	1-hour <sup>(1)</sup>		
Lead	0.15 µg/m <sup>3</sup> <sup>(2)</sup>	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m <sup>3</sup>	Quarterly Average	Same as Primary	
Nitrogen Dioxide (NO <sub>2</sub> )	53 ppb <sup>(3)</sup>	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour <sup>(4)</sup>	None	
Particulate Matter (PM-10)	150 µg/m <sup>3</sup>	24-hour <sup>(5)</sup>	Same as Primary	
Particulate Matter (PM-2.5)	15.0 µg/m <sup>3</sup>	Annual <sup>(6)</sup> (Arithmetic Average)	Same as Primary	
	35 µg/m <sup>3</sup>	24-hour <sup>(7)</sup>	Same as Primary	
Ozone (O <sub>3</sub> )	0.075 ppm (2008 std)	8-hour <sup>(8)</sup>	Same as Primary	
	0.08 ppm (1997 std)	8-hour <sup>(9)</sup>	Same as Primary	
	0.12 ppm	1-hour <sup>(10)</sup>	Same as Primary	
Sulfur Dioxide (SO <sub>2</sub> )	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour <sup>(1)</sup>
	0.14 ppm	24-hour <sup>(1)</sup>		
	75 ppb <sup>(11)</sup>	1-hour	None	

Source: EPA 2010a

Units of measure: parts per million (ppm) by volume, parts per billion (ppb) by volume, milligrams per cubic meter of air (mg/m<sup>3</sup>), and micrograms per cubic meter of air (µg/m<sup>3</sup>).

<sup>(1)</sup> Not to be exceeded more than once per year.

<sup>(2)</sup> Final rule signed October 15, 2008.

<sup>(3)</sup> The official level of the annual NO<sub>2</sub> standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

<sup>(4)</sup> To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).

<sup>(5)</sup> Not to be exceeded more than once per year on average over 3 years.

<sup>(6)</sup> To attain this standard, the 3-year average of the weighted annual mean PM-2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m<sup>3</sup>.

<sup>(7)</sup> 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<sup>3</sup> (effective December 17, 2006).

<sup>(8)</sup> To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average O<sub>3</sub> concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).

<sup>(9)</sup> (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average O<sub>3</sub> concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 O<sub>3</sub> standard to the 2008 O<sub>3</sub> standard.

(c) EPA is in the process of reconsidering these standards (set in March 2008).

<sup>(10)</sup> (a) EPA revoked the 1-hour O<sub>3</sub> standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").

(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.

<sup>(11)</sup> (a) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

A conformity analysis is the process used to determine whether a Federal action meets the requirements of the General Conformity Rule. It requires the responsible Federal agency to evaluate the nature of a Proposed Action and associated air pollutant emissions, and calculate

emissions resulting from the Proposed Action. If the emissions exceed established limits, known as *de minimis* thresholds, the proponent is required to implement appropriate mitigation measures.

Federal and most states agencies segregate airsheds by county boundaries. In other words, the EPA and ADEQ monitors air emission by county. The three radio repeater sites are located in two different counties in Arizona. Table 3-6 presents the TacCom locations and the counties in which they are located and whether the counties are in attainment for NAAQS.

**Table 3-6. CBP Proposed TacCom Sites and County Attainment Status**

Name of TacCom Site	County	Attainment Status in County
Buck Peak	Yuma	Non-attainment for PM-10, Moderate
Granite Mountain	Pima	Non-attainment for PM-10, Moderate
Christmas Pass	Yuma	Non-attainment for PM-10, Moderate

Source: EPA 2010b

### 3.11.2 Environmental Consequences

#### 3.11.2.1 Proposed Action

The construction of the radio repeater units would not involve the use of large construction equipment such as bulldozers, cranes, and backhoes. Hand tools would be used to construct the radio repeaters; however, a helicopter would be required to transport construction workers and tools to the construction site. The following paragraphs describe the air calculation methodologies utilized to estimate air emissions produced by 30 helicopter trips for equipment installation.

Air emissions from helicopter flights were calculated using the FAA Emission and Dispersion Modeling System 5.1 air quality model, for the projected number of flights. It was assumed that a mid-size helicopter would be used to transport the construction workers and tools. The total air quality emissions were calculated and compared to the General Conformity Rule. Summaries of the total emissions for 30 helicopter flights required for installation of the TacCom equipment are presented in Table 3-7. Details of the analyses are presented in Appendix D.

**Table 3-7. Total Air Emissions (tons/year)<sup>1</sup> from Helicopter Flights for Installation of the TacCom Equipment versus the *de minimis* Threshold Levels**

Pollutant	Total	<i>de minimis</i> Thresholds
CO	2.387	100
Volatile Organic Compounds (VOC)	0.315	100
Nitrous Oxides (NOx)	0.221	100
PM-10	0.007	100
PM-2.5	0.007	100
SO <sub>2</sub>	0.026	100

Source: 40 CFR 51.853 and GSRC model projections

<sup>1</sup> Note that Yuma and Pima counties are in non-attainment for all PM-10 (EPA 2010b).

### Operations and Maintenance Air Emissions

Operations and maintenance air emissions refer to air emissions after the radio repeater units have been installed. The radio repeaters would be powered by solar panels; however, it was assumed that the radio repeaters would require two maintenance trips per year using helicopters to transport personnel to the sites. Therefore, air emission calculations were performed for six helicopter trips annually. Summaries of the total emissions for operational helicopter flights are presented in Table 3-8. Details of the analyses are presented in Appendix D.

**Table 3-8. Total Air Emissions (tons/year)<sup>1</sup> from Helicopter Flights for Maintenance of the TacCom Equipment versus the *de minimis* Threshold Levels**

Pollutant	Total	<i>de minimis</i> Thresholds
CO	0.298	100
VOC	0.039	100
NO <sub>x</sub>	0.028	100
PM-10	0.001	100
PM-2.5	0.001	100
SO <sub>2</sub>	0.028	100

Source: 40 CFR 51.853 and GSRC model projections

<sup>1</sup> Note that Yuma and Pima counties are in non-attainment for all PM-10 (EPA 2010b).

As can be seen from the tables above, the proposed installation, operation, repair, and maintenance of the TacCom equipment does not exceed Federal *de minimis* thresholds and, thus, would not require a Conformity Determination. As there are no violations of air quality standards and no conflicts with the state implementation plans, the impacts on air quality from the implementation of the Proposed Action would be minor. During the installation of the proposed TacCom equipment, proper and routine maintenance of all helicopters and equipment would be implemented to ensure that emissions are within the design standards.

#### 3.11.2.2 No Action Alternative

The No Action Alternative would not result in any direct impacts on air quality because there would be no construction activities. However, fugitive dust emissions created by illegal off-road vehicle traffic and resulting law enforcement actions, as well as vehicle traffic on authorized roads, would continue and likely increase. These fugitive dust emissions would continue to adversely affect the air quality of the region.

### 3.12 NOISE

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 decibel scale (dBA) takes this into account and emphasizes 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 0 dBA, which is considered barely perceptible, and 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.

### 3.12.1 Affected Environment

The radio repeater sites are located on Federal property. 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 project area is located on lands where noise can adversely affect natural soundscapes. The natural ambient background noise levels in the nearby OPCNM Wilderness area were measured and averaged 20 dBA over a 20-day period (NPS 2009). For the purposes of this assessment, it was assumed that ambient noise was the same on CPNWR as measured on OPCNM.

#### Wilderness Areas

Two important noise emission thresholds are considered in this noise analysis of wilderness areas. First, noise emission criteria for construction activities has been published by the Federal Highway Administration, which has 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 constructing the proposed radio repeaters.

Secondly, CBP is committed to minimizing long-term noise impacts. CBP and OPCNM wildlife managers recognize that noise of 35 dBA is the threshold below which there should be no adverse impact from noise on Sonoran pronghorn and other indigenous species. Therefore, CBP used the 35 dBA threshold to measure impacts from long-term operational noise emissions from short-term sources of noise such as helicopters.

### 3.12.2 Environmental Consequences

#### *3.12.2.1 Proposed Action*

The following analysis segregates noise emissions into two categories: short-term noise emissions, which include noise emissions from construction activities used to build and install the radio repeaters, and long-term noise emissions, which refer to ongoing noise emissions that would occur after the radio repeaters have been installed. The noise analysis modeled noise contours for a variety of sources and summarized the area of impact in acres for short-term noise emissions and long-term noise emissions.

#### Short-term Construction Noise

Due to the weight of the equipment necessary for installation, helicopter access is the only viable option. The maximum number of helicopter trips necessary to complete installation at all three sites is 30 helicopter trips. Noise emissions from a mid-size helicopter (McDonnell Douglas NOTAR model) are estimated to be 80 dB during a flyover, 85 dB during takeoff, and 88 dB during approach, at a distance of 450 feet from the source (FAA 2011). Considering the approach scenario of 88 dB, helicopter noise emissions would have to travel 8,430 feet (1.59 mile) before attenuating to the acceptable wilderness threshold of 57 dB. Considering the departure scenario of 85 dB, helicopter noise emissions would have to travel 6,888 feet (1.30 mile) before attenuating to 57 dB. The helicopter noise emissions would impact 5,122 acres during approach and 3,420 acres during takeoffs. Because the helicopter noise emissions would be periodic and last for less than 15 minutes, impacts on the noise environment in the CPNWR would be minor.

### Long-term Noise Emission from Radio Repeater Operations

Ongoing radio repeater operations refer to noise emissions that would occur after the radio repeaters have been installed. All the radio repeater sites would use solar panels as a power source; therefore, the operational noise emissions of the radio repeaters would be negligible. However, CBP anticipates that each radio repeater would require two maintenance trips per year, which would potentially require helicopter transport.

Considering the approach scenario of 88 dB, helicopter noise emissions would have to travel 24,190 feet (4.58 miles) before attenuating to 35 dB. Considering the departure scenario of 85 dB, helicopter noise emissions would have to travel 21,648 feet (4.10 miles) before attenuating to 35 dB. The helicopter noise emissions would impact 42,180 acres during approach and 33,781 acres of potential Sonoran pronghorn habitat during takeoffs. The helicopter noise emissions would be periodic and last for less than 15 minutes. The vertical distance from the mountaintop to habitats more likely to support Sonoran pronghorn may offer a noise buffer. Impacts from operational noise emissions on the Sonoran pronghorn would be moderate, although it would be only twice a year per site and last for 15 minutes. Sonoran pronghorn are known to be more sensitive to disturbances during fawning. Therefore, CBP will not schedule regular maintenance trips during Sonoran pronghorn fawning season.

Increased noise emissions associated with the installation, operation, repair, and maintenance of the TacCom radio repeater equipment would have a long-term, moderate but sporadic adverse effect on the soundscape, wildlife, and designated wilderness of the project area.

#### ***3.12.2.2 No Action Alternative***

Under the No Action Alternative, the sensitive noise receptors and wildlife near the proposed radio repeater sites would not experience construction and periodic noise events associated with maintenance of the radio repeaters. Noise emissions associated with CBV off-road travel, and consequent law enforcement actions would be long-term and minor and would continue under the No Action Alternative.

### **3.13 RADIO FREQUENCY ENVIRONMENT**

#### **3.13.1 Affected Environment**

The RF environment refers to the presence of electromagnetic (EM) radiation emitted by radio waves and microwaves on the human and biological environment. EM radiations are self-propagating waves of electromagnetic energy that move through space via radio waves and microwaves emitted by transmitting antennas. RF is a frequency or rate of oscillation within the range of about 3 hertz (Hz) and 300 gigahertz (GHz). This range corresponds to frequency of alternating current and electrical signals used to produce and detect radio waves. The EM radiation produced by radio waves and microwaves carry energy and momentum and can interact with matter. It is currently anticipated that the transmitters and sensors associated with the TacCom LMR Modernization Project would operate below 30 GHz.

The Federal Communications Commission (FCC) is responsible for licensing frequencies and ensuring that the approved uses would not interfere with television or radio broadcasts or substantially affect the natural or human environment. In the mid-1980s, the FCC adopted

recognized safety guidelines for evaluating RF exposure (Office of Engineering and Technology [OET] 1999). Specifically in 1985, the FCC adopted the 1982 American National Standards Institute (ANSI) guidelines to evaluate exposure due to RF transmitters that are licensed and authorized by the FCC (OET 1999). In 1992, ANSI adopted the 1991 Institute of Electrical and Electronics Engineers (IEEE) standard as an American National Standard (a revision of its 1982 standard) and designated it as ANSI/IEEE C95.1-1992 (OET 1999). The FCC proposed to update its rules and adopt the new ANSI/IEEE guidelines in 1993, and in 1996, the FCC adopted a modified version of the original proposal.

In addition to ANSI/IEEE standards, the FCC's guidelines are also based on the National Council of Radiation Protection and Measurements (NCRP) exposure guidelines. The NCRP and ANSI/IEEE exposure criteria identify the same threshold levels at which harmful biological effects may occur. The absorption of RF energy by the human body varies with the frequency of the RF signal. The most restrictive limits on exposure are in the frequency range of 30 to 300 megahertz (MHz) where the human body absorbs RF energy most efficiently when exposed in the air field of an RF transmitting source (ANSI/IEEE C95.1-1992).

There are two tiers or exposure limits: occupational or "controlled" and general or "uncontrolled." Occupational exposure is when people are exposed to RF fields as a part of their employment, and they have been made fully aware of the potential exposure and can exercise control over their exposure. Uncontrolled exposure is when the general public is exposed or when persons employed are not made fully aware of the potential for exposure or cannot exercise control over their exposure.

In order for a transmitting facility or operation to be out of compliance with the FCC's RF guidelines in an area where levels exceed Maximum Permissible Exposure (MPE) limits, it must first be accessible to the public. The MPE limits indicate levels above which people may not be safely exposed regardless of the location where those levels occur.

Adverse biological effects associated with RF energy are typically related to the heating of tissue by RF energy. This is typically referred to as a "thermal" effect, where the EM radiation emitted by an RF antenna, passes through and rapidly heats biological tissue, similar to the way a microwave oven cooks food. The Health Physics Society indicates that numerous studies have shown that environmental levels of RF energy routinely encountered by the general public are typically far below levels necessary to produce significant heating and increased body temperature and is generally only associated with workplace environments near high-powered RF sources used for molding plastics or processing food products. In such cases, exposure of human beings to RF energy could be exceeded, thus requiring restrictive measures or actions to ensure their safety (Kelly 2007).

Other non-thermal adverse effects such as disorientation of passing birds by RF waves are also of concern. Past studies on effects of communications towers were noted by Beason (1999) during the 1999 Workshop on Avian Mortality at Communication Towers (Evans and Manville 2000). During this workshop, Beason (1999) noted that most research on RF signals produced by communications towers have no general disorientation effects on migratory birds. However, more research is needed to better understand the effects of RF energy on the avian brain.

Currently, CBP, USFWS, NPS, USFS, USAF, U.S. Marines, BLM, and local law enforcement agencies use two-way radios as part of their daily operations in the project area, and several of these agencies operate and maintain radio repeaters with the project area.

### **3.13.2 Environmental Consequences**

#### ***3.13.2.1 Proposed Action***

The Proposed Action would install up to three radio repeaters within the project area. As with any RF transmitter, all of these systems would emit RF energy and EM radiation; therefore, a potential for adverse effects could occur. However, any adverse effects on human safety and wildlife would likely be negligible due to the minimal exposure limits associated with both the type of equipment used and the mountaintop locations on which they would be installed.

The potential to exceed MPE limits of RF energy such as those described by Kelly (2007) are far outside the capability limits of the communications systems in the Proposed Action.

Furthermore, the communications equipment would be installed in extremely remote locations. Maintenance personnel working within the installation areas would not be exposed to any RF energy that exceeds MPE limits set by the FCC or Occupational Health and Safety Administration 1910.268 regulations (29 CFR Part 1910).

Though greater research is required to have a better understanding of the effects of RF energy on the avian brain, the potential effects on passing birds is expected to be negligible as well. Any disorientating effect, if experienced, would be temporary and would occur only at close distances to the antennas.

As part of the overall spectrum management process, the NTIA and the FCC have developed radio regulations to help ensure that the various radio services operate compatibly in the same environment without unacceptable levels of RF interference and emissions. While the communications systems and the frequencies in which they would be operated are considered law enforcement sensitive and cannot be provided to the public, compliance with FCC and NTIA regulations would be required and would ensure that recognized safety guidelines are not exceeded. Transmitters associated with the TacCom LMR Modernization Project would operate below 30 GHz. Therefore, the RF environment created by the installation, operation, repair, and maintenance of the radio repeater equipment would have a long-term, negligible adverse impact on human safety or the natural environment.

#### ***3.13.2.2 No Action Alternative***

Under the No Action Alternative, the radio repeater equipment would not be installed or operated. Daily radio operations by CBP, USFWS, NPS, USFS, local law enforcement, and the military would continue within the project area. There would be no impacts on the existing RF environment or effects on the human or natural environment.

## **3.14 AESTHETIC AND VISUAL RESOURCES**

### **3.14.1 Affected Environment**

Communications equipment and towers currently exist within the project area and are generally commercial, General Services Administration, or CBP communications towers. All of the

proposed TacCom locations are on Federal property. Access to proposed locations is extremely limited. Due to the weight of the equipment, installation must be conducted via helicopter. Maintenance trips may be conducted on foot, depending on what equipment is needed for repair. For the purposes of this analysis, it will be assumed that all maintenance would be conducted via helicopter, which would be the worst case.

There is little development adjacent to the three TacCom locations on the CPNWR, within the Cabeza Prieta Wilderness. The nearest towns and developed structures are Ajo and Why, Arizona, which are approximately 24 miles and 32 miles east of Granite Mountain, respectively. There are two CBP tactical camps (Camp Grip and Bates Camp) near the Christmas Pass and Buck Peak locations. Christmas Pass is approximately 25 miles west of Camp Grip, and Buck Peak is approximately 48 miles west of Camp Grip. Bates Camp is 15.3 miles east of Camp Grip. Granite Mountain is 16 miles northeast of Camp Grip and approximately 17.2 miles northwest of Bates Camp. Aesthetic resources vary throughout the project area on the CPNWR, which includes vast open areas of arid desert land, lava flows, 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.

### **3.14.2 Environmental Consequences**

#### **3.14.2.1 Proposed Action**

The proposed TacCom radio repeater equipment would be located primarily within undeveloped areas within the Cabeza Prieta Wilderness. The proposed radio repeater equipment would be an unnatural element in an undeveloped area visited for its natural setting and visual qualities. Visual impacts on the aesthetic qualities of the CPNWR were addressed in Section 3.3 of this EA.

Due to the limited vertical profile of the equipment, the three proposed TacCom radio repeaters would have limited visibility during operation, unless observed from an elevated point or if the sun creates a reflection from the equipment. At both Buck Peak and Granite Mountain, the addition of equipment or replacement of equipment would not additively impact the viewshed. However, if the Christmas Pass site is installed, the TacCom equipment would be the only man-made structure on-site. The Christmas Pass site is currently undeveloped and provides opportunities to experience solitude, unconfined recreation, and naturalness to visitors and campers from a nearby approved camping area. A line of sight analysis was conducted for the installation at Christmas Pass (see Figure 3-2). The TacCom equipment at Christmas Pass would potentially be visible from a maximum of 9,696 acres.

Installation, repair, and maintenance of the TacCom equipment would require helicopter lifts to transport radio repeater equipment, installation materials and construction personnel to each location. Helicopter lifts have been limited to 60 lifts (30 round trips) for surveys (i.e., biological, cultural, geotechnical) and equipment installation. An additional four lifts (two round trips) per year would be required for scheduled maintenance. Using a helicopter within a wilderness area would temporarily and sporadically impact wilderness character within the Cabeza Prieta Wilderness.

Thus, installation, operation, repair, and maintenance of the proposed radio repeater equipment at Christmas Pass would have a long-term, moderate adverse effect on the viewshed and aesthetic qualities of the CPNWR. The installation, operation, repair, and maintenance of the proposed radio repeater equipment at Buck Peak and Granite Mountain would have long-term, minor adverse effects on the viewshed and aesthetic qualities of the CPNWR due to existing equipment at the sites.

#### **3.14.2.2 No Action Alternative**

Under the No Action Alternative, the aesthetics of the project region would not be directly affected because there would be no installation of radio repeater equipment. However, trash, CBV-created roads, graffiti, and general vandalism resulting from CBV traffic would be expected to continue to detract from the visual quality of area. The No Action Alternative would be expected to have minor, long-term impacts on aesthetics in the project area. It has been estimated that each CBV leaves an average 8 pounds of trash on U.S. soil per entry (Davis 2005).

### **3.15 HAZARDOUS MATERIALS**

#### **3.15.1 Affected Environment**

Solid and hazardous wastes are regulated in Arizona by a combination of laws promulgated by the Federal, state, and regional Councils of Government. All proposed TacCom sites had a search 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 the three proposed TacCom locations. Additionally, during the March 2011 biological surveys conducted by GSRC, no evidence of hazardous waste or materials (e.g., drums, soil staining) was observed at proposed locations.

#### **3.15.2 Environmental Consequences**

##### **3.15.2.1 Proposed Action**

###### Installation Activities

During installation of the proposed radio repeater sites, a potential exists for POL contamination at the TacCom location from power tools and equipment brought to the site. Cleanup materials (e.g., oil mops) would be maintained at each TacCom location for appropriate spill response and cleanup in case an accidental spill occurs as outlined in Section 5.0.

All waste would be disposed of in compliance with Federal, state, and local regulations, and in accordance with contractors' permits. The Proposed Action would have a temporary, minor impact on the environment as a result of hazardous materials.

###### Maintenance and Operations Activities

All solid and hazardous wastes and materials, including universal waste (such as batteries, motor oil, etc.), would be handled in accordance with applicable Federal and state laws and guidelines governing these items. Additionally, hazardous material handling guidelines would be included as part of the maintenance plan for the TacCom LMR Modernization Project. These guidelines would include spill prevention and spill response measures.

The Proposed Action would result in indirect beneficial impacts on the natural environment as a result of reducing solid and hazardous waste. As illegal vehicle and pedestrian traffic is reduced or eliminated within the project area, fewer abandoned vehicles and other solid or hazardous waste associated with illegal cross-border activities would be expected.

### **3.15.2.2 No Action Alternative**

The No Action Alternative would not contribute any hazardous waste or materials to the project area, as no installation of communications equipment would take place.

## **3.16 SOCIOECONOMICS**

### **3.16.1 Population and Demographics**

Pima County is part of the Tucson, Arizona metropolitan statistical area. Its 2009 population of 1,020,200 ranked 2<sup>nd</sup> in the state (U.S. Bureau of Economic Analysis [BEA] 2010a). The 2009 racial mix of Pima County was Caucasian (73.9 percent), followed by Hispanic or Latino origin (32.8 percent), and persons of other race (13.7 percent) (USCB 2009c). The percentage totals greater than 100, because respondents can claim more than one race.

Yuma County is part of the Yuma, Arizona metropolitan statistical area. Its 2009 population of 196,972 ranked 5<sup>th</sup> in the state (USCB 2010b). The 2009 racial mix of Yuma County was Caucasian (75.2 percent), followed by Hispanic or Latino origin (55.7 percent) (USCB 2009f). The percentage totals greater than 100, because respondents can claim more than one race.

### **3.16.2 Employment and Income**

The total estimated civilian labor force in Pima County in 2009 was 471,493, of which 436,795 were employed. There were an estimated 6,085 Armed Forces personnel in Pima County (increased 543 from 2000), bringing the total employed labor force in the area to 442,880. The 2000 unemployment rate for the county was 3.2 percent. The 2009 unemployment rate for Pima County was 4.4 percent. In 2009, educational services and health care and social assistance provided the majority of jobs in Pima County (102,921) followed by retail trade (51,880), and professional, scientific, and waste management (49,523) (USCB 2009a).

In 2009, Pima County had a Per Capita Personal Income (PCPI) of \$33,833. This PCPI ranked 4<sup>th</sup> in the state and was 102 percent of the state average, \$33,207, and 85 percent of the National average, \$39,635. The 2009 PCPI reflected a decrease of 2.2 percent from 2008. The 2008-to-2009 state change was -3.6 percent and the National change was -2.6 percent. In 1999, the PCPI of Pima County was \$23,536 and ranked 2<sup>nd</sup> in the state. The 1999 to 2009 average annual growth rate of PCPI was 3.7 percent. The average annual growth rate for the state was 3.1 percent and for the Nation was 3.4 percent (BEA 2010a).

In 2009, Pima County net earnings accounted for 55 percent of Total Personal Income (TPI) (compared with 61 percent in 1999). Dividends, interest, and rent accounted for 23 percent (compared with 24 percent in 1999), and personal current transfer receipts were 22 percent (compared with 15 percent in 1999). From 2008-2009, net earnings decreased 3.5 percent; dividends, interest, and rent decreased 7.2 percent and personal current transfer receipts increased 13.2 percent. From 1999 to 2009, net earnings increased on average 4.8 percent per

year; dividends, interest, and rent increased on average 5.4 percent; and personal current transfer receipts increased on average 13.2 percent (BEA 2010a).

In 2009, Pima County had a TPI of \$34,516,424. This TPI ranked 2<sup>nd</sup> in the state and accounted for 15.8 percent of the state total. In 1999, the TPI of Pima County was \$19,508,926 and ranked 2<sup>nd</sup> in the state (BEA 2010a). The 2008-to-2009 state change was -2.2 percent, and the National change was -1.7 percent. The 1999 to 2009 average annual growth rate of TPI in both Arizona and Pima County was 5.9 percent. The average annual growth rate for the Nation was 4.4 percent (BEA 2010a).

An estimated 18.9 percent of families lived in poverty in Pima County in 2009 (Table 3-9). This percentage is higher than both State of Arizona (16.5 percent) and the Nation (14.3 percent) (USCB 2010a). The median household income in 2009 for Pima County was \$43,243. This was significantly lower than the 2009 median household income for the state (\$48,711) and Nation (\$50,221) (USCB 2010a).

**Table 3-9. Poverty and Median Income for Pima County**

<b>Location</b>	<b>Percentage in Poverty (2009)</b>	<b>Median Income (2009)</b>
Nation	14.3	\$50,221
Arizona	16.5	\$48,711
Pima County	18.9	\$43,243

Source: USCB 2010a

The total estimated civilian labor force in Yuma County in 2009 was 71,923, of which 64,447 were employed. There were an estimated 3,470 Armed Forces personnel in Yuma County (down from 3,585 in 2000), bringing the total employed labor force in the area to 67,917. The 2009 unemployment rate for the county was 5.4 percent. This was slightly lower than the 2000 unemployment rate of 5.7 percent (USCB 2009b).

In 2009, Yuma County had a PCPI of \$25,356. This PCPI ranked 11<sup>th</sup> in the state and was 76 percent of the state average, \$33,207, and 64 percent of the National average, \$39,635. The 2009 PCPI reflected an increase of 0.7 percent from 2008. The 2008-to-2009 state change was -3.6 percent and the National change was -2.6. In 1999, the PCPI of Yuma County was \$17,072 and ranked 9<sup>th</sup> in the state. The 1999-to-2009 average annual growth rate of PCPI in Yuma County was 4.0 percent. The average annual growth rate for the state was 3.1 percent and for the Nation was 3.4 percent (BEA 2010b).

In 2009, Yuma County net earnings accounted for 61 percent of TPI (compared with 67 percent in 2000); dividends, interest, and rent were 13 percent (compared with 15 percent in 2000); and personal current transfer receipts were 26 percent (compared with 18 percent in 2000). From 2008 to 2009, net earnings increased 2.6 percent; dividends, interest, and rent decreased 2.2 percent; and personal current transfer receipts decreased 1.7 percent. From 1999 to 2009, net

earnings increased average 5.5 percent; dividends, interest, and rent increased on average 4.9 percent; and personal current transfer receipts increased on average 10.6 percent (BEA 2010b).

In 2010, Yuma County had a TPI of \$5,467,491. This TPI ranked 6<sup>th</sup> in the state. In 2000, the TPI of Yuma was \$3,752,053 and ranked 6<sup>th</sup> in the state (Economic Profile System-Human Dimensions Toolkit 2012). The 2008-to-2009 state change was -2.2 percent, and the National change was -1.7 percent. The 1999-to-2009 average annual growth rate of TPI in Yuma County was 6.5 percent. The average annual growth rate for the state was 5.9 percent and for the Nation was 4.4 percent (BEA 2010b).

An estimated 19.2 percent of families lived in poverty in Yuma County in 2009 (Table 3-10). This percentage is higher than both the state of Arizona (16.5 percent) and the Nation (14.3 percent). The median household income for 2009 for Yuma County was \$38,251. This was significantly lower than the 2009 median household income for the state (\$48,711) and the Nation (\$50,221) (USCB 2010a).

**Table 3-10. Poverty and Median Income for Yuma County**

<b>Location</b>	<b>Percentage in Poverty (2009)</b>	<b>Median Income (2009)</b>
Nation	14.3	\$50,221
Arizona	16.5	\$48,711
Yuma	25.0	\$35,545

Source: USCB 2010a

### **3.16.3 Housing**

Pima County had a total of 370,264 housing units in the 2009 census. According to the Census Bureau, 244,175 of the housing units were owner-occupied, 126,089 housing units were rented, and 49,383 housing units were vacant (USCB 2009e).

Yuma County had a total of 86,878 housing units in the 2009 Census. According to the Census Bureau, 49,606 of the housing units were owner-occupied, 20,683 housing units were rented, and 16,589 housing units were vacant (USCB 2009f).

### **3.16.4 Environmental Consequences**

#### **3.16.4.1 Proposed Action**

The labor for the Proposed Action would be provided by private contractors, and there would be no increase in the population of the project area due to the project. When possible, materials and other project expenditures would be obtained through merchants in the local community, resulting in temporary, minor economic benefits. All installation and maintenance activities, regardless of the area, would be limited to daylight hours, to the maximum extent practicable. Safety buffer zones would be designated around all radio repeater sites to ensure public health and safety. No displacement of residential or commercial properties would result from this action. No significant changes to local employment rates, poverty levels, or local incomes would occur as a result of this program.

The enhanced communications capabilities and improved interdiction efficiency of CBP agents would deter illegal traffic and beneficially impact the local economic community, as well as public safety within and near the project area. Reductions in CBV traffic resulting from increased deterrence would be expected to reduce crimes on the CPNWR, OPCNM, and nearby lands and enhance the safety of U.S. residents, OPCNM and CPNWR visitors, USBP agents, and OPCNM, CPNWR, BLM, and other agencies' personnel.

#### ***3.16.4.2 No Action Alternative***

Under the No Action Alternative, the installation of the TacCom radio repeater equipment would not take place. As a result, no direct impacts would be anticipated under the No Action Alternative. However, CBV traffic would not be deterred in the project area and societal costs, such as insurance costs, property losses, law enforcement expenses, and drug rehabilitation, medical expenses, and labor opportunities associated with CBVs, would continue to burden society. Furthermore, the current status of radio communications would not improve. Federal law enforcement agents would remain beyond the reach of communications while on patrol, which limits the safety and security of staff and visitors to the public lands.

### **3.17 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN**

#### **3.17.1 Affected Environment**

##### ***3.17.1.1 Executive Order 12898, Environmental Justice***

The fair treatment of all races has been assuming an increasingly prominent role in environmental legislation and implementation of environmental statutes. In February 1994, President Clinton signed EO 12898 titled, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This action requires all Federal agencies to identify and address disproportionately high and adverse effects of its programs, policies, and activities on minority and low-income populations. Pima County has approximately 32 percent of their population claiming Hispanic or Latino origin, and 56 percent of Yuma County's population claims Hispanic or Latino origin (USCB 2009c and 2009d). Furthermore, each of the two counties has a greater percentage of its population in poverty than the percentage of the population for both Arizona and the Nation (see Tables 3-9 and 3-10).

##### ***3.17.1.2 Executive Order 13045, Protection of Children***

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. In Pima County, 225,316 individuals (23 percent of the population), and in Yuma County, 55,185 individuals (28.2 percent) are children under the age of 18 (USCB 2010b). The potential for impacts on the health and safety of children would be greater where projects are located near residential areas.

### **3.17.2 Environmental Consequences**

#### ***3.17.2.1 Proposed Action***

The Proposed Action would beneficially affect the project area, regardless of race and income level. The Proposed Action would not result in disproportionately high or adverse environmental health or safety impacts on minority or low-income populations or children. This conclusion is based on the fact that all proposed TacCom radio repeater sites are located on Federal lands and there would be no displacement of persons (minority, low-income, children, or otherwise) as a result of implementing the Proposed Action.

#### ***3.17.2.2 No Action Alternative***

Under the No Action Alternative, installation of the radio repeater equipment would not take place. As a result, no disproportionate impacts on minorities, low-income populations or children would be anticipated under the No Action Alternative.

## **3.18 SUSTAINABILITY AND GREENING**

### **3.18.1 Affected Environment**

In accordance with EO 13423 – Strengthening Federal Environmental, Energy, and Transportation Management (72 FR 3919), CBP would incorporate practices in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner in support of their mission. CBP implements practices throughout the agency to: 1) improve energy efficiency and reduce greenhouse emissions, 2) implement renewable energy projects, 3) reduce water consumption, 4) incorporate sustainable environmental practices such as recycling and the purchase of recycled-content products, and 5) reduce the quantity of toxic and hazardous materials used and disposed of by the agency. CBP will also reduce total consumption of petroleum products as set forth in the EO and use environmentally sound practices with respect to the purchase and disposition of electronic equipment.

### **3.18.2 Environmental Consequences**

#### ***3.18.2.1 Proposed Action***

Under the Proposed Action, the Federal sustainability and greening practices would be implemented, to the extent practicable. CBP intends to obtain the goal of reducing petroleum-based product use with a Fleet Management Plan facilitated through CBP's Asset Management Division. This project would adhere to this management plan.

#### ***3.18.2.2 No Action Alternative***

The No Action Alternative would not result in any direct or indirect impacts, as no construction activities would take place.

## **3.19 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE**

Global climate change refers to a change in the average weather on the earth. GHG are gases that trap heat in the atmosphere. They include water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), fluorinated gases including chlorofluorocarbons (CFC) and

hydrochlorofluorocarbons (HFC), and halons, as well as ground-level O<sub>3</sub> (California Energy Commission 2007).

The major GHG-producing sectors in society include transportation, utilities (e.g., coal and gas power plants), industry/manufacturing, agriculture, and residential. End-use sector sources of GHG emissions include transportation (40.7 percent), electricity generation (22.2 percent), industry (20.5 percent), agriculture and forestry (8.3 percent), and other (8.3 percent) (California Energy Commission 2007). The main sources of increased concentrations of GHG due to human activity include the combustion of fossil fuels and deforestation (CO<sub>2</sub>), livestock and rice farming, land use, wetland depletions, and landfill emissions (CH<sub>4</sub>), refrigeration system, fire suppression system use, and manufacturing (CFC), and agricultural activities, including the use of fertilizers (California Energy Commission 2007).

### **3.19.1 Final Mandatory GHG Inventory Rule**

In response to the Consolidation Appropriations Act (House Resolution 2764; P.L. 110 –161), EPA has issued the Final Mandatory Reporting of Greenhouse Gases Rule. The rule requires large sources that emit 27,557 tons or more per year of GHG emissions to report GHG emissions in the United States, collect accurate and timely emissions data to inform future policy decisions, and submit annual GHG reports to the EPA. The final rule was signed by the Administrator on September 22, 2009, published on October 30, 2009, and made effective December 29, 2009.

### **3.19.2 GHG Threshold of Significance**

The CEQ provided draft guidelines for determining meaningful GHG decision-making analysis. Draft guidance states that if the project would be reasonably anticipated to cause direct emissions of 27,557 tons or more of CO<sub>2</sub> GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. For long-term actions that have annual direct emissions of less than 27,557 tons of CO<sub>2</sub>, CEQ encourages Federal agencies to consider whether the action's long-term emissions should receive similar analysis. CEQ does not propose this as an indicator of a threshold of significant effects, but rather as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHG (CEQ 2010).

The GHG covered by E.O. 13514 are CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, perfluorocarbons, and sulfur hexafluoride. These GHG have varying heat-trapping abilities and atmospheric lifetimes. CO<sub>2</sub> equivalency is a measuring methodology used to compare the heat-trapping impact from various GHG relative to CO<sub>2</sub>. Some gases have a greater global warming potential than others. Nitrous oxides, for instance, have a global warming potential that is 310 times greater than an equivalent amount of CO<sub>2</sub>, and CH<sub>4</sub> is 21 times greater than an equivalent amount of CO<sub>2</sub>.

### **3.19.3 Environmental Consequences**

#### ***3.19.3.1 Proposed Action***

The GHG emissions expected from the proposed installation (56.6 tons per year), operation, repair, and maintenance (7.1 tons per year) of the TacCom equipment would not exceed Federal *de minimis* thresholds (27,557 tons per year). Impacts on GHG and climate change would be negligible and long-term. During the installation of the proposed TacCom equipment, proper

and routine maintenance of all helicopters and other equipment would be implemented to ensure that emissions are within the design standards.

***3.19.3.2 No Action Alternative***

The No Action Alternative would not result in any direct or indirect impacts on GHG emissions or climate change, as no construction activities would take place.

**SECTION 4.0**  
**CUMULATIVE IMPACTS**



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## **4.0 CUMULATIVE IMPACTS**

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The NEPA regulations define cumulative impacts 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.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future activities which affected any part of the human or biological environment impacted by the Proposed Action. Activities were identified for this analysis by reviewing CBP and USBP documents, news/press releases and published media reports, and through consultation with planning and engineering departments of local governments, and state and Federal agencies.

### **4.1 HISTORICAL IMPACTS ON THE SONORAN DESERT**

The Sonoran Desert ecosystem has been significantly impacted by historical and ongoing activities such as ranching, agricultural, and urban development; Federal land use including military operations and management for recreation and wildlife; CBV activity and resulting law enforcement actions; and climate change. 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, increased numbers of invasive, non-native plants and animals, 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 loss of significant 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 operations, 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. As of December 31, 2010, CBP has completed 649 miles of pedestrian and vehicle fencing along the southwestern border. A total of 350 miles of primary pedestrian fence has been constructed, while the final total of vehicle fence (the project was officially completed on January 8, 2010) was 299 miles.

Projects recently completed or reasonably foreseeable in the near future in the Tucson Sector are presented in Table 4-1. The Office of Technology Innovation and Acquisition (OTIA) is currently in the planning phase for remote video surveillance camera systems for Arizona and would include tower construction and access roads in the Naco, Douglas, and Willcox stations' areas of responsibility (Tucson East, 29 towers proposed), Tohono O'odham Nation (30 proposed towers), and the Ajo and Wellton stations' areas 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**

<b>Project</b>	<b>Approximate Acres Permanently Impacted</b>
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
Proposed expansion of the USBP Ajo Station in Why, Arizona (including one tower).	30
Construction of approximately 15 miles of vehicle fence (VF) 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
Improvement of 80 miles of all-weather patrol road and construction of 50 miles of permanent vehicle barriers (PVB) on Tohono O'odham Nation, as well as a construction access road for the installation and maintenance of the PVBs.	72
Proposed expansion of Bates Camp, Ajo Station's tactical camp near tower site TCA-AJO-302 from 1 acre into a 3-acre Forward Operating Base (FOB). The FOB would be similar to the existing facility at Papago Farms on the Tohono O'odham Nation.	3
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 OTIA Yuma/BMGR project.	9
Proposed tower construction and access roads for OTIA Wellton Station IFT project.	2
Recent construction of 13 towers and access roads for OTIA Ajo Station Tower project.	30
Proposed tower construction and access roads for OTIA Tohono O'odham project.	3

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 biological environment 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 its agents, 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. Agents patrol the United States' border and adjacent lands using a variety of transportation including foot, horse, all-terrain vehicle, 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 have 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 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 1 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 compared to 5,287 in 2009).

In addition to the projects listed above, CBP might be required to implement other activities and operations that are currently not foreseen or not within the Project Area or region and therefore not discussed in this document. These actions could be in response to national emergencies or security events like the terrorist attacks on September 11, 2001, or to changes in the mode of operations of CBVs.

### **4.3 OTHER AGENCY/ORGANIZATION PROJECTS**

Projects are currently being planned by other Federal entities that could affect areas in use by CBP. CBP should maintain 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, USAF, 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 United States/Mexico border region.

#### OPCNM

- Fiber-optics cable was installed along SR 85 from the northern boundary of the OPCNM to the Visitors Center.
- Proposed installation of approximately 2 miles of new water line from the Visitors Center to the campgrounds.

- There are ongoing efforts to reduce water loss from Quitobaquito Pond.
- Ongoing facilities maintenance projects include installation of gates along park administrative roads, reconstruction of picnic ramadas, rehabilitation of the campground dump station, and culvert replacement.
- There are two new office buildings proposed for construction adjacent to the maintenance facility. One would house law enforcement operations and the other would house the resource division. This construction would involve new ground disturbance, but it would be in the existing administrative site boundaries.

#### Marine Corps Air Station (MCAS)-Yuma

MCAS-Yuma conducts military flights over CPNWR and BMGR; operates various training facilities, such as landing strips and a rifle range; and conducts Weapons and Tactics Instructor (WTI) courses. The WTI 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 that could disturb or harm pronghorn.

#### Luke Air Force Base, Barry M. Goldwater Range (BMGR)

Military activities within BMGR-east (the area nearest CPNWR and the Sonoran pronghorn's range) includes use of airspace, four manned air-to-ground ranges, three tactical air-to-ground target areas, four auxiliary airfields, use of Stoval Airfield, and 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. The objective is to produce at least 20 fawns each year to be released into the United States sub-population, and to establish a second United States sub-population at Kofa National Wildlife Refuge in Arizona. Planning for the second herd is under way; the final rule to establish two nonessential experimental populations of the endangered Sonoran pronghorn under Section 10(j) of the ESA became effective on June 6, 2011 (76 FR 25593).

## **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.

### **4.4.1 Land Use**

Installation of TacCom equipment directly changes the current land use as directed by the policies of the managing agencies (i.e., USFWS, NPS) and has indirect effects on the ability of

the managing agencies to implement land use policies. The direct effects of removing small areas of land from their current land use and replacing them with areas of law enforcement land use would be localized and is not part of a trend. Although land use in the southwest has changed dramatically over time, in recent history, management of the lands affected by the proposed project has been consistent with the mission of the managing agencies.

Changes in land use on nearby lands, such as changing military training and residential development, could have indirect effects on the lesser long-nosed bat, the Sonoran pronghorn, and Sonoran desert tortoise. Although these species could be directly affected by habitat degradation associated with the proposed project, the effect of changing land use, including the indirect effects of improved TacCom capabilities and subsequent changes in CBP operations is expected to be beneficial over the long-term. A reduced enforcement footprint, more efficient interdictions, and a reduced need to track CBVs on the ground would all benefit protected species. These indirect effects of the proposed project would also benefit land use policies which direct agencies to protect and enhance wildlife, not only by reducing impacts on the Sonoran Desert ecosystem, but by creating a safer environment in which to practice land management policies. Furthermore, a safer environment would benefit recreational land use on NPS and CPNWR lands. Grazing allotments on adjacent BLM and USFS lands would also benefit from reduced CBV traffic and consequent law enforcement activities. Additionally, the proposed project would allow the OPCNM and CPNWR to reevaluate opening the closed portions of these properties to public visitation due to increased security and public safety. Thus, the direct cumulative effects of changing land use would be negligible.

#### **4.4.2 Wilderness**

The installation and maintenance of the proposed TacCom equipment would adversely affect the natural values, sense of solitude, and unconfined recreational characteristics of designated wilderness. These actions when considered with past tactical infrastructure (i.e., NPS and CBP vehicle barriers), military operations, and construction projects, and the degradation of designated wilderness associated with unauthorized trails created by CBV traffic and consequent law enforcement actions would have a moderate cumulative effect on designated wilderness. However, the proposed project would have a beneficial cumulative, long-term effect as a result of reducing CBV traffic and the enforcement footprint in designated wilderness.

#### **4.4.3 Soils**

Installation of the TacCom radio repeater equipment would result in very minor disturbances on soils. No excavating, trenching, or digging would be necessary for installation. Area soils are generally prone to erosion; however, BMPs described in Section 5 would minimize project-related erosion. Other activities that contribute to the erosion of soils include the establishment and use of unauthorized roads, off-road vehicle and foot traffic, ranching, and fire. Erosion of soils creates opportunities for the establishment of non-native, invasive species and damages biological soil crusts. Non-native, invasive species can increase fuel loads, displace native plants, and degrade wildlife habitats. Biological crusts stabilize soils, increase infiltration of surface flows, and contribute to nutrient uptake of plants. The establishment of non-native, invasive species and damage to large areas of soil crust began with the arrival of the first, non-native American travelers in the southwest. However, direct cumulative impacts associated with construction of new roads and use of authorized roads has largely stabilized. Sonoran Desert

communities adjacent to authorized roads are likely to be affected by non-native, invasive plants and damage to adjacent soil crust into the foreseeable future. Maintenance of roads (as proposed in other CBP projects) and efforts to stop the spread of non-native, invasive plants minimizes adverse effects. Because there are relatively few authorized roads in the Sonoran Desert on Federal lands, and because the authorization of new roads, road widening, or other development typically requires measures to minimize potential impacts, the cumulative effect of all activities associated with authorized roads and land development would be moderate.

Other activities, such as recreational and non-recreational off-road travel and ranching, also result in soil disturbance which promotes the establishment of non-native, invasive plants and damages biological soil crusts. While small disturbances, such as those caused by off-road foot traffic not occurring on established routes, can be naturally restored relatively quickly, larger disturbances, such as those caused by off-road vehicle traffic and all traffic on established routes, result in long-term changes in the landscape. CBV traffic and the consequent law enforcement response is the largest contributor to the cumulative effects of soil disturbance in the project region. Past CBV off-road activities and resulting law enforcement responses have disturbed soils and resulted in erosion of soils. In the absence of technology, CBP agents are required to conduct apprehension efforts off-road to track and interdict CBVs. With implementation of the proposed project, more efficient communications and interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced enforcement footprint, and a reduced need to track CBVs on the ground would all reduce the cumulative effects of soil disturbance. It is anticipated that CBP off-road travel to track and interdict CBV would be reduced and thus the resulting impacts on soils would be reduced. Furthermore, the construction of a vehicle barrier along the OPCNM and CPNWR boundaries and current CBP interdiction efforts limit the extent of off-road CBV vehicle traffic. As off-road traffic and subsequent soil disturbance is reduced, the potential spread of non-native, invasive species would be reduced and soil crusts would begin to naturally regenerate. Because the direct impacts of soil disturbance resulting from all new roads and development are minimized, and because the largest contributor of soil disturbance (i.e., CBV activity and subsequent enforcement efforts) would ultimately be reduced as a result of the Proposed Action and other proposed CBP projects within the Project Area, the Proposed Action would have a minor cumulative effect on soils.

#### **4.4.4 Hydrology and Groundwater**

No water would be necessary for the installation, operation, or maintenance of the TacCom equipment. Other CBP projects utilize water for construction and as a dust suppressant, for revegetation projects, and for wildlife projects which provide water tanks in the desert. Both groundwater basins within the project area, the Lower Gila and Western Mexican (Sonoyta Valley), experience water overdrafts as a result of withdraws for irrigation for agriculture and residential water use. Although water shortage is a substantial issue for those basins within the project area, the CBP projects account for water usage by trucking in treated water from areas with available groundwater surpluses or limit water use to amounts which would not have a major direct effect on water availability in the region. The Proposed Action would not add to the moderate cumulative effect other projects have had on groundwater.

The repair, improvement, and construction of roads as proposed in other CBP projects could alter surface water hydrology. Surface water hydrology has been substantially affected throughout the

southwest. Existing roads have been part of the landscape for many years, some likely predating the management of these lands by Federal land management agencies. New road construction, although limited in number and length, would contribute to adverse cumulative impacts on hydrology. However, road upgrades and maintenance would minimize potential adverse impacts. CBV-created roads and trails may continue to divert surface water flows to some extent. However, surface water flows would be restored in portions of the project area as roads and trails are allowed to naturally revegetate. The Proposed Action would have no additional cumulative effect on hydrology.

#### **4.4.5 Surface Waters and Waters of the United States**

Past construction projects and existing unimproved roads are sources of sediment that have adversely affected surface waters in the past and continue to serve as a source of sediment in the project area. The TacCom LMR Modernization Project would not increase the erodibility of soils in the project area. However, other construction and road improvement projects could lead to long-term erosion of soil into nearby surface waters during storm events. The volume of increased sediments in these waters resulting from the project would be minor in comparison to the volume of sediments contributed by natural erosion. BMPs included in Section 5.0 would reduce potential erosion and sedimentation. The Proposed Action would not contribute to the minor to moderate cumulative effect on surface waters that has occurred from road construction, repair, improvement, and maintenance in other proposed projects.

CBV off-road activities and consequent law enforcement activities have created roads and trails and disturbed soils within the project area. Continued use of CBV-created roads and trails has led to accelerated soil erosion and sedimentation in some areas, as well as the disruption of natural drainage patterns. With implementation of the Proposed Action, more efficient interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced enforcement footprint, and a reduced need to track CBVs off-road would be realized, and cumulative effects on surface waters would be reduced. Cumulative effects on surface water from CBP operations associated with the Proposed Action would be negligible.

#### **4.4.6 Vegetation**

The Proposed Action would degrade 7,855 square feet (0.18 acre) of vegetation. Although numerous other Federal activities have also resulted in the loss or degradation of vegetation, these direct impacts do not cumulatively threaten any Sonoran Desert vegetation community as a whole and have resulted in a minor to moderate cumulative effect. Vast areas of similar plant communities remain essentially unaffected by the direct loss and degradation of vegetation. However, these impacts can have substantial effects when the lost or damaged vegetation provides habitat for sensitive plants or animals. Sensitive species which have very specific habitat requirements can be substantially impacted by the removal or degradation of small areas of vegetation. The direct cumulative effects of vegetation removal and degradation on sensitive species are discussed below.

Similar to soil disturbance, the removal and degradation of vegetation results in opportunities for the establishment of non-native, invasive species which can result in impacts on much larger areas. In general, any activity resulting in increased human presence on the landscape results in an increased potential for the colonization, establishment, and spread of non-native, invasive

species. Non-native, invasive plants can displace native plants and result in loss or degradation of native habitats. Furthermore, non-native, invasive plants provide fuel for fires, and Sonoran Desert plant communities are not adapted to fire, especially when fuel loads are high. Although the TacCom LMR Modernization Project would result in very minor soil disturbance and negligible loss of vegetation, these disturbances promote the establishment of non-native invasive species. Local and direct effects would be minimized or eliminated through BMPs described in Section 5.0. Efforts by other agencies to reduce the presence of these plants would further minimize the cumulative effects of non-native, invasive plants.

Fire is a concern in the Sonoran Desert. Operation of generators associated with the OTIA IFT and other CBP towers, other radio equipment, or accidents could provide a source of ignition; however, fire management would be coordinated with land managing agencies, and this potential would be minimized. Ultimately, the indirect effects associated with a reduction of CBV traffic and consequent law enforcement activities would have a beneficial effect on vegetation resources on the OPCNM and to some extent on CPNWR and BLM lands. The Proposed Action would have a negligible cumulative effect on vegetation resources on CPNWR.

CBV off-road activities and consequent law enforcement activities have created roads and trails and disturbed soils with the project area. Continued use and development of CBV-created roads and trails has led to accelerated soil erosion and sedimentation in some areas, as well as the disruption of natural drainage patterns. With implementation of the Proposed Action, more efficient interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced enforcement footprint, and a reduced need to track CBVs off-road would be realized, and cumulative effects on vegetation would be reduced. The Proposed Action would have a negligible cumulative effect on vegetation.

#### **4.4.7 Wildlife and Aquatic Resources**

The TacCom LMR Modernization Project would remove and degrade 7,855 square feet (0.18 acre) of wildlife habitats. Numerous Federal activities have resulted in impacts on wildlife habitats throughout the Sonoran Desert. However, common wildlife has not been substantially affected, and the cumulative effects would be minor to these species. Because vast areas of Sonoran Desert are managed for wildlife, and because common wildlife species are not substantially threatened by any ongoing or future actions, the Proposed Action would have a minor cumulative effect on wildlife resources.

Past and present CBV off-road activities and consequent law enforcement activities have degraded wildlife habitat and disturbed wildlife. With implementation of the Proposed Action, improved communications would improve interdiction efficiency, potentially reduce CBV traffic and resultant law enforcement actions in the project area, reduce the enforcement footprint, and reduce the need to track CBVs off-road. Cumulative effects on wildlife and their habitats would be reduced. The Proposed Action would have a minor cumulative effect on wildlife resources.

#### **4.4.8 Protected Species**

Three protected species would potentially be affected by the TacCom LMR Modernization Project: the Sonoran pronghorn, the lesser long-nosed bat, and the Sonoran desert tortoise.

These species have been and are substantially affected by historical and ongoing projects, as evidenced by their protection under the ESA.

#### ***4.4.8.1 Sonoran Pronghorn***

Most lands within the Sonoran pronghorns range in the United States are managed by Federal agencies; thus, authorized projects that could potentially affect this population of Sonoran pronghorn are Federal activities that are subject to ESA Section 7 consultation. Illegal cross-border activities and the consequent law enforcement actions have adversely affected protected species in and adjacent to the project area. Relatively small parcels of private and state lands occur within the currently occupied range of Sonoran pronghorn near Ajo and Why, north of the BMGR from Dateland to SR 85, and from the Mohawk Mountains to Tacna. State in-holdings on BMGR were acquired by the USAF.

Historically, livestock grazing, hunting or poaching, and development along the Gila River and Rio Sonoyta were all probably important factors in the well-documented Sonoran pronghorn range reduction and apparent population decline that occurred early in the 20<sup>th</sup> century. The United States Sonoran pronghorn sub-population is isolated from other sub-populations in Sonora by Mexico Highway 2 and the fence that was erected to demarcate the United States/Mexico border. Additionally, access to greenbelts of the Gila River and Rio Sonoyta, which likely were important sources of water and forage during drought periods, has been severed by fencing and roadways (i.e., Interstate 8).

Within its remaining range, continuing rural and agricultural development, increasing recreational activities, vehicle use, grazing, and other activities on private and state lands adversely affect Sonoran pronghorn and their habitat. These activities on state and private lands and the effects of these activities on potential recovery areas currently outside of the current range are expected to occur on lands in and near the project area in the vicinity of Ajo, Why, and Yuma. In 2001, MCAS-Yuma reported that 2,884 acres had been converted to agriculture near Sentinel and Tacna. MCAS-Yuma also reported the extent of current pronghorn range that is affected by various activities as follows: recreation covers 69.6 percent of their range, military training on North and South Tactical Ranges covers 9.8 percent, active air-to-air firing range covers 5.8 percent, proposed explosive ordnance disposal 5-year clearance areas at North and South Tactical Ranges and Manned Range 1 cover 1.0 percent, and MCAS-Yuma proposed ground support areas and zones cover 0.3 percent (USFWS 2010d).

Of particular concern are cross-border activities by CBVs. In Fiscal Year (FY) 2005, USBP Yuma Sector apprehended record numbers of CBVs. From October 1, 2005 to May 2006, 96,000 apprehensions were made, which was a 13 percent increase over the prior year. 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 compared to 5,287 in 2009). Increased USBP presence in the Douglas, Arizona area, and in San Diego (Operation Gatekeeper) and southwestern California, is associated with increased CBV activities in remote desert areas, such as CPNWR, OPCNM, and BMGR.

Illegal border crossings have resulted in route proliferation, off-road vehicle activity, increased human presence in backcountry areas, discarded trash, abandoned vehicles, cutting of firewood,

illegal campfires, and increased chance of wildfire. Habitat degradation and disturbance of Sonoran pronghorn almost certainly result from these illegal cross-border activities. Currently, much of the illegal traffic travels through the southern passes of the Growler Mountains and leads either through or by all USFWS forage enhancement plots and the captive rearing pen in the Child's Valley. Increased enforcement presence, construction of a vehicle barrier at CPNWR, and the vehicle barrier at OPCNM have been associated with a significant decrease in all forms of illegal cross-border activities, except narcotics trafficking, in FY 2008 as compared to the same period in FY 2007. Apprehensions for USBP Ajo Station decreased from 22,504 (FY 2007) to 15,462 (FY 2008) (Office of Border Patrol 2009). Additionally, vehicle seizures decreased from 456 (FY 2004) to 248 (FY 2008). The number of apprehensions and drive-throughs in the Ajo Station's Area of Responsibility declined after the construction of the border vehicle fences on OPCNM in 2006 and CPNWR in 2009, but has now increased since the implementation of the *SBI*net towers and infrastructure became operational in 2010. In the approximately 1 year since the *SBI*net towers have been operational, the number of apprehensions of CBVs have increased by 85 percent within OPCNM and 183 percent in CPNWR. This increase is believed to be attributable to increased CBV activity, as well as increased USBP effort, tactical infrastructure, and technology in the area which have improved USBP's ability to detect and apprehend CBVs (personal communication with USBP, September 1, 2011 as cited in USFWS 2011c).

The Proposed Action would result in a minimal contribution to development activities which remove or degrade habitat and result in cumulative adverse effects. Law enforcement actions associated with the Proposed Action would make a minor contribution to activities that adversely affect Sonoran pronghorn's range. However, the beneficial effects of the Proposed Action (i.e., a reduction of CBV traffic and consequent interdiction efforts in the affected area, a reduced enforcement footprint, more efficient apprehension, and a reduced need to track CBVs on the ground) would substantially reduce the cumulative adverse effects associated with human presence. Other beneficial effects resulting from the Proposed Action and other USBP actions include: the assessment and restoration of CBV-created roads and trails, funding for Sonoran pronghorn population monitoring, forage enhancement plots, and efforts to expand the current distribution of the pronghorn. Although the Proposed Action would contribute to the adverse cumulative effects that threaten Sonoran pronghorn, it would not contribute to curtailment of their range, the most substantial of these effects, and would reduce the cumulative effects of increased human presence within their range. The Proposed Action would have a moderate adverse cumulative effect on Sonoran pronghorn.

#### **4.4.8.2 Lesser Long-nosed Bat**

Development within the range of the lesser long-nosed bat can degrade foraging habitats and is likely to continue to adversely affect the species. Establishing communications equipment sites according to the Proposed Action would not directly affect foraging habitat, but could indirectly limit foraging opportunities if communications equipment is located between roosts and foraging areas. However, because lesser long-nosed bats are capable of flying long distances and because they are largely dependent upon visual cues for navigation, it is highly unlikely that the communications equipment would substantially limit the ability of individuals to locate and travel to and from foraging habitats. A greater cumulative threat to the species is the disturbance of roosts resulting from human disturbance related to both recreational and CBV activity. CBVs

have entered lesser long-nosed bat roosts in the past for shelter and concealment from law enforcement officers. Increased development near these roosts and increased accessibility can both result in an increased potential for roost disturbance to occur. Because the length and number of new roads associated with other projects is minimal and the new roads do not substantially reduce off-road travel distance to roosts, the other proposed projects in the Project Area would not result in substantial cumulative effects associated with increased public access of roost sites. Furthermore, the CBP projects would reduce CBV activity near roosts and limit the potential for roost disturbance associated with this activity. The Proposed Action would have a minor adverse cumulative effect on lesser long-nosed bat.

#### ***4.4.8.3 Sonoran Desert Tortoise***

Cumulative effects on Sonoran desert tortoise and their habitats would likely occur via increased spread of non-native, invasive plant species and physical disturbance of burrows. As discussed above, soil disturbance and the spread of non-native and invasive plants contribute to increased potential for fires, reducing the quality and suitability of habitat within the Sonoran Desert. Physical disturbance to burrows on hillsides would also continue to impact the tortoise and its nest success. CBVs and smugglers use hillsides and mountaintops for lookout spots to avoid detection. The Proposed Action would have a minor adverse cumulative effect on Sonoran desert tortoise.

#### **4.4.9 Cultural Resources**

Numerous activities have adversely affected cultural resources throughout the southwest; however, the TacCom LMR Modernization Project would not contribute to a loss of these resources. The identification and protection or recordation of significant cultural resources has been coordinated through the Section 106 process.

The land within the immediate vicinity of the radio repeater sites is located on Federal lands, and all actions on these lands will require NEPA and Section 106 compliance. Consequently, the impacts on cultural resources would be avoided and/or impacts on cultural resources would be mitigated through appropriate measures. Future developments are expected to conduct surveys and assess the potential for impacts on cultural resources if a Federal action (including financial aid or assistance, permits, or land) is required. The Proposed Action would not contribute to adverse impacts on cultural resources which may result from individuals or private entities that inadvertently damage these resources or intentionally collect these resources. Past and present CBV off-road activity and resulting law enforcement responses have likely adversely affected cultural resources in the project area. It is anticipated that the Proposed Action would reduce CBV activity in the project area, and the resultant enforcement footprint would be reduced as a result of enhanced detection capabilities and more efficient communications and interdiction efforts. Any reduction in CBV activity and subsequent reduction of law enforcement efforts would reduce potential impacts on cultural resources from disturbance. Because the effects of the Proposed Action on cultural resources would be minimized or mitigated and would not contribute to inadvertent or intentional damage or collection of these resources, and because reduced CBV activity would ultimately benefit these resources, the Proposed Action would have no additional cumulative effect on cultural resources.

#### **4.4.10 Air Quality**

Numerous activities have affected air quality throughout the southwest. However, the Proposed Action would have very local and minimal impacts on air quality. The air quality analysis conducted for this EA considers ambient air quality conditions (i.e., conditions relative to the impact of all activities in the airshed) and determined that the impacts of the project would be temporary and minor. Thus, the Proposed Action would have a minor cumulative effect on air quality.

#### **4.4.11 Noise**

The project area is undeveloped; thus, noise sources are lacking within the project area. Past construction projects have resulted in increased noise emissions at or near project sites; however, these increases in noise emissions have been localized and temporary. The Proposed Action would increase noise above ambient conditions during construction and over the long-term for maintenance, noise increases would be sporadic and temporary near the TacCom sites. Noise emissions from the operation and maintenance of the proposed TacCom equipment would have a long-term, minor cumulative effect on the soundscape on CPNWR lands.

#### **4.4.12 Radio Frequency Environment**

The proposed TacCom LMR Modernization and *SBI*net Tower projects would emit EM and RF throughout the project area; however, the equipment proposed by both projects has been certified to be safe for humans and wildlife at normal exposure levels. No other known actions would affect the EM and RF environment impacted by the Proposed Action. Thus, the Proposed Action would have a negligible cumulative effect on the RF environment.

#### **4.4.13 Aesthetics**

Due to its low profile and mountaintop locations, the TacCom equipment would have limited visibility from vantage points most readily used by the public. The installation and maintenance trips via helicopter would cause temporary impacts on aesthetics due to noise and the use of mechanical transportation within a designated wilderness. The placement of *SBI*net towers and a FOB adjacent to designated wilderness would result in long-term adverse effects on the aesthetic qualities that contribute to the wilderness value of these lands. Other actions which have affected the aesthetics of these lands within the viewshed of the towers, and thus would constitute cumulative effects, are limited to construction of existing roads, the proliferation of unauthorized roads, and abandoned vehicles and trash left by CBVs. The existing authorized roads constitute approximately 5 percent of these lands and provide the access necessary for most users to realize the benefits of the surrounding aesthetic resources. Although unauthorized roads undoubtedly contribute to adverse aesthetic conditions, the Proposed Action would not contribute to these effects, but would ultimately reduce the proliferation and use of unauthorized roads, and abandoned vehicles and trash left by CBVs. Thus, the Proposed Action would have a moderate beneficial cumulative effect on aesthetics.

#### **4.4.14 Hazardous Waste**

The Proposed Action, as well as projects on the CPNWR and OPCNM, include standard operating procedures and BMPs to reduce the potential effects of pollutants associated with the handling of POLs, VOCs, and hazardous materials, and would have a minor cumulative effect regarding hazardous waste. Due to the large Federal, natural resources-based landholdings

within the project area, most proposed projects would not have long-term adverse cumulative impacts from hazardous waste.

#### **4.4.15 Socioeconomics**

Infrastructure projects have resulted in reductions in illegal drug smuggling and beneficially affected socioeconomic resources within the border area. Increased safety within CPNWR and OPCNM would also benefit local communities which derive a proportion of their income from tourists visiting OPCNM, and CPNWR. The Proposed Action would have a minor, beneficial cumulative effect on socioeconomics.

#### **4.4.16 GHG Emissions and Climate Change**

Cumulative impacts from GHG emissions and on climate change from the proposed TacCom LMR Modernization Project and other CBP, military, OPCNM and CPNWR projects would be minor.

### **4.5 SUMMARY**

No major cumulative effects have been identified for further analysis. While cumulative effects would undoubtedly occur, the contribution of the Proposed Action to adverse cumulative effects would be avoided, minimized, or mitigated to levels that are minor to moderate in intensity. Furthermore, the Proposed Action would result in a reduction of the activities which are resulting in the most prevalent and damaging effects occurring in Sonoran Desert ecosystems, specifically those impacts occurring as a result of CBV activities. The Proposed Action would enhance CBP's operational efficiency which ultimately reduces the enforcement footprint. While required law enforcement efforts currently contribute to the disturbance of soils, vegetation, surface water hydrology, and other natural resources, damages resulting from CBV activity would undoubtedly be more severe in the absence of law enforcement efforts. In a cumulative sense, the actions of CBP minimize the adverse effects of current CBV activities and result in cumulatively less impacts than a scenario that does not include law enforcement efforts. The Proposed Action is expected to substantially reduce illegal traffic in the project area as CBP is able to bring the area into effective control which is the purpose of the project. The beneficial effects of the Proposed Action would extend beyond the reduction of CBV activity in the form of conservation measures for both protected species and cultural resources. When combined with the beneficial effects of other similar measures, the Proposed Action would ultimately result in cumulative effects that benefit these resources.

**SECTION 5.0**  
**BEST MANAGEMENT PRACTICES**



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## **5.0 BEST MANAGEMENT PRACTICES**

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It is CBP's policy to reduce impacts through a sequence of avoidance, minimization, mitigation, and compensation. This chapter describes BMPs and environmental design 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. BMPs and environmental design measures are presented for each resource category potentially affected. These are general measures; 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 are typically coordinated with the USFWS and other appropriate Federal and state resource agencies.

### **5.1 PROJECT PLANNING/DESIGN – GENERAL CONSTRUCTION**

CBP will site, design, and install equipment, to avoid or minimize habitat loss within or adjacent to the footprint and minimize the amount of aboveground obstacles associated with the site.

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

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

### **5.2 GENERAL CONSTRUCTION ACTIVITIES**

CBP will clearly demarcate project construction area perimeters with a representative from the land management agency. No disturbance outside that perimeter will be authorized.

CBP will minimize the number of trips to the TacCom locations per day during construction to reduce the likelihood of disturbing or injuring animals in the area or disturbing their habitat.

Within the designated disturbance area, CBP will minimize disturbance by limiting deliveries of materials and equipment to only the extent necessary for effective project implementation.

CBP will notify USFWS and the CPNWR Refuge Manager at least 2 weeks before any project construction and maintenance activities begin and within 1 week after project construction and maintenance activities are completed.

All food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed in closed containers and removed daily from the project site.

CBP will contain non-hazardous waste materials and other discarded materials, such as construction waste, until removed from the construction and maintenance sites. This will assist in keeping the project area and surroundings free of litter and reduce the amount of disturbed

area needed for waste storage. Any non-hazardous waste that must remain more than 12 hours should be properly stored until disposal.

During installation and maintenance activities on CPNWR, CBP will adhere to Leave No Trace principles regarding human waste. Solid human waste will be deposited into catholes, dug 6 to 8 inches deep.

### **5.3 SOILS**

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

CBP will give areas with highly erodible soils special consideration when designing the proposed project to ensure incorporation of various erosion control techniques, where possible, to decrease erosion. CBP will distribute organic and geological materials (i.e., boulders and rocks) over the disturbed area to reduce erosion while allowing the area to naturally vegetate. CBP will implement erosion control measures and appropriate BMPs before, during, and after installation activities, as appropriate.

### **5.4 VEGETATION**

CBP will minimize habitat disturbance by restricting vegetation disturbance to the smallest possible project footprint. CBP will limit the removal of trees, cacti, and brush to the smallest amount needed to meet the objectives of the project. CBP will not remove any ironwood (*Olneya tesota*), paloverde, mesquite (*Prosopis* sp.), agave, barrel cactus, saguaro, organ pipe (*Stenocercus thurberi*), or senita (*Pachycereus schottii*) outside the permanent footprint. If vegetation other than that identified above must be removed outside the permanent project footprint, CBP will allow natural regeneration of native plants by cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

CBP will avoid the spread of nonnative plants by not using natural materials (e.g., straw) for on-site erosion control. If natural materials must be used, the natural material would be certified weed and weed-seed free.

### **5.5 WILDLIFE RESOURCES**

CBP will avoid cutting vegetation during the migration, breeding, and nesting time frame of migratory birds (February 1 through September 1). When vegetation control must be implemented during February 1 through September 1, a survey for nesting migratory birds will be conducted prior to the start of activities. If an active nest is found, a 300-foot buffer zone will be established around the nest and no activities will occur within that zone until nestlings have fledged and abandoned the nest.

To the greatest extent practicable, anti-perching or nesting devices may be implemented to deter birds from perching or nesting on the TacCom equipment. CBP will coordinate with USFWS if this measure becomes necessary.

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

Installation and maintenance flights adjacent to or low over mountain ranges will be avoided during bighorn sheep lambing season (January to April) to avoid lamb mortalities associated with the potential for ewes startled by aircraft or other human activity.

## **5.6 PROTECTED SPECIES**

CBP will avoid restricting water access by identifying and not creating barriers to natural water sources available to listed species.

In Sonoran desert tortoise habitat, if a tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects," revised October 23, 2007 (or the latest revision). Take, possession, or harassment of a desert tortoise is prohibited by state law, unless specifically authorized by Arizona Game and Fish Department.

### Lesser Long-nosed Bat

CBP will avoid agaves to the extent practicable to minimize effects on lesser long-nosed bats. Those plants that cannot be avoided will be transplanted. Salvage and transplantation will be approved by the CPNWR Refuge Manager and USFWS.

CBP will not implement construction, non-emergency repairs, or scheduled maintenance between May 1 and September 30, the normal period of time when lesser long-nosed bats occupy roosts in the Project Area.

### Sonoran Pronghorn

CBP will minimize, to the greatest extent possible, the number of TacCom sites and other infrastructure in Sonoran pronghorn habitat.

CBP will coordinate any trips to TacCom locations for installation or maintenance activities, particularly those in important Sonoran pronghorn areas, with the CPNWR Refuge Manager and Arizona Game and Fish Department. All maintenance access will be authorized through a special use permit or right-of-way permit. CBP will seek information regarding Sonoran pronghorn locations using telemetry data periodically collected by Arizona Game and Fish Department and will avoid these locations to the extent feasible.

Access to the Christmas Pass and Buck Peak sites will be from the west to avoid Sonoran pronghorn habitat areas. If these access routes are not possible, CBP will coordinate alternative access with CPNWR to avoid or reduced impacts to Sonoran pronghorn.

Helicopter over flights for installation or maintenance will not take place within 1 mile of Granite Tank.

Helicopter access to Granite Mountain will not occur between March 15 and July 15 due to the Sonoran Pronghorn fawning season, except for in the case of emergency repairs.

## **5.7 WATER RESOURCES**

Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during construction. All work will 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 over-pack container(s) capable of holding the volume of the largest container stored therein. The refueling of machinery will be completed following accepted guidelines. No refueling or storage will take place within 100 feet of drainages.

CBP will avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging, laydown, and dispensing of fuel, oil, etc., to designated upland areas.

## **5.8 CULTURAL RESOURCES**

Should any archaeological artifacts be found during construction, CBP will notify the CPNWR Refuge Manager or his designee immediately. All work will cease until an evaluation of the discovery is made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values.

## **5.9 AIR QUALITY**

All equipment will be required to be maintained in good operating condition to minimize exhaust emissions.

## **5.10 NOISE**

CBP will follow all applicable Occupational Safety and Health Administration regulations and requirements. On-site activities will be restricted to daylight hours to the greatest extent practicable. Equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the expected short-term noise impacts on an insignificant level.

## **5.11 HAZARDOUS MATERIALS**

CBP will implement BMPs as standard operating procedures during all construction activities, which 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 over-pack container(s) capable of containing the volume of the largest container stored therein. The refueling of machinery will be completed in accordance with accepted industry and regulatory guidelines. Although it is unlikely that a major spill would occur, any spill of reportable quantities 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.

To ensure pollution prevention, a Spill Prevention Control and Countermeasures Plan will be in place prior to the start of construction activities, and all personnel will be briefed on the implementation and responsibilities of this plan as is typical in CBP projects. All spills will be reported to the designated CBP point of contact for the project. Furthermore, a spill of 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. CBP 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.

**SECTION 6.0**  
**REFERENCES**



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## 6.0 REFERENCES

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**SECTION 7.0**  
**ACRONYMS AND ABBREVIATIONS**



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**7.0 ACRONYMS AND ABBREVIATIONS**


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ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AES	Advanced Encryption Standard
AESO	Arizona Ecological Services Office
AGFD	Arizona Game and Fish Department
ANSI	American National Standards Institute
ASM	Arizona State Museum
AZDC	Arizona Department of Commerce
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
BMGR	Barry M. Goldwater Range
BMP	best management practices
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
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
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
EM	electromagnetic
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FOB	Forward Operating Base
FPPA	Farmland Protection Policy Act
FR	Federal Register
FY	Fiscal Year
GHG	greenhouse gases
GHz	gigahertz
GLO	General Land Office
GSRC	Gulf South Research Corporation

Hz	hertz
HFC	hydrochlorofluorocarbons
IEEE	Institute of Electrical and Electronics Engineers
IFT	Integrated Fixed Towers
IO	Isolated Occurrence
kHz	kilohertz
LMR	Land Mobile Radio
MCAS	Marine Corps Air Station
MHz	megahertz
MPE	Maximum Permissible Exposure
MRDG	Minimum Requirements Decision Guide
NAAQS	National Ambient Air Quality Standards
NCRP	National Council of Radiation Protection and Measurements
NEPA	National Environmental Policy Act
N <sub>2</sub> O	nitrous oxide
NO <sub>2</sub>	nitrogen dioxide
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTIA	National Telecommunications and Information Administration
NWP	Nationwide Permit
O <sub>3</sub>	ozone
OET	Office of Engineering and Technology
OPCNM	Organ Pipe Cactus National Monument
OTIA	Office of Technology Innovation and Acquisition
P25	Project 25
PCPI	per capita personal income
PM-2.5	particulate matter measuring less than 2.5 microns
PM-10	particulate matter measuring less than 10 microns
P.L.	Public Law
POE	port of entry
POL	petroleum, oil, and lubricants
ppb	parts per billion
ppm	parts per million
Refuge Act	National Wildlife Refuge System Administration Act of 1966
RF	radio frequency
SHPO	State Historic Preservation Office
SO <sub>2</sub>	sulfur dioxide
SR	State Route
TacCom	Tactical Communications
TPI	Total Personal Income
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USBP	U.S. Border Patrol
U.S.C.	U.S. Code

USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
VOC	Volatile Organic Compounds
Wilderness Act	Wilderness Act of 1964
WTI	Weapons and Tactics Instructor
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 EA.

NAME	AGENCY/ORGANIZATION	DISCIPLINE/EXPERTISE	EXPERIENCE	ROLE IN PREPARING EA
Jennifer D. Hass	Customs and Border Protection	Environmental Planning	8 years NEPA and Environmental Management	EA Review
Andrea Pahlevanpour	Customs and Border Protection	Environmental Planning	9 years NEPA and Environmental Management	CBP Project Manager and EA Review
David Walls	Customs and Border Protection/Wireless Systems Program Office	Environmental Planning	17 years NEPA and Natural Resources Management	EA Review
Charles McGregor	U.S. Army Corps of Engineers, Fort Worth	NEPA	16 years Environmental Management and NEPA	EA Review
Hope Pollmann	U.S. Army Corps of Engineers, Fort Worth	Biologist	16 years natural resources and NEPA	EA Review
Nancy Parrish	U.S. Army Corps of Engineers, Fort Worth	Archaeology	16 years Professional Archaeologist	EA Review
Eric Webb, Ph.D.	Gulf South Research Corporation	Ecology/Wetlands	20 years Natural Resources Studies and NEPA	EA Review
Maria Bernard Reid	Gulf South Research Corporation	Natural Resources Management and Environmental Policy	12 years NEPA and Natural Resources Management	GSRC Project Manager, EA Preparation, and Review
Steve Kolian	Gulf South Research Corporation	Environmental Studies	14 years Environmental Science	EA Preparation
Carey Lynn Perry	Gulf South Research Corporation	Ecology/Wetlands	4 years Natural Resources	EA Preparation
Shalise Hadden	Gulf South Research Corporation	Biology	2 years Natural Resources	EA Preparation
Lucinda Freeman	Gulf South Research Corporation	Anthropology	6 years Academic and Field Archaeology	EA Preparation
Sharon Newman	Gulf South Research Corporation	GIS/graphics	20 years GIS/Graphics	GIS/Graphics
Jason Glenn	Gulf South Research Corporation	English	9 years	EA Review
Ann Howard	Gulf South Research Corporation	Biology/Ecology	3 years Natural Resources	EA Review
Allen Fuller	Gulf South Research Corporation	Environmental Horticulture	4 years Natural Resources	EA Review

**APPENDIX A**  
**CORRESPONDENCE**







**U.S. Customs and  
Border Protection**

JUL 21 2011

Mr. James Garrison  
State Historic Preservation Officer  
Arizona State Parks  
State Historic Preservation Office  
1300 West Washington Street  
Phoenix, AZ, 85007

Attn: Dr. James Cogswell, Ph.D., Compliance Specialist/Archaeologist

Reference: Request for Concurrence on Section 106 Determinations for U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project, Four Proposed TacCom locations in Arizona.

Dear Mr. Garrison:

U.S. Customs and Border Protection (CBP) is informing the Arizona State Historic Preservation Office that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications Land Mobile Radio Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation, to identify historic properties and to provide CBP's determination of effects pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4 feet deep, deploying solar panels for power, and installing a 10-foot-tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were

Mr. James Garrison  
Page 2

identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers dating to 1979 were found at the Granite Mountains site.

Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings. If you agree with the management recommendations and finding of project effects, please indicate your concurrence.

If you have any questions, please feel free to contact Mr. Frederick Holycross by telephone at (202) 344-3807 or by email at [Frederick.Holycross@cbp.dhs.gov](mailto:Frederick.Holycross@cbp.dhs.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "J. DeHart Hass".

Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
Facilities Management and Engineering

Enclosures

In reply, refer to SHPO-2100-1034(93627)

August 9, 2011

Jennifer DeHart Hass  
U.S. Customs and Border Protection  
1300 Pennsylvania Avenue NW  
Washington DC 20229

Re: Section 106 Consultation on Four TacCom Wireless Radio Installations in Southern Arizona

Dear Ms. Hass:

Thank you for consulting with this office concerning the above-referenced undertakings. Pursuant to implementation of Section 106 of the National Historic Preservation Act, I have reviewed the four cultural resources reports you supplied and concur with your determination of No Historic Properties Affected for each of the TacCom project sites.

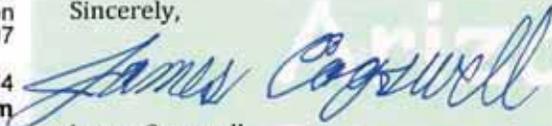
Please keep in mind that this concurrence anticipates that no land vehicular access to the project sites will occur during construction, inspection, or maintenance, as stated in your July 21, 2011 letter. If land vehicles will be used for access, this would change the Area of Potential Effect for each project site and would require additional survey and consultation. Figure 3 of the Granite Mountain report shows what looks like a bulldozer push area, implying that vehicular access has already been made of this site. If this is the case, this should be noted in a revised survey report and taken into account in further consultation.

I note that all four survey reports state that construction was to have been completed in June 2011, at least five weeks ago. I assume this is incorrect, otherwise consultation with this office is moot. In future submissions, please instruct your consultants to not disclose anticipated construction dates in their reports. The appropriate location for this scheduling information is in the Customs and Border Protection consultation letters to this and other offices.

Please ensure that the appropriate land-managing agencies and Native American Tribes are consulted on these undertakings prior to commencing activities. Many hilltops are especially significant to Native American cultures. Please keep this office informed on these consultations.

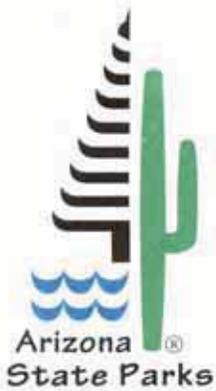
I appreciate your continued cooperation with this office in complying with federal historic preservation requirements. If you have any additional questions or concerns, please feel free to contact me at 602/542-7142, or email me at [jcogswell@azstateparks.gov](mailto:jcogswell@azstateparks.gov).

Sincerely,



James Cogswell  
Planner-Archaeologist  
State Historic Preservation Office

Cc: Fred Holycross, Customs and Border Protection



Janice K. Brewer  
Governor

State Parks  
Board Members

Chair  
Tracey Westerhausen  
Phoenix

Walter D. Armer, Jr.  
Vail

Reese Woodling  
Tucson

Larry Landry  
Phoenix

Alan Everett  
Sedona

William C. Scalzo  
Phoenix

Maria Baier  
State Land  
Commissioner

Renée E. Bahl  
Executive Director

Arizona State Parks  
1300 W. Washington  
Phoenix, AZ 85007

Tel & TTY: 602.542.4174  
[AZStateParks.com](http://AZStateParks.com)

800.285.3703 from  
(520 & 928) area codes

General Fax:  
602.542.4180

Director's Office Fax:  
602.542.4188





**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Sherry Cordova  
Chairperson  
Cocopah Tribe  
County 15 & Avenue G  
Somerton, AZ 85350

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairperson Cordova:

U.S. Customs and Border Protection (CBP) is informing the Cocopah Tribe that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers

The Honorable Sherry Cordova  
Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

To ensure that any areas of sacred or spiritual significance to the Cocopah Tribe are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Jill McCormick, Cultural Resources Manager



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Eldred Enas  
Chairman  
Colorado River Indian Tribes  
26600 Mohave Road  
Parker, AZ 85344

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairman Enas:

U.S. Customs and Border Protection (CBP) is informing the Colorado River Indian Tribes that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers

The Honorable Eldred Enas  
Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

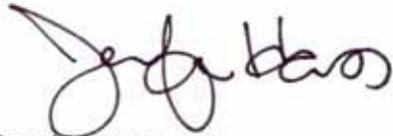
To ensure that any areas of sacred or spiritual significance to the Colorado River Indian Tribes are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Lisa Swick, Cultural Compliance Technician



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Timothy Williams  
Chairman  
Fort Mojave Indian Tribe  
500 Merriman Avenue  
Needles, CA 92363

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairman Williams:

U.S. Customs and Border Protection (CBP) is informing the Fort Mojave Indian Tribe that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not

The Honorable Timothy Williams  
Page 2

considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

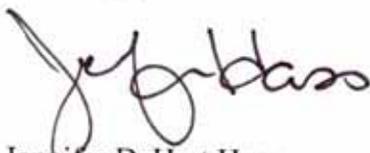
To ensure that any areas of sacred or spiritual significance to the Fort Mojave Indian Tribe are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Joe Scerato, Tribal Cultural Preservation Office



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable William R. Rhodes  
Governor  
Gila River Indian Community  
P.O. Box 97  
Sacaton, AZ 85247

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Governor Rhodes:

U.S. Customs and Border Protection (CBP) is informing the Gila River Indian Community that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not

The Honorable William R. Rhodes  
Page 2

considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

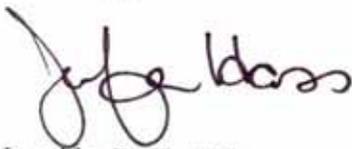
To ensure that any areas of sacred or spiritual significance to the Gila River Indian Community are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Andrew Darling, Cultural Resource Management Program  
Barnaby Lewis, Tribal Historic Preservation Officer



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable LeRoy N. Shingiotewa  
Chairman  
Hopi Tribe  
P.O. Box 123  
Kykotsmovi, AZ 86039

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairman Shingiotewa:

U.S. Customs and Border Protection (CBP) is informing the Hopi Tribe that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers

The Honorable LeRoy N. Shingiotewa  
Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

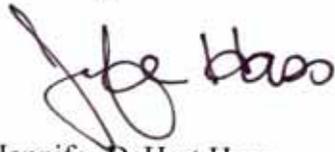
To ensure that any areas of sacred or spiritual significance to the Hopi Tribe are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Hopi Cultural Preservation Office



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Peter Yucupicio  
Chairman  
Pascua Yaqui Tribe  
7474 S. Camino De Oeste  
Tucson, AZ 85757

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairman Yucupicio:

U.S. Customs and Border Protection (CBP) is informing the Pascua Yaqui Tribe that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers

The Honorable Peter Yucupicio  
Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

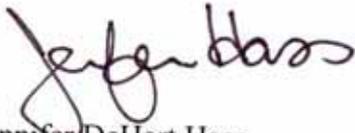
To ensure that any areas of sacred or spiritual significance to the Pascua Yaqui Tribe are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Rolando Flores, Assistant Tribal Attorney General, Cultural Documents/NAGPRA Review and Coordination



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Mike Jackson, Sr.  
President  
Quechan Tribe-Fort Yuma Indian Reservation  
P.O. Box 1899  
Yuma, AZ 85366

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear President Jackson:

U.S. Customs and Border Protection (CBP) is informing the Quechan Tribe-Fort Yuma Indian Reservation that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

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The Honorable Mike Jackson, Sr.  
Page 2

considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

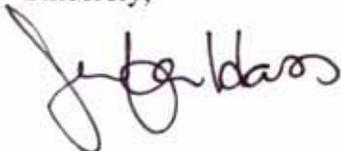
To ensure that any areas of sacred or spiritual significance to the Quechan Tribe-Fort Yuma Indian Reservation are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Bridget R. Nash-Chrabascz, Historic Preservation Officer



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Diane Enos  
President  
Salt River Pima-Maricopa Indian Community  
10005 E. Osborn  
Scottsdale, AZ 85256

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear President Enos:

U.S. Customs and Border Protection (CBP) is informing the Salt River Pima-Maricopa Indian Community that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not

The Honorable Diane Enos

Page 2

considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

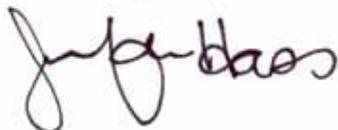
To ensure that any areas of sacred or spiritual significance to the Salt River Pima-Maricopa Indian Community are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Kelly Washington, Cultural Resources Director



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Wendsler A. Nosie, Sr.  
Tribal Chairman  
San Carlos Apache Tribe  
P.O. Box 0  
San Carlos, AZ 85550

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairman Nosie:

U.S. Customs and Border Protection (CBP) is informing the San Carlos Apache Tribe that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers

The Honorable Wendsler A. Nosie, Sr.  
Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

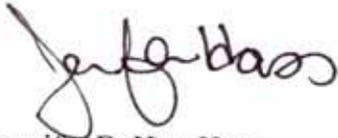
To ensure that any areas of sacred or spiritual significance to the San Carlos Apache Tribe are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Vernelda Grant, Tribal Historic Preservation Officer



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Ned Norris, Jr.  
Chairman  
Tohono O'odham Nation  
P.O. Box 837  
Sells, AZ, 85634

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairman Norris:

U.S. Customs and Border Protection (CBP) is informing the Tohono O'odham Nation that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers

The Honorable Ned Norris, Jr.

Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

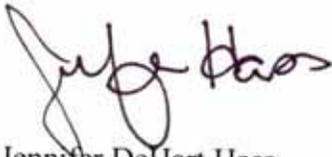
To ensure that any areas of sacred or spiritual significance to the Tohono O'odham Nation are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Peter Steere, Tribal Historic Preservation Officer  
Joseph Joaquin, Cultural Affairs Office



**U.S. Customs and  
Border Protection**

AUG 25 2011

The Honorable Delia M. Carlyle  
Chairperson  
Ak-Chin Indian Community  
42507 W. Peters & Nall road  
Maricopa, AZ 85239

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairperson Carlyle:

U.S. Customs and Border Protection (CBP) is informing the Ak-Chin Indian Community that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

The undertakings will consist of the following items: installing radio repeater equipment on sled-type platforms, burying grounding rods and radials approximately 4-feet deep, deploying solar panels for power, and installing a 10-foot tall antenna. Each of the four locations are on a remote mountain top or ridge and are not protected by a security fence. They are accessible by helicopter, horseback, or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the location during the installation phase of the project. Installation would take less than 30 days at each location. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year. Emergency repairs may be necessary in addition to the biannual maintenance trips. Planned maintenance and repair access may be by helicopter, horseback, or on foot.

Cultural resources surveys were recently completed at each location and the four reports from these surveys are enclosed. No historic properties or archaeological sites were identified within any of the four undertakings' area of potential effect. Two isolated occurrences (IOs) consisting of historic survey markers that are permanently set into the bedrock were found at the Buck Peak site but are not considered significant or eligible for the National Register of Historic Places (NRHP). These IOs will be avoided by the proposed project activities. An IO consisting of a recent rock pile with a fallen wooden post was found at the Christmas Pass site but is not considered significant or eligible for the NRHP. Two Luke Air Force Base survey markers

The Honorable Delia M. Carlyle  
Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

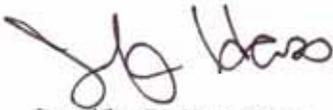
To ensure that any areas of sacred or spiritual significance to the Ak-Chin Indian Community are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

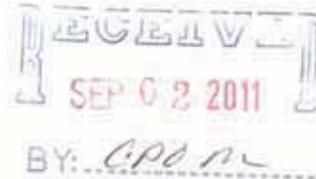
Enclosures

cc: Carol Antone, Cultural Resources Manager



**U.S. Customs and  
Border Protection**

AUG 25 2011



The Honorable LeRoy N. Shingiotewa  
Chairman  
Hopi Tribe  
P.O. Box 123  
Kykotsmovi, AZ 86039

Reference: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona.

Dear Chairman Shingiotewa:

U.S. Customs and Border Protection (CBP) is informing the Hopi Tribe that it plans to install new radio repeaters at four locations (Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona) as part of the Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization Project. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties (Section 106)" this letter and enclosures are being transmitted to initiate consultation pursuant to this undertaking.

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The Honorable LeRoy N. Shingiotewa  
Page 2

dating to 1979 were found at the Granite Mountains site. Given the proposed scope of work, existing conditions, and the results of the enclosed cultural resources investigations, CBP has determined that no historic properties will be affected by these undertakings.

To ensure that any areas of sacred or spiritual significance to the Hopi Tribe are considered, we would appreciate your help in identifying any interests or concerns regarding any cultural resources that you believe may be affected by the proposed modernization of the TACCOM LMR modernization project within the El Paso Focus Area. We welcome your comments on these undertakings and look forward to hearing any concerns you may have regarding cultural resources, Traditional Cultural Properties and Indian sacred sites within the proposed project areas.

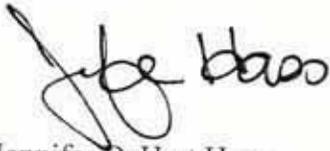
Your prompt attention to this request would be greatly appreciated. For additional information, please contact:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

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Margaret  
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K...  
9-6-11

If you require additional information or have any questions, please contact Jennifer DeHart Hass by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosures

cc: Hopi Cultural Preservation Office



## COLORADO RIVER INDIAN TRIBES Museum Department

26600 MOHAVE ROAD  
PARKER, ARIZONA 85344

September 2, 2011

Lisa Swick  
Acting Museum Director  
Museum Department  
26600 Mohave Road  
Parker, AZ 85344  
(928)-669-8970

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington DC 20229-1106

Dear Ms. Jennifer DeHart Hass:

Thank you for your letter requesting Initiation of Section 106 Consultation for four proposed Communication Sites under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land and Mobile Radio Modernization Project in Arizona.

Based on your information you provided in the attachments to your letter, the Colorado River Indian Tribes concur with your findings of no significant or historic properties will be affected at this time for the four proposed projects at Buck Peak, Cobre Mountain, Granite Mountain, and Christmas Pass in Pima, Santa Cruz, and Yuma counties, Arizona. However, the Colorado River Indian Tribes does reserve the right to intervene at a later date if new or omitted information may become available that is related to the proposed projects.

Thank you.

If you have any further concerns or questions, you may contact me at (928) 669-8970.

Sincerely,

A handwritten signature in cursive script, appearing to read "Lisa Swick".

COLORADO RIVER INDIAN TRIBES  
Lisa Swick, Acting Museum Director  
Museum Department

Cc: Eldred Enas, Tribal Chairman  
Eric Shepard, Attorney General  
File



**U.S. Customs and  
Border Protection**

SEP 08 2011

The Honorable Lee Biaza  
Superintendent  
Organ Pipe Cactus National Monument  
10 Organ Pipe Drive  
Ajo, AZ 85321

Reference: Notice of Intent to Prepare an Environmental Assessment for the CBP Tactical Communications Land Mobile Radio Modernization project at Buck Peak, Christmass Pass, Cobre and Granite Mountain in the Arizona Focus Area.

Dear Superintendent Biaza:

Pursuant to the National Environmental Policy Act of 1969, as amended (NEPA) (42 U.S.C. 4321 et seq.); the Council on Environmental Quality Regulations for implementing the procedural provisions of NEPA (40 CFR parts 1500-1508); and the Department of Homeland Security (DHS) Management Directive 023-01, U.S. Customs and Border Protection (CBP) intends to prepare an Environmental Assessment (EA) for the CBP Tactical Communications (TACCOM) Land Mobile Radio (LMR) Modernization project for the Arizona Focus Area. CBP officers and agents often work in remote areas where commercial communications do not exist, and thus the LMR communication system is critical to mission execution and vital to officer safety. CBP's existing LMR system does not meet current CBP requirements due to coverage gaps, lack of Advanced Encryption Standard (AES) capabilities, and non-compliance with national narrowband mandates (requiring the system to accept interference from other systems). The existing infrastructure also cannot accommodate the expected growth of CBP personnel. To address these problems, CBP proposes to modernize the LMR system with digital technology that complies with current CBP standards and provides narrowband mandate compliance, AES encryption.

To improve operational effectiveness and enhance officer safety, CBP proposes to improve TACCOM through modernization of the existing LMR systems with state-of-the-art digital technology that complies with current CBP standards and provides for narrowband and AES capabilities. CBP is currently analyzing the potential use of four equipment installation sites within the Arizona Focus Area, which includes portions of the Tucson and Yuma Sectors (Figure 1). The proposed project locations include three locations within the Cabeza Prieta National Wildlife Refuge in Yuma and Pima counties and one location in Santa Cruz County within the Coronado National Forest. Table 1 lists the proposed TACCOM locations with latitude and longitude coordinates and corresponding counties. Attachment A includes a map of each proposed TACCOM equipment location displayed on aerial photography.

**Table 1. CBP TacCom LMR Modernization Project locations within the Arizona Focus Area.**

<b>Name</b>	<b>County</b>	<b>Latitude</b>	<b>Longitude</b>
Buck Peak	Yuma	32.382666	-113.89511
Christmas Pass	Yuma	32.269528	-113.709306
Cobre	Santa Cruz	31.453457	-111.287854
Growler Mountain	Pima	32.234667	-113.02455

We are currently in the process of gathering the most current information available regarding Federal and state-listed species, sensitive and unique areas, and other resources potentially occurring within the project area. CBP respectfully requests that your Agency provide a list of sensitive species and land issues that occur within the project areas listed in Table 1, along with a description of the sensitive resources (e.g., rare or unique plant communities, threatened, endangered, and candidate species), and a location map for those resources that you believe may be affected by the proposed CBP activities.

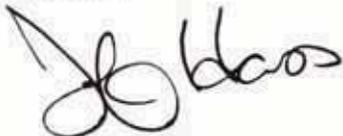
We intend to provide your Agency with a copy of the Draft EA. Please inform us if additional copies are needed and/or if someone else within your Agency other than you should receive the Draft EA.

Your prompt attention to this request would be greatly appreciated. Please direct all correspondence to:

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington, DC 20229-1106

If you require additional information or have any questions or concerns, please feel free to contact me by telephone at (202) 344-1929 or by email at [Jennifer.Hass@cbp.dhs.gov](mailto:Jennifer.Hass@cbp.dhs.gov).

Sincerely,



Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division

Enclosure

ATTACHMENT A

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## **ATTACHMENT A**

### Table of Contents

- Figure 1. TacCom Arizona Focus Area Vicinity Map
- Figure 2. Buck Peak Project Area
- Figure 3. Christmas Pass Project Area
- Figure 4. Cobre Project Area
- Figure 5. Granite Mountain Project Area

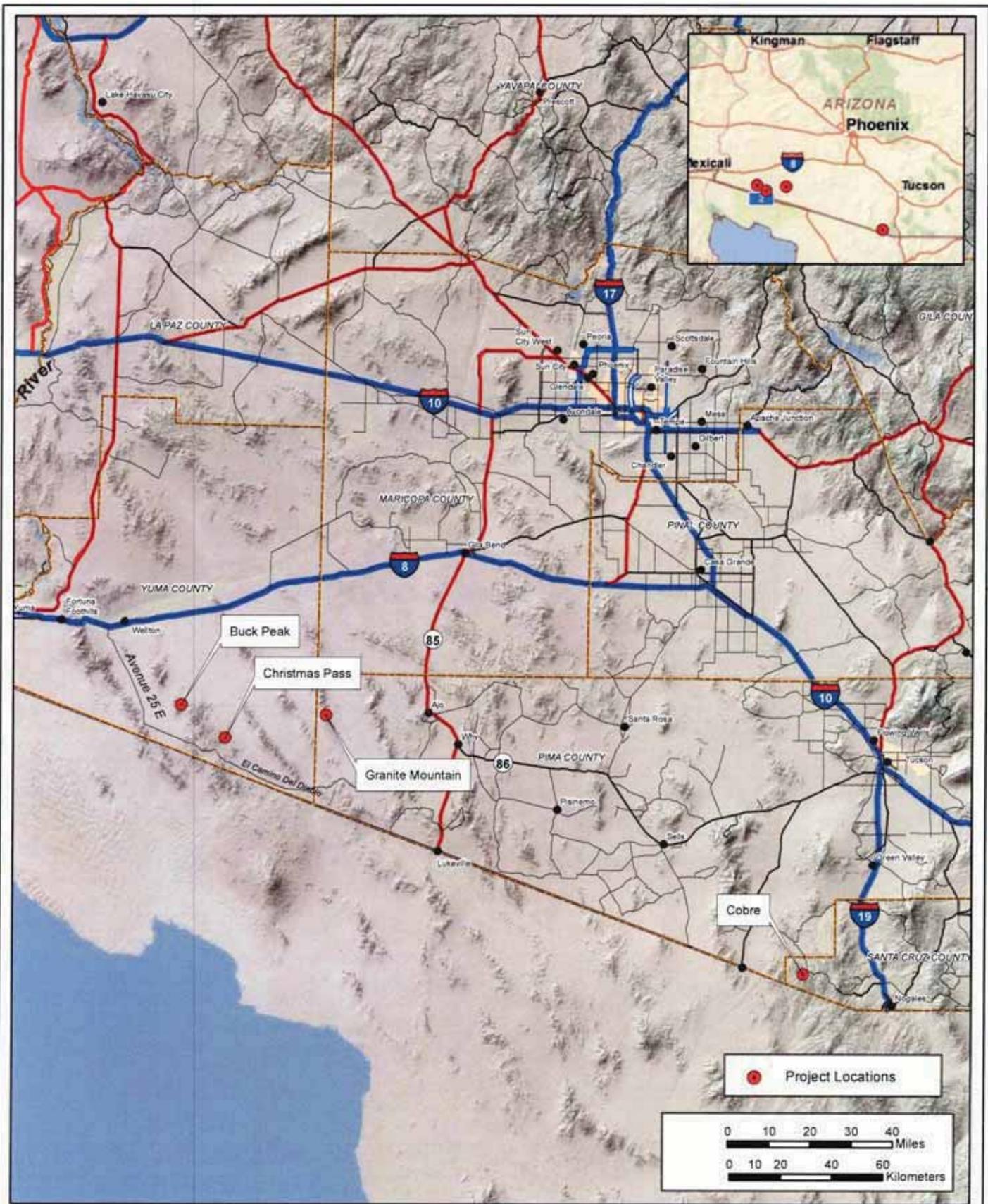


Figure 1: Vicinity Map

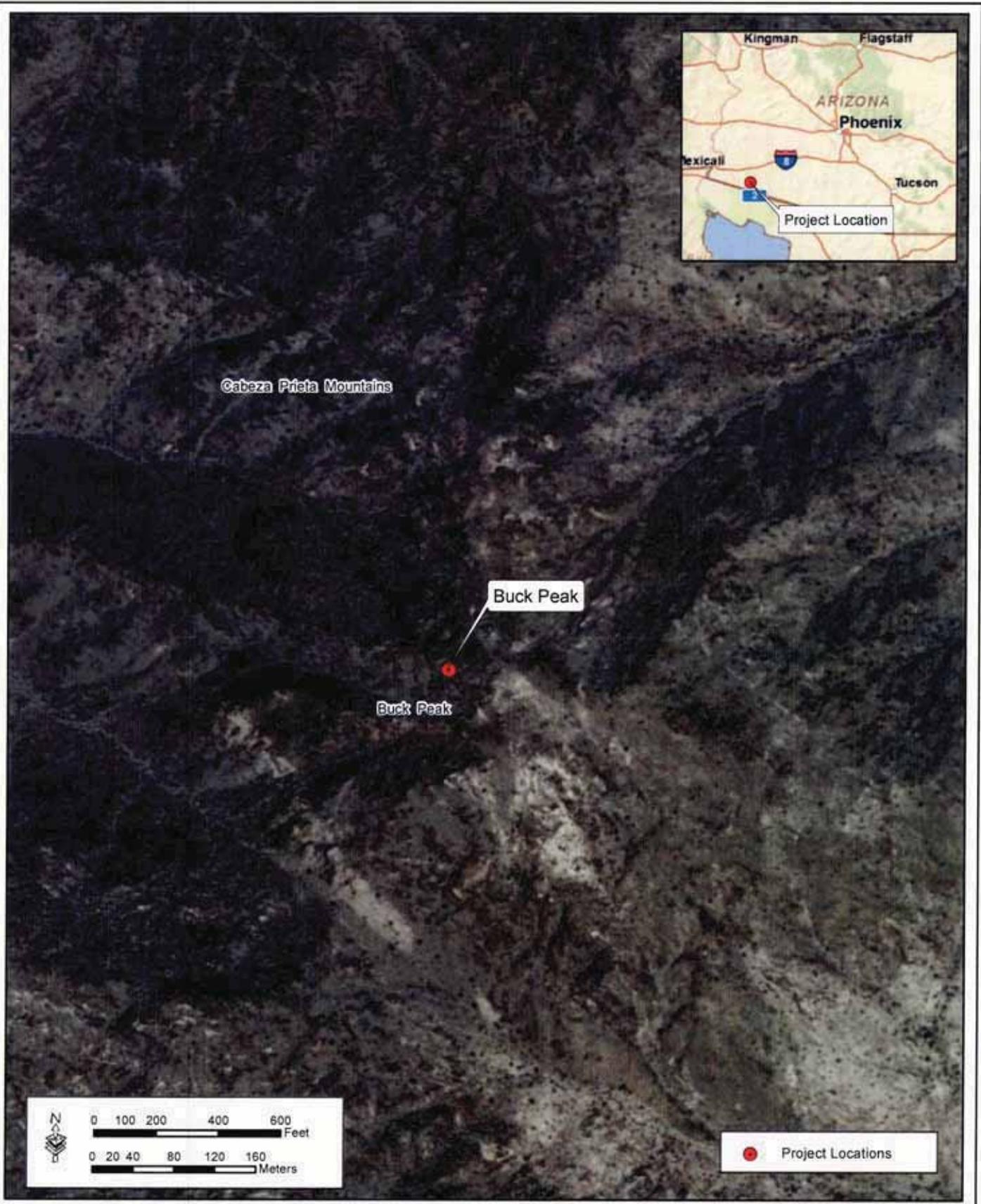


Figure 2: Buck Peak Project Area

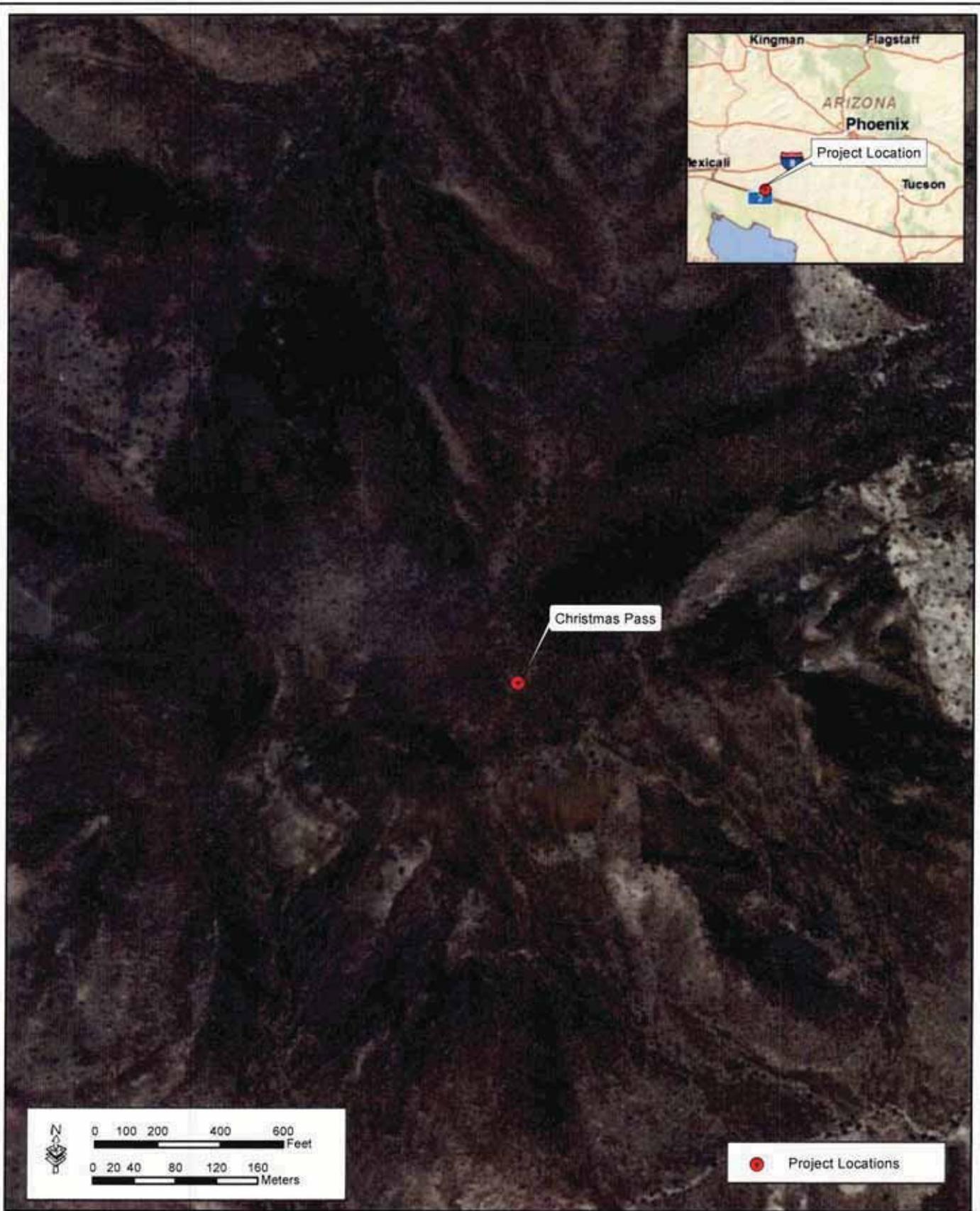


Figure 3: Christmas Pass Project Area

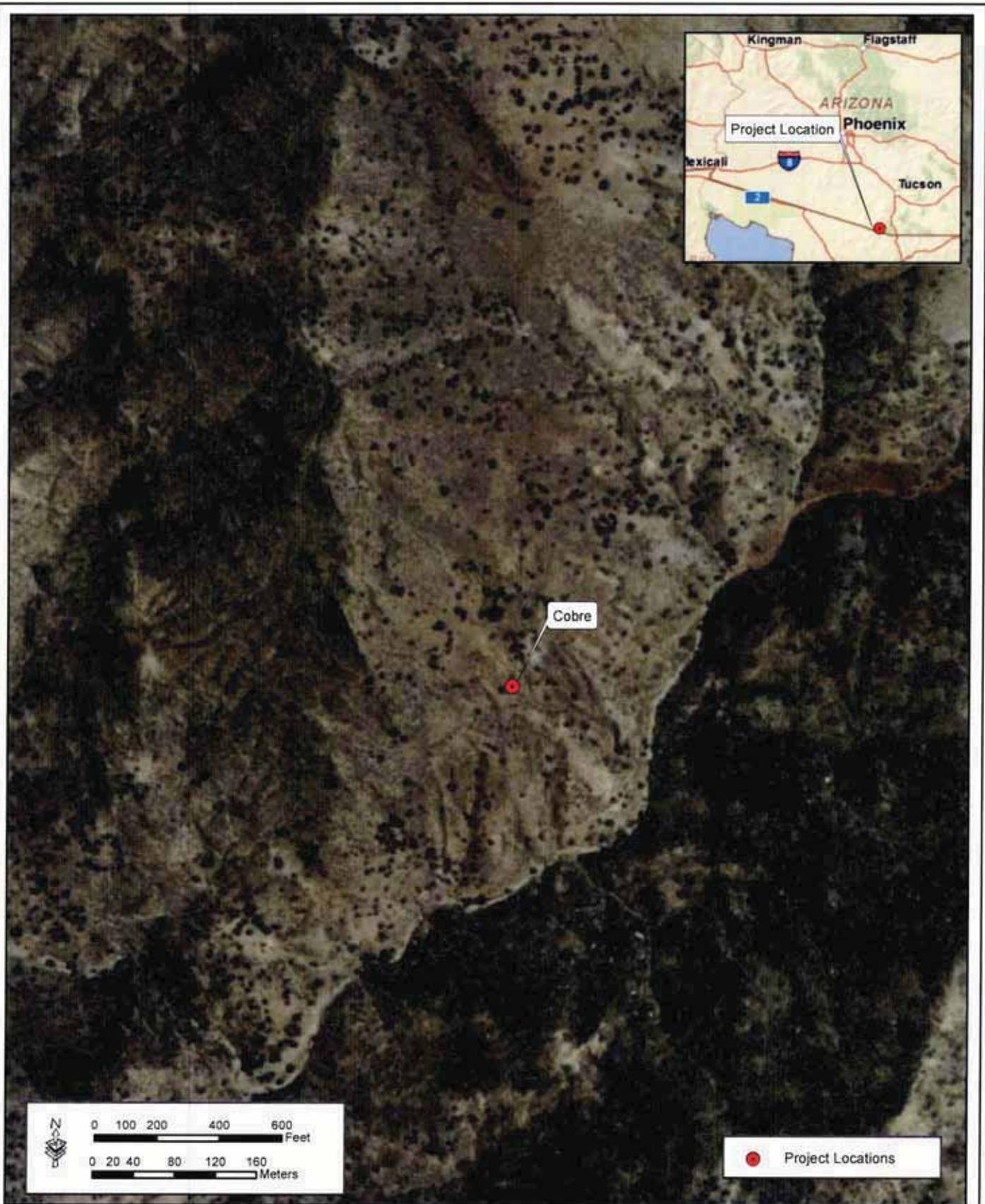


Figure 4: Cobre Project Area

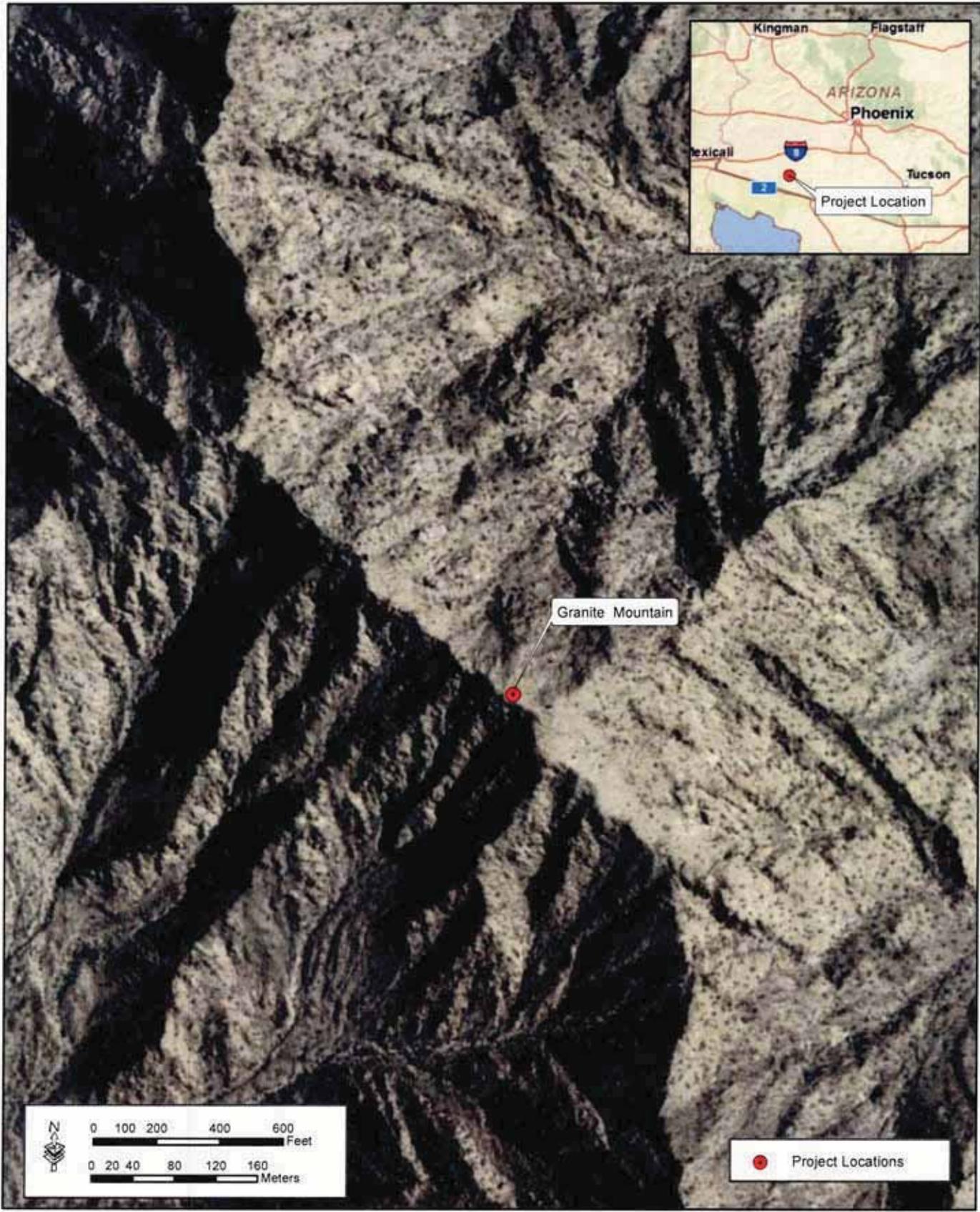


Figure 5: Granite Mountain Project Area

Identical copies of the coordination letter from CBP (dated September 8, 2011) were sent to the following Federal and state agencies and Native American tribal representatives.

Ms. Jean Calhoun  
Assistant Field Supervisor  
U.S. Fish and Wildlife Service  
Arizona Ecological Services Field Office  
201 N. Bonita Ave., Suite 141  
Tucson, AZ 85745

The Honorable Kevin Conrad  
Director  
Cocopah Indian Tribe  
Environmental Protection Office  
County 15 th and Avenue G  
Somerton, AZ 85350

The Honorable Keeny Escallanti. Sr.  
President  
Fort Yuma — Quechan Tribe  
P.O. Box 1899  
Yuma, AZ 85366-1899

Project Evaluation Program Supervisor  
Arizona Game and Fish Department  
WMHB — Project Evaluation Program  
5000 W. Carefree Highway  
Phoenix, AZ 85086-5000

Ms. Angela D. Garcia  
NAGPRA Coordinator  
Cultural Resources Department  
Salt River Pima-Maricopa Indian Community  
10005 E. Osborn Road  
Scottsdale, AZ 85256

The Honorable Wendsler Noise, Sr.  
Chairman  
San Carlos Apache Tribe  
P.O. Box 0  
San Carlos, AZ 85550

The Honorable Ned Norris  
Chairman  
Tohono O'odham Nation  
P.O. Box 837'  
Sells, AZ 85634

Mr. Steve Owens  
Director  
Arizona Department of Environmental Quality  
1110 West Washington Street  
Phoenix, AZ 85007

Ms. Teri Raml  
Bureau of Land Management  
Phoenix Field Office  
21605 N. 7th Avenue  
Phoenix, AZ 85027-2099

The Honorable William R. Rhodes  
Governor  
Gila River Indian Community  
P.O. Box 97  
Sacaton, AZ 85247

Mr. Bill Ruth  
Commissioner  
U.S. International Boundary and Water Commission  
4171 North Mesa Street, Suite C 100  
El Paso, TX 79902

The Honorable LeRoy N. Shingoitewa  
Chairman  
Hopi Tribe  
P.O. Box 123  
Sykotsmovi, AZ 86039

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

The Honorable Timothy Williams  
Chairman  
Fort Mohave Indian Tribe  
County 15th and Avenue G  
Somerton, AZ 85350

Mr. Mark Winkleman  
State Land Commissioner  
Arizona State Land Department  
1616 West Adam Street  
Phoenix, AZ 85007

The Honorable Peter Yucupicio  
Chairman  
Pascua Yaqui Tribe  
7474 S. Camino De Oeste  
Tucson, AZ 85757



# GILA RIVER INDIAN COMMUNITY

POST OFFICE BOX 2140, SACATON, AZ 85147

TRIBAL HISTORIC PRESERVATION OFFICE

(520) 562-7162

Fax: (520) 562-5083

September 12, 2011

Jennifer DeHart Hass, Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1300 Pennsylvania Avenue NW  
Washington D.C. 20229

RE: Request for Initiation of Section 106 Consultation for Four Proposed Communications Sites Under U.S. Customs and Border Protection, Wireless Technology Program Tactical Communications Land Mobile Radio Modernization Project in Arizona

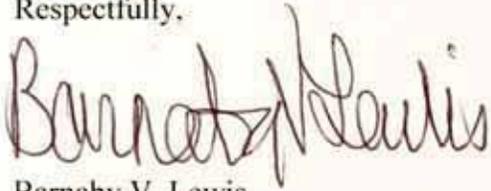
Dear Ms. Hass,

The Gila River Indian Community Tribal Historic Preservation Office (GRIC-THPO) has received your letter and reports dated August 25, 2011. The letter describes a U.S. Customs and Border Protection (CBP) undertaking to install radio repeater equipment at four locations: 1) The Granite Mountains within the Cabeza Prieta National Wildlife Refuge on lands managed by the U.S. Fish and Wildlife Service (FHWS); 2) Buck Peak within the Cabeza Prieta National Wildlife Refuge on lands managed by the FHWS; 3) Christmas Pass within the Cabeza Prieta National Wildlife Refuge on lands managed by the FHWS; and 4) Cobre Mountain within the Coronado National Forest on lands managed by the U.S. Forest Service. The total area of potential effect (APE) is 1.78 acres. Helicopter landing areas were inventoried at each repeater site and equipment will be transported to the repeater sites by helicopter. Isolated occurrences were recorded at the Buck Peak site (two permanently set survey markers), at the Granite Mountains site (two Luke Air Force Base survey markers) and at the Christmas Pass site (a wooden cross and rock pile). The CBP does not consider the isolated occurrences Register eligible properties and has made a determination of no historic properties effected for this undertaking.

The GRIC-THPO concurs with the evaluation of the isolated occurrences and with a finding of no historic properties effected. The GRIC-THPO recommends that the wooden cross located at the Christmas Pass site should remain undisturbed and allowed to disintegrate naturally. The proposed project area is 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). The GRIC-THPO defers to the Tohono O'Odham Nation as lead in the consultation process.

Thank you for contacting the GRIC-THPO about the 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,

A handwritten signature in black ink that reads "Barnaby V. Lewis". The signature is written in a cursive style with a large, prominent "B" and "L".

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



THE STATE OF ARIZONA  
**GAME AND FISH DEPARTMENT**

5000 W. CAREFREE HIGHWAY  
PHOENIX, AZ 85086-5000  
(602) 942-3000 • WWW.AZGFD.GOV

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September 22, 2011

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Avenue, NW, NP 1220  
Washington DC 20229-1106

Re: Special Status Species List for: Notice of Intent to Prepare an Environmental Assessment for the CBP Tactical Communications Land Mobile Radio Modernization Project at Buck Peak, Christmas Pass, Cobre and Granite Mountain in the Arizona Focus Area.

Dear Ms. DeHart Hass:

The Arizona Game and Fish Department (Department) has reviewed your request, received September 8, 2011 regarding special status species information associated with the above-referenced areas. The Department's Heritage Data Management System (HDMS) has been accessed and current records show that the special status species listed on the attachment have been documented as occurring in the vicinity (2-mile buffer). In addition, these areas do not occur in the vicinity of Proposed and/or Designated Critical Habitats.

The Department's HDMS data are not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity.

Making available this information does not substitute for the Department's review of project proposals, and should not decrease our opportunities to review and evaluate new project proposals and sites. The Department is also concerned about other resource values, such as other wildlife, including game species, and wildlife-related recreation. The Department would appreciate the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with project activities occurring in the subject area, when specific details become available.

Ms. Dehart Hass  
September 22, 2011  
Page 2

If you have any questions regarding this letter, please contact me at (623) 236-7486. General status information, county and watershed distribution lists, and abstracts for some special status species are also available on our web site at <http://www.azgfd.gov/hdms>.

Sincerely,



Chip Young  
Project Evaluation Specialist

Attachments

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

AGFD #M11-09135900

## Arizona's On-line Environmental Review Tool

Search ID: 20110922016164

Project Name: CBP Tactical Communications - Buck Peak

Date: 9/22/2011 3:49:57 PM

### Project Location



Project Name: CBP Tactical Communications - Buck Peak

Submitted By: PEP Project Evaluation Program

On behalf of: USBP

Project Search ID: 20110922016164

Date: 9/22/2011 3:49:52 PM

Project Category: Communication, Other telephone or communication line installation (above ground), Maintenance to existing lines

Project Coordinates (UTM Zone 12-NAD 83): 227633.439, 3586539.927 meter

County: YUMA

USGS 7.5 Minute Quadrangle ID: 1645

Quadrangle Name: BUCK PEAK

Project locality is not anticipated to change

The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

### Special Status Species Occurrences/Critical Habitat/Tribal Lands within 2 miles of Project Vicinity:

No special status species were documented as occurring within the project vicinity. However, further field investigations of the project area are highly recommended. Site visits may reveal previously unrecorded resources of special concern in locations where they are currently undocumented.

No proposed or designated critical habitat is within the project vicinity.

No Indian tribal lands are within the project vicinity.

### Location Accuracy Disclaimer

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Receipt is solely responsible for the project location and thus the correctness of the Project Review Receipt content.

**Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference.** If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

**Arizona's On-line Environmental Review Tool:**

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: <http://arizonaes.fws.gov/>.

Phoenix Main Office  
2321 W. Royal Palm Road, Suite 103  
Phoenix, AZ 85021  
Phone 602-242-0210  
Fax 602-242-2513

Tucson Sub-Office  
201 North Bonita, Suite 141  
Tucson, AZ 85745  
Phone 520-670-6144  
Fax 520-670-6154

Flagstaff Sub-Office  
323 N. Leroux Street, Suite 101  
Flagstaff, AZ 86001  
Phone 928-226-0614  
Fax 928-226-1099

**Disclaimer:**

1. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area.
2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HDMS data contains information about species occurrences that have actually been reported to the Department.

**Arizona Game and Fish Department Mission**

***To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and***

*management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.*

## **Project Category: Communication, Other telephone or communication line installation (above ground), Maintenance to existing lines**

### **Project Type Recommendations:**

During planning and construction, minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before and after project activities to reduce the spread of invasive species. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants <http://www.azda.gov/PSD/quarantine5.htm>. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control: <http://www.usda.gov/wps/portal/usdahome>. The Department regulates the importation, purchasing, and transportation of wildlife and fish

(Restricted Live Wildlife), please refer to the hunting regulations for further information [http://www.azgfd.gov/h\\_fhunting\\_rules.shtml](http://www.azgfd.gov/h_fhunting_rules.shtml).

Follow manufacturer's recommended application guidelines for all chemical treatments. The U.S. Fish and Wildlife Service, Region 2, Environmental Contaminants Program has a reference document that serves as their regional pesticide recommendations for protecting wildlife and fisheries resources, titled "Recommended Protection Measures for Pesticide Applications in Region 2 of the USFWS." The Department recommends direct or indirect impacts to sensitive species and their forage base from the application of chemical pesticides or herbicides be considered carefully.

Impacts to raptors by above ground power lines and poles have been well documented. A number of structural improvements can minimize potential impacts to raptors and other migratory birds. Arizona Public Service (APS) offers guidelines to reduce mortality to these species [http://www.aps.com/my\\_community/Environmental/Environmental\\_10.html](http://www.aps.com/my_community/Environmental/Environmental_10.html). In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated. Please contact the Project Evaluation Program for further recommendations regarding trenching and power line associated activities.

### **Recommendations Disclaimer:**

1. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project.
2. These recommendations are proposed actions or guidelines to be considered during **preliminary project development**.
3. Additional site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected

4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. The Department is interested in the conservation of all fish and wildlife resources, including those Special Status Species listed on this receipt, and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
6. **Further coordination requires the submittal of this initialed and signed Environmental Review Receipt with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locally information (including site map).**
7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

**Project Evaluation Program, Habitat Branch  
Arizona Game and Fish Department  
5000 West Carefree Highway  
Phoenix, Arizona 85086-5000  
Phone Number: (623) 236-7600  
Fax Number: (623) 236-7366**

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By using this site, you acknowledge that you have read and understand the terms of use. Department staff may revise these terms periodically. If you continue to use our website after we post changes to these terms, it will mean that you accept such changes. If at any time you do not wish to accept the Terms, you may choose not to use the website.

1. This Environmental Review and project planning website was developed and intended for the purpose of screening projects for

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2. Unauthorized attempts to upload information or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.
  3. The Department reserves the right at any time, without notice, to enhance, modify, alter, or suspend the website and to terminate or restrict your access to the website.
  4. This Environmental Review is based on the project study area that was entered. The review must be redone if the project study area, location, or the type of project changes. If additional information becomes available, this review may need to be reconsidered.
  5. A signed and initialed copy of the Environmental Review Receipt indicates that the entire receipt has been read by the signer of the Environmental Review Receipt.

#### **Security:**

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Print this Environmental Review Receipt using your Internet browser's print function and keep it for your records. Signature of this receipt indicates the signer has read and understands the information provided.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Proposed Date of Implementation: \_\_\_\_\_

Please provide point of contact information regarding this Environmental Review.

*Application or organization responsible for project implementation*

Agency/organization: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

*Person Conducting Search (if not applicant)*

Agency/organization: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

**Arizona's On-line Environmental Review Tool**

Search ID: 20110922016165

Project Name: CBP Tactical Communications - Christmas Peak

Date: 9/22/2011 3:55:35 PM

**Project Location**



**Project Name:** CBP Tactical Communications - Christmas Peak

**Submitted By:** PEP Project Evaluation Program

**On behalf of:** USBP

**Project Search ID:** 20110922016165

**Date:** 9/22/2011 3:55:29 PM

**Project Category:** Communication, Other telephone or communication line installation (above ground), Maintenance to existing lines

**Project Coordinates (UTM Zone 12-NAD 83):** 244802.396, 3573534.328 meter

**County:** YUMA

**USGS 7.5 Minute Quadrangle ID:** 1691

**Quadrangle Name:** CHRISTMAS PASS

**Project locality is not anticipated to change**

The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

**Special Status Species Occurrences/Critical Habitat/Tribal Lands within 2 miles of Project Vicinity:**

Name	Common Name	FWS	USFS	BLM	State
<i>Antilocapra americana sonoriensis</i>	Sonoran Pronghorn	LE			WSC
<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	Clustered Barrel Cactus				SR

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2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
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2321 W. Royal Palm Road, Suite 103  
Phoenix, AZ 85021  
Phone 602-242-0210  
Fax 602-242-2513

Tucson Sub-Office  
201 North Bonita, Suite 141  
Tucson, AZ 85745  
Phone 520-670-6144  
Fax 520-670-6154

Flagstaff Sub-Office  
323 N. Leroux Street, Suite 101  
Flagstaff, AZ 86001  
Phone 928-226-0614  
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*management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.*

## **Project Category: Communication, Other telephone or communication line installation (above ground), Maintenance to existing lines**

### **Project Type Recommendations:**

During planning and construction, minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before and after project activities to reduce the spread of invasive species. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants <http://www.azda.gov/PSD/quarantine5.htm>. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control: <http://www.usda.gov/wps/portal/usdahome>. The Department regulates the importation, purchasing, and transportation of wildlife and fish

(Restricted Live Wildlife), please refer to the hunting regulations for further information [http://www.azgfd.gov/h\\_f/hunting\\_rules.shtml](http://www.azgfd.gov/h_f/hunting_rules.shtml).

Follow manufacturer's recommended application guidelines for all chemical treatments. The U.S. Fish and Wildlife Service, Region 2, Environmental Contaminants Program has a reference document that serves as their regional pesticide recommendations for protecting wildlife and fisheries resources, titled "Recommended Protection Measures for Pesticide Applications in Region 2 of the USFWS." The Department recommends direct or indirect impacts to sensitive species and their forage base from the application of chemical pesticides or herbicides be considered carefully.

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### **Project Location and/or Species recommendations:**

Heritage Data Management System records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:  
Ecological Services Office  
US Fish and Wildlife Service  
2321 W. Royal Palm Rd.  
Phoenix, AZ 85021-4951

Arizona's On-line Environmental Review Tool

Search ID: 20110922016165

Project Name: CBP Tactical Communications - Christmas Peak

Date: 9/22/2011 3:55:35 PM

Phone: 602-242-0210

Fax: 602-242-2513

Heritage Data Management System records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area (refer to page 1 of the receipt). Please contact:

Arizona Department of Agriculture

1688 W Adams

Phoenix, AZ 85007

Phone: 602-542-4373

**Recommendations Disclaimer:**

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**are to be accomplished, and project locality information (including site map).**

7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

**Project Evaluation Program, Habitat Branch**

**Arizona Game and Fish Department**

**5000 West Carefree Highway**

**Phoenix, Arizona 85086-5000**

**Phone Number: (623) 236-7600**

**Fax Number: (623) 236-7366**

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4. This Environmental Review is based on the project study area that was entered. The review must be redone if the project study area, location, or the type of project changes. If additional information

Arizona's On-line Environmental Review Tool

Search ID: 20110922016165

Project Name: CBP Tactical Communications - Christmas Peak

Date: 9/22/2011 3:55:35 PM

becomes available, this review may need to be reconsidered.

5. A signed and initialed copy of the Environmental Review Receipt indicates that the entire receipt has been read by the signer of the Environmental Review Receipt.

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Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Proposed Date of Implementation: \_\_\_\_\_

Please provide point of contact information regarding this Environmental Review.

Application or organization responsible for project implementation

Agency/organization: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

Person Conducting Search (if not applicant)

Arizona's On-line Environmental Review Tool

Search ID: 20110922016165

Project Name: CBP Tactical Communications - Christmas Peak

Date: 9/22/2011 3:55:35 PM

Agency/organization: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_



**Arizona's On-line Environmental Review Tool**

Search ID: 20110922016166

Project Name: CBP Tactical Communications - Cobre Mountain

Date: 9/22/2011 3:58:55 PM

**Project Location**



**Project Name:** CBP Tactical Communications - Cobre Mountain

**Submitted By:** PEP Project Evaluation Program

**On behalf of:** USBP

**Project Search ID:** 20110922016166

**Date:** 9/22/2011 3:58:49 PM

**Project Category:** Communication, Other telephone or communication line installation (above ground), Maintenance to existing lines

**Project Coordinates (UTM Zone 12-NAD 83):** 472650.938, 3479893.952 meter

**County:** SANTA CRUZ

**USGS 7.5 Minute Quadrangle ID:** 1938

**Quadrangle Name:** BARTLETT MOUNTAIN

**Project locality is not anticipated to change**

**Location Accuracy Disclaimer**

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The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

**Special Status Species Occurrences/Critical Habitat/Tribal Lands within 2 miles of Project Vicinity:**

Name	Common Name	FWS	USFS	BLM	State
Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	SC	S		HS
Aquila chrysaetos	Golden Eagle	BGA			
Gastrophyrus olivaceus	Western Narrow-mouthed Toad		S	S	WSC
Macropodium supinum	Supine Bean	SC	S		SR
Myotis velifer	Cave Myotis	SC			
Rana chichahuensis	Chiricahua Leopard Frog	LT			WSC

Arizona's On-line Environmental Review Tool

Search ID: 20110922016166

Project Name: CBP Tactical Communications - Coche Mountain

Date: 9/22/2011 3:58:55 PM

**Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference.** If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

**Arizona's On-line Environmental Review Tool:**

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: <http://arizonaes.fws.gov/>.

Phoenix Main Office  
2321 W. Royal Palm Road, Suite 103  
Phoenix, AZ 85021  
Phone 602-242-0210  
Fax 602-242-2513

Tucson Sub-Office  
201 North Bonita, Suite 141  
Tucson, AZ 85745  
Phone 520-670-6144  
Fax 520-670-6154

Flagstaff Sub-Office  
323 N. Leroux Street, Suite 101  
Flagstaff, AZ 86001  
Phone 928-226-0614  
Fax 928-226-1099

**Disclaimer:**

1. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area.
2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HDMS data contains information about species occurrences that have actually been reported to the Department.

**Arizona Game and Fish Department Mission**

***To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and***

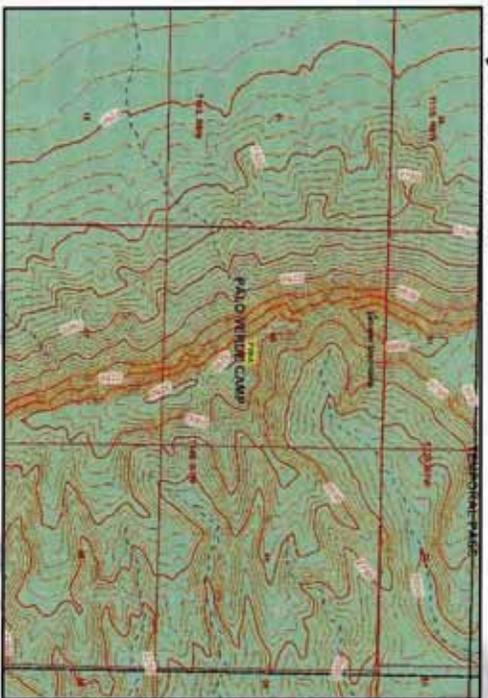
Arizona's On-line Environmental Review Tool

Search ID: 20110922016167

Project Name: CBP Tactical Communications - Growler Mountain

Date: 9/22/2011 4:01:23 PM

Project Location



Project Name: CBP Tactical Communications - Growler Mountain

Submitted By: PEP Project Evaluation Program

On behalf of: USBP

Project Search ID: 20110922016167

Date: 9/22/2011 4:01:17 PM

Project Category: Communication, Other telephone or communication line installation (above ground), Maintenance to existing lines

Project Coordinates (UTM Zone 12-NAD 83): 309241.834, 3568245.330 meter

County: PIMA

USGS 7.5 Minute Quadrangle ID: 1736

Quadrangle Name: PALO VERDE CAMP

Project locality is not anticipated to change

The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

Special Status Species Occurrences/Critical Habitat/Tribal Lands within 2 miles of Project Vicinity:

Name	Common Name	FWS	USFS	BLM	State
<i>Antilocapra americana sonoriensis</i>	Sonoran Pronghorn	LE			WSC

Location Accuracy Disclaimer

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Receipt is solely responsible for the project location and thus the correctness of the Project Review Receipt content.

Arizona's On-line Environmental Review Tool

Search ID: 20110922016167  
Project Name: CBP Tactical Communications - Growler Mountain  
Date: 9/22/2011 4:01:23 PM

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**Arizona Game and Fish Department Mission**

**To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and**

*management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.*

## **Project Category: Communication, Other telephone or communication line installation (above ground), Maintenance to existing lines**

### **Project Type Recommendations:**

During planning and construction, minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before and after project activities to reduce the spread of invasive species. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants <http://www.azda.gov/PSD/quarantine5.htm>. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control: <http://www.usda.gov/wps/portal/usdahome>. The Department regulates the importation, purchasing, and transportation of wildlife and fish

(Restricted Live Wildlife), please refer to the hunting regulations for further information [http://www.azgfd.gov/hunting\\_rules.shtml](http://www.azgfd.gov/hunting_rules.shtml).

Follow manufacturer's recommended application guidelines for all chemical treatments. The U.S. Fish and Wildlife Service, Region 2, Environmental Contaminants Program has a reference document that serves as their regional pesticide recommendations for protecting wildlife and fisheries resources, titled "Recommended Protection Measures for Pesticide Applications in Region 2 of the USFWS." The Department recommends direct or indirect impacts to sensitive species and their forage base from the application of chemical pesticides or herbicides be considered carefully.

Impacts to raptors by above ground power lines and poles have been well documented. A number of structural improvements can minimize potential impacts to raptors and other migratory birds. Arizona Public Service (APS) offers guidelines to reduce mortality to these species [http://www.aps.com/my\\_community/Environmental/Environmental\\_10.html](http://www.aps.com/my_community/Environmental/Environmental_10.html). In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated. Please contact the Project Evaluation Program for further recommendations regarding trenching and power line associated activities.

### **Project Location and/or Species recommendations:**

Heritage Data Management System records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:

Ecological Services Office  
US Fish and Wildlife Service  
2321 W. Royal Palm Rd.  
Phoenix, AZ 85021-4951

Phone: 602-242-0210  
Fax: 602-242-2513

**Recommendations Disclaimer:**

1. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project.
2. These recommendations are proposed actions or guidelines to be considered during **preliminary project development**.
3. Additional site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. The Department is interested in the conservation of all fish and wildlife resources, including those Special Status Species listed on this receipt, and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
6. **Further coordination requires the submittal of this initialed and signed Environmental Review Receipt with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map).**
7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

**Project Evaluation Program, Habitat Branch  
Arizona Game and Fish Department  
5000 West Carefree Highway  
Phoenix, Arizona 85086-5000**

**Phone Number: (623) 236-7600  
Fax Number: (623) 236-7366**

**Terms of Use**

By using this site, you acknowledge that you have read and understand the terms of use. Department staff may revise these terms periodically. If you continue to use our website after we post changes to these terms, it will mean that you accept such changes. If at any time you do not wish to accept the Terms, you may choose not to use the website.

1. This Environmental Review and project planning website was developed and intended for the purpose of screening projects for potential impacts on resources of special concern. By indicating your agreement to the terms of use for this website, you warrant that you will not use this website for any other purpose.
2. Unauthorized attempts to upload information or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.
3. The Department reserves the right at any time, without notice, to enhance, modify, alter, or suspend the website and to terminate or restrict your access to the website.
4. This Environmental Review is based on the project study area that was entered. The review must be redone if the project study area, location, or the type of project changes. If additional information becomes available, this review may need to be reconsidered.
5. A signed and initialed copy of the Environmental Review Receipt indicates that the entire receipt has been read by the signer of the Environmental Review Receipt.

**Security:**

The Environmental Review and project planning web application operates on a complex State computer system. This system is

Arizona's On-line Environmental Review Tool

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Project Name: CHP Tactical Communications - Growler Mountain

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monitored to ensure proper operation, to verify the functioning of applicable security features, and for other like purposes. Anyone using this system expressly consents to such monitoring and is advised that if such monitoring reveals possible evidence of criminal activity, system personnel may provide the evidence of such monitoring to law enforcement officials. Unauthorized attempts to upload or change information; to defeat or circumvent security measures; or to utilize this system for other than its intended purposes are prohibited.

This website maintains a record of each environmental review search result as well as all contact information. This information is maintained for internal tracking purposes. Information collected in this application will not be shared outside of the purposes of the Department.

If the Environmental Review Receipt and supporting material are not mailed to the Department or other appropriate agencies within six (6) months of the Project Review Receipt date, the receipt is considered to be null and void, and a new review must be initiated.

Print this Environmental Review Receipt using your Internet browser's print function and keep it for your records. Signature of this receipt indicates the signer has read and understands the information provided.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Proposed Date of Implementation: \_\_\_\_\_

Please provide point of contact information regarding this Environmental Review.

*Application or organization responsible for project implementation*

Agency/organization: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

*Person Conducting Search (if not applicant)*

Agency/organization: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_

Arizona's On-line Environmental Review Tool  
Search ID: 20110922016167  
Project Name: CBP Tactical Communications - Growler Mountain  
Date: 9/22/2011 4:01:23 PM

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_





Janice K. Brewer  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007  
(602) 771-2300 • [www.azdeq.gov](http://www.azdeq.gov)



Henry R. Darwin  
Director

October 4, 2011

Ms. Jennifer DeHart Hass  
Planning Branch Chief  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania avenue, NW, NP 1220  
Washington, DC 20229-1106

RE: Pima, Santa Cruz and Yuma Counties: Scoping Letter for Land Mobile Radio  
Modernization Project, Environmental Assessment

To Ms. DeHart Hass:

The ADEQ Air Quality Division has reviewed your letter dated September 8, 2011 on the Scoping Letter concerning the Land Mobile Radio Modernization Project. Your project is not located in a nonattainment or maintenance area for regulated air pollutants. As described, it may have a de minimis impact on air quality. Disturbance of particulate matter is anticipated during construction. Considering prevailing winds, to comply with other applicable air pollution control requirements and minimize adverse impacts on public health and welfare, the following information is provided for consideration:

## REDUCE DISTURBANCE of PARTICULATE MATTER during CONSTRUCTION

This action, plan or activity may temporarily increase ambient particulate matter (dust) levels. Particulate matter 10 microns in size and smaller can penetrate the lungs of human beings and animals and is subject to a National Ambient Air Quality Standard (NAAQS) to protect public health and welfare. Particulate matter 2.5 microns in size and smaller is difficult for lungs to expel and has been linked to increases in death rates; heart attacks by disturbing heart rhythms and increasing plaque and clotting; respiratory infections; asthma attacks and cardiopulmonary obstructive disease (COPD) aggravation. It is also subject to a NAAQS.

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;

Northern Regional Office  
1801 W. Route 66 • Suite 117 • Flagstaff, AZ 86001  
(928) 779-0313

Southern Regional Office  
400 West Congress Street • Suite 433 • Tucson, AZ 85701  
(520) 628-6733

- 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 Lhamo LeMoine at (602) 771-2373.

Very truly yours,



Diane L. Arnst, Manager  
Air Quality Planning Section

Enclosures (2)

cc: Bret Parke, EV Administrative Counsel  
Lhamo LeMoine, Administrative Secretary  
File No. 267653

- c. If the burning would occur at a solid waste facility in violation of 40 CFR 258.24 and the Director has not issued a variance under A.R.S. § 49-763.01.
- E. Open outdoor fires of dangerous material. A fire set for the disposal of a dangerous material is allowed by the provisions of this Section, when the material is too dangerous to store and transport, and the Director has issued a permit for the fire. A permit issued under this subsection shall contain all provisions in subsection (D)(3) except for subsections (D)(3)(e) and (D)(3)(f). The Director shall permit fires for the disposal of dangerous materials only when no safe alternative method of disposal exists, and burning the materials does not result in the emission of hazardous or toxic substances either directly or as a product of combustion in amounts that will endanger health or safety.
- F. Open outdoor fires of household waste. An open outdoor fire for the disposal of household waste is allowed by provisions of this Section when permitted in writing by the Director or a delegated authority. A permit issued under this subsection shall contain all provisions in subsection (D)(3) except for subsections (D)(3)(e) and (D)(3)(f). The permittee shall conduct open outdoor fires of household waste in an approved waste burner and shall either:
1. Burn household waste generated on-site on farms or ranches of 40 acres or more where no household waste collection or disposal service is available; or
  2. Burn household waste generated on-site where no household waste collection and disposal service is available and where the nearest other dwelling unit is at least 500 feet away.
- G. Permits issued by a delegated authority. The Director may delegate authority for the issuance of open burning permits to a county, city, town, air pollution control district, or fire district. A delegated authority may not issue a permit for its own open burning activity. The Director shall not delegate authority to issue permits to burn dangerous material under subsection (E). A county, city, town, air pollution control district, or fire district with delegated authority from the Director may assign that authority to one or more private fire protection service providers that perform fire protection services within the county, city, town, air pollution control district, or fire district. A private fire protection provider shall not directly or indirectly condition the issuance of open burning permits on the applicant being a customer. Permits issued under this subsection shall comply with the requirements in subsection (D)(3) and be in a format prescribed by the Director. Each delegated authority shall:
1. Maintain a copy of each permit issued for the previous five years available for inspection by the Director;
  2. For each permit currently issued, have a means of contacting the person authorized by the permit to set an open fire if an order to extinguish open burning is issued; and
  3. Annually submit to the Director by May 15 a record of daily burn activity, excluding household waste burn permits, on a form provided by the Director for the previous calendar year containing the information required in subsections (D)(3)(e) and (D)(3)(f).
- H. The Director shall hold an annual public meeting for interested parties to review operations of the open outdoor fire program and discuss emission reduction techniques.
- I. Nothing in this Section is intended to permit any practice that is a violation of any statute, ordinance, rule, or regulation.

#### Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Amended effective October 2, 1979 (Supp. 79-5). Correction, subsection (C) repealed effective October 2, 1979, not shown (Supp. 80-1). Former Section R9-3-602 renumbered without change as Section R18-2-602 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-602 renumbered to R18-2-802, new Section R18-2-602 renumbered from R18-2-401 effective November 15, 1993 (Supp. 93-4). Amended by final rulemaking at 10 A.A.R. 388, effective March 16, 2004 (Supp. 04-1).

#### R18-2-603. Repealed

#### Historical Note

Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-603 renumbered without change as Section R18-2-603 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-603 renumbered to R18-2-803, new Section R18-2-603 renumbered from R18-2-403 effective November 15, 1993 (Supp. 93-4). Repealed effective October 8, 1996 (Supp. 96-4).

#### 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).

**R18-2-608. Mineral Tailings**

No person shall cause, suffer, allow, or permit construction of mineral tailing piles without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director.

**Historical Note**

Section R18-2-608 renumbered from R18-2-408, new Section R18-2-408 adopted effective November 15, 1993 (Supp. 93-4).

**R18-2-609. Agricultural Practices**

A person shall not cause, suffer, allow, or permit the performance of agricultural practices outside the Phoenix and Yuma planning areas, as defined in 40 CFR 81.303, which is incorporated by reference in R18-2-210, including tilling of land and application of fertilizers without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne.

**Historical Note**

Section R18-2-609 renumbered from R18-2-409 effective November 15, 1993 (Supp. 93-4). Amended by final rulemaking at 6 A.A.R. 2009; effective May 12, 2000 (Supp. 00-2). Amended by final rulemaking at 11 A.A.R. 2210, effective July 18, 2005 (Supp. 05-2).

**R18-2-610. Definitions for R18-2-611**

The definitions in Article 1 of this Chapter and the following definitions apply to R18-2-611:

1. "Access restriction" means restricting or eliminating public access to noncropland with signs or physical obstruction.
2. "Aggregate cover" means gravel, concrete, recycled road base, caliche, or other similar material applied to noncropland.
3. "Artificial wind barrier" means a physical barrier to the wind.
4. "Best management practice" means a technique verified by scientific research, that on a case-by-case basis is practical, economically feasible, and effective in reducing PM<sub>10</sub> emissions from a regulated agricultural activity.
5. "Chemical irrigation" means applying a fertilizer, pesticide, or other agricultural chemical to cropland through an irrigation system.
6. "Combining tractor operations" means performing two or more tillage, cultivation, planting, or harvesting operations with a single tractor or harvester pass.
7. "Commercial farm" means 10 or more contiguous acres of land used for agricultural purposes within the boundary of the Maricopa PM<sub>10</sub> nonattainment area.
8. "Commercial farmer" means an individual, entity, or joint operation in general control of a commercial farm.
9. "Committee" means the Governor's Agricultural Best Management Practices Committee.
10. "Cover crop" means plants or a green manure crop grown for seasonal soil protection or soil improvement.
11. "Critical area planting" means using trees, shrubs, vines, grasses, or other vegetative cover on noncropland.
12. "Cropland" means land on a commercial farm that:
  - a. Is within the time-frame of final harvest to plant emergence;
  - b. Has been tilled in a prior year and is suitable for crop production, but is currently fallow; or
  - c. Is a turn-row.

**ARTICLE 8. EMISSIONS FROM MOBILE SOURCES (NEW AND EXISTING)****R18-2-801. Classification of Mobile Sources**

- A. This Article is applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or agricultural equipment used in normal farm operations.
- B. Unless otherwise specified, no mobile source shall emit smoke or dust the opacity of which exceeds 40%.

**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 R18-2-801 renumbered to Section R18-2-901, new Section R18-2-801 renumbered from R18-2-601 effective November 15, 1993 (Supp. 93-4).

**R18-2-802. Off-road Machinery**

- A. No person shall cause, allow or permit to be emitted into the atmosphere from any off-road machinery, smoke 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. Off-road machinery shall include trucks, graders, scrapers, rollers, locomotives and other construction and mining machinery not normally driven on a completed public roadway.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-802 renumbered to Section R18-2-902, new Section R18-2-802 renumbered from R18-2-602 effective November 15, 1993 (Supp. 93-4).

**R18-2-803. Heater-planer Units**

No person shall cause, allow or permit to be emitted into the atmosphere from any heater-planer operated for the purpose of reconstructing asphalt pavements smoke the opacity of which exceeds 20%. However three minutes' upset time in any one hour shall not constitute a violation of this Section.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-803 renumbered to Section R18-2-903, new Section R18-2-803 renumbered from R18-2-603 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).

**R18-2-805. Asphalt or Tar Kettles**

- A. No person shall cause, allow or permit to be emitted into the atmosphere from any asphalt or tar kettle smoke for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%.
- B. In addition to complying with subsection (A), no person shall cause, allow or permit the operation of an asphalt or tar kettle without minimizing air contaminant emissions by utilizing all of the following control measures:
1. The control of temperature recommended by the asphalt or tar manufacturer;
  2. The operation of the kettle with lid closed except when charging;
  3. The pumping of asphalt from the kettle or the drawing of asphalt through cocks with no dipping;
  4. The dipping of tar in an approved manner;
  5. The maintaining of the kettle in clean, properly adjusted, and good operating condition;
  6. The firing of the kettle with liquid petroleum gas or other fuels acceptable to the Director.

**Historical Note**

Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-805 renumbered to Section R18-2-905, new Section R18-2-805 renumbered from R18-2-605 effective November 15, 1993 (Supp. 93-4).



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Cabeza Prieta National Wildlife Refuge  
1611 N. 2<sup>nd</sup> Avenue  
Ajo, AZ 85321-1634



SEP 11 2012

Ms Jennifer DeHart Hass  
Director  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1331 Pennsylvania Ave. NW, NP 1220  
Washington, DC 20229-1106

Ref: Cooperating Agency for NEPA Compliance on Proposed Communication Facility Installations at Christmas Pass, Granite Mountain, and Buck Peak on the Cabeza Prieta National Wildlife Refuge.

Dear Ms. DeHart Hass,

As you are aware, the Cabeza Prieta National Wildlife Refuge has considerable interest in the Arizona Land Mobile Radio Modernization Project as three of the four proposed facilities are located within the refuge. Our organizations have met several times in the past few years regarding this project. We will continue to work closely with you in identifying resource issues, environmental impacts, and possible mitigation measures.

As the U.S. Fish and Wildlife Service has jurisdiction over national wildlife refuges, and three of the four facilities are proposed on the Cabeza Prieta National Wildlife Refuge, the Cabeza Prieta NWR agrees to participate as a cooperating agency in the development of the Environmental Assessment for this project.

Sincerely,

Sidney C. Slone  
Refuge Manager  
Cabeza Prieta NWR



# United States Department of the Interior



**Fish and Wildlife Service**  
**Arizona Ecological Services Office**  
2321 West Royal Palm Road, Suite 103  
Phoenix, Arizona 85021-4951  
Telephone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To:  
AESO/SE  
02EAAZOO-2012-F-0200

April 23, 2013

Ms. Jennifer DeHart Hass, Director  
U.S. Customs and Border Protection  
Environmental and Energy Division  
1331 Pennsylvania Avenue NW- NP1525  
Washington, DC 20229

Dear Ms. DeHart Hass:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (ESA). Your request was received by us on February 11, 2013. At issue are possible effects of the proposed Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, Cobre, and Granite Mountain (LMRTacCom) along the U.S./Mexico international border in Pima, Santa Cruz, and Yuma counties, Arizona. Additionally, this consultation covers associated approval actions by the FWS's Cabeza Prieta National Wildlife Refuge and the Coronado National Forest such as the issuance of right-of-way easements, special use permits, preparation of a Minimum Requirements Analysis, or a Wildlife Refuge Compatible Use Analysis. The U.S. Customs and Border Protection (CBP) is designated as the lead Federal agency for these actions.

CBP concluded that the proposed project "may affect, and is likely to adversely affect" the endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*) and this species is the subject of this Biological Opinion (BO).

CBP also concluded that the proposed action "may affect, but is not likely to adversely affect" the threatened Mexican spotted owl (*Strix occidentalis lucida*) and the endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*). We concur with your determination on these species and provide our rationale in Appendix A. CBP has determined that there would be no effect to all other listed species and their designated or proposed critical habitats that occur within the action area for the LMRTacCom project.

The Sonoran desert tortoise (*Gopherus agassizii*) is a candidate species under the ESA. As a candidate, Federal action agencies are not required to consult on this species. We appreciate CBP including this species in the BA, and urge your implementation of the outlined best management practices and other measures to reduce impacts to this species from the proposed project actions. However, effects to this species will not be analyzed as part of this BO.

This BO is based on information provided in CBP's January 2013 biological assessment (BA) addressing the proposed LMRTacCom Project along the U.S./Mexico international border in Arizona, telephone conversations and meetings between our staffs, and other sources of information found in the administrative record supporting this BO. Literature cited in this BO is not a complete bibliography of all literature available on the types of activities included in the LMRTacCom project or the species addressed in this consultation. A complete administrative record of this consultation is on file at this office.

### **CONSULTATION HISTORY**

January 2012: FWS receives draft BA.

June 8, 2012: FWS responds to CBP with comments on draft BA.

September 13, 2012: FWS and CBP meet to discuss comments on draft BA and discuss consultation.

November 2, 2012: FWS receives revised BA from CBP.

November 29, 2012: FWS provides comments on the revised BA.

December 4, 2012: CBP provides response to FWS regarding updates to the BA.

December 5, 2012: FWS discusses best management practices and conservation measures related to the Sonoran pronghorn with Cabeza Prieta National Wildlife Refuge and CBP.

December 11, 2012: FWS and CBP hold a conference call to discuss consultation issues.

February 4, 2013: FWS receives the final BA and request for consultation.

March 28, 2013: FWS provided a draft BO to CBP for review and comment.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE PROPOSED ACTION**

#### LOCATION

The Land Mobile Radio Tactical Communications (LMRTacCom) Modernization Project includes the installation of communications equipment on up to three mountaintop sites (Christmas Pass, Granite Mountain, and Buck Peak) within Cabeza Prieta National Wildlife Refuge (CPNWR) and one mountaintop site (Cobre) within Coronado National Forest (CNF). The four locations proposed by U.S. Customs and Border Protection (CBP) are in Pima, Santa Cruz, and Yuma counties, Arizona (see Figure 1-1).

#### PROPOSED ACTION

The proposed action includes the installation, operation, repair, and maintenance of radio repeater equipment, and obtaining a special use permit for construction on the subject properties at up to three locations within the CPNWR Wilderness area (Buck Peak, Christmas Pass, and Granite Mountain) and one within the CNF (Cobre). A special use permit or real estate right-of-way would be issued by CPNWR and CNF as part of the proposed action. The issuing of Federal approvals or permits that allow CBP to implement the proposed action is covered by this BO as part of the proposed action.

Radio communications modeling determined the fewest equipment site locations necessary to provide the most coverage possible. Original project plans called for three sites on the CPNWR (Buck Peak, Christmas Pass, and Granite Mountain); however, after additional modeling, the communications coverage provided by Buck Peak and Granite Mountain was nearly equal to the coverage originally modeled for all three sites. CBP proposes to first install the proposed LMRTacCom equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will be used to determine if the models were accurate and adequate communications coverage is provided with only two sites. Field testing involves communications checks along currently used patrol routes to determine if there are any remaining communications "dead spots." If communications coverage is not adequate, or does not meet the requirements of the U.S. Border Patrol (USBP) Wellton or Ajo stations, USBP Yuma or Tucson sectors, or CPNWR, then the proposed LMRTacCom equipment at Christmas Pass site would be installed. Each of the proposed LMRTacCom equipment locations is on a remote mountaintop or ridge. None are protected by a security fence, and they are accessible only by helicopter. Due to the weight of the equipment and steep rugged terrain, all equipment and personnel would be airlifted to the site during the installation phase of the project. Any equipment or materials not needed at the site will be removed from the site. No welding would occur on-site. Installation would take less than 30 days at each site. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year by helicopter. Any replaced equipment would be recycled or otherwise disposed of properly. Trips for emergency repairs may be necessary in addition to the biannual maintenance

trips. All LMRTacCom equipment would be installed on a pre-assembled sled, which would look similar to the existing U.S. Air Force (USAF) equipment on Granite Mountain. Each of the proposed LMRTacCom equipment locations is discussed in detail below.

### **Buck Peak**

Buck Peak is located on a ridge in the CPNWR Wilderness Area in Yuma County, Arizona (see Figure 1-1). Buck Peak currently houses existing CBP communications equipment (one low-power repeater), which is collocated on a solar-powered radio site that is owned and operated by CPNWR. The existing equipment would be replaced because it is outdated and no longer meets CBP's operability requirements. Communications equipment for CPNWR would be updated and collocated at the new CBP facility. The replacement of CPNWR equipment is included as part of this proposed action. The proposed action consists of issuing a special use permit to CBP, the installation of the equipment, and issuing a right-of-way permit for the, operation, repair, and maintenance of communications equipment owned by CBP and CPNWR at Buck Peak. The total surface area required for the radio repeater equipment is approximately 200 square feet. An additional 2,500-square-foot working area would be temporarily disturbed during installation for helicopter landing and workspace needs. Communications equipment to be installed at Buck Peak includes:

- Six mini-solar array platforms that would house solar panels
- Two LMR repeaters
- Duplexers
- SAFARI Commander Station
- One platform-mounted battery enclosure with six batteries
- Two 10-foot-tall poles (one omni-directional dipole array and one grid parabolic antenna)
- Daniel 12.6 Vdc (25 watt) repeater (CPNWR)
- VHF Antenna – dB224 (CPNWR)

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with existing rocks found on-site. Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers for leak containment. There will be no fuel-based generator used on-site. Maintenance and repair access would be accomplished by helicopter. All helicopter access will originate from Wellton and fly a course west of Copper Mountain and enter the refuge and Buck Peak from the west side of the Cabeza only (see Figure 1-2). This should essentially eliminate any potential effects to pronghorn or disturbance in proximity to pronghorn habitat, and helicopter flights can occur during the pronghorn fawning season (March 15 – July 15). If, for some reason, the flight access for this project is not able to follow this route, no helicopter access would occur between March 15 and July 15 to avoid the Sonoran pronghorn fawning season. No fencing surrounds the site, and no guy wires or lighting would be installed at the site. All aspects of equipment installation, including ground disturbance, would be limited to the previously

disturbed area in the immediate vicinity of existing equipment. The replacement of existing equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require 16 round trips by helicopter to provide access for installation technicians to remove existing equipment and for the delivery of new equipment.

### **Christmas Pass**

Christmas Pass is located on a mountaintop in the CPNWR Wilderness Area in Yuma County, Arizona (see Figure 1-1). Communications equipment does not currently exist at this site. This communication facility would only be installed if it is deemed necessary to fill a communications coverage gap after the Buck Peak and Granite Mountain sites are installed and operational. If the LRMTacCom equipment is installed at this location, CPNWR radio repeater equipment will be collocated on the equipment sled.

The proposed action consists of issuing a special use permit to CBP, the installation of equipment, and issuing a right-of-way permit for the operation, repair and maintenance of communications equipment at Christmas Pass. The total surface area required for the communications equipment is 125 square feet. An additional 2,500-square-foot working area would be temporarily disturbed during installation for helicopter landing and workspace needs. Communications equipment to be installed at Christmas Pass includes:

- One 14-panel solar array platform
- One repeater (a possible 2nd repeater for CPNWR may be installed.)
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One 10-foot-tall pole with an omni-directional dipole array
- One tripod-mounted BA40-41 very high frequency (VHF) antenna

The communications equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would minimize lightning damage to the communications equipment. It would require covering the grounding cables with existing rocks found on-site. Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment.

The batteries are sealed and housed in metal and plastic containers for leak containment. There will be no fuel-based generator used on-site. Maintenance and repair access would be accomplished by helicopter or on foot, depending on season of year, the physical condition of the technician, and the amount of material needed to be hauled to the site. The proposed flight access for this site is a western approach that will essentially avoid effects within pronghorn habitat (see Figure 1-2) and flights can occur during the pronghorn fawning season. If for some reason flight access to this site is not able to be from the proposed western approach, no helicopter access would occur between

March 15 and July 15 to avoid the Sonoran pronghorn fawning season if flight access is through Sonoran pronghorn habitat. No fencing surrounds the site, and no guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require seven round trips by helicopter to provide access for installation technicians and to deliver new equipment.

### **Cobre**

Cobre is located atop a remote ridge on the CNF in Santa Cruz County, Arizona (see Figure 1-1). There is no existing communications equipment at the Cobre LRMTacCom site. The proposed action consists of issuing a special use permit and the installation, operation, repair and maintenance of communications equipment at the Cobre LRMTacCom site. The total surface area required for the communications equipment is 250 square feet. An additional 2,500-square-foot working area would be temporarily disturbed during installation for helicopter landing and workspace needs. The location of the working area would avoid the disturbance of woody vegetation. Communications equipment to be installed at the Cobre TacCom site includes:

- One 14-panel solar array platform
- Two receivers
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with six batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array

The communications equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would minimize lightning damage to the communications equipment. It would require covering the grounding cables with existing rocks found on-site. Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers for leak containment. There will be no fuel-based generator used on-site. Maintenance and repair would be accomplished by helicopter.

### **Granite Mountain**

Granite Mountain is located on a remote ridge in the CPNWR Wilderness Area in Pima County, Arizona (see Figure 1-1). The USAF currently operates and maintains communications equipment on Granite Mountain). Collocation of the LMRTacCom communications equipment on the same impact area as the USAF equipment is not possible for the following reasons: 1) the two sets of equipment run on different power systems (USAF equipment requires 48 volts, LRMTacCom equipment requires 12 volts), 2) adding antennas and solar panels would compromise the structural integrity of the existing platform, and 3) CBP requires approximately 100 feet of horizontal separation from the USAF equipment to avoid radio frequency interference from the USAF

communications equipment. Therefore, the LMRTacCom equipment would be located approximately 100 feet east-northeast of the existing USAF equipment.

The proposed action consists of issuing special use and right-of-way permits, and the installation, operation, repair and maintenance of communications equipment at Granite Mountain. The total surface area required for the communications equipment is 30 square feet. If, for some reason, the existing helipad at this site is not able to be used, an additional 2,500-square-foot working area may be needed and would be temporarily disturbed during installation for helicopter landing and workspace needs.

Communications equipment to be installed at Granite Mountain includes:

- One 5-panel solar array platform
- One repeater
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One tripod-mounted BA40-41 VHF antenna

The communications equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would minimize lightning damage to the communication equipment. It would require covering the grounding cables with existing rocks found on-site. Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers for leak containment. There will be no fuel-based generator used on-site. Maintenance and repair access would be accomplished by helicopter. No helicopter access would occur between March 15 and July 15 due to the Sonoran pronghorn fawning season, except under emergency conditions i.e. a system failure prevents operation of the system.

The proposed installation does not include a security fence. No guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. All aspects of equipment installation, including any ground disturbance, would be limited to the previously disturbed area in the vicinity of the existing equipment. There is a partial barbed wire fence at the proposed site. No security fencing is proposed for the site. It is estimated that surveys and the installation of equipment would require 12 round trips by helicopter to provide access for installation technicians and to deliver new equipment.

### **Best Management Practices**

The following best management practices (BMPs) were compiled from previous consultations with FWS regarding the potentially affected species, the FWS Information, Planning and Consultation System (<https://ecos.fws.gov/ipac/>), and through formal consultation with the FWS. The following BMPs will be implemented at all proposed LMRTacCom locations where practicable. Because not all BMPs are applicable to all species, a description of potential effects and BMPs for each

potentially affected species is provided in Sections 3 and 4 of the BA. The following is a general summary of BMPs. Please refer to the BA for a complete description of BMPs.

Best Management Practice 1 (General Construction – BMP1)

BMPs will be developed and implemented as standard operating procedures during all construction activities within or near habitats occupied by, or potentially occupied by, listed species and will include:

BMP1a - proper handling, storage, and disposal of hazardous and regulated materials and other waste

- A. All construction will follow DHS *Directive 025-01* for Sustainable Practices for Environmental, Energy, and Transportation Management.
- B. Where handling of hazardous and regulated materials does occur, 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 over-pack container(s) capable of containing the volume of the largest container stored therein.
- C. Nonhazardous waste materials and other discarded materials, such as construction waste, will be contained until removed from the construction and maintenance sites.
- D. All food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed in closed containers and removed daily from the project site.

BMP1b - minimizing ground disturbance

- A. All areas where ground disturbance will occur will be demarcated using flagging or construction fencing, and all activities will remain within flagged boundaries.
- B. Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during equipment installation. All work shall cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material.
- C. CBP will site, design, and install equipment, to avoid or minimize habitat loss within or adjacent to the footprint and minimize the amount of aboveground obstacles associated with the site. The area of disturbance will be minimized by limiting deliveries of materials and equipment to only those needed for effective project implementation.
- D. Rehabilitation will include the distribution of organic and geological materials (i.e., sticks and rocks) over the disturbed area to reduce erosion while allowing the area to naturally vegetate.
- E. CBP will minimize habitat disturbance by restricting vegetation disturbance to the smallest possible project footprint. CBP will limit the removal of trees, cacti, and brush to the smallest amount needed to meet the objectives of the project. CBP will not remove any ironwood (*Olneya tesota*), paloverde, mesquite (*Prosopis* sp.), agave, barrel cactus, saguaro, organ pipe (*Stenocercus thurberi*), or senita (*Pachycereus schottii*) outside of the permanent footprint. If vegetation other than that identified above must be removed outside the permanent project footprint, CBP will allow natural regeneration of native plants by cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

**BMP1c - minimizing disturbance related to human presence**

- A. The number of trips per day to and from the LRMTacCom sites will be minimized to reduce the likelihood of disturbance of animals in the area.
- B. During project activities on CPNWR, CBP will adhere to Leave No Trace principles regarding human waste. Solid human waste will be deposited into catholes, dug 6 to 8 inches deep.
- C. CBP will not, for any length of time, permit any pets inside the project area or adjacent native habitats. This BMP does not pertain to law enforcement animals.

**Best Management Practice 2 (Nonnative and invasive plants – BMP2)**

- A. CBP will avoid the spread of nonnative plants by not using natural materials (e.g., straw) for on-site erosion control. If natural materials must be used, the natural material would be certified weed and weed-seed free.

**Best Management Practice 3 (Migratory Birds – BMP3)**

- A. CBP will avoid where possible the clearing of vegetation during the migration, breeding, and nesting time frame of migratory birds (February 1 through September 1). When vegetation control must be implemented during February 1 through September 1, a survey for nesting migratory birds will be conducted prior to the start of activities. If an active nest is found, a buffer zone (300 ft.) will be established around the nest and no activities will occur within that zone until nestlings have fledged and abandoned the nest.
- B. To the greatest extent practicable, anti-perching or nesting devices may be implemented to deter birds from perching or nesting on the LMRTacCom equipment. CBP will coordinate with FWS if this measure becomes necessary.

**Best Management Practice 4 (Area Restrictions – BMP4)**

Area restrictions are intended to prevent impacts to individuals and habitats occurring near the proposed action. To reduce potential impacts on Sonoran pronghorn, the following area restrictions will be adhered to:

- CBP will coordinate any trips to LMRTacCom locations for installation or maintenance activities, particularly those in important Sonoran pronghorn areas, with the CPNWR Refuge Manager and AGFD. All maintenance access will be authorized through a special use permit or right-of-way permit. CBP will seek information regarding Sonoran pronghorn locations using telemetry data periodically collected by AGFD and will avoid these locations to the extent feasible.
- Access to the Christmas Pass and Buck Peak sites will be from the west to avoid Sonoran Pronghorn habitat areas. If these access routes are not possible, CBP will coordinate alternative access with CPNWR to avoid or reduced impacts to Sonoran pronghorn.
- Helicopter over-flights for installation or maintenance will not take place within 1 mile of Granite Tank (32.331384°, -113.299146° NAD 83).
- To reduce potential impacts on Mexican spotted owl, helicopter flight paths will be adjusted to climb to higher altitudes to minimize noise emissions within designated Critical Habitat and Protected Activity Centers (PAC) for the Mexican spotted owl. Also, helicopter flight paths will be adjusted to completely avoid PACs and designated Critical Habitat if practicable.

- CBP will avoid restricting water access near proposed LMRTacCom installation sites by identifying and not creating barriers to natural water sources available to listed species.

#### Best Management Practice 5 (Seasonal Restrictions – BMP5)

Seasonal restrictions are intended to prevent impacts to individual animals and their habitats during breeding seasons (see Table 1-1 in BA). If a seasonal restriction cannot be met, CBP will coordinate with FWS to minimize the potential for impacts on protected species.

#### Best Management Practice 6 (Species-Specific Measures – BMP6)

A. In Mexican spotted owl habitat, minimize habitat disturbance by restricting vegetation removal to the footprint of the activity. If vegetation must be removed, allow natural regeneration of native plants by cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

B. Agaves will be avoided to the extent practicable to minimize effects on lesser long-nosed bats. Those plants that cannot be avoided will be transplanted.

### **ACTION AREA**

The “action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The direct effects of the LMRTacCom project will result from the installation and repair and maintenance of communications equipment on four mountaintop locations. Noise emissions during installation and maintenance, especially when a helicopter is used to access the sites, may affect wildlife at distances up to 1 mile from the takeoff point at the U.S. Border Patrol (USBP) Wellton Station or the Nogales International Airport, along the flight path to the LMRTacCom site, and around the landing area adjacent to each site. The action area for this BO is depicted in Figure 1-2. Indirect effects related to erosion or invasive species may occur as a result of the proposed action.

Management of the vast majority of the action area is by Federal agencies. The BMGR (roughly 1.6 million acres) is managed by Luke Air Force Base and the Marine Corps Air Station (MCAS)-Yuma primarily for military training. CPNWR lies south of BMGR and along the border of Organ Pipe Cactus National Monument and encompasses 860,000 acres. CPNWR is managed to protect, maintain, and restore the diversity of the Sonoran Desert. Most of the refuge is designated as wilderness. CPNWR is critically important for Sonoran pronghorn recovery because of their management for protection of natural resources. Lands on the BMGR are managed primarily for military training, and although important recovery is ongoing on these lands and the Department of Defense has generously contributed to the recovery program both on and off the BMGR, changing military priorities could, in the future, limit the value of the BMGR for Sonoran pronghorn recovery. In the eastern portion of the action area, Federal lands managed by the U.S. Forest Service’s CNF make up the majority of the action area. However, there are also trust lands managed by the State Land Department and areas of private ownership.

## **Terrain, Vegetation Communities, and Climate in the Action Area**

The western portion of the action area is characterized by broad alluvial valleys separated by block-faulted mountains and surface volcanics. The Yuma Desert on the western edge of the BMGR is part of a broad valley that includes the Colorado River. Major drainages and mountain ranges run northwest to southeast. Major drainages flow mostly northward to the Gila River, although southern portions of OPCNM and the southern slope of the Agua Dulce Mountains drain south to the Río Sonoyta.

Climate in this portion of the action area is characterized by extreme aridity, mild winters, and hot summers. Approximately 2.7 inches of precipitation fall annually at Yuma, with slightly more than half of this occurring in the winter months (Brown 1982). Annual precipitation increases from west to east across the BMGR; at Aguajita/Quitobaquito, precipitation is 10.5 inches annually. The vegetation community of the western portion of the BMGR has been classified as the lower Colorado River Valley subdivision of Sonoran Desert scrub (Brown 1982). It is the largest and most arid subdivision of Sonoran Desert scrub. The Arizona Upland subdivision of Sonoran Desert scrub is found in the Growler, Puerto Blanco, Ajo and Bates mountains, and surrounding bajadas.

The eastern portion of the action area on CNF is characterized by higher elevation areas including mountain ranges such as the San Luis, Atascosa, and Tumacacori mountains. Valleys surrounding these mountain ranges primarily support grasslands, and are also characterized by river systems such as the Santa Cruz River. Drainages within the valleys support important riparian communities. Vegetation communities in the eastern portion of the action area include Madran Oak woodlands, some coniferous forests, and semidesert grasslands. Summers can be hot in this portion of the action area, but not as hot as the western deserts. Winter temperatures are variable, but are often subfreezing, especially at the higher elevations. Precipitation in the eastern portion of the action area is much greater than in the western deserts and ranges from 11 to 22 inches of annual precipitation.

Monsoon thunderstorms play an important role throughout the action area. The intense monsoon thunderstorms may impact the construction and maintenance of the facilities included in the proposed action.

## **SONORAN PRONGHORN**

### **STATUS OF THE SPECIES**

#### **Description, Legal Status, and Recovery Planning**

The Sonoran subspecies of pronghorn (*Antilocapra americana sonoriensis*) was first described by Goldman (1945) and is the smallest of the four subspecies of pronghorn (Nowak and Paradiso 1983, Brown and Ockenfels 2007). The subspecies was listed throughout its range as endangered on March 11, 1967 (32 FR 4001) under the Endangered Species Preservation Act of October 15, 1966

without critical habitat. Three sub-populations of the Sonoran pronghorn are extant: 1) a U.S. sub-population in southwestern Arizona, 2) a sub-population in the Pinacate Region of northwestern Sonora, and 3) a sub-population on the Gulf of California west and north of Caborca, Sonora. The three sub-populations are predominantly geographically isolated due to barriers such as roads and fences, and, in the case of the two Sonora sub-populations, by distance.

The 1982 Sonoran Pronghorn Recovery Plan (FWS 1982) was revised in 1998 (FWS 1998). The recovery criteria presented in the revised plan entailed the establishment of a population of 300 adult pronghorn in one self-sustaining population for a minimum of five years, as well as the establishment of at least one other self-sustaining population in the U.S. to reclassify the subspecies to threatened. Actions identified as necessary to achieve these goals include the following: 1) enhance present sub-populations of pronghorn by providing supplemental forage and/or water; 2) determine habitat needs and protect present range; 3) investigate and address potential barriers to expansion of presently used range and investigate, evaluate, and prioritize present and potential future reintroduction sites within historical range; 4) establish and monitor a new, separate herd(s) to guard against catastrophes decimating the core population, and investigate captive breeding; 5) continue monitoring sub-populations and maintain a protocol for a repeatable and comparable survey technique; and 6) examine additional specimen evidence available to assist in verification of taxonomic status. In 2002, a supplement and amendment to the 1998 Final Revised Sonoran Pronghorn Recovery Plan was prepared (FWS 2002). The FWS concluded that data do not yet exist to support establishing delisting criteria. Tasks necessary to accomplish reclassification to threatened status (as outlined in the 1998 plan) should provide the information necessary to determine if and when delisting will be possible and what the criteria should be. Survival of the Sonoran pronghorn is precarious and is likely dependent on drastic and untested methods (Krausman et al. 2005). The Sonoran Pronghorn Recovery Plan is currently being updated by a bi-national recovery team. In all planning related to Sonoran pronghorn recover, we have concluded that, in order for recovery actions to be effective, providing an environment of reduced impacts related to anthropogenic activities is essential.

The Sonoran pronghorn is a rare and difficult species to study and monitor. As with most endangered species, there is a lack of extensive studies related to the life history requirements of this species. Studies typically are limited by low samples sizes and difficulty of repeat observations due to the species' rarity. Low sample sizes and limited observations hinder biologists' abilities to obtain statistically rigorous data or adequate data for peer-reviewed scientific publications. The most recent, comprehensive publications related to Sonoran pronghorn were associated with the 2005 Wildlife Society Bulletin (Krausman et al. 2005). Since that time, managers have learned much, but, due to lack of resources, time, and incomplete data, this information is typically exchanged informally, rather than through published literature. Most of the existing information on Sonoran pronghorn is not contained in the peer-reviewed literature (Krausman et al. 2005). This is likely to continue until more resources are available or adequate data is gathered to meet the requirements for publication in a peer-reviewed journal. However, all information that contributes to our understanding of endangered and threatened species' life history requirements and impacts to the species is vital to our management of the species, be it peer-reviewed or personal communications

and grey literature from the professionals working with these species in the field. The best available scientific and commercial data comes from a number of sources including published literature, agency reports, and personal communications with land managers and agency personnel. The FWS has used the best available information related to the Sonoran pronghorn in our analysis below.

### **Life History and Habitat**

Sonoran pronghorn inhabit one of the hottest and driest portions of the Sonoran Desert. They forage on a large variety of perennial and annual plant species (Hughes and Smith 1990, Hervert et al. 1997a, FWS 1998). During drought years, Hughes and Smith (1990) reported cacti were the major dietary component (44 percent). Consumption of cacti, especially chain fruit cholla (*Cylindropuntia fulgida*, Pinkava 1999), provides a source of water during hot, dry conditions (Hervert et al. 1997a). Other important plant species in the diet of the pronghorn include pigweed (*Amaranthus palmeri*), ragweed (*Ambrosia* sp.), locoweed (*Astragalus* sp.), brome (*Bromus* sp.), and snakeweed (*Gutierrezia sarothrae*) (FWS 1998). Pronghorn will move in response to spatial limitations in forage availability (Hervert et al. 1997b). Water intake from forage is not adequate to meet minimum water requirements (Fox et al. 2000), hence pronghorn need, and readily use, both natural and artificial water sources (Morgart et al. 2005).

Sonoran pronghorn rut during July-September, and does have been observed with newborn fawns from February through May. Parturition corresponds with annual spring forage abundance. Fawning areas have been documented in the Mohawk Dunes and the bajadas of the Sierra Pinta, Mohawk, Bates, Growler, and Puerto Blanco mountains. Does usually have twins, and fawns suckle for about two months. Does gather with fawns, and fawns sometimes form nursery groups (FWS 1998). Sonoran pronghorn form small herds of up to 21 animals (Wright and deVos 1986).

Telemetry locations of 35 Sonoran pronghorn demonstrated that during 1995-2002, pronghorn used creosote/bursage and palo verde/mixed cactus vegetation associations less than expected or equal to availability. Pronghorn use of palo verde/chain fruit cholla associations and desert washes occurred more than expected. However, during the cool and wet winter on 1997-1998, pronghorn were found in creosote/bursage associations more than expected (Hervert et al. 2005). In contrast, during 1983-1991, pronghorn used creosote/bursage and palo verde mixed cacti associations more than expected (deVos and Miller 2005). Differences between these study results may be due in part to differences in precipitation and forage patterns between these periods. The earlier period was wetter with greater forage availability in flats and valleys where creosote/bursage associations predominate. In wet winters and early spring pronghorn are often found in flats and valleys, such as Pinta Sands, the Mohawk Dunes west of the Mohawk Mountains, and the west side of the Aguila Mountains. In late spring and summer, pronghorn then move from the flats and valleys upslope into bajadas and often south or southeast where palo verde associations, chain fruit cholla, and washes are more common. Movements are most likely motivated by the need for thermal cover provided by leguminous trees and water available in succulent chain fruit cholla (Hervert et al. 1997a). Home range size of Sonoran pronghorn during 1995-2002 ranged from 16.6 to 1,109 square miles, with an average of  $197 \pm 257$  square miles (Hervert et al. 2005).

From 1995-2002, adult mortality rates varied from 11-83%. Adults were killed by coyotes, bobcats, mountain lions, capturing efforts, drought, and unknown causes (Bright and Hervert 2005). However, during 1983-1991, apparently a more favorable period for pronghorn during which the population grew significantly, mean annual survival of females and males was  $96\% \pm 0.04$  and  $92\% \pm 0.04$  (deVos and Miller 2005). Disease may affect mortality, but has not been thoroughly investigated (Bright and Hervert 2005). Hervert et al. (2000) found that the number of fawns surviving until the first summer rains was significantly correlated to the amount of preceding winter rainfall, and negatively correlated to the number of days without rain between the last winter rain and the first summer rain. Drought may be a major factor in the survival of adults and fawns (Bright and Hervert 2005). Three radio-collared pronghorn died in July and August of 2002 with no obvious cause of death. Given that 2002 was one of the driest years on record, the proximate cause of these mortalities was likely heat stress and/or malnutrition resulting from inadequate forage conditions due to drought.

## **Distribution and Abundance**

### *United States*

Historically, the Sonoran pronghorn ranged in the U.S. from approximately the Santa Cruz River in the east, to the Gila Bend and Kofa Mountains to the north, and to Imperial Valley, California, to the west (Mearns 1907, Nelson 1925, Monson 1968, Wright and deVos 1986, Paradiso and Nowak 1971; Figure 6). Bright et al. (2001) defined the present U.S. range of the Sonoran pronghorn as bordered by Interstate 8 to the north, the International Border to the south, the Copper and Cabeza mountains to the west, and State Route (SR) 85 to the east. This area encompasses 2,508 square miles (Bright et al. 2001). Sonoran pronghorn are estimated to be currently limited to < 25% of their historical habitat in Arizona and northern Sonora, Mexico (Krausman et al. 2005).

While Mearns (1907) suggested that pronghorn may have been common in some areas in the late 1800s, evidence suggests that the sub-population declined dramatically in the early 20th century. Sub-population estimates for Arizona, which only began in 1925, have never shown the pronghorn to be abundant (Table 1). Repeatable, systematic surveys were not conducted in Arizona until 1992. Since 1992, Sonoran pronghorn in the United States have been surveyed biennially (Bright et al. 1999, 2001; Bright and Hervert 2003, 2005) using aerial line transects (Johnson et al. 1991). Sub-population estimates from these transects have been derived using three different estimators (Table 2); currently the sightability model (Samuel and Pollock 1981) is considered the most reliable estimator (Bright et al. 1999, 2001). Table 2 presents observation data from transects and compares estimates derived from the different population models from 1992 through 2010.

The sightability model population estimates from 1992 to 2000 showed a 45 percent decrease in sub-population size (Table 2). The estimates indicate a steady decline in sub-population size, with the exception of the 1994 survey. The 1994 estimate may be somewhat inflated due to inconsistencies in survey timing (FWS 1998, Bright et al. 2001).

High fawn mortality in 1995 and 1996 and the death of half (8 of 16) of the adult, radio-collared pronghorn during the 13 months preceding the December 1996 survey corresponded to five consecutive six-month seasons of below normal precipitation (summer 1994 through summer 1996) throughout most of the Sonoran pronghorn range, which likely contributed, in part, to observed mortality (Bright et al. 2001, Hervert et al. 1997a).

Mortality of Sonoran pronghorn in 2002 was exceptionally high (Bright and Hervert 2005). At the start of the year, seven radio-collared Sonoran pronghorn were at large in the U.S. sub-population. By December 2002, all but one of these had died. For most, drought stress was considered to be the proximate cause. For those animals that may have succumbed to predation, it was suspected that drought stress was again a factor, by making the animal more vulnerable to predation, due to an emaciated physical condition and being forced into habitats where exposure to predators was greater. The 2002 drought was one of the driest on record. As an example, annual rainfall at the OPCNM visitor center was only 2.54 inches in 2002 (T. Tibbitts, OPCNM, pers. comm. 2002); average annual rainfall for the visitor center is 9.2 inches (Brown 1982). The November/December 2002 population survey revealed the U.S. sub-population had declined to the lowest level ever recorded. A total of 18 pronghorn were observed, in three groups (8, 9, and 1). The sightability model resulted in a population estimate of 21 animals, or a 79% decline from 2000. Also, very few fawns survived in 2002 to replace these dying adults.

Although drought was likely the proximate cause of the dramatic decline of the U.S. sub-population in 2002, anthropogenic factors almost certainly contributed to or exacerbated the effects of the drought. Historically, pronghorn likely moved to wetted areas and foraged along the Río Sonoyta, Sonora, and the Gila and probably Colorado rivers during drought. These areas are no longer accessible to the U.S. population due to fences, Interstate 8, Mexico Highway 2, and other barriers. The rate of decline in the U.S. sub-population from 2000-2002 (79 percent) was also much greater than that observed in either the sub-population southeast of Highway 8 (18 percent decline) or the El Pinacate sub-population (26 percent) during the same period (see discussion of Mexican sub-populations in the next section). Observations of forage availability suggest the El Pinacate sub-population experienced the same severe drought that occurred on the Arizona side (T. Tibbitts, J. Morgart, pers. comm. 2003). Yet that sub-population fared much better than its U.S. counterpart. The high level of human activities and disturbance on the U.S. side, including activities such as undocumented immigrant, i.e., cross border violator (CBV) traffic, smugglers, and required law enforcement response, as compared to what occurs in the El Pinacate area, may be a contributing factor in the differing rates of decline observed north and south of the border. See the section entitled "Drought" in the Environmental Baseline and "Cumulative Effects" for further discussion.

The December 2004, 2006, 2008, and 2010 aerial surveys resulted in an estimated 58, 68, 68, and 85 (this 2010 estimate does not include the 17 pronghorn released from the pen in December 2010, see below), respectively, pronghorn in the U.S. sub-population (Tables 1 and 2). As of December 2012, we believe that the wild population now numbers over 100, and is estimated at 159 pronghorn (unpublished range-wide survey data). This is a substantial increase brought on by the implementation of ongoing recovery measures and improved range conditions (as a result of

increased rainfall) since 2002. The 2006 to 2010 estimates included a number of captive-born individuals that were released into the wild (see below). Also, though the exact ratio is unknown, during the 2008 and 2010 surveys observers noted a skewed sex ratio (approximately 2: 1) with more males than females; this affects the rate at which the population may increase.

Although the U.S. Sonoran pronghorn population has increased significantly since 2002, the increase is not as great as the Sonoran Pronghorn Recovery Team (Team) had predicted given the adequate to favorable range conditions since 2002 as well as tremendous multi-agency recovery efforts, including providing waters and forage enhancement plots, implementing seasonal restrictions on public access to pronghorn habitat during the critical fawning season, and a captive breeding program. The Team has suggested a number of reasons for this, including high cross border activity, drought, and forage conditions beyond what is compensated for with the implementation of recovery actions. Information provided by land managers in OPCNM suggest off-road vehicle tracks have been seen progressively increasing in extent and density since 2002, throughout that portion of the pronghorn's range U.S. range (electronic mail from Tim Tibbitts, OPCNM and member of the Sonoran Pronghorn Recovery Team, September 21, 2009). It has been well documented that human presence in wildlands can disturb animals, causing them to unnecessarily expend energy avoiding people, thereby potentially reducing reproductive success (e.g., Manville 1983, van Dyke et al. 1986, Goodrich & Berger 1994, Primm 1996; as cited by Kerley et al. 2002) or increasing the likelihood of fatal encounters with humans (Kasworm and Manley 1990, Saberwal et al. 1994, Khramtsov 1995, Mattson et al. 1996; as cited by Kerley et al. 2002). Failure of the wild U.S. pronghorn population to rebound to numbers more in line with historical levels since the 2002 population decline is considered by some Team members to be evidence that human disturbance continues to affect the population, inhibiting its ability to recover. However, it is important to note that pronghorn are likely more resilient to impacts associated with human disturbance and similar stressors during periods of improved forage and water resources. Unfortunately, in recent times, these periods have occurred less often and their occurrence is unreliable. Therefore, in our best professional judgment and based on current observations and predicted climate changes, it is likely that the effects of human disturbance and similar stressors on Sonoran pronghorn will be exacerbated by generally poor habitat conditions during the implementation of the proposed action, although periods of normal or above precipitation are expected to occur throughout the life of this project.

In addition, the low number of females also likely impacts this population's ability to rebound. With efforts to improve forage and water availability and the release of individuals from the captive pens, we may see an improving population trend. If not, factors other than the reduced number of females may be the primary cause of slow population growth or negative population trends.

#### *Semi-captive Breeding Facility*

As part of a comprehensive emergency recovery program, a total of 11 adult pronghorn (10 females and one male) were initially captured (from Sonora and Arizona) and placed into a semi-captive breeding pen at CPNWR in 2004. The breeding program has been very successful and as of January

2012, there were 48 pronghorn in the enclosure. Since establishing the program, 16 pronghorn older than current year have died in the pen due to various causes, including one confirmed case of epizootic hemorrhagic disease, two from malnutrition prior to the introduction of alfalfa hay in the pen, two from bobcat predation, one from entanglement in the fence, and two from capture operations. Eight deaths were from unknown causes and although disease was suspected, it could not be confirmed. Sonoran pronghorn have been released from the pen every year since 2006; as of January 2012, a total of 73 individuals have been released, many of which are known to still be alive.

The objective is to produce at least 20 fawns each year to be released into the current U.S. population, and to establish additional U.S. populations at Kofa NWR and BMGR-East, east of SR 85. The additional populations will be established as experimental, nonessential populations under section 10(j) of the Act. A final Environmental Assessment and final 10(j) rule were published in April and May, 2011, respectively. In December 2011, 13 Sonoran pronghorn were moved from the CPNWR breeding pen to the newly built breeding pen in the King Valley on Kofa NWR. One of the animals died due to capture myopathy, leaving 12 (10 does and 2 bucks) in the pen for breeding purposes.

### *Mexico*

Historically, Sonoran pronghorn ranged in Sonora from the Arizona border south to Hermosillo and Kino Bay, west to at least the Sierra del Rosario, and east to the area south of the Baboquivari Valley on the Tohono O'odham Nation (Nelson 1925, Carr 1974, Monson 1968; Figure 6). The distribution in Baja California is less clear, but observations by Mearns (1907) indicate they occurred in the Colorado Desert west of the Colorado River, as well. Sonoran pronghorn are currently extant in two sub-populations in Mexico, including: (1) Pinacate sub-population west of Highway 8 near the Pinacate Lava flow; and (2) north and west of Caborca and southeast of Highway 8.

Sub-populations of Sonoran pronghorn in Sonora had not been thoroughly surveyed until the December 2000 surveys (Bright et al. 2001), at which time 346 pronghorn were estimated to occur in Sonora. Although the 1993 estimate was approximate, survey results suggested a decline in the sub-populations of 16 percent from 1993 to 2000 (Table 3). Since 2000, the two Mexico sub-populations have been resurveyed biennially, with the exception of the winters of 2004/05 and 2005/06, when they were surveyed both years. In December 2002, a total (both El Pinacate and southeast of Highway 8) of 214 pronghorn in 32 groups were seen for a tentative population estimate of 280, indicating further decline. Only 19 pronghorn were observed in the Pinacate area for an estimate of 25, which is a decline of 26% from the 2000 estimate. Surveys conducted in December 2004 and February 2005 demonstrated that the population southeast of Highway 8 increased to 625 (439 observed), while the Pinacate population increased to 59 (30 observed) (684 total estimated, 469 total observed). In 2004, several capture-related mortalities occurred in Sonora associated with efforts to capture pronghorn to stock the breeding pen in Arizona. Since then, capture protocols were examined and improved. In January 2006, surveys indicated that pronghorn

numbers remained relatively steady with an estimated total of 634 (486 observed) individuals (combined for both populations). Nine of these were captured, of which five were fitted with radio-collars and released and four were transferred to the semi-captive breeding facility in the U.S.

In December 2007, surveys indicated pronghorn numbers declined with an estimated total of 404 (360 observed) individuals combined for both sub-populations (including 354 pronghorn [325 observed] in the area southeast of Mexico Highway 8 and 50 [35 observed] to the west of the highway). Of these pronghorn, four pronghorn (three does and 1 buck) from the Pinacate Biosphere Reserve were captured and fitted with GPS radio collars. The male was found dead during a subsequent telemetry flight; his death was likely capture-related as his temperature rose dangerously high during the collaring effort. The decrease in Sonoran pronghorn population in Sonora from 2006 to 2007 is likely attributable, at least in part, to drought conditions in the pronghorn range in Mexico. During the aerial surveys, observers noted many extremely dry areas and some areas where

the vegetation appeared dead in the pronghorn range. Additionally, an increasing number of fences and mine expansion within the range of the southeastern pronghorn population may be adversely affecting this population.

In December 2009, surveys indicated pronghorn numbers increased somewhat with an estimated total of 482 (311 observed) individuals combined for both sub-populations (including 381 pronghorn [258 observed] in the area southeast of Mexico Highway 8 and 101 [53 observed] to the west of the highway). In December 2011, surveys indicated pronghorn numbers declined drastically with an estimated total of 241 (197 observed) individuals combined for both sub-populations (including 189 pronghorn [167 observed] in the area southeast of Mexico Highway 8 and 52 [30 observed] to the west of the highway). This was the lowest ever estimate for a December pronghorn survey in Mexico.

### *Population Viability Analysis*

In 1996, a workshop was held in which a population viability analysis (PVA) was conducted for the U.S. sub-population of Sonoran pronghorn (Defenders of Wildlife 1998). A PVA is a structured, systematic, and comprehensive examination of the interacting factors that place a population or species at risk (Gilpin and Soulé 1986). Based on the best estimates of demographic parameters at the time, the likelihood of extinction of Sonoran pronghorn was calculated as one percent in the next 25 years, nine percent in the next 50 years, and 23 percent in the next 100 years. More severe threats include population fluctuation, periodic decimation during drought (especially of fawns), small present population size, limited habitat preventing expansion to a more secure population size, and expected future inbreeding depression. At populations of less than 100, population viability declined at an increasingly steep rate. To maintain genetic diversity over the long term, a population of at least 500 is desirable (Defenders of Wildlife 1998). The likelihood of extinction increased markedly when fawn mortality exceeded 70 percent. Thus, a 30 percent fawn crop (30 fawns/100 does) each year is necessary to ensure the continuance of the U.S. sub-population. The authors concluded that "this population of the Sonoran pronghorn, the only one in the U.S., is at serious risk

of extinction.” The authors made these conclusions prior to the severe drought and decline in the species in 2002. On the other hand, Hosack et al. (2002) found that some management actions were possible that could improve the chances of population persistence significantly. Actions that would ameliorate the effects of drought or minimize mortality of pronghorn were of particular importance for improving population persistence.

More recent work by Horne (2010) attempted to account for uncertainty that can affect the outcome of PVAs. He conducted a series of PVAs to address various sources of uncertainty. Regardless of the degree or type of uncertainty, active management related to captive populations and establishing additional populations increased the viability of wild Sonoran pronghorn. However, without such active management, the wild population has a high probability of dropping to abundance levels that are unsustainable and a low probability that the population would ever reach an abundance that is higher than 100 females (Horne 2010).

## **Threats**

### *Barriers that Limit Distribution and Movement*

Highways, fences, railroads, developed areas, and irrigation canals can block access to essential forage or water resources. Interstate 8, the Wellton-Mohawk and Palomas Canals, agriculture, a railroad, and associated fences and human disturbance near the Gila River act as barriers for northward movement of pronghorn. Brown and Ockenfels (2007) report that numerous railroad and highways bisect what was former contiguous pronghorn habitat, often dividing these rangelands into parcels too small to support, viable, long-term populations of pronghorn in Arizona. Furthermore, they state that railroads and paved highways are especially restrictive, as in addition to acting as intimidating barriers in their own right, they are often fenced on both sides of the right-of-way.

Highways 2 and 8 in Sonora, and SR 85 between Gila Bend and Lukeville, Arizona support a considerable amount of fast-moving vehicular traffic, are fenced in some areas, and are likely a substantial barrier to Sonoran pronghorn (a pen-raised radio-collared male is known to have crossed SR 85 and Mexican Highway 2; however, this is considered highly unusual). NPS records include a Sonoran pronghorn found dead just east of SR 85 along Ajo Mountain Drive in 1972. It was suspected to have been struck and killed by a vehicle (electronic mail from Tim Tibbitts, OPCNM, September 1, 2011). More recently, in 2003/2004 John Hervert (AGFD) investigated a Sonoran pronghorn mortality found a few hundred feet from Interstate 8. It had a broken leg, and so vehicle collision was suspected. deVos and Miller (2005) reported that Sonoran pronghorn used areas within 0.6 miles of roads less than those greater than 0.6 miles from roads, demonstrating that non-highway roads can also be restrictive.

Canals have been the cause of four pronghorn deaths since 2008. Three pen-raised pronghorn drowned in the Palomas Canal in 2008 and one pen-raised pronghorn drowned in the Wellton Canal in 2010. De-watering of reaches of the Río Sonoyta and lower Gila River has also caused significant loss of habitat and loss of access to water (Wright and deVos 1986). Agricultural, urban, and commercial development at Sonoyta, Puerto Peñasco, and San Luis Río Colorado, Sonora; in

the Mexicali Valley, Baja California; and at Ajo, Yuma, and along the Gila River, Arizona, have further removed habitat and created barriers to movement.

### *Human-caused Disturbance*

A variety of human activities occur throughout the range of the pronghorn that have the potential to disturb pronghorn or its habitat, including livestock grazing in the U.S. and Mexico; military activities; recreation; poaching and hunting; clearing of desert scrub and planting of buffelgrass (*Pennisetum ciliare*) in Sonora; gold mining southeast of Sonoyta, dewatering and development along the Gila River and Río Sonoyta; cross-border violator (CBV) activity across the international border and associated required law enforcement response; and roads, fences, canals, and other artificial barriers.

Of the aforementioned human activities, in the U.S. range of the pronghorn, CBV activity and required law enforcement response may be the most significant current source of disturbance to Sonoran pronghorn and its habitat. As a result of increased presence of the USBP in the Douglas, Arizona area, and in San Diego (Operation Gatekeeper) and southeastern California, CBV traffic has shifted into remote desert areas, such as CPNWR, OPCNM, and BMGR (Klein 2000). In 2001, estimates of CBVs reached 1,000 per night in OPCNM alone (OPCNM 2001), and an estimated 150,000 people entered the monument illegally from Mexico (Milstead and Barns 2002). Apprehensions of CBVs in the USBP Ajo Station, Tucson Sector increased from 21,300 in 1999 to 22,504 in 2006. The numbers of CBV apprehensions from fiscal year (FY) 2007 to FY 2011 have decreased since 2006, and are shown by location in Table 4. The number of apprehensions and drive-throughs in the Ajo Station's overall Area of Responsibility (AOR) declined after the construction of the border vehicle fences on OPCNM in 2006 and CPNWR in 2009, but has increased since the implementation of the *SBI*net towers and infrastructure became operational in 2010. In the approximately one year since the *SBI*net towers have been operational, the number of apprehensions of CBVs have increased by 85% within OPCNM and 183% in CPNWR. This increase is believed to be attributable to increased CBV activity, as well as increased USBP effort, tactical infrastructure, and technology in the area which have improved USBP's ability to detect and apprehend CBVs (personal communication with USBP, September 1, 2011).

In fiscal year 2005, the Yuma Sector of USBP apprehended record numbers of CBVs, and from October 1, 2005 to May 2006, 96,000 arrests were made, which was a 13% increase over the same time period in 2005 (Gerstenzang 2006). The Wellton Station of the Yuma USBP Sector made 2,080 apprehensions in fiscal year 2005 and 3,339 apprehensions from October 2005 to February 2006 (personal communication with USBP, February 10, 2006). Apprehensions in recent years have declined in the Wellton Station AOR (see Table 4). Overall, a dramatic decline in apprehensions in the Yuma Sector, particularly in the western portions of the sector, is attributed to USBP presence at Camp Grip, increased numbers of agents, and recently completed tactical infrastructure.

As USBP has been able to successfully gain control of more urban areas, CBV activity has shifted to more remote areas, such as CPNWR and OPCNM. Both CBV and USBP activities have resulted in increased human presence in and increased degradation of Sonoran pronghorn habitat, including direct impacts to habitat from vehicles, but also a reduction in access to forage availability, particularly during drought and other periods of poor range conditions. Much of the CBV traffic travels through the southern passes of the Growler Mountains that lead either through or by all of the forage enhancements and the captive rearing pen in the Child's Valley, with potential to impact these recovery projects and use of the area by pronghorn (personal communication with Curtis McCasland, CPNWR, 2007).

There is some anecdotal evidence that pronghorn are avoiding areas of high CBV traffic and law enforcement activities (personal communication with Curtis McCasland, CPNWR, 2007). This may be especially true during periods of poor range conditions. For example, according to CBP records, a drag road adjacent to the current Granite Forage Enhancement Plot (FEP) in the Wellton Station AOR was created in 1996 and has been in use since before the FEP was installed. However, at the time the FEP was being planned, this was only a two-track trail with little use (electronic mail communication with John Hervert, AGFD, October 3, 2012). Wellton Station has confirmed that USBP use of this drag road has increased recently in response to an increase in illegal activities in the area. In spring of 2009, AGFD reported that they believe that three does with fawns abandoned the Granite Forage Enhancement Plot (FEP) due to the high amount of USBP activity at the site (electronic mail from John Hervert, AGFD, September 16, 2009). The does were later observed at OPCNM; however, the fawns died (electronic mail from John Hervert, AGFD, September 16, 2009). Plans are currently being made to move the FEP. Instances such as these are more likely to occur during periods of poor range conditions and the impacts are likely exacerbated, regardless of the source of disturbance or impact on the pronghorn.

The Camp Grip Forward Operating Base (FOB), located within the current range of the pronghorn, was established in 2005. In 2011, FWS completed an analysis of whether the Camp Grip FOB resulted in impacts on Sonoran pronghorn movement patterns. FWS analyzed available AGFD Sonoran pronghorn location data from radio-collared animals and results of this analysis were inconclusive as to whether Camp Grip had any impact on Sonoran pronghorn movement; however, as described above under "Distribution and Abundance" there are very few radio-collared animals and documenting pronghorn movement can be difficult. These inconclusive results were also in part due to the many complex factors involving Sonoran pronghorn movement, including artificial feeding and watering of the animals across the species' range. Initial data from radio-collared pronghorn locations appeared to indicate a potential reduction in use of areas in the vicinity of Camp Grip (electronic mail from Mark Sturm, OPCNM, August 31, 2011). Data from 2012 have shown several occurrences of pronghorn in the vicinity of Camp Grip. This may be due to the increased number of pen-reared pronghorn that have been released and that have been exposed on a more regular basis to human activity at the pens (electronic mail from Jim Atkinson, CPNWR, October 5, 2012). Data also indicate a northerly shift in habitat use since Ajo-1 SBI<sup>net</sup> implementation, which coincides with a documented increase in impacts. This result is despite the presence of abundant and good habitat conditions in areas nearer the border during 2011.

While specific studies related to the physiological effects of disturbance on Sonoran pronghorn are extremely limited, some information regarding how these effects are manifest in other wildlife may be helpful in assessing the potential effects to pronghorn. Physiological effects of noise on wildlife can include stresses to neural, endocrine, digestive, cardiovascular, and immune systems as well as reproductive function, causing changes such as increased blood pressure, available glucose, and blood levels of corticosteroids (Manci et al. 1988, Kaseloo and Tyson 2004, Keay et al. 2006). However, available research evaluating physiological impacts of human stressors on wild animal populations also indicates that the responses of species are variable (Manci et al. 1988, Larkin 1996, Radle 1998, Krausman et al. 1998, Kaseloo and Tyson 2004, Stankowich 2008). We believe that, given the information in the above studies, it is possible that Sonoran pronghorn could have a physiological stress response to disturbance without showing an overt behavioral response. To have a population effect, behavioral and physiological responses to disturbance must ultimately affect survival and productivity, and to date, no research efforts have supported or refuted population level impacts on pronghorn from physiological stress. At some point, increased energetic costs resulting from a stress-related increase in metabolic rate, reduced foraging efficiency due to interrupted feeding, and alarm and flight responses could jeopardize survival and productivity if the disturbance is stressful enough and chronic (Bright and Hervert 2005, deVos and Miller 2005).

As stated above, and though not specifically related to Sonoran pronghorn, it has been well documented that human presence in wildlands can disturb animals, causing them to unnecessarily expend energy avoiding people, thereby potentially reducing reproductive success (e.g., Manville 1983, van Dyke et al. 1986, Goodrich and Berger 1994, Primm 1996; as cited by Kerley et al. 2002) or increasing the likelihood of fatal encounters with humans (Kasworm and Manley 1990, Saberwal et al. 1994, Khramitsov 1995, Mattson et al. 1996; as cited by Kerley et al. 2002). Range abandonment has been documented in response to human disturbance (Jorgenson 1988), and investigators have shown that heart rate increases in wildlife in response to auditory or visual disturbance in the absence of overt behavioral changes (Thompson et al. 1968, Cherkovich and Tatoyan 1973, Moen et al. 1978). Studies of captive pronghorn, other than the Sonoran subspecies, have shown that they are sensitive to disturbance such as human presence and vehicular noise. Human traffic, such as a person walking or running past pronghorn in an enclosed pen, a motorcycle driving past, a truck driving past, a truck blowing its horn while driving past, or a person entering a holding pen, caused an increased heart-rate response in American pronghorn in half-acre holding pens (Workman et al. 1992). The highest heart rates occurred in female pronghorn in response to a person entering a holding pen, or a truck driving past while sounding the horn. The lowest heart rates occurred when a motorcycle or truck was driven past their pen. Pronghorn were more sensitive to helicopters, particularly those flying at low levels or hovering, than fixed wing aircraft. Luz and Smith (1976) observed pronghorn reactions to overhead helicopter flights which suggested mild disturbance (muscle tensing and interruption of grazing) by helicopter noise levels at approximately 60 dBA and strong reaction (running) at approximately 77 dBA.

Disturbances that cause pronghorns to startle and run would energetically have a more significant effect during times of drought. Such energetic expenditures, particularly during times of stress, may lead to lower reproductive output and/or survival of individual animals (Geist 1971). Landon et al.

(2003) evaluated whether Sonoran pronghorn used areas, as defined by noise levels produced by military aircraft, in proportion to their availability on the BMGR. Using 15% of the Arizona pronghorn population, Landon et al. studied pronghorn use of areas with varying sound pressure (ambient sound) levels and found that pronghorns did not use the areas with different ambient sound levels in proportion to their availability (2003). In general, they found that Sonoran pronghorn select areas with the lower noise levels and avoid areas with the higher noise levels; however, they did not consider habitat in their analysis. Whether pronghorn avoid these areas because of the noise or because of some other human-related factor is unknown; however, the various potential factors (i.e. noise levels, human presence, reduced vegetation or cover, disturbance) are interrelated. Hughes and Smith (1990) found that pronghorn immediately ran 1,310- 1,650 feet from a vehicle, and that military low-level flights (less than 500 feet above the ground) over three pronghorn caused them to move about 330 feet from their original location.

Krausman et al. (2001, 2004, 2005a) examined effects of military aircraft and ground-based activities on Sonoran pronghorn at the North and South tactical ranges (TACs) on the BMGR and concluded that military activities, both ground-based and aerial, were associated with some changes in behavior (e.g., from standing to trotting or running, or bedded to standing). In response to stimuli, on days without stimuli, pronghorn foraged more and bedded less than on days with stimuli; the opposite was true for fawns (Krausman et al. 2001). Krausman et al. (2001) only considered a change in behavior to trotting or running in response to stimuli as biologically significant. Eighty-seven (4.1%) of the 2,128 events with ground-based stimuli resulted in pronghorn changing their behavior to trotting or running; often moving > 10 m (Krausman et al. 2004). Pronghorn tend to exhibit a predator response to human activities, but can habituate to chronic human disturbance in some instances (Krausman et al. 2004). The authors concluded that these changes were not likely to be detrimental to the animals; however, sightings of Sonoran pronghorn were biased towards disturbed habitats on the TACs and other areas of military activities, which also corresponded to areas of favorable ephemeral forage production (Krausman et al. 2005a). No specific conclusions could be drawn about effects of military activities on fawns during the Krausman et al. study, but the data suggests that fawns and their mothers may be more sensitive to anthropogenic stimuli than other pronghorn (Krausman et al. 2004). In general, the study did not detect differences in the behavior of pronghorn with and without anthropogenic stimuli; however, Krausman et al. (2004) recommends that all ground stimuli and activities that alerts or startles females and their fawns should be terminated. However, the long-term behavioral and physiological effects of military activities have not been quantified (Krausman et al. 2004).

The proposed action would result in additional human presence and activity, including helicopter flights, within the range of the Sonoran pronghorn. And, while the noise and activity associated with proposed action may be somewhat different than that described in the studies above, it is anticipated that the proposed action will potentially result in some disturbance of Sonoran pronghorn. While baseline levels of human activity are already relatively high in certain portions of the range of the Sonoran pronghorn, additional disturbance as a result of the proposed action, particularly in those areas that do not have access to the general public, will contribute to the potential for disturbance of pronghorn in the project area. Habituation by pronghorn to disturbance

is more likely to occur if the disturbance is consistent or predictable. Krausman et al. (2004) report that animals, in general, minimally habituate to intermittent sounds, and that any habituation is gradual. Most of the actions associated with the proposed action will occur at irregular intervals, reducing the ability of pronghorn to habituate to the activity. However, some degree of habituation may occur because of the baseline levels of human activity already occurring on the landscape. Regardless, we believe there is the potential for human activities associated with the proposed action to disturb pronghorn and, given the precarious nature of the pronghorn population, even limited disturbance of a few individuals may have population level impacts to Sonoran pronghorn.

### *Habitat Disturbance*

Livestock grazing has the potential to significantly alter pronghorn habitat and behavior (Leftwich and Simpson 1978, Kindschy et al. 1982, Yoakum et al. 1996). Overgrazing well into the 19th century by Spaniards and their descendants caused widespread habitat changes throughout much of the Sonoran Desert, particularly in more settled areas such as central Sonora, Mexico (Sheridan 2000). The effects of cattle grazing are largely historical; cattle were removed from OPCNM, CPNWR, and the BMGR in 1979, 1983, and 1986, respectively (FWS 1998, Rutman 1997). While grazing activities across the range of the pronghorn have been largely eliminated, it is likely that long term impacts of this past activity are persistent across the species range. In 2004, the U.S. Bureau of Land Management (BLM) closed the Cameron Allotment on the borders of CPNWR and OPCNM, but grazing still occurs in the nearby Childs and Coyote Flat allotments near Ajo. In Sonora, livestock grazing occurs at Pozo Nuevo and at Ejido Puerto Peñasco, but cattle typically stay close to feed and water except in seasons with abundant annual growth when cattle range widely in the Pinacate region.

Mining occurred historically throughout much of the U.S. range of the pronghorn, but it is currently not a significant threat to Sonoran pronghorn in the U.S. During previous pronghorn surveys in Mexico, increasing effects from gold mining activities were noted in habitats used by the sub-population located southeast of Highway 8.

As discussed above, CBV activities and required USBP response have resulted in increased human presence in remote areas and ongoing habitat degradation. For instance, all the valleys at CPNWR are now criss-crossed with a network of illegal north-south roads and trails, even though those areas are designated as Wilderness. Segee and Neely (2006) report about 180 miles of illegal routes were created in wilderness areas of CPNWR from 2002 to 2006; however, this figure may be grossly underestimated. FWS reported 8,000 miles of off-road impacts in CPNWR as of 2008. Similar levels of impacts are expected to exist at OPCNM, and a report summarizing existing impacts is being produced (electronic mail from Mark Sturm, OPCNM, August 31, 2011); however, we have not yet received this report. OPCNM has mapped thousands of miles of unauthorized off-road impacts to date. Based on this preliminary estimate, hundreds of miles of unauthorized vehicle routes may exist within the vicinity of the proposed LRMTacCom project and thousands may exist within the action area. A cooperative effort is currently underway by CBP, NPS, and BLM to map and mark roads within the range of the Sonoran pronghorn to indicate those roads that are open for

use by these agencies, and roads that are closed to vehicle traffic. It is hoped that this effort will reduce the use of unauthorized roads and the associated impacts to Sonoran pronghorn.

Prior to the completion of the vehicle border fences on OPCNM and CPNWR (construction was started on these fences in late 2003 and 2007 and completed 2006 and 2009, respectively), CBVs frequently crossed the border in vehicles and created countless illegal routes, many of which were continuously used both by CBVs and responding USBP agents. Subsequent to the construction of the vehicle fences on OPCNM and CPNWR, CBV vehicular traffic was significantly reduced (there are occasional breaches in the fence; however, this CBV vehicular activity represents a fraction of that prior to the presence of the fences). NPS notes that CBV vehicle activity has decreased at OPCNM since about 2004 (electronic mail, Tim Tibbitts, OPCNM, 2009 and 2011); however, the number of off-road tracks, and new roads ("unauthorized vehicle routes") in OPCNM continues to increase (electronic mail, Tim Tibbitts, OPCNM, September 1, 2011). Decreased CBV vehicle traffic in pronghorn habitat as a result of the fences significantly alleviated the adverse effects of illegal (smuggling and migration) vehicle traffic on pronghorn and their habitat. USBP, however, continues to respond (by vehicle, horseback, foot, and aircraft) to ongoing CBV activity (mostly foot traffic) in these areas. Frequently, this required response necessitates driving off of authorized roads. Off-road driving conducted in pronghorn habitat results in significant degradation of this habitat and disturbance to pronghorn as discussed above. Because of concern over the dramatic increase in disturbance since 2005/2006, NPS has collected data over time to document the trend. The proliferation of unauthorized roads is a major impact on multiple resources, and provides an index of the level of human activity currently taking place in pronghorn habitat.

One potential measure of pronghorn habitat degradation is affects to carrying capacity, the number and distribution of pronghorn that can be supported by habitat conditions and access to available forage. Although the carrying capacity of the pronghorn range has not been quantified, loss or modification of habitat is a potential impact on Sonoran pronghorn. Loss or modification of habitat can reduce the ability of the overall U.S. population of Sonoran pronghorn to cope with limitations of forage by moving from place to place. Ultimately, loss or modification of habitat would reduce the carrying capacity of the U.S. range, resulting in a lower population. Based on population estimates from the past 85 years (Table 1), the pronghorn range has never supported more than about 300 individuals. A population of 300 animals may approach or exceed carrying capacity given current conditions on the occupied range (FWS 2002). Prior to alteration of the range beginning in the early 1900's, the carrying capacity was probably higher due to the ability of herds to migrate to perennial water sources during drought (see "Distribution and Abundance" section under "Status of the Species" for Sonoran pronghorn).

However, the concept of carrying capacity is difficult to describe or apply to the Sonoran desert, particularly as it may apply to pronghorn. For example, it may not just be related to quantity (availability), but also quality of forage. Forage may become limiting for Sonoran pronghorn as the quality decreases, rather than from a lack of forage. Even during a prolonged period of drought, forage still occurs on the landscape; however, it is of insufficient quality to sustain pronghorn. How does this affect carrying capacity? In 2002, the remaining 21 pronghorn were slowly starving to

death, but survived after summer rains increased forage quality. The forage plants were present, but were not of sufficient quality for use by pronghorn, until after precipitation events. One could say that the carrying capacity for pronghorn was 21 for the year 2002, but this number of pronghorn was also influenced by other decimating factors (predation, human caused stress). Defining carrying capacity is complex and is likely related to the cumulative influence of all of these factors on pronghorn survival. Factors affecting pronghorn that are not related to forage are likely exacerbated in periods of poor range conditions, and pronghorn are likely more resilient to such threats during periods of good range conditions. Human activities or infrastructure on the landscape can provide impediments, affecting access by pronghorn to forage and water resources. For example, deVos and Miller (2005) found that pronghorn use areas greater than one kilometer from roads preferentially, and used areas within one kilometer of roads less than predicted, even during a period of good range conditions. Regardless of the forage quality, if pronghorn are not able to access the forage, it cannot contribute to survival and recovery of the population. Overall, carrying capacity is a likely a function of timing of rains and the level of rainfall more than any other factor (Horne 2010, email communications from John Hervert, AGFD, October 3, 2012 and Jim Atkinson, CPNWR, October 5, 2012), but Sonoran pronghorn must be able to access forage of adequate quality.

Due to habitat restrictions previously discussed, any further range reduction through habitat degradation would be significant. Examples of actions that may result in loss or modification of habitat include: permanent human developments; building roads, trails, or other areas cleared of vegetation; invasion by non-native plants; modification of plant communities by fire, etc.; or any activity that further limits use of suitable habitat.

### *Fire*

The winter and spring of 2004/2005 were very wet, resulting in some of the highest productivity of cool season annual plants in recent memory. As these annual plants dried out, they created fuel for wildfire. In 2005, Mediterranean grass combined with high densities of the native wooly plantain (*Plantago ovata*) and other species created fuels adequate to carry fire. Military training, such as strafing and bombing in the tactical ranges, as well as fires set by CBVs, provided the ignition sources. Exact numbers are unknown; however, in 2005 roughly 7,500 acres of pronghorn habitat burned on the CPNWR (personal communication with Curtis McCasland, CPNWR, February 15, 2006) and more than 63,000 acres burned on the BMGR-East during that time. Approximately 29,260 acres of pronghorn habitat burned as a result of these fires.

Most Sonoran Desert trees, shrubs, and cacti are poorly adapted to fire (Brown and Minnich 1986, Schwalbe et al. 2000, Alford and Brock 2002). If areas burn repeatedly, permanent changes are likely in the flora. Even in the best scenario, it is likely to be many years before trees once again provide thermal cover in wash communities and cholla recover to a point that they are useful forage plants for pronghorn. This said, from 2007 to 2010 pronghorn were attracted to the burned areas, which often supported better growth of annual plants and forbs than adjacent unburned areas. However, in the long term and if these areas continue to burn, removal of thermal cover (trees) and

chain fruit cholla, which pronghorn depend on in drought, would likely adversely affect pronghorn and probably limit the use of these areas to wetter and cooler periods and seasons.

### *Drought and Climate Change*

As discussed, drought may be a major factor in the survival of adults and fawns (Bright and Hervert 2005), and the major decline in 2002 was driven by drought. Mean annual temperatures rose 1.8-3.6 °F in the American Southwest from 1970-2004. That trend is accelerating and is predicted to continue through the 21st century and beyond (Intergovernmental Panel on Climate Change 2007). Most of the observed increases in globally averaged temperatures since the mid-20th century are very likely due to the observed increases in anthropogenic greenhouse gas concentrations (Intergovernmental Panel on Climate Change 2007). In the Sonoran Desert, anthropogenic climate change is causing warming trends in winter and spring, decreased frequency of freezing temperatures, lengthening of the freeze-free season, and increased minimum temperatures in winter, which will likely cause changes in vegetation communities (Weiss and Overpeck 2005). These increases in temperature are predicted to be accompanied by a more arid climate in the Southwest (Seager et al. 2007, Intergovernmental Panel on Climate Change 2007). As a result, the Sonoran pronghorn is expected to be confronted with more frequent drought, which increases the importance of recovery actions, such as forage enhancement plots and water developments, which can offset the effects of drought. However, it will be important to consider other factors, such as predation, during management actions. Bright and Hervert (2005) indicated that periods of drought may force Sonoran pronghorn to use areas of available forage where predators may be more effective. Thus, climate change and drought may also exacerbate the effects of predation on the Sonoran pronghorn population and management actions should be focused in areas where predation is likely to be less successful.

### *Small Population Size and Random Changes in Demographics*

At populations of fewer than 100 pronghorn, population viability declines at an increasingly steep rate. To maintain genetic diversity over the long term, a population of at least 500 is desirable (Defenders of Wildlife 1998). At an estimated 21 pronghorn in 2002, and 85 in 2010, the U.S. sub-population is critically endangered and has likely experienced a substantial loss of genetic diversity resulting from the 2002 bottleneck; this should gradually improve as more pen-raised animals are released into the wild sub-population. At an estimated 25 pronghorn in 2002 and 52 in 2011, the Pinacate sub-population is also well below desired numbers. At 189 (in 2011), the third sub-population (southeast of Highway 8) is also below the desired size to maintain genetic diversity and has experienced a substantial decline since the 2004/2005 estimate of 625 pronghorn. Loss of the U.S. sub-population would dramatically reduce our ability to manage or recover this subspecies. Populations at low levels may experience random variations in sex ratios, age distributions, and birth and death rates among individuals, which can cause fluctuations in population size and possibly extinction (Richter-Dyn and Goel 1972). In very sparse populations, males may have trouble finding females, reducing productivity (Ehrlich and Roughgarden 1987). Small populations

are also sensitive to variations in natural processes, such as drought and predation (Hecht and Nickerson 1999).

### *Disease*

Sonoran pronghorn can potentially be infected by a variety of viral and bacterial diseases, as well as parasites. Epizootic hemorrhagic disease and bluetongue virus are the most common cause of disease caused die-off in wild pronghorn (Brown and Ockenfels 2007). A number of deaths (five in the captive breeding pen and two in the wild) in 2010 are suspected to be related to epizootic hemorrhagic disease and bluetongue virus. Blood testing has shown pronghorn exposure to these diseases by increases in antibody titers over time. The diseases relevant to pronghorn can be transmitted indirectly through vectors, such as infected midges or ticks, or directly via aerosolized or direct contact of infected fluids or tissues. Diseases that potentially infect pronghorn are all serious diseases of cattle, which can act as vectors. Cattle within the current range of the pronghorn have not been tested for these diseases.

## **ENVIRONMENTAL BASELINE**

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions in the action area; the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation; and the impact of state and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform from which to assess the effects of the action now under consultation. As described above, the action area for this BO is the action area identified for the project BA (Figure 2).

### **Status of the Sonoran Pronghorn in the Action Area**

Within the U.S. portion of the Sonoran pronghorn's range, pronghorn interact to form one sub-population in which interbreeding may occur. The U.S. sub-population is effectively separated from sub-populations in the El Pinacate Region and on the Gulf Coast of Sonora by Mexico Highways 2 and 8. Activities that may affect animals in any portion of the U.S. range of the pronghorn may affect the size or structure of the U.S. sub-population, or habitat use within the U.S. range. Because of this, portions of the U.S. range of the Sonoran pronghorn are included in the action area for the proposed action.

### *Distribution, Abundance, and Life History*

The distribution and abundance of the Sonoran pronghorn in the action area is the same as that described above under "Status of the Species" for the U.S. sub-population. Life history, including demographics, chronology of breeding and movements, diet, and other factors are also described above for the U.S. population.

### *Drought*

As discussed in the Status of the Species, climate change in the Southwest and the Sonoran Desert is predicted to result in warming trends and drier conditions, with accompanying changes in vegetation communities (Weiss and Overpeck 2005, Seager et al. 2007). Rowlands (2000) examined trends in precipitation for southwestern Arizona and OPCNM from 1895-1999. For southwestern Arizona, no trend in precipitation was found for the period, but low precipitation occurred around 1895 and during the 1950s. Periods of high precipitation occurred in 1915-1920 and in the 1980s. For OPCNM, there was a slightly increasing trend in monthly and annual precipitation over the period 1895-1999, a strong drought occurred in the 1950s, and a lesser drought occurred in the 1970s. No discernible trend in precipitation in southwestern Arizona or OPCNM was found in the 1990s, which is when the current decline in the U.S. pronghorn sub-population began.

Since Rowland's analysis, there was one year characterized by above-average rainfall and abundant ephemeral forage (2001) followed by a year with virtually no precipitation or ephemeral forage (2002). Recruitment and survival were high in 2001 and very low in 2002 (Bright and Hervert 2005). Based on the lack of forage and water, and the condition of pronghorn observed, drought is considered the proximate cause of the 79% decline in the U.S. pronghorn sub-population from 2000 to 2002. From 2003 to 2011, rainfall and Sonoran pronghorn range conditions have varied, but have improved overall when compared to 2002. Current range conditions are well below average precipitation for the calendar year and for the water year (October 1, 2011 – September 30, 2012). The January 2012 long-term (48-months) drought status report (<http://www.azwater.gov/azdwr/StatewidePlanning/drought/DroughtStatus2.htm>) indicates that southwestern Arizona is experiencing conditions of no drought to severe drought conditions.

Historically, pronghorn populations must have weathered severe droughts in the Sonoran Desert, including many that were more severe and longer term than what has occurred recently. Given that pronghorn populations survived the droughts of the 1890s, 1950s, 1970s, and others before those, it is unreasonable to solely attribute recent declines in the U.S. pronghorn population to drought. OPCNM (2001) concluded, "If (individual) recent dry years have had an impact on Sonoran pronghorn, it is most likely because in recent decades Sonoran pronghorn have much more limited options for coping with even brief moderate drought. Because of restrictions on their movements and range, and increasing human presence within their range, pronghorn are less able to employ their nomadic strategy in search of relief. It is not that drought itself is an impact, but possibly that drought has *become* an impact, due to other factors confounding the species' normal ecological strategy."

### *Recent Recovery Actions*

A number of critically important recovery projects have been recently initiated in an attempt to reverse the decline of the U.S. sub-population of the Sonoran pronghorn (Krausman et al. 2005b). These projects are designed to increase availability of green forage and water during dry periods and warm seasons to offset to some extent the effects of drought and barriers that prevent pronghorn

from accessing greenbelts and water, such as the Gila River and Río Sonoyta. Many developed water sources and 10 emergency water sources (seven on CPNWR, one on OPCNM, and two on BMGR-West) have been constructed in recent years throughout the range of the U.S. subpopulation. In March 2009, three temporary, experimental feed and water stations were placed on the South TAC on the BMGR-East and in May 2010, two new temporary water stations were placed on OPCNM. These stations are heavily used by pronghorn during times with poor range conditions brought on by drought.

Four forage enhancement plots within pronghorn habitat, each consisting of a well, pump, pipelines and irrigation lines, have been developed to irrigate the desert and produce forage for pronghorn. One plot is currently being constructed, but additional plots planned for installation over the next five years may be reconsidered. Plots and waters located in areas with little human activity and better range conditions appear to be more effective (i.e., contribute to fawn and adult survival to a greater degree) than those located in areas of high human activity and poor range condition (i.e., experiencing drought) (personal communication with John Hervert, AGFD, September 16, 2009). Therefore, to ensure the success of these measures, it is critical that human activity be avoided or significantly minimized near the plots and waters.

A semi-captive breeding facility at CPNWR was first stocked with pronghorn in 2004; as of January 2013, it contains 57 animals. As described above, this facility will be used to augment the current U.S. sub-population, and to establish additional herds east of SR 85 at Kofa NWR and BMGR-East. The breeding pen at Kofa NWR was stocked with 12 animals in January 2012, and now contains 22 pronghorn, nine of which were born in the new pen in 2012. These crucial projects, which we hope will pull the U.S. population back from the brink of extinction, have been cooperative efforts among many agencies and organizations, including FWS, AGFD, Marine Corps Air Station (MCAS)-Yuma, Luke Air Force Base, OPCNM, CBP, Arizona Desert Bighorn Sheep Society, Arizona Antelope Foundation, the Yuma Rod and Gun Club, the University of Arizona, the Los Angeles and Phoenix Zoos, and others.

### **Past and Ongoing Non-Federal Actions in the Action Area**

The Status of the Species section describes a variety of human activities that have affected the Sonoran pronghorn since initiation of livestock grazing over 300 years ago (Officer 1993). Many non-Federal activities that have affected the pronghorn are historical in nature, and pronghorn have been all but extirpated from private, state, and Tribal lands. However, increased illegal activities have likely had a significant impact on Sonoran pronghorn in the U.S. in recent times, particularly since the turn of the millennium. See the "*Human-caused Disturbance*" and "*Habitat Disturbance*" portions of the "Threats" section under "Status of the Species" above for further detail.

### **Past and Ongoing Federal Actions in the Action Area**

Due to the extent of Federal lands in the action area, with the exception of CBV activities, most activities that currently, or have recently, affected the U.S. sub-population or their habitat are Federal actions. The primary Federal agencies involved in activities in the action area include the

MCAS-Yuma, Luke Air Force Base, FWS, BLM, OPCNM, and Border Patrol. In the following discussion, we have categorized Federal actions affecting the pronghorn as: 1) those actions that have not yet undergone section 7 consultation (although in some cases consultation has been completed on components of the Federal activity), and 2) Federal actions that have undergone consultation.

#### *Federal Actions for Which Consultation Has Not Been Completed*

Examples of Federal actions for which consultation has not been completed include:

- 1) U.S. Border Patrol Activities in the Tucson Sector, Arizona
- 2) DHS-CBP Hybrid Fence on BMGR and Vehicle Fence on CPNWR
- 3) DHS-CBP Vehicle Fence on CPNWR
- 4) Remote Video Surveillance System (RVSS) and Integrated Fixed Towers

#### *Federal Actions Addressed in Section 7 Consultations*

As part of our comprehensive discussion of all past and present actions affecting pronghorn within the general vicinity of the action area, we describe below all BOs issued to date on actions that may affect the pronghorn. A variety of project types were considered with a range of effects to pronghorn, including capture and collaring of pronghorn for research purposes, consultation numbers 02-21-83-F-0026 and 02-21-88-F-0006; installation of a water source in the Mohawk Valley for pronghorn, consultation number 02-21-88-F-0081; implementation of the CPNWR Comprehensive Conservation Plan, consultation number 22410-2006-F-0416; and change in aircraft type from the F-15A/B to the F-15E on BMGR-East [F-15E Beddown Project], consultation number 02-21-89-F-0008; Incidental take was anticipated only for the Beddown Project in the form of harassment as a result of aircraft overflights. This project was later incorporated into the BO on Luke Air Force Base's activities on the BMGR, discussed below. All of these formal consultations can be viewed on our website at <http://www.fws.gov/southwest/es/arizona/Biological.htm>.

The following are consultations, which were generally of a greater scope than the above consultations:

1. U.S. Border Patrol Activities in the Yuma Sector, Wellton Station, Yuma, Arizona
2. Marine Corps Air Station-Yuma in the Arizona Portion of the Yuma Training Range Complex
3. Luke Air Force Base Use of Ground-Surface and Airspace for Military Training on the BMGR
4. Western Army National Guard Aviation Training Site Expansion Project
5. BMGR Integrated Natural Resources Management Plan

6. *SBI*net Ajo-1 Tower Project, Ajo Area of Responsibility, USBP Tucson Sector, Arizona
7. Tactical Infrastructure Maintenance and Repair Program (TIMR) – CBP

None of the above consultations was determined to result in jeopardy to the species. However, some level of take was anticipated for a number of these consultations and is considered as we evaluate the effects of the proposed action on the Sonoran pronghorn population in the U.S.

### **Summary of Activities Affecting Sonoran Pronghorn in the Action Area**

Historically, livestock grazing, hunting or poaching, and development along the Gila River and Río Sonoyta were all probably important factors in the well-documented Sonoran pronghorn range reduction and apparent population decline that occurred early in the 20th century. Historical accounts and population estimates suggest pronghorn were never abundant in the 20th century, but recently, the estimated size of the wild population in the action area declined from 179 (1992) to 21 (December 2002). Although the proximate cause of the decline during 2002 was drought, human activities limit habitat use options by pronghorn and increase the effects of drought on the sub-population. For example, deVos and Miller (2005) reported that Sonoran pronghorn used areas greater than one kilometer from a road as expected or greater than expected, while using areas less than one kilometer from a road less than expected. Bright and Hervert (2005) concluded that lack of nutritious forage and water increased Sonoran pronghorn fawn mortality. Therefore, we believe that human activities can contribute to increased fawn mortality if such activities prevent access to nutritious forage and water.

Few studies have addressed human disturbance of pronghorn, but Berger et al. (1983) found that human disturbance reduces the foraging efficiency of pronghorn. Krausman et al. (2001) reported that Sonoran pronghorn reacted to ground disturbances (vehicles or people on foot) with a change in behavior 37 percent of the time, resulting in the animals running or trotting away 2.6 percent of the time. Wright and deVos (1986) noted that Sonoran pronghorn exhibit “a heightened response to human traffic” as compared to other subspecies of pronghorn. They noted that “once aware of an observer, Sonoran pronghorn are quick to leave the area. One herd was observed 1.5 hours later 18 kilometers north of the initial observation in October 1984. Other pronghorn have run until out of the observer’s sight when disturbed.” Hughes and Smith (1990) noted that on all but one occasion, pronghorn ran from the observer’s vehicle and continued to run until they were out of sight. Disturbance and flight of ungulates are known to result in a variety of physiological effects that are adverse, including elevated metabolism, lowered body weight, reduced fetus survival, and withdrawal from suitable habitat (Geist 1971, Harlow et al. 1987). Frequent disturbance imposes a burden on the energy and nutrient supply of animals (Geist 1971), which may be exacerbated in harsh environments such as those occupied by Sonoran pronghorn. Krausman et al. (2001) also found that fawns and their mothers were more sensitive to human disturbance than other life stages of Sonoran pronghorn.

The U.S. pronghorn sub-population is isolated from other sub-populations in Sonora by a highway and the U.S./Mexico boundary fence, and access to the greenbelts of the Gila River and Río Sonoyta, which likely were important sources of water and forage during drought periods, has been severed. Since 2002, due to improved drought status and implementation of emergency recovery actions, the wild sub-population increased to 85 in 2010. At 85, however, the wild sub-population is still in grave danger of extirpation due to, among other factors, human-caused impacts, drought, loss of genetic diversity, and predation (Horne 2010, Defenders of Wildlife 1998).

Within its remaining range, the pronghorn is subjected to a variety of human activities that disturb the pronghorn and its habitat, including military training, increasing recreational activities, grazing, significant presence of CBV and subsequent required law enforcement activities. OPCNM (2001) identified 165 human activities in the range of the pronghorn, of which 112 were adverse, 27 were beneficial, 26 had both adverse and beneficial effects, and four had unknown effects. OPCNM (2001) concluded that in regard to the pronghorn, "while many projects have negligible impacts on their own, the sheer number of these actions is likely to have major adverse impacts in aggregate." MCAS-Yuma (2001) quantified the extent of the current pronghorn range that is affected by select activities and found the following: recreation covers 69.6% of the range, military training on North and South TACs covers 9.8%, active air-to-air firing range covers 5.8%, proposed EOD five-year clearance areas at North and South TACs and Manned Range 1 cover 1.0%, and MCAS-Yuma proposed ground support areas and zones cover 0.29%.

CBV traffic and responding USBP enforcement activities occur throughout the range of the pronghorn, and evidence suggests pronghorn may be avoiding areas of high CBV and enforcement activities. Historically, pronghorn tended to migrate to the southeastern section of their range (southeastern CPNWR, such as south of El Camino del Diablo, and OPCNM, such as the Valley of the Ajo) during drought and in the summer. Within the last several years, very few pronghorn have been observed south of El Camino del Diablo on CPNWR. This suggests CBV and the interdiction of these illegal activities have resulted in pronghorn avoiding areas south of El Camino del Diablo; these areas are considered important summer habitat for pronghorn and may have long-term management and recovery implications (personal communication with Curtis McCasland, CPNWR, 2007). The valleys at CPNWR and OPCNM, which were once nearly pristine wilderness Sonoran Desert, now have many braided, unauthorized routes through them and significant vehicle use by USBP pursuing CBVs (electronic mail, Tim Tibbitts, OPCNM, September 1, 2011). These areas have also been affected by trash and other waste left by CBVs.

Although major obstacles to recovery remain, since 2002, numerous crucial recovery actions have been implemented in the U.S. range of the species, including 10 emergency waters and four forage enhancement plots, with additional waters and forage plots planned. The projects tend to offset the effects of drought and barriers that prevent movement of pronghorn to greenbelts such as the Gila River and Río Sonoyta. A semi-captive breeding facility on CPNWR currently holds 57 pronghorn. This facility will provide pronghorn to augment the existing sub-population and to establish the additional populations east of SR 85 at Kofa NWR and BMGR-East. A new semi-captive breeding facility on Kofa NWR currently holds 22 pronghorn (electronic mail communication with John

Hervert, AGFD, October 3, 2012). Additionally, vehicle barriers on the international border on CPNWR and OPCNM are facilitating recovery of pronghorn by drastically reducing the amount of CBV vehicle traffic in pronghorn habitat.

The current range of the pronghorn in the U.S. is almost entirely comprised of lands under Federal jurisdiction; thus authorized activities that currently affect the pronghorn in the action area are almost all Federal actions. These include ongoing military training activities that could negatively affect pronghorn, disturbance from livestock grazing on public lands, and land use prescriptions on BMGR, CPNWR, and OPCNM. These same Federal agencies also implement various actions which may benefit the pronghorn. Effects from multiple CBP-related infrastructure projects and activities have been reduced through various conservation measures; however, CBV foot traffic and off-road vehicle activity and required Federal law enforcement response have been, and continue to be, significant threats to the pronghorn and its habitat. Prior to November 2001, in seven of 12 biological opinions issued by FWS that analyzed impacts to the pronghorn, we anticipated that take would occur. In total, we anticipated take of five pronghorn in the form of direct mortality every 10-15 years, and an undetermined amount of take in the form of harassment. Given the small and declining population of pronghorn in the U.S. at the time the opinions were written, take at the levels anticipated in the biological opinions would constitute a substantial impact to the population. In fact, based on population viability analysis, the loss of even a single pronghorn per year could significantly threaten species survival (Hosack et al. 2002).

Changes made in proposed actions and reinitiated biological opinions, plus the findings in other opinions from 2001 to the present, reduced the amount or extent of incidental take anticipated to occur from Federal actions. Significantly, action agencies have worked with us to modify proposed actions and to include significant conservation measures that reduce adverse effects to the pronghorn and its habitat. With the exception of likely capture-related deaths during telemetry studies (which were addressed in 10(a)(1)(A) recovery permits), we are unaware of any confirmed incidental take resulting from the Federal actions described here.

We believe the aggregate effects of limitations or barriers to movement of pronghorn and continuing stressors, including habitat degradation and disturbance within the pronghorn's current range resulting from a myriad of human activities, exacerbated by periodic dry seasons or years, are responsible for the present precarious status of the Sonoran pronghorn in the action area (deVos and Miller 2005). However, collaborative, multi-agency and multi-party efforts to develop forage enhancement plots and emergency waters, reduce human disturbance of pronghorn and their habitat, combined with the success of the semi-captive breeding program, plus planned future recovery actions, including establishment of a second U.S. sub-population, provide a path toward the recovery of the Sonoran pronghorn in the U.S. Key to achieving recovery will be a reduction in human disturbance to pronghorn and their habitat (Sonoran Pronghorn Recovery Criteria, Sonoran Pronghorn Recovery Plan Supplement and Amendment, January 2002).

## EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the proposed action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and, are later in time, but are still reasonably certain to occur.

Before implementation of the proposed action, surveys and site visits for engineering and regulatory compliance may cause some disturbance as a result of travel to and from the sites, as well as survey and planning activities while on-site. These activities would be unlikely to except for implementation of the proposed action. These activities are relatively short in duration and limited in the disturbance they cause and the potential effects minimal. The increased communication abilities resulting from the proposed action could allow for additional CBP patrol routes, encourage new road or infrastructure in areas benefitting from increased security, or increase the number of incidents to which CBP responds. This would potentially affect the patterns and movement of illegal activity, commerce, and residential development. The location and likelihood of these effects are difficult to predict. It is also likely that equipment unrelated to this action could also be mounted on the newly installed radio repeater infrastructure in the future. FWS guidelines (2000) recommend using existing towers whenever possible instead of building new ones, and financial incentives would also provide motivation for installing additional equipment on any infrastructure that is built. The installation, repair, maintenance, and associated disturbances are potentially an interrelated effect of the proposed action. These actions are likely to have reduced adverse effects on listed species because the period of disturbance would be brief, the area of potential effect would be small, and the action would occur in previously disturbed areas.

There are three sites identified where work will occur under the proposed action that are within or have the potential to affect areas within the range of the Sonoran pronghorn. Of these, work associated with the Granite Mountain site is expected to have the greatest potential for effects to pronghorn. The proposed western access routes to the Christmas Pass and Buck Peak sites will essentially avoid impacts to pronghorn and pronghorn habitat. Because of the locations of the proposed sites, it is not anticipated that there will be direct impacts to Sonoran pronghorn habitat. Because construction necessitates the use of helicopters to transport materials and personnel, there is the potential for direct effects to Sonoran pronghorn through disturbance from these overflights, again these effects are primarily associated with the proposed work at the Granite Mountain site. Installation and scheduled maintenance will not occur during the pronghorn fawning season. This will reduce the potential for effects to Sonoran pronghorn during this sensitive period of the year. However, emergency repairs and maintenance may occur at any time of the year, including fawning season. Approximately 30 round-trip flights (i.e., 16 round trips for Buck Peak, 7 round trips for Christmas Pass, 7 round trips for Granite Mountain) would be necessary for installation of equipment at the LRMTacCom locations. However, only the flights to Granite Mountain would

occur within core areas of the Sonoran pronghorn range. Impacts to pronghorn at the Christmas Pass and Buck Peak sites should be minimal if the access flight paths remain from the west. Long-term disturbance will occur from two scheduled maintenance trips to each LRMTacCom location each year. It can be assumed that the LRMTacCom locations would be accessed via helicopter for repairs and maintenance trips and has the potential for disturbance if pronghorn are in the vicinity. Because the Sonoran pronghorn is endangered and the population has failed to increase to a sustainable number in over 40 years, any effects to individual pronghorn have the potential to affect the species as a whole. This includes effects to pronghorn outside the fawning season.

Evaluating noise effects on pronghorn from anthropogenic factors is difficult, and human caused noise is difficult to assess separately from the effect of the visual aspects of the source of those noises. Landon et al. (2003) found that, in areas with noise produced by military aircraft, Sonoran pronghorn used the lowest noise level area more than the higher noise level areas. Disturbance and flight of ungulates are known to result in a variety of physiological effects that are adverse, including elevated metabolism, lowered body weight, reduced fetus survival, and withdrawal from suitable habitat (Geist 1971, Harlow et al. 1987), which may be exacerbated in harsh environments, such as those occupied by Sonoran pronghorn. Disturbance may also lead to increased risk of predator attack, susceptibility to heat stress and malnutrition, and abandonment of fawns. Behavioral responses such as interrupted activity, vigilance, alert distance, flight distance, and displacement have been used to assess reactions of bighorn sheep to disturbance (Papouchis et al. 2001, Jansen et al. 2006). When compared to physiological stress responses, such as increased heart rate, increased serum cortisol levels, and fecal and urinary corticosteroid levels (MacArthur et al. 1979, Miller et al. 1991, MacArthur et al. 1982, Stemp 1983, Harlow et al. 1987, Hayes et al. 1994, and Keay et al. 2006), bighorn sheep have been shown to have a pronounced physiological stress response to disturbance without showing an overt behavioral response (MacArthur et al. 1982, Stemp 1983).

Ground-based activities may result in behavioral or physiological changes that may be detrimental (Geist 1971, Freddy et al. 1986, Workman et al. 1992). Vehicle traffic is disturbing to pronghorn and will often cause flight or startle responses with associated adverse physiological changes. Hughes and Smith (1990) found that a Sonoran pronghorn immediately ran 1,310-1,650 feet from a vehicle. Krausman et al. (2001 and 2004) found that Sonoran pronghorn reacted to human ground-based stimuli (vehicles and foot traffic) with a change in behavior, including occasionally running or trotting away. Wright and deVos (1986) noted that Sonoran pronghorn exhibit "a heightened response to human traffic" as compared to other subspecies of pronghorn.

Relatively favorable rainfall and forage conditions for pronghorn population growth occurred from 2005-2010. Additionally, 82 pronghorn have been released from the semi-captive breeding pen into the wild population as of January 2013. Forage and water have been provided via several artificial water sources and forage enhancement plots. Nonetheless, the population stayed fairly static during this period (58 pronghorn in 2004, 68 in 2006, 68 in 2008, and 85 in 2010). At 85 animals, this is still a precariously small population. For this population to increase and ultimately recover, other stressors need to be addressed. If drought and human caused disturbance and habitat degradation

within the Sonoran pronghorn range in Arizona continue at their current level, Sonoran pronghorn in Arizona may only continue to survive as a result of captive breeding efforts and providing supplemental feed and water for the wild pronghorn population (Horne 2010, Krausman et al. 2005, deVos and Miller 2005). We believe that, based on the identification in the literature of human disturbance as an impact to pronghorn, a significant reduction in disturbance to pronghorn and their habitat is critical to the continued survival and recovery of this species (deVos and Miller 2005, Gavin 2004, Krausman et al. 2004, FWS 2002). With the pen releases, population genetics among the wild herds and resistance to EHD and BTV are likely improving.

Additionally, impacts to pronghorn will be minimized because all project activities, with the exception of the Buck Peak and Christmas Pass sites where access routes avoid pronghorn habitat, will occur outside of the fawning season (fawning season is from March 15 to July 15) within suitable habitat within the range of the species (Sonoran Pronghorn BMP #3). Substantial impacts to fecundity or mortality are not anticipated due to the implementation of project avoidance and minimization BMPs. Noise, human presence, and vehicles associated with maintenance and repair activities may cause short-term disturbance to Sonoran pronghorn.

Due to the lack of specific research into the effects of human disturbance on Sonoran pronghorn and the general lack of published information related to this species, we must rely on the best available information, including work conducted on other species and personal communications with biologists currently working in the field with Sonoran pronghorn. It is our opinion that human activities and disturbance can affect Sonoran pronghorn by causing behavioral and physiological responses that potentially affect survival and productivity. It is difficult to predict the extent of such effects that may occur as a result of the proposed action, particularly when considering the current baseline conditions which include substantial human activity and infrastructure. However, such effects are reasonably certain to occur based on our conversations with biologists in the field, input from the Sonoran Pronghorn Recovery Team, and the published information and grey literature that is available. We believe this is especially true due to the inconsistent occurrence of good range conditions, and the ongoing history of poor range conditions within the range of the Sonoran pronghorn.

#### Disturbance to Sonoran pronghorn – Direct Effects

Human activity and noise associated with helicopter overflights and maintenance activities may result in disturbance to Sonoran pronghorn. This disturbance can cause pronghorn to startle and/or flee, travel further distances to find suitable foraging, watering, and resting areas, and result in stress and short-term denial of access to habitat, all of which can result in adverse physiological effects or injury to pronghorn. Fleeing behavior can cause fawns to be abandoned or separated from their mothers, which can leave them vulnerable to predator attack or cause physiological stress that results in death. Disturbance associated with proposed action will be periodic and short-term, and BMPs and CMs will be implemented to avoid and minimize adverse effects to Sonoran pronghorn to the extent possible. Per BMP #5, use of helicopters under the proposed action would not occur during the pronghorn fawning season (March 15 to July 15). Human disturbances can be

particularly detrimental during certain critical periods of a pronghorn's life or during the year when animals are in poor condition or more vulnerable to injury. Sonoran pronghorn are particularly susceptible to stress caused by disturbance during the fawning season due to increased energetic demands during this period. Disturbance may result in fawn and adult mortality, particularly during drought years, due to the low availability of forage and water resources and consequent decreased fitness of adults and fawns. Furthermore, as noted above, disturbance during the fawning season may cause fawns to be separated from their mothers which can also result in death. As mentioned above, the proposed action will not occur during the Sonoran pronghorn fawning season within the range and habitat of the species (the western flight approaches for Buck Peak and Christmas Pass essentially avoid areas used by pronghorn). Therefore, we anticipate these activities will not adversely affect pronghorn during this critical period. In the event that emergency maintenance or other unforeseen actions related to the proposed action are needed during the fawning period, CBP will obtain guidance and authorization from FWS and other relevant Federal land managers prior to conducting any maintenance and repair activities at the TacCom sites (see BMP #4).

Due to the extremely low population numbers and endangered status of this species, there is only limited research on the physiological impacts of human activities on Sonoran pronghorn (Workman 1992), and baseline levels of stress for this species are not currently known. Most researchers agree, however, that noise can affect an animal's physiology and behavior, and if it becomes a chronic stress, noise can be injurious to an animal's energy budget, reproductive success and long-term survival (Radle 1998, Kaseloo and Tyson 2004). The potential for project activities to cause physiological stress to pronghorn is expected to be short-term and minor. Pronghorn may be exposed to noise arising from maintenance and repair activities; however, the level of noise at the LRMTacCom sites will be minimal. Impacts associated with noise of helicopter overflights will be reduced through implementation of BMPs #4 and #5. Sonoran pronghorn may be adversely affected by noise and visual impacts of heavy equipment, vehicles, and personnel. Disturbance to pronghorn is anticipated to result from helicopter overflights and maintenance activities, which may result in energetic stress or harm related to decreased access to resources, particularly during drought and other periods of poor range conditions. The direct effects of these activities could include increased behavioral changes or stress in Sonoran pronghorn. Project-related activities may result in short-term visual and auditory disturbance of pronghorn. However, CBP will significantly minimize this disturbance by implementing general and species-specific BMPs. Additionally, as mentioned above, the proposed activities will occur outside of the Sonoran pronghorn fawning season.

#### Disturbance to Sonoran Pronghorn – Indirect Effects

Potential indirect effects on the Sonoran pronghorn include increased potential for fire and introduction and spread of invasive species. The introduction of exotic species can reduce the quality of pronghorn habitat, potentially affecting pronghorn occurrence and abundance through habitat degradation and altered fire regimes. Indirect impacts through habitat loss and degradation are addressed below. Implementation of BMP #2 will reduce the potential for indirect effects from invasive plant species.

### Habitat Loss and Degradation-Direct Effects

The proposed action will not result in any additional Sonoran pronghorn habitat loss or degradation due to the fact that the proposed LRMTacCom sites are located outside of pronghorn habitat. Accessing these sites through Sonoran pronghorn habitat will be necessary, but will primarily be by helicopter or on foot or horseback. Therefore, we do not anticipate any adverse effects to Sonoran pronghorn habitat as a result of access methods. In addition, any impacts to vegetation and soils related to the proposed action will be minimized through implementation of BMPs (see BMP #1).

### Habitat Loss and Degradation – Indirect Effects

Non-native plants often thrive in disturbed areas (Tellman 2002); hence, construction activities could encourage the spread and establishment of these plants. Specifically, the perimeter of maintained roads and infrastructure, and continuously created disturbed ground are susceptible to colonization by invasive non-native plants such as buffelgrass, Sahara mustard (*Brassica tournefortii*), and rocketsalad (*Eruca vesicaria*). Non-native species could spread to other areas and may outcompete native species upon which pronghorn rely, or carry fire which could impact pronghorn habitat. The colonization and spread of non-native plants will be minimized by the implementation of a number of measures (see BMPs #1 and #2). Consequently, we believe effects from the proposed action related to invasive species and fire to be unlikely to occur.

Limited erosion is expected during and immediately following construction activities. However, erosion and changes to natural hydrology will be minimized through implementing standard construction procedures to minimize potential for erosion and sedimentation (BMP #1).

### **Effects of Best Management Practices**

BMPs incorporated into the proposed action, such as those mentioned above, will significantly help minimize project impacts to Sonoran pronghorn and their habitat. For example, avoiding helicopter overflights during the pronghorn fawning season will avoid potential disturbance impacts during the most sensitive period of the year. Ongoing coordination with CPNWR and CNF, as well as AGFD, will provide opportunities to evaluate and reduce potential effects of the proposed action on Sonoran pronghorn related to long-term maintenance and repair of the sites.

### **CUMULATIVE EFFECTS**

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Most lands within the action area are managed by Federal agencies; thus, most activities that could potentially affect pronghorn are Federal activities that are subject to section 7 consultation. The effects of these Federal activities are not considered cumulative effects. Relatively small parcels of

private and State lands occur within the currently occupied range of the pronghorn near Ajo and Why, north of the BMGR from Dateland to SR 85, and from the Mohawk Mountains to Tacna. State inholdings in the BMGR were acquired by the USAF. Continuing rural and agricultural development, recreation, vehicle use, grazing, and other activities on private and State lands adversely affect pronghorn and their habitat. MCAS-Yuma (2001) reports that 2,884 acres have been converted to agriculture near Sentinel and Tacna. These activities on State and private lands and the effects of these activities are expected to continue into the foreseeable future.

Historical habitat and potential recovery areas currently outside of the current range are also expected to be affected by these same activities on lands in and near the action area in the vicinity of Ajo, Why, and Yuma. Of most significant concern to pronghorn is the high level of CBV activity in the action area. CBV activity and its effects to pronghorn and pronghorn habitat is described under the "Human-caused Disturbance" and "Habitat Disturbance" portions of the "Threats" section under "Status of the Species" for Sonoran pronghorn. CBV activity has resulted in route proliferation, off-highway vehicle activity, increased human presence in backcountry areas, discarded trash, abandoned vehicles, cutting of firewood, illegal campfires, and increased chance of wildfire. Habitat degradation and disturbance of pronghorn have resulted from these CBV activities. Although CBV activity levels are still high, the trend in overall CBV apprehensions and drive-throughs is a decline in recent years likely due to increased law enforcement presence, the border fence, and the status of the economy in the U.S. Despite high levels of CBV activity and required law enforcement response throughout the action area, pronghorn in the U.S. have managed to increase since 2002, although their use of areas subject to high levels of CBV use and law enforcement appears to have declined.

We believe the aggregate effects of limitations or barriers to movement of pronghorn and continuing stressors, including habitat degradation and disturbance within the pronghorn's current range resulting from a myriad of human activities, exacerbated by periodic dry seasons or years, are responsible for the present precarious status of the Sonoran pronghorn in the action area. Anticipated incidental take has increased recently, and action agencies have worked with us to modify proposed actions and to include significant conservation measures that reduce adverse effects to the pronghorn and its habitat. Collaborative, multi agency and multi-party efforts to develop forage enhancement plots and emergency waters, reduce human disturbance of pronghorn and their habitat, combined with the success of the semi-captive breeding facility, plus planned future recovery actions, including establishment of a second U.S. sub-population, provide a path toward the recovery of the Sonoran pronghorn in the U.S. At the same time, the rate of recruitment in the wild population in the U.S. is not self sustaining. Population gains are being achieved through augmentation from the semi-captive breeding pen. This indicates that for a number of reasons, including persistent physiological stress of individuals, low recruitment levels persist in the wild U.S. Sonoran pronghorn population.

## CONCLUSION

The conclusions of this BO are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any BMPs that are incorporated into the project design. After reviewing the current status of the Sonoran pronghorn, the environmental baseline for the action area, the effects of the proposed activities, and cumulative effects, it is FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Sonoran pronghorn. Pursuant to 50 CFR 402.02, to "jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. No critical habitat has been designated for this species; therefore, none will be affected. Our conclusion is based on our discussion in this document found in the "Effects of the Action" section above, and the following:

- 1) The proposed action will not directly affect Sonoran pronghorn habitat, and measures have been included to reduce direct and indirect effects to vegetation and soils.
- 2) Although we anticipate that activities associated with the proposed action may result in disturbance to pronghorn, the proposed BMPs will reduce the potential for adverse effects to the Sonoran pronghorn.
- 3) CBP has committed to ongoing coordination with the Federal land managers regarding the long-term implementation of the proposed action. This will provide the opportunity to practice adaptive management and rely on the most up-to-date information to direct the ongoing maintenance and repair of these sites in a way that reduces potential effects to Sonoran pronghorn. Thus, the LRMTacCom project is not expected to significantly affect the distribution, numbers, and reproduction of Sonoran pronghorn in the wild.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). "Harass" is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3). "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement. The measures described below are

non-discretionary, and must be undertaken by CBP so that they become binding conditions of any grant or permit issued to the (applicant), as appropriate, for the exemption in section 7(o)(2) to apply. CBP has a continuing duty to regulate the activity covered by this incidental take statement. If CBP (1) fails to assume and implement the terms and conditions or (2) fails to require any applicant, contractor, or permittee to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the contract, permit, or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, CBP must report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement. [50 CFR '402.14(i)(3)].

### **AMOUNT OR EXTENT OF TAKE**

We do not anticipate that the proposed action will result in incidental take of Sonoran pronghorn. Our conclusion is based on the rationale in the "Effects of the Action" and "Conclusion" sections above. Specifically, we do not anticipate incidental take for the following reasons:

1. The proposed LRMTacCom sites are located in areas that do not support Sonoran pronghorn habitat and impacts to vegetation and soils at the LRMTacCom sites will be minimized.
2. The access routes proposed for helicopter flights during construction and maintenance at Christmas Pass and Buck Peak will generally avoid Sonoran pronghorn habitat and effects to pronghorn.
3. With exceptions for emergency maintenance and repair and the activities at Buck Peak and Christmas Pass using a western flight approach (see description above) , all activities associated with the LRMTacCom will occur outside of the fawning season for Sonoran pronghorn.
4. CBP will use the most current information regarding Sonoran pronghorn locations from CPNWR and AGFD to implement the proposed action in a way that minimizes effects to Sonoran pronghorn.
5. There will be ongoing coordination between CPNWR and CBP over the life of the proposed action to minimize effects to Sonoran pronghorn.

### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to avoid or minimize adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. FWS recommends the following conservation activities:

1. We recommend CBP continue to pursue funding for Sonoran pronghorn research and conservation needs identified by the Sonoran Pronghorn Recovery Team.

2. We recommend CBP hire and maintain at least one full-time biologist or environmental specialist for both the Tucson and Yuma Sectors to assist CBP with compliance with ESA, NEPA, and other environmental requirements; to provide environmental training to agents; and to coordinate with agencies regarding environmental issues.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

### **Disposition of Dead or Injured Listed Species**

Upon locating a dead, injured, or sick listed species, initial notification must be made to the FWS's Law Enforcement Office (USFWS OLE, Resident Agent In Charge, 4901 Paseo del Norte NE, Suite D, Albuquerque, New Mexico 87113; telephone: (505) 248-7889) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve the biological material in the best possible state.

### **REINITIATION NOTICE**

This concludes formal consultation on the action(s) outlined in the reinitiation request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

For further information, please contact Scott Richardson at (520) 670-6150 (x242) or Jean Calhoun (x223) of our Tucson Suboffice. Please refer to the consultation number, 02EAAZOO-2012-F-0170 in future correspondence concerning this project.

Sincerely,

  
for Steven L. Spangle  
Field Supervisor

cc (hard copy):

Field Supervisor, Fish and Wildlife Service, Phoenix, AZ (2 copies)  
Jean Calhoun, Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ  
Sid Slone, Refuge Manager, Cabeza Prieta National Wildlife Refuge, Ajo, AZ  
Jim Upchurch, Forest Supervisor, Coronado National Forest, Tucson, AZ

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**Table 1. Summary of Population Estimates for Sonoran Pronghorn in the U.S.**

Date	Population estimate	Source
1925	105 <sup>a</sup>	Nelson 1925
1941 <sup>b</sup>	60 <sup>a</sup>	Nicol 1941
1957	<100 <sup>a</sup>	Halloran 1957
1968	50 <sup>a</sup>	Monson 1968
1968-1974	20-150 <sup>a</sup>	Carr 1974
1981	100-150 <sup>a</sup>	Arizona Game and Fish Department 1981
1984	85-100 <sup>a</sup>	Arizona Game and Fish Department 1986
1992	179 (145-234) <sup>a</sup>	Bright <i>et al.</i> 1999
1994	282 (205-489) <sup>a</sup>	Bright <i>et al.</i> 1999
1996	130 (114-154) <sup>a</sup>	Bright <i>et al.</i> 1999
1998	142 (125-167) <sup>a</sup>	Bright <i>et al.</i> 1999
2000	99 (69-392) <sup>a</sup>	Bright <i>et al.</i> 1999
2002	21 (18-33) <sup>a</sup>	Bright and Hervert 2003
2004	58 (40-175) <sup>a</sup>	Bright and Hervert 2005
2006	68 (52-116) <sup>a</sup>	Unpublished data
2008	68	Unpublished data
2010	85 <sup>c</sup>	Unpublished data
2013	159	Unpublished data

<sup>a</sup>95% Confidence interval. There is a 5% chance that the population total falls outside this range.

<sup>b</sup>Population estimate for southwestern Arizona, excluding Organ Pipe National Monument.

<sup>c</sup>Does not include 17 pronghorn released from breeding pen in December 2010.

**Table 2. Comparison of U.S. Sonoran Pronghorn Population Surveys**

Date	Pronghorn Observed		Population Estimates			
	On transect	Total observed	Density estimate using DISTANCE <sup>a</sup>	Lincoln-Peterson <sup>a</sup>	Sightability model <sup>a</sup>	Other estimate
Dec 1992	99	121	246 (103-584)	---	179 (145-234)	---
Mar 1994	100	109	184 (100-334)	---	282 (205-489)	---
Dec 1996	71	82 (95 <sup>b</sup> )	216 (82-579)	162 (4-324)	130 (114-154)	---
Dec 1998	74	86 (98 <sup>b</sup> )	---	172 (23-321)	142 (125-167)	---
Dec 2000	67	69 <sup>b</sup>	N/A	N/A	99 (69-392)	---
Dec 2002	18	18	N/A	N/A	21 (18-33) <sup>c</sup>	---
Dec 2004	39	51	N/A	N/A	58	---
Dec 2006	51	59	N/A	N/A	68 (52-116)	---
Dec 2008	N/A	N/A	N/A	N/A	N/A	68 <sup>d</sup>
Dec 2010	N/A	N/A	N/A	N/A	85	---

<sup>a</sup> 95% Confidence interval. There is a 5% chance that the population total falls outside this range.

<sup>b</sup> Includes animals missed on survey, but located using radio telemetry.

<sup>c</sup> Jill Bright, Arizona Game and Fish Department, pers. comm. 2003.

<sup>d</sup> Due to poor visibility and low pronghorn sighting rate (some radio-collared pronghorn were detected from their transmitter signals but not seen during the surveys) caused by inclement weather during the surveys and having to resurvey some areas during better weather, the usual survey estimator was not used because it would have lacked accuracy. The estimate of 68 was based on individual seen and missed on the survey and on several recent telemetry flights.

**Table 3. Comparison of Mexico Sonoran Pronghorn Surveys, 2000-2011.**

Date	Pronghorn Observed			Population Estimate		
	West of Hwy 8	Southeast of Hwy 8	Total	West of Hwy 8	Southeast of Hwy 8	Total
Dec 2000	--	--	--	--	--	346
Dec 2002	--	--	214	25	255	280
Dec 2004/Feb 2005	30	439	469	59	625	684
Jan 2006	--	--	486	--	--	634
Dec 2007	35	325	360	50	354	404
Dec 2009	53	258	311	101	381	482
Dec 2011	30	167	197	52	189	241

**Table 4. CBV Apprehensions by Location**

<b>Location</b>	<b>1999</b>	<b>2006</b>	<b>FY2009</b>	<b>FY2010</b>	<b>FY2011</b>	<b>FY2012*</b>
Ajo Station AOR	21,300	22,504	15,456	20,448	17,385	--
Wellton Station AOR	--	--	1,889	1,758	1,678	--
OPCNM and CPNWR	--	--	N/A	3,265	7,282	5,187

\*Data as of August 30, 2012

## APPENDIX A. Concurrences

### Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*)

#### Environmental Baseline

The lesser long-nosed bat is a yellow-brown or cinnamon gray bat, with a total head and body measurement of approximately 8 cm (3 inches). The tongue measures approximately the same length as the body. This species also has a small nose leaf (FWS 2001). Lesser long-nosed bat was listed as federally endangered without critical habitat on September 30, 1988 (53 FR 38456). The species historically ranged from southern Arizona in the Picacho Mountains, the Agua Dulce Mountains, and the Chiricahua Mountains to southwestern New Mexico in the Animas and Peloncillo Mountains through much of Baja California, Mexico (FWS 1994). These bats are seasonal (April to September) residents of southeastern Arizona, and possibly extreme western Arizona (i.e., Cochise, Pima, Santa Cruz, Graham, Pinal and Maricopa Counties, Arizona) (FWS 2001, 2007). With regard to the action area for the proposed action, three major maternity roosts in Arizona (Bluebird and Copper Mountain Mines and Growler Mountain roost) are located within 36 miles of the proposed Granite Mountain LMRTacCom location, and one day roost is located near the proposed Cobre LMRTacCom location and helicopter access route. Habitat for the species includes mainly desert scrub habitat in the U.S. portion of its range. In Mexico, the species occurs up into high elevation pine-oak and ponderosa pine forests. Within the United States, this species forages at night on nectar, pollen from columnar cacti (such as saguaro and organ pipe cacti), and agaves with branched flower clusters (FWS 2001). Considerable evidence exists for the interdependence of *Leptonycteris* bat species and certain agaves and cacti (FWS 2001). During daylight, lesser long-nosed bats roost in caves or abandoned mines. Impacts to foraging resources have been identified as a threat to this species. Impacts to forage resources, including the conversion of habitat for agricultural uses, livestock grazing, woodcutting, urbanization, other development might contribute to the decline of long-nosed bat populations. In addition, occupancy of communal roost sites by illegal border crossers and recreational users is a potential threat. These bats are particularly vulnerable due to many individuals using only a small number of communal roosts (FWS 2001). In general, the trend in overall number of lesser long-nosed bats has been stable or increasing in both the United States and Mexico. In part, for this reason, the FWS recommended reclassifying the status of this species as threatened (FWS 2007).

#### Effects of the Proposed Action

There are a number of potential effects to the lesser long-nosed bat from the proposed action. However, installation and maintenance and repair activities would occur infrequently, and CBP has included a number of BMPs and other measures to reduce the potential for these effects.

The potential direct impacts on lesser long-nosed bat include disruption of normal roosting and foraging behavior due to noise and lighting associated with installation, maintenance, and repair activities. However, the proposed action includes a BMP that indicates no work will occur between May 1 and September 30 (see page 4-4 of the BA), the normal period of time when lesser long-nosed bats occupy roosts in proximity to the action area. Maintenance activities that occur at night have the potential to interfere with a bat's ability to locate and find food (Schaub et al. 2008), and bats might avoid areas where maintenance noise is present. Installation and maintenance activities at night, and any associated lighting, have the potential to impact bat behavior, altering commuting routes to foraging habitat (Stone et al. 2009). However, the proposed action does not include any work at night. Considerable evidence exists for the interdependence of *Leptonycteris* bat species and certain agaves and cacti (FWS 2001). Site surveys report the potential loss of less than 24 individual agave plants at the Buck Peak site. Vegetation removal at installation sites will be limited to the least practical disturbance. Impacts from habitat disturbance on lesser long-nosed bat would be negligible (less than 0.1 acre).

Bats may avoid foraging areas in the vicinity of LRMTacCom equipment because of the electromagnetic field (EMF) produced. EMFs can also cause increases in bat's surface and deep body temperatures after prolonged exposures. Bats are particularly susceptible to EMF strengths of 2 volts/m (Nicholls and Racey 2007). It is currently unclear whether there would be any impact from the LRMTacCom equipment; however, the proposed equipment is not different from other radio repeater sites currently in use within the action area and the range of the lesser long-nosed bat.

### Conclusion

The Service concurs with the CBP determination that the proposed action may affect, but is not likely to adversely affect the lesser long-nosed bat based upon the following:

- Installation, maintenance and repair activities will occur infrequently and will not occur in proximity to any known lesser long-nosed bat roost locations.
- No fencing, guy wires or lighting will be installed at the proposed sites. This will reduce the potential for effects such as collisions or avoidance of the area to an insignificant level.
- Vegetation disturbance and loss of lesser long-nosed bat forage plants is minimal and will have an insignificant effect on forage availability.

### **Mexican spotted owl (*Strix occidentalis lucida*)**

#### Environmental Baseline

The Mexican spotted owl has large, dark eyes, an overall dark to chestnut brown coloring, whitish spots on the head and neck, and white mottling on the abdomen and breast (FWS 1995). Mexican spotted owl was listed as federally-threatened on March 16, 1993 (58 FR 14248), with critical habitat designated on August 31, 2004 (69 FR 53182). Critical habitat for Mexican spotted owl

occurs in the action area for the proposed project. The Mexican spotted owl inhabits canyon and forest habitats across its range and is frequently associated with mature mixed-conifer, pine-oak, and riparian forests. Owls are usually found in areas with some type of water source such as perennial streams, creeks, and springs. Mexican spotted owls use a variety of habitats for foraging, including multi-layered forests with many potential patches. In areas within Arizona and New Mexico, forests used for roosting and nesting often contain mature or old-growth stands with complex structure. The breeding period for Mexican spotted owls is March through June (FWS 1995). The primary threats to the Mexican spotted owl are even-aged timber harvest and the threat of catastrophic wildfire. Additional threats include development from oil, gas, and mining; and recreation (FWS 1995). The Cobre LRMTacCom site is within 4 miles of Mexican spotted owl critical habitat and 7 miles of the nearest protected activity center (PAC); however, flight paths from the Nogales International Airport to the site may fly directly over critical habitat and PACs.

### Effects of the Proposed Action

There are a number of potential effects to Mexican spotted owls from the proposed action. However, installation, maintenance, and repair activities would occur infrequently, and CBP has included a number of BMPs and other measures to reduce the potential for these effects.

Potential direct impacts to Mexican spotted owl include the risk of disturbance from helicopter overflights from installation, maintenance, and repair activities, and habitat degradation from vegetation removal. Avian species are particularly susceptible to adverse effects during the breeding and nesting season. Removal of vegetation could affect Mexican spotted owls by reducing suitability of habitat if enough vegetation is removed that it fragments the habitat and alters its structure. Vegetation removal will be minimized under the proposed action (see BMP #1 and #6). This limited vegetation control will be conducted outside of the Mexican spotted owl nesting season (see BMP #5).

Noise and visual disturbance associated with installation, maintenance and repair activities could disrupt breeding and foraging behaviors of the Mexican spotted owl. For example, such disturbances could cause adult Mexican spotted owls to flush from roosts or nests. However, BMPs will be implemented so that activities will not typically occur within the nesting season and flight paths and altitudes will be adjusted to avoid or minimize disturbance at PACs and over critical habitat (see BMPs #4 and #5). Emergency maintenance/repair trips could occur at any time of the year; however, flight paths could be established to reduce or eliminate the potential for impacts on Mexican spotted owls and their critical habitat. By implementing these BMPs, the potential for direct and indirect effects from the proposed action will be minimal and discountable, and any effects that might occur would be insignificant.

### Conclusion

The Service concurs with the CBP determination that the proposed action may affect, but is not likely to adversely affect the Mexican spotted owl, based upon the following:

- Installation, maintenance, and repair activities will occur infrequently and the Cobre LRMTacCom site is located outside of any known PACs or critical habitat.
- No activities under the proposed action will be conducted during the Mexican spotted owl nesting season (see BMP #5).
- In Mexican spotted owl habitat, habitat disturbance will be minimized by restricting vegetation removal to the immediate vicinity of the LRMTacCom site. Any vegetation removal will be minimized (BMP #1). If vegetation must be removed, natural regeneration of native plants will be promoted by cutting vegetation only with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact (see BMP #1 and #6). This should reduce vegetation impacts within Mexican spotted owl habitat to an insignificant level.

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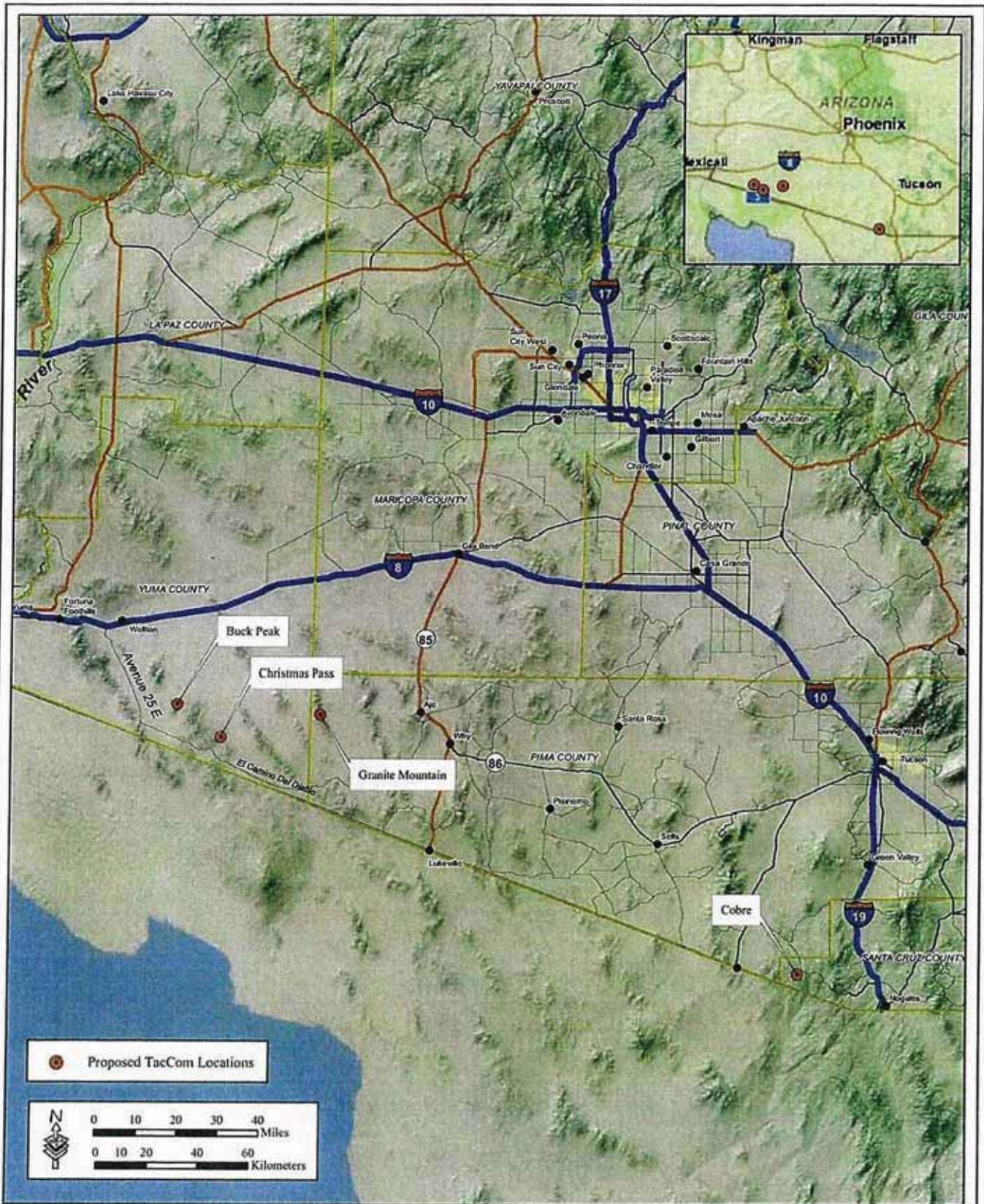


Figure 1-1: Vicinity Map for LMR TacCom Arizona Focus Area



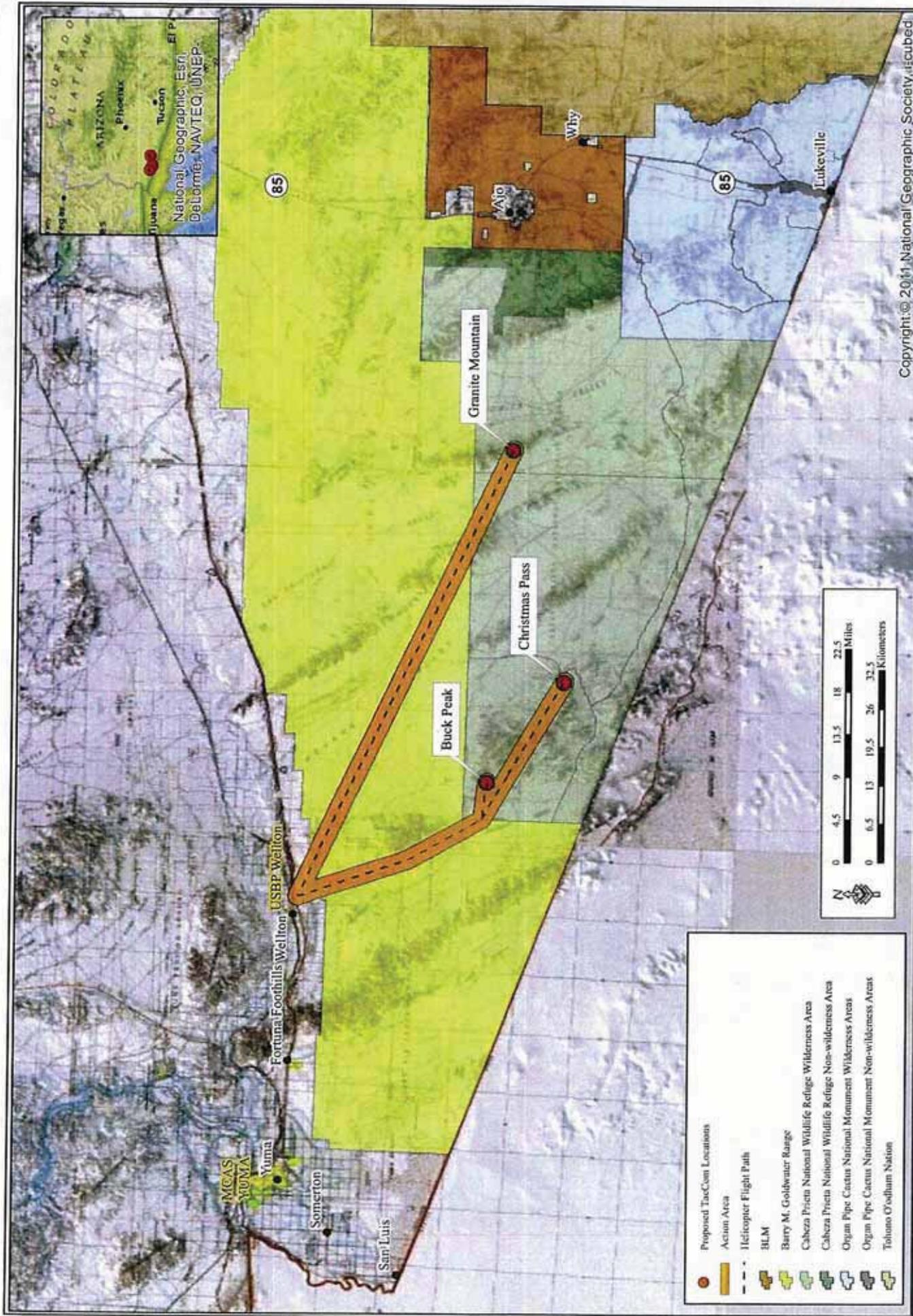


Figure 1-2. Action Area for LMR TacCom Arizona Focus Area



**U.S. Customs and  
Border Protection**

MAY 29 2013

Mr. Sid Slone  
U.S. Fish and Wildlife Service  
Cabeza Prieta National Wildlife Refuge  
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**SUBJECT: Draft Environmental Assessment and Draft Finding of No Significant Impact for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection**

Dear Mr. Slone:

U.S. Customs and Border Protection (CBP) is pleased to provide a copy of the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection.

The Proposed Action includes the installation, operation, repair, and maintenance of radio repeater equipment and application for a real estate special use permit or right of way for construction on the subject properties at up to three locations on the Cabeza Prieta National Wildlife Refuge (CPNWR) (Buck Peak, Granite Mountain, and Christmas Pass). All three proposed sites on the CPNWR may not be necessary. CBP proposes to first install the proposed radio repeater equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if adequate communications coverage is provided with only two sites. If communications coverage is not adequate, or does not meet the requirements of the U.S. Border Patrol (USBP) Wellton or Ajo stations, USBP Yuma or Tucson sectors, or CPNWR, then the proposed equipment at the Christmas Pass site would be installed. CPNWR would collocate communications equipment with CBP's equipment at Buck Peak and at Christmas Pass if this site is developed by CBP. CBP has determined that the proposed project would cause no significant impacts on environmental resources.

The EA was prepared in compliance with 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 et seq., and the Department of Homeland Security's *Directive 023-01, Environmental Planning Program*.

The Draft EA and FONSI are also available for download at the following URL addresses:  
<http://ecso.swf.usace.army.mil/Pages/Publicreview.cfm> or at <http://cbp.gov/xp/cgov/about/ec/>.

Mr. Sid Slone  
Page 2

CBP invites your participation in this public review process for the enclosed Draft EA and FONSI. The 30-day public comment period begins on May 31, 2013, and comments must be received by June 30, 2013 to be considered for incorporation into the final EA.

When submitting your comments, please include your name and address and identify comments as intended for the Arizona TacCom Project. Questions or comments can be sent to Ms. Maria Bernard Reid via facsimile at (225) 761-8077, via e-mail at [AZ\\_TacCom\\_Comments@gsrscorp.com](mailto:AZ_TacCom_Comments@gsrscorp.com), or by mail to the following address:

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Thank you very much for your cooperation and assistance.

Sincerely,



Jennifer DeHart Hass  
Director  
Environmental and Energy Division

Enclosure

Identical copies of the transmittal letter and copies of the *Draft Environmental Assessment and Draft Finding of No Significant Impact for Land Mobile Radio Modernization for Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Custom and Border Protection* from CBP (dated May 29, 2013) were sent to the following:

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**U.S. Customs and  
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**MAY 29 2013**

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Main Branch Librarian  
2951 South 21st Drive  
Yuma, Arizona 85364

**SUBJECT: Draft Environmental Assessment and Draft Finding of No Significant Impact for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection**

Dear Librarian:

Enclosed please find a copy of the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area prepared by U.S. Customs and Border Protection (CBP). Please make the Draft EA and Draft FONSI available for a public review period of 30 days beginning on May 31, 2013. Comments are due no later than June 30, 2013 to be considered for incorporation into the final EA.

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Ms. Maria Bernard Reid  
8081 GSRI Avenue  
Baton Rouge, LA 70820

Yuma County Library District  
Page 2

Thank you very much for your cooperation and assistance.

Sincerely,

A handwritten signature in blue ink that reads "Jennifer DeHart Hass". The signature is written in a cursive style with a large initial "J" and "H".

Jennifer DeHart Hass  
Director  
Environmental and Energy Division  
U.S. Customs and Border Protection  
Department of Homeland Security

Enclosure



**U.S. Customs and  
Border Protection**

**MAY 29 2013**

Pima County Public Library  
Librarian  
Salazar-Ajo Branch  
33 Plaza, Ajo, AZ 85321

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Environmental and Energy Division  
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Department of Homeland Security

Enclosure



**U.S. Customs and  
Border Protection**

**MAY 29 2013**

Mr. John F. Kehring  
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**SUBJECT: Draft Environmental Assessment and Draft Finding of No Significant Impact for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection**

Dear Mr. Kehring:

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Mr. John F. Kehring

Page 2

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Baton Rouge, LA 70820

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Jennifer DeHart Hass  
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Environmental and Energy Division

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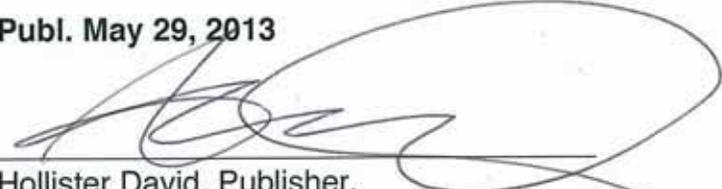
**NOTICE OF AVAILABILITY  
DRAFT ENVIRONMENTAL ASSESSMENT  
FOR LAND MOBILE RADIO MODERNIZATION  
FOR TACTICAL COMMUNICATIONS AT BUCK  
PEAK, GRANITE MOUNTAIN, AND CHRISTMAS  
PASS, ARIZONA FOCUS AREA**

**U.S. CUSTOMS AND BORDER PROTECTION**  
The public is hereby notified of the availability of the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) prepared by U.S. Customs and Border Protection for the installation, operation, repair, and maintenance of land mobile radio equipment at up to three mountaintop locations (Buck Peak, Granite Mountain, and Christmas Pass) in the Arizona Focus Area in Pima and Yuma counties. The draft EA and FONSI will be available at the Pima County Public Library, Salazar-Ajo Branch, 33 Plaza, Ajo, Arizona and Yuma County Library District, Main Branch, 2951 South 21<sup>st</sup> Drive, Yuma, Arizona 85364. It is also available for download at the following URL address: <http://cbp.gov/xp/cgov/aboutec/>. All comments must be received by June 30, 2013 and should be sent to the attention of Ms. Maria Bernard Reid, Arizona TacCom Project Via mail: 8081 GSRI Road, Baton Rouge, LA 70820 Via fax: (225) 761-8077 Via email: AZ\_TacCom\_Comments@groorp.com  
Publ May 29, 2013  
Gulf - NOA 130529 GD

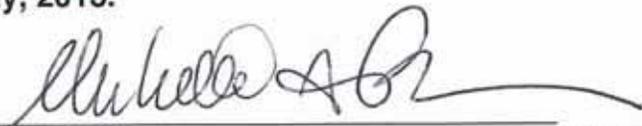
**NOTICE OF AVAILABILITY DRAFT  
ENVIRONMENTAL ASSESSMENT FOR LAND  
MOBILE RADIO MODERNIZATION FOR  
TACTICAL COMMUNICATIONS AT BUCK PEAK,  
GRANITE MOUNTAIN, AND CHRISTMAS PASS,  
ARIZONA FOCUS AREA U.S. CUSTOMS AND  
BORDER PROTECTION**

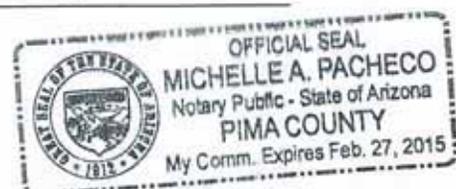
a correct copy of which is attached to this affidavit, was published in the said *Ajo Copper News* every week in the newspaper proper and not in a supplement for

Publ. May 29, 2013

  
Hollister David, Publisher,  
Ajo Copper News

Sworn to and subscribed before me, a Notary Public in and for the County of Pima, Arizona, this **29** day of **May, 2013**.

  
Notary Public



ARIZONA DAILY STAR

Tucson, Arizona

STATE OF ARIZONA)  
COUNTY OF PIMA)

Debbie Capanear, being first duly sworn deposes and says: that she is the Advertising Representative of TNI PARTNERS, 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 ad was printed and

Legal Notice

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

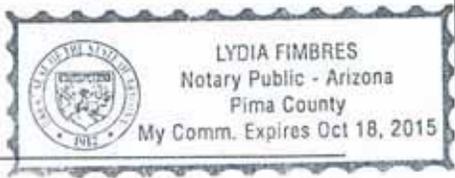
MAY 31, 2013

Debbie Capanear

Subscribed and sworn to before me this 4 day of

June, 2013

Lydia Fimbres  
Notary Public



My commission expires \_\_\_\_\_

AD NO. 8025479

**NOTICE OF AVAILABILITY**

**DRAFT ENVIRONMENTAL ASSESSMENT FOR LAND MOBILE RADIO MODERNIZATION FOR TACTICAL COMMUNICATIONS AT BUCK PEAK, GRANITE MOUNTAIN, AND CHRISTMAS PASS, ARIZONA FOCUS AREA U.S. CUSTOMS AND BORDER PROTECTION**

The public is hereby notified of the availability of the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) prepared by U.S. Customs and Border Protection for the installation, operation, repair, and maintenance of land mobile radio equipment at up to three mountaintop locations (Buck Peak, Granite Mountain, and Christmas Pass) in the Arizona Focus Area in Pima and Yuma counties. The draft EA and FONSI will be available at the Pima County Public Library, Salazar-Ajo Branch, 33 Plaza, Ajo, Arizona and Yuma County Library District, Main Branch, 2951 South 21st Drive, Yuma, Arizona 85364. It is also available for download at the following URL address: <http://cbp.gov/xp/cgov/about/ec/>.

**All comments must be received by June 30, 2013 and should be sent to the attention of Ms. Maria Bernard Reid, Arizona TacCom Project Via mail: 8081 GSRI Road, Baton Rouge, LA 70820 Via fax: (225) 761-8077 Via email: AZ\_TacCom\_Comments@gsrcorp.com**

Publish May 31, 2013  
Arizona Daily Star



# Publisher's Affidavit of Publication

oOo

STATE OF ARIZONA }  
COUNTY OF YUMA }

Joni Brooks or Kathy White, having been first duly sworn, deposes and says: that Yuma Sun is a newspaper of general circulation published daily in the City of Yuma, County of Yuma, State of Arizona; that (s)he is the publisher or business manager of said paper; that the

**NOTICE OF AVAILABILITY**

**DRAFT ENVIRONMENTAL ASSESSMENT FOR LAND MOBILE RADIO MODERNIZATION FOR TACTICAL COMMUNICATIONS AT BUCK PEAK, GRANITE MOUNTAIN, AND CHRISTMAS PASS, ARIZONA FOCUS AREA U.S. CUSTOMS AND BORDER PROTECTION**

The public is hereby notified of the availability of the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) prepared by U.S. Customs and Border Protection for the installation, operation, repair, and maintenance of land mobile radio equipment at up to three mountaintop locations (Buck Peak, Granite Mountain, and Christmas Pass) in the Arizona Focus Area in Pima and Yuma counties. The draft EA and FONSI will be available at the Pima County Public Library, Salazar-Ajo Branch, 33 Plaza, Ajo, Arizona and Yuma County Library District, Main Branch, 2951 South 21st Drive, Yuma, Arizona 85364. It is also available for download at the following URL address: <http://cbp.gov/xp/cgov/about/ecl/>.

All comments must be received by June 30, 2013 and should be sent to the attention of Ms. Maria Bernard Reid, Arizona TacCom Project Via mail: 8081 GSRI Road, Baton Rouge, LA 70820 Via fax: (225) 761-8077 Via email: AZ\_TacCom\_Comments@gsrcoorp.com Daily May 31, 2013 - 1111623

NOTICE OF AVAILABILITY

a printed copy of which, as it appeared in said paper, is hereto attached and made a part of this affidavit, was published in Yuma Sun For 1 issues; that the date of the first publication of said

NOTICE OF AVAILABILITY

was May 31st, 2013 and the date of the last publication being May 31st, 2013 and that the dates when said NOTICE OF AVAILABILITY was printed and published in said paper were 05/31/2013

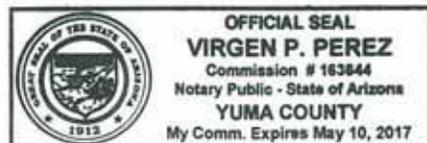
Kathy White

Subscribed and sworn to before me, by the said Joni Brooks or Kathy White

31st day of May, 2013

Virgen P. Perez Notary Public

My commission expires May 10, 2017



## AZ Taccom Comments

---

**From:** AZ Taccom Comments  
**Sent:** Tuesday, June 11, 2013 9:34 AM  
**To:** 'Lisa Holguin'  
**Subject:** RE: Update on Mail List

Thank you Ms. Holguin. I will update the mailing list.

Maria Bernard Reid

---

**From:** Lisa Holguin [<mailto:Lisa.Holguin@ibwc.gov>]  
**Sent:** Friday, May 31, 2013 2:09 PM  
**To:** AZ Taccom Comments  
**Subject:** Update on Mail List

To Whom It May Concern,

We are in receipt of your letter to us, in reference to the Draft Environmental Assessment and Draft Finding of no Significant Impact for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection.

You have address it to a previous Commissioner, Mr. Bill Ruth. The current Commissioner is Mr. Edward Drusina, who has been in office since Jan 2010. Please update your address list to reflect the current Commissioner.

Thank you.

*Lisa Holguin*

Special Assistant to Commissioner Edward Drusina

Headquarters

915-832-4765 Fax 915-832-4191

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STATEMENT OF CONFIDENTIALITY

*The information contained in this electronic message and any attachments(s) to this message are intended for the exclusive use of the addressee(s) and may contain confidential or privileged information. You are hereby notified that any unauthorized use, disclosure, and/or distribution of the information is strictly prohibited. If you have received this transmission in error, please notify the sender immediately via e-mail, and destroy all copies of this message and any attachments.*

## AZ Taccom Comments

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**From:** AZ Taccom Comments  
**Sent:** Tuesday, June 11, 2013 10:43 AM  
**To:** 'Peter Steere'  
**Cc:** Dave Hart; Ann Howard; Lorraine Eiler; Christina Andrews (ccbandrews@gmail.com)  
**Subject:** RE: Draft EA and FONSI for Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass and Granite Mountain

Mr. Steere:

Your documents will be mailed today.

Maria Bernard Reid

---

**From:** Peter Steere [<mailto:Peter.Steere@tonation-nsn.gov>]  
**Sent:** Wednesday, June 05, 2013 2:21 PM  
**To:** AZ Taccom Comments  
**Cc:** Dave Hart; Ann Howard; Lorraine Eiler; Christina Andrews ([ccbandrews@gmail.com](mailto:ccbandrews@gmail.com))  
**Subject:** Draft EA and FONSI for Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass and Granite Mountain

### MEMORANDUM

DATE: June 5, 2013

TO: Maria Bernard Reid, GSRCorp

CC: Ann Howard, SHPO  
Dave Hart, GSRCorp  
Lorraine Eiler, TON Council Representative-Hia Ced O'odham District  
Christina Andrews, Hia Ced O'odham District

FROM: Peter L. Steere, THPO, Tohono O'odham Nation  
P.O. Box 837, Sells, Arizona 85634

RE: Draft EA and FONSI for Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass and Granite Mountain, Cabeza Prieta

---

Thank you for consulting with Tohono O'odham Nation on this project.

Please send hard copy of EA and FONSI.

Please send hard copy of cultural resources report and biological report

Please send maps with site locations.

Some of these peaks may be TCP's

TCP consultation needs to take place with interested tribes.



11 June 2013

Mr. Peter Steere  
Tribal Historic Preservation Office  
Tohono O'odham Nation  
P.O. Box 837  
Sells, AZ 85634

RE: Draft EA and Proposed FONSI for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection

Dear Mr. Steere,

As per your request on June 5, 2013, please find enclosed 1 copy of each of the following reports: the above referenced EA and FONSI, the August 25, 2011 request for Section 106 Consultation letter to Chairman Ned Norris, Jr., the September 8, 2011 Notice of Intent to prepare and EA letter to Chairman Ned Norris, Jr., and cultural resources and biological reports for each site (Buck Peak, Christmas Pass, and Granite Mountain). Each of these documents contains maps of the project sites.

The public review period for the EA is 31 May through 30 June 2013.

If you require additional information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Maria Bernard Reid".

Maria Bernard Reid  
Natural Resources

REF: 80306414



THE STATE OF ARIZONA  
**GAME AND FISH DEPARTMENT**

5000 W. CAREFREE HIGHWAY  
 PHOENIX, AZ 85086-5000  
 (602) 942-3000 • WWW.AZGFD.GOV

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**DEPUTY DIRECTOR**

TY E. GRAY



June 10, 2013

Ms. Maria Bernard Reid  
 Arizona TacCom Project  
 8081 GSRI Road  
 Baton Rouge, LA 70820



Re: Draft Environmental Assessment for the Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Granite Mountain, and Christmas Pass, Arizona Focus Area.

Dear Ms. Reid:

The Arizona Game and Fish Department (Department) has reviewed the May 2013 Draft Environmental Assessment for the Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Granite Mountain, and Christmas Pass, Arizona Focus Area. Given the description and our understanding of planned activities, we are providing the following comments for your consideration.

Project Description

As we understand from the Draft Environmental Assessment, the U.S. Customs and Border Protection (CBP) would like a special use permit for the installation, operation, repair, and maintenance of radio repeater equipment at up to three locations in the Cabeza Prieta National Wildlife Refuge (CPNWR) (Buck Peak, Granite Mountain, and Christmas Pass). U.S. Customs and Border Protection proposed to first install the proposed TacCom LMR equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if adequate communications coverage is provided with only two sites. If communications coverage is not adequate or does not meet the requirements of the USBP Wellton or Ajo stations, USBP Yuma or Tucson sectors, or CPNWR, then the proposed TacCom LMR equipment at the Christmas Pass site would be installed. The radio repeater equipment would be installed at all locations by helicopter airlift.

Department Recommendations

While performing a search on the Department's Heritage Data Management System (HDMS), the Sonoran pronghorn (*Antilocapra americana sonoriensis*) was listed as potentially occurring within or near the proposed project location. The Sonoran pronghorn is listed as endangered by the U.S. Fish and Wildlife Service and as a Wildlife of Special Concern by the Department. Due to the locations of the proposed project, the Department has concerns about impacts to desert bighorn sheep (*Ovis canadensis mexicana*). There has been a decline in the distribution and numbers of bighorn sheep throughout their range due to habitat fragmentation, disease, disturbance, and other factors. The locations that host the radio repeater equipment also support existing populations. In order to avoid harm to bighorn sheep recruitment the Department recommends that construction be avoided on mountaintops during the lambing season (primarily January 1 to April 30).

AGFD-1

AGFD-2

Ms. Reid

6/10/13

2

Thank you for the opportunity to review and provide comments on this Draft Environmental Assessment. If you have any questions, please contact me at 928-341-4069 or [tbommarito@azgfd.gov](mailto:tbommarito@azgfd.gov).

Sincerely,



Tab Bommarito  
Habitat Specialist  
Region IV, Yuma

cc: Pat Barber, Regional Supervisor, Region IV  
Joyce Francis, Chief, Habitat Branch  
Bill Knowles, Habitat Program Manager, Region IV  
Laura Canaca, PEP Supervisor, Habitat Branch

AGFD # M13-06051458

AGFD-1: Potential impacts on Sonoran pronghorn were addressed in formal Section 7 (Endangered Species Act) consultation with the U.S. Fish and Wildlife Service (USFWS). The USFWS provided a Biological Opinion (BO) on the project on April 23, 2013 (see Appendix A). The Buck Peak and Christmas Pass sites lie outside of the current range of the Sonoran pronghorn. Access to these sites will be from the west to avoid flying over Sonoran pronghorn range. The BO identified conditions for access to the Granite Peak site which will require flights over pronghorn range.

AGFD-2: A Best Management Practice specific to the desert bighorn sheep was included in the draft EA and Biological Opinion to reduce the likelihood of impacts on bighorn sheep, especially during the lambing season (see pages FONSI-6 and page 5-3). Construction activity will only occur between September 1 and December 31 to avoid the Sonoran pronghorn fawning period, desert bighorn sheep lambing period, and migratory bird nesting. Scheduled maintenance via aircraft will be restricted during the Sonoran pronghorn fawning season and bighorn sheep lambing season, a period from January 1 through July 15. However, emergency maintenance could possibly be performed at any time, depending upon the emergency.

## AZ Taccom Comments

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**From:** AZ Taccom Comments  
**Sent:** Tuesday, June 11, 2013 1:06 PM  
**To:** 'RANKIN, ADRIANNE G CIV USAF AETC 56 RMO/ESMC'  
**Cc:** Dave Hart (dhart@gsrccorp.com)  
**Subject:** RE: ? on Draft EA for Live Radio Moderzation -- Arizona Focus Area  
**Attachments:** 1597\_BuckPeakArchReport\_June02.pdf; 1597\_ChristmasPassArchReport\_June02.pdf; 1597\_GraniteMtnsArchReport\_Jy05.pdf

Ms. Rankin:

Please find attached the Archaeological reports for the three sites covered in the EA.

If you require any additional information, please do not hesitate to contact me or Mr. Dave Hart ([dhart@gsrccorp.com](mailto:dhart@gsrccorp.com)).

Maria

-----Original Message-----

From: RANKIN, ADRIANNE G CIV USAF AETC 56 RMO/ESMC [<mailto:adrienne.rankin@us.af.mil>]  
Sent: Tuesday, June 11, 2013 11:40 AM  
To: AZ Taccom Comments  
Subject: ? on Draft EA for Live Radio Moderzation -- Arizona Focus Area

Ms. Reid--I received a copy of this EA for review. I need a copy of each of the archaeological reports that support the conclusions in the EA. Please send to my email ASAP or mail direct.

Thanks --A

Adrienne G Rankin, Archaeologist  
56 RMO/ESM  
7101 Jerstad Lane  
Luke AFB AZ 85309  
623 856-8410 Comm 623 856-8409 Fax  
[Adrienne.rankin@us.af.mil](mailto:Adrienne.rankin@us.af.mil)



# United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Phoenix District

21605 North 7th Avenue

Phoenix, Arizona 85027

[www.blm.gov/az/](http://www.blm.gov/az/)

JUN 14 2013



In Reply Refer To:  
1000 (P010)

Ms. Maria Bernard Reid  
8081 GSRI Avenue  
Baton Rouge, LA 70820

Dear Ms. Reid:

This is in response a letter dated May 29, 2013, from U.S. Customs and Border Protection regarding a Draft Environmental Assessment and Draft Finding of No Significant Impact for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection.

Based on the information presented in the letter, as well as a review of the above mentioned documents, the Project (and related infrastructure) is located on the Cabeza Prieta Wildlife Refuge and will have no impact on any public lands or programs managed by this office.

We thank you for the opportunity to review and comment on this proposal.

If you have any questions, please contact Jim Andersen at 623-580-5570.

Sincerely,

Mary D'Aversa  
District Manager



OFFICE OF THE COMMISSIONER  
UNITED STATES SECTION

INTERNATIONAL BOUNDARY AND WATER COMMISSION  
UNITED STATES AND MEXICO

June 19, 2013

Ms. Maria Bernard Reid  
8081 GSRI Avenue  
Baton Rouge, LA 70820

Subject: U.S. Customs and Border Protection Project for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Peak, and Granite Mountain, Arizona Focus Area, Draft Environmental Assessment and Draft Finding of No Significant Impact.

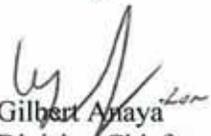
Dear Ms. Reid:

The United States Section, International Boundary and Water Commission (USIBWC) appreciates the opportunity to comment on the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Protection Area, U.S. Customs and Border Protection (CBP). The proposed project includes the installation, operation, repair, and maintenance of radio repeater equipment and application for a real estate special use permit or right of way for construction on the subject properties at up to three locations on the Cabeza Prieta National Wildlife Refuge (CPNWR) (Buck Peak, Granite Mountain, and Christmas Pass). As part of the project, CBP will first install the proposed radio repeater equipment at Buck Peak and Granite Mountain. Once the sites are operational, CBP will determine if radio repeater equipment at Christmas Pass will be needed. The results of the project are to improve operational effectiveness and enhance officer safety through modernization of the existing Land Mobile Radio (LMR) systems with state-of-the-art digital technology that complies with the project 25 (P25) standards and provides for Advanced Encryption Standard (AES) capabilities to protect law enforcement sensitive communications from scanning and improve operational capabilities in the Arizona Focus Area.

The USIBWC has reviewed the Draft FONSI/EA and does not have any comments at this time. From the map provided in the EA (Figure 2-1), the nearest repeater to the international boundary that may potentially be placed is approximately five miles north of land managed by USIBWC.

Thank you for the opportunity to review and comment on the project. If you have any questions or need additional information, please feel free to call me at (915) 832-4702 or email at [gilbert.anaya@ibwc.gov](mailto:gilbert.anaya@ibwc.gov).

Sincerely,

  
Gilbert Anaya  
Division Chief  
Environmental Management Division

The Commons, Building C, Suite 100 • 4171 N. Mesa Street • El Paso, Texas 79902-1441  
(915) 832-4100 • Fax: (915) 832-4190 • <http://www.ibwc.gov>



# GILA RIVER INDIAN COMMUNITY

POST OFFICE BOX 2140, SACATON, AZ 85147

TRIBAL HISTORIC PRESERVATION OFFICE

(520) 562-7162

Fax: (520) 562-5083

June 19, 2013

Jennifer DeHart Hass, Director  
Environmental and Energy Division  
U.S. Customs and Border Protection  
1300 Pennsylvania Avenue NW  
Washington D.C. 20229

RE: Draft Environmental Assessment and Draft Finding of No Significant Impact for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain. Arizona Focus Area, U.S. Customs and Border Protection

Dear Director Hass,

The Gila River Indian Community Tribal Historic Preservation Office (GRIC-THPO) has received your consultation letter dated May 29, 2013. The letter describes U.S. Customs and Border Protection (CPB) undertaking to install, operate, repair, and maintain radio repeater equipment at Buck Peak, Christmas Pass, and Granite Mountain in southwest Arizona. Radio equipment will be installed first at Buck Peak and Granite Mountain. If radio coverage is determined to be inadequate, then installation of radio equipment on Christmas Pass will proceed. Archaeological surveys have been conducted and no sites were identified at Christmas Pass and Granite Mountain. Two isolated occurrences were recorded at Buck Peak. The isolated occurrences are not Register eligible properties. The CPB has determined that the proposed project would cause no significant impacts on environmental resources. The CPB plans to issue a Finding of No Significant Impact (FONSI) for this undertaking.

The GRIC-THPO agrees with the issuance of a FONSI for this undertaking. The proposed project area is 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). The GRIC-THPO defers to the Tohono O'Odham Nation as lead in the consultation process.

Thank you for contacting the GRIC-THPO about the 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



Board of Directors

June 28, 2013

Louise Lasley  
President  
Wyoming

Ms. Maria Bernard Reid  
8081 GSRI Avenue  
Baton Rouge, LA 70820

Gary Macfarlane  
Vice President  
Idaho

Sent VIA Email to: [AZ\\_TacCom\\_Comments@gsrccorp.com](mailto:AZ_TacCom_Comments@gsrccorp.com)

Joe Fontaine  
Secretary/Treasurer  
California

Dear Ms. Reid:

Janine Blaeloch  
Washington

Wilderness Watch is providing these comments on the Draft Environmental Assessment for Land Mobilization for Tactical Communications as Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area. Wilderness Watch is a national nonprofit wilderness conservation organization dedicated to the protection and proper stewardship of the National Wilderness Preservation System. We have many serious concerns with this draft environmental assessment (EA) and Finding of No Significant Impact.

Fran Mauer  
Alaska

An environmental impact statement (EIS) is needed. The proposed action involves the permanent location of new structures inside a designated wilderness and the use of motorized equipment for their construction and maintenance on into the future. Section 4(c) of the Wilderness Act is explicit in prohibiting structures, installations and motor vehicles. Section 4(c) states:

} WW-1

Bob Oset  
Montana

. . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

Jerome Walker  
Georgia

Howie Wolke  
Montana

Further, the project will impact species listed under the Endangered Species Act such as the Sonoran pronghorn as well as other rare plants and animals. The EA also anticipates that any decision tiering from the EA would be not only for the construction of the towers, using motorized means, but also for maintenance by helicopters in perpetuity into the future. By definition an EA is inadequate as this is a major federal action significantly affecting the environment. An EIS must be prepared and it must not make decisions about maintenance on into the future. A new NEPA analysis will be required for those proposals if and when they come up.

} WW-2  
} WW-3

Executive Director  
George Nickas

Advisory Council  
Magalen Bryant  
Dr. Derek Craighead  
Dr. M. Rupert Cutler  
Michael Frome  
Dr. Roderick Nash

The EA fails to consider a range of alternatives. The Seventh Circuit recently explained:

No decision is more important than delimiting what these "reasonable alternatives" are. . . . One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing "reasonable alternatives" out of consideration

} WW-4

(and even out of existence). . . . If the agency constricts the definition of the project's purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role. Simmons, 120 F.3d at 660.

"[A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative . . . would accomplish the goals of the agency's action, and the EIS would become a foreordained formality." Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991), cert. denied, 502 U.S. 994, 112 S. Ct. 616 (1991). See also Ayers v. Espy, 873 F. Supp. 455, 467-68 (D. Colo. 1994) (rejecting timber sale EA because the US Forest Service considered only even-age management).

Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800 (9th Cir. 1999) [land exchange] speaks directly to the issue of scope:

The Forest Service also contends that because the purpose of the transaction was to carry out an "exchange" and not a purchase, it was not required to consider this alternative. Seattle Audubon Society, 80 F.3d at 1404 (holding that an agency is not required to examine alternatives inconsistent with its basic policy objectives). To the extent that Weyerhaeuser would have been exchanging its lands for federal monies rather than federal lands, we do not recognize such an inconsistency. [FN7] Were we to construe the statement of purpose as limiting the transaction to land-for-land exchanges, it would certainly be too narrow to meet the standards for an appropriate statement of purpose as articulated in City of Carmel, 123 F.3d at 1155. [end footnote]

WW-4  
(cont)

Specifically, all other alternatives were rejected for analysis other than the proposed action and no-action. The EA also failed to consider options such as nonmotorized transport of materials, when and where possible, and for inspection and maintenance of the facilities. The EA also ignored an alternative to sue temporary towers in conjunction with the collocation alternative, which was not analyzed either. Other alternatives that could have been less damaging to wilderness were not evaluated either.

The EA notes regarding another alternative:

Alternative G – Alternative G would substitute Raven Butte on the nearby BMGR for Christmas Pass as a location for TacCom equipment installation. However, Raven Butte was determined to be a Traditional Cultural Property for the Cocopah Tribe and the Tohono O’odham Nation. The tribes do not feel that the installation of communications equipment is appropriate at Raven Butte. This alternative was eliminated from further consideration.

That is undoubtedly true. Even though the Barry M. Goldwater Range (BMGR), being a bombing range, is more heavily impacted than the Cabeza Prieta Wilderness, those cultural sites are important. However, under that same rationale the wilderness sites should have been excluded as well because they are not appropriate. Wilderness is also extremely important and has laws associated with its protection.

WW-5

The EA suggests that far fewer impacts would occur with the collocated alternative that was rejected for review. This alternative would share facilities. An EIS should be prepared to look at all of these issues as well as analyze future needs/desires for communication from the various agencies. (See also page 2-14).

WW-6

The purpose and need of this project is not clear. There is no detailed explanation in the EA of why current communications are a problem, if communications are being intercepted, and why a change in bandwidth is needed. Reducing radio interference is claimed to be important yet there is already interference from Air Force communication at Granite Mountain and that is why the EA proposes to locate the new site away from the existing Air Force structure. Rather than minimizing impacts by sharing structures, this project would add more impacts.

WW-7

Nonetheless, the EA is confused on the issue of sharing structures. The EA suggests (1-4) that the Air Force could also use the structures, yet there is no analysis of removing the old Air Force structures or indication that it would occur. At the same time, the EA also suggests that the difference in frequencies may not work for shared structures due to interference. The EA needs to present consistent and credible information rather than contradictory and confusing analyses.

WW-8

The Christmas Pass site is not needed, according to the EA modeling. Rather than approve this site now, such decision should be made after a future NEPA document. There is no current need to do any more analysis for the Christmas Pass site. It is not the minimum necessary under any definition of the phrase.

WW-9

Furthermore, the Christmas Pass site is very near to a road corridor. Locating the tower outside the wilderness and along the road corridor should have been considered in an alternative if it was determined that this site is really needed.

WW-10

Helicopters are a definite impact on wilderness. Alternatives that don't involve their use, or substantially limit it, should have been analyzed and, as previously noted, an EIS prepared. While refusing to issue an injunction halting a plan to use helicopters to capture and collar up to eight wolves in the FC-River of No Return Wilderness, a federal court in Idaho explained:

[T]he Court shares plaintiffs' concerns that this decision could be interpreted wrongly as a stamp of approval on helicopter use. It is not for two reasons. First, the decision is limited by its facts: This proposed activity is designed to aid the restoration of a specific aspect of the wilderness character of the Frank Church Wilderness that had earlier been destroyed by man. *The use of helicopters for any other purpose would be extremely difficult to justify under the Wilderness Act, NEPA, or any categorical exclusion.* (emphasis added)

Second, the next helicopter proposal in the Frank Church Wilderness will face a daunting review because it will add to the disruption and intrusion of this collaring project. The Forest Service must proceed very cautiously here because the law is not on their side if they intend to proceed with further helicopter projects in the Frank Church Wilderness." *See Wolf Recovery Foundation v. U.S. Forest Service, 629 F.Supp.2d 1264 (D. Id. 2010).*

WW-11

In a subsequent ruling, the Court reiterated its concern about helicopter use in Wilderness:

In its prior decision in this case, the Court stated that future helicopter use would add to the "disruption and intrusion" of wilderness values, face a "daunting review," and "be extraordinarily difficult to justify." *See Memorandum Decision (docket no. 36).* The Court's opinion makes it clear that helicopter use in a wilderness area is "antithetical to a wilderness experience," and that the approval of the single project at issue here – based on unique facts – is unlikely to be repeated.

These rulings recognize the incompatibility of helicopter use in Wilderness, the need for a thorough and cumulative analysis of the impacts from helicopter and other motorized equipment use, and the need to embrace alternatives that do not involve motorized equipment use. In light of the amount of helicopter use, structures and motorized equipment in the Cabeza Prieta Wilderness, it seems further allowances may face more than a “daunting review.”

WW-11  
(cont)

Regarding wilderness, the first sentence of Section 2(a) of the 1964 Act describes the purpose of the Act: “to secure for the American people of present and future generations the benefits of an enduring resource of wilderness” through the establishment of “a National Wilderness Preservation System” and that system “shall be administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment **as wilderness** and so as to provide for the protection of these areas, the preservation of their **wilderness character . . .**”. (emphasis added).

Further Congress defined wilderness in section 2(c) as a place "in contrast" to areas where humans and their works dominate, "where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain." Thus, there is a clear intention that Wilderness remain in contrast to modern civilization, its technologies, conventions, and contrivances.

Section 4(b) states:

Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the **wilderness character** of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its **wilderness character**. (emphasis added)

The mandate is to administer all activities so that this Wilderness will remain “unimpaired for future use and enjoyment as wilderness”. It is also clear that this mandate applies to the setting rather than to any particular use. The wilderness character will not be preserved if one or more element(s) of character is allowed to degrade. For example, wilderness character is degraded if structures or motorized use are allowed where they are not necessary to meet minimum requirements for management of the area as wilderness. The EA and Minimum Requirements Decision Guide (MRDG, or MRA as the EA erroneously refers to it) do not make this case.

The Minimum Requirements Decision Guide (MRDG) is an attempt to justify the project based upon wilderness character. While the MRDG states that border activities are exempt from the Wilderness Act, it then goes on to make outrageous and unsupported claims that wilderness-damaging activities are actually positive.

WW-12

Interdicting those who cross the border without authorization comes at a cost. Improving radio communication in remote areas does not help wilderness character, it hinders it. The impacts of the structures, helicopter use and more border patrol activity in the wilderness will degrade wilderness character, not improve it. This includes everything from increased radio coverage (itself a human influence in the area) to greater vehicle use in the area from Border Patrol searching for those who may have crossed without authorization. This would result in two vehicle intrusions into the wilderness rather than one.

The MRDG erroneously states, “The TacCom LMR Modernization Project could also result in beneficial effects on designated wilderness as a result of reducing cross-border violator traffic and focusing law enforcement activities in the project area.” This statement is without substance and based upon flimsy speculation. The only way to reduce cross-border violator traffic is to stop it in Mexico before it enters the wilderness, something Border Patrol cannot do.

WW-12  
(cont)

Moreover, history shows that when one section of the border is made more secure, the traffic shifts to another section. Yet the EA fails to consider where this additional traffic will go, the impacts it will have, and the likely response from Border Patrol to add infrastructure, patrols, or other wilderness-damaging activities in those areas.

Both the EA and MRDG mischaracterize what untrammelled means. Rather, they seem to think it is the same as not trampled. The MRDG states, "The Christmas Pass site (approximately 2,625 square feet [0.06 acre]) is previously undeveloped; however, only relatively untrammelled. Christmas Pass is a hiking area on the Cabeza Prieta NWR." Christmas Pass is trammelled because of hikers? The EA uses the term "undisturbed/untrammelled" to describe physical impacts. *Undisturbed* and *untrammelled* are very different things. The failure of the EA and MRDG to treat them as such results in a very inadequate analysis. As such, the EA and MRDG are fatally flawed.

WW-13

The rejection of the use of pack animals or human foot travel to accomplish the task is based upon a conclusory statement the terrain is too rough and rocky. Well-trained stock do travel in rough country. Furthermore, there is no real analysis of having crews walk in to avoid some helicopter flights. Again, the MRDG states, "Christmas Pass is a hiking area on the Cabeza Prieta NWR." If this is true, why are helicopters the minimum required for Christmas Pass?

WW-14

Rather than misstating the benefits to wilderness from this project by turning the Wilderness Act on its head with the claim that helicopters and structures benefit wilderness character, the two agencies should have been honest and said that they believe border security fears trump the Wilderness Act, the Endangered Species Act, and other conservation laws. Whether a court would view the various laws that way is irrelevant, that is how both agencies treat the legal landscape. Indeed, the EA and MRDG include statements to that effect.

WW-15

What data show there will be less impact to the wilderness, if this project goes forth, from unauthorized use? How was it determined that more unauthorized border crossers would be caught? How were the structures, the use of helicopters, including those used for maintenance, and increased border patrol motorized activity in wilderness weighed against the possibility of decreased unauthorized border crossing use?

WW-16

Further, what data show that there is increased unauthorized entry into the US in the CPW? Do projections from any data suggest this use is rising, decreasing or flat? If decreasing, why is this project needed?

WW-17

The EA misleads the public as to the nature of the area. It is true the mountains themselves are rough, but they are not that high and the elevation gain is at most, a couple of thousand feet

from the base of the mountain. It is not far to the top from there. Buck Peak has an old road to the base of the mountain and that makes stock travel very possible. Granite Peak has flat terrain up until the base of that mountain as well. It isn't far to the summits from where the easy terrain ends and the rough terrain begins.

The EA states, "There are no access roads to the sites; all access is via helicopter, on foot, or on horseback." Yet it claims that it is not feasible to use pack stock to haul items. The EA also states:

Maintenance would be accomplished either by helicopter, on horseback, or on foot, depending on season of year (no helicopter access to Granite Mountain would occur between March 15 and July 15 due to the Sonoran pronghorn fawning season) and the weight of the equipment necessary for maintenance.

WW-18

This is completely contradictory. On one hand, the EA claims helicopters are needed. On the other, they may not be needed. On one hand, the EA claims foot and stock travel is possible. On the other hand, it is not possible. The EA and MRDG are confused, contradictory and inadequate.

How were pictures taken at the sites in EA? Did the contractors or agency people walk or ride stock to take those pictures? If either of the latter two, how can the EA claim that stock use is not possible?

WW-19

The EA is confused and contradictory on other topics as well. For example, the proposed "TacCom equipment is a temporary structure and would not constitute a permanent structure in designated wilderness." Yet, "Installation and maintenance of the proposed TacCom equipment would have a long-term, moderate adverse effect on the viewshed and natural values within designated wilderness." If it is temporary, then it can't have long-term impacts. This is another example of the EA's inadequacy.

WW-20

The EA states, "At both Buck Peak and Granite Mountain, the addition of equipment or replacement of equipment would not have additive impacts on previously undeveloped areas." However, at the Granite Mountain site the new facilities would be placed some distance from the existing Air Force facility in order to reduce radio interference. Thus, there would be an additive impact and this should more properly be viewed as two sites, rather than one. In any case, more equipment and larger equipment would be located on both Buck Peak and Granite Mountain. The EA shows a complete ignorance of wildness and wilderness when evaluating the impact of these structures.

WW-21

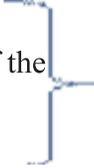
Endangered species would be affected by the project. To mitigate concerns to pronghorn, the EA proposes that flights come from the west. However, the EA clearly notes that pronghorn use the lowland areas on both sides of the mountains (see figure 3-3). If anything, the approach from the west for Granite Mountain would cross far more pronghorn habitat. The project could also affect desert tortoises and long-nosed bats.

WW-22

The cultural resource section does not indicate if any cultural resources discussions were held with Indian Tribes on the three sites. Were any held? If not, why not?

WW-23

In summary, the EA does not make the case that radio towers many miles from the border would help capture those unauthorized visitors near the border. Indeed, it would seem that if the towers help detect more unauthorized visitors, it will result in more impacts because Border Patrol will go after them in the wilderness, thereby doubling the impact.



WW-24

Sincerely,



Gary Macfarlane  
Board Member

WW-1: CBP has determined that this EA complies with NEPA guidelines and is the appropriate level of analysis for this Proposed Action and its expected impacts. CBP is committed to implement mitigation measures to reduce any potential significant environmental impacts so that they are no longer significant. CBP determined that the level of impacts and proposed mitigation will support a Finding of No Significant Impact (FONSI).

The communications equipment as proposed in the EA would be temporary structures (pg. 3-8) providing necessary improvements to the severely deficient communications capabilities across the Cabeza Prieta National Wildlife Refuge (CPNWR) (pg. 1-2 and 1-4).

Given the current impacts to wilderness resulting from illegal border crossings and interdiction activities, improved communications will not only address safety issues but will improve the efficiency of CBP operations and thus help to reduce impacts to wilderness. The installation of the radio repeaters do meet minimum requirements to administer wilderness given the circumstances that currently exist along the U.S./Mexican border.

WW-2: CBP is in full compliance with the Endangered Species Act for this project. On April 23, 2013, the U.S. Fish and Wildlife Service provided a Biological Opinion (AESO/SE 02EAAZOO-2012-F-0200) for the impact determinations made in the EA and Biological Assessment for this project (the proposed Land Mobile Radio Modernization for Tactical Communications).

WW-3: Please see the response to comment WW-11. All phases (installation, maintenance, and repair) of the proposed project are included in the analyses included in this EA.

WW-4: CBP identified numerous alternatives to the Proposed Action in Section 2.3 of the EA. Alternatives were identified in three categories: technological alternatives, siting alternatives, and collocation alternatives. The reasons for eliminating the alternatives identified in Section 2.3 are also listed in that section.

The three sites identified and proposed for communications equipment installations in this EA were found by CBP to provide the most radio communications coverage with the least expected impacts.

Due to the weight and size of the equipment to be installed and terrain, it is not feasible to use non-motorized transport for the installation phase. The terrain is very steep, rough, and unstable with no trails to follow. It would be physically impossible for pack animals to access these sites. For the same reasons described above, it would not be safe or feasible to access the Buck Peak and Granite Mountain sites on foot to perform maintenance. It may be feasible to access the Christmas Pass site on foot for maintenance purposes as long as the amount of equipment needed at the site is limited to equipment that can be backpacked in.

CBP did not assess the impacts of the Collocation Alternative, because the USBP Wellton Station IFT project has been canceled and is not currently on CBP's schedule. The collocation of the Granite Site with the Air Force facilities was examined by radio technicians from CBP and the Air Force and was determined to be unfeasible for technical reasons.

WW-5: Radio frequency coverage analysis for Ravens Butte indicated that the site would not enhance radio communications in the critical area east of the Cabeza Prieta Mountains and was therefore eliminated from further consideration. The final EA will be edited to reflect this change.

WW-6: CBP cannot determine whether the Collocation Alternative would have fewer impacts than the Proposed Action, because the locations of the proposed IFT towers are not yet known or approved by the landowner or land managers. Also unknown is the communications coverage capabilities of radio repeater equipment installed on 80-foot towers. It is possible that the communications coverage provided by the Collocation Alternative would not be equal or comparable to the coverage provided by the three sites proposed in this project's EA. Additionally, the USBP Wellton Station IFT project has been canceled and is not currently on CBP's schedule.

WW-7: CBP defines the purpose and need of this project in Section 1.2 of the EA. The limitations of current communications are discussed in the draft EA on page 1-1, lines 16 through 35 and on page 1-4, lines 1 through 8.

There is no current interference with the radio communications at Granite Mountain, since CBP does not have communications equipment at this location. If CBP would collocate their radio repeater on the same equipment frame as the existing U.S. Air Force (USAF) equipment, then there would be an interference issue. Therefore, CBP proposed to locate their equipment sited on a previously disturbed area, approximately 100 feet from the USAF equipment.

WW-8: The EA does not make suggestions that collocation with the USAF is feasible. CBP and USAF conducted a joint survey of the Granite Mountain site in May 2012 to determine feasibility of equipment collocation. Based on the findings of the survey, collocating and integrating CBP LMR communications equipment with the USAF communications equipment is not feasible. The findings of the survey are summarized in Section 2.1.2.

WW-9: CBP wishes to identify all potential impacts of the proposed project. The radio coverage models have provided evidence that the proposed Christmas Pass site may not be necessary for adequate radio coverage on the CPNWR. However, after the Buck Peak and Granite Mountain sites are installed, field testing will verify if the model projections were accurate. If the coverage is accurate, the Christmas Pass site would not be installed. If the Christmas Pass site is deemed necessary, then the total project impacts as identified by the EA would be accurate. CBP fully disclosed the potential reliance on the Christmas Pass site to meet the need of the proposed project.

- WW-10: The communications equipment as proposed would include low profile equipment sleds, that are less than 20 feet tall (not a tower structure); therefore the usage of mountaintop locations would be necessary for maximum radio coverage with the minimum use of equipment and minimum impact to wilderness. Due to the topography of the region, if the equipment would be located along the road corridor, multiple towers and sets of repeater equipment would be necessary to provide similar coverage as one mountaintop site. Multiple towers would create an impact of greater significance upon the wilderness than one 20-foot-tall equipment sled on a mountaintop.
- WW-11: According to the MRDG prepared by CPNWR, included in the EA as Appendix B and page 2-1 of the EA, “due to the weight of the equipment to be installed and the inaccessibility of the sites, all equipment and personnel would be airlifted to the sites during the installation phase of the project. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year by helicopter or on foot, depending on the weight of equipment needed and the physical capabilities of the technician.” CBP held extensive discussions with the CPNWR Refuge Manager regarding use of pack animals for the Proposed Action. It is the CPNWR Refuge Manager’s determination that due to the terrain of the area use of pack animals to complete the Proposed Action is not feasible. The final EA will be edited to reflect this change.

The Arizona Desert Wilderness Act of 1990 recognized the need for CBP and other law enforcement agencies to gain and maintain operational control of the border. The Act states:

*“Nothing in this Title, including the designation as wilderness of lands within the Cabeza Prieta National Wildlife Refuge, shall be construed as - (1) precluding or otherwise affecting continued border operations by the Immigration and Naturalization Service, the Drug Enforcement Administration, or the United States Customs Service within such refuge, in accordance with any applicable interagency agreements in effect on the date of enactment of this Act; or (2) precluding the Attorney General of the United States or the Secretary of the Treasury from entering into new or renewed agreements with the Secretary concerning Immigration and Naturalization Service, Drug Enforcement Administration, or United States Customs Service border operations within such refuge, consistent with management of the refuge for the purpose for which such refuge was established and in accordance with laws applicable to the National Wildlife Refuge System*

Department of Homeland Security and the Department of Interior have a National Memorandum of Understanding (MOU) Regarding Cooperative National Security and Counterterrorism Effort on Federal Lands along the United States’ Border dated March 31, 2006 that outlines CBP – Office of Border Patrol activities on public lands administered by the USFWS. The MOU provides guidance related to border security activities, such as law enforcement operations, tactical infrastructure, installation and utilization of roads, while minimizing impacts on or impairments of natural and cultural resources while applying the Wilderness Act, Endangered Species Act, and other related laws, regulations, and policies across Federal lands.

WW-12: As discussed in Section 3.2.1, the condition of the Cabeza Prieta Wilderness and the Organ Pipe Cactus Monument Wilderness Area have been greatly degraded as a result of illegal border activity and the required U.S. Border Patrol interdiction operations. The proposed project provides improved communications to U.S. Border Patrol agents and CPNWR personnel within the communications coverage area. CBP expects improved agent safety and improved interdiction capabilities, as agent-to-agent communications in the field improve.

It is the goal of CBP to secure the entire international border, including approximately 56 linear miles of border with Mexico located within Cabeza Prieta Wilderness.

WW-13: CBP does not intend to hamper the untrammelled characteristics of the Cabeza Prieta Wilderness. The proposed communications equipment would not “impede the free play of natural forces within the landscape.” The final EA and MRDG will be edited to reflect this correction in terminology.

WW-14: Please see the response to comment WW-11. We agree that well-trained stock can travel in “some” rough country. The Refuge Manager is adamant that given the steep, rough, and unstable terrain present and the lack of a trail system that could accommodate stock and people in the project area, it is unfeasible to use pack animals and most people would have difficulty accessing the sites on foot.

WW-15: CBP respectfully disagrees. All laws are equally important, including the Wilderness Act, Endangered Species Act, other conservation laws, Immigration and Nationality Act, Illegal Immigration Reform and Immigrant Responsibility Act, and the Homeland Security Act.

WW-16: Communications technology combined with surveillance systems, infrastructure and the tactics employed by agents and officers leads to increased capabilities to effect an arrest and is dependent upon the flow of traffic in any particular area. Any advancement in efficiency in any of these areas to include communication only can increase CBP effectiveness and provide for increased certainty of arrest. The final EA will be edited to reflect this statement.

WW-17: The flow of illicit activity fluctuates depending on transnational criminal organizations activity and is expected to lessen over time as CBP’s effectiveness increases. CBP cannot predict apprehension locations and numbers as there are too many variables to consider and associating any one thing CBP does to a law enforcement outcome (i.e. arrests) would be misrepresentative of the systems perspective CBP is utilizing. The final EA will be edited to reflect this statement. Both CBP and USFWS have observed a significant increase in drug seizures, and illegal drive throughs during the past 12 months within the CPNWR.

WW-18: CBP respectfully disagrees. Please see the response to comment WW-11.

WW-19: The CPNWR prepared a MRDG which allowed CBP to conduct site surveys via helicopter.

WW-20: The communications equipment is temporary in that it can and will be completely removed from the site at some point in the future. On page 3-2 of the draft EA, a long-term impact is defined as having a lasting effect of greater than three years.

WW-21: CBP respectfully disagrees. The statements reflect that the mountaintop locations have been the host sites to many previous versions of communications equipment, antennas, repeaters, etc. The sites are not undeveloped or undisturbed.

WW-22: CBP is in full compliance with the Endangered Species Act for this project. On April 23, 2013, the U.S. Fish and Wildlife Service provided a biological opinion (AESO/SE 02EAAZOO-2012-F-0200) for the impact determinations made in the EA and Biological Assessment for this project (the proposed Land Mobile Radio Modernization for Tactical Communications). Figure 3.3 does not show pronghorn occurring west of Cooper Mountain and in or west of the Cabeza Mountains which are the routes used to access the Buck Peak and Christmas Pass sites.

WW-23: Extensive coordination was conducted with all tribes with potential cultural affinity to the project area. Coordination correspondence is included in Appendix A and a summary table is provided below. Each tribe and the Arizona State Historic Preservation Office (SHPO) received copies of the cultural resources survey reports for review and comment. CBP received a letter of concurrence from Arizona SHPO on 9 August 2011.

	Cocopah Tribe	Colorado River Indian Tribes	Ft. Mohave Indian Tribe	Gila River Indian Community	Hopi Tribe	Pascua Yaqui Tribe	Quechan Tribe-Ft. Yuma	Salt River Maricopa Indian Community	San Carlos Apache Tribe	Tohono O'odham Nation	Ak-Chin Indian Community
Initiation of Section 106 (25 August 2011)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Response to 25 August 2011 letter		✓		✓	✓						
Intent to prepare EA (8 September 2011)	✓		✓	✓	✓	✓	✓	✓	✓	✓	
EA transmittal (29 May 2013)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Response/Comment to EA				✓					✓	✓	✓

WW-24: The purpose of the Proposed Action in the EA is to improve tactical communications in the Arizona Focus Area for Federal agents working for CBP. The equipment proposed would improve radio communications equipment without the use of towers. Equipment sleds, that are less than 20 feet tall would be located on three mountaintop locations. CBP expects improved agent safety and improved interdiction capabilities, as agent-to-agent communications in the field improve. Increased effectiveness would result in higher interdiction success which would act as a deterrent to illegal border activity and thus over time reduce illegal traffic through wilderness- resulting in fewer incursions in wilderness by both illegal border crossers and law enforcement.

## AZ Taccom Comments

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**From:** fred goodsell <fgoodsell@yahoo.com>  
**Sent:** Friday, June 28, 2013 4:16 PM  
**To:** AZ Taccom Comments  
**Subject:** Comments for the Arizona TacCom Project

Ms. Maria Bernard Reid  
8081 GSRI Ave.  
Baton Rouge, LA 70820

Dear Ms. Reid:

Thank you for this opportunity to comment on the Arizona TacCom Project.

I have hiked over 2,000 miles in the area of the proposed project and have seen the towers now in place as well as the area proposed for the Christmas Pass tower.

My first comment is, where are the alternatives? An action alternative and a no action alternative are not sufficient. DP-1

Second, since it is stated that the Christmas Pass tower may not be necessary, it should not be included in this EA. Many things might be nice but an EA is not a wish list. Please take that out of the final EA. DP-2

Third, the fact that these towers are in Wilderness requires that an EIS address the impacts of permanent structures, long term maintenance, and helicopter use in both construction and maintenance. This EA should be deleted and an EIS written to address all the impacts to Wilderness resources, endangered species, and cultural resources. DP-3

I am embarrassed to see the approach the U.S. Border Patrol, and DHS, are taking on this attempt to stop cross border traffic. Driving a vehicle across the desert is 1920s technology and totally unacceptable particularly in (Federally designated) Wilderness. The U.S. Border Patrol requests parallel interdiction routes so they can observe tracks at one route and interdict at the other. In the area of these towers they have three parallel routes. They do not need radio coverage of the entire area, just a band along each route. Satellite technology (phones) can be used in the, what should be, rare occasions they leave the present radio coverage. Why can't we use some of the technology we (the U.S. and others) have developed rather than just through men vehicles and money at the problem. Law enforcement in the work place and technology in the field would be far better. DP-4

Please dismiss this EA and address the problems in an EIS.

Thank you for your consideration.

Fred Goodsell

Desert Protectors

`1530 N. Rosedale Ave.

Ajo, AZ 85321

DP-1: CBP identified numerous alternatives to the Proposed Action in Section 2.3 of the EA. Alternatives were identified in three categories: technological alternatives, siting alternatives, and collocation alternatives. The reasons for eliminating the alternatives identified in Section 2.3 are also listed in that section.

The three sites identified and proposed for communications equipment installations in this EA were found by CBP to provide the most radio communications coverage with the least expected impacts.

DP-2: CBP wishes to identify all potential impacts of the proposed project. The radio coverage models have provided evidence that the proposed Christmas Pass site may not be necessary for adequate radio coverage on the CPNWR. However, after the Buck Peak and Granite Mountain sites are installed, field testing will verify if the model projections were accurate. If the coverage is accurate, the Christmas Pass site would not be installed. If the Christmas Pass site is deemed necessary, then the total project impacts as identified by the EA would be accurate. CBP fully disclosed the potential reliance on the Christmas Pass site to meet the need of the proposed project.

DP-3: CBP has determined that this EA complies with NEPA guidelines and is the appropriate level of analysis for this Proposed Action and its expected impacts. CBP is committed to implement mitigation measures to reduce any potential significant environmental impacts so that they are no longer significant. CBP determined that the level of impacts and proposed mitigation will support a Finding of No Significant Impact (FONSI).

The communications equipment as proposed in the EA would be temporary structures (pg. 3-8) providing necessary improvements to the severely deficient communications capabilities across the Cabeza Prieta National Wildlife Refuge (CPNWR) (pg. 1-2 and 1-4). CBP and USFWS have determined that the proposed communications equipment would be a compatible use for the Cabeza Prieta Wilderness.

CBP is in full compliance with the Endangered Species Act for this project. On April 23, 2013, the U.S. Fish and Wildlife Service provided a Biological Opinion (AESO/SE 02EAAZOO-2012-F-0200) for the impact determinations made in the EA and Biological Assessment for this project (the proposed Land Mobile Radio Modernization for Tactical Communications).

CBP has also received concurrence from the Arizona SHPO on 9 August 2011 for the implementation of this project, see Appendix A.

DP-4: CBP identified numerous alternatives to the Proposed Action in Section 2.3 of the EA. Alternatives including the use of satellite phones for communications (see Alternative A, page 2-12) were considered but eliminated.



Received from Tribal Admin: \_\_\_\_\_

Mailed \_\_\_\_\_ (initial & date)

Faxed \_\_\_\_\_ (initial & date)

**SAN CARLOS APACHE TRIBE**  
Historic Preservation & Archaeology Department  
P.O. Box 0  
San Carlos Arizona 85550  
Tel. (928) 475-5797, Fax (928) 475-2423

**Tribal Consultation Response Letter**

Date: 6/21/13

Contact Name: Maria Reid  
Company: US Customs and Border Protection  
Address: 8081 GSRT Ave, Baton Rouge, LA 70820  
Project Name/ #: Arizona Tac Comm Project

Dear Sir or Madam:

Under Section 106 and 110 of the National Historic Preservation Act, we are replying to the above referenced project. Please see the appropriate marked circle, including the signatures of Vernelda Grant, Tribal Historic Preservation Officer (THPO), and the concurrence of the Chairman of the San Carlos Apache Tribe:

**NO INTEREST/NO FURTHER CONSULTATION** Vernelda Grant 06/21/13 (sign & date)  
I have determined that there is not a likelihood of eligible properties of religious and cultural significance to the San Carlos Apache Tribe in the proposed project area.

**CONCURRENCE WITH REPORT FINDINGS & THANK YOU** Vernelda Grant 06/21/13 (sign & date)

**REQUEST ADDITIONAL INFORMATION** Vernelda Grant 06/21/13 (sign & date)  
I require additional information in order to provide a finding of effect for this proposed undertaking, i.e. Project description \_\_\_ Map \_\_\_ Photos  Other please change info. for our Chairman

**NO EFFECT** \_\_\_\_\_ (sign & date) to Terry Rambler, not Wendler Mosie Jr.  
I have determined that there are no properties of religious and cultural significance to the San Carlos Apache Tribe that are listed on the National Register within the area of potential effect or that the proposed project will have no effect on any such properties that may be present.

**NO ADVERSE EFFECT** \_\_\_\_\_ (sign & date)  
Properties of cultural and religious significance within the area of effect have been identified that are eligible for listing in the National Register for which there would be no adverse effect as a result of the proposed project.

**ADVERSE EFFECT** \_\_\_\_\_ (sign & date)  
I have identified properties of cultural and religious significance within the area of potential effect that are eligible for listing in the National Register. I believe the proposed project would cause an adverse effect on these properties. Please contact the THPO for further discussion.

**STIPULATION:** We were taught traditionally not to disturb the natural world in a significant way, and that to do so may cause harm to oneself or one's family. Apache resources can be best protected by managing the land to be as natural as it was in pre-1870s settlement times. Please contact the THPO, if there is a change in any portion of all previously discussed projects. Thank you for contacting the San Carlos Apache Tribe, your effort is greatly appreciated.

**CONCURRENCE:** Terry Rambler \_\_\_\_\_  
Terry Rambler, Tribal Chairman Date 6/28/13

# AK-CHIN INDIAN COMMUNITY

## Community Government

42507 W. Peters & Nall Road • Maricopa, Arizona 85138 • Telephone: (520) 568-1000 • Fax: (520) 568-1001



July 15, 2013

Ms. Maria Bernard Reid  
8081 GSRI Avenue  
Baton Rouge, LA 70820

**Re: Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain, Arizona Focus Area, U.S. Customs and Border Protection**

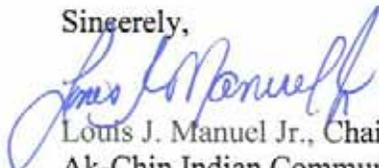
Dear Ms. Bernard Reid:

The Ak-Chin Indian Community did receive your letter regarding the proposed action, which includes the installation, operation, repair and maintenance of radio repeater equipment and application for a real estate special use permit or right of way for construction on the subject properties at up to three locations on the Cabeza Prieta National Wildlife Refuge (Buck Peak, Granite Mountain and Christmas Pass).

Due to the location of this project, the Ak-Chin Indian Community does not have any comments and will defer any concerns to the Tohono O'Odham Nation, Tribal Historic Preservation Office, Sells, AZ.

Thank you for informing the Ak-Chin Indian Community about this project. If you should have any questions, please contact Mrs. Caroline Antone, Cultural Resources Manager, at (520) 568-1372, or Mr. Gary Gilbert, Cultural Resources Technician II, at 520-568-1369.

Sincerely,

  
Louis J. Manuel Jr., Chairman  
Ak-Chin Indian Community

**APPENDIX B**  
**MINIMUM REQUIREMENTS DECISION GUIDE AND**  
**COMPATIBILITY DETERMINATION**

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ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

# MINIMUM REQUIREMENTS DECISION GUIDE

## WORKSHEETS

*“ . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”*

– the Wilderness Act, 1964

### LAND MOBILE RADIO MODERNIZATION FOR U.S. CUSTOMS AND BORDER PROTECTION TACTICAL COMMUNICATIONS AT BUCK PEAK, CHRISTMAS PASS, AND GRANITE MOUNTAIN (22571-FY13-001)

**Description:** Briefly describe the situation that may prompt action.

The Cabeza Prieta National Wildlife Refuge (NWR) consists of 860,010 acres of Sonoran Desert within the Gila/Salt/Verde Ecosystem. The Refuge was first established as a Game Range by Executive Order 8038 in 1939 to assist in the recovery of the desert bighorn sheep. While the Refuge was originally designated for the purpose of conserving desert bighorn sheep and their habitat, the refuge was also given the lead for the recovery of the Federally endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*) in 1998. The Arizona Desert Wilderness Act of 1990 (Public Law 101-628) designated 93 percent of the Refuge (803,418 acres) as wilderness. The Act provides a supplemental Refuge purpose to those established by the National Wildlife Refuge System Administration Act:

*“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans”*

The Arizona Desert Wilderness Act of 1990 requires the Refuge to implement conservation and management activities of wildlife and habitat within the context of the Wilderness Act of 1964 to ensure protection of the wilderness character.

The southern boundary of Cabeza Prieta NWR is delineated by 56 miles of the international border with Mexico. Over the past decade, the Refuge has experienced significant impacts associated with illegal border crossings and subsequent interdiction efforts by law enforcement. Illegal cross-border activities include smuggling of undocumented immigrants of various nationalities and drugs.

To improve operational effectiveness and enhance officer safety, U.S. Customs and Border Protection (CBP) proposes to improve tactical communications (TacCom) through modernization of the existing land mobile radio (LMR) systems with state-of-the-art digital technology that complies with the Project 25 (P25) standards and provides for narrowband advanced encryption standard capabilities to protect law enforcement sensitive communications from scanning. P25 is the standard for the design and manufacture of interoperable digital two-way wireless communications products. The TacCom LMR Modernization Project would provide much-needed enhancements and improved operational capabilities to LMR systems for CBP personnel, U.S. Border Patrol (USBP), and Office of Air and Marine in the Arizona Focus Area. The modernized LMR system would provide improved capabilities such as interoperability, over-the-air-rekeying, and advanced encryption, and is National Telecommunications and Information Administration compliant. The system would improve radio voice coverage throughout the Arizona Focus Area.

CBP is currently preparing an environmental assessment (EA) to assess the impacts of obtaining a special use permit or real estate right of way from Cabeza Prieta NWR for the installation, operation, and maintenance of communications equipment at up to three locations (Buck Peak, Granite Mountain, and Christmas Pass) with Cabeza Prieta NWR communications equipment collocated at Buck Peak. The proposed project would significantly improve safety in the daily operations of USBP agents and Cabeza Prieta NWR personnel. The project area is deficient in TacCom infrastructure for CBP activities, even though the USBP Ajo and Wellton stations have repeaters for field operations communications. In the present locations, the radio repeaters do not provide sufficient radio coverage for reliable communications. This presents serious agent safety issues, as agents are not able to communicate between vehicle and handheld radios in the field and the USBP Ajo or Wellton Stations' Headquarters. The proposed radio repeaters would allow the use of encryption, which is critical for operational security and detection of illegal traffic in the area.

Without the proposed TacCom sites (Buck Peak, Granite Mountain, and Christmas Pass), areas with no communications coverage on the Cabeza Prieta NWR encompass 254 square miles (659 square kilometers) and approximately 636 square miles (1,648 square kilometers) of no portable radio coverage. Using the three proposed mountain peaks on the Cabeza Prieta NWR to improve communications coverage, the TacCom LMR Modernization Project would reduce the communications gaps to 49 square miles (126 square kilometers) and areas with no portable radio coverage to approximately 269 square miles (697 square kilometers).

Radio communications modeling determined the fewest equipment site locations necessary to provide the most coverage possible. Original project plans called for three sites on the Cabeza Prieta NWR (Buck Peak, Granite Mountain, and Christmas Pass); however, after additional modeling, the communications coverage provided by Buck Peak and Granite Mountain was nearly equal to the coverage originally modeled for all three sites. CBP proposes to first install the proposed TacCom LMR equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if the models were accurate and if adequate communications coverage is provided with only two sites. If communications coverage is not

adequate or does not meet the requirements of the USBP Wellton or Ajo stations, USBP Yuma or Tucson sectors, or Cabeza Prieta NWR, then the proposed TacCom LMR equipment at the Christmas Pass site would be installed.

All three sites for proposed TacCom equipment installation are within designated wilderness. The proposed sites are located on mountain tops with limited accessibility. The total estimated surface impact for installation at the three proposed sites is approximately 7,855 square feet (0.18 acre). Because existing equipment is present at both Buck Peak and Granite Mountain, only 2,625 square feet (0.06 acre) of impacts would be on previously undisturbed land at Christmas Pass.

#### A. Describe Options Outside of Wilderness

Is action necessary within wilderness?

Yes:  No:

#### Explain:

Numerous alternatives were considered where the TacCom equipment would be installed outside of Wilderness. The CBP EA identifies these alternatives as Alternatives Considered, but Eliminated. The discussion below follows the naming conventions used in the EA for the Alternatives considered.

#### Siting Alternatives

Although each radio repeater location can act independently of all other LMR sites and provide communications opportunities for the agents in the field, LMR radio repeaters are designed to communicate with other LMR radio repeaters throughout the Arizona Focus Area. Radio repeaters are sited to minimize radio frequency coverage overlap between radio repeater sites while eliminating areas without coverage. Key radio repeater site evaluation considerations take into account constructability, operability, and environmental factors. The site selection process began with multiple conceptual field laydowns, where maximum radio frequency propagation is achieved with a minimum number of radio repeater sites using mapping programs and a modeling and analysis process. Operationally preferred site locations were selected by CBP personnel based on their knowledge of the terrain, environment, land ownership, and operational needs. Wherever possible, CBP has tried to use existing radio repeater sites for the collocation of equipment to reduce cost and impacts on the environment.

Geographical constraints also affect radio repeater siting decisions. The preferred alternative is to place the radio repeater equipment at the top of mountain peaks. Because radio system design is based on line of sight, the distance of the desired radio frequency propagation and terrain obstacles controls the necessary height of the radio repeater. Placing a radio repeater at the top of a mountain peak provides complete coverage across the mountain and to all locations at lower elevations that are not physically blocked by another geographical feature.

Four siting alternatives were considered: hilltops outside of the Cabeza Prieta NWR (Alternative D), repeaters positioned at the base of mountains within the Cabeza Prieta NWR (Alternative E), Cipriano Pass as an alternate for Buck Peak (Alternative F), and Raven Butte as an alternate for Christmas Pass (Alternative G).

Alternative D – Alternative D uses nearby, shorter hilltops outside of the Cabeza Prieta NWR. CBP assessed other hilltops outside of the Cabeza Prieta NWR for the possibility of placement of radio repeaters, but higher mountains surrounding these hilltops would interfere with the radio coverage of the area. The resulting communications coverage would be less than adequate, and areas with no communications coverage would be more extensive than that provided by siting the radio repeaters within the Cabeza Prieta NWR. This siting alternative was determined to be inadequate and was eliminated from further consideration.

Alternative E – Alternative E uses numerous (i.e., four or more) radio repeaters positioned at the base of mountains to achieve the same coverage as placing the site on a mountain peak. This alternative would result in substantially greater cost, and it would not take advantage of existing sites located on mountain peaks. This siting alternative was determined to be inadequate and was eliminated from further consideration.

Alternative F – Alternative F would substitute Cipriano Pass on the nearby Barry M. Goldwater Range (BMGR) for Buck Peak as a location for TacCom equipment installation. Upon visual inspection of the Cipriano Pass area, there was not a suitable, level area available on the site that would be adequate for the TacCom equipment and helicopter landing. This alternative was determined to be inadequate and was eliminated from further consideration.

Alternative G – Alternative G would substitute Raven Butte on the nearby BMGR for Christmas Pass as a location for TacCom equipment installation. However, Raven Butte was determined to be a Traditional Cultural Property for the Cocopah Tribe and the Tohono O’odham Nation. The tribes have determined that the installation of communications equipment would not be appropriate at Raven Butte. This alternative was eliminated from further consideration.

#### **Collocation Alternative**

CBP is currently in the early planning stages of the USBP Wellton Station Integrated Fixed Towers (IFT) Project. The USBP Wellton Station IFT Project includes the construction, operation, and maintenance of up to 24 tower sites and associated infrastructure (primarily roads) on and near those sites. All proposed tower sites would be situated within the Wellton Station Area of Responsibility (which includes the Cabeza Prieta NWR) on privately owned, DHS/CBP-owned, or other Federal agency-owned lands along or near the United States/Mexico border, as necessary to create a border enforcement zone. This alternative would collocate TacCom equipment on IFT (integrated fixed tower) infrastructure within the Cabeza Prieta NWR to provide communications coverage similar to what would be provided with the implementation of the Proposed Action. However, there are no IFT locations within the CPNWR that could serve this purpose nor have potential IFT structures been vetted and approved by both CBP and the land managers. The planning for this project has been postponed. Due to the need established by the TacCom LMR Modernization Project to provide a safe work environment for agents and other agency law enforcement personnel by improving communications coverage, this alternative was determined to be inadequate due to schedule delays and immediate need and was eliminated from further consideration.

## B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows consideration of the Section 4(c) prohibited uses? Cite law and section.

Yes:  No:  Not Applicable:

### Explain:

Section 301 of the Arizona Desert Wilderness Act exempts DHS's predecessor the Immigration and Naturalization Service from Wilderness Act prohibitions when the action is related to border security. The original project was developed as described above for border security. This project would significantly increase LMR coverage in areas that are currently within communications gaps. Increased LMR coverage would provide for improved communications capabilities for USBP agents and therefore, contribute to increased border security.

## C. Describe Requirements of Other Legislation

Is action necessary to meet the requirements of other laws?

Yes:  No:  Not Applicable:

### Explain:

The National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. § 668dd, as amended) states, "the mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." U.S. Fish and Wildlife Service (USFWS) is responsible for the conservation of this land for future generations; the Refuge staff's duty then is to restore lands when necessary. Many areas within Cabeza Prieta Wilderness have been degraded as a result of illegal vehicle and pedestrian traffic, deposition of trash and human waste, vandalism, and subsequent USBP operations. Unauthorized roads have been and continue to be created in designated wilderness as a result of motorized vehicle operations by cross-border violators and law enforcement personnel conducting required interdiction actions. Improving radio communications coverage on the Cabeza Prieta NWR will allow for improved USBP agent and Cabeza Prieta NWR personnel safety.

## D. Describe Other Guidance

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other Federal agencies?

Yes:  No:  Not Applicable:

### Explain:

The USFWS produced a Wilderness Stewardship Policy to be implemented on National Wildlife Refuges. The revised Policy discusses five principles of wilderness administration. Principles C, D, and E address the administration of wilderness for public benefit, the administration of refuges to protect wilderness characteristics, and providing compatible wildlife-dependent activities to the public, respectively (USFWS 2008).

*“Administer wilderness areas to provide a wide variety of public benefits “for the use and enjoyment of the American people” (Wilderness Act, section 2(a)) in a manner that is appropriate and compatible with the Administration Act, refuge purposes, including Wilderness Act purposes, and the Refuge System mission; retains wilderness character; is consistent with the nondegradation principle; and leaves the areas “unimpaired for future use and enjoyment as wilderness . . . .”*

*Use restraint in our administration of wilderness. As a place “where the earth and its community of life are untrammelled by man,” we minimize actions for administration of wilderness areas. We may allow exceptions to the generally prohibited uses if the uses are the minimum requirement for administering the area as wilderness and are necessary to accomplish the purposes of the refuge, including Wilderness Act purposes. We may limit even nonmotorized refuge management activities to protect wildness.*

*Provide opportunities for primitive recreation, giving priority to compatible wildlife-dependent activities that are enhanced by a wilderness setting. Provide physical, social, and administrative settings that are conducive to experiencing opportunities for solitude, adventure, challenge, inspiration, and other aspects of wilderness character that the American people can use and enjoy.”*

The purpose of this project is to improve radio communications coverage in remote areas of the Cabeza Prieta NWR. Improved radio communications would improve USBP agent and Cabeza Prieta NWR personnel safety.

#### **E. Wilderness Character**

Is action necessary to preserve one or more of the qualities of wilderness character including: untrammelled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, or unique components that reflect the character of this wilderness area?

#### **Explain:**

The proposed project would increase the overall safety of the public, Cabeza Prieta NWR personnel, and USBP agents. The Proposed Action would have a long-term, beneficial effect as a result of increasing public safety, and reducing adverse impacts from cross-border traffic and consequent law enforcement actions on the landscape and natural resources that characterize designated wilderness. The TacCom LMR Modernization Project could also result in beneficial effects on designated wilderness as a result of reducing cross-border violator traffic and focusing law enforcement activities in the project area.

**Untrammelled:**                      Yes:                       No:                       Not Applicable:

#### **Explain:**

This action would result in the disturbance of approximately 2,700 square feet of Sonoran Desert vegetation at Buck Peak, approximately 2,625 square feet of Sonoran Desert vegetation at Christmas Pass, and approximately 2,530 square feet of Sonoran Desert vegetation at Granite Mountain. All aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed areas in the immediate vicinity of existing equipment at Buck Peak. The proposed communications equipment would not “impede the free play of the natural forces in the landscape.”

**Undeveloped:** Yes:  No:  Not Applicable:

**Explain:**

The Christmas Pass site is previously undeveloped. The Proposed Action at Christmas Pass will add approximately 125 square feet to developed areas of the Cabeza Prieta Wilderness. Both the Buck Peak and Granite Mountain sites are previously disturbed by existing communications equipment. The Proposed Action at Granite Mountain, located approximately 100 feet east-northeast of the existing communications site, will add approximately 30 square feet to developed areas of the Cabeza Prieta Wilderness.

**Natural:** Yes:  No:  Not Applicable:

**Explain:**

The TacCom LMR Modernization Project could result in beneficial effects on designated wilderness as a result of reducing cross-border violator traffic and focusing law enforcement activities in the project area. Beneficial effects could be noticeable throughout designated wilderness. The proposed project would enhance CBP's communications capabilities and increase interdiction efficiency. Beneficial effects could include reduced illegal vehicle traffic within designated wilderness, reduced degradation of the landscape, and reduced litter and human waste, which degrade wilderness qualities throughout the Cabeza Prieta Wilderness.

**Outstanding opportunities for solitude or a primitive and unconfined type of recreation:**

Yes:  No:  Not Applicable:

**Explain:**

Cross-border violators use the remote areas of the Cabeza Prieta NWR to gain entry into the United States. That illegal traffic often damages public property by driving off established roads. Illicit cross-border activities can be detrimental to the landscape and health and safety of the public, Cabeza Prieta NWR staff, and USBP agents. Installation of the communications sites may allow CBP to apprehend illegal traffic in closer proximity to the United States/Mexico border, thus reducing damage to the natural environment and providing improved safety and opportunities for solitude.

**Other unique components that reflect the character of this wilderness:**

Yes:  No:  Not Applicable:

**Explain:** No Effect

## F. Describe Effects on the Public Purposes of Wilderness

Is action necessary to support one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

**Recreation:** Yes:  No:  Not Applicable:

### Explain:

The proposed project would enhance CBP's communications capabilities and increase interdiction efficiency. The proposed project would also increase the overall safety of the public, Cabeza Prieta NWR personnel, and USBP agents. The Proposed Action would have a long-term, beneficial effect as a result of increasing public safety and potentially reducing adverse impacts from cross-border traffic and consequent law enforcement actions on the landscape and natural resources that characterize designated wilderness.

**Scenic:** Yes:  No:  Not Applicable:

### Explain:

The proposed project would enhance CBP's communications capabilities and increase interdiction efficiency. Improved communications would potentially focus interdiction efforts closer to the border or to detection points and thereby decrease off-road and unauthorized road use. Beneficial effects could include reduced illegal vehicle traffic within designated wilderness, reduced degradation of the landscape, and reduced litter and human waste, which degrade scenic wilderness qualities throughout the Cabeza Prieta Wilderness.

**Scientific:** Yes:  No:  Not Applicable:

**Explain:** No effect

**Education:** Yes:  No:  Not Applicable:

**Explain:** No effect

**Conservation:** Yes:  No:  Not Applicable:

### Explain:

This action may improve accessibility to remote areas of the Cabeza Prieta NWR, which are currently unsafe due to illegal cross-border activities or lack of radio connectivity for USFWS personnel. If refuge personnel can access previously inaccessible areas of the refuge, the potential for wildlife management, surveys, and habitat conservation or improvement techniques in those areas may occur. Other impacts may include reduced illegal vehicle traffic within designated wilderness, reduced degradation of the landscape, and reduced litter and human waste, which degrade the natural habitat throughout the Cabeza Prieta Wilderness. The potential reduction expected in illegal traffic will allow for recovery of vegetation and improvement in natural habitat quality.

**Historical use:** Yes:  No:  Not Applicable:

**Explain:** No effect

**Step 1 Decision:** Is any administrative action necessary in wilderness?

Yes:  No:  More information needed:

**Explain:**

The proposed installation of the TacCom LMR equipment would significantly improve safety in the daily operations of USBP agents and USFWS personnel. The Cabeza Prieta NWR is deficient in communications infrastructure. For CBP activities, the USBP Ajo and Wellton stations have repeaters for field operations communications; however, in the present locations, the radio repeaters do not provide sufficient radio coverage for reliable communications. The USFWS repeater, which would provide coverage over much of the western portion of the refuge, is not in reliable working condition. These conditions present serious safety issues, as USBP agents and USFWS personnel are not able to communicate between vehicles and portable radios in the field and the USBP Ajo or Wellton Stations or the Cabeza Prieta NWR office. The proposed radio repeaters would allow the use of encryption, which is critical for operational security and detection of illegal traffic in the area.

The communications coverage capabilities on the Cabeza Prieta NWR are severely deficient. Without the proposed TacCom sites (Buck Peak, Granite Mountain, and Christmas Pass), areas with no communications coverage on the Cabeza Prieta NWR cover 254 square miles (659 square kilometers), and approximately 636 square miles (1,648 square kilometers) of no portable radio coverage exist. Using the three proposed mountain peaks on the Cabeza Prieta NWR to improve communications coverage, the TacCom LMR Modernization Project would reduce the communications gaps to 49 square miles (126 square kilometers) and areas with no portable radio coverage to approximately 269 square miles (697 square kilometers).

Radio communications modeling determined the fewest equipment site locations necessary to provide the most coverage possible. Original project plans called for three sites on the Cabeza Prieta NWR (Buck Peak, Granite Mountain, and Christmas Pass); however, after additional modeling, the communications coverage provided by Buck Peak and Granite Mountain was nearly equal to the coverage originally modeled for all three sites. CBP proposes to first install the proposed TacCom LMR equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if the models were accurate and if adequate communications coverage is provided with only two sites. If communications coverage is not adequate or does not meet the requirements of the USBP Wellton or Ajo stations, USBP Yuma or Tucson sectors, or Cabeza Prieta NWR, then the proposed TacCom LMR equipment at the Christmas Pass site would be installed after consultation and concurrence with the Refuge Manager.

As previously discussed, other alternatives were considered to avoid impacts within the Cabeza Prieta Wilderness. Siting Alternatives F and G and the Collocation Alternative all identified potential radio repeater locations on non-wilderness lands. Alternative F would substitute Cipriano Pass on the nearby BMGR for Buck Peak as a location for TacCom equipment

installation. Upon visual inspection of the Cipriano Pass area, there was not a suitable, level area available on the site that would be adequate for the TacCom equipment and helicopter landing. This alternative was determined to be inadequate and was eliminated from further consideration. Alternative G would substitute Raven Butte on the nearby BMGR for Christmas Pass as a location for TacCom equipment installation. However, Raven Butte was determined to be a Traditional Cultural Property for the Cocopah Tribe and the Tohono O’odham Nation. The tribes have determined that the installation of communications equipment would not be appropriate at Raven Butte. There were also too much interference from other mountains to allow adequate covers. This alternative was eliminated from further consideration. The Collocation Alternative included collocating the proposed TacCom equipment with the USBP Wellton Station IFT Project. The USBP Wellton Station IFT Project includes the construction, operation, and maintenance of up to 24 tower sites and associated infrastructure (primarily roads) on and near those sites. All proposed tower sites would be situated within the Wellton Station Area of Responsibility (which includes the Cabeza Prieta NWR) on privately owned, DHS/CBP-owned, or other Federal agency-owned lands along or near the United States/Mexico border, as necessary to create a border enforcement zone. This alternative would collocate TacCom equipment on IFT infrastructure on the Cabeza Prieta NWR to provide similar coverage to what would be provided with the implementation of the Proposed Action. Due to the early planning nature of the Wellton Station IFT Project, there are no proposed IFT locations that have been vetted and approved by both CBP and the land managers. The planning for this project has been indefinitely postponed. Due to the need established by the TacCom LMR Modernization Project to provide a safe work environment for agents and other agency law enforcement personnel by improving communications coverage, this alternative was determined to be inadequate due to schedule delays and immediate need and was eliminated from further consideration.

## **Step 2: Determine the minimum activity.**

### **Description of Alternatives**

Alternative A – No Action
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#### **Description:**

Under the No Action Alternative, the CBP communications equipment would not be installed. However, the existing CBP and USFWS equipment on Buck Peak, currently collocated on a site owned and operated by Cabeza Prieta NWR, would continue to be operated and maintained. The collocated equipment would be accessed biannually for scheduled maintenance by helicopter or potentially on foot for the Christmas Pass site. The No Action Alternative would not allow CBP to have increased communications ability. The USBP Ajo and Wellton Stations’ current radio repeaters do not provide sufficient radio coverage for reliable TacCom within the Cabeza Prieta NWR, which leaves agents without the ability to call for support. This could lead to potential safety issues for USBP agents. Under the No Action Alternative, poor communications coverage would continue.

#### **Effects:**

##### **Wilderness Character**

“Untrammeled”

The proposed communications equipment would not “impede the free play of the natural forces in the landscape.”

**“Undeveloped”**

The No Action Alternative maintains the existing communications equipment at Buck Peak. Therefore, there would be no additional “sign of man and his works” beyond what currently exists on the Cabeza Prieta NWR.

**“Natural”**

No previously undisturbed natural areas would be directly impacted by the No Action Alternative. Indirectly, illegal traffic, garbage, human waste, and subsequent interdiction pursuits would continue to have a long-term negative impact on the native Sonoran desertscrub habitat and associated wildlife communities.

**“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”**

The existing radio repeater equipment at Buck Peak would continue to be operated and maintained under the No Action Alternative. The helicopter used biannually for maintenance could be considered to be an impact on solitude or primitive recreation. There would be no additional impacts expected beyond what are currently experienced.

**Other unique components that reflect the character of this wilderness**

No effect

**Heritage and Cultural Resources**

No effect

**Maintaining Traditional Skills**

No effect

**Special Provisions**

No effect

**Economic and Time Constraints**

No effect

**Additional Wilderness-specific Comparison Criteria**

No effect

## **Safety of Visitors, Personnel, and Contractors**

The 56-mile United States/Mexico border across the Cabeza Prieta NWR is an active smuggling area. The safety of visitors, USFWS personnel, contractors, and USBP agents would continue to be a serious issue under the No Action Alternative. Buck Peak currently houses a collocated USFWS and CBP repeaters. However, the USFWS repeater, which would provide coverage over much of the western portion of the refuge, is not in reliable working condition. These conditions present serious safety issues, as USBP agents and USFWS personnel are not able to communicate between vehicles and portable radios in the field and the USBP Ajo or Wellton Stations or the Cabeza Prieta NWR office.

### **Alternative B – Communications equipment installation using pack animals**

#### **Description:**

Installation of the communications equipment at Buck Peak, Granite Mountain, and Christmas Pass would be completed with the use of pack animals. All personnel working on the project would hike in and out of the site, and all equipment would be carried in by pack animals. Approximately 15,000 pounds of equipment must be hauled up to Buck Peak and the existing equipment must be dismantled and hauled down the mountain. The six batteries necessary for the communications equipment at Buck Peak weigh approximately 775 pounds each, which is more than one pack animal could carry, especially in steep, rocky terrain. Batteries would have to be flown in by helicopter. The remaining equipment would either be carried in by humans or pack animals, requiring 11 individual trips. Assumptions made to reach this total include: four pack animals could carry approximately 150 pounds per animal, eight humans could carry approximately 50 pounds per person, and helicopters would deliver the batteries to the site. There are no established hiking or animal trails to the site. The terrain is steep, rocky, rough, and unstable. The potential for human and animal injuries is significant, especially for the pack animals. For these reasons this alternative is not practical and thus rejected without further analysis.

#### **Effects:**

##### **Wilderness Character**

###### **“Untrammeled”**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

###### **“Undeveloped”**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

###### **“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**“Natural”**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**Other unique components that reflect the character of the wilderness**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**Heritage and Cultural Resources**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**Maintaining Traditional Skills**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**Special Provisions**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**Economic and Time Constraints**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**Additional Wilderness-specific Comparison Criteria**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

**Safety of Visitors, Personnel, and Contractors**

Not applicable. This alternative is not viable for this action on the Cabeza Prieta NWR.

## Alternative C – Communications equipment installation using a helicopter

### **Description:**

The three proposed TacCom equipment locations are on remote mountaintops or ridges: Buck Peak, Granite Mountain, and Christmas Pass (Figure 1). Due to the weight of the equipment to be installed and the inaccessibility of the sites, all equipment and personnel would be airlifted to the site during the installation phase of the project. Installation would take less than 30 days at each site. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year by helicopter for Granite Mountain and Buck Peak sites or potentially on foot at the Christmas Pass site. Any replaced equipment would be recycled or otherwise disposed of properly. Trips for emergency repairs may be necessary in addition to the biannual maintenance trips.

Equipment would be staged at the USBP Wellton Station for the three sites on the Cabeza Prieta NWR (Buck Peak, Granite Mountain, and Christmas Pass). The equipment would be airlifted directly to the installation site. Estimated flight paths are also depicted on Figure 1.

### **Buck Peak**

Buck Peak is located on a ridge in the Cabeza Prieta Wilderness in Yuma County, Arizona (Figure 2). Buck Peak currently houses existing CBP communications equipment (one low-power repeater), which is collocated on a solar-powered radio site that is owned and operated by Cabeza Prieta NWR. The existing equipment would be replaced, because it is outdated and no longer meets CBP's operability requirements. Communications equipment for Cabeza Prieta NWR would continue to be collocated at this site. New equipment would also be installed for the Cabeza Prieta NWR, because the existing USFWS equipment is not in reliable working order.

CBP proposes to obtain a special use permit or real estate right of way for the installation, operation, and maintenance of a radio repeater at Buck Peak. The total surface area required for the radio repeater equipment is approximately 200 square feet. A conceptual drawing of the installation is provided in Figure 3. An additional 2,500-square-foot working area would be temporarily disturbed during installation by potential vegetation crushing or damage during helicopter landing, equipment transport, or movements by technicians. No restoration plans are included as part of this project. Communications equipment to be installed at Buck Peak includes:

- Five mini-solar array platforms that would house solar panels
- Two LMR repeaters
- Duplexers
- SAFARI Commander Station
- One platform-mounted battery enclosure with six batteries
- Two 10-foot-tall poles (one omni-directional dipole array and one grid parabolic antenna)

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the

communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be accomplished by helicopter. All helicopter access will originate from USBP Wellton Station and fly a course west of Copper Mountain, entering the CPNWR and accessing Buck Peak from the west. The western access route should eliminate any potential effects on Sonoran pronghorn or disturbance in proximity to Sonoran pronghorn habitat, thus allowing helicopter flights during the pronghorn fawning season (March 15 through July 15). If, for some reason, the flight access for this project is not able to follow this route, no helicopter access would occur between March 15 and July 15 to avoid the Sonoran pronghorn fawning season.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. All aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed area in the immediate vicinity of existing equipment to the greatest extent practicable. The replacement of existing equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require 16 round trips by helicopter to provide access for installation technicians, for the removal of existing equipment, and delivery of new equipment.

### **Granite Mountain**

Granite Mountain is located on a remote ridge in the Cabeza Prieta Wilderness in Pima County, Arizona (Figure 4). Granite Mountain currently houses communications equipment owned by the U.S. Air Force (USAF). Collocation of the TacCom equipment within the same impact area as the USAF equipment is not possible for the following reasons: 1) the two sets of equipment run on different power systems (USAF equipment requires 48 volts, TacCom equipment requires 12 volts), 2) adding antennas and solar panels would compromise the structural integrity of the existing platform, and 3) CBP requires approximately 100 feet of horizontal separation from the USAF equipment to avoid radio frequency interference from the USAF communications equipment. Therefore, the TacCom equipment would be located approximately 100 feet east-northeast of the existing USAF equipment.

CBP proposes to obtain a special use permit or real estate right of way for the installation, operation, and maintenance of a radio repeater at Granite Mountain. The total surface area required for the radio repeater equipment is 30 square feet. An additional 2,500-square-foot working area would be temporarily disturbed during installation by potential vegetation crushing or damage during helicopter landing, equipment transport, or movements by technicians. No restoration plans are included as part of this project. A conceptual drawing of the installation is provided in Figure 5. Communications equipment to be installed at Granite Mountain includes:

- One 5-panel solar array platform
- One repeater
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One tripod-mounted BA40-41 VHF antenna

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be accomplished by helicopter depending on season of year (no helicopter access would occur between January 1 and July 31 due to the Sonoran pronghorn fawning and desert bighorn sheep lambing seasons).

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. All aspects of equipment installation, including any ground disturbance, would be limited to the previously disturbed area in the vicinity of existing equipment to the greatest extent practicable. It is estimated that surveys and installation would require seven round trips by helicopter to provide access for installation technicians and to deliver new equipment.

### **Christmas Pass**

Christmas Pass is located on a mountaintop in the Cabeza Prieta Wilderness in Yuma County, Arizona (Figure 6). Communications equipment does not currently exist at this site. This site would only be installed if it is deemed necessary to fill a communications coverage gap after the Buck Peak and Granite Mountain sites are installed. If the TacCom equipment is installed at this location, Cabeza Prieta NWR radio repeater equipment will be collocated on the equipment sled.

CBP proposes to obtain a special use permit or real estate right of way for the installation, operation, and maintenance of a radio repeater at Christmas Pass. The total surface area required for the radio repeater equipment is 125 square feet. A conceptual drawing of the installation is provided in Figure 7. An additional 2,500-square-foot working area would be temporarily disturbed during installation by potential vegetation crushing or damage during helicopter landing, equipment transport, or movements by technicians. No restoration plans are included as part of this project. Communications equipment to be installed at Christmas Pass includes:

- One 14-panel solar array platform
- One repeater
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One 10-foot-tall pole with an omni-directional dipole array
- One tripod-mounted BA40-41 VHF antenna

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be accomplished either by helicopter or on foot depending on season of year (no helicopter access would occur between January 1 and July 31 due to the Sonoran pronghorn fawning and desert bighorn sheep lambing seasons), the physical condition of the technician, and the amount of material needed to be hauled to the site.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require seven round trips by helicopter to provide access for installation technicians and to deliver new equipment.

## **Effects:**

### **Wilderness Character**

#### **“Untrammeled”**

This action would result in the disturbance of approximately 2,700 square feet of Sonoran Desert vegetation at Buck Peak, approximately 2,625 square feet of Sonoran Desert vegetation at Christmas Pass, and approximately 2,530 square feet of Sonoran Desert vegetation at Granite Mountain. All aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed area in the immediate vicinity of existing equipment at Buck Peak. The proposed communications equipment would not “impede the free play of the natural forces in the landscape.”

#### **“Undeveloped”**

The Christmas Pass site would be located in undeveloped area of the Cabeza Prieta Wilderness. The Proposed Action at Christmas Pass will add approximately 125 square feet to developed areas of the Cabeza Prieta Wilderness. Both the Buck Peak and Granite Mountain sites are previously disturbed by existing communications equipment. The Proposed Action at Granite Mountain, located approximately 100 feet east-northeast of the existing communications site, will add approximately 30 square feet to developed areas of the Cabeza Prieta Wilderness.

During operation, the “sign of man and his works” would have limited visibility at the three sites, due to the limited vertical profile of the equipment, unless observed from an elevated point or if the sun creates a reflection from the equipment. At both Buck Peak and Granite Mountain, the addition of equipment or replacement of equipment would not have additive impacts on previously undeveloped areas.

If the Christmas Pass site is installed, the TacCom equipment would be the only man-made structure on-site. The Christmas Pass site is currently undeveloped and provides opportunities to experience solitude, unconfined recreation, and naturalness to visitors and campers from a nearby approved camping area. A line of sight analysis was conducted for the installation at Christmas Pass. The orange shading on Figure 8 provides an approximate area on the ground from where an

imaginary point, approximately 20 feet above the proposed location of the TacCom Christmas Pass equipment, would be visible for as far away as 3 miles. Based on the line of sight analysis, the equipment visibility from the Christmas Pass Road, within 3 miles of the site, would be more than 95 %. The TacCom equipment at Christmas Pass would potentially be visible from a maximum of 9,696 acres.

During installation, repair, and maintenance, noise emissions associated with the use of a helicopter could indirectly affect the quality of Cabeza Prieta Wilderness. Helicopter lifts and flights would produce noise emissions that would adversely affect the undeveloped qualities of designated wilderness.

Thus, installation, operation, repair, and maintenance of the proposed radio repeater equipment at Christmas Pass would have a long-term, moderate adverse effect on the undeveloped values of the Cabeza Prieta Wilderness. The installation, operation, repair, and maintenance of the proposed radio repeater equipment at Buck Peak and Granite Mountain would have long-term, minor adverse effects on the undeveloped values of the Cabeza Prieta Wilderness due to existing equipment at the sites.

#### **“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”**

The three proposed radio repeater equipment installation locations, Buck Peak, Granite Mountain, and Christmas Pass, are located in Cabeza Prieta Wilderness. The vertical profile of the equipment is less than 20 feet above the ground surface. Therefore, visual impacts as discussed above would impact the “primitive” nature of the Cabeza Prieta wilderness character. Installation and maintenance would require the use of a helicopter. Using a helicopter (i.e., motorized transport) within a wilderness area would impact the opportunity for solitude and primitive and unconfined recreation within the Cabeza Prieta Wilderness.

Noise emissions associated with the TacCom equipment installation and maintenance could affect the quality of Cabeza Prieta Wilderness, which is valued for its solitude and quietness. Helicopter lifts and flights would produce noise emissions that would affect the quality of designated wilderness. The Federal Highway Administration has established a construction noise abatement criterion of 57 dBA for lands where serenity and quiet are of extraordinary significance (23 CFR 722, Table 1). A total of 5,122 acres during approach and 3,420 acres during takeoffs would be temporarily affected by noise levels above 57 dBA during TacCom equipment installation and maintenance. Noise emissions during construction and maintenance activities would have a temporary and intermittent effect on the quality of designated wilderness. There would be no noise emissions expected during the operation of the equipment.

#### **“Natural”**

This action will have a direct effect on approximately 2,625 square feet of undeveloped wilderness character of the Cabeza Prieta Wilderness at the Christmas Pass site. Both the Buck Peak and Granite mountain sites are previously disturbed by existing development and communications equipment.

#### **Other unique components that reflect the character of the wilderness**

There would be direct and indirect effects on threatened and endangered species and their habitats. Long-term, beneficial effects would occur by reducing impacts of cross-border activity

on habitats throughout the project area and surrounding areas. Cross-border activity creates trails, damages vegetation, promotes the dispersal and establishment of invasive species, and can result in catastrophic wild fires. These actions have a long-term, indirect adverse impact on threatened and endangered species by causing harm to individuals and degrading habitats occupied by these species.

The installation, operation, and maintenance of TacCom equipment at Buck Peak, Granite Mountain, and Christmas Pass would potentially affect the Sonoran pronghorn due to increased helicopter traffic through habitat corridors and helicopter travel routes across landscapes known to contain Sonoran pronghorn and Sonoran pronghorn foraging grounds. It is currently estimated that up to 30 helicopter trips would be necessary for installation of the equipment at the three TacCom sites, with an additional two trips annually for necessary maintenance. This air traffic may affect, and is likely to adversely affect, the Sonoran pronghorn. Helicopter access to each mountaintop site would be from the west, with flight paths over less favorable habitat. Sonoran pronghorn would only be affected by the noise emissions of the helicopter flights during installation (a maximum of 30 days) and maintenance (2 days per year). Thus, impacts on Sonoran pronghorn would be short-term and minor.

The potential loss of agave (*Agave* sp.) during installation of communications and support equipment would occur at Buck Peak. The impacts on agave would be limited to less than 24 individual agave plants. Loss of agave would be long-term and negligible, and may affect, but would not likely adversely affect, lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) populations.

CBP has determined that the TacCom LMR Modernization Project may affect, but would not likely adversely affect, Sonoran desert tortoise (*Gopherus morafkai*) populations at the Buck Peak, Christmas Pass, and Granite Mountain sites. Noise emissions from helicopter access would be minimal due to the altitude of flight over appropriate habitat. Installation and biannual maintenance could be scheduled during winter or midsummer while the tortoises are dormant to further avoid or minimize impacts.

### **Heritage and Cultural Resources**

Cultural resource surveys have been performed and concluded no effect.

### **Maintaining Traditional Skills**

No traditional tools or skills are proposed for use with this project. Modern transportation (helicopter) and tools will be used to minimize the time necessary for the disturbance associated with installation and maintenance.

### **Special Provisions**

There would potentially be beneficial impacts on the Cabeza Prieta Wilderness from this proposed project. Cross-border violators use the remote areas of the Cabeza Prieta NWR to gain entry into the United States. That illegal traffic often damages public property by driving off established roads. Illicit cross-border activities can be detrimental to the landscape and health and safety of the public, Cabeza Prieta NWR staff, and USBP agents. Installation of the communications sites may allow CBP to apprehend illegal traffic in closer proximity to the United States/Mexico

border, thus potentially reducing damage to the natural environment and providing improved safety.

#### **Economic and Time Constraints**

No effect.

#### **Additional Wilderness-specific Comparison Criteria**

No effect.

#### **Safety of Visitors, Personnel, and Contractors**

Flying in helicopters is considered a high-risk activity. However, it is safer than trying to pack water, equipment, supplies, etc. either on foot or by pack animal to the three installation sites over very steep, unstable, and difficult terrain. Cabeza Prieta NWR will ensure that the craft and pilot are Office of Aircraft Services certified prior to any USFWS employee using the aircraft (which is not anticipated) and that such employees have taken the required safety courses. All installation crew members will be briefed regarding how to work on the ground in proximity to helicopter sling loads and takeoff or landing.

As discussed earlier, illicit cross-border activities can be detrimental to both the landscape and health and safety of the public, Cabeza Prieta NWR staff, and USBP agents. The new communications sites may allow CBP to apprehend illegal traffic in closer proximity to the United States/Mexico border, thus potentially providing improved safety to visitors and personnel.

## Comparison of Alternatives

	Alternative A No Action	Alternative B Pack Animals	Alternative C Helicopter
Untrammelled	No effect	Not applicable	No effect
Undeveloped	No additional effect	Not applicable	-
Natural	-	Not applicable	+/-
Solitude or Primitive Recreation	-	Not applicable	-
Unique components	No effect	Not applicable	+/-
<b>WILDERNESS CHARACTER</b>	-	Not applicable	+/-

	Alternative A No Action	Alternative B Pack Animals	Alternative C Helicopter
<b>Heritage &amp; Cultural Resources</b>	No effect	Not applicable	No effect
<b>Maintaining Traditional Skills</b>	No effect	Not applicable	No effect
<b>Special Provisions</b>	No effect	Not applicable	No effect
<b>Economics &amp; Time</b>	No effect	Not applicable	No effect
<b>Additional Wilderness Criteria</b>	No effect	Not applicable	No effect
<b>OTHER CRITERIA SUMMARY</b>	No effect	Not applicable	No effect

	Alternative A No Action	Alternative B Pack Animals	Alternative C Helicopter
<b>SAFETY</b>	-	Not applicable	+/-

### Safety Criterion

Documentation: See above.

### Step 2 Decision: What is the Minimum Activity?

#### Selected alternative:

Alternative C – Communications equipment installation using a helicopter.

Using a helicopter as a means of transporting communications equipment, supplies, and personnel is the viable means of implementing CBP's proposed project in the Cabeza Prieta Wilderness. As discussed in Alternative B, for this type of work, in this wilderness, horses or mules are not a feasible option because of the threat to their safety resulting from a lack of water resources, travel distance, amount and weight of cargo, and most importantly the terrain is too steep and unstable for pack animals. There would be a very high probability that a number of pack animals would receive injuries. The helicopter will allow for effective and efficient implementation of this project, leading to long-term positive benefits to wilderness character and public purposes. In addition, two of the three sites selected for this project are previously disturbed. There is radio repeater equipment at both the Granite Mountain and Buck Peak sites. Although the Christmas Pass site is an undisturbed site, TacCom equipment would only be installed at this site if the communications coverage provided by equipment installed at Buck Peak and Granite Mountain is insufficient to meet the needs of the USBP.

#### Monitoring and reporting requirements:

**Monitoring and reporting requirements:**

CBP will monitor the implementation of identified Best Management Practices as identified in the EA and Biological Opinion for the project.

**Check any Wilderness Act Section 4(c) uses approved in this alternative:**

- mechanical transport
- landing of aircraft
- motorized equipment
- temporary road
- motor vehicles
- structure or installation
- motorboats

**References Cited**

U.S. Fish and Wildlife Service. 2008. *Wilderness Stewardship Policy*. pp. 9

Approvals	Signature	Name	Position	Date
Prepared by:				
Approved:		Sidney C Stone	Range Manager	9-5-2013

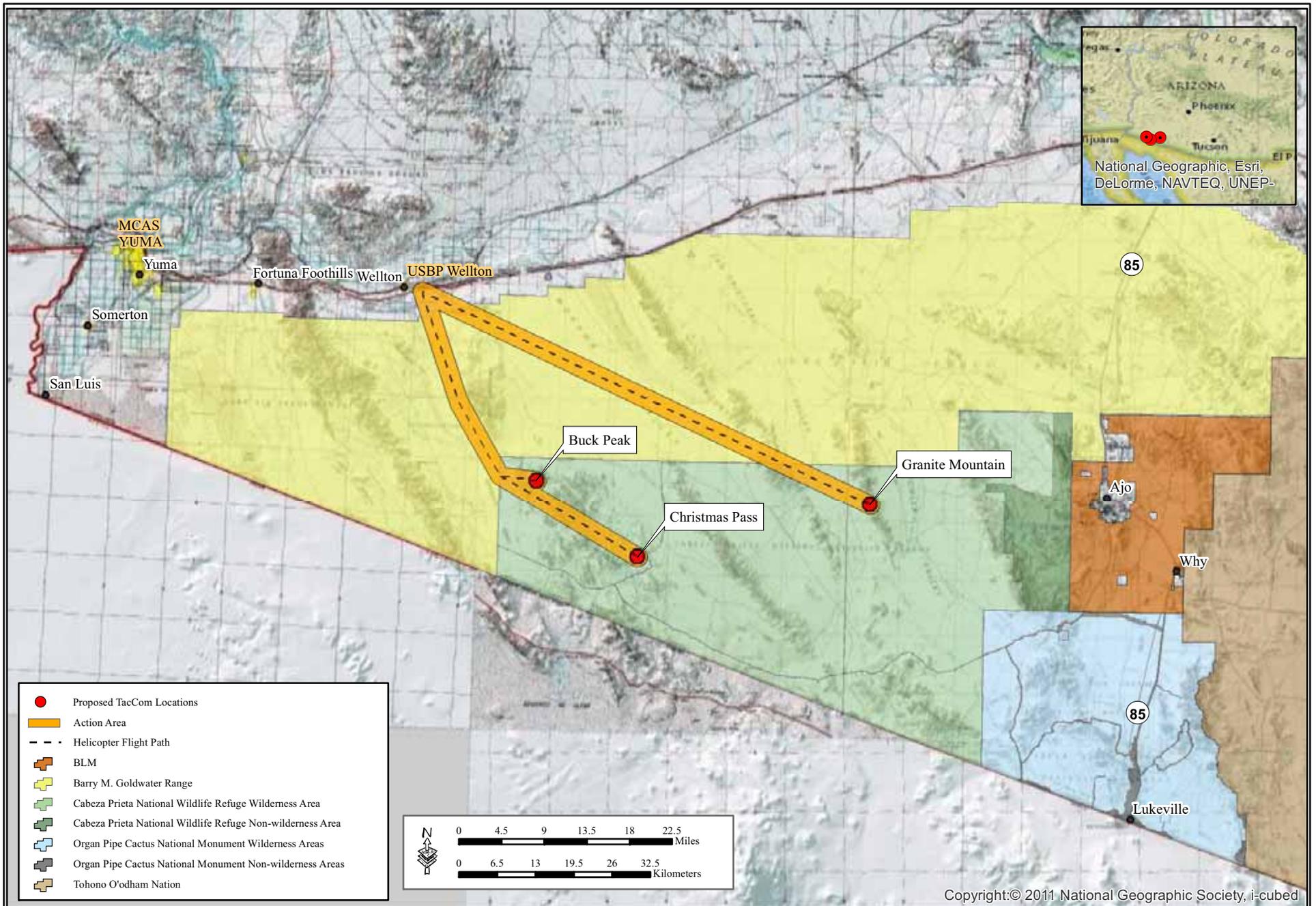


Figure 1. Action Area for LMR TacCom Arizona Focus Area

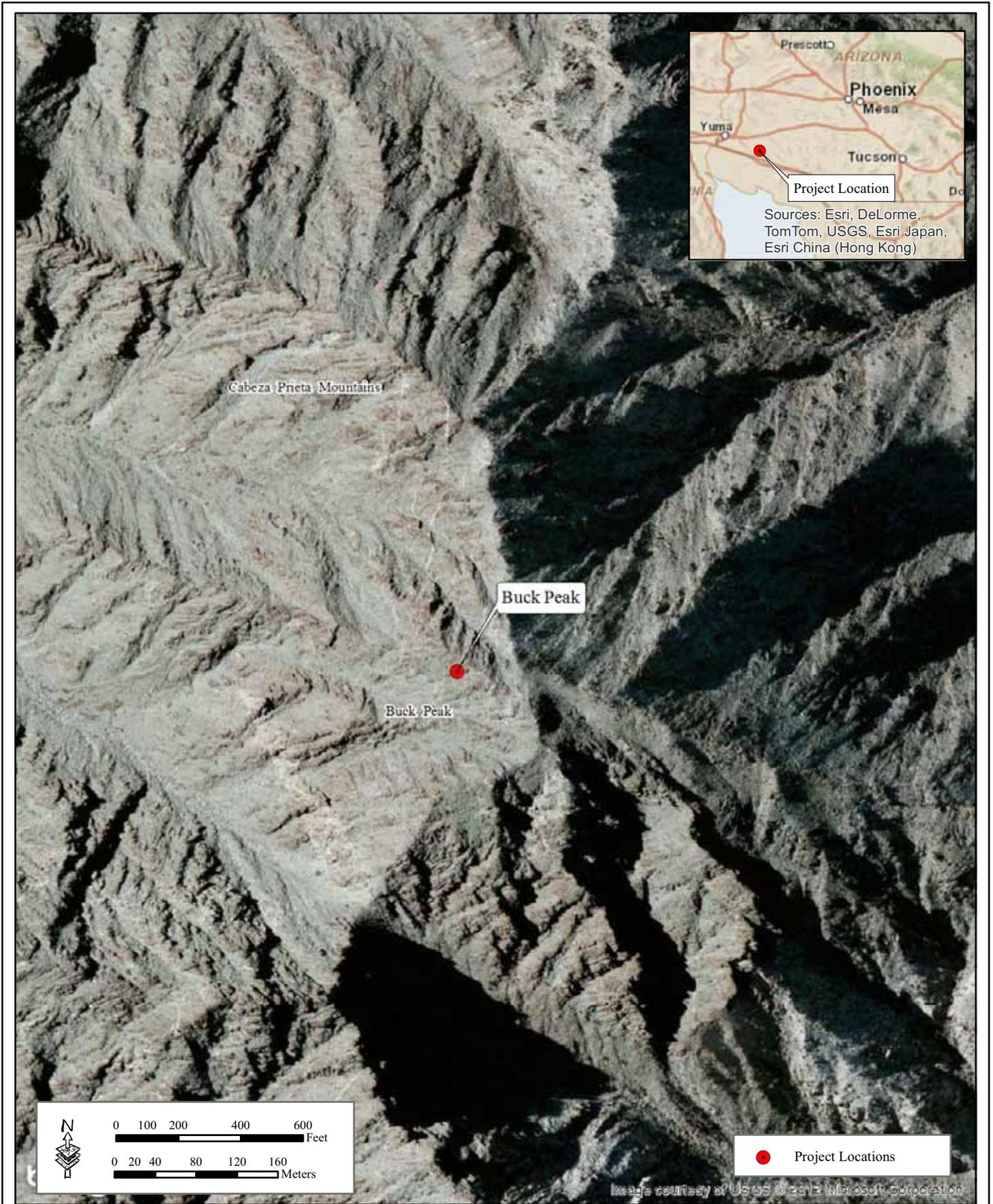
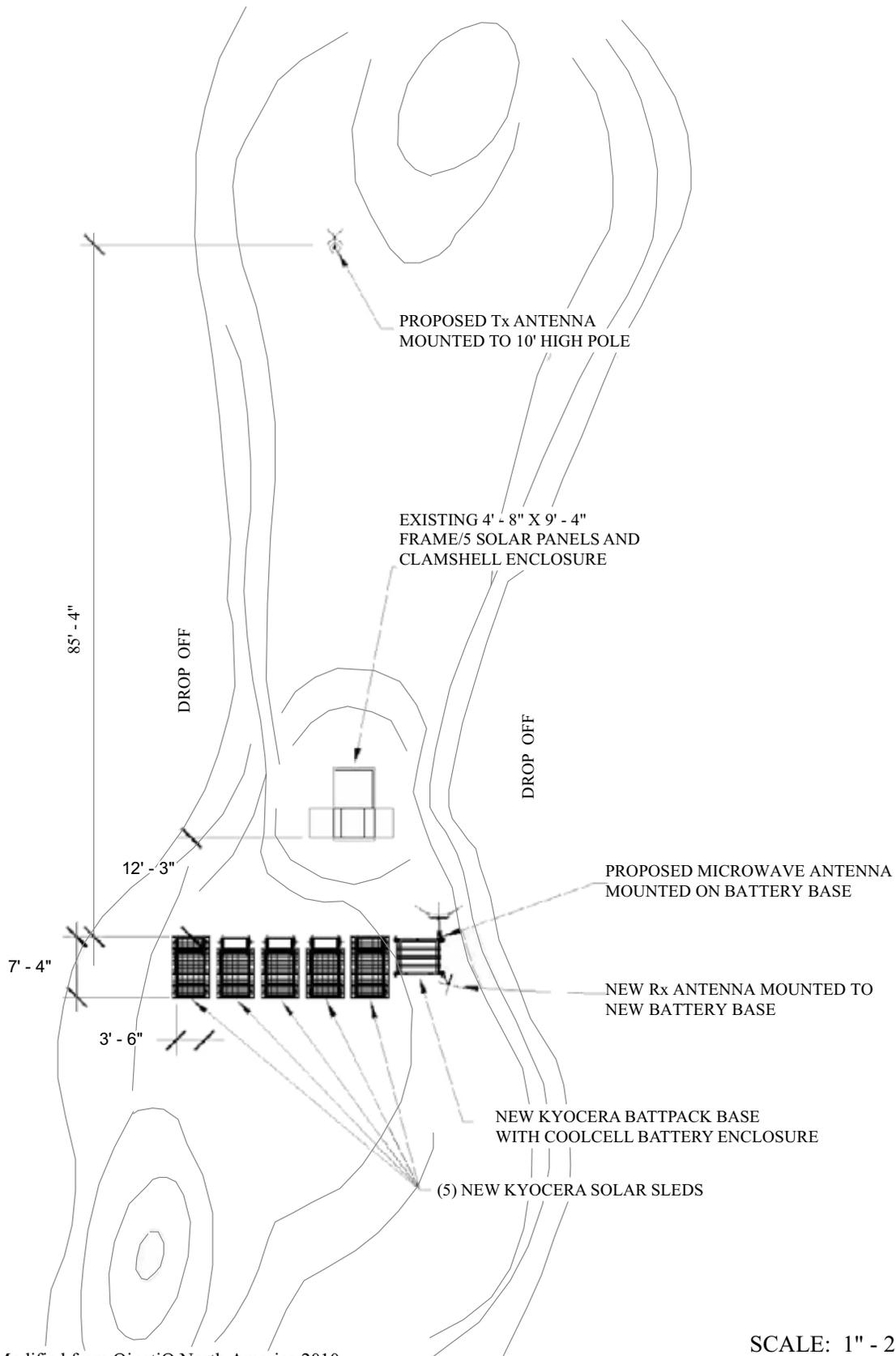


Figure 2. Buck Peak Project Area



Source: Modified from QinetiQ North America 2010

Figure 3. Conceptual Drawing of Buck Peak TacCom Location



November 2012

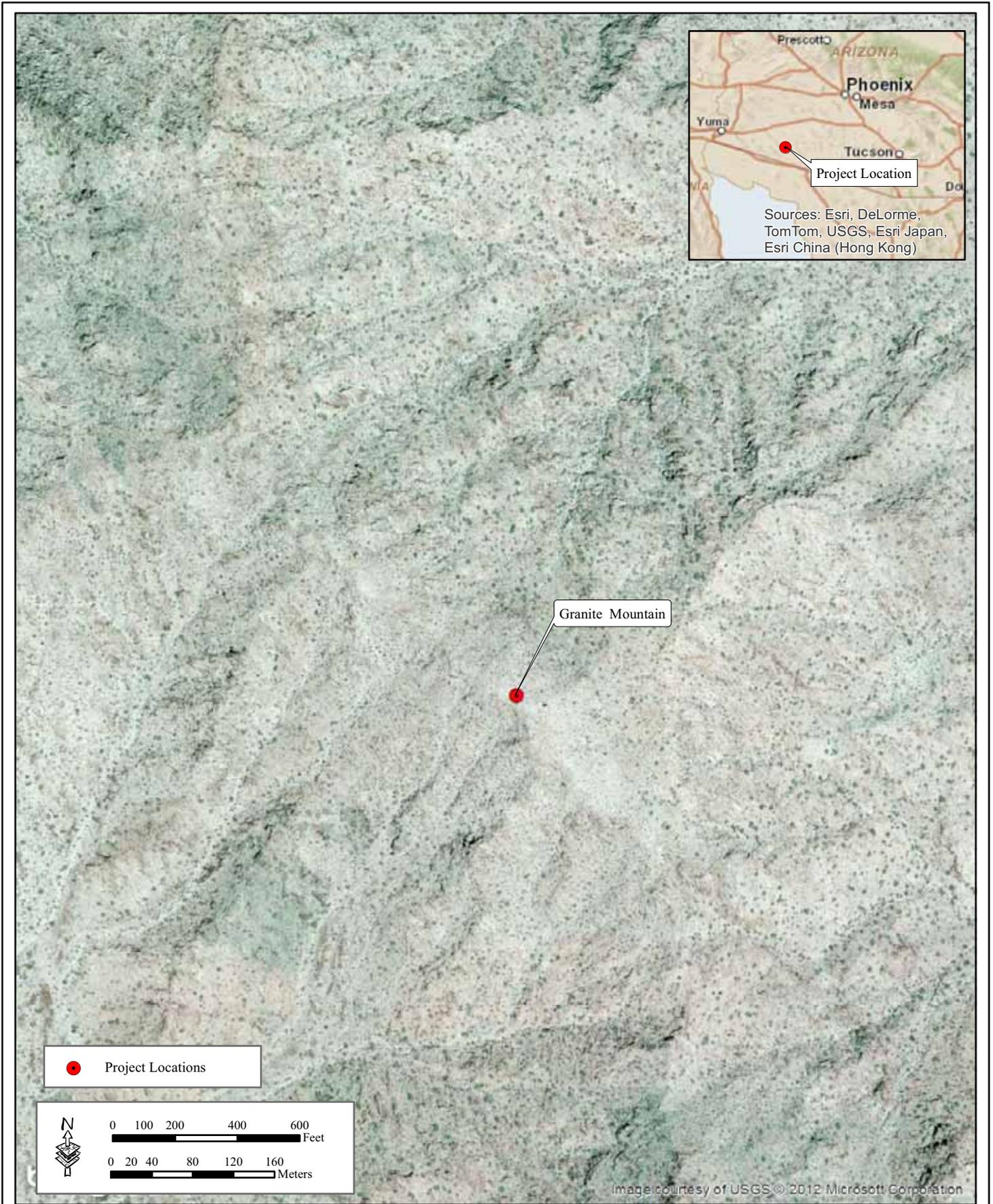
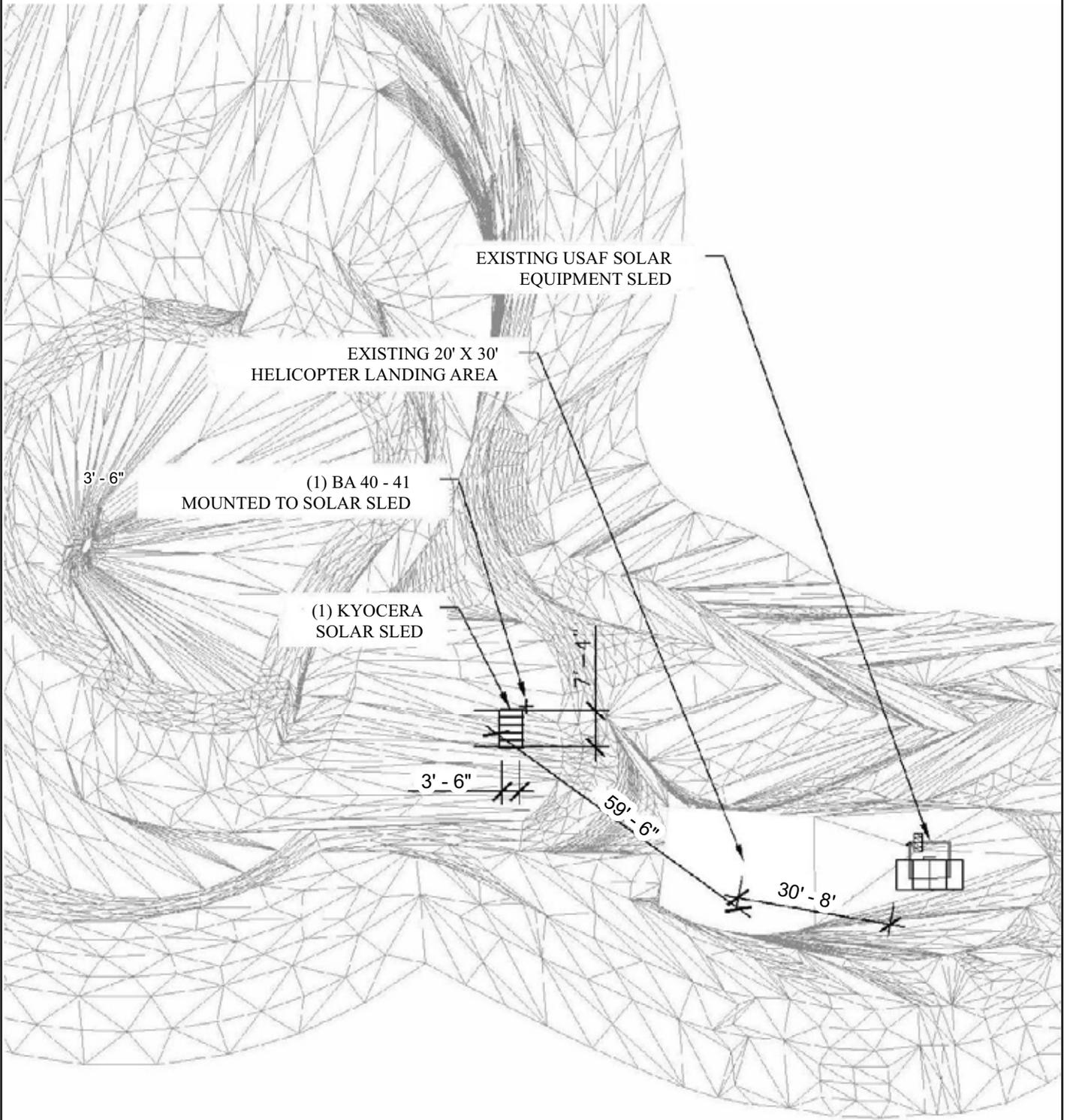


Figure 4. Granite Mountain Project Area



Source: Modified from QinetiQ North America 2010

SCALE: 1" - 30' - 0"

Figure 5. Conceptual Drawing of Granite Mountain TacCom Location



November 2012

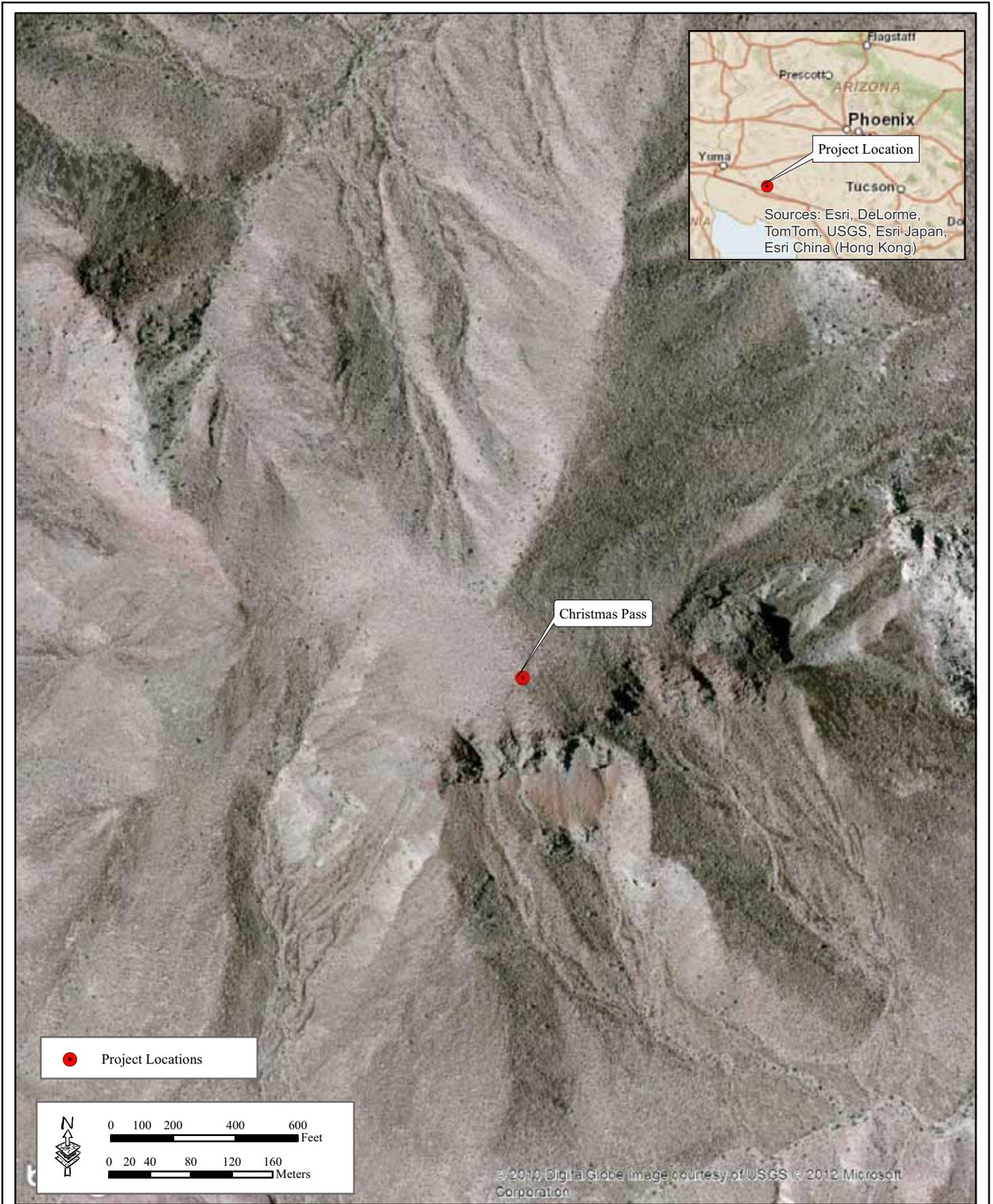
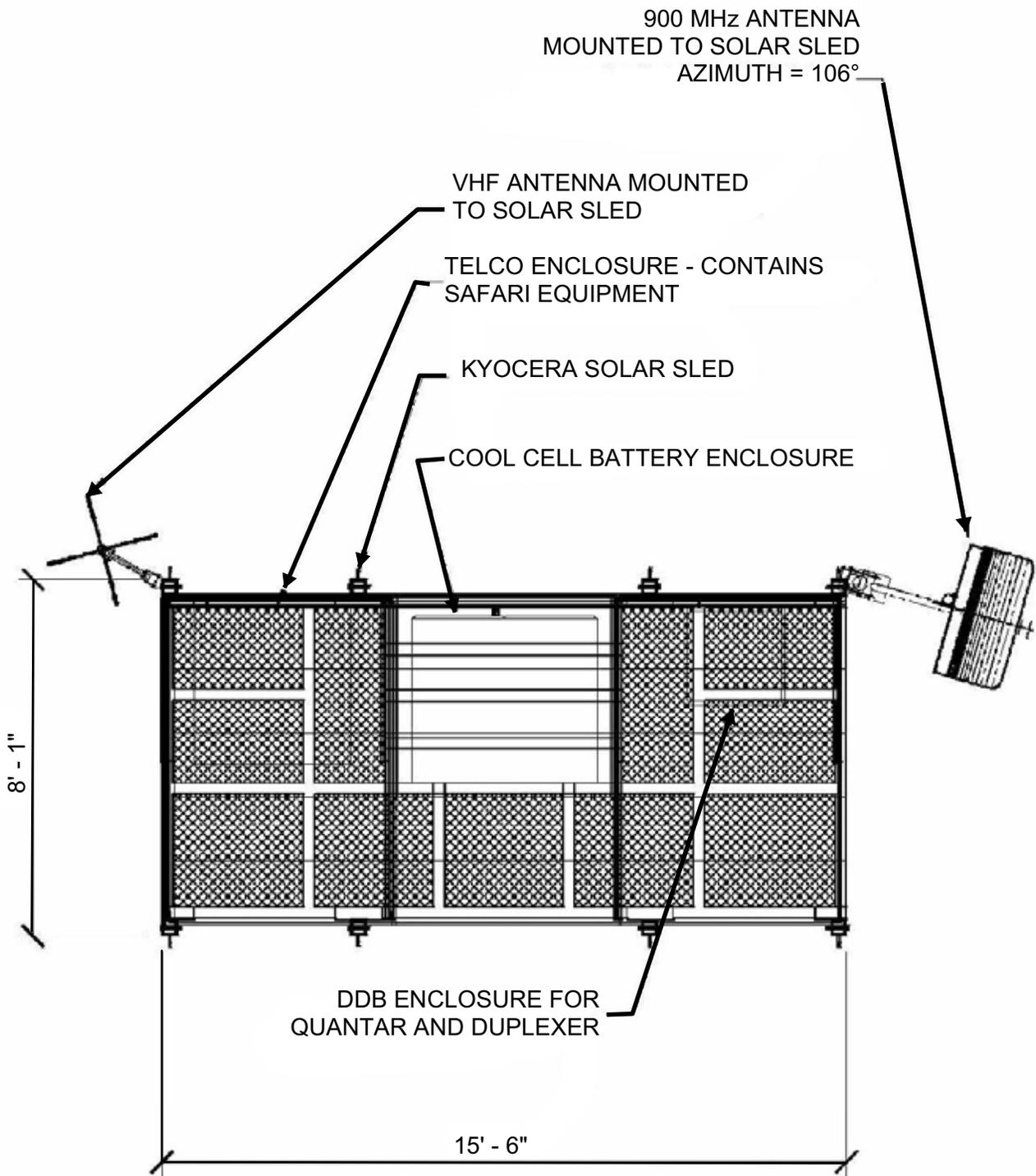
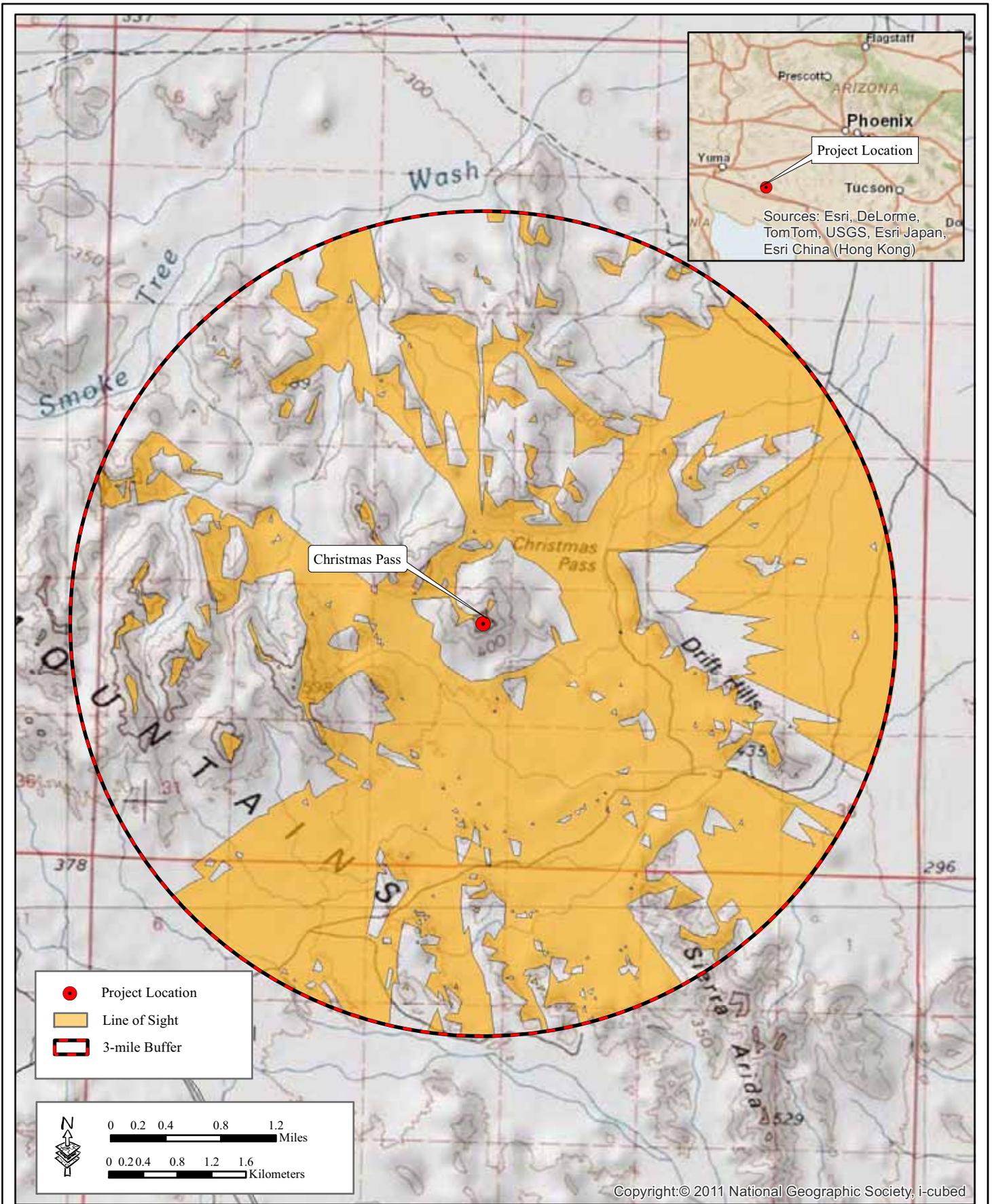


Figure 6. Christmas Pass Project Area



Source: Modified from QinetiQ North America 2010

Figure 7. Conceptual Drawing of Christmas Pass TacCom Equipment Sled



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Figure 8. Line of Sight Analysis for the Proposed TacCom Christmas Pass Installation



March 2013

**COMPATIBILITY DETERMINATION  
LAND MOBILE RADIO MODERNIZATION FOR  
U.S. CUSTOMS AND BORDER PROTECTION TACTICAL COMMUNICATIONS  
AT BUCK PEAK, CHRISTMAS PASS, AND GRANITE MOUNTAIN  
CABEZA PRIETA NATIONAL WILDLIFE REFUGE**

**USE: TacCom LMR Modernization Project**

U.S. Customs and Border Protection (CBP) proposes to replace an existing radio repeater co-located with Fish and Wildlife Service communications equipment on Buck Peak with updated land mobile radio (LMR) tactical communications (TacCom) equipment and to install up to two new repeaters at Granite Mountain and Christmas Pass. All three sites are located in designated wilderness within the Cabeza Prieta National Wildlife Refuge (CPNWR). The CBP, at CPNWR's request, has designed sufficient capacity in their systems proposed at Buck Peak and Christmas Pass to allow for the installation and operation of CPNWR equipment. The CBP will replace CPNWR equipment at Buck Peak with up-graded equipment provided by the refuge concurrent with their installation of equipment and will perform maintenance on refuge equipment when they perform maintenance on their equipment. If the Christmas Pass site is used, CBP will provide the same services for the CPNWR.

The project area is deficient in TacCom infrastructure for CBP activities, even though the U.S. Border Patrol (USBP) Ajo and Wellton Stations have repeaters for field operations communications. In the present locations, the radio repeaters do not provide sufficient radio coverage for reliable communications. This presents serious agent safety issues, as agents are not able to communicate between vehicles and handheld radios in the field and the USBP Ajo or Wellton Stations. The proposed TacCom communications equipment would also allow the use of encryption, which is critical for operational security and detection of illegal traffic in the area. The proposed project would significantly improve safety in not only the daily operations of CBP agents but also for refuge law enforcement officers and field personnel.

**REFUGE NAME**

Cabeza Prieta NWR  
Pima and Yuma Counties, Arizona

**ESTABLISHING AND ACQUISITION AUTHORITY**

President Franklin D. Roosevelt established the Cabeza Prieta NWR on January 25, 1939 by Executive Order 8038.

**REFUGE PURPOSES**

1. The refuge was "reserved and set apart for the conservation and development of natural wildlife resources, and for the protection and improvement of public grazing lands and natural forage resources...Provided, however, that all the forage resources in excess of that required to maintain a balanced wildlife population within this range or preserve should be available for livestock..." (Executive Order 8038 January 25, 1939).
2. Enactment of the Arizona Desert Wilderness Act of 1990 designated over 90 percent of the refuge as wilderness and created a supplemental refuge purpose of wilderness protection in accordance with the Wilderness Act of 1964. Under the 1990 designation legislation, the Act prohibits the designation from "...precluding or otherwise affecting continued border operations..."

3. The National Wildlife Refuge System Administration Act of 1966 and the National Wildlife Refuge System Improvement Act of 1977 (and amendments) provide guidance and direction for the management of a national refuge system.
4. Other important legislation include the Endangered Species Act of 1973, which mandates the protection and recovery of threatened and endangered species and the National Environmental Policy Act of 1969 which mandates the consideration of environmental consequences of Federal actions.

### **NATIONAL WILDLIFE REFUGE SYSTEM MISSION**

The mission of the system is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

### **DESCRIPTION OF USE**

CBP proposes to install, operate, and maintain radio repeater equipment at up to three locations (Buck Peak, Granite Mountain, and Christmas Pass) (Figure 1) within designated wilderness within the Cabeza Prieta NWR and obtain SUP and rights-of-way (ROW) permits for the same. Radio communications modeling determined the fewest equipment site locations necessary to provide the most communications coverage possible. Original project plans called for three sites on the Cabeza Prieta NWR (Buck Peak, Granite Mountain, and Christmas Pass); however, after additional modeling, the communications coverage provided by Buck Peak and Granite Mountain was nearly equal to the coverage originally modeled for all three sites. CBP proposes to first install the proposed TacCom land mobile radio (LMR) equipment at Buck Peak and Granite Mountain. Once the sites are operational, field testing will determine if the models were accurate and if adequate communications coverage is provided with only two sites. If communications coverage is not adequate or does not meet the requirements of the USBP Wellton or Ajo Stations, USBP Yuma or Tucson Sectors, then TacCom LMR equipment will be installed at the Christmas Pass.

Each of the proposed TacCom equipment locations is on a remote mountaintop or ridge, and they are accessible only by helicopter or on foot. Due to the weight of the equipment to be installed, all equipment and personnel would be airlifted to the site during the installation phase of the project. Installation would take less than 30 days at each site. Thereafter, scheduled maintenance and repair or replacement of faulty equipment would occur twice per year by helicopter or on foot, depending upon individual circumstances (i.e., the particular site, how much equipment may need to be hauled to the site, the condition of personnel that would perform the maintenance). Any replaced equipment would be recycled or otherwise disposed of properly. Trips for emergency repairs may be necessary in addition to the biannual maintenance trips.

Equipment would be staged at the USBP Wellton Station for the installation phase. The equipment would be airlifted directly to the installation sites. Estimated flight paths are also depicted on Figure 1. Each of the proposed sites is discussed below.

#### **Buck Peak**

Buck Peak is located on a ridge in the Cabeza Prieta Wilderness in Yuma County, Arizona (Figure 2). Buck Peak currently houses existing CBP communications equipment (one low-power repeater), which is collocated on a solar-powered radio site that is owned and operated by Cabeza Prieta NWR. The existing equipment would be replaced, because it is outdated and no longer meets CBP's operability requirements. Communications equipment for Cabeza Prieta NWR would be collocated at the new CBP communications facility. New equipment would also be installed for the Cabeza Prieta NWR, because the existing U.S. Fish and Wildlife Service (USFWS) equipment is not in reliable working order.

The total surface area required for the radio repeater equipment is approximately 200 square feet. A conceptual drawing of the installation is provided as Figure 3. An additional 2,500-square-foot working area would be temporarily disturbed during installation. Communications equipment to be installed at Buck Peak includes:

- Five mini-solar array platforms that would house solar panels
- Three LMR repeaters (one USFWS-owned, two CBP-owned)
- Duplexers
- SAFARI Commander Station
- One platform-mounted battery enclosure with six batteries
- Two 10-foot-tall poles (one omni-directional dipole array and one grid parabolic antenna)
- One VHF antenna (USFWS-owned)

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be accomplished by helicopter or on foot depending on season of year and other circumstances such as the type of equipment needed on-site and the physical capabilities of the technician.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. All aspects of equipment installation, including ground disturbance, would be limited to the previously disturbed area in the immediate vicinity of existing equipment to the greatest extent practicable. The replacement of existing equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require 16 round trips by helicopter to provide access for installation technicians, for the removal of existing equipment, and for delivery of new equipment.

No helicopter access will be permitted for construction and maintenance between January 1 and April 30 due to the desert bighorn sheep lambing season except to perform repairs under emergency conditions such as when there is a system failure.

### **Granite Mountain**

Granite Mountain is located on a remote ridge in the Cabeza Prieta Wilderness in Pima County, Arizona (Figure 4). Granite Mountain currently houses communications equipment owned by the U.S. Air Force (USAF, Photograph 1).

Collocation of the TacCom equipment within the same impact area as the USAF equipment is not possible for the following reasons: 1) the two sets of equipment run on different power systems (USAF equipment requires 48 volts, TacCom equipment requires 12 volts), 2) adding antennas



3 **Photograph 1. Existing USAF communications equipment on Granite Mountain.**

and solar panels would compromise the structural integrity of the existing platform, and 3) CBP requires approximately 100 feet of horizontal separation from the USAF equipment to avoid radio frequency interference from the USAF communications equipment. Therefore, the TacCom equipment would be located approximately 100 feet east-northeast of the existing USAF equipment.

The total surface area required for the radio repeater equipment is 30 square feet. An additional 2,500-square-foot working area would be temporarily disturbed during installation. A conceptual drawing of the installation is provided as Figure 5. Communications equipment to be installed at Granite Mountain includes:

- One 5-panel solar array platform
- One repeater
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One tripod-mounted BA40-41 VHF antenna

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be accomplished by helicopter or on foot depending on season of year and other circumstances as described above. No helicopter access would occur between January 1 and July 15 due to the Sonoran pronghorn [*Antilocapra americana sonoriensis*] fawning season and desert bighorn sheep lambing season except under emergency conditions such as when there is system failure.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. All aspects of equipment installation, including any ground disturbance, would be limited to the previously disturbed area in the vicinity of existing equipment to the greatest extent practicable. It is estimated that surveys and installation would require seven round trips by helicopter to provide access for biologists and installation technicians and to deliver new equipment.

### **Christmas Pass**

Christmas Pass is located on a mountaintop in the Cabeza Prieta Wilderness in Yuma County, Arizona (Figure 6). Communications equipment does not currently exist at this site. This site would only be installed if it is deemed necessary to fill a communications coverage gap after the Buck Peak and Granite Mountain sites are installed. If the TacCom equipment is installed at this location, Cabeza Prieta NWR radio repeater equipment will be collocated on the equipment sled.

The total surface area required for the radio repeater equipment is 125 square feet. A conceptual drawing of the installation is provided as Figure 7. An additional 2,500-square-foot working area would be temporarily disturbed during installation. Communications equipment to be installed at Christmas Pass includes:

- One 14-panel solar array platform
- One repeater
- SAFARI Commander station mounted on the platform
- One platform-mounted battery enclosure with four batteries
- One 10-foot-tall pole with a half-parabolic antenna and an omni-directional dipole array
- One 10-foot-tall pole with an omni-directional dipole array
- One tripod-mounted BA40-41 VHF antenna

The radio repeater equipment would be placed by a helicopter and leveled with lumber if necessary. A grounding system would be necessary to minimize lightning damage to the communications equipment. It would require covering the grounding cables with the natural rocks found on-site.

Solar panels would be installed on platforms with adjustable legs that require no ground preparation for installation. The platforms house the solar panels and a battery compartment. The batteries are sealed and housed in metal and plastic containers to ensure that they do not leak. There will be no fuel-based generator used on-site. Maintenance access would be accomplished either by helicopter or on foot depending on season of year and other circumstances described earlier.

No fencing surrounds the site, and no guy wires or lighting would be installed at the site. Installation of equipment would occur over a 30-day period and necessitate hand tools, drills, cable, rock anchors, and epoxy. It is estimated that surveys and installation would require seven round trips by helicopter to provide access for biologists and installation technicians and to deliver new equipment.

### **PURPOSE AND NEED**

According to the December 2012, *Draft Environmental Assessment for Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, and Granite Mountain Arizona Focus Area* prepared by CBP, the purpose of the proposed action is to improve TacCom in the Arizona Focus Area for Federal agents working for CBP. The need for the Proposed Action is to provide the following:

- Adequate communications coverage in remote locations to reduce or potentially eliminate communications coverage gaps
- A state-of-the-art digital technology that complies with the P25 standards and provides for narrowband and Advanced Encryption Standard capability
- Enhanced safety of CBP agents through improved communications coverage and technology
- An opportunity for future expansion of communications services as necessary
- A more safe, effective, and efficient work environment for CBP agents and Refuge staff

The communications coverage capabilities on the Cabeza Prieta NWR are severely deficient. Without the proposed TacCom sites (Buck Peak, Granite Mountain, and Christmas Pass), areas with no communications coverage on the Cabeza Prieta NWR encompass 254 square miles (659 square kilometers). Approximately 636 square miles (1,648 square kilometers) has no portable radio coverage. Using the three proposed mountain peaks on the Cabeza Prieta NWR to improve communications coverage, the TacCom LMR Modernization Project would reduce the communications gaps to 49 square miles (126 square kilometers) and to approximately 269 square miles (697 square kilometers) of no portable radio coverage.

In March 2006, the Department of Homeland Security entered into a Memorandum of Understanding (MOU) with the Department of the Interior (DOI) and the Department of Agriculture regarding

cooperative national security efforts on Federal lands along the United States Border. The MOU specifically states, “The parties are committed to preventing illegal entry into the United States, protecting Federal lands and natural and cultural resources, and – where possible – preventing adverse impacts associated with illegal entry by cross-border violators.” Section IV(B)(6) of the MOU allows for the installation or construction of tactical infrastructure on DOI lands, including areas designated as wilderness provided it is the minimum tool necessary.

The April 2007, Cabeza Prieta NWR Comprehensive Conservation Plan, Wilderness Stewardship Plan, and Environmental Impact Statement (CCP) references the existing agreements (including the 2006 MOU) between Cabeza Prieta NWR and CBP, in addition to cooperative activities such as joint operations and the deployment of remotely operated sensors. However, communications equipment was not mentioned or evaluated in the CCP.

### **AVAILABILITY OF RESOURCES**

Authorizing the installation and maintenance of up to three LMR TacCom sites will require some expenditure of Cabeza Prieta NWR resources, including personnel and funding. CBP will be responsible for the planning, installation, and maintenance of all improvements related to the project, but there will be costs associated with the long-term coordination, monitoring, and evaluation of the project in combination with other DHS activities. Cabeza Prieta NWR resources are extremely limited, and when staff time is utilized coordinating with DHS on border-related issues, the annual goals and objectives necessary to successfully manage the Cabeza Prieta NWR are affected. However, the administration and management of the proposed LMR TacCom sites can be accomplished within existing financial and personnel resources available to the Cabeza Prieta NWR. The improved safety conditions for Refuge staff by having more reliable and improved radio communications coverage is a significant and important benefit to the Refuge.

### **ANTICIPATED IMPACT OF THE PROJECT**

Section 4(c) of the Wilderness Act of 1964 generally prohibits the placement of any type of permanent infrastructure in wilderness, except as necessary to meet minimum requirements for the administration of the area for the purpose of the Wilderness Act. Furthermore, we generally view the development of any infrastructure considered non-beneficial to wildlife as an impact to wildlife or their habitats.

#### **Wilderness Characteristics**

The TacCom equipment is considered a temporary structure. It is not permanently anchored into a footing or foundation. Two of the proposed TacCom sites (Buck Peak and Granite Mountain) are located in areas with existing communications equipment. Only the Christmas Pass site would be on a previously undisturbed site. A total of 7,855 square feet (0.18 acre) would be impacted by the installation, operation, and maintenance of LMR equipment at the three proposed sites.

Installation and maintenance would require the use of a helicopter. Using a helicopter (i.e., motorized transport) within a wilderness area would impact wilderness character within the Cabeza Prieta Wilderness. Helicopter lifts would be limited to 60 lifts (30 round trips [16 trips for Buck Peak, seven trips for Granite Mountain, and seven trips for Christmas Pass]) for surveys (i.e., biological, geotechnical) and equipment installation and replacement. An additional four lifts (two round trips) per year per site are anticipated for scheduled maintenance. Installation and maintenance of the radio repeater equipment is consistent with the administrative exception that allows activities that meet minimum requirements for the administration of designated wilderness.

The vertical profile of the equipment is less than 20 feet above the ground surface (see Photograph 1). Therefore, the TacCom equipment would not be visible to most visitors due to low height profiles and mountaintop locations; however, the proposed equipment is man-made and would detract from the natural values of designated wilderness within the immediate vicinity of the mountaintop. Thus, installation, operation, and maintenance of the proposed radio repeater equipment at three mountaintop locations in the Cabeza Prieta Wilderness would have a long-term, moderate adverse effect on the view shed and natural values of designated wilderness.

Noise emissions associated with the TacCom equipment installation and maintenance could indirectly affect the quality of Cabeza Prieta Wilderness, which is valued for its solitude and quietness. Helicopter lifts and flights would produce noise emissions that would adversely affect the quality of designated wilderness. The Federal Highway Administration has established a construction noise abatement criterion of 57 dBA for lands where serenity and quiet are of extraordinary significance (23 Code of Federal Regulations 722, Table 1). A total of 5,122 acres during approach and 3,420 acres during takeoffs would be temporarily affected by noise levels above 57 dBA during TacCom equipment installation and maintenance. Noise emissions during installation activities would have a temporary, moderate effect on the quality of designated wilderness. There would be no noise emissions expected from the TacCom equipment during operation.

### **Federally Protected Species**

CBP provided a Biological Assessment to the Arizona Ecological Services Field Office (AZESFO) on November 5, 2012, as part of the formal consultation process pursuant to Section 7 of the Endangered Species Act of 1973. The AZESFO provided a final biological opinion (BO) on April 23, 2013. The BO addresses best management practices to reduce the likelihood of potential impacts on federally listed species associated with the project. AZESFO determined that the project as proposed would not jeopardize the continued existence of Sonoran pronghorn or lesser long-nosed bats (*Leptonycteris curasoae yerbabuena*). In order to reduce the likelihood of impacts on Sonoran pronghorn, CBP has agreed to access the sites from the west, avoid direct flyovers of Copper Mountain, and avoid installation and maintenance activities to the greatest extent practicable during the Sonoran pronghorn fawning season.

CBP concluded that the installation, operation, and maintenance of TacCom equipment at the Granite Mountain site would potentially affect the Sonoran pronghorn due to increased helicopter traffic through habitat corridors and helicopter travel routes across landscapes known to contain Sonoran pronghorn and Sonoran pronghorn foraging grounds. It is currently estimated that up to seven (7) roundtrip helicopter flights would be necessary for installation of the equipment at Granite Mountain with an additional two (2) trips annually for necessary maintenance. This air traffic may affect, and is likely to adversely affect, the Sonoran pronghorn. Helicopter access to this site would be from the west, with flight paths over less favorable habitat. Sonoran pronghorn would only be affected by the noise emissions of the helicopter flights during installation (a maximum of seven days) and maintenance (2 days per year) if the animals are within 2 miles of the Granite Mountain TacCom sites or the helicopter flight routes. Thus, potential impacts on Sonoran pronghorn would be short-term and minor. Flights to and from Buck Peak and Christmas Pass will be via the west boundary of the refuge. This is outside Sonoran pronghorn range and thus will not impact the pronghorn. The Buck Peak and Christmas Pass sites are too far west of Sonoran pronghorn habitat to be of concern.

The potential loss of agave plants during installation of communications and support equipment would occur at Buck Peak. The impacts on agave would be limited to less than 24 individual agave plants. Loss

of agave would be long-term and negligible, and may affect, but would not likely adversely affect, lesser long-nosed bat populations.

The TacCom LMR Modernization Project may affect, but would not likely adversely affect, Sonoran desert tortoise (*Xerobates agassizii*) populations at the Buck Peak, Christmas Pass, and Granite Mountain sites. Noise emissions from helicopter access would be minimal due to the altitude of flight over appropriate habitat. Installation and biannual maintenance could be scheduled during winter or midsummer while the tortoises are dormant to further avoid or minimize impacts.

### **Indirect Impacts**

The TacCom LMR Modernization Project would result in indirect beneficial effects on designated wilderness, wildlife habitat, vegetation, and protected species as a result of eventually reducing cross-border traffic and focusing law enforcement activities in the project area. It is believed that this project would result in more efficient and affective Border Patrol operations and thus result in reduced illegal traffic across the refuge and wilderness in the long-term. The proposed project would enhance CBP's communications capabilities and increase interdiction efficiency. Long-term beneficial effects would include reduced vehicle traffic within designated wilderness, reduced degradation of the landscape, and reduced litter and human waste, which degrade wilderness qualities throughout the Cabeza Prieta Wilderness. The proposed project would also increase the overall safety of the public, Cabeza Prieta NWR staff, and USBP agents. The Proposed Action would have a long-term, beneficial effect in the Cabeza Prieta Wilderness as a result of increasing public safety, allowing the opportunity for increased wilderness access, and reducing adverse impacts from illegal cross-border traffic and consequent law enforcement actions on the landscape and natural resources that characterize designated wilderness.

### **Cumulative Impacts**

Installation and maintenance of radio repeater equipment is consistent with the administrative exception that allows activities that meet minimum requirements for the administration of designated wilderness. However, in addition to the TacCom LMR Modernization Project, several offices within CBP have contacted Cabeza Prieta NWR regarding potential infrastructure and development projects within the refuge. These projects include: repair and maintenance along sections of El Camino del Diablo and Christmas Pass Road, the construction of an all-weather road along El Camino del Diablo at Los Playas and San Cristobal Wash, vehicle routes on administrative trails through wilderness; and the construction of multiple integrated fixed remote video surveillance towers throughout the refuge. Many of these projects have been discussed with USFWS personnel over the last few years. With the completion of the tactical infrastructure project along the United States/Mexico border, CBP is beginning to examine other strategic needs.

Most of the projects will affect Sonoran pronghorn, wilderness, sensitive cultural resources, and other Cabeza Prieta NWR resources. ( Some of these projects such as an all-weather road over the Los Playas could actually have a benefit to cultural resources as it would keep vehicular traffic on one road instead of spreading laterally as now occurs.) Furthermore, the cumulative effects of these projects will have major negative effects on these resources and potentially alter the character and feel of Cabeza Prieta NWR. Over the last decade, there has been a proliferation of off-road travel within the Cabeza Prieta Wilderness. CBP has plans for additional integrated fixed remote video surveillance towers located on Cabeza Prieta NWR. The planning for this proposal has been postponed, but it is expected that if the current immigration bill passed by the Senate is ultimately adopted, this project will implemented within a few years. There has been little coordination between various CBP offices on how these proposed actions complement or compete with each other. If these actions are proposed, it is essential for CBP to begin close coordination with Cabeza Prieta NWR to discuss the merit of each proposal, and whether measures

can be developed to avoid or minimize impacts so as to avoid significant cumulative adverse effects on Cabeza Prieta NWR trust resources.

## **CONCLUSION**

Since Cabeza Prieta NWR shares 56 miles of International border with Mexico and has experienced substantial, widespread degradation of trust resources from illegal smuggling activities and subsequent interdiction efforts, I must consider both the long- and short-term effects of this proposal. Through the EA and Biological Assessment, CBP has tried to predict both the potentially adverse and beneficial effects from the installation, maintenance, and operation of the TacCom LMR Modernization Project. CBP concludes within the EA that the project will result in increased USBP communications efficiency, which is expected to improve apprehensions of individuals illegally entering and/or illegally smuggling contraband into the United States and thus deter illegal smuggling activities from occurring within the Cabeza Prieta NWR. If this occurs, the need for CBP to conduct off-road interdiction efforts may substantially decrease, thus protecting wilderness character, Sonoran pronghorn, and other trust resources. The USFWS concurs with this determination.

The charge of this document is for the Cabeza Prieta NWR to analyze the request by CBP to install LMR repeater equipment and determine if the equipment will materially interfere with or detract from the fulfillment of the mission of the National Wildlife Refuge System or the purposes of the Cabeza Prieta NWR. A Compatibility Determination is made by the Refuge Manager using sound professional judgment. Namely a decision must be consistent with the principles of sound fish and wildlife management and administration, as well as available science and resources, and adhere to the requirements of applicable laws and USFWS policies. Considered as part of this finding, determination, or decision is a Refuge Manager's field experience and knowledge of the particular refuge resources.

The installation, operation, and maintenance of the TacCom LMR equipment will have a direct adverse effect on wilderness character within the Cabeza Prieta NWR. However, this adverse effect is minimized by the improved communications efficiency and potential for increased apprehension and deterrence of illegal activities near the United States/Mexico border, a decrease in the amount of off-road damage, improved security and communications capabilities for the Cabeza Prieta NWR staff, volunteers, and visitors, and the ability to begin implementing restoration projects. Given these anticipated benefits, the placement of the TacCom LMR equipment will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System Mission or the purposes for which the Cabeza Prieta NWR was established, including the Arizona Desert Wilderness Act of 1991.

Information found in the project's EA, Finding of No Significant Impact, and the final BO is incorporated by reference. The reader should refer to these documents for a more detailed understanding of the project and its implications and effects on the environment. CBP is also required to implement the conservation measures contained in the BO.

## **PUBLIC REVIEW AND COMMENT**

The National Wildlife Refuge System Improvement Act of 1997 requires the Refuge Manager to provide an opportunity for public review and comment for all compatibility determinations. The purpose of the review is to offer the public the opportunity to provide relevant information regarding the compatibility of the proposed use. The Refuge Manager must consider all information provided during the public review and comment period. The Refuge Manager is not

required to respond but will use all information available to make the most informed decision possible.

Public review and comment was solicited for this compatibility determination for a 15-day period beginning July 29, 2013 and ending August 12, 2013. The availability of the compatibility determination was announced through a public notice in the *Ajo Copper News* and public notices posted in the Ajo Post Office and Public Library.

### **DETERMINATION**

Use is Not Compatible  
 Use is Compatible with the Following Stipulations

### **STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY**

For successful implementation of the TacCom LMR Modernization project on the Cabeza Prieta NWR and for consistency with the March 2006 MOU between DHS, DOI, and U.S. Department of Agriculture, CBP and their contractors must cooperate closely with the Cabeza Prieta NWR to implement measures to minimize and/or eliminate the adverse environmental impacts their activities have had and will have on the Cabeza Prieta NWR. CBP must be held accountable for their activities and commit to cooperate with the Cabeza Prieta NWR to avoid future and reverse existing adverse environmental impacts. Additional natural resource impacts associated with the construction, operation, and maintenance of tactical infrastructure and overall CBP operations will be addressed through subsequent written agreements between CBP and the Cabeza Prieta NWR. The installation of the TacCom LMR equipment is approved if CBP agrees to the stipulations below:

#### **Stipulation 1:**

CBP and CPNWR will closely evaluate the effectiveness of the Buck Peak and Granite Mountain TACCOM sites to determine whether the communications coverage gap is significantly and sufficiently reduced or not to determine if the Christmas Pass project is needed.

#### **Stipulation 2:**

CBP will coordinate with Cabeza Prieta NWR to develop and implement a Decommissioning and Restoration Plan if these TACCOM sites are no longer needed. This plan must include both site cleanup and habitat restoration.

#### **Stipulation 3:**

CBP will maintain Refuge equipment collocated on their systems covered under this document concurrent with maintenance of their equipment. CBP and Cabeza Prieta NWR will develop a Memorandum of Understanding outlining the terms and conditions of the equipment maintenance, including each party's requirements and responsibilities.

#### **Stipulation 4:**

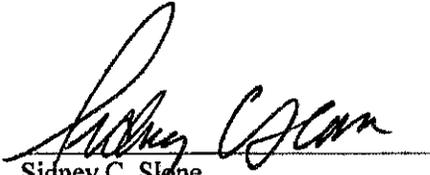
The SUP for the construction of the TacCom LMR equipment will be replaced by a ROW permit issued by the USFWS once the installation is completed. Should USFWS find CBP out of compliance and unable to satisfy the Refuge Manager's direction for meeting the conditions of the SUP, USFWS shall issue a notice in writing to CBP of the intent to immediately terminate the SUP until such time as CBP is in compliance. In case of such a notice, CBP and the Refuge will expeditiously work together to seek resolution of outstanding permit conditions.

**Stipulation 5:**

A new compatibility determination will be made within 10 years or upon renewal of any future ROW granted, whichever comes first, unless the terms and conditions of the ROW permit specifically allow for modification to the terms and conditions, if necessary to ensure compatibility.

**National Environmental Policy Act (NEPA) Compliance**

CBP completed a Draft Environmental Assessment, Finding of No Significant Impact, and a wilderness Minimum Requirements Decision Guide for this project on May 31, 2013. The Service will complete a Finding of No Significant Impact after review and analysis of public comments on this document and the Draft EA prior to authorizing this project. The CBP document can be found on the internet at <http://cbp.gov/xp/cgov/about/ec/>.



Sidney C. Stone  
Refuge Manager  
Cabeza Prieta NWR

Aug. 19, 2013  
Date

**CONCURED**



Aaron Archibeque  
Refuge Supervisor  
Southwest Region

9/5/13  
Date

**APPENDIX C**  
**FEDERAL AND STATE PROTECTED SPECIES LISTS**





U.S. Fish & Wildlife Service

## Endangered Species List

[← Back to Start](#)

### List of species by county for Arizona:

Counties Selected: Pima

Select one or more counties from the following list to view a county list:

Apache  
Cochise  
Coconino  
Gila  
Graham

[View County List](#)

### Pima County

<a href="#">Common Name</a>	<a href="#">Scientific Name</a>	<a href="#">Species Group</a>	<a href="#">Listing Status</a>	<a href="#">Species Image</a>	<a href="#">Species Distribution Map</a>	<a href="#">Critical Habitat</a>	<a href="#">More Info</a>
Acuna Cactus	<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	Flowering Plants	C				<a href="#">P</a>
California least tern	<i>Sterna antillarum browni</i>	Birds	E	No Image			<a href="#">P</a>
Chiricahua leopard frog	<i>Rana chiricahuensis</i>	Amphibians	T				<a href="#">P</a>
desert pupfish	<i>Cyprinodon macularius</i>	Fishes	E			<a href="#">Final</a>	<a href="#">P</a>
Gila chub	<i>Gila intermedia</i>	Fishes	E			<a href="#">Final</a>	<a href="#">P</a>
Gila topminnow (incl. Yaqui)	<i>Poeciliopsis occidentalis</i>	Fishes	E				<a href="#">P</a>
Huachuca water-umbel	<i>Lilaeopsis schaffneriana</i> var. <i>recurva</i>	Flowering Plants	E				<a href="#">P</a>
jaguar	<i>Panthera onca</i>	Mammals	E				<a href="#">P</a>
Kearney's blue-star	<i>Amsonia kearneyana</i>	Flowering Plants	E				<a href="#">P</a>
lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	Mammals	E				<a href="#">P</a>
masked bobwhite (quail)	<i>Colinus virginianus ridgwayi</i>	Birds	E				<a href="#">P</a>
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Birds	T			<a href="#">Final</a>	<a href="#">P</a>
Nichol's Turk's head cactus	<i>Echinocactus horizonthalonius</i> var. <i>nicholii</i>	Flowering Plants	E				<a href="#">P</a>
Northern Mexican	<i>Thamnophis eques megalops</i>	Reptiles	C	No Image			<a href="#">P</a>

gartersnake							
ocelot	<i>Leopardus (=Felis) pardalis</i>	Mammals	E				
Pima pineapple cactus	<i>Coryphantha scheeri var. robustispina</i>	Flowering Plants	E				
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	Mammals	E				
Sonoyta mud turtle	<i>Kinosternon sonoriense longifemorale</i>	Reptiles	C				
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Birds	E			<a href="#">Final</a>	
yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Birds	C				

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Navajo	PLANT	<i>Pediocactus peblesianus</i> var. <i>peblesianus</i>	Pebbles Navajo Cactus	PDCAC0E053	LE					HS	G1G2T1	S1
Navajo	PLANT	<i>Penstemon nudiflorus</i>	Flagstaff Beardtongue	PDSRIL4A0		S	S				G2G3	S2S3
Navajo	PLANT	<i>Platanthera zothecina</i>	Alcove Bog-orchid	PMORC1Y130	SC	S	S	3			G2	S2
Navajo	REPTILE	<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake	ARADB36061	C	S	S		A	WSC	G5T5	S1
Navajo	REPTILE	<i>Thamnophis rufipunctatus</i>	Narrow-headed Gartersnake	ARADB36110	SC	S	S			WSC	G3G4	S1
Pima	AMPHIBIAN	<i>Craugastor augusti cactorum</i>	Western Barking Frog	AAAABD04171		S	S			WSC	G5T5	S2
Pima	AMPHIBIAN	<i>Gastrothryne olivacea</i>	Western Narrow-mouthed Toad	AAAABE01020		S	S		PR	WSC	G5	S3
Pima	AMPHIBIAN	<i>Rana chiricahuensis</i>	Chiricahua Leopard Frog	AAAABH01080	LT				A	WSC	G3	S2
Pima	AMPHIBIAN	<i>Rana yavapaiensis</i>	Lowland Leopard Frog	AAAABH01250	SC	S	S		PR	WSC	G4	S3
Pima	AMPHIBIAN	<i>Smilisca fodiens</i>	Lowland Burrowing Treefrog	AAAABC06010		S				WSC	G4	S2
Pima	BIRD	<i>Accipiter gentilis</i>	Northern Goshawk	ABNKC12060	SC	S	S	4	A	WSC	G5	S3B
Pima	BIRD	<i>Ammodramus bairdii</i>	Baird's Sparrow	ABPBXA0010	SC	S	S			WSC	G4	S2N
Pima	BIRD	<i>Ammodramus savannarum ammolegus</i>	Arizona grasshopper sparrow	ABPBXA0021		S					G5TU	S2
Pima	BIRD	<i>Athene cucularia hypugaea</i>	Western Burrowing Owl	ABNSB10012	SC	S	S	4	A		G4T4	S3
Pima	BIRD	<i>Buteo albonotatus</i>	Zone-tailed Hawk	ABNKC19090		S					G4	S4
Pima	BIRD	<i>Buteo nitidus maxima</i>	Northern Gray Hawk	ABNKC19011	SC	S	S		PR	WSC	G5T4Q	S3
Pima	BIRD	<i>Buteo swainsoni</i>	Swainson's Hawk	ABNKC19070		S	S				G5	S3
Pima	BIRD	<i>Buteogallus anthracinus</i>	Common Black-Hawk	ABNKC15010		S	S		A	WSC	G4G5	S3
Pima	BIRD	<i>Camptostoma imberbe</i>	Northern Beardless-Tyrannulet	ABPAE04010		S					G5	S4
Pima	BIRD	<i>Caprimulgus ridgwayi</i>	Buff-collared Nightjar	ABNTA07060		S					G5	S2S3
Pima	BIRD	<i>Caracara cheriway</i>	Crested Caracara	ABNKD02020	No Status					WSC	G5	S1S2
Pima	BIRD	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo (Western U.S. DPS)	ABNRB02020	C	S	S	2		WSC	G5	S3
Pima	BIRD	<i>Colinus virginianus ridgwayi</i>	Masked Bobwhite	ABNLC21022	LE				P	WSC	G5T1	S1
Pima	BIRD	<i>Dendrocygna autumnalis</i>	Black-bellied Whistling-Duck	ABNJB01040						WSC	G5	S3
Pima	BIRD	<i>Dendrocygna bicolor</i>	Fulvous Whistling-Duck	ABNJB01010	SC						G5	SAN
Pima	BIRD	<i>Empidonax fulvifrons pygmaeus</i>	Northern Buff-breasted Flycatcher	ABPAE33141	SC	S				WSC	G5T5	S1
Pima	BIRD	<i>Empidonax trailii extimus</i>	Southwestern Willow Flycatcher	ABPAE33043	LE			2		WSC	G5T1T2	S1
Pima	BIRD	<i>Falco peregrinus anatum</i>	American Peregrine Falcon	ABNKD06071	SC	S	S	4	A	WSC	G4T4	S4
Pima	BIRD	<i>Glaucidium brasilianum cactorum</i>	Cactus Ferruginous Pygmy-owl	ABNSB08041	SC	S	S		A	WSC	G5T3	S1

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Pima	BIRD	<i>Pachyrhamphus aglaiae</i>	Rose-throated Becard	ABPAE53070			S			WSC	G4G5	S1
Pima	BIRD	<i>Pandion haliaetus</i>	Osprey	ABNKC01010		S				WSC	G5	S2B,S4N
Pima	BIRD	<i>Polioptila nigriceps</i>	Black-capped Gnatcatcher	ABPBJ08040						WSC	G5	S1
Pima	BIRD	<i>Rallus longirostris yumanensis</i>	Yuma Clapper Rail	ABNME0501A	LE			P		WSC	G5T3	S3
Pima	BIRD	<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	ABNSB12012	LT		3	A		WSC	G3T3	S3S4
Pima	BIRD	<i>Trogon elegans</i>	Elegant Trogon	ABNWA02070						WSC	G5	S3
Pima	BIRD	<i>Tyrannus crassirostris</i>	Thick-billed Kingbird	ABPAE52040		S	S			WSC	G5	S2
Pima	BIRD	<i>Tyrannus melancholicus</i>	Tropical Kingbird	ABPAE52010						WSC	G5	S3
Pima	FISH	<i>Agosia chrysogaster chrysogaster</i>	Gila Longfin Dace	AFCJB37151	SC	S	S	A			G4T3T4	S3S4
Pima	FISH	<i>Catostomus clarkii</i>	Desert Sucker	AFCJC02040	SC	S	S				G3G4	S3S4
Pima	FISH	<i>Cyprinodon eremus</i>	Quitobaquito Pupfish	AFCNB02140	LE					WSC	G1	S1
Pima	FISH	<i>Cyprinodon macularius</i>	Desert Pupfish	AFCNB02060	LE			P		WSC	G1	S1
Pima	FISH	<i>Gila intermedia</i>	Gila Chub	AFCJB13160	LE			P		WSC	G2	S2
Pima	FISH	<i>Poeciliopsis occidentalis occidentalis</i>	Gila Topminnow	AFCNC05021	LE			A		WSC	G3T3	S1S2
Pima	INVERTEBRATE	<i>Argia sabino</i>	Sabino Canyon Dancer	IIDO068100	SC		S				G1G2	S2
Pima	INVERTEBRATE	<i>Sonorella eremita</i>	San Xavier Talussnail	IMGASC9240	SC						G1	S1
Pima	INVERTEBRATE	<i>Sonorella rosemontensis</i>	Rosemont Talussnail	IMGASC9520	C						G3	S1
Pima	INVERTEBRATE	<i>Tryonia quitobaquatae</i>	Quitobaquito Tryonia	IMGASI7130	SC						G1	S1
Pima	MAMMAL	<i>Antilocapra americana sonoriensis</i>	Sonoran Pronghorn	AMALD01012	LE			P		WSC	G5T1	S1
Pima	MAMMAL	<i>Baiomys taylori</i>	Northern Pygmy Mouse	AMAFF05010			S				G4G5	S3
Pima	MAMMAL	<i>Choeronycteris mexicana</i>	Mexican Long-tongued Bat	AMACB02010	SC	S	S	A		WSC	G4	S3
Pima	MAMMAL	<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's Big-eared Bat	AMACC08014	SC	S	S	4			G4T4	S3S4
Pima	MAMMAL	<i>Cynomys ludovicianus</i>	Black-tailed Prairie Dog	AMAFB06010	SC	S	S	A		WSC	G4	SXS1
Pima	MAMMAL	<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat	AMACD02011	SC	S	S				G5T4	S3
Pima	MAMMAL	<i>Eumops underwoodi</i>	Underwood's Bonneted Bat	AMACD02020	SC						G4	S1
Pima	MAMMAL	<i>Lasturus blossevillii</i>	Western Red Bat	AMACC05060		S	S			WSC	G5	S3
Pima	MAMMAL	<i>Lasturus xanthinus</i>	Western Yellow Bat	AMACC05070		S	S			WSC	G5	S2S3
Pima	MAMMAL	<i>Leptonycteris curasoae yerbabuena</i>	Lesser Long-nosed Bat	AMACB03030	LE					WSC	G4	S2S3
Pima	MAMMAL	<i>Macrotus californicus</i>	California Leaf-nosed Bat	AMACB01010	SC	S	S			WSC	G4	S3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Pima	MAMMAL	<i>Myotis occultus</i>	Arizona Myotis	AMACC01160	SC						G3G4	S3
Pima	MAMMAL	<i>Myotis thysanodes</i>	Fringed Myotis	AMACC01090	SC						G4G5	S3S4
Pima	MAMMAL	<i>Myotis velifer</i>	Cave Myotis	AMACC01050	SC						G5	S3S4
Pima	MAMMAL	<i>Notiosorex cockrumi</i>	Cockrum's Desert Shrew	AMABA05020		S	S				GNR	S1
Pima	MAMMAL	<i>Nyctinomops femorosaccus</i>	Pocketed Free-tailed Bat	AMACD04010		S	S				G4	S3
Pima	MAMMAL	<i>Nyctinomops macrotis</i>	Big Free-tailed Bat	AMACD04020	SC						G5	S3
Pima	MAMMAL	<i>Panthera onca</i>	Jaguar	AMAJH02010	LE			P	WSC		G3	S1
Pima	MAMMAL	<i>Peromyscus merriami</i>	Merriam's Mouse	AMAFF03020		S	S				G5	S2
Pima	MAMMAL	<i>Reithrodontomys fulvescens</i>	Fulvous Harvest Mouse	AMAFF02050		S	S				G5	S4
Pima	MAMMAL	<i>Reithrodontomys montanus</i>	Plains Harvest Mouse	AMAFF02010		S	S				G5	S3
Pima	MAMMAL	<i>Sciurus arizonensis</i>	Arizona Gray Squirrel	AMAFB07060		S	S	A			G4	S4
Pima	MAMMAL	<i>Sigmodon ochrognathus</i>	Yellow-nosed Cotton Rat	AMAFF07040	SC	S	S				G4G5	S4
Pima	PLANT	<i>Abutilon parishii</i>	Pima Indian Mallow	PDMAL020E0	SC	S	S		SR		G2	S2
Pima	PLANT	<i>Abutilon thurberi</i>	Thurber Indian Mallow	PDMAL020P0					SR		G2?	S1
Pima	PLANT	<i>Agave parviflora ssp. parviflora</i>	Santa Cruz Striped Agave	PMAGA010L2	SC	S	S	A	HS		G3T3	S3
Pima	PLANT	<i>Agave schottii var. treleasei</i>	Trelease Agave	PMAGA010N2	SC	S	S		HS		G5T1Q	S1
Pima	PLANT	<i>Allium gooddingii</i>	Goodding Onion	PMLIL02120	SC	S	S	3	HS		G4	S3S4
Pima	PLANT	<i>Allium plummerae</i>	Plummer Onion	PMLIL021V0					SR		G4	S3
Pima	PLANT	<i>Amoreuxia gonzalezii</i>	Saiya	PDBIX01010	SC	S	S		HS		G1	S1
Pima	PLANT	<i>Amsonia grandiflora</i>	Large-flowered Blue Star	PDAP003060	SC	S	S				G2	S2
Pima	PLANT	<i>Amsonia kearneyana</i>	Kearney's Blue-star	PDAP0030M0	LE				HS		G1	S1
Pima	PLANT	<i>Arabis tricornuta</i>	Chiricahua Rock Cress	PDBRA06200		S	S				G1?	S1?
Pima	PLANT	<i>Asclepias lemmonii</i>	Lemmon Milkweed	PDASC020Z0		S	S				G4?	S2
Pima	PLANT	<i>Asplenium dalhousiae</i>	Dalhousie Spleenwort	PPASP020A0		S	S				GNR	S1
Pima	PLANT	<i>Berberis harrisoniana</i>	Kofa Mt. Barberry	PDBER02030		S	S				G1G2	S1S2
Pima	PLANT	<i>Capsicum annuum var. glabrusculum</i>	Chiltepin	PDSOL06012		S	S				G5T5	S2
Pima	PLANT	<i>Carex chihuahuensis</i>	Chihuahuan Sedge	PMCYP032T0		S	S				G3G4	S2S3
Pima	PLANT	<i>Carex ultra</i>	Arizona Giant Sedge	PMCYP03E50		S	S				G3?	S2
Pima	PLANT	<i>Coryphantha scheeri var. robustispina</i>	Pima Pineapple Cactus	PDCAC040C1	LE				HS		G4T2	S2

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Pima	PLANT	<i>Cylindropuntia x kelvinensis</i>	Kelvin Cholla	PDCAC0D2M0						SR	GNA	SHYB
Pima	PLANT	<i>Dalea tentaculoides</i>	Gentry Indigo Bush	PDFAB1A1K0	SC	S	S			HS	G1	S1
Pima	PLANT	<i>Echinocactus horizonthalonius</i> var. <i>nicholii</i>	Nichol Turk's Head Cactus	PDCAC05022	LE					HS	G4T2	S2
Pima	PLANT	<i>Echinocereus fasciculatus</i>	Magenta-flower Hedgehog-cactus	PDCAC06065						SR	G4G5T4T5	S3
Pima	PLANT	<i>Echinomastus erectocentrus</i> var. <i>acuenis</i>	Acuna Cactus	PDCAC010E1	C			P		HS	G3T1T2Q	S1
Pima	PLANT	<i>Echinomastus erectocentrus</i> var. <i>erectocentrus</i>	Needle-spined Pineapple Cactus	PDCAC010E2	SC					SR	G3T3Q	S3
Pima	PLANT	<i>Eriogonum arisolius</i>	Arid Throne Fleabane	PDAST3M510		S					G2	S2
Pima	PLANT	<i>Eriogonum capillare</i>	San Carlos Wild-buckwheat	PDPGN08100	SC					SR	G4	S4
Pima	PLANT	<i>Eriogonum ericifolium</i> var. <i>ericifolium</i>	Heathleaf Wild-buckwheat	PDPGN08231		S					G3T2	S2
Pima	PLANT	<i>Eriogonum terrenatum</i>	San Pedro River Wild Buckwheat	PDPGN08760		S					G1	S1
Pima	PLANT	<i>Ferocactus cylindraceus</i>	Desert Barrel Cactus	PDCAC08080				PR		SR	G5	S4
Pima	PLANT	<i>Ferocactus emoryi</i>	Emory's Barrel-cactus	PDCAC08090						SR	G4	S1S2
Pima	PLANT	<i>Graptopetalum bartramii</i>	Bartram Stonecrop	PDCRA06010	SC	S	S			SR	G3	S3
Pima	PLANT	<i>Heterotheca rutteri</i>	Huachuca Golden Aster	PDAST4V010	SC	S	S				G2	S2
Pima	PLANT	<i>Hexalectris revoluta</i>	Chisos Coral-root	PMORC1C030		S					G1G2	S1
Pima	PLANT	<i>Hexalectris spicata</i>	Crested Coralroot	PMORC1C040						SR	G5	S3S4
Pima	PLANT	<i>Hieracium pringlei</i>	Pringle Hawkweed	PDAST4W170	SC						G2Q	S1
Pima	PLANT	<i>Lilacopsis schaffneriana</i> var. <i>recurva</i>	Huachuca Water-umbel	PDAP119051	LE					HS	G4T2	S2
Pima	PLANT	<i>Lilium parryi</i>	Lemmon Lily	PMLJL1A010	SC		S			SR	G3	S2
Pima	PLANT	<i>Listera convallarioides</i>	Broadleaf Twayblade	PMORC1N050						SR	G5	S1
Pima	PLANT	<i>Lophocereus schottii</i>	Senita	PDCAC14010						SR	G4	S1S2
Pima	PLANT	<i>Lupinus huachucanus</i>	Huachuca Mountain Lupine	PDFAB2B210		S					G2	S2
Pima	PLANT	<i>Lysiloma watsonii</i>	Littleleaf False Tamarind	PDFAB2C040						SR	G4?	S1
Pima	PLANT	<i>Malaxis tenuis</i>	Slender Adders Mouth	PMORC1R090						SR	G4	S1
Pima	PLANT	<i>Mammillaria mainiae</i>	Counter Clockwise Fishhook Cactus	PDCAC0A060		S				SR	G3	S1
Pima	PLANT	<i>Mammillaria thomberi</i>	Thornber Fishhook Cactus	PDCAC0A0C0						SR	G4	S4
Pima	PLANT	<i>Mammillaria viridiflora</i>	Varied Fishhook Cactus	PDCAC0A0D0						SR	G4	S4
Pima	PLANT	<i>Manihot davisiae</i>	Arizona Manihot	PDEUP0Z010		S					G4	S2
Pima	PLANT	<i>Metastelma mexicanum</i>	Wiggins Milkweed Vine	PDASC050P0	SC		S				G3G4	S1S2

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Pima	PLANT	Muhlenbergia dubiooides	Box Canyon Muhly	PMPOA480G0			S				G1Q	S1
Pima	PLANT	Muhlenbergia xerophila	Weeping Muhly	PMPOA48220			S				G3	S1
Pima	PLANT	Notholaena lemmonii	Lemmon Cloak Fern	PPADI0G0D0	SC						G3?	S1S2
Pima	PLANT	Opuntia engelmannii var. flavispina		PDCAC0D224					SR		G5T3?	S3?
Pima	PLANT	Opuntia versicolor	Stag-horn Cholla	PDCAC0DIK0					SR		G4	S2S3
Pima	PLANT	Passiflora arizonica	Arizona Passionflower	PDPAS01073			S				G5T3T5	S2
Pima	PLANT	Pectis imberbis	Beardless Chinch Weed	PDAST6W0A0	SC		S				G3	S1
Pima	PLANT	Peniocereus greggii var. transmontanus	Desert Night-blooming Cereus	PDCAC0V012				PR			G3G4T3T4	S3S4
Pima	PLANT	Peniocereus striatus	Dahlia Rooted Cereus	PDCAC0V020					SR		G4	S1
Pima	PLANT	Penstemon discolor	Catalina Beardtongue	PDSCTRL210			S		HS		G2	S2
Pima	PLANT	Perityle ajoensis	Ajo Rock Daisy	PDAST700Y0					SR		G1	S1
Pima	PLANT	Physalis latiphylla	Broad-leaf Ground-cherry	PDSOLOS0H0			S				G1	S1
Pima	PLANT	Platanthera limosa	Thurber's Bog Orchid	PMORC1Y0G0					SR		G4	S4
Pima	PLANT	Psilotum nudum	Whisk Fern	PPPSI01020			S		HS		G5	S1
Pima	PLANT	Samolus vagans	Chiricahua Mountain Brookweed	PDPRI09040			S				G2?	S2
Pima	PLANT	Schiedeella arizonica	Fallen Ladies'-tresses	PMORC67020					SR		GNR	S4
Pima	PLANT	Senecio neomexicanus var. toumeyi	Toumey Groundsel	PDAST8H274			S				G5T2Q	S2
Pima	PLANT	Sisyrinchium cernuum	Nodding Blue-eyed Grass	PMIRI0D0B0			S				G5	S2
Pima	PLANT	Stenocereus thurberi	Organ Pipe Cactus	PDCAC10020					SR		G5	S4
Pima	PLANT	Stevia lemmonii	Lemmon's Stevia	PDAST8V010			S				G3G4	S2
Pima	PLANT	Thelypteris pubertula var. sonorensis	Aravaipa Wood Fern	PPTHE05192			S				G5T3	S2
Pima	PLANT	Tragia laciniata	Sonoran Noseburn	PDEUPI0060			S				G3G4	S3?
Pima	PLANT	Triteleopsis palmeri	Blue Sand Lily	PMLIL22010			S		SR		G3	S1
Pima	PLANT	Tumamoca macdougallii	Tumamoc Globeberry	PDCUC0S010			S		SR		G4	S3
Pima	PLANT	Vauquelinia californica ssp. sonorensis	Arizona Sonoran Rosewood	PDROS1R024			S				G4T1	S1
Pima	PLANT	Viola umbraticola	Shade Violet	PDVIO042E0			S				G3G4	S2?
Pima	REPTILE	Aspidoscelis burri stictogrammus	Giant Spotted Whiptail	ARACJ02011	SC		S				G4T4	S2
Pima	REPTILE	Aspidoscelis xanthonota	Redback Whiptail	ARACJ02012	SC						G4T2	S2
Pima	REPTILE	Chionactis occipitalis klauberi	Tucson Shovel-nosed Snake	ARADB05012	C		S				G5T3Q	S1

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Pima	REPTILE	<i>Gopherus agassizii</i> (Sonoran Population)	Sonoran Desert Tortoise	ARAAF01013	SC	S	S	A	A	WSC	G4T4	S4
Pima	REPTILE	<i>Heloderma suspectum suspectum</i>	Reticulate Gila Monster	ARACE01012		S	S	A	A		G4T4	S4
Pima	REPTILE	<i>Kinostemon sonoriense longifemorale</i>	Sonocta Mud Turtle	ARAAE01041	C						G4T1	S1
Pima	REPTILE	<i>Lichanura trivirgata trivirgata</i>	Mexican Rosy Boa	ARADA01023	SC	S				WSC	G4G5T3	S1S2
Pima	REPTILE	<i>Oxybelis aeneus</i>	Brown Vinesnake	ARADB24010		S	S			WSC	G5	S1
Pima	REPTILE	<i>Phrynosoma cornutum</i>	Texas Horned Lizard	ARACF12010	SC			A	A		G4G5	S3S4
Pima	REPTILE	<i>Phyllorhynchus browni</i>	Saddled Leaf-nosed Snake	ARADB25010			PS	PR	PR		G5	S5
Pima	REPTILE	<i>Plestiodon callicephalus</i>	Mountain Skink	ARACH01030		S	S				G4G5	S2
Pima	REPTILE	<i>Sceloporus slevini</i>	Slevin's Bunchgrass Lizard	ARACF14180		S	S				G4	S2
Pima	REPTILE	<i>Senticolis triaspis intermedia</i>	Northern Green Ratsnake	ARADB44011		S	S				G5T4	S3
Pima	REPTILE	<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake	ARADB36061	C	S	S	A	A	WSC	G5T5	S1
Pima	REPTILE	<i>Uma rufopunctata</i>	Yuman Desert Fringe-toed Lizard	ARACF15040	SC	S	S	A	A	WSC	G3	S2
Pinal	AMPHIBIAN	<i>Gastrohyne olivacea</i>	Western Narrow-mouthed Toad	AAABE01020		S	S	PR	PR	WSC	G5	S3
Pinal	AMPHIBIAN	<i>Rana yavapaiensis</i>	Lowland Leopard Frog	AAABH01250	SC	S	S	PR	PR	WSC	G4	S3
Pinal	BIRD	<i>Ardea alba</i>	Great Egret	ABNGA04040		S				WSC	G5	S1B,S4N
Pinal	BIRD	<i>Athene cucularia hypugaea</i>	Western Burrowing Owl	ABNSB10012	SC	S	S	4	A		G4T4	S3
Pinal	BIRD	<i>Buteo albonotatus</i>	Zone-tailed Hawk	ABNKC19090		S	S				G4	S4
Pinal	BIRD	<i>Buteo nitidus maxima</i>	Northern Gray Hawk	ABNKC19011	SC	S	S	PR	PR	WSC	G5T4Q	S3
Pinal	BIRD	<i>Buteo swainsoni</i>	Swainson's Hawk	ABNKC19070		S	S				G5	S3
Pinal	BIRD	<i>Buteogallus anthracinus</i>	Common Black-Hawk	ABNKC15010		S	S	A	A	WSC	G4G5	S3
Pinal	BIRD	<i>Camptostoma imberbe</i>	Northern Beardless-Tyrannulet	ABPAE04010		S	S				G5	S4
Pinal	BIRD	<i>Caprimulgus ridgwayi</i>	Buff-collared Nightjar	ABNTA07060		S	S				G5	S2S3
Pinal	BIRD	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo (Western U.S. DPS)	ABNRB02020	C	S	S	2		WSC	G5	S3
Pinal	BIRD	<i>Dendrocygna autumnalis</i>	Black-bellied Whistling-Duck	ABNJB01040						WSC	G5	S3
Pinal	BIRD	<i>Empidonax trailii extimus</i>	Southwestern Willow Flycatcher	ABPAE33043	LE			2		WSC	G5T1T2	S1
Pinal	BIRD	<i>Falco peregrinus anatum</i>	American Peregrine Falcon	ABNKD06071	SC	S	S	4	A	WSC	G4T4	S4
Pinal	BIRD	<i>Glaucidium brasilianum cactorum</i>	Cactus Ferruginous Pygmy-owl	ABNSB08041	SC	S	S	A	A	WSC	G5T3	S1
Pinal	BIRD	<i>Haliaeetus leucocephalus</i> (wintering pop.)	Bald Eagle - Winter Population	ABNKC10015	SC	S	S	2	P	WSC	G5TNR	S4N
Pinal	BIRD	<i>Haliaeetus leucocephalus</i> pop. 3	Bald Eagle - Sonoran Desert area Population	ABNKC10014	LT,DPS	S	S	2	P	WSC	G5TNR	S2S3

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Birds	Yuma clapper rail ( <i>Rallus</i> )	U.S.A. only	Endangered	Arizona Ecological Services	Draft Revised Recovery Plan for	Draft Revision 1
Birds	American peregrine falcon		Recovery	Ventura Fish And Wildlife Office		
Birds	Brown pelican ( <i>Pelecanus</i> )	except U.S. Atlantic coast, FL,	Recovery	Ventura Fish And Wildlife Office		
Birds	Yellow-billed Cuckoo ( <i>Coccyzus</i> )	Western U.S. DPS	Candidate	Sacramento Fish And Wildlife		
Birds	Southwestern willow flycatcher		Endangered	Arizona Ecological Services	Final Recovery Plan for the	Final
Birds	Sprague's pipit ( <i>Anthus</i> )		Candidate	North Dakota Ecological		
Fishes	Gila topminnow (incl. Yaqui)	U.S.A. only	Endangered	Arizona Ecological Services	Draft Revised Recovery Plan for	Draft Revision 1
Fishes	Gila topminnow (incl. Yaqui)	U.S.A. only	Endangered	Arizona Ecological Services	Gila/Yaqui Topminnow (2 spp.)	Final
Fishes	Razorback sucker ( <i>Xyrauchen</i> )	entire	Endangered	Upper Colorado River	Razorback Sucker - Recovery	Final Revision 1
Mammals	Sonoran pronghorn ( <i>Antilocapra</i> )		Endangered	Cabeza Prieta National Wildlife	Sonoran Pronghorn	Final Revision 1
Mammals	Sonoran pronghorn ( <i>Antilocapra</i> )		Endangered	Cabeza Prieta National Wildlife	Recovery Criteria and Estimates	Final Revision 1
Mammals	Lesser long-nosed bat		Endangered	Arizona Ecological Services	Lesser Long-nosed Bat	Final
Reptiles	Desert tortoise ( <i>Gopherus</i> )	Sonoran	Candidate			

[http://ecos.fws.gov/itess\\_public/countrySearch/speciesByCountyReport.action?flps=04027](http://ecos.fws.gov/itess_public/countrySearch/speciesByCountyReport.action?flps=04027)

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Yavapai	PLANT	Hedeoma diffusa	Flagstaff False Pennyroyal	PDLAM0M0N0			S			SR	G3	S3
Yavapai	PLANT	Heuchera eastwoodiae	Eastwood Alum Root	PDSAX0E0B0			S				G3	S3
Yavapai	PLANT	Hexalectris spicata	Crested Coralroot	PMORC1C040						SR	G5	S3S4
Yavapai	PLANT	Lupinus latifolius ssp. leucanthus	Broadleaf Lupine	PDFAB2B29D			S				G5T1T2	S1
Yavapai	PLANT	Mammillaria viridiflora	Varied Fishhook Cactus	PDCAC0A0D0						SR	G4	S4
Yavapai	PLANT	Penstemon nudiflorus	Flagstaff Beardtongue	PDSRIL4A0			S				G2G3	S2S3
Yavapai	PLANT	Phlox amabilis	Arizona Phlox	PDPLM0D050			S				G2	S2
Yavapai	PLANT	Polygala rusbyi	Hualapai Milkwort	PDPGL021H0			S				G3	S3
Yavapai	PLANT	Puccinellia parishii	Parish Alkali Grass	PMPOA530T0	SC		S	4		HS	G2G3	S2
Yavapai	PLANT	Purshia subintegra	Arizona Cliff Rose	PDR0S1E080	LE					HS	GNA	S1
Yavapai	PLANT	Salvia dorrii ssp. mearnsii	Verde Valley Sage	PDLAM1S0G5	SC		S			SR	G5T3	S3
Yavapai	PLANT	Talinum validulum	Tusayan Flame Flower	PDPOR080M0	SC					SR	G3	S3
Yavapai	PLANT	Thelypteris puberula var. sonorensis	Aravaipa Wood Fern	PPTHE05192		S	S				G5T3	S2
Yavapai	PLANT	Triteleia lemmoniae	Mazatzal Triteleia	PMLJL210C0						SR	G3	S3
Yavapai	PLANT	Washingtonia filifera	California Fan Palm	PMARE0G010						SR	G4	S1
Yavapai	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	ARA AF01013	SC	S	S		A	WSC	G4T4	S4
Yavapai	REPTILE	Heloderma suspectum cinctum	Banded Gila Monster	ARACE01011	SC				A		G4T4	S4
Yavapai	REPTILE	Lichanura trivirgata gracia	Desert Rosy Boa	ARADA01021	SC	S					G4G5T3	S3S4
Yavapai	REPTILE	Plestiodon "gilberti" arizonensis	Arizona Skink	ARACH01061	SC				PR	WSC	G5T1Q	S1
Yavapai	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	ARADB36061	C		S		A	WSC	G5T5	S1
Yavapai	REPTILE	Thamnophis rufipunctatus	Narrow-headed Gartersnake	ARADB36110	SC	S	S			WSC	G3G4	S1
Yuma	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	AAABH01250	SC	S	S		PR	WSC	G4	S3
Yuma	BIRD	Ardea alba	Great Egret	ABNGA04040		S				WSC	G5	S1B,S4N
Yuma	BIRD	Athene cucularia hypugaea	Western Burrowing Owl	ABNSB10012	SC	S	S	4	A		G4T4	S3
Yuma	BIRD	Coccyzus americanus	Yellow-billed Cuckoo (Western U.S. DPS)	ABNRB02020	C		S	2		WSC	G5	S3
Yuma	BIRD	Egretta thula	Snowy Egret	ABNGA06030		S				WSC	G5	S1B,S4N
Yuma	BIRD	Empidonax trailii extimus	Southwestern Willow Flycatcher	ABPAE33043	LE			2		WSC	G5T1T2	S1
Yuma	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	ABNSB08041	SC	S	S		A	WSC	G5T3	S1
Yuma	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	ABNKC10015	SC	S	S	2	P	WSC	G5TNR	S4N

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Yuma	BIRD	<i>Ixobrychus exilis</i>	Least Bittern	ABNGA02010		S			A	WSC	G5	S3
Yuma	BIRD	<i>Lanius ludovicianus</i>	Loggerhead Shrike	ABPBR01030	SC						G4	S4
Yuma	BIRD	<i>Laterallus jamaicensis coturniculus</i>	California Black Rail	ABNME03041	SC	S			PR	WSC	G4T1	S1
Yuma	BIRD	<i>Rallus longirostris yumanensis</i>	Yuma Clapper Rail	ABNME0501A	LE				P	WSC	G5T3	S3
Yuma	FISH	<i>Xyrauchen texanus</i>	Razorback Sucker	AFCJC11010	LE			2	P	WSC	G1	S1
Yuma	MAMMAL	<i>Antilocapra americana sonoriensis</i>	Sonoran Pronghorn	AMALD01012	LE				P	WSC	G5T1	S1
Yuma	MAMMAL	<i>Corynorhinus townsendii pallascens</i>	Pale Townsend's Big-eared Bat	AMACC08014	SC	S	S	4			G4T4	S3S4
Yuma	MAMMAL	<i>Euderma maculatum</i>	Spotted Bat	AMACC07010	SC	S	S		PR	WSC	G4	S1S2
Yuma	MAMMAL	<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat	AMACD02011	SC	S	S				G5T4	S3
Yuma	MAMMAL	<i>Lasurus xanthinus</i>	Western Yellow Bat	AMACC05070		S	S			WSC	G5	S2S3
Yuma	MAMMAL	<i>Leptonycteris curasoae yerbabuena</i>	Lesser Long-nosed Bat	AMACB03030	LE					WSC	G4	S2S3
Yuma	MAMMAL	<i>Macrotus californicus</i>	California Leaf-nosed Bat	AMACB01010	SC	S	S			WSC	G4	S3
Yuma	MAMMAL	<i>Myotis yumanensis</i>	Yuma Myotis	AMACC01020	SC						G5	S3S4
Yuma	MAMMAL	<i>Nyctinomops femorosaccus</i>	Pocketed Free-tailed Bat	AMACD04010			S				G4	S3
Yuma	MAMMAL	<i>Sigmodon hispidus eremicus</i>	Yuma Hispid Cotton Rat	AMAFF07013	SC						G5T2T3	S2
Yuma	PLANT	<i>Allium parishii</i>	Parish Onion	PMLJL021N0		S				SR	G3	S1
Yuma	PLANT	<i>Berberis harrisoniana</i>	Kofa Mt Barberry	PDBER02030		S					G1G2	S1S2
Yuma	PLANT	<i>Cryptantha ganderi</i>	Gander's Cryptantha	PDBOR0A120	SC						G1G2	S1
Yuma	PLANT	<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	Clustered Barrel Cactus	PDCAC05033						SR	G3G4T3T4	S2
Yuma	PLANT	<i>Euphorbia platysperma</i>	Dune Spurge	PDEUP0D1X0	SC						G3	S1
Yuma	PLANT	<i>Ferocactus cylindraceus</i>	Desert Barrel Cactus	PDCAC08080					PR	SR	G5	S4
Yuma	PLANT	<i>Helianthus niveus</i> ssp. <i>tephrodes</i>	Dune Sunflower	PDAST4N0Z2	SC						G4T2	S2
Yuma	PLANT	<i>Lophocereus schottii</i>	Senita	PDCAC14010						SR	G4	S1S2
Yuma	PLANT	<i>Opuntia echinocarpa</i>	Straw-top Cholla	PDCAC0D2W0						SR	G5	S5
Yuma	PLANT	<i>Pholisma sonorae</i>	Sand Food	PDLNN02020	SC	S				HS	G2	S1
Yuma	PLANT	<i>Rhus keameyi</i>	Kearney Sumac	PDANA08050		S				SR	G4	S2
Yuma	PLANT	<i>Stephanomeria schottii</i>	Schott Wire Lettuce	PDAST8U0D0		S					G2	S2
Yuma	PLANT	<i>Triteleopsis palmeri</i>	Blue Sand Lily	PMLJL22010		S				SR	G3	S1
Yuma	PLANT	<i>Washingtonia filifera</i>	California Fan Palm	PMARE0G010						SR	G4	S1

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ELCODE	ESA	BLM	USFS	NESL	MEXFED	STATE	GRANK	S RANK
Yuma	REPTILE	Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	ARAAF01013	SC	S	S		A	WSC	G4T4	S4
Yuma	REPTILE	Heloderma suspectum cinctum	Banded Gila Monster	ARACE01011	SC				A		G4T4	S4
Yuma	REPTILE	Lichanura trivirgata gracia	Desert Rosy Boa	ARADA01021	SC	S					G4G5T3	S3S4
Yuma	REPTILE	Phrynosoma mcallii	Flat-tailed Horned Lizard	ARACF12040	PT	S			A	WSC	G3	S2
Yuma	REPTILE	Sauromalus ater (Arizona Population)	Arizona Chuckwalla	ARACF13013	SC	S			A		G5T4Q	S4
Yuma	REPTILE	Uma rufopunctata	Yuman Desert Fringe-toed Lizard	ARACF15040	SC	S			A	WSC	G3	S2

**APPENDIX D**  
**AIR QUALITY CALCULATIONS**



**Emissions Inventory Summary**  
(Short Tons per Year)  
Baseline - Yuma Mcas/Yuma Intl 2011

Category	CO2	CO	THC	NMHC	VOC	TOG	NOx	SOx	PM-10	PM-2.5
Aircraft	42.446	0.644	0.171	0.198	0.197	0.198	0.039	0.017	N/A	N/A
GSE	N/A	1.146	N/A	0.037	0.039	0.043	0.127	0.002	0.005	0.005
APUs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Parking Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roadways	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stationary Sources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Training Fires	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grand Total	42.446	1.790	0.171	0.236	0.236	0.241	0.166	0.019	0.005	0.005

## EDMS 5.1 Model Inputs for Yuma\_Marine\_Corp Study

---

Study Created: Tue Aug 16 15:12:31 2011  
 Report Date: Mon Sep 24 13:32:35 2012  
 Study Pathname: C:\EDMS 5.1\Yuma\_Marine\_Corp\Yuma\_Marine\_Corp.edm

---

### Study Setup

---

Unit System: English  
 Dispersion Modeling: Dispersion is not enabled for this study  
 Speciated Hydrocarbon Modeling: Speciated Hydrocarbon Modeling is not enabled for this study  
 Analysis Years: 2011

---

### Scenarios

---

Scenario Name: Baseline	Description: Aircraft Times in Mode Basis: Taxi Time Modeling: FOA3 Sulfur-to-Sulfate Conversion Rate:	Add a description. Performance-Based User-specified Taxi Times 2.400000 %
Scenario Name: Baseline (2)	Description: Aircraft Times in Mode Basis: Taxi Time Modeling: FOA3 Sulfur-to-Sulfate Conversion Rate:	Add a description. Performance-Based User-specified Taxi Times 2.400000 %

---

### Airports

---

Airport Name: Yuma Mcas/Yuma Intl  
 IATA Code: YUM  
 ICAO Code: KYUM  
 FAA Code:  
 Country: US  
 State: Arizona  
 City: Yuma  
 Airport Description: Yuma Mcas/Yuma Intl  
 Latitude: 32.657°  
 Longitude: -114.606°  
 Northing: 3615748.85  
 Easting: 724529.98  
 UTM Zone: 11  
 Elevation: 216.00 feet  
 PM Modeling Methodology: FOA3a (Sulfur-to-Sulfate Conversion Rate = 5.0%, Fuel Sulfur Content = 0.068%)

---

### Scenario-Airport: Baseline, Yuma Mcas/Yuma Intl

---

#### Weather

Baseline, Yuma Mcas/Yuma Intl

Mixing Height: 3000.00 feet

---

Temperature: 74.00 °F  
 Daily High Temperature: 84.35 °F  
 Daily Low Temperature: 63.65 °F  
 Pressure: 29.65 inches of Hg  
 Sea Level Pressure: 29.88 inches of Hg  
 Relative Humidity: 35.41  
 Wind Speed: 6.59 knots  
 Wind Direction: 0.00 °  
 Ceiling: 99999.99 feet  
 Visibility: 50.00 miles  
 The user has used annual averages.  
 Base Elevation: 216.01 feet  
 Date Range: Thursday, January 01, 2004 to Friday, December 31, 2004  
 Source Data File  
 Location:  
 Upper Air Data File  
 Location:

---

**Quarter-Hourly Operational Profiles**

Baseline, Yuma Mcas/Yuma Intl

Name: DEFAULT

Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight
12:00am to 12:14 am	1.000000	6:00am to 6:14am	1.000000	12:00pm to 12:14 pm	1.000000	6:00pm to 6:14pm	1.000000
12:15am to 12:29 am	1.000000	6:15am to 6:29am	1.000000	12:15pm to 12:29 pm	1.000000	6:15pm to 6:29pm	1.000000
12:30am to 12:44 am	1.000000	6:30am to 6:44am	1.000000	12:30pm to 12:44 pm	1.000000	6:30pm to 6:44pm	1.000000
12:45am to 12:59 am	1.000000	6:45am to 6:59am	1.000000	12:45pm to 12:59 pm	1.000000	6:45pm to 6:59pm	1.000000
1:00am to 1:14am	1.000000	7:00am to 7:14am	1.000000	1:00pm to 1:14pm	1.000000	7:00pm to 7:14pm	1.000000
1:15am to 1:29am	1.000000	7:15am to 7:29am	1.000000	1:15pm to 1:29pm	1.000000	7:15pm to 7:29pm	1.000000
1:30am to 1:44am	1.000000	7:30am to 7:44am	1.000000	1:30pm to 1:44pm	1.000000	7:30pm to 7:44pm	1.000000
1:45am to 1:59am	1.000000	7:45am to 7:59am	1.000000	1:45pm to 1:59pm	1.000000	7:45pm to 7:59pm	1.000000
2:00am to 2:14am	1.000000	8:00am to 8:14am	1.000000	2:00pm to 2:14pm	1.000000	8:00pm to 8:14pm	1.000000
2:15am to 2:29am	1.000000	8:15am to 8:29am	1.000000	2:15pm to 2:29pm	1.000000	8:15pm to 8:29pm	1.000000
2:30am to 2:44am	1.000000	8:30am to 8:44am	1.000000	2:30pm to 2:44pm	1.000000	8:30pm to 8:44pm	1.000000
2:45am to 2:59am	1.000000	8:45am to 8:59am	1.000000	2:45pm to 2:59pm	1.000000	8:45pm to 8:59pm	1.000000
3:00am to 3:14am	1.000000	9:00am to 9:14am	1.000000	3:00pm to 3:14pm	1.000000	9:00pm to 9:14pm	1.000000
3:15am to 3:29am	1.000000	9:15am to 9:29am	1.000000	3:15pm to 3:29pm	1.000000	9:15pm to 9:29pm	1.000000
3:30am to 3:44am	1.000000	9:30am to 9:44am	1.000000	3:30pm to 3:44pm	1.000000	9:30pm to 9:44pm	1.000000
3:45am to 3:59am	1.000000	9:45am to 9:59am	1.000000	3:45pm to 3:59pm	1.000000	9:45pm to 9:59pm	1.000000
4:00am to 4:14am	1.000000	10:00am to 10:14am	1.000000	4:00pm to 4:14pm	1.000000	10:00pm to 10:14pm	1.000000
4:15am to 4:29am	1.000000	10:15am to 10:29am	1.000000	4:15pm to 4:29pm	1.000000	10:15pm to 10:29pm	1.000000
4:30am to 4:44am	1.000000	10:30am to 10:44am	1.000000	4:30pm to 4:44pm	1.000000	10:30pm to 10:44pm	1.000000
4:45am to 4:59am	1.000000	10:45am to 10:59am	1.000000	4:45pm to 4:59pm	1.000000	10:45pm to 10:59pm	1.000000
5:00am to 5:14am	1.000000	11:00am to 11:14am	1.000000	5:00pm to 5:14pm	1.000000	11:00pm to 11:14pm	1.000000

5:15am to 5:29am	1.000000	11:15am to 11:29am	1.000000	5:15pm to 5:29pm	1.000000	11:15pm to 11:29pm	1.000000
5:30am to 5:44am	1.000000	11:30am to 11:44am	1.000000	5:30pm to 5:44pm	1.000000	11:30pm to 11:44pm	1.000000
5:45am to 5:59am	1.000000	11:45am to 11:59am	1.000000	5:45pm to 5:59pm	1.000000	11:45pm to 11:59pm	1.000000

---

**Daily Operational Profiles**

Baseline, Yuma Mcas/Yuma Intl

Name: DEFAULT

Day	Weight	Day	Weight
Monday	1.000000	Friday	1.000000
Tuesday	1.000000	Saturday	1.000000
Wednesday	1.000000	Sunday	1.000000
Thursday	1.000000		

---

**Monthly Operational Profiles**

Baseline, Yuma Mcas/Yuma Intl

Name: DEFAULT

Month	Weight	Month	Weight
January	1.000000	July	1.000000
February	1.000000	August	1.000000
March	1.000000	September	1.000000
April	1.000000	October	1.000000
May	1.000000	November	1.000000
June	1.000000	December	1.000000

---

**Aircraft**

Baseline, Yuma Mcas/Yuma Intl

Default Taxi Out Time: 19.000000 min

Default Taxi In Time: 7.000000 min

Year: Uses Schedule?

2011

No

Schedule Filename:

(None)

Aircraft Name:  
Boeing CH-46 Sea Knight  
Engine Type:  
T58-GE-16  
Identification:  
#1  
Category:  
SMTH

Take Off weight: 21972.00 Kgs  
Approach Weight: 21999.00 Kgs  
Glide Slope: 3.00°  
APU Assignment: None  
APU Departure OP Time: 13.00 min  
APU Arrival OP Time: 13.00 min

Gate Assignment: None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (ACE 802)	Diesel	0.00	90.00	300.00	75.00	
Aircraft Tractor (Douglas TBL-400)	Gasoline	12.00	12.00	617.00	80.00	
Fork Lift (Toyota 5,000 lb)	Gasoline	12.00	12.00	55.00	30.00	
Fuel Truck (F350)	Gasoline	12.00	12.00	235.00	25.00	
Water Service (Gate Service)	Gasoline	12.00	12.00	0.00	20.00	

Year:  
2011

Annual Departures: 48  
 Annual Arrivals: 48  
 Annual TGOs: 0  
 Taxi Out Time: Determined by Sequencing model  
 Taxi In Time: Determined by Sequencing model

Departure Quarter-Hourly Operational profile: DEFAULT  
 Departure Daily Operational Profile: DEFAULT  
 Departure Monthly Operational Profile: DEFAULT  
 Arrival Quarter-Hourly Operational profile: DEFAULT  
 Arrival Daily Operational Profile: DEFAULT  
 Arrival Monthly Operational Profile: DEFAULT  
 Touch & Go Quarter-Hourly Operational profile: DEFAULT  
 Touch & Go Daily Operational Profile: DEFAULT  
 Touch & Go Monthly Operational Profile: DEFAULT

GSE Population

Baseline, Yuma Mcas/Yuma Intl

Type:	Fuel:	Ref. Model:	Identification:
Air Conditioner	Diesel		#1
Rated Power:	0.00 hp		
Load Factor:	75.00%		
The user has selected to use the default age distribution, and has not chosen a specific age.			
Analysis Year:	2011		
Year of Manufacture:	N/A		
Age:	N/A		
Gate:	Percent		

Year:

2011  
 Population: 0 units  
 Yearly Operating Time: 0.00 hours  
 Quarter-Hourly Operational profile: DEFAULT  
 Daily Operational profile: DEFAULT  
 Monthly Operational Profile: DEFAULT

---

Type:	Fuel:	Ref. Model:	Identification:
Aircraft Tractor	Diesel	Stewart & Stevenson TUG #1	T-750

---

Rated Power: 475.00 hp  
 Load Factor: 80.00%  
 The user has selected to use the default age distribution, and has not chosen a specific age.  
 Analysis Year: 2011  
 Year of Manufacture: N/A  
 Age: N/A

---

Gate: Percent

Year:  
2011  
 Population: 0 units  
 Yearly Operating Time: 641.00 hours  
 Quarter-Hourly Operational profile: DEFAULT  
 Daily Operational profile: DEFAULT  
 Monthly Operational Profile: DEFAULT

---

Type:	Fuel:	Ref. Model:	Identification:
Generator	Diesel		#1

---

Rated Power: 158.00 hp  
 Load Factor: 0.00%  
 The user has selected to use the default age distribution, and has not chosen a specific age.  
 Analysis Year: 2011  
 Year of Manufacture: N/A  
 Age: N/A

---

Gate: Percent

Year:  
2011  
 Population: 0 units

Yearly Operating Time: 1630.00 hours  
 Quarter-Hourly Operational profile: DEFAULT  
 Daily Operational profile: DEFAULT  
 Monthly Operational Profile: DEFAULT

Parking Facilities	Baseline, Yuma Mcas/Yuma Intl
None.	
Roadways	Baseline, Yuma Mcas/Yuma Intl
None.	
Stationary Sources	Baseline, Yuma Mcas/Yuma Intl
None.	
Training Fires	Baseline, Yuma Mcas/Yuma Intl
None.	
Gates	Baseline, Yuma Mcas/Yuma Intl
None.	
Taxiways	Baseline, Yuma Mcas/Yuma Intl
None.	
Runways	Baseline, Yuma Mcas/Yuma Intl
None.	
Taxipaths	Baseline, Yuma Mcas/Yuma Intl
None.	
Configurations	Baseline, Yuma Mcas/Yuma Intl
None.	
Buildings	Baseline, Yuma Mcas/Yuma Intl
None.	
Discrete Cartesian Receptors	Baseline, Yuma Mcas/Yuma Intl
None.	
Discrete Polar Receptors	Baseline, Yuma Mcas/Yuma Intl
None.	
Cartesian Receptor Networks	Baseline, Yuma Mcas/Yuma Intl
None.	
Polar Receptor Networks	Baseline, Yuma Mcas/Yuma Intl
None.	

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**User-Created Aircraft**

Baseline, Yuma Mcas/Yuma Intl

None.

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**User-Created GSE**

Baseline, Yuma Mcas/Yuma Intl

None.

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**User-Created APU**

Baseline, Yuma Mcas/Yuma Intl

None.

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**Scenario-Airport: Baseline (2), Yuma Mcas/Yuma Intl**

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**Weather**

Baseline (2), Yuma Mcas/Yuma Intl

Mixing Height: 3000.00 feet  
 Temperature: 74.00 °F  
 Daily High Temperature: 84.35 °F  
 Daily Low Temperature: 63.65 °F  
 Pressure: 29.65 inches of Hg  
 Sea Level Pressure: 29.88 inches of Hg  
 Relative Humidity: 35.41  
 Wind Speed: 6.59 knots  
 Wind Direction: 0.00 °  
 Ceiling: 99999.99 feet  
 Visibility: 50.00 miles  
 The user has used annual averages.  
 Base Elevation: 216.01 feet  
 Date Range: Thursday, January 01, 2004 to Friday, December 31, 2004  
 Source Data File  
 Location:  
 Upper Air Data File  
 Location:

---

**Quarter-Hourly Operational Profiles**

Baseline (2), Yuma Mcas/Yuma Intl

Name: DEFAULT

Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight
12:00am to 12:14 am	1.000000	6:00am to 6:14am	1.000000	12:00pm to 12:14 pm	1.000000	6:00pm to 6:14pm	1.000000
12:15am to 12:29 am	1.000000	6:15am to 6:29am	1.000000	12:15pm to 12:29 pm	1.000000	6:15pm to 6:29pm	1.000000
12:30am to 12:44 am	1.000000	6:30am to 6:44am	1.000000	12:30pm to 12:44 pm	1.000000	6:30pm to 6:44pm	1.000000

12:45am to 12:59 am	1.000000	6:45am to 6:59am	1.000000	12:45pm to 12:59 pm	1.000000	6:45pm to 6:59pm	1.000000
1:00am to 1:14am	1.000000	7:00am to 7:14am	1.000000	1:00pm to 1:14pm	1.000000	7:00pm to 7:14pm	1.000000
1:15am to 1:29am	1.000000	7:15am to 7:29am	1.000000	1:15pm to 1:29pm	1.000000	7:15pm to 7:29pm	1.000000
1:30am to 1:44am	1.000000	7:30am to 7:44am	1.000000	1:30pm to 1:44pm	1.000000	7:30pm to 7:44pm	1.000000
1:45am to 1:59am	1.000000	7:45am to 7:59am	1.000000	1:45pm to 1:59pm	1.000000	7:45pm to 7:59pm	1.000000
2:00am to 2:14am	1.000000	8:00am to 8:14am	1.000000	2:00pm to 2:14pm	1.000000	8:00pm to 8:14pm	1.000000
2:15am to 2:29am	1.000000	8:15am to 8:29am	1.000000	2:15pm to 2:29pm	1.000000	8:15pm to 8:29pm	1.000000
2:30am to 2:44am	1.000000	8:30am to 8:44am	1.000000	2:30pm to 2:44pm	1.000000	8:30pm to 8:44pm	1.000000
2:45am to 2:59am	1.000000	8:45am to 8:59am	1.000000	2:45pm to 2:59pm	1.000000	8:45pm to 8:59pm	1.000000
3:00am to 3:14am	1.000000	9:00am to 9:14am	1.000000	3:00pm to 3:14pm	1.000000	9:00pm to 9:14pm	1.000000
3:15am to 3:29am	1.000000	9:15am to 9:29am	1.000000	3:15pm to 3:29pm	1.000000	9:15pm to 9:29pm	1.000000
3:30am to 3:44am	1.000000	9:30am to 9:44am	1.000000	3:30pm to 3:44pm	1.000000	9:30pm to 9:44pm	1.000000
3:45am to 3:59am	1.000000	9:45am to 9:59am	1.000000	3:45pm to 3:59pm	1.000000	9:45pm to 9:59pm	1.000000
4:00am to 4:14am	1.000000	10:00am to 10:14am	1.000000	4:00pm to 4:14pm	1.000000	10:00pm to 10:14pm	1.000000
4:15am to 4:29am	1.000000	10:15am to 10:29am	1.000000	4:15pm to 4:29pm	1.000000	10:15pm to 10:29pm	1.000000
4:30am to 4:44am	1.000000	10:30am to 10:44am	1.000000	4:30pm to 4:44pm	1.000000	10:30pm to 10:44pm	1.000000
4:45am to 4:59am	1.000000	10:45am to 10:59am	1.000000	4:45pm to 4:59pm	1.000000	10:45pm to 10:59pm	1.000000
5:00am to 5:14am	1.000000	11:00am to 11:14am	1.000000	5:00pm to 5:14pm	1.000000	11:00pm to 11:14pm	1.000000
5:15am to 5:29am	1.000000	11:15am to 11:29am	1.000000	5:15pm to 5:29pm	1.000000	11:15pm to 11:29pm	1.000000
5:30am to 5:44am	1.000000	11:30am to 11:44am	1.000000	5:30pm to 5:44pm	1.000000	11:30pm to 11:44pm	1.000000
5:45am to 5:59am	1.000000	11:45am to 11:59am	1.000000	5:45pm to 5:59pm	1.000000	11:45pm to 11:59pm	1.000000

## Daily Operational Profiles

Baseline (2), Yuma Mcas/Yuma Intl

Name: DEFAULT

Day	Weight	Day	Weight
Monday	1.000000	Friday	1.000000
Tuesday	1.000000	Saturday	1.000000
Wednesday	1.000000	Sunday	1.000000
Thursday	1.000000		

## Monthly Operational Profiles

Baseline (2), Yuma Mcas/Yuma Intl

Name: DEFAULT

Month	Weight	Month	Weight
January	1.000000	July	1.000000
February	1.000000	August	1.000000
March	1.000000	September	1.000000
April	1.000000	October	1.000000
May	1.000000	November	1.000000
June	1.000000	December	1.000000

---

**Aircraft** Baseline (2), Yuma Mcas/Yuma Intl

---

Default Taxi Out Time: 19.000000 min

Default Taxi In Time: 7.000000 min

Year: Uses Schedule?

2011

No

Schedule Filename:

(None)

---

**GSE Population** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Parking Facilities** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Roadways** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Stationary Sources** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Training Fires** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Gates** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Taxiways** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Runways** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Taxipaths** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Configurations** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Buildings** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Discrete Cartesian Receptors** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Discrete Polar Receptors** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

---

Cartesian Receptor Networks	Baseline (2), Yuma Mcas/Yuma Intl
None.	
Polar Receptor Networks	Baseline (2), Yuma Mcas/Yuma Intl
None.	
User-Created Aircraft	Baseline (2), Yuma Mcas/Yuma Intl
None.	
User-Created GSE	Baseline (2), Yuma Mcas/Yuma Intl
None.	
User-Created APU	Baseline (2), Yuma Mcas/Yuma Intl
None.	

---

**Emissions Inventory Summary**  
(Short Tons per Year)  
Baseline - Yuma Mcas/Yuma Intl 2011

Category	CO2	CO	THC	NMHC	VOC	TOG	NOx	SOx	PM-10	PM-2.5
Aircraft	5.306	0.080	0.021	0.025	0.025	0.025	0.005	0.002	N/A	N/A
GSE	N/A	0.143	N/A	0.005	0.005	0.005	0.016	0.000	0.001	0.001
APUs	N/A									
Parking Facilities	N/A									
Roadways	N/A									
Stationary Sources	N/A									
Training Fires	N/A									
Grand Total	5.306	0.224	0.021	0.029	0.030	0.030	0.021	0.002	0.001	0.001

## EDMS 5.1 Model Inputs for Yuma\_Marine\_Corp\_2\_operational\_emissions Study

---

Study Created: Tue Aug 16 15:12:31 2011  
 Report Date: Mon Sep 24 13:47:32 2012  
 Study Pathname: C:\EDMS 5.1\Yuma\_Marine\_Corp\_2\_operational\_emissions\Yuma\_Marine\_Corp\_2\_operational\_emissions.edm

---

### Study Setup

---

Unit System: English  
 Dispersion Modeling: Dispersion is not enabled for this study  
 Speciated Hydrocarbon Modeling: Speciated Hydrocarbon Modeling is not enabled for this study  
 Analysis Years: 2011

---

### Scenarios

---

Scenario Name: Baseline	Description: Aircraft Times in Mode Basis: Taxi Time Modeling: FOA3 Sulfur-to-Sulfate Conversion Rate:	Add a description. Performance-Based User-specified Taxi Times 2.400000 %
Scenario Name: Baseline (2)	Description: Aircraft Times in Mode Basis: Taxi Time Modeling: FOA3 Sulfur-to-Sulfate Conversion Rate:	Add a description. Performance-Based User-specified Taxi Times 2.400000 %

---

### Airports

---

Airport Name: Yuma Mcas/Yuma Intl  
 IATA Code: YUM  
 ICAO Code: KYUM  
 FAA Code:  
 Country: US  
 State: Arizona  
 City: Yuma  
 Airport Description: Yuma Mcas/Yuma Intl  
 Latitude: 32.657°  
 Longitude: -114.606°  
 Northing: 3615748.85  
 Easting: 724529.98  
 UTM Zone: 11  
 Elevation: 216.00 feet  
 PM Modeling Methodology: FOA3a (Sulfur-to-Sulfate Conversion Rate = 5.0%, Fuel Sulfur Content = 0.068%)

---

### Scenario-Airport: Baseline, Yuma Mcas/Yuma Intl

---

### Weather

Baseline, Yuma Mcas/Yuma Intl

Mixing Height: 3000.00 feet

---

Temperature: 74.00 °F  
 Daily High Temperature: 84.35 °F  
 Daily Low Temperature: 63.65 °F  
 Pressure: 29.65 inches of Hg  
 Sea Level Pressure: 29.88 inches of Hg  
 Relative Humidity: 35.41  
 Wind Speed: 6.59 knots  
 Wind Direction: 0.00 °  
 Ceiling: 99999.99 feet  
 Visibility: 50.00 miles  
 The user has used annual averages.  
 Base Elevation: 216.01 feet  
 Date Range: Thursday, January 01, 2004 to Friday, December 31, 2004  
 Source Data File  
 Location:  
 Upper Air Data File  
 Location:

---

**Quarter-Hourly Operational Profiles**

Baseline, Yuma Mcas/Yuma Intl

Name: DEFAULT

Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight
12:00am to 12:14 am	1.000000	6:00am to 6:14am	1.000000	12:00pm to 12:14 pm	1.000000	6:00pm to 6:14pm	1.000000
12:15am to 12:29 am	1.000000	6:15am to 6:29am	1.000000	12:15pm to 12:29 pm	1.000000	6:15pm to 6:29pm	1.000000
12:30am to 12:44 am	1.000000	6:30am to 6:44am	1.000000	12:30pm to 12:44 pm	1.000000	6:30pm to 6:44pm	1.000000
12:45am to 12:59 am	1.000000	6:45am to 6:59am	1.000000	12:45pm to 12:59 pm	1.000000	6:45pm to 6:59pm	1.000000
1:00am to 1:14am	1.000000	7:00am to 7:14am	1.000000	1:00pm to 1:14pm	1.000000	7:00pm to 7:14pm	1.000000
1:15am to 1:29am	1.000000	7:15am to 7:29am	1.000000	1:15pm to 1:29pm	1.000000	7:15pm to 7:29pm	1.000000
1:30am to 1:44am	1.000000	7:30am to 7:44am	1.000000	1:30pm to 1:44pm	1.000000	7:30pm to 7:44pm	1.000000
1:45am to 1:59am	1.000000	7:45am to 7:59am	1.000000	1:45pm to 1:59pm	1.000000	7:45pm to 7:59pm	1.000000
2:00am to 2:14am	1.000000	8:00am to 8:14am	1.000000	2:00pm to 2:14pm	1.000000	8:00pm to 8:14pm	1.000000
2:15am to 2:29am	1.000000	8:15am to 8:29am	1.000000	2:15pm to 2:29pm	1.000000	8:15pm to 8:29pm	1.000000
2:30am to 2:44am	1.000000	8:30am to 8:44am	1.000000	2:30pm to 2:44pm	1.000000	8:30pm to 8:44pm	1.000000
2:45am to 2:59am	1.000000	8:45am to 8:59am	1.000000	2:45pm to 2:59pm	1.000000	8:45pm to 8:59pm	1.000000
3:00am to 3:14am	1.000000	9:00am to 9:14am	1.000000	3:00pm to 3:14pm	1.000000	9:00pm to 9:14pm	1.000000
3:15am to 3:29am	1.000000	9:15am to 9:29am	1.000000	3:15pm to 3:29pm	1.000000	9:15pm to 9:29pm	1.000000
3:30am to 3:44am	1.000000	9:30am to 9:44am	1.000000	3:30pm to 3:44pm	1.000000	9:30pm to 9:44pm	1.000000
3:45am to 3:59am	1.000000	9:45am to 9:59am	1.000000	3:45pm to 3:59pm	1.000000	9:45pm to 9:59pm	1.000000
4:00am to 4:14am	1.000000	10:00am to 10:14am	1.000000	4:00pm to 4:14pm	1.000000	10:00pm to 10:14pm	1.000000
4:15am to 4:29am	1.000000	10:15am to 10:29am	1.000000	4:15pm to 4:29pm	1.000000	10:15pm to 10:29pm	1.000000
4:30am to 4:44am	1.000000	10:30am to 10:44am	1.000000	4:30pm to 4:44pm	1.000000	10:30pm to 10:44pm	1.000000
4:45am to 4:59am	1.000000	10:45am to 10:59am	1.000000	4:45pm to 4:59pm	1.000000	10:45pm to 10:59pm	1.000000
5:00am to 5:14am	1.000000	11:00am to 11:14am	1.000000	5:00pm to 5:14pm	1.000000	11:00pm to 11:14pm	1.000000

5:15am to 5:29am	1.000000	11:15am to 11:29am	1.000000	5:15pm to 5:29pm	1.000000	11:15pm to 11:29pm	1.000000
5:30am to 5:44am	1.000000	11:30am to 11:44am	1.000000	5:30pm to 5:44pm	1.000000	11:30pm to 11:44pm	1.000000
5:45am to 5:59am	1.000000	11:45am to 11:59am	1.000000	5:45pm to 5:59pm	1.000000	11:45pm to 11:59pm	1.000000

---

**Daily Operational Profiles**

Baseline, Yuma Mcas/Yuma Intl

Name: DEFAULT

Day	Weight	Day	Weight
Monday	1.000000	Friday	1.000000
Tuesday	1.000000	Saturday	1.000000
Wednesday	1.000000	Sunday	1.000000
Thursday	1.000000		

---

**Monthly Operational Profiles**

Baseline, Yuma Mcas/Yuma Intl

Name: DEFAULT

Month	Weight	Month	Weight
January	1.000000	July	1.000000
February	1.000000	August	1.000000
March	1.000000	September	1.000000
April	1.000000	October	1.000000
May	1.000000	November	1.000000
June	1.000000	December	1.000000

---

**Aircraft**

Baseline, Yuma Mcas/Yuma Intl

Default Taxi Out Time: 19.000000 min

Default Taxi In Time: 7.000000 min

Year: Uses Schedule?

2011

No

Schedule Filename:

(None)

Aircraft Name:  
Boeing CH-46 Sea Knight  
Engine Type:  
T58-GE-16  
Identification:  
#1  
Category:  
SMTH

Take Off weight: 21972.00 Kgs  
Approach Weight: 21999.00 Kgs  
Glide Slope: 3.00°  
APU Assignment: None  
APU Departure OP Time: 13.00 min  
APU Arrival OP Time: 13.00 min

Gate Assignment: None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (ACE 802)	Diesel	0.00	90.00	300.00	75.00	
Aircraft Tractor (Douglas TBL-400)	Gasoline	12.00	12.00	617.00	80.00	
Fork Lift (Toyota 5,000 lb)	Gasoline	12.00	12.00	55.00	30.00	
Fuel Truck (F350)	Gasoline	12.00	12.00	235.00	25.00	
Water Service (Gate Service)	Gasoline	12.00	12.00	0.00	20.00	

Year:  
2011

Annual Departures: 6  
 Annual Arrivals: 6  
 Annual TGOs: 0  
 Taxi Out Time: Determined by Sequencing model  
 Taxi In Time: Determined by Sequencing model

Departure Quarter-Hourly Operational profile: DEFAULT  
 Departure Daily Operational Profile: DEFAULT  
 Departure Monthly Operational Profile: DEFAULT  
 Arrival Quarter-Hourly Operational profile: DEFAULT  
 Arrival Daily Operational Profile: DEFAULT  
 Arrival Monthly Operational Profile: DEFAULT  
 Touch & Go Quarter-Hourly Operational profile: DEFAULT  
 Touch & Go Daily Operational Profile: DEFAULT  
 Touch & Go Monthly Operational Profile: DEFAULT

GSE Population

Baseline, Yuma Mcas/Yuma Intl

Type:	Fuel:	Ref. Model:	Identification:
Air Conditioner	Diesel		#1
Rated Power:	0.00 hp		
Load Factor:	75.00%		
The user has selected to use the default age distribution, and has not chosen a specific age.			
Analysis Year:	2011		
Year of Manufacture:	N/A		
Age:	N/A		
Gate:	Percent		

Year:

2011  
 Population: 0 units  
 Yearly Operating Time: 0.00 hours  
 Quarter-Hourly Operational profile: DEFAULT  
 Daily Operational profile: DEFAULT  
 Monthly Operational Profile: DEFAULT

---

Type:	Fuel:	Ref. Model:	Identification:
Aircraft Tractor	Diesel	Stewart & Stevenson TUG #1	T-750

---

Rated Power: 475.00 hp  
 Load Factor: 80.00%  
 The user has selected to use the default age distribution, and has not chosen a specific age.  
 Analysis Year: 2011  
 Year of Manufacture: N/A  
 Age: N/A

---

Gate: Percent

Year:  
2011  
 Population: 0 units  
 Yearly Operating Time: 641.00 hours  
 Quarter-Hourly Operational profile: DEFAULT  
 Daily Operational profile: DEFAULT  
 Monthly Operational Profile: DEFAULT

---

Type:	Fuel:	Ref. Model:	Identification:
Generator	Diesel		#1

---

Rated Power: 158.00 hp  
 Load Factor: 0.00%  
 The user has selected to use the default age distribution, and has not chosen a specific age.  
 Analysis Year: 2011  
 Year of Manufacture: N/A  
 Age: N/A

---

Gate: Percent

Year:  
2011  
 Population: 0 units

Yearly Operating Time: 1630.00 hours  
 Quarter-Hourly Operational profile: DEFAULT  
 Daily Operational profile: DEFAULT  
 Monthly Operational Profile: DEFAULT

Parking Facilities	Baseline, Yuma Mcas/Yuma Intl
None.	
Roadways	Baseline, Yuma Mcas/Yuma Intl
None.	
Stationary Sources	Baseline, Yuma Mcas/Yuma Intl
None.	
Training Fires	Baseline, Yuma Mcas/Yuma Intl
None.	
Gates	Baseline, Yuma Mcas/Yuma Intl
None.	
Taxiways	Baseline, Yuma Mcas/Yuma Intl
None.	
Runways	Baseline, Yuma Mcas/Yuma Intl
None.	
Taxipaths	Baseline, Yuma Mcas/Yuma Intl
None.	
Configurations	Baseline, Yuma Mcas/Yuma Intl
None.	
Buildings	Baseline, Yuma Mcas/Yuma Intl
None.	
Discrete Cartesian Receptors	Baseline, Yuma Mcas/Yuma Intl
None.	
Discrete Polar Receptors	Baseline, Yuma Mcas/Yuma Intl
None.	
Cartesian Receptor Networks	Baseline, Yuma Mcas/Yuma Intl
None.	
Polar Receptor Networks	Baseline, Yuma Mcas/Yuma Intl
None.	

---

**User-Created Aircraft**

Baseline, Yuma Mcas/Yuma Intl

None.

---

---

**User-Created GSE**

Baseline, Yuma Mcas/Yuma Intl

None.

---

---

**User-Created APU**

Baseline, Yuma Mcas/Yuma Intl

None.

---

---

**Scenario-Airport: Baseline (2), Yuma Mcas/Yuma Intl**

---

---

**Weather**

Baseline (2), Yuma Mcas/Yuma Intl

Mixing Height: 3000.00 feet  
 Temperature: 74.00 °F  
 Daily High Temperature: 84.35 °F  
 Daily Low Temperature: 63.65 °F  
 Pressure: 29.65 inches of Hg  
 Sea Level Pressure: 29.88 inches of Hg  
 Relative Humidity: 35.41  
 Wind Speed: 6.59 knots  
 Wind Direction: 0.00 °  
 Ceiling: 99999.99 feet  
 Visibility: 50.00 miles  
 The user has used annual averages.  
 Base Elevation: 216.01 feet  
 Date Range: Thursday, January 01, 2004 to Friday, December 31, 2004  
 Source Data File  
 Location:  
 Upper Air Data File  
 Location:

---

**Quarter-Hourly Operational Profiles**

Baseline (2), Yuma Mcas/Yuma Intl

Name: DEFAULT

Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight
12:00am to 12:14 am	1.000000	6:00am to 6:14am	1.000000	12:00pm to 12:14 pm	1.000000	6:00pm to 6:14pm	1.000000
12:15am to 12:29 am	1.000000	6:15am to 6:29am	1.000000	12:15pm to 12:29 pm	1.000000	6:15pm to 6:29pm	1.000000
12:30am to 12:44 am	1.000000	6:30am to 6:44am	1.000000	12:30pm to 12:44 pm	1.000000	6:30pm to 6:44pm	1.000000

12:45am to 12:59 am	1.000000	6:45am to 6:59am	1.000000	12:45pm to 12:59 pm	1.000000	6:45pm to 6:59pm	1.000000
1:00am to 1:14am	1.000000	7:00am to 7:14am	1.000000	1:00pm to 1:14pm	1.000000	7:00pm to 7:14pm	1.000000
1:15am to 1:29am	1.000000	7:15am to 7:29am	1.000000	1:15pm to 1:29pm	1.000000	7:15pm to 7:29pm	1.000000
1:30am to 1:44am	1.000000	7:30am to 7:44am	1.000000	1:30pm to 1:44pm	1.000000	7:30pm to 7:44pm	1.000000
1:45am to 1:59am	1.000000	7:45am to 7:59am	1.000000	1:45pm to 1:59pm	1.000000	7:45pm to 7:59pm	1.000000
2:00am to 2:14am	1.000000	8:00am to 8:14am	1.000000	2:00pm to 2:14pm	1.000000	8:00pm to 8:14pm	1.000000
2:15am to 2:29am	1.000000	8:15am to 8:29am	1.000000	2:15pm to 2:29pm	1.000000	8:15pm to 8:29pm	1.000000
2:30am to 2:44am	1.000000	8:30am to 8:44am	1.000000	2:30pm to 2:44pm	1.000000	8:30pm to 8:44pm	1.000000
2:45am to 2:59am	1.000000	8:45am to 8:59am	1.000000	2:45pm to 2:59pm	1.000000	8:45pm to 8:59pm	1.000000
3:00am to 3:14am	1.000000	9:00am to 9:14am	1.000000	3:00pm to 3:14pm	1.000000	9:00pm to 9:14pm	1.000000
3:15am to 3:29am	1.000000	9:15am to 9:29am	1.000000	3:15pm to 3:29pm	1.000000	9:15pm to 9:29pm	1.000000
3:30am to 3:44am	1.000000	9:30am to 9:44am	1.000000	3:30pm to 3:44pm	1.000000	9:30pm to 9:44pm	1.000000
3:45am to 3:59am	1.000000	9:45am to 9:59am	1.000000	3:45pm to 3:59pm	1.000000	9:45pm to 9:59pm	1.000000
4:00am to 4:14am	1.000000	10:00am to 10:14am	1.000000	4:00pm to 4:14pm	1.000000	10:00pm to 10:14pm	1.000000
4:15am to 4:29am	1.000000	10:15am to 10:29am	1.000000	4:15pm to 4:29pm	1.000000	10:15pm to 10:29pm	1.000000
4:30am to 4:44am	1.000000	10:30am to 10:44am	1.000000	4:30pm to 4:44pm	1.000000	10:30pm to 10:44pm	1.000000
4:45am to 4:59am	1.000000	10:45am to 10:59am	1.000000	4:45pm to 4:59pm	1.000000	10:45pm to 10:59pm	1.000000
5:00am to 5:14am	1.000000	11:00am to 11:14am	1.000000	5:00pm to 5:14pm	1.000000	11:00pm to 11:14pm	1.000000
5:15am to 5:29am	1.000000	11:15am to 11:29am	1.000000	5:15pm to 5:29pm	1.000000	11:15pm to 11:29pm	1.000000
5:30am to 5:44am	1.000000	11:30am to 11:44am	1.000000	5:30pm to 5:44pm	1.000000	11:30pm to 11:44pm	1.000000
5:45am to 5:59am	1.000000	11:45am to 11:59am	1.000000	5:45pm to 5:59pm	1.000000	11:45pm to 11:59pm	1.000000

## Daily Operational Profiles

Baseline (2), Yuma Mcas/Yuma Intl

Name: DEFAULT

Day	Weight	Day	Weight
Monday	1.000000	Friday	1.000000
Tuesday	1.000000	Saturday	1.000000
Wednesday	1.000000	Sunday	1.000000
Thursday	1.000000		

## Monthly Operational Profiles

Baseline (2), Yuma Mcas/Yuma Intl

Name: DEFAULT

Month	Weight	Month	Weight
January	1.000000	July	1.000000
February	1.000000	August	1.000000
March	1.000000	September	1.000000
April	1.000000	October	1.000000
May	1.000000	November	1.000000
June	1.000000	December	1.000000

---

**Aircraft** Baseline (2), Yuma Mcas/Yuma Intl

---

Default Taxi Out Time: 19.000000 min

Default Taxi In Time: 7.000000 min

Year: Uses Schedule?

2011

No

Schedule Filename:

(None)

---

**GSE Population** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Parking Facilities** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Roadways** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Stationary Sources** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Training Fires** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Gates** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Taxiways** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Runways** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Taxipaths** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Configurations** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Buildings** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Discrete Cartesian Receptors** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Discrete Polar Receptors** Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

---

**Cartesian Receptor Networks**

Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**Polar Receptor Networks**

Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**User-Created Aircraft**

Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**User-Created GSE**

Baseline (2), Yuma Mcas/Yuma Intl

---

None.

---

**User-Created APU**

Baseline (2), Yuma Mcas/Yuma Intl

---

None.