DRAFT

ENVIRONMENTAL ASSESSMENT FOR THE THREE POINTS BORDER PATROL STATION EXPANSION U.S. BORDER PATROL TUCSON SECTOR, ARIZONA U.S. CUSTOMS AND BORDER PROTECTION DEPARTMENT OF HOMELAND SECURITY WASHINGTON, D.C.

AUGUST 2023

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FOR
THE THREE POINTS BORDER PATROL STATION EXPANSION
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U.S. CUSTOMS AND BORDER PROTECTION
DEPARTMENT OF HOMELAND SECURITY
WASHINGTON, D.C.

AUGUST 2023

Project Proponent:	Department of Homeland Security U.S. Customs and Border Protection U.S. Border Patrol
Points of Contact:	U.S. Customs and Border Protection Border Patrol & Air and Marine Program Management Office 2400 Avila Road, Suite 5020 Laguna Niguel, California 92677

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FINDING OF NO SIGNIFICANT IMPACT
FOR
THE THREE POINTS BORDER PATROL STATION EXPANSION
U.S. BORDER PATROL TUCSON SECTOR, ARIZONA
U.S. CUSTOMS AND BORDER PROTECTION
DEPARTMENT OF HOMELAND SECURITY
WASHINGTON, D.C.

INTRODUCTION

United States (U.S.) Customs and Border Protection (CBP) has prepared an Environmental Assessment (EA) that addresses the potential effects, beneficial and adverse, resulting from the proposed expansion and operation of the existing Three Points Border Patrol Station (BPS).

The existing Three Points BPS was first established in 1998 to support 50 U.S. Border Patrol (USBP) agents. Currently, over 200 agents are assigned to the station. The additional staff and supporting vehicles and equipment have resulted in overcrowded conditions on the current facility and are negatively impacting the mission of the agents. The proposed expansion and associated supporting infrastructure are designed to allow for the continued operation of the Three Points BPS in support of the Border Patrol Strategic Plan to gain and maintain effective control of the borders of the U.S. (CBP 2012).

The Three Points BPS supports the Tucson Sector, which covers most of the Arizona/Mexico International Border. The Tucson Sector Area of Responsibility (AOR) covers 262 miles of the U.S./Mexico International Border from the Arizona/New Mexico state line to the Yuma County line. There are nine stations in the Tucson Sector: Why, Casa Grande, Douglas, Bisbee, Nogales, Sonoita, Tucson, Three Points, and Wilcox (CBP 2022). The Tucson Sector plays an integral part in the overall Border Patrol Strategic Plan as a primary line of defense between the International Border with Mexico and the interior of the U.S. Current operations within the Tucson Sector ensure that resources, manpower, and technology are deployed along the U.S./Mexico International Border, which is the Tucson Sector's primary responsibility.

PROJECT LOCATION

The proposed BPS expansion site (project area) is in Three Points, Arizona. The project area is located at 16435 W Ajo Hwy (Highway 86), Tucson, Arizona 85735, which is approximately 23 miles west of Tucson and 70 miles north of the U.S./Mexico International Border. The property is mostly flat, undeveloped desert scrub. Three Points is located in Pima County, Arizona and is considered to be within the Arizona Upland/Eastern Sonoran Basin ecoregion (U.S. Geological Survey [USGS] 2014).

PURPOSE OF THE PROPOSED ACTION

CBP and USBP propose to expand the current Three Points BPS for the purpose of facilitating the primary goals and objectives of USBP's strategy, which include the addition of as-needed new agents and personnel. Based upon the increasing trends in illegal border activities and the insufficient facilities at the current Three Points BPS, additional resources and USBP agents are required to maintain the operational capabilities within the Three Points AOR. The mission and personnel at the Tucson Sector have grown significantly since the current Three Point BPS was constructed. This has adversely impacted daily field operations, communications, administrative functions, and training efficiencies. The development of the additional space adjacent to the existing facility would address the occupational health, safety, security, and operational deficiencies at the existing Three Points BPS and would effectively anticipate and adapt to future law enforcement challenges. The Proposed Action (Preferred Alternative) would enhance the overall safety and efficiency of current and future operations within the USBP Three Points BPS AOR, as well as the safety of communities in the area.

NEED FOR THE PROPOSED ACTION

The need for expansion at the current Three Points BPS is due to the increased decentralization of several programs and the increasing number of agents that have been required to operate at the Three Points BPS. Having over 200 employees working in an area intended for 50 agents has led to operational inefficiencies, safety concerns for agents, and the need for leasing of costly off-site facilities to compensate for the extreme overcrowding. The current facilities do not adequately accommodate the existing USBP agents and would not be capable of accommodating additional staff. This lack of capacity hinders the USBP ability to respond to high levels of illegal border-related activity. A stormwater management system would also be installed to provide adequate protection during flooding events of the existing BPS and the 12-acre expansion property.

The Proposed Action is to expand the existing facility footprint by adding an additional 12 acres of land located immediately adjacent to the existing footprint. This 12-acre parcel would be leased from the State of Arizona. In addition, remediations to facility infrastructure would also be addressed to ensure the long-term sustainment of the BPS. The additional space and upgraded facilities would be able to accommodate the growth in staffing due to existing and near-future operational demands placed upon the Three Points BPS.

The general need for the Proposed Action includes the following:

- Sufficient facilities are required for USBP to operate efficiently, safely and securely, which will result in more effective deployment of required assets in the AOR to prevent illegal activities and ensure chain of custody.
- Appropriate facilities are needed that conform to USBP standards, regulations, mandates, and design guides.
- The Three Points BPS needs the ability to expand in response to future law enforcement needs.

The Proposed Action includes the following improvements:

- Make improvements to the newly leased parcel to support additional parking and equipment storage.
  - Provide stormwater crossing structures where necessary.
- Construct a stormwater management system capable of managing stormwater runoff on both the existing BPS footprint and the 12-acre expansion area.
- Add perimeter security fencing and gates in accordance with both CBP and Pima County design standards.
- Install a larger fuel tank (10,000 gallons) to accommodate current and future demands on vehicle use - the current tank is 5,000-gallon.
- Relocate existing structures (Storage Connex, Fuel Tank, Storage Sheds, Vehicle Wash Station, Covered all-terrain vehicle [ATV] complex).
- Construct a new butler building to include two vehicle bays with lift systems.
- Upgrade the roadway leading to the main entrance.
- Construct an approximately 200-foot wall with landscaping at the entrance of the BPS.
- Install a Pima County Government-approved stormwater management system.
- Add overhead illumination.
- Relocate all above ground improvements from the existing BPS to the new 12-acre expansion property.
- Remediate locations on the existing BPS parking site where improvements were previously located.

PROPOSED ACTION AND ALTERNATIVES

The Proposed Action and one alternative (No Action Alternative) were identified and considered during the planning stages of the proposed project. The Proposed Action consists of the proposed alterations and expansion of the Three BPS that meets the purpose of and need for the project. As required by National Environmental Policy Act (NEPA) and Council of Environmental Quality (CEQ) regulations, the No Action Alternative reflects conditions within the project area should the Proposed Action not be implemented. One potential site configuration was carried forward for evaluation in the EA. The proposed site configuration is approximately 12 acres and was selected based on adjacent land availability that would allow the contiguous expansion of the Three Points BPS. Considering the current Three Points Station abuts Highway 86 to the north and a commercial property to the east, the optimal location to expand the BPS was south and west into undeveloped land. The management of stormwater is also part of the project scope. In order to manage stormwater on the existing facility, an approved and adequate stormwater management system is required to be placed on the 12-acre expansion property, which requires immediate adjacency to the existing Three Points BPS. Due to the need to obtain property that is immediately adjacent to the existing Three Points BPS, no other alternatives were considered aside from the No Action Alternative.

AFFECTED ENVIRONMENT AND CONSEQUENCES

Implementation of the Proposed Action would result in a change from the current land use of undeveloped desert scrub to a developed area in the form of an expanded Three Points BPS. The closest developed area is Three Points, Arizona, with the closest residential area just to the north of the project area (approximately 0.4-mile). Adjacent land uses include primarily undeveloped land, farms, and rangelands. The City of Tucson is located to the north and east of the project area. The project area falls outside the Tucson City Limits. Although the Proposed Action would convert approximately 12 acres of undeveloped land to developed use, much of the Region of Influence (ROI), even if developed near the Proposed Action, would remain undeveloped rangelands. The Proposed Action would have long-term, minor, adverse impacts on land use within the immediate or surrounding areas.

Under the Proposed Action, up to 12 acres of soils (of which none are considered prime farmland soils) would be permanently disturbed or removed from biological production. The adverse effects from the disturbance and removal from biological production of approximately 12 acres of soil would be long-term and negligible due to the small size of the project footprint relative to the amount of the same soils throughout the ROI. Upon completion of construction, all temporary disturbance areas would be revegetated with a mixture of native plant seeds or nursery plantings or allowed to revegetate naturally, if applicable.

Approximately 12 acres of semidesert grassland would be permanently and negatively affected as a result of the construction of the proposed Three Points BPS expansion. The vegetative community that would be affected by the construction of the Proposed Action is both locally and regionally common, and the permanent loss of the limited amount of acreage would not adversely affect the population viability of any plant species in the region. In order to ensure that the Proposed Action does not actively promote the establishment of non-native and invasive species in the area, best management practices (BMPs; described in Chapter 5.0 of the EA) would be implemented to minimize the spread and reestablishment of non-native vegetation. These BMPs, as well as measures protecting vegetation in general, would reduce potential impacts from non-native invasive species to a negligible amount. Therefore, the Proposed Action would have a permanent, minor, adverse impact on vegetation in the project area.

The permanent loss of approximately 12 acres would have a long-term, negligible, adverse impact on wildlife. Soil disturbance and operation of heavy equipment could result in a reasonably foreseeable adverse impact on less mobile taxa such as lizards, snakes, and ground-dwelling species such as mice and rats. However, most wildlife would likely avoid harm by escaping to the surrounding habitat. The degradation and loss of habitat could also affect burrows and nests, as well as cover, forage, and other important wildlife resources. The loss of these resources would result in the displacement of individuals that would then be forced to compete with other wildlife for the remaining resources. Although this competition for resources could result in a reduction of total population size, such a reduction would be minimal in relation to total population size and would not result in long-term effects on the sustainability of any wildlife species. The wildlife habitat present in the project area is both locally and regionally common, and the permanent loss of approximately 12 acres of wildlife habitat would not adversely affect the population viability of any wildlife species in the region. Additionally, upon

completion of construction, all temporary disturbance areas would be revegetated with a mixture of native plant seeds or nursery plantings or allowed to revegetate naturally.

The Migratory Bird Treaty Act (MBTA) requires that federal agencies coordinate with U.S. Fish and Wildlife Service (USFWS) if an activity would result in the 'take' of a migratory bird. In accordance with compliance measures of the MBTA, BMPs identified in Chapter 5.0 of the EA would be implemented if construction or clearing activities were scheduled during the nesting season (typically March 15 to September 15). No bird nests were found during the biological resources survey or the Pima pineapple cactus (PPC; *Coryphantha robustispina* var. *robustispina*) protocol-level survey.

Lighting could attract or repel various wildlife species within the vicinity of the project area. The presence of lights within the project area could also produce some long-term behavioral effects, although the magnitude of these effects is not presently known. While the number of lights within the boundary of the project area are not presently known, artificial lighting concentrated around a single 12-acre developed area would not significantly disrupt activities of wildlife populations across the region, since similar habitat is readily available to the north, east, west, and south for wildlife relocation. Lighting BMPs, identified in Chapter 5.0 of the EA, would be applied to all outdoor lighting once construction is complete, further minimizing potential adverse impacts. Finally, construction activities would be limited primarily to daylight hours, whenever possible; therefore, construction impacts on wildlife would be insignificant, since the highest period of movement for most wildlife species occurs during night-time or low daylight hours.

Periodic noise from construction activities and subsequent operational activities would have moderate and intermittent adverse impacts on the wildlife communities located adjacent to the project area. However, because similar habitat is readily available, wildlife would easily relocate. Vehicle traffic on Highway 86 and current Three Points BPS operations currently influence the behavioral responses of wildlife in the area. Upon completion of the proposed Three Points BPS expansion, the number of vehicles would increase slightly, but would not result in a substantial increase in vehicle noise. Over the long-term, wildlife populations that have not already habituated to noise generated by Highway 86 and the existing Three Points BPS would adapt to the normal operations conducted at the expanded Three Points facility and would typically avoid human interaction. BMPs, as outlined in Chapter 5.0 of the EA, would reduce noise associated with operation of the construction equipment and everyday vehicle traffic associated with the expanded Three Points BPS.

BMPs, such as surveys prior to any construction activities scheduled during nesting season and covering or providing an escape ramp for all steep-walled holes or trenches left open at the end of the construction workday, would be implemented to reduce disturbance and loss of wildlife. The Proposed Action would have a long-term, negligible adverse effect on migratory birds.

The Proposed Action is expected to have a permanent, negligible, adverse impact on listed species. An in-depth discussion of each listed species with the potential to occur with the project area is provided in Section 3.6 of the EA. BMPs related to listed species are discussed in Chapter 5.0 of the EA.

Three individual PPC, federally listed as endangered, were located within the project area, and suitable habitat for this species exists throughout the project area. Ongoing Section 7 consultation with the USFWS is taking place to determine how to best address the PPC on site (Appendix C). CBP will likely pay mitigation fees and hire a USFWS approved organization to relocate the PPC off-site and into suitable habitat. Regardless of mitigation, the permanent removal of potential PPC habitat could have an adverse impact on the species' future survivability. Therefore, the Proposed Action would have a permanent, minor, adverse impact on PPC and their suitable habitat.

The Arizona Natural Heritage Program (ANHP) has identified several state-listed species that may occur within or near the project area. Under the Proposed Action, approximately 12 acres of vegetative habitat would be permanently and adversely affected. Mobile species, such as birds, may be temporarily displaced by construction activities; however, these highly mobile species typically utilize large expanses of suitable habitat, and the effects of disturbance and alterations to small segments are likely to be minimal to negligible to populations of these species. Grubbing, digging, clearing, or ground-leveling activities as a result of the Proposed Action could include the incidental take of some individuals of more sedentary state-listed species such as the Sonoran Desert tortoise (*Gopherus morafkai*). However, the adverse impacts on sedentary state-listed species would be negligible due to the BMPs to be implemented and the limited amount of disturbance to habitat relative to the amount of similar habitat within the ROI.

The Proposed Action may potentially have temporary, negligible, adverse impacts on surface waters as a result of increases in erosion and sedimentation during periods of construction. Disturbed soils and hazardous substances (e.g., antifreeze, fuels, oils, and lubricants) could have the potential to impact water quality during a rain event. However, through the use of BMPs, these effects would be minimized and negligible. A Construction Stormwater General Permit would be obtained prior to construction, and this would require approval of a site-specific Stormwater Pollution Prevention Plan (SWPPP). A site-specific Spill Prevention, Control, and Countermeasure Plan (SPCCP) would also be instituted prior to the start of construction. BMPs outlined in these plans would reduce potential migration of soils, oil and grease, and construction debris into local surface waters. Once the construction project is complete, any temporary construction footprints would be revegetated with native vegetation, as outlined in the SWPPP, which would mitigate the potential of non-point source pollution to enter local groundwaters. Further discussion of specific BMPs to be followed can be found in Chapter 5.0 of the EA.

Portions of the project area contain potentially jurisdictional Waters of the U.S. in the form of ephemeral drainages. CBP is consulting with the U.S. Army Corps of Engineers (USACE) regarding these potential Waters of the U.S. Currently, CBP is intending to exercise Nationwide Permit (NWP) 14. NWP 14 is intended for linear projects, and it is not anticipated that a Pre-construction Notification would be necessary considering the scope and size of the project and quality of the potential Waters of the U.S. located at the project area. Any adverse impacts on the aquatic environment would be offset by mitigation requirements, which may include restoring, enhancing, creating, and preserving aquatic functions and values; therefore, no net loss of Waters of the U.S. would occur. A long-term, minor effect on Waters of the U.S. would be anticipated during day-to-day operations at the BPS.

Because the Proposed Action is sited outside of an active floodplain, this alternative would not increase the risk or impact of floods on human safety, health, and welfare, or adversely impact the beneficial values that floodplains serve. Additionally, the Proposed Action would not increase duration, frequency, elevation, velocity, or volume of flood events as the project area is not located within a floodplain. Therefore, the Proposed Action would have no foreseeable impacts on floodplains and would be in compliance with Executive Order (EO) 11988.

Equipment and vehicle emissions, fugitive dust, and off-gassing during paving would produce an estimated total of 70.34 tons of National Ambient Air Quality Standard (NAAQS) pollutants during site preparation and construction and will be below the *de minimus* threshold (50 tons per year for ozone [O_3], 100 tons per year for other NAAQS pollutants). Additionally, these emissions would be temporary and return to pre-project levels upon the completion of construction. Emissions as a result of the Proposed Action are expected to be below the *de minimus* threshold and therefore would not be considered significant. BMPs, such as dust suppression and maintaining equipment in proper working condition would reduce the temporary construction impacts. The Proposed Action would have temporary, minor, adverse impacts on air quality in the ROI.

A greenhouse gas (GHG) analysis estimates a total of 2,694.31 tons of carbon dioxide equivalent (CO_2e) over the life of the Proposed Action assuming the site preparation, clearing, grading, paving, and construction is completed in 90 days. Neither the new CEQ guidance, nor any of the previous CEQ guidance sets actionable limits on the CO_2e that a Proposed Action may produce. The effect of the Proposed Action on CO_2e emissions would add to the cumulative anthropogenic GHG emissions produced regionally and globally. Because of the short duration of the Proposed Action (90 days), it is not expected that climate change would adversely impact the Proposed Action. However, rising temperatures in the operational region will probably result in increased energy consumption and related costs associated with cooling and infrastructure wear during the operational life of the expanded BPS, as well as heat related health impacts to agents and detainees alike. Additionally, continually rising temperatures in the operational region and further destabilization from extreme and increasingly unpredictable weather conditions in the Global South will likely adversely impact CBPs operations and its ability to operate in the future, both within the southwest region of the United States, including the Tucson Sector, and throughout their various AORs. The Proposed Action would have temporary, minor, adverse impacts on GHG's released during construction.

The project area is located in an area adjacent to a residential community with the nearest house located approximately 0.4-mile (2,112 feet) to the north of the eastern portion of the site. Construction noises would be expected to attenuate to acceptable levels prior to reaching the residential area. Therefore, adverse impacts related to noise would be temporary and negligible, as the site is located far enough from the nearest residential dwellings that noise impacts would not cause discomfort. The expansion of the Three Points BPS would not be expected to have a long-term impact on the noise leaving the facility, as the planned expansion will be used primarily for vehicle parking.

Archeological and aboveground resources surveys were conducted within the project's Area of Potential Effects (APE). During consultation, the Arizona State Historic Preservation Officer (SHPO) concurred with CBP's determination that none of the newly recorded archeological sites or isolated occurrences (IOs) in the project area are recommended eligible for the National Register of Historic Places (NRHP) under any criteria. As a result, no additional work is recommended for the project's APE and no adverse effects on historic properties are anticipated as a result of the Proposed Action.

The Proposed Action would result in negligible effects on the availability of utilities throughout the ROI because the current amperage available through the existing grid power system can accept the anticipated electrical load of the proposed expansion design, which is largely the installation of additional vehicle parking for CBP agents. Additionally, the Three Points BPS is already tied into existing and available service transmission lines. Water usage for the expanded Three Points BPS is estimated to remain approximately the same as current usage rates. The proposed expansion would largely consist of a parking lot, and water used during construction would be negligible considering the size of the area. Water would continue to be supplied to the Three Points BPS via the Tucson Water distribution system. Water coming from this system is derived from the Avra Valley aquifer, which is primarily recharged by the Colorado River and rainwater infiltration. Water usage within the project area is not expected to rise significantly, as most of the scheduled improvements would not result in increased water usage. However, additional water expenditures would likely be necessary during construction to reduce fugitive dust emissions. As a result of the Proposed Action, it is anticipated that day-to-day adverse impacts to ground water resources would be permanent and negligible while adverse impacts during construction would be temporary and negligible.

With the implementation of the Proposed Action, construction activities would have a temporary, minor, adverse impact on roadways and traffic adjacent to the project area. An increase in vehicular traffic along Highway 86 would occur from supplying materials, hauling debris, and from work crews commuting to the project area during construction activities. Upon completion of construction activities, the number of USBP agents traveling those roads to access the Three Points BPS could increase as well. This increase in volume of traffic associated with agents commuting to and from the Three Points BPS would have negligible impacts on roadways, and Highway 86 can accept the projected volumes. Therefore, traffic impacts associated with construction and operation of the expanded Three Points BPS would be long-term, negligible, and adverse.

Construction associated with the proposed expansion of the Three Points BPS as described in the Proposed Action would involve the use of heavy construction equipment. There is a potential for the release of hazardous materials such as fuels, lubricants, hydraulic fluids, and other chemicals during the construction activities. The impacts from spills of hazardous materials during construction would be minimized by utilizing BMPs during construction such as fueling only in controlled and protected areas away from surface waters, maintaining emergency spill cleanup kits onsite, and maintaining all equipment in good operating condition to prevent fuel and hydraulic fluid leaks. The fuel tank installed at the expanded Three Points BPS would be double-walled and contained within all protective measures needed to prevent the release of any tank spills. The vehicle maintenance bays would be equipped with oil/water separators to collect any

petroleum or other automotive fluids spilled, and waste automotive fluids would be collected and disposed of in accordance with state regulations. Therefore, the Proposed Action is anticipated to have temporary, negligible, adverse impacts on the local area as it relates to hazardous substance release during construction, and long-term, negligible, adverse impacts during the operation of the expanded Three Points BPS.

The project area is located in a rural area directly off of Highway 86, outside the city limits of Tucson. The Proposed Action could result in additional agents and their families moving into the area, and needing homes, schools, and public services. Those agents and their families would likely live in Tucson or the surrounding towns. With an estimated population of 543,242 (greater than half of the total population in Pima County), Tucson is a much larger city than other cities within Pima County and would offer many more options for housing, schools, shopping, and other amenities. This would lead to many agents choosing to live in Tucson, which would easily handle the increased demand for housing and public services. With many of the additional agents and their families expected to choose to live in Tucson, increases in the demand for public services in excess of existing and projected capacities would not be expected. A majority of agents that are stationed at the current facility have already been living in Tucson while stationed at the Three Points BPS.

Temporary, minor, beneficial impacts in the form of jobs and income for area residents, revenues to local businesses, and sales and use taxes to Pima County and the State of Arizona could be realized if construction materials are purchased locally and local construction workers are hired for construction.

The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would have a permanent, negligible, adverse impact on minorities and low-income groups. The Proposed Action would have a permanent, negligible, adverse impact on children during the operation of the expanded Three Points BPS. Due to the increase in traffic during construction and given the proximity of the Three Points BPS to two schools, the Proposed Action could have a temporary, negligible, adverse impact to children.

BEST MANAGEMENT PRACTICES

Best Management Practices were identified for each resource category that could be potentially affected. Many of these measures have been incorporated as standard operating procedures by CBP in similar past projects. The BMPs to be implemented are found in Chapter 5.0 of the EA.

FINDING

On the basis of the findings of the EA, which is incorporated by reference, and which has been conducted in accordance with NEPA; CEQ regulations; Department of Homeland Security (DHS) Directive Number 023-01, Rev.01 and DHS Instruction Manual 023-01-001-01, Rev. 01, *Implementation of the National Environmental Policy Act*; and after careful review of the potential environmental impacts of implementing the proposal, we find there would be no significant adverse impact on the quality of the human or natural environments, either individually or cumulatively; therefore, there is no requirement to develop an Environmental Impact Statement. Further, we commit to implement BMPs and environmental design measures identified in the EA and supporting documents.

Bartolome Mirabal — Date
Director
Facilities Division
U.S. Border Patrol

Eric Eldridge — Date
Director
Facilities Management and Engineering Division
U.S. Border Patrol

Kerry T. Skelton — Date
Deputy Assistant Commissioner
Office of Facilities and Asset Management
U.S. Customs and Border Protection

EXECUTIVE SUMMARY

INTRODUCTION

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The proposed site configuration is approximately 12 acres and was selected based on adjacent land availability that would allow the contiguous expansion of the Three Points BPS. Considering the current Three Points Station abuts Highway 86 to the north and a commercial property to the east, the optimal location to expand the BPS was south and west into undeveloped land. The management of stormwater is also part of the project scope. In order to manage stormwater on the existing facility, an approved and adequate stormwater management system is required to be placed on the 12-acre expansion property, which requires immediate adjacency to the existing Three Points BPS. Due to the need to obtain property that is immediately adjacent to the existing Three Points BPS, no other alternatives were considered aside from the No Action Alternative.

AFFECTED ENVIRONMENT AND CONSEQUENCES

Implementation of the Proposed Action would result in a change from the current land use of undeveloped desert scrub to a developed area in the form of an expanded Three Points BPS. The closest developed area is Three Points, Arizona, with the closest residential area just to the north of the project area (approximately 0.4-mile). Adjacent land uses include primarily undeveloped land, farms, and rangelands. The City of Tucson is located to the north and east of the project area. The project area falls outside the Tucson City Limits. Although the Proposed Action would convert approximately 12 acres of undeveloped land to developed use, much of the Region of Influence (ROI), even if developed near the Proposed Action, would remain undeveloped rangelands. The Proposed Action would have long-term, minor, adverse impacts on land use within the immediate or surrounding areas.

Under the Proposed Action, up to 12 acres of soils (of which none are considered prime farmland soils) would be permanently disturbed or removed from biological production. The adverse effects from the disturbance and removal from biological production of approximately 12 acres of soil would be long-term and negligible due to the small size of the project footprint relative to the amount of the same soils throughout the ROI. Upon completion of construction, all temporary disturbance areas would be revegetated with a mixture of native plant seeds or nursery plantings or allowed to revegetate naturally, if applicable.

Approximately 12 acres of semidesert grassland would be permanently and negatively affected as a result of the construction of the proposed Three Points BPS expansion. The vegetative community that would be affected by the construction of the Proposed Action is both locally and regionally common, and the permanent loss of the limited amount of acreage would not adversely affect the population viability of any plant species in the region. In order to ensure that the Proposed Action does not actively promote the establishment of non-native and invasive species in the area, best management practices (BMPs; described in Chapter 5.0 of the EA) would be implemented to minimize the spread and reestablishment of non-native vegetation. These BMPs, as well as measures protecting vegetation in general, would reduce potential impacts from non-native invasive species to a negligible amount. Therefore, the Proposed Action would have a permanent, minor, adverse impact on vegetation in the project area.

The permanent loss of approximately 12 acres would have a long-term, negligible, adverse impact on wildlife. Soil disturbance and operation of heavy equipment could result in a reasonably foreseeable adverse impact on less mobile taxa such as lizards, snakes, and ground-dwelling species such as mice and rats. However, most wildlife would likely avoid harm by escaping to the surrounding habitat. The degradation and loss of habitat could also affect burrows and nests, as well as cover, forage, and other important wildlife resources. The loss of these resources would result in the displacement of individuals that would then be forced to compete with other wildlife for the remaining resources. Although this competition for resources could result in a reduction of total population size, such a reduction would be minimal in relation to total population size and would not result in long-term effects on the sustainability of any wildlife species. The wildlife habitat present in the project area is both locally and regionally common, and the permanent loss of approximately 12 acres of wildlife habitat would not adversely affect the population viability of any wildlife species in the region. Additionally, upon completion of construction, all temporary disturbance areas would be revegetated with a mixture of native plant seeds or nursery plantings or allowed to revegetate naturally.

The Migratory Bird Treaty Act (MBTA) requires that federal agencies coordinate with U.S. Fish and Wildlife Service (USFWS) if an activity would result in the ‘take’ of a migratory bird. In accordance with compliance measures of the MBTA, BMPs identified in Chapter 5.0 of the EA would be implemented if construction or clearing activities were scheduled during the nesting season (typically March 15 to September 15). No bird nests were found during the biological resources survey or the Pima pineapple cactus (PPC; *Coryphantha robustispina* var. *robustispina*) protocol-level survey.

Lighting could attract or repel various wildlife species within the vicinity of the project area. The presence of lights within the project area could also produce some long-term behavioral effects, although the magnitude of these effects is not presently known. While the number of lights within the boundary of the project area are not presently known, artificial lighting concentrated around a single 12-acre developed area would not significantly disrupt activities of wildlife populations across the region, since similar habitat is readily available to the north, east, west, and south for wildlife relocation. Lighting BMPs would be applied to all outdoor lighting once construction is complete, further minimizing potential adverse impacts. Finally, construction activities would be limited primarily to daylight hours, whenever possible; therefore, construction impacts on wildlife would be insignificant, since the highest period of movement for most wildlife species occurs during night-time or low daylight hours.

Periodic noise from construction activities and subsequent operational activities would have moderate and intermittent adverse impacts on the wildlife communities located adjacent to the project area. However, because similar habitat is readily available, wildlife would easily relocate. Vehicle traffic on Highway 86 and current Three Points BPS operations currently influence the behavioral responses of wildlife in the area. Upon completion of the proposed Three Points BPS expansion, the number of vehicles would increase slightly, but would not result in a substantial increase in vehicle noise. Over the long-term, wildlife populations that have not already habituated to noise generated by Highway 86 and the existing Three Points BPS would adapt to the normal operations conducted at the expanded Three Points facility and would typically avoid human interaction. BMPs, as outlined in Chapter 5.0, would reduce noise associated with operation of the construction equipment and everyday vehicle traffic associated with the expanded Three Points BPS.

BMPs, such as surveys prior to any construction activities scheduled during nesting season and covering or providing an escape ramp for all steep-walled holes or trenches left open at the end of the construction workday, would be implemented to reduce disturbance and loss of wildlife. The Proposed Action would have a long-term, negligible adverse effect on migratory birds.

The Proposed Action is expected to have a permanent, negligible, adverse impact on listed species. An in-depth discussion of each listed species with the potential to occur with the project area is provided in Section 3.6 of the EA. BMPs related to listed species are discussed in Chapter 5.0 of the EA.

Three individual PPC, federally listed as endangered, were located within the project area, and suitable habitat for this species exists throughout the project area. Ongoing Section 7 consultation with the USFWS is taking place to determine how to best address the PPC on site (Appendix C). CBP will likely pay mitigation fees and hire a USFWS approved organization to relocate the PPC off-site and into suitable habitat. Regardless of mitigation, the permanent removal of potential PPC habitat could have an adverse impact on the species' future survivability. Therefore, the Proposed Action would have a permanent, minor, adverse impact on PPC and their suitable habitat.

The Arizona Natural Heritage Program (ANHP) has identified several state-listed species that may occur within or near the project area. Under the Proposed Action, approximately 12 acres of vegetative habitat would be permanently and adversely affected. Mobile species, such as birds, may be temporarily displaced by construction activities; however, these highly mobile species typically utilize large expanses of suitable habitat, and the effects of disturbance and alterations to small segments are likely to be minimal to negligible to populations of these species. Grubbing, digging, clearing, or ground-leveling activities as a result of the Proposed Action could include the incidental take of some individuals of more sedentary state-listed species such as the Sonoran Desert tortoise (*Gopherus morafkai*). However, the adverse impacts on sedentary state-listed species would be negligible due to the BMPs to be implemented and due to the limited amount of disturbance to habitat relative to the amount of similar habitat within the ROI.

The Proposed Action may potentially have temporary, negligible, adverse impacts on surface waters as a result of increases in erosion and sedimentation during periods of construction. Disturbed soils and hazardous substances (e.g., antifreeze, fuels, oils, and lubricants) could have the potential to impact water quality during a rain event. However, through the use of BMPs these effects would be minimized and negligible. A Construction Stormwater General Permit would be obtained prior to construction, and this would require approval of a site-specific Stormwater Pollution Prevention Plan (SWPPP). A site-specific Spill Prevention, Control and Countermeasure Plan (SPCCP) would also be instituted prior to the start of construction. BMPs outlined in these plans would reduce potential migration of soils, oil and grease, and construction debris into local surface waters. Once the construction project is complete, any temporary construction footprints would be revegetated with native vegetation, as outlined in the SWPPP, which would mitigate the potential of non-point source pollution to enter local groundwaters. Further discussion of specific BMPs to be followed can be found in Chapter 5.0.

Portions of the project area contain potentially jurisdictional Waters of the U.S. in the form of ephemeral drainages (see Figure 3-4). CBP is consulting with the U.S. Army Corps of Engineers (USACE) regarding these potential Waters of the U.S. Currently, CBP is intending to exercise Nationwide Permit (NWP) 14. NWP 14 is intended for linear projects, and it is not anticipated that a Pre-construction Notification would be necessary considering the scope and size of the project and quality of the potential Waters of the U.S. located at the project area. Any adverse impacts on the aquatic environment would be offset by mitigation requirements, which may include restoring, enhancing, creating, and preserving aquatic functions and values; therefore, no net loss of Waters of the U.S. would occur. A long-term, minor effect on Waters of the U.S. would be anticipated during day-to-day operations at the BPS.

Because the Proposed Action is sited outside of an active floodplain, this alternative would not increase the risk or impact of floods on human safety, health, and welfare, or adversely impact the beneficial values that floodplains serve. Additionally, the Proposed Action would not increase duration, frequency, elevation, velocity, or volume of flood events as the project area is not located within a floodplain. Therefore, the Proposed Action would have no foreseeable impacts on floodplains and would be in compliance with Executive Order (EO) 11988.

Equipment and vehicle emissions, fugitive dust, and off-gassing during paving would produce an estimated total of 70.34 tons of National Ambient Air Quality Standard (NAAQS) pollutants during site preparation and construction and will be below the *de minimus* threshold (50 tons per year for ozone [O_3], 100 tons per year for other NAAQS pollutants). Additionally, these emissions would be temporary and return to pre-project levels upon the completion of construction. Emissions as a result of the Proposed Action are expected to be below the *de minimus* threshold and therefore would not be considered significant. BMPs, such as dust suppression and maintaining equipment in proper working condition would reduce the temporary construction impacts. The Proposed Action would have temporary, minor, adverse impacts on air quality in the ROI.

A greenhouse gas (GHG) analysis estimates a total of 2,694.31 tons of carbon dioxide equivalent (CO_2e) over the life of the Proposed Action assuming the site preparation, clearing, grading, paving, and construction is completed in 90 days. Neither the new CEQ guidance, nor any of the previous CEQ guidance sets actionable limits on the CO_2e that a Proposed Action may produce. The effect of the Proposed Action on CO_2e emissions would add to the cumulative anthropogenic GHG emissions produced regionally and globally. Because of the short duration of the Proposed Action (90 days), it is not expected that climate change would adversely impact the Proposed Action. However, rising temperatures in the operational region will probably result in increased energy consumption and related cost associated with cooling and infrastructure wear during the operational life of the expanded BPS, as well as heat related health impacts to agents and detainees alike. Additionally, continually rising temperatures in the operational region and further destabilization from extreme and increasingly unpredictable weather conditions in the Global South will likely adversely impact CBPs operations and ability to operate in the future, both within the southwest region of the United States, including the Tucson Sector, and throughout their various AORs. The Proposed Action would have temporary, minor, adverse impacts on GHG's released during construction.

The project area is located in an area adjacent to a residential community with the nearest house located approximately 0.4-mile (2,112 feet) to the north of the eastern portion of the site. Construction noises would be expected to attenuate to acceptable levels prior to reaching the residential area. Therefore, adverse impacts related to noise would be temporary and negligible, as the site is located far enough from the nearest residential dwellings that noise impacts would not cause discomfort. The expansion of the Three Points BPS would not be expected to have a long-term impact on the noise leaving the facility, as the planned expansion will be used primarily for vehicle parking.

Archeological and aboveground resources surveys were conducted within the project's Area of Potential Effects (APE). During consultation, the Arizona State Historic Preservation Officer (SHPO) concurred with CBP's determination that none of the newly recorded archeological sites or isolated occurrences (IOs) in the project area are recommended eligible for the National Register of Historic Places (NRHP) under any criteria. As a result, no additional work is recommended for the project's APE and no adverse effects on historic properties are anticipated as a result of the Proposed Action.

The Proposed Action would result in negligible effects on the availability of utilities throughout the ROI because the current amperage available through the existing grid power system can accept the anticipated electrical load of the proposed expansion design, which is largely the installation of additional vehicle parking for CBP agents. Additionally, the Three Points BPS is already tied into existing and available service transmission lines. Water usage for the expanded Three Points BPS is estimated to remain approximately the same as current usage rates. The proposed expansion would largely consist of a parking lot, and water used during construction would be negligible considering the size of the area. Water would continue to be supplied to the Three Points BPS via the Tucson Water distribution system. Water coming from this system is derived from the Avra Valley aquifer, which is primarily recharged by the Colorado River and rainwater infiltration. Water usage within the project area is not expected to rise significantly, as most of the scheduled improvements would not result in increased water usage. However, additional water expenditures would likely be necessary during construction to reduce fugitive dust emissions. As a result of the Proposed Action, it is anticipated that day-to-day adverse impacts to ground water resources would be permanent and negligible while adverse impacts during construction would be temporary and negligible.

With the implementation of the Proposed Action, construction activities would have a temporary, minor, adverse impact on roadways and traffic adjacent to the project area. An increase of vehicular traffic along Highway 86 would occur from supplying materials, hauling debris, and from work crews commuting to the project area during construction activities. Upon completion of construction activities, the number of USBP agents traveling those roads to access the Three Points BPS could increase as well. This increase in volume of traffic associated with agents commuting to and from the Three Points BPS would have negligible impacts on roadways, and Highway 86 can accept the projected volumes. Therefore, traffic impacts associated with construction and operation of the expanded Three Points BPS would be long-term, negligible, and adverse.

Construction associated with the proposed expansion of the Three Points BPS as described in the Proposed Action would involve the use of heavy construction equipment. There is a potential for the release of hazardous materials such as fuels, lubricants, hydraulic fluids, and other chemicals during the construction activities. The impacts from spills of hazardous materials during construction would be minimized by utilizing BMPs during construction such as fueling only in controlled and protected areas away from surface waters, maintaining emergency spill cleanup kits onsite, and maintaining all equipment in good operating condition to prevent fuel and hydraulic fluid leaks. The fuel tank installed at the expanded Three Points BPS would be double-walled and contained within all protective measures needed to prevent the release of any tank spills. The vehicle maintenance bays would be equipped with oil/water separators to collect any petroleum or other automotive fluids spilled, and waste automotive fluids would be collected and disposed of in accordance with state regulations. Therefore, the Proposed Action is anticipated to have temporary, negligible, adverse impacts on the local area as it relates to hazardous substance release during construction, and long-term, negligible, adverse impacts during the operation of the expanded Three Points BPS.

The project area is located in a rural area directly off of Highway 86, outside the city limits of Tucson. The Proposed Action could result in additional agents and their families moving into the area, and needing homes, schools, and public services. Those agents and their families would likely live in Tucson or the surrounding towns. With an estimated population of 543,242 (greater than half of the total population in Pima County), Tucson is a much larger city than other cities within Pima County and would offer many more options for housing, schools, shopping, and other amenities. This would lead to many agents choosing to live in Tucson, which would easily handle the increased demand for housing and public services. With many of the additional agents and their families expected to choose to live in Tucson, increases in the demand for public services in excess of existing and projected capacities would not be expected. A majority of agents that are stationed at the current facility have already been living in Tucson while stationed at the Three Points BPS.

Temporary, minor, beneficial impacts in the form of jobs and income for area residents, revenues to local businesses, and sales and use taxes to Pima County and the State of Arizona could be realized if construction materials are purchased locally and local construction workers are hired for construction.

The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would have a permanent, negligible, adverse impact on minorities and low-income groups. The Proposed Action would have a permanent, negligible, adverse impact on children during the operation of the expanded Three Points BPS. Due to the increase in traffic during construction, and given the proximity of the Three Points BPS to two schools, the Proposed Action could have a temporary, negligible, adverse impact to children.

FINDINGS AND CONCLUSIONS

Based upon the analyses of the EA and the BMPs to be implemented, the Proposed Action would not have a significant adverse effect on the environment. Therefore, no further analysis or documentation (i.e., Environmental Impact Statement) is warranted. CBP, in implementing this decision, would employ all practical means to minimize the potential for adverse impacts on the human and natural environments. A summary of impacts, beneficial and adverse, for the Proposed Action and No Action Alternative is provided in Table ES-1.

Table ES-1. Summary Matrix of Potential Impacts

Affected Environment	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Land Use	The Proposed Action would have long-term, minor, adverse impacts on land use within the immediate or surrounding areas. Approximately 12 acres of undeveloped land would be converted to a developed land use.	No direct impacts would occur.
Soils	The effects from the disturbance and removal of approximately 12 acres of soil from biological production would result in long-term, negligible, adverse impacts due to the small size of the project footprint relative to the amount of the same soils found throughout the ROI.	No direct impacts would occur.
Vegetative Habitat	Approximately 12 acres of semidesert grassland would be permanently affected as a result of the construction of the proposed Three Points BPS expansion. Therefore, the Proposed Action would have a permanent, minor, adverse impact on vegetation in the project area.	No direct impacts would occur.
Wildlife Resources	The Proposed Action would result in the permanent loss of approximately 12 acres and would have a long-term, negligible, adverse impact on wildlife.	No direct impacts would occur.
Protected Species and Critical Habitats	Three individual PPC were located within the project area, and suitable habitat for this species exists throughout the project area. Ongoing Section 7 consultation with the USFWS is taking place to determine how to best address the PPC on site; however, it is anticipated to result in a "may affect, but not likely to adversely affect" determination. Therefore, the Proposed Action would have a permanent, minor, adverse impact on PPC and their suitable habitat.	No direct impacts would occur.
Groundwater	As a result of the Proposed Action, it is anticipated that day-to-day adverse impacts to ground water resources would be permanent and negligible while adverse impacts during construction would be temporary and negligible.	No direct impacts would occur.
Surface Water/Waters of the U.S.	The Proposed Action may have temporary, negligible, adverse impacts on surface waters as a result of increased erosion and sedimentation during periods of construction. Day-to-day water usage is not expected to be significantly higher than current levels. Long-term, minor, adverse impacts to surface waters would be expected as a result of removing potentially jurisdictional, ephemeral drainages located within the project area.	No direct impacts would occur.
Floodplains	Because the Proposed Action is sited outside of an active floodplain, this alternative would not increase the risk or impact of floods on human safety, health, and welfare, or adversely impact the beneficial values that floodplains serve.	No direct impacts would occur.
Air Quality	The Proposed Action would have temporary, minor, adverse impacts on air quality in the ROI.	No direct impacts would occur.
Greenhouse Gas	The Proposed Action would have temporary, minor, adverse impacts on GHGs released during construction. The operation of the expanded Three Points BPS would have a long-term, negligible, adverse impact on GHG emissions.	No direct impacts would occur.
Noise	The Proposed Action would have a temporary, negligible, adverse impact on the local soundscape during construction. Day-to-day operations at the expanded Three Points BPS would not be expected to add additional noise to the local soundscape, and would be expected to result in a long-term, negligible impact to the local community.	No direct impacts would occur.
Cultural, Historical, and Archaeological Resources	During consultation, the Arizona SHPO concurred with CBP's determination that none of the newly recorded archeological sites or IOs at the project area are recommended eligible for the NRHP under any criteria. As a result, no additional work is recommended for the Proposed Action's APE. The Proposed Action would result in permanent, negligible, adverse impacts on cultural resources within the APE.	No direct impacts would occur.
Utilities and Infrastructure	The Proposed Action would result in permanent, negligible, adverse effects on the availability of utilities throughout the ROI because the current amperage available through the existing grid power system can accept the anticipated electrical load of the proposed expansion design, which is largely the installation of additional vehicle parking for CBP agents. Additionally, the Three Points BPS is already tied into existing and available service transmission lines.	No direct impacts would occur.
Roadways and Traffic	With the implementation of the Proposed Action, construction activities at the project area would have a temporary, minor, adverse impact on roadways and traffic adjacent to the project area during construction. Traffic impacts associated with the day-to-day operation of the expanded Three Points BPS would be long-term, negligible, and adverse.	No direct impacts would occur.
Hazardous Material	The adverse impacts from spills of hazardous materials during construction would be minimized by utilizing BMPs during construction such as fueling only in controlled and protected areas away from surface waters, maintaining emergency spill cleanup kits on-site, and maintaining all equipment in good operating condition to prevent fuel and hydraulic fluid leaks. Therefore, the Proposed Action is anticipated to have temporary, negligible, adverse impacts on the local area as it relates to hazardous substance release during construction, and long-term, negligible, adverse impacts during the operation of the expanded Three Points BPS.	No direct impacts would occur.
Socioeconomics	With many of the additional agents and their families expected to choose to live in Tucson, increases in the demand for public services exceeding existing and projected capacities would not be anticipated. A majority of agents that are stationed at the current facility have already been living in Tucson while stationed at the Three Points BPS. Temporary, minor, beneficial impacts in the form of jobs and income for area residents, revenues to local businesses, and sales and use taxes to Pima County and the State of Arizona could be realized if construction materials are purchased locally and local construction workers are hired for road construction.	No direct impacts would occur.
Environmental Justice and Protection of Children	The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would have a permanent, negligible, adverse impact on minorities and low-income groups. The Proposed Action would have a permanent, negligible, adverse impact on children during the operation of the expanded Three Points BPS. Due to the increase in traffic during construction, and given the proximity of the Three Points BPS to two schools, the Proposed Action could have a temporary, negligible, adverse impact to children.	No direct impacts would occur.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF PHOTOGRAPHS

LIST OF TABLES

LIST OF TABLES, CONTINUED

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

United States (U.S.) Customs and Border Protection (CBP) has prepared an Environmental Assessment (EA) that addresses the potential effects, beneficial and adverse, resulting from the proposed expansion of the existing Three Points Border Patrol Station (BPS).

The existingThree Points BPS was first established in 1949 to support 50 U.S. Border Patrol (USBP) agents. Currently, over 200 agents are assigned to the station. The additional staff and supporting vehicles and equipment have resulted in overcrowded conditions on the current parking lot and are negatively impacting the mission of the agents. The proposed expansion and associated supporting infrastructure are designed to allow for the continued operation of the Three Points BPS in support of the Border Patrol Strategic Plan to gain and maintain effective control of the borders of the U.S. (CBP 2012).

The Three Points BPS supports the Tucson Sector, which covers most of the state of Arizona. The Tucson Sector Area of Responsibility (AOR) covers 262 miles of the International Border from the Arizona/New Mexico state line to the Yuma County line. There are nine stations in Tucson Sector: Why, Casa Grande, Douglas, Bisbee, Nogales, Sonoita, Tucson, Three Points, and Wilcox (CBP 2022). The Tucson Sector plays an integral part in the overall Border Patrol Strategic Plan as a primary line of defense between the border with Mexico and the interior of the U.S. Current operations within the Tucson Sector ensure that resources, manpower, and technology are deployed along the U.S./Mexico border, which is the Tucson Sector's primary responsibility.

1.2 PROJECT LOCATION

The proposed BPS expansion site (project area) is in Three Points, Arizona (Figure 1-1). The project area is located at 16435 W Ajo Hwy (Highway 86), Tucson, Arizona 85735, which is approximately 23 miles west of Tucson and 70 miles north of the U.S./Mexico International Border (Figure 1-2). The property is mostly flat, undeveloped desert scrub. Three Points is located in Pima County, Arizona and is considered to be within the Arizona Upland/Eastern Sonoran Basin ecoregion (U.S. Geological Survey [USGS] 2014).

1.3 PURPOSE AND NEED OF THE PROPOSED ACTION

CBP and USBP propose to expand the current Three Points BPS for the purpose of facilitating the primary goals and objectives of USBP's strategy, which include the addition of as-needed new agents and personnel. Based upon the increasing trends in illegal border activities and the insufficient facilities at the current Three Points BPS, additional resources and USBP agents are required to maintain the operational capabilities within the Three Points BPS AOR. The mission and personnel at the Tucson Sector have grown significantly since the current Three Point BPS was constructed. This has adversely impacted daily field operations, communications, administrative functions, and training efficiencies.

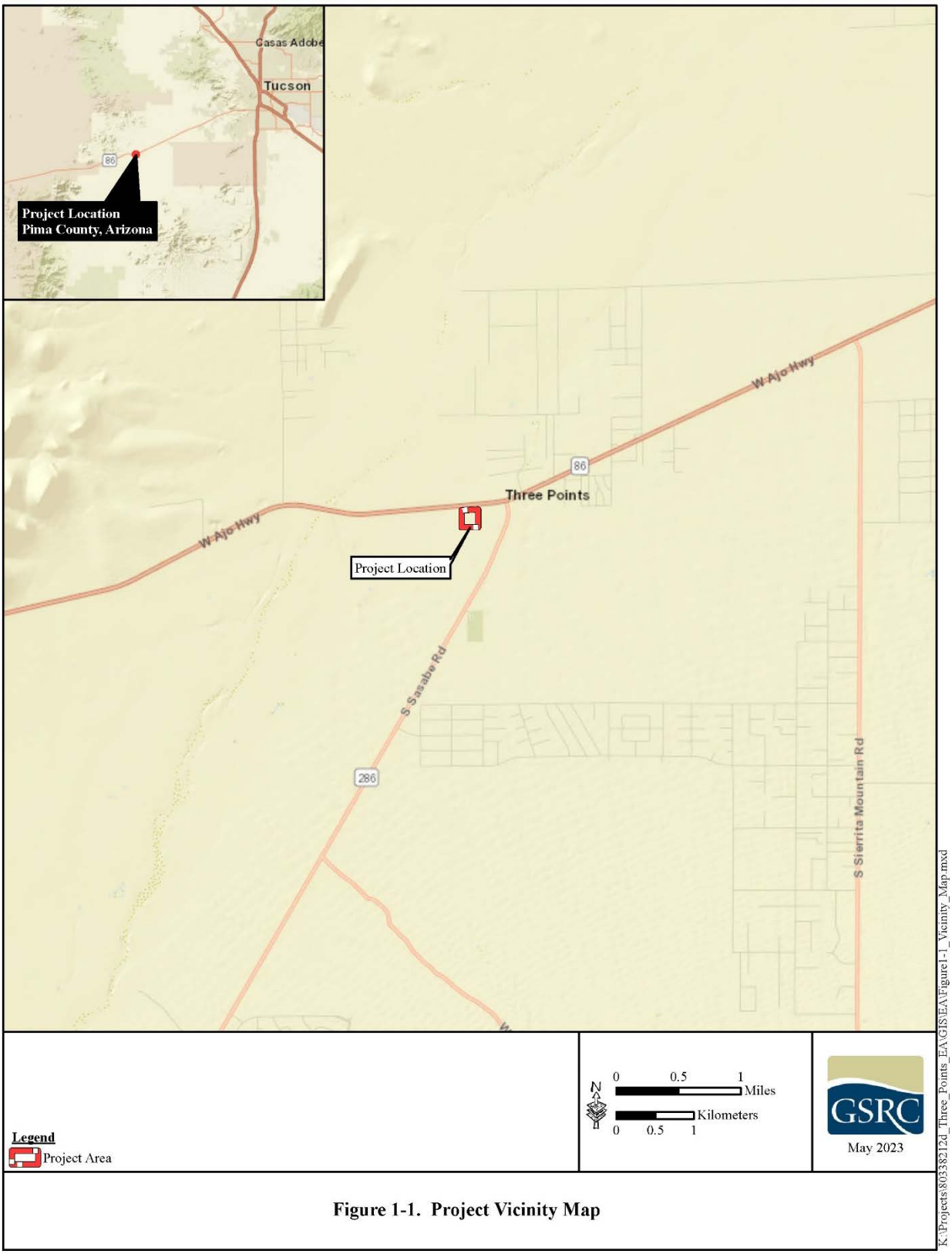

Figure 1-1. Project Vicinity Map

Figure 1-2. Project Area Map

The development of the additional space adjacent to the existing facility would address the occupational health, safety, security, and operational deficiencies at the existing Three Points BPS and would effectively anticipate and adapt to future law enforcement challenges. The Proposed Action (Preferred Alternative) would enhance the overall safety and efficiency of current and future operations within the USBP Three Points BPS AOR, as well as the safety of communities in the area.

The need for expansion at the current Three Points BPS is due to the increased decentralization of several programs and the increasing number of agents that have been required to operate at the Three Points BPS. Having over 200 employees working in an area intended for 50 agents has led to operational inefficiencies, safety concerns for agents, and the need for leasing of costly off-site facilities to compensate for the extreme overcrowding. The current facilities do not adequately accommodate the existing USBP agents and would not be capable of accommodating additional staff. This lack of capacity hinders the USBP ability to respond to high levels of illegal border-related activity.

The Proposed Action is to expand the existing facility footprint by adding an additional 12 acres of land located immediately adjacent to the existing footprint. This 12-acre parcel would be leased from the State of Arizona. In addition, remediations to facility infrastructure would also be addressed to ensure the long-term sustainment of the BPS. The additional space and upgraded facilities would be able to accommodate the growth in staffing due to existing and near-future operational demands placed upon the Three Points BPS. A stormwater management system would also be installed to provide adequate protection during flooding events of the existing BPS and the 12-acre expansion property.

The general need for the Proposed Action includes the following:

- Sufficient facilities are required for USBP to operate efficiently, safely and securely, which will result in more effective deployment of required assets in the AOR to prevent illegal activities and ensure chain of custody.
- Appropriate facilities are needed that conform to USBP standards, regulations, mandates, and design guides.
- The Three Points BPS needs the ability to expand in response to future law enforcement needs.

The Proposed Action includes the following improvements:

- Make improvements to the newly leased parcel to support additional parking and equipment storage.
  - Provide stormwater crossing structures where necessary.
- Construct a stormwater management system capable of managing stormwater runoff on both the existing BPS footprint and the 12-acre expansion area.
- Add perimeter security fencing and gates in accordance with both CBP and Pima County design standards.
- Install a larger fuel tank (10,000 gallons) to accommodate current and future demands on vehicle use - the current tank is 5,000-gallon.

- Relocate existing structures (Storage Connex, Fuel Tank, Storage Sheds, Vehicle Wash Station, Covered all-terrain vehicle [ATV] complex).
- Construct a new butler building to include two vehicle bays with lift systems.
- Upgrade the roadway leading to the main entrance.
- Construct an approximately 200-foot wall with landscaping at the entrance of the BPS.
- Install a Pima County Government-approved stormwater management system.
- Add overhead illumination.
- Relocate all above ground improvements from the existing BPS to the new 12-acre expansion property.
- Remediate locations on the existing BPS parking site where improvements were previously located.

1.4 SCOPE OF ENVIRONMENTAL ANALYSIS AND DECISIONS TO BE MADE

The scope of this EA includes an evaluation of the effects on the natural, cultural, social, economic, and physical environments resulting from the construction, installation, operation, and maintenance of the proposed expansion of the Three Points BPS (see Figure 1-1). This evaluation will review and discuss environmental trends or reasonably foreseeable planned actions within the potentially affected areas. This analysis does not include an assessment of operations conducted in the field and away from the Three Points BPS. The potentially affected natural and human environment is limited to resources associated with the Three Points community and Pima County, Arizona. Most potential effects would be limited to the construction site and immediately adjacent resources.

The EA assesses the environmental impacts of the Proposed Action and the No Action alternatives. The EA allows decision makers to determine if the Proposed Action would have effects on the natural, cultural, social, economic, and physical environment, as well as whether the action can proceed to the next phase of project development or if an Environmental Impact Statement (EIS) is required. The process for developing this EA allows for input and comments on the Proposed Action from the concerned public, interested non-governmental groups, and interested government agencies to inform agency decision making.

The EA has been prepared as follows:

1. Conduct interagency and intergovernmental coordination for environmental planning. The first step in the NEPA process is to solicit comments from federal, state, and local agencies, as well as federally recognized tribes, about the proposed project to ensure that their concerns are included in the analysis.

2. Prepare a draft EA. CBP will review and address relevant comments and concerns received from any federal, state, and local agencies or federally recognized tribes during preparation of the draft EA.

3. Announce that the draft EA has been prepared. A Notice of Availability (NOA) will be published in the *Tucson Weekly* and the *Arizona Daily Star* on August 23, 2023 to

announce the public comment period and the availability of the draft EA and Finding of No SignificantImpact (FONSI), if applicable.

4. Provide a public comment period. A public comment period allows for all interested parties to review the analysis presented in the draft EA and provide feedback. The draft EA will be available to the public for a 30-day review beginning August 23, 2023. The draft EA will also be available at the Southwest Library (6855 South Mark Road Tucson, Arizona 85757) and the Valencia Library (202 West Valencia Road Tucson, Arizona 85706) as well as for download from the CBP internet web page at the following URL address: http://www.cbp.gov/about/environmental-management.

5. Prepare a final EA. A final EA will be prepared following the public comment period. The final EA will address relevant comments and concerns received from all interested parties during the public comment period.

6. Issue a FONSI. The final step in the NEPA process is the signature of a FONSI, if the environmental analysis supports the conclusion that impacts on the quality of the human and natural environments from implementing the Proposed Action would not be significant.

1.5 APPLICABLE ENVIRONMENTAL GUIDANCE, STATUTES, AND REGULATIONS

CBP followed applicable federal laws and regulations for environmental protection and management. The EA was developed in accordance with the requirements of NEPA; updated regulations issued by the Council on Environmental Quality (CEQ) published in 40 Code of Federal Regulations (CFR) Parts 1500-1508 (CEQ 2022); Department of Homeland Security (DHS) Directive Number 023-01, Rev.01, and DHS Instruction Manual 023-01-001-01, Rev. 01, *Implementation of the National Environmental Policy Act*; and other pertinent environmental statutes, regulations, and compliance requirements. The EA is the vehicle for compliance with all applicable environmental statutes, such as the Endangered Species Act (ESA) of 1973, 16 United States Code (U.S.C.) Part §1531 et seq., as amended, and the National Historic Preservation Act (NHPA) of 1966, 16 U.S.C. §470a et seq., as amended.

1.6 PUBLIC INVOLVEMENT

In accordance with 40 CFR §1501.9, 1503, 1506.6, and 1508.1 (k), CBP initiated public involvement and agency scoping activities to identify significant issues related to the Proposed Action. CBP consulted with appropriate local, state, tribal, and federal government agencies throughout the EA process. Formal and informal coordination was conducted with the following agencies:

Federal Agencies:

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (USEPA)

- U.S. Army Corps of Engineers (USACE)
- U.S. Department of the Interior (DOI)
- Federal Highway Administration (FHWA)

State Agencies:

- Arizona Game and Fish Department (AGFD)
- Arizona State Historic Preservation Office (SHPO)
- Arizona Department of Transportation (ADOT)
- Arizona Department of Environmental Quality (ADEQ)

Tribal:

- Hopi Tribe of Arizona
- Fort Sill Apache Tribe of Oklahoma
- Pascua Yaqui Tribe of Arizona
- Pueblo of Zuni
- San Carlos Apache Tribe of the San Carlos Reservation, Arizona
- Yavapai-Apache Nation
- Mescalero Apache Tribe
- Tohono O'odham Nation of Arizona
- White Mountain Apache Tribe of the Fort Apache Reservation, Arizona
- Ak Chin Indian Community
- Gila River Indian Community
- Salt River Pima-Maricopa Indian Community

Local:

- Pima County
- Tucson Arizona Mayor's Office

2.0 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action and alternatives for siting the proposed expansion of the current Three Points BPS. One action alternative (Proposed Action) and one alternative (No Action Alternative) were identified and considered during the planning stages of the proposed project. The Proposed Action consists of remediating deficiencies at the current Three Points BPS and expanding the current Three Points BPS to meet the purpose of and need for the project. As required by NEPA and CEQ regulations, the No Action Alternative represents conditions within the project area if the Proposed Action would not be implemented. One potential site will be carried forward for evaluation in the EA.

2.1 PROPOSED ACTION ALTERNATIVE

The current Three Points BPS is located just south of Highway 86 in Three Points, Arizona. The Proposed Action Alternative would expand the current Three Points BPS south and west of the current BPS footprint (Figure 2-1). The Proposed Action includes the expansion of the existing facility footprint to add an additional 12 acres of land and to remediate deficiencies in infrastructure at the current BPS. The 12-acre parcel would be leased from the State of Arizona. Based upon potential site designs, it has been determined that a 12-acre project area is sufficient to support the currently overburdened BPS. There is one site that CBP will evaluate as part of the EA. This tract is currently owned by the ADOT and consists of disturbed shrubland. The specific size and location of the Proposed Action Alternative was carefully chosen based on the surrounding land use characteristics. The Three Points BPS could not feasibly expand north due to Highway 86 or east due to an existing business. Therefore, the 12-acre parcel chosen is located south and west of the current facility. The expansion site was limited westward to avoid a floodplain. In order to manage stormwater on the existing facility, an approved and adequate stormwater management system is required to be placed on the 12-acre expansion property, which requires immediate adjacency to the existing Three Points BPS. Due to the need to obtain property that is immediately adjacent to the existing Three Points BPS, no other alternatives were considered aside from the No Action Alternative.

2.2 PROPOSED STATION DESIGN

The proposed expansion would accommodate up to 200 personnel to meet current and future increased labor demands to meet the objectives of USBP in the Three Points BPS AOR. The proposed site would also have the capability to house current equipment, staff, and other materials necessary to meet the objectives of the Three Points BPS. The proposed expansion, design, and construction would result in the Three Points BPS meeting USBP facilities guidelines and security standards. The infrastructure would be designed in accordance with the *Guiding Principles for Sustainable Federal Buildings (Guiding Principles) for New Construction or Modernization*, the USBP Facilities Design Guide Standards, and will meet Metrics 1 to 20 of this regulatory documentation (U.S. Department of Energy [DOE] 2016).

Figure 2-1. Conceptual Design Layout

A conceptualized design layout is provided on Figure 2-1. The proposed 12-acre expansion would include the following components:

- Make improvements to the newly leased parcel to support additional parking and equipment storage.
- Provide stormwater crossing structures where necessary.
- Add perimeter security fencing and gates in accordance with both CBP and Pima County design standards.
- Install a larger fuel tank (10,000 gallons) to accommodate current and future demands on vehicle use - the current tank is 5,000-gallon.
- Relocate existing structures (Storage Connex, Fuel Tank, Storage Sheds, Vehicle Wash Station, Covered all-terrain vehicle [ATV] complex).
- Construct a new butler building to include two vehicle bays with lift systems.
- Upgrade the roadway leading to the main entrance.
- Construct an approximately 200-foot wall with landscaping at the entrance of the BPS.
- Install a Pima County Government-approved stormwater management system.
- Add overhead illumination.
- Relocate all above ground improvements from the existing parcel adjacent to Highway 86 to the new 12-acre expansion property.
- Remediate locations on the existing parking site where improvements were previously located.

2.3 NO ACTION ALTERNATIVE

The No Action Alternative would preclude the construction, operation, and maintenance of an expanded Three Points BPS. The existing Three Points BPS would continue to be inadequate for the support of operations and would have to accommodate the current staff and projected increase in USBP agents but would not be able to do so while operating in an effective manner. Consequently, this alternative would hinder USBP's ability to respond to high levels of illegal border-related activity. The No Action Alternative does not meet the purpose and need for the proposed project, but will be carried forward for analysis, as required by CEQ regulations. The No Action Alternative describes the existing conditions in the absence of the Proposed Action.

2.4 ALTERNATIVES SUMMARY

The alternatives selected for further analysis are the Proposed Action Alternative and the No Action Alternative. The Proposed Action Alternative is CBP's Preferred Alternative for the proposed project. The Proposed Action Alternative fully meets the purpose of and need for the project, and the preferred construction site offers the best combination of terrain, environment, land ownership, and operational requirements to serve as a command center for conducting USBP's operations within the Three Points BPS AOR. An evaluation of how the alternatives meet the project's purpose and need is provided in Table 2-1.

No other alternatives that meet the purpose and need of the project have been identified. In order to manage stormwater on the existing facility, the proposed expansion area and associated stormwater management system must abut the existing Three Points BPS. The Three Points BPS could not feasibly expand north due to Highway 86, east due to an existing business, or further west due to a floodplain.

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

Purpose and Need	Proposed Action Alternative	No Action Alternative
Appropriately planned infrastructure to allow the USBP to operate more efficiently, safely, and securely - resulting in more effective deployment of required assets in the area of responsibility to prevent illegal activities - and ensure chain of custody.	Yes	No
Infrastructure and space that will enable USBP to attain and maintain compliance with standards, regulations, and mandates, including installation of an approved stormwater management system for the existing facility and 12-acre expansion property.	Yes	No
Additional space for expansion of the Three Points BPS to a 200-employee station plus support staff.	Yes	No
Equipment necessary for the increased effectiveness of USBP agents in the performance of their duties (e.g., upgraded fuel storage tank, perimeter fencing, and overhead illumination).	Yes	No

3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 PRELIMINARY IMPACT SCOPING

This section describes the natural and human environments that exist within the Region of Influence (ROI) and the potential impacts of the Proposed Action Alternative and the No Action Alternative outlined in Chapter 2.0 of this document. The ROI for the expanded Three Points BPS and its associated infrastructure is Pima County, Arizona. Only those issues that have the potential to be affected by any of the alternatives are described, per CEQ guidance (40 CFR § 1501.7 [3]).

Some topics are limited in scope due to the lack of direct effect from the Proposed Action on the resource or because that particular resource is not located within the project corridor (Table 3-1).

Table 3-1. Resources Analyzed in the Environmental Impact Analysis Process

Resource	Potential to Be Affected by Implementation of the Proposed Action	Analyzed in This EA	Rationale for Elimination
Wild and Scenic Rivers	No	No	No rivers designated as Wild and Scenic Rivers (16 U.S.C. § 551, 1278[c], 1281[d]) are located within or near the project corridor.
Land Use	Yes	Yes	Not Applicable
Geology	No	No	No geologic resources would be affected
Soils	Yes	Yes	Not Applicable
Prime Farmlands	No	No	No prime farmlands would be affected
Water Resources	Yes	Yes	Not Applicable
Floodplains	No	Yes	Not Applicable
Vegetative Habitat	Yes	Yes	Not Applicable
Wildlife Resources	Yes	Yes	Not Applicable
Threatened and Endangered Species	Yes	Yes	Not Applicable
Cultural, Archaeological, and Historical Resources	No	Yes	Not Applicable
Air Quality	Yes	Yes	Not Applicable
Noise	Yes	Yes	Not Applicable
Utilities and Infrastructure	No	Yes	Not Applicable
Radio Frequency Environment	No	No	No radio towers would be installed
Roadways and Traffic	Yes	Yes	Not Applicable
Hazardous Materials	Yes	Yes	Not Applicable
Aesthetic and Visual Resources	No	No	No aesthetic or visual resources would be affected
Unique and Sensitive Areas	No	No	No unique or sensitive areas would be affected
Socioeconomics	Yes	Yes	Not Applicable
Environmental Justice and Protection of Children	No	Yes	Not Applicable

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 effects are caused by the action and occur at the same time and place (40 CFR § 1508.8[a]). Indirect effects 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 alternatives may create temporary (lasting the duration of the project), short-term (up to 3 years), long-term (3 to 10 years following construction), or permanent effects.

Whether an impact is significant depends on the context in which the impact occurs and the intensity of the impact (40 CFR § 1508.27). The context refers to the setting in which the impact occurs and may include the affected region, the affected interests, and the locality. 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 would 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 consequence.
- 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 and 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. It is assumed that the entire tract of land where the Proposed Action is located would be used by CBP resulting in a permanent impact of 12 acres.

3.2 LAND USE

The project area is owned by ADOT and is primarily composed of flat, undeveloped desert scrub. The existing land use of the project area is vacant land. The community of Three Points is located in Pima County, Arizona and is considered to be within the Arizona Upland/Eastern Sonoran Basin ecoregion (U.S. Geological Survey [USGS] 2014). The current Three Points BPS is located immediately to the north and to the east of the project area, and undeveloped desert scrub land owned by ADOT is located immediately to the west and south of the current Three Points BPS.

3.2.1 Alternative 1: Proposed Action

Implementation of the Proposed Action would result in a change from the current land use of undeveloped desert scrub to a developed area in the form of an expanded Three Points BPS. The closest developed area is Three Points, Arizona, with the closest residential area just to the north of the project area (approximately 0.4-mile). Adjacent land uses include primarily undeveloped land, farms, and rangelands. The City of Tucson is located to the north and east of the project area. The project area falls outside the Tucson City Limits. Although the Preferred Alternative would convert approximately 12 acres of undeveloped land to developed use, much of the ROI, even if developed near the Proposed Action, would remain undeveloped rangelands. The Proposed Action would have long-term, minor, adverse impacts on land use within the immediate or surrounding areas.

3.2.2 Alternative 2: No Action Alternative

The No Action Alternative would have no impacts, either beneficial or adverse, on land use in the ROI. CBP would not acquire any property and would continue to use the current Three Points BPS. No construction activities would occur as part of the No Action Alternative; therefore, no land use impacts would occur.

3.3 SOILS

The project area covers approximately 12 acres of desert scrub in southern Arizona, 23 miles southwest of Tucson, Arizona. The soil type within the project area is Bucklebar-Sahuarita complex, 0-3 percent slopes, and this soil complex covers 100% of the project area. The soil found within the project area is not listed as Prime Farmland (United States Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] 2023).

According to the *Natural Resources Conservation Service Web Soil Survey of Pima County, Arizona*, soils in the project area are mapped entirely as Bucklebar-Sahuarita complex (Figure 3-1). Bucklebar soils are very deep, well-drained soils that formed in mixed alluvium. Bucklebar soils occur on fan terraces and coalescent fan piedmonts that have slopes of 0 to 10 percent. These soils occur in areas where annual precipitation is approximately 11 inches and mean annual air temperatures are approximately 67 degrees (National Cooperative Soil Survey 2023a). Sahuarita soils are very deep, well-drained soils that formed in alluvium from limestone, schist, phyllite, and granite. These soils typically occur on fan terraces and basin floors of slopes of 0 to 8 percent. Sahuarita soils occur in areas where annual precipitation is approximately 11 inches and mean annual air temperatures are approximately 67 degrees (National Cooperative Soil Survey 2023b).

3.3.1 Alternative 1: Proposed Action

Under the Proposed Action, up to 12 acres of soils (of which none are considered prime farmland soils) would be permanently disturbed or removed from biological production as a result of the Three Points BPS expansion project. The effects associated with the disturbance and removal of approximately 12 acres of soil from biological production would result in long-term, negligible, adverse impacts due to the small size of the project footprint relative to the amount of the same soils throughout the ROI.

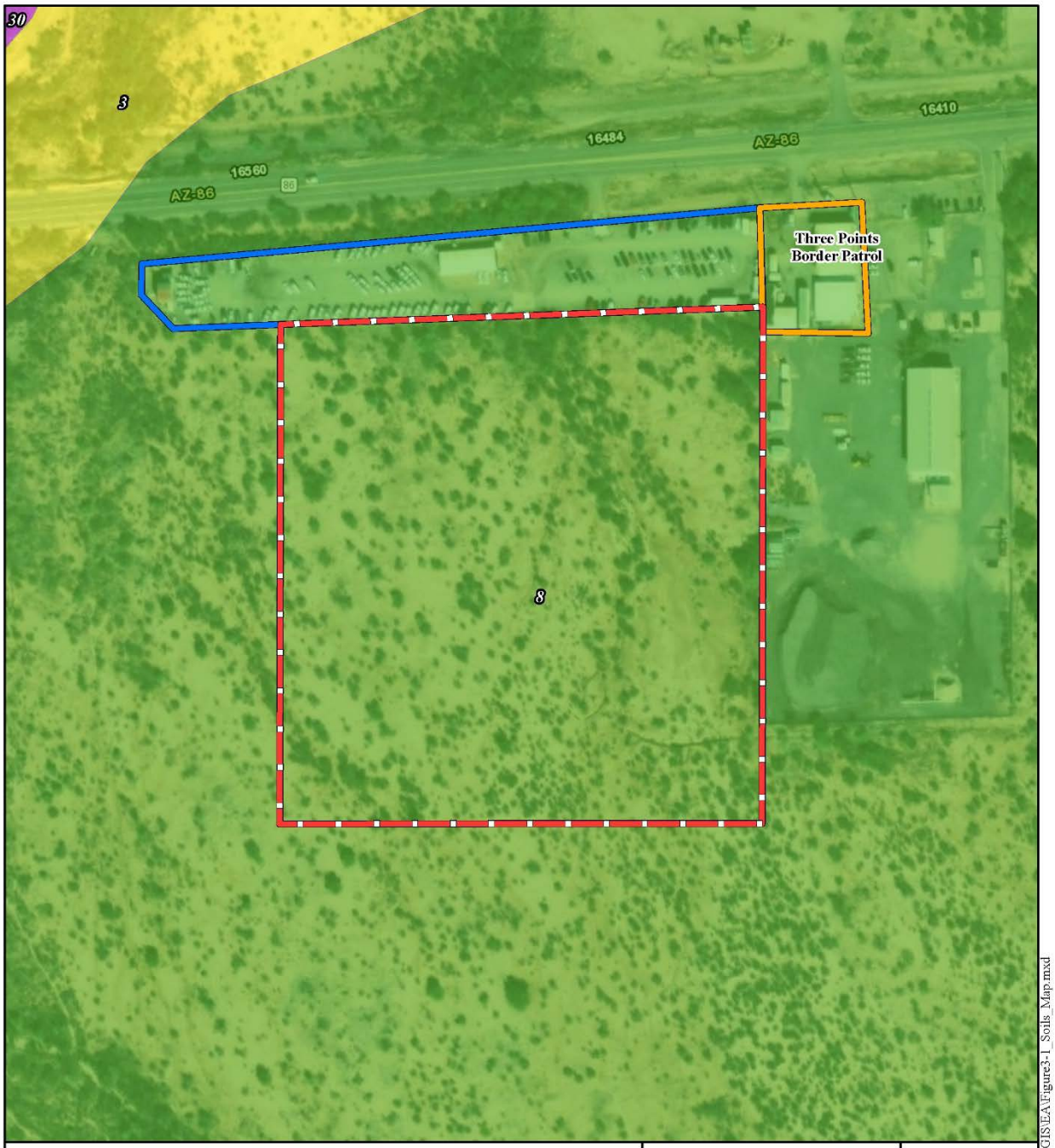

Figure 3-1. Soils Map

Upon completion of construction, all temporary disturbance areas would be revegetated with a mixture of native plant seeds or nursery plantings or allowed to revegetate naturally, if applicable.

3.3.2 Alternative 2: No Action Alternative

No ground-disturbing activities would occur as a result of this alternative. CBP would not acquire any property and would continue to use the current Three Points BPS. Therefore, the No Action Alternative would have no impacts, either beneficial or adverse, on soils.

3.4 VEGETATIVE HABITAT

The project area is located in Pima County, Arizona and is considered to be within the Arizona Upland/Eastern Sonoran Basin ecoregion (USGS 2014). Brown and Lowe (1994) consider this region semidesert grassland. Semidesert grassland is primarily found in the Chihuahuan Desert, with extensive areas of this community found throughout southeast Arizona. Semidesert grasslands are primarily found in Trans-Pecos Texas, the southern portion of New Mexico, and extend southward to central Mexico. Semidesert grassland can be subdivided into more specific vegetation communities. The project area contains an evergreen and deciduous shrub community along with a small portion of cholla-dominant community. A map showing specific vegetation cover as it relates to the project area is provided on Figure 3-2.

The vegetation association within the project area is dominated by velvet mesquite (*Prosopis velutina*), creosote (*Larrea tridentata*), and needle grama (*Bouteloua aristidoides*). Federally-listed Pima pineapple cactus (PPC; *Coryphantha robustispina* var. *robustispina*) is also present within the project area. All vegetation species found within the project area are listed in Table 3-2.

3.4.1 Alternative 1: Proposed Action

Approximately 12 acres of semidesert grassland would be permanently affected as a result of the construction of the proposed Three Points BPS expansion. The vegetative community that would be affected by the construction of the Proposed Action is both locally and regionally common, with approximately 26,586,000 acres of these grasslands in Arizona and New Mexico (Brown and Lowe 1994, The Nature Conservancy 2006). The adverse impact of the Proposed Action on the abundance of semidesert grasslands in the U.S. would be negligible. In order to ensure that the Proposed Action does not actively promote the establishment of non-native and invasive species in the area, best management practices (BMPs; described in Chapter 5.0) would be implemented to minimize the spread and establishment of non-native vegetation. Upon completion of construction, all temporary disturbance areas would be revegetated with a mixture of native plant seeds or nursery plantings or allowed to revegetate naturally. These BMPs, as well as measures protecting vegetation in general, would reduce potential impacts from non-native invasive species to a negligible amount. Therefore, the Proposed Action would have a permanent, minor, adverse impact on vegetation in the project area.

Table 3-2. Observed Flora Species on the Three Points BPS Expansion Site

Common Name	Scientific Name	Common Name	Scientific Name
Arizona cottontop	*Digitaria californica*	Fourwing saltbush	*Atriplex canescens*
Arizona pencil cholla	*Cylindropuntia arbuscula*	Large-spike bristlegrass	*Setaria macrostachya*
Arizona poppy	*Kallstroemia grandiflora*	Lehmann's lovegrass	*Eragrostis lehmanniana*
Berlandier's wolfberry	*Lycium berlandieri*	Longleaf ephedra	*Ephedra trifurca*
Bermuda grass	*Cynodon dactylon*	Needle gramma	*Bouteloua aristidoides*
Big bursage	*Ambrosia ambrosioides*	New Mexico silver bush	*Ditaxis neomexicana*
Blue palo verde	*Parkinsonia florida*	Pima pineapple cactus	*Coryphantha robustispina* var. *robustispina*
Brittlebush	*Encelia farinosa*	Palmer's amaranth	*Amaranthus palmeri*
Broom snakeweed	*Gutierrezia sarothrae*	Purple three awn	*Aristidia purpurea*
Buffelgrass	*Cenchrus ciliaris*	Ratama	*Parkinsonia aculeata*
Burroweed	*Isocoma tenuisecta*	Saguaro	*Carnegiea gigantea*
Button brittlebush	*Encelia frutescens*	Scarlet spiderling	*Boerhavia coccinea*
Chain-fruit cholla	*Cylindorpuntia fulgida*	Sideoats gramma	*Bouteloua curtipendula*
Chinchweed	*Pectis papposa*	Silverleaf nightshade	*Solanum elaeagnifolium*
Climbing milkweed	*Funastrum cynanchoides*	Small caltrop	*Kallstoemia parviflora*
Creosote	*Larrea tridentata*	Sonoran sandmat	*Chamaesyce micromera*
Desert broom	*Baccharis sarothroides*	Southwestern mock vervain	*Glandularia gooddingii*
Desert mistletoe	*Phoradendron californicum*	Southwestern pipevine	*Aristolochia watsonii*
Desert thorn-apple	*Datura discolor*	Spiny hackberry	*Celtis pallida*
Desert tobacco	*Nicotiana obtusifolia*	Staghorn cholla	*Cylindropuntia versicolor*
Desert unicorn-plant	*Proboscidea althaeifolia*	Trailing windmills	*Allionia incarnata*
Desert zinnia	*Zinnia acerosa*	Triangle bursage	*Ambrosia deltoidea*
Doubleclaw proboscidea	*Proboscidea parviflora*	Two-leaved senna	*Senna bauhinioides*
Engelman's hedgehog cactus	*Echinocereus engelmannii*	Velvet mesquite	*Prosopis velutina*
Engelman's prickly pear	*Opuntia engelmannii*	Walkingstick cholla	*Cylindorpuntia spinosior*
Erect spiderling	*Boerhavia erecta*	Weakleaf bur ragweed	*Ambrosia confertiflora*
Fireplant	*Euphorbia heterophylla*	White-thorn acacia	*Vachellia constricta*
Fishhook barrel cactus	*Ferocactus wislizeni*	Woolly tidestromia	*Tidestromia lanuginosa*
Fluff grass	*Dasyochloa pulchella*	Yellow nightshade groundcherry	*Physalis crassifolia*
		Yellow spiny daisy	*Xanthisma spinulosum*

Source: GSRC 2022

Figure 3-2. Vegetation Cover Map

3.4.2 Alternative 2: No Action Alternative

The No Action Alternative would preclude the construction, operation, and maintenance of an expanded Three Points BPS, and the No Action Alternative would have no direct impacts, either beneficial or adverse, on the vegetative habitat of the project area.

3.5 WILDLIFE RESOURCES

The project area occurs in the Arizona Upland Subdivision Sonoran Desertscrub, as described by Brown and Lowe (1994). The elevation of the project area is approximately 2,540 feet above mean sea level (amsl). The terrain is level to gently sloping, and the project area is undeveloped and generally disturbed.

A biological resources survey was conducted by GSRC on August 30, 2022 throughout the approximately 12-acre project area. Photograph 3-1 shows representative habitat conditions within the project area. An erosional feature runs southeast to northwest through a culvert located outside of the project area and adjacent to Highway 86 (Photograph 3-2). Evidence of flowing water including cut banks, sand/gravel substrate, and vegetation debris deposits indicate that the waterway drains the project area during rain events.

Photograph 3-1. Overview of the project area from the northwest corner (looking southeast)

Photograph 3-2. Erosional feature in the southeastern portion of the project area.

During the biological resources survey of the project area, 20 wildlife species including mammals, reptiles, birds, and insects were observed either through direct observations or through observations of signs such as vocalizations, tracks, scat, and burrows (Table 3-3). No federally listed or state listed special status species were observed during the biological resources surveys. It was noted during the biological survey that adequate habitat existed for PPC. Furthermore, PPC were identified during a species-specific protocol-level survey that was conducted after the original biological survey (See Section 3.6 and Appendix C). No active bird nests were noted within or adjacent to the project area. However, two saguaros (*Carnegiea gigantea*) were identified within the project area. This species is ecologically important as it is known to serve as a nesting and roosting structure for a variety of bird species as well as a nectar source for bats, such as the lesser long-nosed bat (*Leptonycteris curasoa yerba-buena*). A Mojave rattlesnake (*Crotalus scutulatus*) observed in the project area is shown on Photograph 3-3.

Table 3-3. Fauna Observed During the Three Points BPS Expansion Project Biological Resources Survey

Common Name	Scientific Name	V=visual, S=sign
Mammals		
Bobcat	*Lynx rufus*	S
Collared peccary	*Pecari tajacu*	S
Birds		
Black-tailed gnatcatcher	*Polioptila melanura*	V
Cactus wren	*Campylorhynchus brunneicapillus*	V
Curve-billed thrasher	*Toxostoma curvirostre*	V
Eurasian-collared dove	*Streptopelia decaocto*	V
Gambel's quail	*Callipepla gambelii*	V
Lucy's warbler	*Leiothlypis luciae*	V
Mourning dove	*Zenaida macroura*	V
Northern cardinal	*Cardinalis cardinalis*	V
Rufous-winged sparrow	*Peucaea carpalis*	V
White-winged dove	*Zenaida asiatica*	V
Insects		
Fig beetle	*Cotinis mutabilis*	V
Pipevine swallowtail	*Battus phileno*	V
Reptiles		
Desert spiny lizard	*Sceloporus magister*	V
Mojave rattlesnake	*Crotalus scutulatus*	V
Side-blotched lizard	*Uta stansburiana*	V
Sonoran Desert toad	*Bufo alvarius*	S
Tiger whiptail	*Aspidoscelis tigris*	V
Zebra-tailed lizard	*Callisaurus draconoides*	V

Source: GSRC 2022

Photograph 3-3. A Mojave rattlesnake (*Crotalus scutulatus*) observed within the project area.

3.5.1 Alternative 1: Proposed Action

The permanent loss of approximately 12 acres would have a long-term, negligible, adverse impact on wildlife. Soil disturbance and operation of heavy equipment could result in a reasonably foreseeable adverse impact to less mobile taxa such as lizards, snakes, and ground-dwelling species such as mice and rats. However, most wildlife would likely avoid harm by escaping to the surrounding habitat. The degradation and loss of habitat could also affect burrows and nests, as well as cover, forage, and other important wildlife resources. The loss of these resources would result in the displacement of individuals that would then be forced to compete with other wildlife for the remaining resources. Although this competition for resources could result in a reduction of total population size, such a reduction would be extremely minimal in relation to total population size and would not result in long-term effects on the sustainability of any wildlife species. The wildlife habitat present in the project area is both locally and regionally common, and the permanent loss of approximately 12 acres of wildlife habitat would not adversely affect the population viability of any wildlife species in the region. Additionally, upon completion of construction, all temporary disturbance areas would be revegetated with a mixture of native plant seeds or nursery plantings or allowed to revegetate naturally.

The Migratory Bird Treaty Act (MBTA) requires that federal agencies coordinate with USFWS if an activity would result in the 'take' of a migratory bird. In accordance with compliance measures of the MBTA, BMPs identified in Chapter 5.0 would be implemented if construction or clearing activities were scheduled during the nesting season (typically March 15 to September 15). No bird nests were found during the biological resources survey or the PPC protocol-level survey.

Lighting could attract or repel various wildlife species within the vicinity of the project area. The presence of lights within the project area could also produce some long-term behavioral effects, although the magnitude of these effects is not presently known. Some species, such as insectivorous bats, may benefit from the concentration of insects that would be attracted to the lights. Continual exposure to light has been proven to slightly alter circadian rhythms in mammals and birds. Studies have demonstrated that under constant light, the time an animal is active, compared with the time it is at rest, increases in diurnal animals, but decreases in nocturnal animals (Carpenter and Grossberg 1984). Outdoor lighting can disturb flight, navigation, vision, migration, dispersal, oviposition, mating, feeding and crypsis in some moths. In addition, it may disturb circadian rhythms and photoperiodism (Frank 1988). It has also been shown that, within several weeks under constant lighting, mammals and birds would quickly stabilize and reset their circadian rhythms back to their original schedules (Carpenter and Grossberg 1984). While the number of lights within the boundary of the project area is not presently known, artificial lighting concentrated around a single 12-acre developed area would not significantly disrupt activities of wildlife populations across the region, since similar habitat is readily available to the north, east, west, and south for wildlife relocation. Lighting BMPs would be applied to all outdoor lighting once construction is complete, further minimizing the potential adverse impacts. Finally, construction activities would be limited primarily to daylight hours, whenever possible; therefore, construction impacts on wildlife would be insignificant since the highest period of movement for most wildlife species occurs during night-time or low daylight hours.

Periodic noise from construction activities and subsequent operational activities would have moderate and intermittent adverse impacts on the wildlife communities located adjacent to the project area. However, because similar habitat is readily available, wildlife would easily relocate. Vehicle traffic on Highway 86 currently influences the behavioral responses of wildlife in the area. Upon completion of the proposed Three Points BPS expansion, the number of vehicles would increase slightly, but would not result in a substantial increase in vehicle noise. A behavioral response to noise varies among species of animals and even among individuals of a particular species. Variations in response may be due to temperament, sex, age, or prior experience. Minor responses include head-raising and body-shifting, and usually, more disturbed mammals would travel short distances. Panic and escape behavior results from more severe disturbances, causing the animal to leave the area (Fletcher and Busnel 1978). Over the long-term, wildlife populations that have not already habituated to noise generated by Highway 86 would adapt to the normal operations conducted at the expanded Three Points BPS facility and would typically avoid human interaction. BMPs, as outlined in Chapter 5.0, would reduce noise associated with operation of the construction equipment and everyday vehicle traffic associated with the expanded Three Points BPS.

BMPs such as surveys prior to any construction activities scheduled during nesting season and covering or providing an escape ramp for all steep-walled holes or trenches left open at the end of the construction workday would be implemented to reduce disturbance and loss of wildlife. The Proposed Action would have a long-term, negligible adverse effect on migratory birds.

3.5.2 Alternative 2: No Action Alternative

No wildlife or aquatic resources would be adversely affected by the No Action Alternative.

3.6 THREATENED AND ENDANGERED SPECIES

The USFWS recognizes eight species protected under the ESA with the potential to occur within the project area (USFWS 2022) (Table 3-4). During the general biological surveys, GSRC did not observe any federally protected species listed under the ESA for Pima County. However, adequate habitat for the PPC was observed and a subsequent protocol level survey for this species was conducted, resulting in the observation of three individual PPCs located within the project footprint and a fourth individual located just outside the project area. The project area is not located within any designated Critical Habitat. Sensitive species and habitats with the potential to occur in or adjacent to the project area are discussed in the following sections.

Table 3-4. Federally Listed Threatened and Endangered Species with Potential to Occur Within the Project Area, Their Status, and Critical Habitat Designation

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur in Project Area
Mammals				
Sonoran pronghorn	*Antilocarpa americana sonoriensis*	Endangered (Experimental Population)	None	No; this species is known to occur outside and west of the project area.
Jaguar	*Panthera onca*	Endangered	Yes	No; no suitable habitat present within the project area.
Birds				
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Threatened	Proposed	No; no suitable habitat present within the project area.
California least tern	*Sterna antillarum browni*	Endangered	None	No; no suitable habitat present within the project area.
Reptiles				
Northern Mexican gartersnake	*Thamnophis eques megalops*	Threatened	Yes	No; no suitable habitat present within the project area.
Sonoyta mud turtle	*Kinosternon sonoriense longifermorale*	Endangered	Yes	No; no suitable habitat present within the project area.
Plants				
Pima pineapple cactus	*Coryphantha robustispina* var. *robustispina*	Endangered	None	Yes; this species is known to occur in the project area.
Insects				
Monarch butterfly	*Danaus plexippus*	Candidate	None	Yes; this species is known to occur within the immediate vicinity of the project area.

Source: USFWS 2022

3.6.1 Sonoran Pronghorn

The Sonoran pronghorn (*Antilocarpa americana sonoriensis*) is a federally-listed endangered species (USFWS 1967) with two experimental/non-essential populations and no designated Critical Habitat. The current range of Sonoran pronghorn within the U.S. consists of approximately 5,094 square miles (approximately 3.3 million acres). An additional 1,566 square miles (approximately 1 million acres) of the current range of the species occurs in Mexico (USFWS 2016). As of December 2014, the U.S. population of wild Sonoran pronghorn was 202 animals (USFWS 2016).

Sonoran pronghorn are usually found in upland subdivisions of Sonoran Desert scrublands. Their habitat preference differs seasonally; in the winter the species typically prefers sparsely vegetated, flat, open spaces, and in summer they prefer more densely vegetated areas. Sonoran pronghorn require large areas of contiguous habitat to accommodate their seasonal movements. Threats to this species include habitat loss and fragmentation, reduced forage quality, altered habitat structure, extended drought and climate change, reduced access to and availability of water, predation, disease, loss of genetic diversity, human disturbance and accidental deaths, and poaching (USFWS 2016).

Recovery efforts include ensuring there are multiple viable populations, adequate habitat, minimizing and mitigating human disturbance; identifying and conducting monitoring and research; maintaining and developing partnerships to support conservation; securing funding; and practicing adaptive management of the species (USFWS 2015).

While preferred habitat for Sonoran pronghorn is located within the project area, it is not likely that Sonoran pronghorn would ever be found at this location due to its distance from their known range.

3.6.2 Jaguar

The jaguar (*Panthera onca*) is the largest of the Neotropical felids and the only extant member of the genus *Panthera* in the new world (Seymour 1989). They are typified by a relatively robust head; compact, muscular body; short limbs and tail; powerfully built chest and forelegs; and a typically pale yellow, tan, or reddish yellow coat with prominent dark rosettes (USFWS 2018a). This species is most often associated with habitat that contains considerable plant cover, some form of water supply, and ample prey species. Jaguars have been identified in a variety of habitats including rainforest, low-scrub jungle, lowland semi-deciduous forest, open tree and shrub woodland, swampy savanna, lagoons, marshland, floating islands of vegetation, thorn scrub, pampas/llanos, and deserts (Seymour 1989).

The current range of the jaguar is estimated to be 51% of its historical range and extends from the southwestern U.S. to northern Argentina (USFWS 2018a). Habitat use is highly influenced by the presence of humans and the degree of alteration to native habitat. Historically, the jaguar inhabited 21 countries throughout the Americas.

The jaguar is federally-listed under the ESA as an endangered species with a current recovery plan and designated critical habitat. The final rule determining the status of the jaguar was issued by the USFWS, effective August 21, 1997 (USFWS 1997). Prior to the issuance of this final rule, the jaguar was listed as endangered from the United States and Mexico border southward through Mexico, Central, and South America (USFWS 1972; 50 CFR § 17.11).

Primary threats to the jaguar include habitat fragmentation and loss, and poaching (Quigley 2017; USFWS 2018a). Due to their large home range size, jaguars require large amounts of suitable habitat. As this habitat continues to be modified and fragmented by human use, the historical range of the jaguar continues to be diminished (USFWS 2018a). Fragmentation has resulted in a decrease in prey density, a reduction in connectivity of jaguar populations, and has increased the potential for negative human-jaguar interactions (Quigley 2017).

Due to a lack of suitable habitat for jaguar within or adjacent to the project area, it is not likely that jaguars would be affected by the Proposed Action.

3.6.3 Western Yellow-billed Cuckoo

The western distinct population segment (DPS) of the yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is federally-listed as threatened by USFWS (USFWS 2014a) and is considered a "Species of Concern" in the State of Arizona by the AGFD (2022). Currently, there is Critical Habitat for the western DPS of yellow-billed cuckoo, but the locations of Critical Habitat are not publicly available at this time (USFWS 2022).

There are three primary constituents that USFWS considers to be essential physical or biological features to yellow-billed cuckoo: riparian woodlands, adequate prey base, and dynamic riverine processes (USFWS 2014a). Populations of yellow-billed cuckoo have been negatively impacted through modifications to all three of these constituents. The loss of riparian habitat is the primary factor in the decline of the species, and it is estimated that riparian habitat losses in Arizona have been approximately 90 to 95 percent, usually due to direct changes to the landscape, the hydrology, or both (USFWS 2013). During breeding seasons, yellow-billed cuckoo populations require expansive blocks of riparian habitat with large, mature trees which are utilized for nesting and foraging. Yellow-billed cuckoo primarily rely on riparian habitat for foraging, particularly in cottonwood and willow woodlands with vegetation high in foliage (USFWS 2013). These habitats can usually sustain insect and amphibian fauna utilized by young and adult yellow-billed cuckoos during the nesting season and within post-breeding dispersal areas.

There is no suitable habitat for yellow-billed cuckoo present within or immediately adjacent to the project area. No yellow-billed cuckoos were observed during the biological surveys conducted within the project area. The Proposed Action will have no effect on the yellow-billed cuckoo.

3.6.4 California Least Tern

The California least tern (*Sterna antillarum browni*) is a subspecies of the least tern. It is a relatively small bird species with long, narrow wings and a forked tail. This species is easily identifiable from other tern species by its small size combined with black head and white forehead patch. California least terns weigh approximately 45 grams and reach lengths of up to 23 centimeters (USFWS 2020a). The California least tern was federally listed under the ESA as endangered in 1969 (USFWS 1970).

The California least tern was once abundant along the coast of California, but at the time of listing, approximately 256 breeding pairs remained. Numbers have slowly climbed over the decades, with recent estimates of 4,095 breeding pairs across 29 nesting sites in the year 2017 (USFWS 2020a). Breeding occurs along the Pacific coast from the San Francisco Bay south to Baja California, Mexico. Breeding sites are slowly moving northward (USFWS 2020a). Primary threats to this species include development at and adjacent to nesting sites, off-road vehicle use, and nest predation (USFWS 2020a).

No California least terns or their suitable habitat were identified during biological resource surveys. Considering the lack of water, foraging, or nesting habitat, California least terns would not be adversely impacted by the expansion of the Three Points BPS.

3.6.5 Northern Mexican Gartersnake

The northern Mexican gartersnake (*Thamnophis eques megalops*) was listed as a federally-threatened species in 2014 (USFWS 2014b). The final rule for the designation of Critical Habitat was published in 2021 (USFWS 2021). Critical Habitat for this species includes approximately 20,326 acres in La Paz, Mohave, Yavapai, Gila, Cochise, Santa Cruz, and Pima Counties in Arizona, and in Grant County, New Mexico.

Once widespread throughout most of the major watersheds in Arizona, the northern Mexican gartersnake is now known from fragmented populations limited to the middle/upper Verde River drainage, middle/lower Tonto Creek, and the Cienega Creek drainage as well as in a small number of isolated wetland habitats in southeastern Arizona. The species is considered to have been extirpated from the San Pedro River and the Babocamari Cienega (USFWS 2008).

The northern Mexican gartersnake is typically found in or near wetlands (cienegas and stock tanks) and riparian woodlands at elevations between 3,000 and 5,000 feet (Rosen and Schwalbe 1988). The species is often associated with densely vegetated wetlands but can also be found under cover objects in aquatic environments with little to no vegetative cover (Rorabaugh and Lemos-Espinal 2016). The northern Mexican gartersnake feeds primarily on fishes and amphibians (including larvae) and will opportunistically prey upon a variety of small vertebrate and invertebrate species (USFWS 2008). The northern Mexican gartersnake is viviparous, giving birth to litters ranging in size from 7 to 26 live young, born during the monsoon season (USFWS 2008).

The loss of suitable habitat through the degradation of riparian and wetland communities has resulted in the extirpation of the northern Mexican gartersnake from approximately 90 percent of the species' historic range in the U.S. (USFWS 2008). USFWS (2008) identifies multiple historical and contemporary anthropogenic threats to the habitat of this species in the U.S., including the modification and subsequent loss of riparian and aquatic communities, improper livestock grazing, urban and rural development, road construction and associated use and maintenance, human population growth, groundwater pumping, diversions of surface water, catastrophic wildfire, and undocumented immigration and international border enforcement.

No northern Mexican gartersnakes or suitable habitat for this species were observed on or adjacent to the project area, and they would not be adversely impacted by the Three Points BPS expansion project.

3.6.6 Sonoyta Mud Turtle

The Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*) is a relatively small, dark, freshwater turtle reaching just over five inches at maturity. This species was federally-listed as endangered by the USFWS in 2017 (USFWS 2017). Evidence has shown this species can live up to 12 years with the possibility of individuals living longer. This species is an opportunistic carnivore that relies on perennial aquatic habitats for foraging. Historically, this species inhabited cienegas and groundwater-fed streams, but now this species is typically found near streams or at natural and/or artificial ponds. This species requires an almost constant source of freshwater in addition to adjacent upland areas that maintain a moist soil profile that can be utilized by the turtles for avoiding desiccation as well as for laying eggs (USFWS 2017).

The most significant stressor on Sonoyta mud turtles is the lack of aquatic habitats. This species already exists in a limited range, and the removal of aquatic sources directly through development or indirectly through groundwater depletion has eliminated connectivity necessary for gene flow between metapopulations (USFWS 2017). Predation on adults and nests is also a major issue in certain populations (USFWS 2017).

The Sonoyta mud turtle is restricted to the Rio Sonoyta Basin and Sonora, Mexico. No Sonoyta mud turtles were observed during biological surveys, and no suitable habitat for this species occurs within or adjacent to the project area. The Sonoyta mud turtle would not be adversely impacted by the Three Points BPS expansion project.

3.6.7 Pima Pineapple Cactus

The cactus species *Coryphantha robustispina* currently contains three subspecies: *C. r.* ssp. *robustispina* (PPC), *C. r.* ssp. *scheeri*, and *C. r.* ssp. *uncinata*. PPC is the only subspecies that is listed under the ESA (USFWS 1993). PPC is currently listed as endangered wherever found (USFWS 2018b). PPC is a small to medium-sized cactus ranging in dimensions from 5 to 15 inches in height and between 2 to 6 inches in diameter for mature, flowering plants. The dimensions of individual specimens may vary seasonally, as the plants expand and contract in relation to hydration levels.

The distribution of PPC within the U.S. occurs within Pima and Santa Cruz Counties, Arizona. PPC has also been documented in Sonora, Mexico; however, the southern limits of this subspecies' distribution are poorly known. Within Arizona, PPC are known primarily from Sonoran Desertscrub and semidesert grassland communities at elevations of 2,300 to 5,000 feet amsl (Benson 1982). PPC typically grows on alluvial ridges and valleys and does not inhabit areas with bedrock at or very close to the surface and are typically sparsely distributed on the landscape. Evidence suggests jackrabbits (*Lepus* spp.) are the primary seed dispersers of PPC (Schmalzel 2021). The main pressures on PPC include habitat loss as a result of development and competition with non-native plant species, such as buffelgrass (*Cenchrus ciliaris* [USFWS 2018b]).

3.6.7.1 Pima Pineapple Cactus Survey Results

A protocol survey for the presence of PPC on the project area was conducted on October 13, 2022. This survey followed the survey protocol for PPC described by Roller (1996). The biologists walked a series of parallel transects spaced approximately 15 feet apart, in a north-south orientation across the entire 12-acre project area to allow for complete visual coverage and increased probability for detecting the presence of PPC.

Biologists located and recorded the presence of four PPC during the survey effort (Table 3-5). One of the PPC was located immediately south of the southern boundary of the project area. The locations of all PPC specimens were recorded using a hand-held Trimble Global Positioning System with sub-meter accuracy (Figure 3-3). Photograph 3-4 shows a PPC located within the project area.

Table 3-5. Coordinates of Observed PPC

ID	Northing	Easting
PPC 1	32.074707˚N	111.319014˚W
PPC 2	32.074949˚N	111.318617˚W
PPC 3	32.073967˚N	111.318585˚W
PPC 4	32.073339˚N	111.318087˚W

Figure 3-3. Pima Pineapple Cactus Occurrence Map

Photograph 3-4. PPC 2 located within the project area.

ESA Section 7 consultation is ongoing with the USFWS Ecological Services – Tucson Office. CBP proposes to relocate the PPC to suitable habitat under USFWS guidance. The timeframe, methodology, and logistical details of the relocation event are still forthcoming, and it is possible CBP will be responsible for additional mitigation responsibilities as a result of removing this species from the project area. Ongoing Section 7 documentation and correspondence can be found in Appendix C.

3.6.8 Monarch Butterfly

The North American monarch butterfly (*Danaus plexippus*) has become the focus of intense conservation efforts over the past two decades. A recent decision was issued by the USFWS that a threatened listing under the ESA is "warranted but precluded" (USFWS 2020b). The decision came after a 12-month finding following a 90-day finding on a petition to list the monarch butterfly under the ESA (USFWS 2014b). The monarch is currently a Candidate for listing.

The monarch is a species of butterfly found throughout the Americas, as well as Australia, New Zealand, islands of the Pacific and Caribbean, and other regions (USFWS 2020b). In North America, the monarch has historically been classified into two distinct populations: the Eastern Population and Western Population (USFWS 2020b). These two populations are geographically separated by the Rocky Mountains and utilize distinct habitats, which can lead to differences in phenotypes and divergent selection pressures (Freedman et al. 2021). Monarchs migrate every

fall across North America to two main overwintering regions in the U.S. and Mexico. Monarchs studied in southeastern Arizona have been shown to have unique migratory patterns by migrating to both overwintering regions: southern California and Central Mexico (Billings 2019). The recent decline of the overwintering western populations has accelerated at faster rates in recent years (Pelton et al. 2019, Freedman et al. 2021).

The loss and degradation of monarch breeding habitat has been widespread and is an important driver in the decline of monarchs in North America (Billings 2019). Monarchs have been documented to successfully feed on milkweeds, especially common milkweed (*Asclepias syriaca*), growing in midwestern agricultural habitats. Crops within breeding habitat in this region have been genetically modified to be herbicide-resistant, which has increased the use of the herbicide glyphosate since the mid-1990s. As a result, milkweed losses in the Midwest have been documented more in field crops rather than in natural areas (Pelton et al. 2019). In addition to habitat loss, monarchs are especially susceptible to insecticides used at agricultural and residential areas along their migration route. For western monarchs, insecticides are considered one of the primary drivers of population declines (Crone et al. 2019, USFWS 2020b). Systemic insecticides persist in the environment from months to years after a treatment and are absorbed by plants, which can be toxic to monarchs that utilize them.

While no monarchs were observed during biological surveys, they likely pass through the project area to feed. Further, a vining milkweed species (*Funastrum cyanchoides*) was observed in the northern portion of the project area. The Proposed Action is not likely to negatively affect the monarch butterfly.

3.6.9 State-Listed and Sensitive Species

The Arizona Natural Heritage Program (ANHP) maintains a list of species with special status in Arizona. The Arizona Natural Heritage Program (ANHP) list includes flora and fauna whose occurrence in Arizona is or may be in jeopardy or that have known or perceived threats or population declines (AGFD 2022). The ANHP list is provided in Appendix A. These species are not necessarily the same as those protected under the ESA. The project area could be considered suitable habitat for various state-sensitive species such as the cactus ferruginous pygmy-owl (*Glaucidium brasilianum*), rufous-winged sparrow (*Peucaea carpalis*), Swainson's hawk (*Buteo swainsoni*), lowland leopard frog (*Lithobates yavapaiensis*), and Sonoran Desert tortoise (*Gopherus morafkai*). No state-listed special status species for Pima County were observed during the August 2022 biological survey.

3.6.10 Critical Habitat

The ESA calls for the conservation of what is termed critical habitat, the areas of land, water, and air space that an endangered species needs for survival. Critical habitat also includes such things as food and water, 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 or modification of essential habitat by uncontrolled land and water developments. No critical habitat for any listed species overlaps with the project area (USFWS 2022).

3.6.11 Alternative 1: Proposed Action

While suitable habitat exists for the Sonoran pronghorn in the project area, it is not likely that Sonoran pronghorn would ever be found at this location due to its distance from their known range and the degree of fragmentation and development between their known range and the ESA determination. The jaguar is not likely to wander into the project area and habitat for this species is limited in the area. As mentioned previously, jaguar prefer large, contiguous undisturbed habitats containing perennial water and away from human development. Therefore, CBP has determined the Proposed Action is not likely to adversely affect the jaguar. No western yellow-billed cuckoo were observed during biological surveys and the habitat at the project area is not preferred by this species; therefore, the Proposed Action is not likely to adversely affect western yellow-billed cuckoo. No suitable habitat is found within the proposed project area for California least tern. Considering the lack of water, foraging, or nesting habitat, California least terns are not likely to be affected by the expansion of the Three Points BPS. Northern Mexican gartersnakes prefer perennial riparian woodland habitat at elevations higher than the project area. No northern Mexican gartersnakes or suitable habitat for this species were observed on or adjacent to the project area, and they are not likely to be affected by the Proposed Action. Sonoyta mud turtles require an almost constant source of freshwater, which does not exist within the project area. No Sonoyta mud turtles were observed during biological surveys, and no suitable habitat for this species occurs within or adjacent to the project area. As such, the Sonoyta mud turtle is not likely to be affected by the Proposed Action. Monarch butterflies are a candidate for federal listing. While no monarchs were observed during biological surveys, they likely pass through the project area to feed. Further, a vining milkweed species was observed in the northern portion of the project area. The Proposed Action is not likely to adversely affect the monarch butterfly. The Proposed Action is expected to have permanent, negligible, adverse impacts on the species described above.

Three individual PPC were located within the project area, and suitable habitat for this species exists throughout the project area. Ongoing Section 7 consultation with the USFWS is taking place to determine how best to address the PPC on site (Appendix C). CBP will likely pay mitigation fees and hire a USFWS approved organization to relocate the PPC offsite and into suitable habitat. Regardless of mitigation, the permanent removal of potential PPC habitat could have an impact on this species' future survivability. Therefore, the Proposed Action would have permanent, minor, adverse impacts on PPC and their suitable habitat.

The ANHP lists several state-listed species that may occur within or near the project area. Under the Proposed Action, approximately 12 acres of vegetative habitat would be permanently affected. Mobile species, such as birds, may be temporarily displaced by construction activities; however, these highly mobile species typically utilize large expanses of suitable habitat and the effects of disturbance and alterations to small segments are likely to be negligible and minimal on populations of these species. Grubbing, digging, clearing, or ground-leveling activities as a result of the Proposed Action may include the incidental take of some individuals of more sedentary state-listed species such as the Sonoran Desert tortoise. However, the adverse impacts on sedentary state-listed species would be negligible due to the BMPs to be implemented and due to the limited amount of disturbance to habitat relative to the amount of similar habitat within the ROI.

3.6.12 Alternative 2: No Action Alternative

Under the No Action Alternative, there would be no beneficial or adverse impacts on threatened or endangered species or their Critical Habitats as no construction activities would occur.

3.7 GROUNDWATER

The Tucson area has three aquifers that provide groundwater to the region. Two aquifers are located in the Avra Valley, and one is located in the Tucson Valley; these two valleys are split by the Tucson Mountains and largely supplied by stormwater percolation and the Colorado River. In addition to groundwater withdraws from local aquifers and surface water withdraws from the Colorado River, efforts have been made to procure water for Tucson and the surrounding region from other sources, such as through rainwater collection and recycled water (Tucson Water 2018). In the 1940s, the Tucson area acquired all of its water from groundwater sources. An overdraft of the local aquifers was realized in the 1990s, resulting in the Tucson region beginning to use reclaimed and remediated water (up to 15% of total water usage). By 2017, up to 85% of Tucson's water was derived from the Colorado River with up to 15% coming from recycled water. By 2017, groundwater overdraft had mostly been reversed with some areas showing a gain of 50 feet of water depth at certain gaging stations (Tucson Water 2018).

3.7.1 Alternative 1: Proposed Action

Water would continue to be supplied to the Three Points BPS via the Tucson Water distribution system. Water coming from this system is derived from the Avra Valley aquifer, which is primarily recharged by the Colorado River and rainwater infiltration. Water usage on site is not expected to rise significantly, as most of the scheduled improvements would not result in increased water usage. However, additional water expenditures would likely be necessary during construction to reduce fugitive dust emissions. As a result of the Proposed Action, increased groundwater usage associated with the additional agents deployed to the Three Points BPS is anticipated to have permanent, negligible, adverse impacts while groundwatersage associated with construction would result in temporary, negligible, adverse impacts.

Disturbed soils and hazardous substances (e.g., antifreeze, fuels, oils, and lubricants) could have the potential to adversely impact water quality during a rain event. However, through the use of BMPs, these effects would be minimized and negligible. A Construction Stormwater General Permit would be obtained prior to construction, and this would require approval of a site-specific Stormwater Pollution Prevention Plan (SWPPP). A site-specific Spill Prevention, Control, and Countermeasure Plan (SPCCP) would also be instituted prior to the start of construction. BMPs outlined in these plans would reduce potential migration of soils, oil and grease, and construction debris into local water sources. Once the construction project is complete, any temporary construction footprints would be revegetated with native vegetation, as outlined in the SWPPP, which would mitigate the potential of non-point source pollution to enter local groundwaters. Further discussion of specific BMPs to be followed can be found in Chapter 5.0.

3.7.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no construction activities would occur; therefore, no beneficial or adverse impacts to groundwater would occur.

3.8 SURFACE WATERS AND WATERS OF THE U.S.

The Clean Water Act (CWA) §303[d][1][A] requires that each state monitor surface waters and compile a "303[d] List" of impaired streams and lakes; none of which occur on the project area. The project area is located in the Greater Santa Cruz watershed, which encompasses nearly 8,000 square miles (approximately 10% of the state) (USEPA 2017).

The largest surface water contributor to the Greater Santa Cruz watershed near the community of Three Points is the Santa Cruz River. The headwaters of the Santa Cruz River are in Arizona's San Rafaeal Valley where it flows south into Mexico and loops back into Arizona near Nogales. The Santa Cruz River then flows north towards Phoenix where it intersects the Gila River. Additional surface waters that feed into the Greater Santa Cruz watershed include Sonoita Creek, Cienega Creek, Davidson Canyon, Harshaw Creek, Alum Gulch, Parker Lake, Three "R" Canyon, Arivaca Lake, and Lakeside Lake (USEPA 2017).

Water is treated in Tucson and delivered to Three Points via the Tucson Water distribution system. While the water is technically pulled from the local aquifers in the Avra and Tucson Valleys, these groundwater sources are heavily recharged by surface waters, primarily the Colorado River. Currently, 52% of the water supplied to the Tucson area is derived from surface water sources (Arizona Water Factsheet 2022). Approximately 6,174 million gallons per day (MGPD) are supplied to the Tucson area with an approximately 6,022 MGPD demand from agricultural, industrial, and municipal sources. About 78% of the daily water demand is attributed to agriculture (Arizona Water Factsheet 2022).

Waters of the U.S. are defined within the CWA, and jurisdiction is addressed by USACE and USEPA. Currently, new legislation (88 FR 3004) related to Waters of the U.S. is being finalized. The finalized rule is a call back to the pre-2015 rule and effectively removes many of the statutes provided in the 2020 Navigable Waters Protection Rule that "substantially departed from prior rules." The final rule goes into effect on March 20, 2023 (88 FR 3004). There could be temporary adverse impacts to Waters of the U.S. if drainage structures within agricultural ditches need replacement. Wetlands are a subset of Waters of the U.S. that may be subject to regulation under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Under Executive Order (EO) 11990 – *Protection of Wetlands*, new construction by government agencies should "avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." Consultation with USACE was initiated to ensure that the Proposed Action would be in compliance with Section 404 of the CWA and EO 11990 and limit any potential impacts to wetlands in the surrounding area.

Further, the Proposed Action would require compliance with the Energy Independence and Security Act (EISA), Section 438 and EO 13514. These regulations require federal agencies to "reduce stormwater runoff from federal development projects to protect water resources" (USEPA 2009). Compliance with these regulations requires federal agencies to maintain stormwater runoff at pre-construction levels by installing "green infrastructure" or "low impact developments" such as reducing impervious surfaces, using vegetation to prevent erosion, and installing green roofs and cisterns (USEPA 2009).

A Waters of the U.S. delineation was conducted at the project area. No wetlands were observed during the delineation, but jurisdictional Waters of the U.S. were observed in the form of ephemeral waterways that drain the property from southwest to northeast towards a culvert system located near Highway 86 and adjacent to the project area. In all, 1,507 linear feet (10,347 square feet) of Waters of the U.S. were observed in the project area (Table 3-6). Figure 3-4 shows the locations of jurisdictional Waters U.S. relative to the project footprint.

Table 3-6. Jurisdictional Waters of the U.S. Observed at the Three Points BPS Expansion Site

ID	Feature Type	Length (feet)	Area (feet^2)
WOUS 1	Ephemeral wash	257	2,307
WOUS 2	Ephemeral wash	256	1,535
WOUS 3	Ephemeral wash	546	3,821
WOUS 4	Ephemeral wash	448	2,684
	Total:	**1,507**	**10,347**

3.8.1 Alternative 1: Proposed Action

Water usage for the expanded Three Points BPS is estimated to be approximately the same as current usage rates. The proposed expansion would largely be a parking lot, and water used during construction would be negligible considering the size of the area.

The Proposed Action may potentially have temporary, negligible, adverse impacts on surface waters as a result of increases in erosion and sedimentation during periods of construction. Disturbed soils and hazardous substances (e.g., antifreeze, fuels, oils, and lubricants) could have the potential to adversely impact water quality during a rain event. However, due to the lack of surface waters present at the project area, and through the use of BMPs, these effects would be minimized and negligible. A Construction Stormwater General Permit would be obtained prior to construction, and this would require approval of a site-specific SWPPP. A site-specific SPCCP would also be instituted prior to the start of construction. BMPs outlined in these plans would reduce potential migration of soils, oil and grease, and construction debris into local surface waters. Once the construction project is complete, any temporary construction footprints would be revegetated with native vegetation, as outlined in the SWPPP, which would mitigate the potential of non-point source pollution to enter local surface waters.

Figure 3-4. Waters of the U.S. Map

Portions of the project area contain potentially jurisdictional Waters of the U.S. in the form of ephemeral drainages (Figure 3-4). However, CBP is consulting with the USACE regarding these potential Waters of the U.S. Currently, CBP is intending to exercise Nation Wide Permit (NWP) 14. NWP 14 is intended for linear projects, and it is not anticipated that a Pre-construction Notification would be necessary considering the scope and size of the project and quality of the potential Waters of the U.S. located at the project area. A long-term, minor effect on Waters of the U.S. would be anticipated during day-to-day operations of the facility as a result of altering ephemeral drainages in the project area. Temporary, negligible, adverse impacts to Waters of the U.S. would be anticipated during construction under the Proposed Action.

3.8.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no construction would occur; therefore, no beneficial or adverse impacts to surface waters or Waters of the U.S. would occur.

3.9 FLOODPLAINS

A floodplain is the area adjacent to a river, creek, lake, stream, or other open waterway that is subject to flooding when there is a major rain event. Floodplains are further defined by the likelihood of a flood event. If an area is in the 100-year floodplain, there is a 1-in-100 chance in any given year that the area will flood.

Under EO 11988, all federal agencies are directed to avoid, if possible, development and other activities in the 100-year base floodplain. Where the base floodplain cannot be avoided, special considerations and studies for new facilities and structures are needed. Design and siting are to be based on scientific, engineering, and architectural studies; consideration of human life, natural processes, and cultural resources; and the planned lifespan of the project.

Federal Emergency Management Agency (FEMA) floodplain maps were reviewed to identify if the project area is located within mapped floodplains. The FEMA National Flood Hazard Layer Flood Insurance Rate Map (FIRM) for the project area indicates that the project area is not located within a 100-year floodplain; therefore, there is minimal flood hazard within the entire project boundary (FEMA 2023). The nearest 100-year floodplain to the project area is that of an unnamed branch of the Brawley Wash located approximately 0.2-mile west of the project area (Figure 3-5).

3.9.1 Alternative 1: Proposed Action

Because the Proposed Action is located outside of an active floodplain, this alternative would not increase the risk or impact of floods on human safety, health, and welfare, or adversely impact the beneficial values that floodplains serve. Additionally, the Proposed Action would not increase duration, frequency, elevation, velocity, or volume of flood events as the project area is not located within a floodplain. Therefore, this Proposed Action would have no foreseeable adverse impacts on floodplains and would be in compliance with EO 11988.

3.9.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no construction activities would occur; therefore, no beneficial or adverse impacts on floodplains would occur.

Figure 3-5. Floodplain Map

3.10 AIR QUALITY

The USEPA established National Ambient Air Quality Standards (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 dioxides (SO_x), nitrogen dioxides (NO_x), ozone (O_3), particulate matter less than 10 microns (PM-10), particulate matter less than 2.5 microns (PM-2.5) and lead (Pb). Ozone is produced when NO_x and volatile organic compounds (VOCs) from fuel combustion and other anthropogenic activities react in the presence of sunlight. 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 3-7.

Table 3-7. National Ambient Air Quality Standards

	Primary Standards		**Secondary Standards**	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Times**
Carbon Monoxide (CO)	9 ppm (10 mg/m3)	8-hour (1)	None	None
	35 ppm (40 mg/m3)	1-hour (1)	None	None
Lead (Pb)	0.15 µg/m3 (2)	Rolling 3-Month Average	Same as Primary	Same as Primary
	1.5 µg/m3 (3)	Quarterly Average	Same as Primary	Same as Primary
Nitrogen Dioxide (NOx)	53 ppb (4)	Annual (Arithmetic Average)	Same as Primary	Same as Primary
	100 ppb	1-hour (5)	None	None
Particulate Matter (PM-10)	150 µg/m3	24-hour (6)	Same as Primary	Same as Primary
Particulate Matter (PM-2.5)	12.0 µg/m3	Annual (7) (Arithmetic Average)	15.0 µg/m3	Annual (7) (Arithmetic Average)
	35 µg/m3	24-hour (8)	Same as Primary	Same as Primary
Ozone (O3)	0.070 ppm (2015 std)	8-hour (9)	Same as Primary	Same as Primary
Sulfur Dioxide (SOx)	75 ppb (10)	1-hour	0.5 ppm	3-hour (1)

Source: USEPA 2023a

Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb - 1 part in 1,000,000,000) by volume, milligrams per cubic meter of air (mg/m3), and micrograms per cubic meter of air (µg/m3).

(1) Not to be exceeded more than once per year.

(2) Final rule signed October 15, 2008.

(3) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(4) The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard

(5) 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).

(6) Not to be exceeded more than once per year on average over 3 years.

(7) 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/m3.

(8) 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/m3 (effective December 17, 2006).

(9) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average O3 concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm (effective December 28, 2015).

(b) The previous (2008) O3 standards (0.075 ppm) additionally remain in effect in some areas.

(10) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

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 and requirements for conformity

determinations of Federal projects. The Federal Conformity Rule was first promulgated in 1993 by the USEPA, following the passage of Amendments to the Clean Air Act in 1990. The rule mandates that a conformity analysis 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.

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 that may result from the implementation of the Proposed Action. If the emissions exceed established limits, known as *de minimis* thresholds, the proponent is required to perform a conformity determination and implement appropriate mitigation measures to reduce air emissions. The USEPA has designated a segment of the northern portion of Pima County as in non-attainment for PM-10. PM-10 is defined as "inhalable coarse particles that are between 2.5 and 10 micrometers in diameter". PM-10 poses health risks to humans because they can settle into the tissues of the lungs and the bloodstream and can cause or contribute to respiratory problems such as inflamed airways and difficulty breathing and can cause various health problems in people who have asthma, decreased lung function, or heart problems. This area of non-attainment is known as the Rillito non-attainment area as it affects the community/census-designated place of Rillito, Arizona (ADEQ 2023).

The Rillito PM-10 non-attainment area is approximately 18 miles north of the project area (Figure 3-6). The air in the Rillito area is frequently above federal standards for PM-10 and the ADEQ is in the process of developing a non-attainment State Implementation Plan (SIP) to improve the air quality in the Rillito region. This plan will include an updated emissions inventory, modeling demonstration, strategy for exceptional events, and rules for PM-10 controls. Currently, the ADEQ considers the greatest sources of PM-10 pollution in the Rillito region to be paved and unpaved roads, construction activities, windblown dust, agricultural activities, and cleared areas and vacant lots (ADEQ 2023).

PM-10 can travel long distances (greater than 30 miles from their source) on wind currents (World Health Organization [WHO] 2006). Therefore, PM-10 produced from land clearing and construction activities associated with the Proposed Action may impact the Rillito PM-10 non-attainment area.

3.10.1 Alternative 1: Proposed Action

Temporary increases in air pollution would occur from the use of construction equipment (combustion emissions), the disturbance of soils (fugitive dust), off-gassing (during paving) during site preparation and construction activities associated with the expansion project. Particulate emissions would occur as a result of construction activities such as vehicle trips, bulldozing, compacting, truck dumping, and grading operations. Construction activities would also generate minimal hydrocarbon, NO_2, CO_2, and SO_2 emissions from construction equipment and support vehicles. Fugitive dust would be generated during these construction activities, especially during the land clearing and site preparation activities. An emissions analysis was conducted for this alternative and the results of the analysis are provided below and in Tables 3-8 through 3-11. Significant amounts of Pb pollution would not be expected to be produced if the Proposed Action were to be implemented due to the use of unleaded fuels.

Figure 3-6. Air Quality Map

Table 3-8. Emission Factors for Commonly Used Construction and Site Preparation Equipment (Pounds per Hour)

Equipment	CO	NOx	PM-10	PM-2.5	VOC/ Ozone	SOx
Aerial Lifts	0.168	0.173	0.008	0.008	0.024	0
Air Compressors	0.305	0.293	0.016	0.016	0.044	0.001
Bore/Drill Rigs	0.501	0.322	0.005	0.005	0.046	0.002
Cement and Mortar Mixers	0.041	0.054	0.002	0.002	0.009	0
Concrete/Industrial Saws	0.376	0.318	0.017	0.017	0.044	0.001
Cranes	0.387	0.603	0.023	0.023	0.085	0.001
Crawler Tractors	0.521	0.624	0.034	0.034	0.099	0.001
Crushing/Proc. Equipment	0.622	0.541	0.027	0.027	0.087	0.001
Dumpers/Tenders	0.031	0.058	0.002	0.002	0.009	0
Excavators	0.511	0.358	0.016	0.016	0.069	0.001
Forklifts	0.215	0.146	0.006	0.006	0.029	0.001
Generator Sets	0.271	0.298	0.013	0.013	0.036	0.001
Graders	0.575	0.521	0.025	0.025	0.086	0.001
Off-Highway Tractors	0.641	0.99	0.046	0.046	0.139	0.002
Off-Highway Trucks	0.548	0.738	0.025	0.025	0.137	0.003
Other Construction Equipment	0.35	0.312	0.012	0.012	0.053	0.001
Other General Industrial Equipment	0.448	0.589	0.023	0.023	0.091	0.002
Other Material Handling Equipment	0.439	0.575	0.022	0.022	0.086	0.002
Pavers	0.488	0.509	0.032	0.032	0.093	0.001
Paving Equipment	0.406	0.446	0.029	0.029	0.071	0.001
Plate Compactors	0.026	0.031	0.001	0.001	0.005	0
Pressure Washers	0.054	0.063	0.003	0.003	0.008	0
Pumps	0.265	0.264	0.013	0.013	0.034	0.001
Rollers	0.382	0.348	0.021	0.021	0.054	0.001
Rough Terrain Forklifts	0.445	0.319	0.017	0.017	0.05	0.001
Rubber Tired Dozers	0.766	1.466	0.058	0.058	0.202	0.002
Rubber Tired Loaders	0.438	0.427	0.021	0.021	0.071	0.001
Scrapers	0.775	1.226	0.049	0.049	0.181	0.003
Signal Boards	0.091	0.086	0.004	0.004	0.012	0
Skid Steer Loaders	0.212	0.154	0.004	0.004	0.021	0
Surfacing Equipment	0.386	0.595	0.022	0.022	0.078	0.002
Sweepers/Scrubbers	0.488	0.323	0.015	0.015	0.054	0.001
Tractors/Loaders/Backhoes	0.361	0.251	0.011	0.011	0.041	0.001
Trenchers	0.423	0.433	0.031	0.031	0.087	0.001
Welders	0.179	0.163	0.009	0.009	0.028	0

Source: U.S. Air Force. 2021. Air Emissions Guide for Air Force Transitory Sources: Methods for Estimating Emissions of Air Pollutants for Transitory Sources at U.S. Air Force Installations

Table 3-9. Estimated Emissions of National Ambient Air Quality Pollutants Under the Proposed Action for Off-Road Equipment (Tons)

Equipment	Estimated Number of Pieces	CO	NOx	PM-10	PM-2.5	VOC/ Ozone	SOx
Aerial Lifts	1	0.06048	0.06228	0.00288	0.00288	0.00864	0
Air Compressors	4	0.4392	0.42192	0.02304	0.02304	0.06336	0.00144
Bore/Drill Rigs	1	0.18036	0.11592	0.0018	0.0018	0.01656	0.00072
Cement and Mortar Mixers	5	0.0738	0.0972	0.0036	0.0036	0.0162	0
Concrete/Industrial Saws	5	0.6768	0.5724	0.0306	0.0306	0.0792	0.0018
Cranes	1	0.13932	0.21708	0.00828	0.00828	0.0306	0.00036
Crawler Tractors	1	0.18756	0.22464	0.01224	0.01224	0.03564	0.00036
Crushing/Proc. Equipment	2	0.44784	0.38952	0.01944	0.01944	0.06264	0.00072
Dumpers/Tenders	2	0.02232	0.04176	0.00144	0.00144	0.00648	0
Excavators	2	0.36792	0.25776	0.01152	0.01152	0.04968	0.00072
Forklifts	3	0.2322	0.15768	0.00648	0.00648	0.03132	0.00108
Generator Sets	8	0.78048	0.85824	0.03744	0.03744	0.10368	0.00288
Graders	4	0.828	0.75024	0.036	0.036	0.12384	0.00144
Off-Highway Tractors	1	0.23076	0.3564	0.01656	0.01656	0.05004	0.00072
Off-Highway Trucks	1	0.19728	0.26568	0.009	0.009	0.04932	0.00108
Other Construction Equipment	1	0.126	0.11232	0.00432	0.00432	0.01908	0.00036
Other General Industrial Equipment	1	0.16128	0.21204	0.00828	0.00828	0.03276	0.00072
Other Material Handling Equipment	1	0.15804	0.207	0.00792	0.00792	0.03096	0.00072
Pavers	1	0.17568	0.18324	0.01152	0.01152	0.03348	0.00036
Paving Equipment	8	1.16928	1.28448	0.08352	0.08352	0.20448	0.00288
Plate Compactors	1	0.00936	0.01116	0.00036	0.00036	0.0018	0
Pressure Washers	3	0.05832	0.06804	0.00324	0.00324	0.00864	0
Pumps	1	0.0954	0.09504	0.00468	0.00468	0.01224	0.00036
Rollers	1	0.13752	0.12528	0.00756	0.00756	0.01944	0.00036
Rough Terrain Forklifts	1	0.1602	0.11484	0.00612	0.00612	0.018	0.00036
Rubber Tired Dozers	1	0.27576	0.52776	0.02088	0.02088	0.07272	0.00072
Rubber Tired Loaders	1	0.15768	0.15372	0.00756	0.00756	0.02556	0.00036
Scrapers	6	1.674	2.64816	0.10584	0.10584	0.39096	0.00648
Signal Boards	1	0.03276	0.03096	0.00144	0.00144	0.00432	0
Skid Steer Loaders	1	0.07632	0.05544	0.00144	0.00144	0.00756	0
Surfacing Equipment	1	0.13896	0.2142	0.00792	0.00792	0.02808	0.00072
Sweepers/Scrubbers	1	0.17568	0.11628	0.0054	0.0054	0.01944	0.00036
Tractors/Loaders/ Backhoes	2	0.25992	0.18072	0.00792	0.00792	0.02952	0.00072
Trenchers	8	1.21824	1.24704	0.08928	0.08928	0.25056	0.00288
Welders	8	0.51552	0.46944	0.02592	0.02592	0.08064	0

Table 3-10. State of Arizona Emission Factors for On-Road Vehicles (Grams per Mile)

Source	CO	NOx	PM-10	PM-2.5	VOC*/ Ozone	SOx
Light-Duty Gasoline Vehicle (Passenger Vehicles)	0.275	0.013	1.55E-04	1.72E-04	0.002	1.84E-04
Light-Duty Gasoline Trucks (</= 8,500lbs)	0.426	0.028	2.28E-04	2.53E-04	0.006	2.52E-04
Heavy-Duty Gasoline Trucks (> 1,800 lbs)	0.992	0.116	1.36E-03	1.50E-03	0.044	7.87E-04
Light-Duty Diesel Vehicle (Passenger Vehicles)	0.269	0.012	1.29E-04	1.50E-03	0.002	2.41E-04
Light-Duty Diesel Trucks (</= 8,500lbs)	0.482	0.037	2.28E-04	2.65E-04	0.006	3.62E-04
Heavy-Duty Diesel Trucks (> 1,800 lbs)	0.199	0.89	2.01E-02	2.08E-02	0.036	3.26E-03
Motorcycles	1.23	0.088	8.66E-04	1.08E-03	0.075	2.59E-04

Source: U.S. Air Force. 2021. Air Emissions Guide for Air Force Transitory Sources: Methods for Estimating Emissions of Air Pollutants for Transitory Sources at US Air Force Installations

Table 3-11. Estimated Emissions of National Ambient Air Quality Pollutants Under the Proposed Action (Tons per 90-Day Project Phase) for On-Road Vehicles (Tons)

Source	Estimated Number of Units	CO	NOx	PM-10	PM-2.5	VOC*/ Ozone	SOx
Light-Duty Gasoline Vehicle (Passenger Vehicles)	5	0.01	0.00051597	6.15E-06	1.72E-04	0.002	1.84E-04
Light-Duty Gasoline Trucks (</= 8,500lbs)	10	0.03	0.00222264	1.89E-05	2.53E-04	0.006	2.52E-04
Heavy-Duty Gasoline Trucks (> 1,800 lbs)	4	0.03	0.003683232	4.32E-05	1.50E-03	0.044	7.87E-04
Light-Duty Diesel Vehicle (Passenger Vehicles)	0	0	0	0	1.50E-03	0.002	2.41E-04
Light-Duty Diesel Trucks (</= 8,500lbs)	5	0.02	0.00146853	9.05E-06	2.65E-04	0.006	3.62E-04
Heavy-Duty Diesel Trucks (> 1,800 lbs)	2	0.003	0.01412964	0.000319108	2.08E-02	0.036	3.26E-03
Motorcycles	2	0.02	0.001397088	1.37E-05	1.08E-03	0.075	2.59E-04

Equipment exhaust emission estimates by pollutant were calculated using the equation

$$EE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

where

EE_{POL}: Exhaust Emissions (TONs)
NE: Number of Pieces of Equipment
WD: Number of Total Work Days (= 90 days)
H: Hours Worked per Day (= 8 hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons.

On-road vehicle exhaust emission estimates by pollutant were calculated using the equation

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * NV) / 2000$$

where

VPOL: Vehicle Emissions (TONs)
VMTWT: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EFPOL: Emission Factor for Pollutant (grams/mile)
NV: Number of a given vehicle type
2000: Conversion Factor pounds to tons.

Fugitive dust emissions for the Proposed Action are calculated as

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

where

PM10FD: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (= 12 acres)
WD: Number of Total Work Days (= 90days)
2000: Conversion Factor pounds to tons

Giving an estimated total of 10.8 tons of fugitive dust emitted over the duration of the Proposed Action.

Off-gassing emissions are calculated as

$VOC_p = (2.62 * PA) / 43560$
VOC_p: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2) = 525,000 ft^2
43560: Conversion Factor square feet to acre (43560 ft^2 / $acre)^2$ /acres)

Giving an estimated 31.6 tons of VOCs from off-gassing associated with site paving.

For derivation of equations see United States Air Force ([USAF] 2021).

Equipment and vehicle emissions, fugitive dust. and off-gassing during paving would produce an estimated total of 70.34 tons of NAAQS pollutants during site preparation and construction and would be below the *de minimus* threshold (50 tons per year for O_3, 100 tons per year for other NAAQ pollutants). Additionally, these emissions would be temporary and return to pre-project levels upon the completion of construction. Emissions as a result of this alternative are expected to be below the *de minimus* threshold and therefore would not be considered significant. BMPs, such as dust suppression and maintaining equipment in proper working condition would reduce the temporary construction impacts. The Proposed Action would have temporary, minor, adverse impacts on air quality in the ROI.

Because the Proposed Action, if implemented, would have the potential to adversely impact air quality within the nearby Rillito PM-10 non-attainment area, implementation would entail following applicable control and contingency measures detailed in the *Final Arizona State Implementation Plan Revision, Rillito PM10 Nonattainment Area* (ADEQ 2008 [Appendix D]). These measures will predominantly be concerned with adhering to provisions under the *Pima County Grading Ordinance, Chapter 18.81 of the Pima County Zoning Code* (Pima County 2022). These provisions include permitting requirements and performance standards for controlling erosion, runoff, and fugitive emissions. Grading standards are provided in Appendix D.

3.10.2 Alternative 2: No Action Alternative

The No Action Alternative would not result in any direct impacts, either beneficial or adverse, on air quality as no construction or demolition activities would occur.

3.11 GREEN HOUSE GAS EMISSIONS AND ANTHROPOGENIC CLIMATE CHANGE

Anthropogenic climate change refers to the scientific consensus concerning the rapid warming of the Earth's surface and ocean basins since 1880 due to human activities, primarily the burning of fossil fuels (National Aeronautics and Space Administration [NASA] 2023). Human activities such as burning fossil fuels, land clearing, industrial processes, and agricultural activities produce greenhouse gases (GHG) that trap heat in the atmosphere. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), fluorinated gases (e.g., chlorofluorocarbons [CFCs] and hydrochlorofluorocarbons [HFCs]), halons, and various other synthetic chemicals, as well as ground-level O_3 (USEPA 2023b). Temperature measurements taken around the globe since 1900 have indicated a total annual increase of approximately 1.5 degrees Fahrenheit (ºF) on Earth's surface, with an acceleration of approximately 0.35 ºF per decade over the last 30 years. Average annual temperature trends in the Southwestern U.S. have followed global trends. Additionally, anthropogenic climate change is altering seasonal and precipitation patterns, with an observed decrease in average precipitation of approximately 10 percent for the region containing the project area since 1958 (Climate Assessment for the Southwest [CLIMAS] 2022).

On January 9, 2023, the CEQ issued interim guidance to assist agencies on analyzing GHG and climate change effects of their Proposed Actions under NEPA. Under this guidance and consistent with section 102[2][C] of NEPA, federal agencies must disclose and consider the reasonably foreseeable effects of their Proposed Actions including the extent to which a Proposed Action and its reasonable alternatives (including the No Action Alternative) would result in reasonably foreseeable GHG emissions that contribute to climate change. The guidance also directs federal agencies to consider the ways in which a changing climate may impact the Proposed Action and its reasonable alternatives.

3.11.1 Alternative 1: Proposed Action

Consistent with this guidance and its directives to use "best available science" to quantify, disclose, and contextualize climate impacts of the Proposed Action a GHG analysis was carried out which estimated the carbon dioxide equivalent (CO_2e) emissions under the Proposed Action. The CO_2e is a metric measure used to compare the emissions from various GHGs on the basis of their global warming potential (GWP) by converting amounts of other gases to the equivalent amount of carbon dioxide with the same GWP. The results of the analysis are provided in Tables 3-12 and 3-13. Carbon dioxide equivalent emissions for construction equipment were estimated using the equation

$$EE_{COe} = (NE * WD * H * EF_{POL}) / 2000$$

where

EE_{CO2e}: Exhaust Emissions of CO_2e (TONs)
NE: Number of Pieces of Equipment
WD: Number of Total Work Days (= 90 days)
H: Hours Worked per Day (=8 hours)
EF_{POL}: Emission Factor for CO_2e (lb/hour)
2000: Conversion Factor pounds to tons.

Table 3-12. Estimated Green House Gas Emissions of Off-Road Equipment Under the Proposed Action

Equipment	Estimated Number of Pieces (lbs/hr)	Emission Factor	Estimated CO_2e Emissions (Tons)
Aerial Lifts	1	34.775	12.519
Air Compressors	4	63.707	91.73808
Bore/Drill Rigs	1	164.993	59.39748
Cement and Mortar Mixers	5	7.267	13.0806
Concrete/Industrial Saws	5	58.564	105.4152
Cranes	1	128.822	46.37592
Crawler Tractors	1	114.24	41.1264
Crushing/Proc. Equipment	2	132.505	95.4036
Dumpers/Tenders	2	7.645	5.5044

Equipment	Estimated Number of Pieces (lbs/hr)	Emission Factor	Estimated CO_2e Emissions (Tons)
Excavators	2	119.734	86.20848
Forklifts	3	54.462	58.81896
Generator Sets	8	61.075	175.896
Graders	4	132.937	191.42928
Off-Highway Tractors	1	151.714	54.61704
Off-Highway Trucks	1	260.392	93.74112
Other Construction Equipment	1	122.618	44.14248
Other General Industrial Equipment	1	152.446	54.88056
Other Material Handling Equipment	1	141.388	50.89968
Pavers	1	78.142	28.13112
Paving Equipment	8	69.099	199.00512
Plate Compactors	1	4.325	1.557
Pressure Washers	3	9.431	10.18548
Pumps	1	49.684	17.88624
Rollers	1	67.16	24.1776
Rough Terrain Forklifts	1	70.393	25.34148
Rubber Tired Dozers	1	239.537	86.23332
Rubber Tired Loaders	1	108.77	39.1572
Scrapers	6	262.894	567.85104
Signal Boards	1	16.726	6.02136
Skid Steer Loaders	1	30.324	10.91664
Surfacing Equipment	1	166.139	59.81004
Sweepers/Scrubbers	1	78.664	28.31904
Tractors/Loaders/Backhoes	2	66.891	48.16152
Trenchers	8	58.91	169.6608
Welders	8	25.666	73.91808

Source: U.S. Air Force. 2021. Air Emissions Guide for Air Force Transitory Sources: Methods for Estimating Emissions of Air Pollutants for Transitory Sources at U.S. Air Force Installations

Table 3-13. Estimated Green House Gas Emissions of On-Road Vehicles Under the Proposed Action

Source	Estimated Number of Units	Emission Factor (g/mile)	Estimated CO_2e Emissions (Tons)
Light-Duty Gasoline Vehicle (Passenger Vehicles)	5	29.281	1.162
Light-Duty Gasoline Trucks (</= 8,500lbs)	10	40.134	3.19
Heavy-Duty Gasoline Trucks (> 1,800 lbs)	4	125.324	3.98
Light-Duty Diesel Vehicle (Passenger Vehicles)	0	58.776	0
Light-Duty Diesel Trucks (</= 8,500lbs)	5	42.804	1.70
Heavy-Duty Diesel Trucks (> 1,800 lbs)	2	386.34	6.13
Motorcycles	2	41.153	0.65

This analysis estimates that a total of 2,694.31 tons of CO_2e will be generated over the life of the Proposed Action assuming the site preparation, clearing, grading, paving, and construction is completed in 90 days. Neither the new CEQ guidance, nor any of the previous CEQ guidance sets actionable limits on the CO_2e that a Proposed Action may produce. The effect of the Proposed Action's CO_2e emissions on climate change would be to add to the cumulative anthropogenic GHG emissions produced regionally and globally. Because of the short duration of the Proposed Action (90 days), it is not expected that climate change will adversely impact the Three Points BPS expansion project. Based on current trends, average air temperatures at the start and finish of construction should not be noticeably different However, rising temperatures in the operational region will probably result in increased energy consumption and related costs associated with cooling and infrastructure wear during the operational life of the expanded BPS, as well as heat related health impacts to agents and detainees alike. Additionally, rising temperatures in the operational region and further destabilization from extreme weather conditions in the Global South will likely impact CBPs operations and ability to operate in the future, both within the southwest region of the United States, including the Tucson Sector, and throughout their various AORs. With the increase in extreme and unpredictable weather, CBP may need to extend construction activities to offset the impact of delayed work, resulting from high winds or other unsafe working conditions. The Proposed Action would have temporary, minor, adverse impacts on GHG's released during construction.

In addition to GHG emissions related to construction of the Proposed Action, the impacts associated with the operation of the expanded Three Points BPS need to be considered. Since the Proposed Action will include parking for up to 200 agents, the analysis employed to determine GHG emissions during daily operations assumed a worst-case scenario of 200 light-duty gasoline trucks driving to Three Points from Tucson and back, in a single day, every day, for a year. A 60-mile round trip at 40.134 gram (g)/mile was used for the calculation (Table 3-13). Converting to tons and assuming a worst-case scenario of 200 light-duty trucks per day, the operation of the expanded Three Points BPS would produce approximately 193.77 tons/year of CO_2e. In ten years, the expanded Three Points BPS would produce approximately 1,930 tons of CO_2e. Although no specific levels are provided to determine the threshold for a project's impact on

climate change, the operation of the Proposed Action is not likely to have a noticeable influence on climate change. The operation of the expanded Three Points BPS would have a long-term, negligible, adverse impact on GHG emissions.

3.11.2 Alternative 2: No Action Alternative

The No Action Alternative would not result in any direct impacts, either beneficial or adverse, on GHG emissions as no construction or demolition activities would occur.

3.12 NOISE

Noise is generally described as unwanted sound, which can be based either on objective effects (e.g., hearing loss, damage to structures) or subjective judgments (e.g., community annoyance). Sound is usually represented on a logarithmic scale in a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The perceived threshold of human hearing is 0 dB, and the threshold of discomfort or pain is around 120 dB (USEPA 1974). The A-weighted sound level (dBA) is a measurement of sound pressure adjusted to conform to the frequency response of the human ear.

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA louder than the same level of intrusive noise during the day, at least in terms of its potential for causing community annoyance. This perception is largely because background environmental sound levels at night in most areas are also about 10 dBA lower than those during the day. Long-term noise levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise metric recommended by the USEPA and has been adopted by most federal agencies (USEPA 1974).

The construction of the proposed Three Points BPS expansion project would require the use of common construction equipment. Table 3-14 describes noise emission levels for construction equipment that range from 47 dBA to 85 dBA at a distance of 50 feet (FHWA 2007).

Table 3-14. A-Weighted (dBA) Sound Levels of Construction Equipment and Modeled Attenuation at Various Distances[1]

Noise Source	50 feet	100 feet	200 feet	500 feet	1000 feet
Bulldozer	82	76	70	62	56
Concrete mixer truck	85	79	73	65	59
Crane	81	75	69	61	55
Drill rig	85	79	73	65	59
Dump truck	84	78	72	64	58
Excavator	81	75	69	61	55
Front-end loader	79	73	67	59	53
Generator	47	41	35	26	20

Source: FHWA 2007

1. The dBA at 50 feet is a measured noise emission. The 100- to 1,000-foot results are GSRC modeled estimates.

Assuming the worst-case scenario of 85 dBA from general construction equipment, the noise model predicts that noise emissions would have to travel 1,138 feet before they would be attenuated to acceptable levels equal to or below 57 dBA, which is the criterion for National Monument and Wildlife Refuges (23 CFR § 722, Table 3-6), or 482 feet to attenuate to 65 dBA, which is the criterion for residential receptors. Considering the closest residence is over 2,000 feet away, there would not be a significant noise issue associated with the Proposed Action.

3.12.1 Alternative 1: Proposed Action

The project area is located in an area adjacent to a residential community with the nearest house located approximately 0.4-mile (2,112 feet) to the north of the eastern portion of the project area. Construction noises would be expected to attenuate to acceptable levels prior to reaching the residential area due to the distance of the surrounding houses. Therefore, adverse impacts associated with noise would be temporary and negligible, as the project area is located far enough away from the nearest residential dwellings to cause discomfort. Day-to-day operations at the expanded Three Points BPS would not be expected to add additional noise to the local soundscape, because the primary component of the Proposed Action is expansion of the Three Points BPS parking lot.

3.12.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no construction would occur; therefore, no beneficial or adverse impacts on noise would occur.

3.13 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

Cultural resources include aboveground/built resources, archaeological resources, and sacred sites. Significant cultural resources are those resources that are determined to be Historic Properties, as defined by the National Historic Preservation Act (NHPA). Historic properties are defined by the NHPA as any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion in the National Register of Historic Places (NRHP), including artifacts, records, and material remains relating to the district, site, building, structure, or object (National Park Service [NPS] 2018). To be considered eligible for the NRHP, a property would need to possess integrity of location, design, setting, materials, workmanship, feeling, and association, and must also meet at least one of the following four criteria (NPS 1995):

A. Be associated with events that made a significant contribution to the broad pattern of our history
B. Be associated with the lives of significant persons in our past
C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
D. Have yielded, or be likely to yield, information important in history or prehistory

A Traditional Cultural Property (TCP) is a specific type of historic property that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that are (a) rooted in that community's history, and (b) important in maintaining and continuing the cultural identity of the community (Parker and King 1998). Given the broad range in types of historic properties, historic properties can often include other types of cultural resources such as cultural items, archaeological resources, sacred sites, and archaeological collections.

Cultural items, as defined by the Native American Graves Protection and Repatriation Act (NAGPRA), are human remains as well as both associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony or objects that have an ongoing historical, traditional, or cultural importance to a Native American group or culture (NPS 2018). Archaeological resources, as defined by the Archaeological Resources Protection Act (ARPA), consist of any material remains of past human life or activities that are of archaeological interest and are at least 100 years of age. Such items include, but are not limited to, pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pit houses, rock paintings, rock carvings, intaglios, graves, human skeletal remains, or any portion or piece of those items (NPS 2018). Sacred sites are defined by EO 13007, *Indian Sacred Sites*, as any specific, discrete, narrowly delineated location on federal land that is identified by a Native American tribe or Native American individual determined to be an appropriately authoritative representative of a Native American religion as sacred by virtue of its established religious significance, or ceremonial use by, a Native American religion, provided that the tribe or appropriately authoritative representative of a Native American religion has informed the federal land-owning agency of the existence of such a site (NPS 1996).

Cultural Overview

The cultural overview of the project area is described in detail in a 2019 cultural resources survey report (Marionneaux and Hart 2019) conducted for CBP. Briefly, the cultural history of southwestern Arizona, and the region known as the Papaguería, is typically discussed in periods: Preceramic Period (circa 10,000 B.C. to A.D. 200), Ceramic Period (circa A.D. 200 to 1500), Early Historic Period (A.D. 1540 to 1848), Late Historic Period (A.D. 1848 to 1945), and World War II and Cold War Period (A.D. 1945 to 1989). Both the Prehistoric Period and Ceramic Period contain further subdivisions based on climatic shifts or cultural variations. The Preceramic period includes a division between the Paleoindian Period and Archaic Period, which is primarily based on a shift to a warmer and drier climate in the Archaic, coupled with the extinction of the Pleistocene megafauna. The Ceramic Period, when pottery making and agriculture were practiced by the prehistoric people, is subdivided into the Patayan Period (A.D. 700 to 1850), Hohokam Period (A.D. 200 to 1500), and Trincheras Period (A.D. 150 to 1940).

Previously Conducted Cultural Resources Investigations and Recorded Cultural Resources

Twenty-one previously recorded archaeological investigations are on record with the Arizona Cultural Resource Inventory (AZSITE) database as being conducted within a 1.0-mile area of the Proposed Action location, though none intersect with the current project area (Figure 3-7).

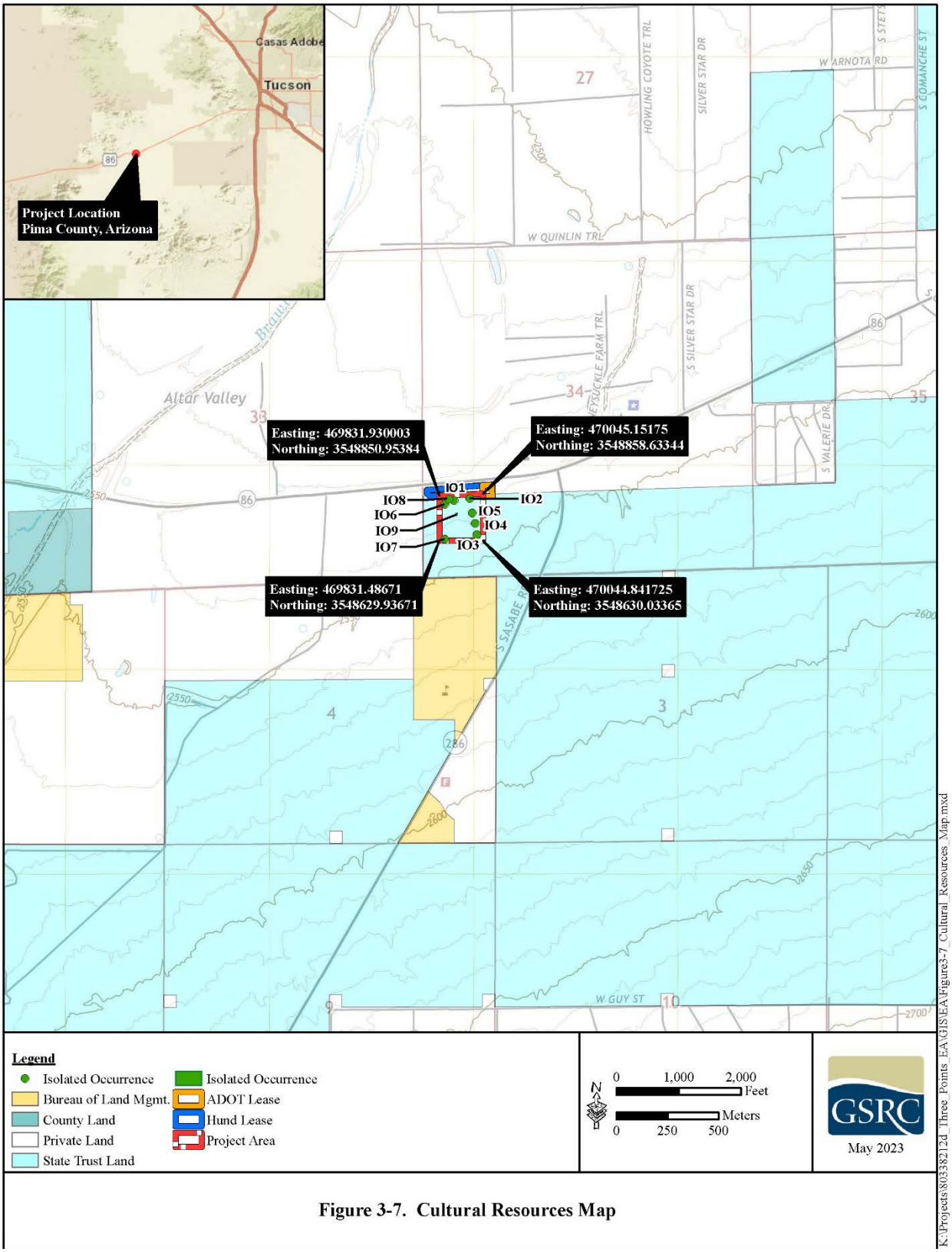

Figure 3-7. Cultural Resources Map

Projects within a 1.0-mile area begin with an undertaking that occurred between 1973 to 1975 and was performed by the Arizona State Museum (ASM) on behalf of ADOT under AZSITE project number 8082 and SHPO Undertakings Number SHPO-2012-0556. Following that was a 1985 project done by the ASM Archaeology Department on behalf of Lightning Location and Protection, Inc., for the Arizona State Land Department with AZSITE project number 11436.

An additional project from 1989 was a survey by SWCA Environmental Consultants, Sacramento, on behalf of ADOT under the AZSITE project number 8049 and State Land permit number 89-27. In the 1990s, projects began with a survey in 1996 conducted by ARS on behalf of ADOT under AZSITE project number 7617 and ASM permit number 96-6BL/14. This was followed by a 1998 project to support State Route 86/Three Points Maintenance by Archaeological Research Services, Inc., on behalf of ADOT under AZSITE project number 8334 and ASM permit number 98-13bl/32. Finally, there was a 1999 pavement restoration project by Dames & Moore on behalf of ADOT under AZSITE project number 9445 and ASM permit number 1999-19.

In 2000, a project was conducted by Professional Archaeological Services and Technologies on behalf of Earl Kai Chann Associates, Ltd., under AZSITE project number 11025 and ASM permit number 2000-32bl. There were three surveys undertaken in 2001, beginning with a cell tower survey project done by Aztlan Archaeology, Inc., on behalf of ATC Associates, Inc., under AZSITE project number 11259 and ASM permit number 1002-08bl. Following that was a survey for the Three Points-Altar Valley Middle School by the Old Pueblo Archaeology Center on behalf of Merry Carnell Schlecht, Inc., under AZSITE project number 11265 and ASM permit number 2001-2bl. Finally, there was a survey by Engineering & Environmental Consultants on behalf of the Tucson Electric Power for Qwest under the AZSITE project number 13815 and ASM permit number 2001-53bl. Two undertakings were completed in 2002 including a project done by SWCA Environmental Consultants, Sacramento, on behalf of TRICO Electric Cooperative, Inc., for the Arizona State Land Department under AZSITE project number 15443 and ASM permit number 2002-13bl. Additionally, there was a project by SWCA Environmental Consultants, Tucson, on behalf of the TRICO Electric Cooperative, Inc., under AZSITE project number 11963 and ASM permit number 2002-13bl.

Following those undertakings in 2001, there was a 2006 project in support of the Sasabe Lateral Pipeline performed by Environmental Planning Group on behalf of the El Paso Corporation for the Federal Energy Regulatory Commission (FERC) under the AZSITE project number 25755, ASM permit number 2006-32bl, and Bureau of Land Management permit number BLM AZ-000209. Then a survey taking place between 2006 and 2007 performed by SWCA, Tucson, on behalf of the TRICO Electric Cooperative, Inc., under the AZSITE project number 24995. Additionally, there were two more 2007 projects including a circuit rebuild project completed by SWCA, Tucson, on behalf of the TRICO Electric Cooperative, Inc., under AZSITE number 27610 as well as a survey done by WestLand Resources on behalf of the Pima County Natural Resources, Parks and Recreation for the Arizona State Land Department under AZSITE project number 19240 and ASM permit number 2007-031bl. Following these projects was a survey performed in 2009 by WestLand Resources on behalf of the Altar Valley School District No. 51 and Pima County Natural Resources, Parks and Recreation under the AZSITE project number 26583. In 2011, there was a project in support of the Three Points Fire District Substation done

by SWCA, Tucson, on behalf of the Three Points Fire District under AZSITE project number 23829 and Bureau of Land Management permit number AZ-000411. Between 2012 and 2014, there was a project undertaken by SWCA, Tucson, on behalf of the EL Paso Natural Gas Company for the FERC under the AZSITE project number 25313, ASM permit number 2012-021bl, FERC permit number 2013-030bl, and USFWS permit number 2014-022bl. Following that were two projects in 2015 including a survey of proposed natural gas line rights-of-way in unincorporated Pima County, Arizona by Tierra Right of Way Service, Ltd., on behalf of Southwest Gas under AZSITE project number 25168 and ASM permit number 2015-025bl. Finally, there was a cultural resources survey to support pavement preservation on SR 86 from Fuller to Valencia performed by Archaeology Consulting Services on behalf of ADOT under the AZSITE project number 25668 and ASM permit number 2015018bl.

Six site numbers have been assigned to resources recorded within the 1.0-mile search radius of the project area. The sites include the Robles Junction stage stop (AZ AA:15:7[ASM]), a Euro-American historic stage stop site that was noted to be the original headquarters of Robles Ranch which dates to the 1880s and was identified in 1961 by the Historical Sites Committee but has not been evaluated for the NRHP. In addition, there was recorded portions of the State Route 86 recorded in 1993 (AZ AA:16:377[ASM] and AZ DD:10:10[ASM]) which are considered eligible for the NRHP. An abandoned overhead telephone/telegraph line (AZ DD:3:156[ASM]) was recorded in 2012 dating to the early 20th century and is not considered eligible for the NRHP. In 2001, an historic trash scatter (AZ AA:15:129 [ASM]) was recorded that represents a single dumping event that dates to the late 19th or early 20th century and is not considered eligible for the NRHP. The final site was recorded as a prehistoric lithic and ceramic scatter associated with the Hohokam culture and dating to AD200-1500 (AZ AA:15:205[ASM]), it was determined to be eligible for the NRHP. None of the previously recorded cultural resources overlap with the current project area.

There are no historic buildings, districts, or neighborhoods located within a 1.0-mile search radius of the project area.

3.13.1 Alternative 1: Proposed Action

Archaeological and aboveground resources surveys were conducted at the project area. During consultation, the SHPO concurred with CBP's determination that none of the newly recorded archaeological sites or isolated occurrences (IOs) at the project area are recommended eligible for the NRHP under any criteria. As a result, no additional work is recommended for the Proposed Action's Areas of Potential Effects (APE) and no adverse effects on cultural resources are anticipated from the development of the Proposed Action. The Proposed Action would result in permanent, negligible, adverse impacts on cultural resources within the APE.

3.13.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no construction would occur; therefore, no beneficial or adverse impacts to cultural resources would be anticipated.

3.14 UTILITIES AND INFRASTRUCTURE

UniSource Energy Services (UNS), a parent company of Tucson Electric Power (TEP), distributes electrical energy on behalf of the various Retail Electric Providers operating within the ROI. Commercial grid power is currently in use at the Three Points BPS. Infrastructure near the project area includes Highway 86, which is the major route through the community of Three Points to the surrounding towns, such as Tucson. No new public infrastructure would be required for ingress or egress at the project area.

Potable water would be supplied via existing infrastructure provided and maintained by the City of Tucson as well as through the Three Points local Public Water System (PWS). Tucson receives water from three main sources: groundwater, the Colorado River, and treated effluent, while the PWS in Three Points is mainly supplied by groundwater (MyTapWater 2023). Because the expanded Three Points BPS does not intend to use significantly more water than current rates, it is anticipated that adverse impacts to water availability would be long-term and negligible throughout the life of the project and temporary and minor during construction.

3.14.1 Alternative 1: Proposed Action

The Proposed Action would result in negligible effects on the availability of utilities throughout the ROI because the current amperage available through the existing grid power system can accept the anticipated electrical load of the proposed expansion design, which is largely the installation of additional vehicle parking for CBP agents. Additionally, the Three Points BPS is already tied into existing and available service transmission lines. The Proposed Action would result in permanent, negligible, adverse impacts on utilities and infrastructure in the ROI.

3.14.2 Alternative 2: No Action Alternative

Under the No Action Alternative, the proposed Three Points BPS expansion would not be constructed. The No Action Alternative would not affect the availability of utilities or require construction of additional facilities.

3.15 ROADWAYS AND TRAFFIC

Highway 86 is the main east-west route in Pima County, Arizona. At a total of 117 miles long, it extends from U.S. Interstate 19 in Tucson, Arizona west to Highway 85 in Why, Arizona. The project area is directly adjacent to Highway 86 (Figure 3-8). U.S. Interstate 10 is another major east-west route that runs through Tucson, Arizona and meanders northwest outside of Pima County before paralleling Highway 86 and continuing west. U.S. Interstate 10 is 2,460 miles long and travels from Jacksonville, Florida to Santa Monica, California.

The main north-south routes through Pima County are U.S. Interstate 19 and State Highway 85. U.S. Interstate 19 extends from the southern border of Pima County (due south of Tucson) up to the City of Tucson. Highway 85 runs the length of the county from the U.S./Mexico International Border to the northern border of the Pima County line near Ajo, Arizona.

Figure 3-8. Roadways and Traffic Map

Annual average daily traffic (AADT) is the standard measurement for vehicle traffic load on a section of road; it is calculated by recording the total volume of vehicle traffic on a highway or road for a year and dividing that value by 365 days. The Proposed Action would be located directly off of Highway 86 to the southwest of the City of Tucson, Arizona. According to ADOT, the AADT for Highway 86 near the project area was 7,102 vehicles per day in 2021 (ADOT 2022).

3.15.1 Alternative 1: Proposed Action

With the implementation of the Proposed Action, construction activities at the project area would have a temporary, minor, adverse impact on roadways and traffic adjacent to the project site. An increase of vehicular traffic along Highway 86 would occur from supplying materials, hauling debris, and from work crews commuting to the project area during construction activities. Upon completion of construction activities, the number of USBP agents traveling those roads to access the Three Points BPS could increase as well. This increase in volume of traffic associated with agents coming and going from the Three Points BPS would have negligible impacts on roadways and traffic as Highway 86 has the capacity for additional traffic volume. Therefore, traffic impacts associated with the operation of the expanded Three Points BPS would be long-term, negligible, and adverse.

3.15.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no beneficial or adverse impacts to roadways and traffic would occur.

3.16 HAZARDOUS MATERIALS

Hazardous materials are substances that cause physical or health hazards (29 CFR 1910.1200). Materials that are physically hazardous include combustible and flammable substances, compressed gases, and oxidizers. Health hazards are associated with materials that cause acute or chronic reactions, including toxic agents, carcinogens, and irritants. Hazardous materials are regulated in Arizona by a combination of mandated laws promulgated by the USEPA and the ADEQ.

A Phase I Environmental Site Assessment in accordance with the American Society for Testing and Materials (ASTM) International Standard E1527-21 was conducted for the project area. This assessment was performed to evaluate any potential environmental risk associated with the construction and operation of the proposed expansion of the Three Points BPS. The assessment included a search of federal and state records of known hazardous waste sites, potentially hazardous waste sites, and remedial activities and included sites that are either on the National Priorities List or being considered for the list. According to information gathered from document searches, interviews, and the site reconnaissance, no recognized environmental conditions exist in the immediate vicinity of the project area (GSRC 2023).

3.16.1 Alternative 1: Proposed Action

Construction associated with the proposed expansion of the Three Points BPS as described in the Proposed Action would involve the use of heavy construction equipment. There is a potential for the release of hazardous materials such as fuels, lubricants, hydraulic fluids, and other chemicals during the construction activities. The adverse impacts from spills of hazardous materials during construction would be minimized by utilizing BMPs during construction such as fueling only in controlled and protected areas away from surface waters, maintaining emergency spill cleanup kits onsite, and maintaining all equipment in good operating condition to prevent fuel and hydraulic fluid leaks. The potential impacts of the handling and disposal of hazardous and regulated materials and substances during construction activities would be negligible when mitigation measures and BMPs, as outlined in Chapter 5.0, are implemented. Therefore, the Proposed Action is anticipated to have temporary, negligible, adverse impacts on the local area during construction as it relates to hazardous materials and substances.

All hazardous and regulated wastes and substances generated by operation of the expanded Three Points BPS would be collected, characterized, labeled, stored, transported, and disposed of in accordance with all federal, state, and local regulations, including proper waste manifesting procedures. All other hazardous and regulated materials or substances would be handled according to materials safety data sheet instructions and would not affect water, soils, vegetation, wildlife, or the safety of USBP agents and staff. The Proposed Action includes an upgrade to a 10,000-gallon fuel tank, installation of two vehicle bays, and relocation of the existing vehicle washing station. The fuel tank installed at the expanded Three Points BPS would be double-walled and contained within all protective measures needed to prevent the release of any tank spills. The vehicle maintenance bays would be equipped with oil/water separators to collect any petroleum or other automotive fluids spilled, and waste automotive fluids would be collected and disposed of in accordance with state regulations. Therefore, hazardous and regulated materials and substances would not adversely impact the public, groundwater, or general environment throughout the life of the Proposed Action. The Proposed Action would have long-term, negligible, adverse impacts during the operation of the expanded Three Points BPS on the local area as it relates to hazardous materials and substances.

3.16.2 Alternative 2: No Action Alternative

Under the No Action Alternative, no construction activities would occur; therefore, no existing hazardous materials risks would be encountered and no potential for hazardous materials spills during the expansion of the Three Points BPS would be realized. No impacts from hazardous materials would result from the No Action Alternative.

3.17 SOCIOECONOMICS

This socioeconomics section outlines the basic attributes of population and economic activity in Pima County, Arizona. The closest town to the Proposed Action is the Community of Three Points, Arizona, which is in Pima County with the closest major metropolitan area being Tucson, Arizona. The location for the Proposed Action is not within the city limits of Tucson, Arizona. However, it is anticipated that most of the agents working at the Three Points BPS are traveling from Tucson. As a result, all of Pima County is considered the ROI for socioeconomics.

The Proposed Action would be designed for 200 employees with the potential for future expansion, which is comparable to the number of agents currently working at the existing Three Points BPS.

Affected Environment

Demographic data, shown in Table 3-15, provides an overview of the socioeconomic environment in the ROI. In 2021, Pima County had an estimated population of 1,052,030 (U.S. Census Bureau 2022). From 2021 to 2022, the population of Pima County grew at an average annual rate of 0.8 percent. In the same time frame, the population of Arizona grew at an average annual rate of 1.6 percent, and the U.S. at a slower rate of 0.2 percent (U.S. Census Bureau 2022).

Table 3-15. Population, Income, Labor Force, and Unemployment

	2021 Population Estimate	Average Annual Growth Rate 2020-2021 (Percent)	Per Capita Income (Dollars) (2021)	Per Capita Income as a Percent of the United States (Percent)	Unemployment Rate in 2022 (Percent)
Pima County, Arizona	1,052,030	0.8	33,016	88	3.8
Arizona	7,264,877	1.6	34,644	92	3.5
United States	332,031,554	0.2	37,638	100	3.6

Source: U.S. Census Bureau 2022, BLS 2022

Per capita income in the ROI is lower than that of the U.S. national average, with average per capita income in Pima County approximately 88 percent of the U.S. The unemployment rate in Pima County (3.8 percent) is comparable, but slightly higher than the unemployment rate of both Arizona and the U.S. (U.S. Bureau of Labor Statistics [BLS] 2022).

Impacts on socioeconomic conditions would be considered significant if they included displacement or relocation of residences or commercial buildings or increases in long-term demands for public services in excess of existing and projected capacities.

3.17.1 Alternative 1: Proposed Action

The project area is located in a rural area directly south of Highway 86, outside the city limits of Tucson. The Proposed Action could add agents and their families moving into the area, needing homes, schools, and public services. Those agents and their families would likely live in Tucson or the surrounding towns. With an estimated population of 543,242 (over half of the total population in Pima County), Tucson is a much larger city than other cities within Pima County and would offer many more options for housing, schools, shopping, and other amenities. With many of the additional agents and their families expected to choose to live in Tucson, increases in the demand for public services exceeding existing and projected capacities would not be expected. A majority of agents that are stationed at the current facility have already been living in Tucson while stationed at the Three Points BPS.

Temporary, minor, beneficial impacts in the form of jobs and income for area residents, revenues to local businesses, and sales and use taxes to Pima County and the State of Arizona could be realized if construction materials and workers are locally acquired.

3.17.2 Alternative 2: No Action Alternative

Under the No Action Alternative, the proposed Three Points BPS expansion project would not be constructed in Pima County, so there would be no direct socioeconomics impacts. The USBP ability to detect and interdict illicit cross-border activity would not be enhanced, so adverse impacts from illegal activity could continue.

3.18 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued on February 11, 1994. It was intended to ensure that proposed federal actions do not have disproportionately high and adverse human health and environmental effects on minority and low-income populations and to ensure greater public participation by minority and low-income populations. It required each agency to develop an agency-wide environmental justice strategy. A Presidential Transmittal Memorandum issued with the EO states that "Each federal agency shall analyze the environmental effects, including human health, economic and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by the NEPA 42 U.S.C. section 4321, et seq." Furthermore, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was issued in 1997 and aims to protect children from environmental health and safety risks. It requires federal agencies to take steps to identify and address risks and to ensure that their policies and regulations do not disproportionately impact children, especially those who are at greater risk due to socioeconomic factors.

EO 12898 does not provide guidelines as to how to determine concentrations of minority or low-income populations. However, analysis of demographic data on race, ethnicity, and poverty provides information on minority and low-income populations that could be affected by the Proposed Actions. The 2010 Census reports numbers of minority individuals and the U.S. Census American Community Survey (ACS) provides the most recent poverty estimates available. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, Pacific Islander, or Other. Poverty status is used to define low-income. Poverty is defined as the number of people with income below poverty level, which was $26,200 for a family of four in 2020 (U.S. Department of Health and Human Services [HHS] 2020). A potential disproportionate adverse impact may occur when the minority population in the study area exceeds 50 percent and/or the percent of low-income populations exceeds 20 percent of the total population. Additionally, a disproportionate impact may occur when the percent minority and/or low-income in the study area are meaningfully greater than those in the region. The potential for impacts on the health and safety of children is greater in areas where projects are located near residential areas. U.S. Census data for minority population and poverty rates for the ROI are presented in Table 3-16.

Table 3-16. Minority Population and Poverty Rates for the Region of Interest

	Minority Population (Percent)	All Ages in Poverty (Percent)
Pima County	15.7	14.7
Arizona	18.0	12.8
United States	24.2	11.6

Source: U.S. Census Bureau 2022

Pima County is the most specific region to analyze demographic information as it relates to the Three Points BPS project. Table 3-16 shows the minority population of Pima County is 15.7%, which is lower than Arizona (18%) and the U.S. (24.2%). While the proportion of minorities in Pima County is lower compared to the state or the county, the proportion of those in poverty in Pima County (14.7%) is higher than the state of Arizona (12.8%) and the U.S. (11.6%).

3.18.1 Alternative 1: Proposed Action

Under the Proposed Action, the proposed Three Points BPS expansion would be located in a rural area, with residential structures located within 0.5-mile of the project area. The closest residence to Proposed Action is located 0.4-mile north of the eastern boundary of the project area with the closest school being located only 0.2-mile northeast of the project area. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would have a permanent, negligible, adverse impact on children during the operation of the expanded Three Points BPS. Due to the increase in traffic during construction and given the proximity of the Three Points BPS to two schools, the Proposed Action could have a temporary, negligible, adverse impact to children.

The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations, and less than 50% of the population in Pima County is considered minority and less than 20% of the population in Pima County is considered impoverished. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would have a permanent, negligible, adverse impact on minorities and low-income groups.

3.18.2 Alternative 2: No Action Alternative

Under the No Action Alternative, the proposed Three Points BPS expansion would not be constructed. There would be no beneficial or adverse impacts on people, so there would not be disproportionately high and adverse human health or environmental effects on minority populations and low income populations. There would be no environmental health or safety risks that could disproportionately affect children.

3.19 SUMMARY OF IMPACTS

Table 3-17 is provided to summarize the impacts of the No Action Alternative and Proposed Action on each of the resource areas discussed in this section (Affected Environment and Consequences).

Table 3-17. Summary Matrix of Potential Impacts

Affected Environment	Alternative 1: Proposed Action	Alternative 2: No Action Alternative
Land Use	The Proposed Action would have long-term, minor, adverse impacts on land use within the immediate or surrounding areas. Approximately 12 acres of undeveloped land would be converted to a developed land use.	No direct impacts would occur.
Soils	The effects from the disturbance and removal of approximately 12 acres of soil from biological production would result in long-term, negligible, adverse impacts due to the small size of the project footprint relative to the amount of the same soils found throughout the ROI.	No direct impacts would occur.
Vegetative Habitat	Approximately 12 acres of semidesert grassland would be permanently affected as a result of the construction of the proposed Three Points BPS expansion. Therefore, the Proposed Action would have a permanent, minor, adverse impact on vegetation in the project area.	No direct impacts would occur.
Wildlife Resources	The Proposed Action would result in the permanent loss of approximately 12 acres and would have a long-term, negligible, adverse impact on wildlife.	No direct impacts would occur.
Protected Species and Critical Habitats	Three individual PPC were located within the project area, and suitable habitat for this species exists throughout the project area. Ongoing Section 7 consultation with the USFWS is taking place to determine how to best address the PPC on site; however, it is anticipated to result in a "may affect, but not likely to adversely affect" determination. Therefore, the Proposed Action would have a permanent, minor, adverse impact on PPC and their suitable habitat.	No direct impacts would occur.
Groundwater	As a result of the Proposed Action, it is anticipated that day-to-day adverse impacts to ground water resources would be permanent and negligible while adverse impacts during construction would be temporary and negligible.	No direct impacts would occur.
Surface Water/Waters of the U.S.	The Proposed Action may have temporary, negligible, adverse impacts on surface waters as a result of increased erosion and sedimentation during periods of construction. Day-to-day water usage is not expected to be significantly higher than current levels. Long-term, minor, adverse impacts to surface waters would be expected as a result of removing potentially jurisdictional, ephemeral drainages located within the project area.	No direct impacts would occur.
Floodplains	Because the Proposed Action is sited outside of an active floodplain, this alternative would not increase the risk or impact of floods on human safety, health, and welfare, or adversely impact the beneficial values that floodplains serve.	No direct impacts would occur.
Air Quality	The Proposed Action would have temporary, minor, adverse impacts on air quality in the ROI.	No direct impacts would occur.
Greenhouse Gas	The Proposed Action would have temporary, minor, adverse impacts on GHGs released during construction. The operation of the expanded Three Points BPS would have a long-term, negligible, adverse impact on GHG emissions.	No direct impacts would occur.
Noise	The Proposed Action would have a temporary, negligible, adverse impact on the local soundscape during construction. Day-to-day operations at the expanded Three Points BPS would not be expected to add additional noise to the local soundscape, and would be expected to result in a long-term, negligible impact to the local community.	No direct impacts would occur.
Cultural, Historical, and Archaeological Resources	During consultation, the Arizona SHPO concurred with CBP's determination that none of the newly recorded archeological sites or IOs at the project area are recommended eligible for the NRHP under any criteria. As a result, no additional work is recommended for the Proposed Action's APE. The Proposed Action would result in permanent, negligible, adverse impacts on cultural resources within the APE.	No direct impacts would occur.
Utilities and Infrastructure	The Proposed Action would result in permanent, negligible, adverse effects on the availability of utilities throughout the ROI because the current amperage available through the existing grid power system can accept the anticipated electrical load of the proposed expansion design, which is largely the installation of additional vehicle parking for CBP agents. Additionally, the Three Points BPS is already tied into existing and available service transmission lines.	No direct impacts would occur.
Roadways and Traffic	With the implementation of the Proposed Action, construction activities at the project area would have a temporary, minor, adverse impact on roadways and traffic adjacent to the project area during construction. Traffic impacts associated with the day-to-day operation of the expanded Three Points BPS would be long-term, negligible, and adverse.	No direct impacts would occur.
Hazardous Material	The adverse impacts from spills of hazardous materials during construction would be minimized by utilizing BMPs during construction such as fueling only in controlled and protected areas away from surface waters, maintaining emergency spill cleanup kits on-site, and maintaining all equipment in good operating condition to prevent fuel and hydraulic fluid leaks. Therefore, the Proposed Action is anticipated to have temporary, negligible, adverse impacts on the local area as it relates to hazardous substance release during construction, and long-term, negligible, adverse impacts during the operation of the expanded Three Points BPS.	No direct impacts would occur.
Socioeconomics	With many of the additional agents and their families expected to choose to live in Tucson, increases in the demand for public services exceeding existing and projected capacities would not be anticipated. A majority of agents that are stationed at the current facility have already been living in Tucson while stationed at the Three Points BPS. Temporary, minor, beneficial impacts in the form of jobs and income for area residents, revenues to local businesses, and sales and use taxes to Pima County and the State of Arizona could be realized if construction materials are purchased locally and local construction workers are hired for road construction.	No direct impacts would occur.
Environmental Justice and Protection of Children	The Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. There would be no environmental health or safety risks that disproportionately affect children. The Proposed Action would have a permanent, negligible, adverse impact on minorities and low-income groups. The Proposed Action would have a permanent, negligible, adverse impact on children during the operation of the expanded Three Points BPS. Due to the increase in traffic during construction, and given the proximity of the Three Points BPS to two schools, the Proposed Action could have a temporary, negligible, adverse impact to children.	No direct impacts would occur.

4.0 CUMULATIVE IMPACTS

This section of the EA defines cumulative impacts, identifies past, present, and reasonably foreseeable projects relevant to cumulative impacts, and analyzes the potential cumulative impacts associated with the implementation of the Proposed Action and other projects/programs planned within the ROI, which comprises USBP's Tucson Sector AOR.

4.1 DEFINITION OF CUMULATIVE IMPACTS

The CEQ defines cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, or local) or individuals. CEQ guidance on cumulative effects requires the definition of the scope of the other actions and their interrelationship with the Proposed Action. The scope must consider geographic and temporal overlaps with the Proposed Action and all other actions occurring within the ROI. 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 affecting any part of the human or natural 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.

4.2 PAST IMPACTS WITHIN THE REGION OF INFLUENCE

The ecosystems within the ROI have been significantly impacted by historical and ongoing activities such as ranching, livestock grazing, agricultural development, 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 and the proliferation of roads and trails. Although activities that occurred on Federal lands (Department of Interior [DOI]) were regulated by NEPA, the most substantial impacts of these activities within the ROI such as ranching, livestock grazing, and other private land uses were not or are not regulated by NEPA and did not include efforts to minimize impacts.

4.3 CURRENT AND REASONABLY FORESEEABLE CBP PROJECTS WITHIN AND NEAR THE REGION OF INFLUENCE

USBP has conducted law enforcement actions along the border since its inception in 1924 and has continuously transformed its methods as new missions, modes of operations of cross-border violators (CBVs), agent needs, and National enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, roads, and

fences have impacted thousands of acres, with synergistic and cumulative impacts on soil, wildlife habitats, water quality, and noise. Beneficial effects, too, have resulted from the construction and use of these roads and fences, including, but not limited to: increased employment and income for border regions and their surrounding communities, protection and enhancement of sensitive resources north of the border, reduction in crime within urban areas near the border, increased land value in areas where border security has increased, and increased knowledge of the biological communities and prehistory of the region through numerous biological and cultural resources surveys and studies.

With continued funding and implementation of CBP's environmental conservation measures, including use of biological monitors, wildlife water systems, and restoration activities, adverse impacts due to future and ongoing projects would be avoided or minimized. Recent, ongoing, and reasonably foreseeable Proposed Actions will result in cumulative impacts; however, the cumulative impacts will not be significant. CBP is currently planning, conducting, or has completed several projects in the Tucson Sector AOR and other nearby areas, including the following:

CBP Projects

- Port of Douglas Renovation Project
- Renovation of the Nogales Central Processing Center, Nogales Station, Arizona
- Border Barrier Remediation Plan – Pima, Santa Cruz, and Cochise Counties

CBP determined not to include these ongoing and planned projects for discussion in the environmental consequences section of this EA because the potential effects of these projects are temporally or geographically remote (i.e., over 20 miles) or the result of a lengthy causal chain when considering effects relating to the Proposed Action.

Other Agencies and Entities with Projects in the ROI

Pima County Department of Transportation (PCDOT) has multiple current and future road projects in Pima County, Arizona. The PCDOT is widening approximately three miles of Houghton Road, from the I-10 Interchange south to Pantano High School. The project is scheduled to be completed in the spring of 2023 (Pima County 2023a). PCDOT is in the design phase to connect Sunset Road from I-10 to River Road (Approximately 0.7-mile). Construction for this project was slated for January 2023 (Pima County 2023b). PCDOT is currently widening and realigning a half-mile section of Houghton Road. The project is scheduled to be completed in May of 2023 (Pima County 2023c).

The Federal Aviation Administration (FAA), ADOT, and the Town of Marana jointly funded a project to construct a new air traffic control tower at the Marana Airport. This project is scheduled to be completed in the year 2024 and is part of the revised Town of Marana Strategic Plan (Tucson Local Media 2022).

A summary of the anticipated cumulative impacts relative to the Proposed Action is presented below. The discussion is presented for each of the resources described previously.

4.4 ANALYSIS OF CUMULATIVE IMPACTS

Impacts on each resource were analyzed according to how other actions and projects within the ROI might be affected by the No Action Alternative and Proposed Action. Impacts 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. A summary of the anticipated cumulative impacts on each resource is presented below.

4.4.1 Land Use

A major impact would occur if any action is inconsistent with adopted land use plans or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Most of the Project Area is previously disturbed desertscrub and brush rangeland located in rural areas. Under the No Action Alternative, land use would not change. Although the Proposed Action would convert 12 acres of undeveloped land to a developed use, the Proposed Action and other CBP actions would not initiate an increase of development in the immediate vicinity of the projects. Therefore, the Proposed Action, when combined with past and Proposed Actions in the region, would not be expected to result in a major cumulative adverse effect.

4.4.2 Soils

A major impact on soils would occur if the action exacerbates or promotes long-term erosion, if the soils are inappropriate for the proposed construction and would create a risk to life or property, or if there would be a substantial reduction in agricultural production or loss of prime farmland soils. Modification of soils would not occur under the No Action Alternative; however, soils could continue to be impacted due to CBV activity. The Proposed Action and other CBP actions would not reduce prime farmland soils or agricultural production regionally, as much of the land has been previously disturbed from former CBP activities, and no prime farmlands are located within the project area. Pre- and post-construction SWPPP measures would be implemented to control soil erosion. The permanent impact on 12 acres of soils from the Proposed Action, when combined with past and Proposed Actions in the region, would not be considered a major cumulative adverse effect.

4.4.3 Vegetative Habitat

A major impact on vegetation would occur if a substantial reduction in ecological processes, communities, or populations would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be offset or otherwise compensated. Vegetative habitat would not be disturbed or removed under the No Action Alternative since construction related to the expanded Three Points BPS would not occur. Therefore, due to the permanent impact of 12 acres on native vegetation, in conjunction with other past, ongoing and proposed regional projects, the Proposed Action would not create a major cumulative effect on vegetative habitat in the region.

4.4.4 Wildlife Resources

A major impact on wildlife and aquatic resources would occur if a substantial reduction in ecological processes, communities, or populations would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be offset or

otherwise compensated. Under the No Action Alternative, no direct impacts on wildlife or wildlife habitats would occur. The wildlife habitat present in the project area is both locally and regionally common. Therefore, due to the permanent impact of 12 acres of previously disturbed native habitat, in conjunction with other past, ongoing, and proposed regional projects, the amount of habitat potentially removed would be negligible on a regional scale. Thus, the Proposed Action would not create a major cumulative effect on wildlife populations in the region.

4.4.5 Protected Species and Critical Habitats

A major impact on protected species would occur only if any action resulted in a jeopardy opinion for any endangered, threatened, or rare species. Under the No Action Alternative, there would be no direct impacts on threatened or endangered species or their habitats as no construction activities would occur. CBP is currently conducting format Section 7 consultation with the USFWS to address the three PPC located within the project area. CBP will pay mitigation fees and relocate the cactus to a suitable location where they will be monitored and protected. Therefore, due to the permanent impact of 12 acres of previously disturbed PPC habitat, in conjunction with other past, ongoing, and proposed regional projects, the amount of habitat potentially removed would be negligible on a regional scale. This, in addition to mitigation and relocation efforts put forth by the USFWS, the Proposed Action would not create a major cumulative effect on PPC or other listed species in the region.

4.4.6 Water Resources

Under the No Action Alternative, no impacts on water resources would occur because the construction activities would not occur. No groundwater withdrawals are expected as a result of the Proposed Action; therefore, there would be minimal cumulative effects. Drainage patterns of ephemeral surface waters would be impacted by the Proposed Action; however, CBP is intending to exercise Nationwide Permit 14 to support this project. Water quality would remain unchanged under the Proposed Action. No wetlands exist within the project area. Therefore, no cumulative impacts would occur on wetlands. As mentioned previously, specific erosion and sedimentation controls and other BMPs would be in place during construction as standard operating procedures. Therefore, the Proposed Action, in conjunction with other past, ongoing, and proposed regional projects, would not create a major cumulative effect on water resources in the region.

4.4.7 Air Quality and Climate Change

No direct impacts on air quality would occur due to construction activities under the No Action Alternative. The emissions generated during the construction of the Proposed Action would not exceed Federal *de minimis* thresholds and GHG emissions would not be expected to be released at unusually high levels. Therefore, the Proposed Action, when combined with other past, ongoing, and Proposed Actions in the region, would not result in major adverse cumulative impacts on air quality.

4.4.8 Noise

A major impact would occur if ambient noise levels permanently increased to over 65 dBA. Under the No Action Alternative, no impacts on noise would occur as no construction activities would take place. The noise generated by the Proposed Action would occur during construction activities. These activities would be temporary and would not contribute to cumulative impacts

on ambient noise levels. Thus, the noise generated by the Proposed Action, when considered with the other existing and Proposed Actions in the region, would not result in a major cumulative adverse effect.

4.4.9 Cultural Resources

Although no impacts on cultural resources would occur from construction activities under the No Action Alternative, potential adverse impacts on cultural resources would continue to occur due to CBVs. The Proposed Action would not affect cultural resources or historic properties but is anticipated to provide increased protection from disturbance due to the deterrence of CBVs. Therefore, the Proposed Action, when combined with other existing and Proposed Actions in the region, would not result in major cumulative impacts on cultural resources or historic properties. Additionally, beneficial impacts in the form of increased knowledge of the past, including site density and distribution, are realized as a result of surveys conducted as part of the Proposed Action, and other past, ongoing, and Proposed Actions in the region.

4.4.10 Utilities and Infrastructure

Actions would cause major impacts if they require greater utilities or infrastructure use than can be provided. The expanded Three Points BPS would not be constructed under the No Action Alternative, so the availability of utilities would not be affected. Since utility infrastructure is already in place at the Three Points BPS, and a large component of the Proposed Action is expanding to create additional vehicle parking, a large increase in utility use at the Three Points BPS is not expected. Therefore, when combined with past, ongoing, or Proposed Actions in the region, no major cumulative adverse effect on utilities or infrastructure would occur as a result of the Proposed Action.

4.4.11 Roadways and Traffic

Impacts on traffic or roadways would be considered to cause major impacts if the increase of average daily traffic exceeded the ability of the surface streets to offer a suitable level of service for the area. Under the No Action Alternative, impacts on roadways and traffic would remain status quo. Construction activities for the Proposed Action would be limited in duration and would not be expected to overburden the local roadways. Therefore, when combined with past, ongoing, or Proposed Actions in the region, no major cumulative adverse effect on roadways and traffic would occur as a result of the Proposed Action.

4.4.12 Hazardous Materials

Major impacts would occur if an action creates a public hazard, if the Project Area is considered a hazardous waste site that poses health risks, or if the action would impair the implementation of an adopted emergency response or evacuation plan. Under the No Action Alternative, no impacts associated with the use of hazardous materials would be expected. Negligible increases in the use of hazardous substances would occur as a result of the Proposed Action. BMPs would be implemented to minimize the risk from hazardous materials during construction activities. Through the use of BMPs, no health or safety risks would be created by the Proposed Action. The effects of the Proposed Action, when combined with other past, ongoing, and Proposed Actions in the region, would not be considered a major cumulative effect.

4.4.13 Socioeconomics

Although no impacts on socioeconomics would occur from construction activities under the No Action Alternative, potential adverse impacts on socioeconomics would continue to occur due to CBVs. No adverse direct impacts would occur on socioeconomics issues as a result of the Proposed Action; therefore, no adverse cumulative impacts would occur. However, construction of the expanded Three Points BPS could have temporary cumulative beneficial impacts on the region's economy due to temporary employment and sales taxes generated through the purchase of construction-related items such as fuel and food. When combined with the other currently proposed or ongoing projects within the region, the Proposed Action is considered to have minor beneficial cumulative impacts.

4.4.14 Environmental Justice and Protection of Children

No long-term impacts on people would occur under the No Action Alternative. No disproportionately high and adverse human health or environmental effects on minority populations and low income populations would directly occur as a result of the Proposed Action; therefore, no adverse cumulative impacts would occur. Similarly, no potential for environmental health or safety risks that could disproportionately affect children would occur. When combined with the other currently proposed or ongoing projects within the region, the Proposed Action is considered to have negligible cumulative impacts on environmental justice and protection of children concerns.

5.0 BEST MANAGEMENT PRACTICES

This chapter describes those measures that will be implemented to reduce or eliminate potential adverse impacts on the human and natural environments. Many of these measures have been incorporated as standard operating procedures by CBP on past projects. BMPs will be presented for each resource category that would be potentially affected. It should be emphasized that these are general BMPs and the development of specific BMPs will be required for certain activities implemented under the Proposed Action. The proposed BMPs will be coordinated through the appropriate agencies and land managers/administrators, as required.

It is federal policy to reduce adverse impacts through the sequence of avoidance, minimization, and, finally, compensation. Compensation varies and includes activities such as restoration of habitat in other areas, acquisition of lands, etc., and is typically coordinated with the appropriate federal and state resource agencies.

5.1 GENERAL PROJECT PLANNING CONSIDERATIONS

1. If required, night-vision-friendly strobe lights necessary for CBP operational needs will use the minimum wattage and number of flashes per minute necessary to ensure operational safety.

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

3. Avoid lighting impacts during the night by conducting construction and maintenance activities during daylight hours only. If night lighting is unavoidable, 1) use special bulbs designed to ensure no increase in ambient light conditions, 2) minimize the number of lights used, 3) place lights on poles pointed down toward the ground, with shields on lights to prevent light from going up into sky, or out laterally into landscape, and 4) selectively place lights so they are directed away from all native vegetative communities.

4. Avoid the spread of non-native plants by not using natural materials (e.g., straw) for onsite erosion control. If natural materials must be used, the natural material would be certified weed and weed-seed free. Herbicides not toxic to listed species that may be in the area can be used for non-native vegetation control. Application of herbicides will follow Federal guidelines and be used in accordance with label directions.

5. Ensure that all construction follows DHS Directive 025-01 for Sustainable Practices for Environmental, Energy, and Transportation Management.

6. Place drip pans under parked equipment and establish containment zones when refueling vehicles or equipment.

5.2 SOILS

1. Clearly demarcate the perimeter of all new areas to be disturbed using flagging or temporary construction fencing. Do not allow any disturbance outside that perimeter.

2. The area of disturbance will be minimized by limiting deliveries of materials and equipment to only those needed for effective project implementation.

3. Within the designated disturbance area, grading or topsoil removal will be limited to areas where this activity is needed to provide the ground conditions necessary for construction or maintenance activities.

4. Rehabilitation will include revegetating or 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.

5.3 BIOLOGICAL RESOURCES

1. Materials used for onsite erosion control will be free of non-native plant seeds and other plant parts to limit potential for infestation.

2. Identify by its source location any fill material, sandbags, hay bales, and mulch brought in from outside the project area. These materials will be free of non-native plant seeds and other plant parts to limit potential for infestation.

3. Native seeds or plants will be used to revegetate temporarily disturbed areas.

4. Obtain materials such as gravel, topsoil, or fill from existing developed or previously used sources that are compatible with the project area and are from legally permitted sites. Do not use materials from undisturbed areas adjacent to the project area.

5. To prevent entrapment of wildlife species, ensure that excavated, steep-walled holes or trenches are either completely covered by plywood or metal caps at the close of each workday or provided with one or more escape ramps (at no greater than 1,000-foot intervals and sloped less than 45 degrees) constructed of earthen fill or wooden planks.

6. Each morning before the start of construction or maintenance activities and before holes or trenches are filled, ensure that they are thoroughly inspected for trapped animals. Ensure that any animals discovered are allowed to escape voluntarily (by escape ramps or temporary structures), without harassment, and before construction activities resume, or are removed from the trench or hole by a qualified person and allowed to escape unimpeded.

7. The MBTA (16 U.S.C. 703-712, [1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989]) requires that federal agencies coordinate with the USFWS if a construction activity would result in the take of a migratory bird. If construction or clearing activities are scheduled during nesting season (March 15 through September 15) within potential nesting habitats, surveys will be performed to identify active nests. If construction activities will result in take of a migratory bird, then coordination with the USFWS and AGFD will be required, and applicable permits would be obtained prior to construction or clearing activities.

5.4 PROTECTED SPECIES

1. Minimize impacts to listed species and their habitats by designating and using the minimal number of roads needed for project implementation. CBP will avoid creating new access routes by using, and improving if necessary, existing roads.

2. Minimize impacts to listed species and their habitats by using areas already disturbed by past activities, or those that will be used later in the construction period, for staging, parking, laydown, and equipment storage. If site disturbance is unavoidable, minimize the area of disturbance by scheduling deliveries of materials and equipment to only those items needed for ongoing project implementation.

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

4. Avoid restricting water access by identifying and not creating barriers to natural water sources available to listed species.

5. Minimize impacts to listed species and their habitats by obtaining materials such as gravel or topsoil that are clean and acceptable to the land management agency, from existing developed or previously used sources, not from undisturbed areas adjacent to the project area.

6. Develop (in conjunction with USFWS and Bureau of Land Management [BLM]) and implement a training program focusing on Trust Resources for contractors and construction personnel. Training will be provided to all personnel associated with the project before project construction begins and before any new personnel begin work on the project. Information presented in the training program will include occurrence of sensitive species in the project area, their general ecology, and sensitivity to human activities; legal protection afforded the species and the penalties for violation of state or federal laws; implementation of included conservation actions and BMPs; and reporting requirements. Also included in this training program will be color photos of the listed species and maps of federally listed species' habitats. Following the training program, the photos and maps will be posted in the contractor and resident engineer's office, where they will remain through the duration of the project. The selected construction manager will be responsible for ensuring that personnel are aware of the listed species. In addition,

training in identification of non-native invasive plants and animals will be provided for contracted personnel engaged in post-construction monitoring of construction sites.

Pima Pineapple Cactus

1. Minimize the number of construction vehicles traveling to and from the project area and the number of trips per day. CBP will coordinate construction vehicle activity with land managers at their discretion.

2. Report observations (i.e., construction or maintenance personnel, etc.) of PPC via electronic mail to USFWS and the corresponding ADOT land manager within 48 hours of the detection. The electronic mail will include the coordinates and a description of the location of where the PPC was detected and the date and time of the detection.

3. Coordinate and educate construction crews on how to identify PPC, and if found, will report the observation to their supervisor.

4. CBP will complete consultation with the USFWS and implement mandated mitigation measures.

5.5 CULTURAL RESOURCES

1. In the event that unanticipated archaeological resources are discovered during construction or any other project-related activities, or should known archaeological resources be inadvertently affected in a manner that was not anticipated, the project proponent or contractor shall immediately halt all activities in the immediate area of the discovery and take steps to stabilize and protect the discovered resource until it can be evaluated by a qualified archaeologist.

2. If any human remains are accidentally encountered during construction, work shall cease and the human remains left undisturbed, and the state police and CBP will be notified immediately.

5.6 AIR QUALITY

1. Soil watering will be utilized to minimize airborne particulate matter created during construction activities. Bare ground may be covered with hay or straw to lessen wind erosion during the time between BPS construction and the revegetation of temporary impact areas with a mixture of native plant seeds or nursery plantings (or both). All construction equipment and vehicles will be kept in good operating condition to minimize exhaust emissions.

2. Maintain vehicles in proper working order.

5.7 WATER RESOURCES

1. Wastewater is to be stored in closed containers onsite until removed for disposal. Wastewater is water used for project purposes that is contaminated with construction materials or from cleaning equipment and thus carries oils or other toxic materials or other contaminants as defined by federal or state regulations.

2. Avoid contamination of ground and surface waters by collecting concrete wash water in open containers and disposing of it offsite.

3. Avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging, and laydown and dispensing hazardous liquids, such as fuel and oil, to designated upland areas.

4. Cease work during heavy rains and do not resume work until conditions are suitable for the movement of equipment and materials.

5. Erosion control measures and appropriate BMPs, as required and promulgated through a site-specific SWPPP and engineering designs, will be implemented before, during, and after soil-disturbing activities.

6. Areas with highly erodible soils will be given special consideration when preparing the SWPPP to ensure incorporation of various erosion control techniques, such as straw bales, silt fencing, aggregate materials, wetting compounds, and rehabilitation, where possible, to decrease erosion.

7. All construction and maintenance contractors and personnel will review the CBP-approved spill protection plan and implement it during construction and maintenance activities.

8. Wastewater from pressure washing must be collected. A ground pit or sump can be used to collect the wastewater. Wastewater from pressure washing must not be discharged into any surface water.

9. If soaps or detergents are used, the wastewater and solids must be pumped or cleaned out and disposed of in an approved facility. If no soaps or detergents are used, the wastewater must first be filtered or screened to remove solids before being allowed to flow offsite. Detergents and cleaning solutions must not be sprayed over or discharged into surface waters.

5.8 NOISE

1. Avoid noise impacts during the night by conducting construction and maintenance activities during daylight hours only.

2. All Occupational Health and Safety Administration (OSHA) requirements will be followed. To lessen noise impacts on the local wildlife communities, construction will only occur during daylight hours. All motor vehicles will be properly maintained to reduce the potential for vehicle-related noise.

5.9 SOLID AND HAZARDOUS WASTES

1. 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 impervious floor and bermed sidewalls 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, and all vehicles will have drip pans during storage to contain minor spills and drips. 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.

2. A SPCCP would also be in place prior to the start of construction.

3. 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.

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

5. 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.

6. Solid waste receptacles will be maintained at the project area. Non-hazardous solid waste (trash and waste construction materials) will be collected and deposited in onsite receptacles. Solid waste will be collected and disposed of by a local waste disposal contractor.

7. Disposal of used batteries or other small quantities of hazardous waste will be handled, managed, maintained, stored, and disposed of in accordance with applicable federal and state rules and regulations for the management, storage, and disposal of hazardous materials, hazardous waste and universal waste. Additionally, to the extent practicable, all batteries will be recycled locally.

8. All rainwater collected in secondary containment will be pumped out, and secondary containment will have netting to minimize exposure to wildlife.

9. A properly licensed and certified hazardous waste disposal contractor will be used for hazardous waste disposal, and manifests will be traced to final destinations to ensure proper disposal is accomplished.

5.10 ROADWAYS AND TRAFFIC

1. Construction vehicles will travel and equipment will be transported on established roads with proper flagging and safety precautions.

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7.0 ACRONYMS/ABBREVIATIONS

ACS	U.S. Census American Community Survey
AADT	Annual average daily traffic
A.D.	Anno Domini
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
amsl	above mean sea level
ANHP	Arizona Natural Heritage Program
ANSI	American National Standards Institute
AOR	Area of Responsibility
APE	Area of Potential Effect
ARPA	Archeological Resources Protection Act
ASTM	American Society for Testing and Materials
ATV	All-terrain Vehicle
AZ	Arizona
AZSITE	Arizona Cultural Resources Inventory
B.C.	Before Christ
BLM	Bureau of Land Management
BMP	Best management practices
BPS	Border Patrol Station
CBP	U.S. Customs and Border Protection
CBV	Cross-Border Violator
CEQ	Council on Environmental Quality
CLIMAS	Climate Assessment for the Southwest
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CWA	Clean Water Act
dBA	A-weighted decibel
DHS	Department of Homeland Security
DNL	Day-night average sound level
DOE	Department of Energy
DOI	U.S. Department of the Interior
DPS	Distinct Population Segment
EE_{POL}	Exhaust Emissions (TONs)
EF_{POL}	Emission Factor for Pollutant (lb/hour)
EA	Environmental Assessment

EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FERC	Federal Energy Regulation Commission
FEMA	Federal Emergency Management Agency
FD	Fugitive Dust
FHWA	Federal Highway Administration
FIRM	Fire Insurance Rate Map
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gases
GSRC	Gulf South Research Corporation
GWP	Global Warming Potential
H	Hours Worked per Day
HFC	hydrochlorofluorocarbons
IOs	Isolated Occurrences
lbs	pounds
lbs/hr	pounds per hour
MBTA	Migratory Bird Treaty Act
MGPD	Million Gallons per Day
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NASA	National Aeronautical Space Administration
NE	Number of Pieces of Equipment
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NO_x	Nitrogen dioxides
NPS	National Park Service
NRCS	National Resources Conservation Services
NRHP	National Register of Historic Places
NWP	Nationwide Permit
NV	Number of a given vehicle type
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCDOT	Pima County Department of Transportation

PM-2.5	2.5 microns
PM-10	10 microns
PPC	Pima pineapple cactus
ppb	parts per billion
ppm	parts per million
ROI	Region of Influence
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_x	Sulfur dioxides
SPCCP	Spill Prevention, Control and Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
U.S.	United States
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
VPOL	Vehicle Emissions (TONs)
VMTWT	Worker Trips Vehicle Miles Travel (miles)
VOC	Volatile Organic Compound
WD	Number of Total Work Days
WHO	World Health Organization

8.0 LIST OF PREPARERS

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APPENDIX A
SCOPING CORRESPONDENCE

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
3636 N CENTAL AVENUE, SUITE 900
PHOENIX, ARIZONA 85012-1939

October 20, 2022

SUBJECT: Permit Application Request

John Petrilla
Environmental Protection Specialist-CPB
24000 Avila Road, Suite 5020
Laguna Niguel, California 92677

Dear Mr. Petrilla:

It has come to my attention that you are planning expansion of the existing Three Points Border Patrol Station, located within the city of Three Points, Pima County, Arizona.

This activity may require a Department of Army (DA) permit from the U.S. Army Corps of Engineers. A DA permit is required for the discharge of dredged or fill material into, including any redeposit of dredged material other than incidental fallback within, "waters of the U.S.", including wetlands and adjacent wetlands pursuant to Section 404 of the Clean Water Act of 1972. Examples include, but are not limited to the following activities:

a. creating fills for residential or commercial development, placing bank protection, temporary or permanent stockpiling of excavated material, building road crossings, backfilling for utility line crossings and constructing outfall structures, dams, levees, groins, weirs, or other structures;
b. mechanized land clearing and grading which involve filling low areas or land leveling, ditching, channelizing and other excavation activities that would have the effect of destroying or degrading waters of the U.S.;
c. allowing runoff or overflow from a contained land or water disposal area to reenter a water of the U.S.; and
d. placing pilings when such placement has or would have the effect of a discharge of fill material.

An application for a DA permit is available on our website: http://www.spl.usace.army.mil/Missions/Regulatory/PermitProcess.aspx. If you have any questions, please contact Lisa Robinson at (602) 230-6958 or via email at Lisa.E.Robinson@usace.army.mil. Please refer to this letter and SPL-2022-00598 in your reply. Please help me to evaluate and improve the regulatory experience for others by completing the customer survey form at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Sincerely,

Sallie Diebolt
Chief, Arizona Branch
Regulatory Division

1300 Pennsylvania Avenue NW
Washington, DC 20229

U.S. Customs and
Border Protection

October 4, 2022

Misael Cabrera
Director
Arizona Department of Environmental Quality
1110 W Washington
Phoenix, Arizona 85007
Submitted via email to: cabrera.misael@azdeq.gov

RE: ***Proposed Three Points Border Patrol Station Expansion, Three Points, Arizona, U.S. Customs and Border Protection, U.S. Border Patrol Tucson Sector***

Dear Mr. Cabrera:

United States (U.S.) Customs and Border Protection (CBP) is preparing an Environmental Assessment (EA) to address the potential effects, beneficial and adverse, resulting from the proposed expansion of the existing Three Points Border Patrol Station (BPS). The existing Three Points BPS was first established to support 50 U.S. Border Patrol (USBP) agents. Currently, over 200 agents are assigned to the station. The additional staff and supporting equipment and vehicles create overcrowded conditions at the facility, which negatively affects the CBP mission. The proposed expansion and associated supporting infrastructure are designed for continuous operation in support of the Border Patrol Strategic Plan to gain and maintain effective control of the borders of the U.S. (CBP 2012).

The Three Points BPS is located just south of West Ajo Highway in Three Points, Arizona on leased property consisting of two parcels (Enclosure, Figure 1). The east parcel is owned by the State of Arizona. The west parcel is privately owned. The Proposed Action Alternative that will be evaluated as part of the EA would expand the current Three Points BPS south and west of the current BPS footprint by 12 acres (Enclosure, Figure 2). This 12-acre parcel consists of disturbed shrubland and would be leased from the State of Arizona. The No Action Alternative will also be evaluated as part of the EA.

The proposed expansion would accommodate up to 200 personnel to meet current and future labor demands and the objectives of the USBP in the Three Points BPS Area of Responsibility (AOR). Additionally, the site would have the capability to house the vehicles, animals, equipment, and other materials necessary to meet the objectives of the Three Points BPS. The proposed expansion, design, and construction would result in the Three Points BPS meeting USBP facilities guidelines and security standards.

CBP is gathering data and input from state and local governmental agencies, non-governmental groups, Native American tribes, as well as interested parties and bureaus that may be affected by, or that would otherwise have an interest in, this proposed action. Since your agency or organization may have particular knowledge and expertise regarding potential environmental

impacts from CBP's proposed action, your input is sought regarding the likely or anticipated environmental effects of this proposed action. Your response should include any state and local restrictions, permitting or other requirements with which CBP would have to comply during project siting, construction, and operation.

CBP will provide a copy of the Draft EA for review and comment when it becomes available. Your prompt attention to this request is appreciated. If you have any questions, please contact Mr. John Petrilla at (949) 643-6385 or via email at BPAMNEPA@cbp.dhs.gov and reference "*Proposed Three Points Border Patrol Station Expansion*" in the subject line. Thank you in advance for your assistance.

Sincerely,

John Petrilla
Acting Environmental Branch Chief
Border Patrol & Air and Marine PMO
U.S. Customs and Border Protection

Enclosure(s)

Figure 1-1. Project Vicinity Map

Figure 2-1. Project Area Map

Tribal Name	First Name	Last Name	Title	Street Address	City	State	Zip-Code	Work Phone	Fax Number	Cell Phone	Email	THPO	URL	County Name	State Name	Source
White Mountain Apache Tribe of the Fort Apache Reservation, Arizona	Gwendena	Lee-Gatewood	Chairwoman	PO Box 700	Whiteriver	AZ	85941-1150	(928) 338-2500	(928) 338-1514		gwendena@WMAT.us	N	http://www.wmat.nsn.us/	Pima	Arizona	HUD
Hopi Tribe of Arizona	Timothy	Nuvangyaoma	Chairman	PO Box 123	Kykotsmovi	AZ	86039-0123	(928) 734-3101	(928) 734-6665			N	www.hopi-nsn.gov	Pima	Arizona	HUD
Pascua Yaqui Tribe of Arizona	Peter	Yucupicio	Chairperson	7474 South Camino de Oeste	Tucson	AZ	85757	(520) 883-5008	(520) 883-5033		peter.s.yucupicio@pascuayaqui-nsn.gov	N	http://www.pascuayaqui-nsn.gov	Pima	Arizona	HUD
San Carlos Apache Tribe of the San Carlos Reservation, Arizona	Terry	Rambler	Chairperson	PO Box 0	San Carlos	AZ	85550	(928) 475-2361	(928) 475-2567		trambler@scatui.net	N	http://www.sancarlosapache.com/home.htm	Pima	Arizona	HUD
Fort Sill Apache Tribe of Oklahoma	Lori	Gooday Ware	Chairwoman	43187 US Highway 281	Apache	OK	73006-8038	(580) 588-2298	(580) 588-3133		lori.g.ware@fortsillapache-nsn.gov	N	http://www.fortsillapache-nsn.gov	Pima	Arizona	HUD
Tohono O'odham Nation of Arizona	Edward	Manuel	Chairperson	PO Box 837	Sells	AZ	85634-0837	(520) 383-2028	(520) 383-3379		edwardd.manuel@tonation-nsn.gov	N	http://www.tonation-nsn.gov	Pima	Arizona	HUD
Pueblo of Zuni	Val	Panteah	Governor	PO Box 339	Zuni	NM	87327	(505) 782-4481	(505) 782-2700		val.panteah@ashiwi.org	N		Pima	Arizona	AZ SHPO
Yavapai-Apache Nation	Jon	Huey	Chairman	2400 W. Datsi St.	Camp Verde	AZ	86322					N		Pima	Arizona	AZ SHPO
Mescalero Apache Tribe	Gabe	Aguilar	President	P.O. Box 227	Mescalero	NM	88340	(575) 464-4494	(575) 464-9191		gaguilar@mescaleroapachetribe.com	N		Pima	Arizona	AZ SHPO
Ak Chin Indian Community	Robert	Miguel	Chairman	42507 W. Peters and Nall Rd.	Maricopa	AZ	85138	520-568-1000								
Gila River Indian Community	Stephen Roe	Lewis	Governor	P.O. Box 97	Sacaton	AZ	85147	(520) 562-9840			executivemail@gric.nsn.us					
Salt River Pima-Maricopa Indian Community	Martin	Harvier	President	10005 East Osborn Road SRP-MIC	Scottsdale	AZ	85256	(480) 362-7400			Gary.bohnee@srpmic-nsn.gov					

STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM

Tribal Name	First Name	Last Name	Title	Street Address	City	State	Zip-Code	Work Phone	Fax Number	Cell Phone	Email	THPO	URL	County Name	State Name	Source
White Mountain Apache Tribe of the Fort Apache Reservation, Arizona	Mark	Altaha	Tribal Historic Preservation Officer	P.O. Box 1032	Fort Apache	AZ	85926	(928) 338-3033	(928) 338-6055		markaltaha@wmat.us	Y	http://www.wmat.nsn.us/	Pima	Arizona	HUD
Hopi Tribe of Arizona	Stewart	Koyiyumptewa	THPO	PO Box 123	Kykotsmovi	AZ	86039-0123	(928) 734-3101	(928) 734 3615		skoyiyumptewa@hopi.nsn.us	N	www.hopi-nsn.gov	Pima	Arizona	HUD
Pascua Yaqui Tribe of Arizona	Karl	Hoerig	Tribal Cultural Preservation Officer/Tribal Historic Preservation Officer	7474 South Camino de Oeste	Tucson	AZ	85757	520-883-5116	(520) 883-5033		Karl.Hoerig@pascuayaqui-nsn.gov	N	http://www.pascuayaqui-nsn.gov	Pima	Arizona	HUD
San Carlos Apache Tribe of the San Carlos Reservation, Arizona	Vernelda	Grant	THPO	PO Box 0	San Carlos	AZ	85550	(928) 475-5797	(928) 475-2423		apachevern@yahoo.com	Y	http://www.sancarlosapache.com/home.htm	Pima	Arizona	HUD
Fort Sill Apache Tribe of Oklahoma	Michael	Darrow	Tribal Historian	43187 US Highway 281	Apache	OK	73006-8038	(580) 588-2298	(580) 588-3133		michael.darrow@fortsillapache-nsn.gov	N	http://www.fortsillapache-nsn.gov	Pima	Arizona	HUD
Tohono O'odham Nation of Arizona	Peter L.	Steere	THPO	Cultural Affairs Office, PO Box 837	Sells	AZ	85634	(520) 383-3622 x103	(520) 383-0217		peter.steere@tonation-nsn.gov	Y	http://www.tonation-nsn.gov	Pima	Arizona	HUD
Pueblo of Zuni	Kurt	Dongoske	THPO	PO Box 1149	Zuni	NM	87327	(505) 782-4814	(505) 782-2393		val.panteah@ashiwi.org	Y		Pima	Arizona	AZ SHPO
Yavapai-Apache Nation	Chris	Coder	Tribal Archaeologist	2400 W. Datsi St.	Camp Verde	AZ	86322	(928) 567-3649			ccoder@yan-tribe.org	N		Pima	Arizona	AZ SHPO
Mescalero Apache Tribe	Holly	Houghten	THPO	P.O. Box 227	Mescalero	NM	88340	(575) 464-3005	(575) 464-3005		holly@mathpo.org	Y		Pima	Arizona	AZ SHPO

First Name	Last Name	Title	Street Address	City	State	Zip-Code	Email
Regina	Romero	Mayor	255 W Alameda Street, #10	Tucson	AZ	85701	Mayor.Romero@tucsonaz.gov
Jan	Lesher	County Administrator	115 N Church Ave. 2nd Floor, Suite 231	Tucson	AZ	85701	
Misael	Cabrera	Director - ADEQ	1110 W Washington	Phoenix	AZ	85007	cabrera.misael@azdeq.gov
John	Halikowski	Director - ADOT	206 S 17th Ave. Mail Drop 100A	Phoenix	AZ	85007	jhalikowski@azdot.gov
Kathryn	Leonard	State Historic Preservation Officer	1100 West Washington Street	Phoenix	AZ	85007	kleonard@azstateparks.gov
Ty	Gray	Director, Arizona Game and Fish Department	5000 W. Carefree Highway	Phoenix	AZ	85086	tgray@azgfd.gov
Karla	Petty	Division administrator - FHWA	4000 N. Central Avenue Suite 1500	Phoenix	AZ	85012	Karla.Petty@dot.gov
Raymond	Suazo	Arizona State Director, Bureau of Land Management	1 N Central Avenue Suite 800	Phoenix	AZ	85004	blm_az_asoweb@blm.gov
David	Castanon	Chief L A District - USACE	60 South California Street Suite 201	Ventura	California	93001	David.J.Castanon@usace.army.mil
Martha	Guzman	Regional Administrator - U.S. EPA	201 North Bonita Avenue Suite 141	Tucson	AZ	85745	guzman.martha@epa.gov
Sarah	Rinkevich	Arizona Ecological Services - USFWS	201 North Bonita Avenue Suite 141	Tucson	AZ	85745	sarach_rinkevick@fws.gov

STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM

1. REPORT TITLE

1a. Report Title: Class III Cultural Resources Survey of 12-Acres for the Proposed Three Points Border Patrol Station Expansion, U.S. Border Patrol Tucson Sector, Pima, County, Arizona (Arizona Department of Transportation Project Number: H08801R, Agreement CRA-3308-1).

1b. Report Author(s): John Lindemuth

1c. Date: 11/23/2022 **1d. Report No.:** GSRC-22-01

2. PROJECT REGISTRATION/PERMITS

2a. ASM Accession Number: 2022-0387

2b. AAA Permit Number: 2022-033bl

2c. ASLD Lease Application Number(s): Project Number H08801R, Agreement No. CRA-3308-1

2d. Other Permit Number(s).: Not Applicable

3. ORGANIZATION/CONSULTING FIRM

3a. Name: SWCA Environmental Consultants/Gulf South Research Corporation (GSRC)

3b. Internal Project Number: 74816/80338212d

3c. Internal Project Name: Three Points Border Patrol Station (BPS) Surveys

3d. Contact Name: John Lindemuth

3e. Contact Address: 8081 Innovation Park Drive, Baton Rouge, LA 70820

3f. Contact Phone: 225-757-8088

3g. Contact Email: johnl@gsrcorp.com

4. SPONSOR/LEAD AGENCY

4a. Sponsor: U.S. Customs and Border Protection (CBP)

4b. Lead Agency: CBP

4c. Agency Project Number(s): 47QRAA19D006W, TO-70B01C21F00001569, WO-10-12

4d. Agency Project Name: Environmental Support for the Three Points BPS EA and resource surveys

4e. Funding Source(s): CBP

4f. Other Involved Agencies: Arizona State Land Department; Pima County

4g. **Applicable Regulations:** Section 106 of the National Historic Preservation Act; State Historic Preservation Act; Arizona Antiquities Act; National Environmental Policy Act; Department of Homeland Security (DHS) Instruction 023-01-001-01; Arizona Antiquities Act.

STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM

5. DESCRIPTION OF PROJECT OR UNDERTAKING: The undertaking would be the expansion of the existing Three Points BPS. The undertaking will expand the existing facility into an adjacent 12-acre parcel of land. This 12-acre parcel will be leased from the State of Arizona. GSRC was contracted by U.S. Customs and Border Protection to conduct the survey and GSRC subcontracted

SWCA to assist with the survey under SWCA's AAA blanket permit.

6. PROJECT AREA/AREA OF POTENTIAL EFFECTS: The Area of Potential Effect (APE) for the undertaking is a 12-acre parcel of land owned by the State of Arizona. This APE includes all necessary easements and temporary work areas.

7. PROJECT LOCATION

7a. Address: 16435 W Ajo Hwy, Tucson, AZ 85735

7b. Route: Not Applicable **7c. Mileposts Limits:** Not Applicable

7d. Nearest City/Town: Three Points **7e. County:** Pima

7f. Project Locator UTM: 469938.95 Easting 3548742.38 Northing **7g. NAD** 83 **7h. Zone:**

12S

7i. Baseline & Meridian: Gila and Salt River **7j. USGS Quadrangle(s):** Three Points, AZ 1:24000 quadrangle (2018)

7k. Legal Description(s): The proposed station expansion would be in the southeast quarter of Section 34, Township 15 South, Range 10 East, Gila and Salt River Meridian.

8. SURVEY AREA

8a. Total Acres: 12 acres

8b. Survey Area.

1. Land Jurisdiction	2. Total Acres Surveyed	3. Total Acres Not Surveyed	4. Justification for Areas Not Surveyed
State of Arizona	12	0	NA

9. ENVIRONMENTAL CONTEXTS

9a. Landform: Area is located on a lower fan terrace within the Avra Valley, 5 kilometers eastsoutheast of the Roskruge Mountains, in Pima County.

9b. Elevation: 2,525 to 2,545 feet above mean sea level

9c. Surrounding Topographic Features: Brawley Wash is 1.5 kilometers to the northwest and the Roskruge Mountain range is 5 kilometers to the west-northwest.

9d. Nearest Drainage: Brawley Wash

9e. Local Geology: Quaternary surficial deposits, undivided (Richard et al. 2000)

9f. Vegetation: The project area is within the Arizona Upland/Eastern Sonoran Basin (81l) ecoregion as described by Griffith and others (2014). Dominant species observed during the surveys included mesquite (*Prosopis velutina*), creosote (*Larrea tridentata*), and needle grama (*Bouteloua aristidoides*).

9g. Soils/Deposition: Bucklebar-Sahuarita complex, 0 – 3 percent slopes (8) (U.S. Department of Agriculture [USDA] 2022)

9h. Buried Deposits: Not likely

9i. Justification: The project area is not in an area where buried deposits are likely without some indication on the ground surface, and prior disturbances have not uncovered subsurface cultural materials.

I0. BUILT ENVIRONMENT: The existing Three Points BPS and associated parking lot is immediately adjacent to the north and east of the project area. Further north, immediately past

the Three Point BPS is State Route 86.

11. INVENTORY CLASS COMPLETED

11a. Class I Inventory: ☒

11b. Researcher(s): David Barr; John Lindemuth

11c. Class II Survey: ☐

11d Sampling Strategy:

11e. Class III Inventory: ☒

12. BACKGROUND RESEARCH SOURCES

12a. AZSITE:

12b. ASM Archaeological Records Office: (Virtual August 31, 2022)

12c. SHPO Inventories and/or SHPO Library:

12d. National Register of Historic Places (NRHP) Database:

12e. ADOT Portal:

12f. GLO Maps: The 1888 original land plat shows the project area largely undeveloped with roads crossing the northern and southern portions of the project area that merge to one road to both the northeast and southwest. A half mile to the northeast of the project area, a structure is depicted, just east of the center of the Section, labeled Robles' House, near a confluence of three roads. Further to the northwest a telegraph line is depicted labeled "Telegraph Line from Quijotoa."

The 1979, 1992, and 1996 U.S. Geological Survey (USGS) Three Points, Arizona 7.5-minute topographic maps also depict no mapped features within the project area. Finally, the 1941 and 1943 USGS Cocoraque Butte, Ariz. 15-minute topographic quadrangles depict no mapped features within the project area.

12g. Land- Managing Agency Files: Not Applicable

12h. Tribal Cultural Resources Files: Not Applicable

12i. Local Government Websites: Not Applicable

12j. Other: Not Applicable

13. BACKGROUND RESEARCH RESULTS

13a. Previous Projects Within 1.0 mile of Project Area.

Twenty-one archaeological surveys have been conducted within the 1.0-mile search radius, none of which intersect with the project area (Table 1). Past surveys cover 11.3 percent of the 1-mile search radius and 0 percent of the current project area.

Table 1. Previous Projects within the Project Area

1. Project Reference No.	2. Project Name	3. Author(s)	4. Year
-	-	-	-

13b. Previously Recorded Cultural Resources Within 1.0-mile of the Project Area.

Six site numbers have been assigned to resources recorded within the 1.0-mile search radius of the project area. The sites include the Robles Junction stage stop (AZ AA:15:7[ASM]), State Routen86 (AZ AA:16:377[ASM] and AZ DD:10:10[ASM]), an abandoned overhead telephone/telegraph line (AZ DD:3:156[ASM]), a historic trash scatter (AZ AA:15:129 [ASM]), and a prehistoric lithic and ceramic scatter (AZ AA:15:205[ASM]). None of the previously recorded cultural resources overlap with the current project area.

Table 2. Previously Recorded Cultural Resources within the Project Area.

1. Site No./ Name	2. Affiliation	3. Site Type	4. Eligibility Status	5. Associated References
-	-	-	-	-

13c. Historic Buildings/Districts/Neighborhoods.

No historic buildings, districts, or neighborhoods are located in or within the 1.0-mile search radius of the project area.

1. Property Name or Address	2. Year	3. Eligibility Status
-	-	-

14. CULTURAL CONTEXTS

14a. Prehistoric Culture: Hohokam

STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM

14b. Protohistoric Culture: Sobaipuri, O'odham

14c. Indigenous Historic Culture: O'odham, Yoeme

14d. Euro-American Culture: Hispanic, Anglo-American

15. FIELD SURVEY PERSONNEL

15a. Principal Investigator: David Barr

15b. Field Supervisor: Heather West

15c. Crew: Eve Carter

15d. Fieldwork Date(s): 09/06/2022

16. SURVEY METHODS

16a. Transect Intervals: <20 m apart

16b. Coverage (%): 100

16c. Site Recording Criteria: Arizona State Museum (ASM) Site Definition Policy (August 21, 1995)

16d. Ground Surface Visibility: 90 percent

16e. Observed Disturbances: The eastern and northern margins of the Project Area are bordered by the Three Points BPS and its associated parking lot, respectively. No other areas of disturbance were noted during the survey.

17. FIELD SURVEY RESULTS

17a. No Cultural Resources Identified: ☐

17b. Isolated Occurrences (IOs) Only: ☒

17c. Number of IOs Recorded: 9

17d. Table of IOs.

1. IO No.	2. Description	3. Date Range	4. UTMs
1	Two basalt non-cortical flaked stone	Prehistoric	469902.4566 E 3548826.113 N
2	One basalt non-cortical flaked stone	Prehistoric	469980.4161 E 3548836.9102 N
3	One plain ware jar sherd, sand and mica temper; one bimetal pull tab can	Multicomponent: Prehistoric (Ceramic); Historic (Anglo-American; ca. 1965- 1975) (Schroeder 2019)	470013.6913 E 3548660.1448 N

STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM

1. IO Number	2. Description	3. Date Range	4. UTMs
4	One bimetal pull tab can "BUDWIESER"	Historic (Anglo-American; ca. 1965-1975) (Schroeder 2019)	470005.9718 E 3548714.4245 N
5	One bimetal pull tab can	Historic (Anglo-American; ca. 1965-1975) (Schroeder 2019)	469993.1311 E 3548766.6336 N
6	One hole-in-cap rectangular meat tin; one crushed soldered seam can; two shards sun-colored amethyst glass; two basalt non-cortical flaked stone (22 × 5 m area)	Multicomponent: Prehistoric, Historic (Anglo-American; ca. 1860-1920) (Lockhart 2016; Merritt 2014)	469857.4877 E 3548809.5767 N
7	One 1969 "COORS" crown finish, 11-ounce amber glass bottle, "69" stamped on base	Historic (Anglo-American; ca. 1969)	469857.1362 E 3548637.6454 N
8	One amber glass bottle base, stamped with "REG." Owens-Illinois I in a circle and diamond logo "5" "U.S." / CLOROX in diamond logo / "PAT." "20-8" "OFF" on base	Historic (Anglo American, ca. 1935) (Lockhart and Hoenigb 2015; Sandelin 1998)	469877.8498 E 3548832.4552N
9	Five concrete block fragments from displaced drainage feature	Historic	469916.0560 E 3548760.6836 N

18. COMMENTS: A cultural resources survey for the proposed Three Points BPS expansion resulted in nine IOs and no historic-era buildings, structures, objects, or districts in the project area. None of the IOs are recommended eligible for the NRHP. Therefore, this project will have a finding of No Historic Properties Affected. No further cultural resources work is recommended for the project.

STATE HISTORIC PRESERVATION OFFICE
SURVEY REPORT SUMMARY FORM

SECTION 19. ATTACHMENTS

19a. Project Location Map: ☒ Figures 1 and 2

19b. Land Jurisdiction Map: ☒ Figure 2

19c. Background Research Map(s): ☒ Figure 3

19d. GLO Map(s): ☒ Figure 4

19e. References: ☐

19f. Results Map: ☒ (IOs Only; see Figure 2)

19g. Photograph of the project area ☒ (Figures 5 and 6)

SECTION 20. CONSULTANT CERTIFICATION

I certify the information provided herein has been reviewed for content and accuracy and all workmeets applicable agency standards.

David M. R. Barr M. A.

Principal Investigator

SECTION 21. DISCOVERY CLAUSE

In the event that previously unreported cultural resources are encountered during ground disturbing activities, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the discovery and evaluated its eligibility for the Arizona or National Register of Historic Places in consultation with the lead agency, the SHPO, and Tribes, as appropriate. Work must not resume in this area without approval of the lead agency.

If human remains are encountered during ground-disturbing activities, all work must immediately cease within 30 meters (100 feet) of the discovery and the area must be secured. The Arizona State Museum, lead agency, SHPO, and appropriate Tribes must be notified of the discovery. All discoveries will be treated in accordance with NAGPRA (Public Law 101-601; 25 U.S.C. 3001-3013) or Arizona Revised Statutes (A.R.S. § 41-844 and A.R.S. § 41-865), as appropriate, and work must not resume in this area without authorization from ASM and the lead agency.

References Cited

Griffith, G.E., Omernik, J.M., Johnson, C.B., and Turner, D.S.

2014 Ecoregions of Arizona (poster): U.S. Geological Survey Open-File Report 2014–1141, with map, scale 1:1,325,000. Electronic resources, http://dx.doi.org/10.3133/ofr20141141, accessed September 14, 2022.

Lockhart, Bill

2006 The Color Purple: Dating Solarized Amethyst Container Glass. Historical Archaeology. 40(2):45-56

Lockhart, Bill and Russ Hoenig

2015 The Bewildering Array of Owens-Illinois Glass Co. Logos and Codes. Electronic resource, https://sha.org/bottle/pdffiles/OwensIllinois2015.pdf, accessed September 14, 2022.

Merritt, Christopher W.

2014 Historic Artifact Guide. Electronic resources, https://history.utah.gov/wpcontent/uploads/2018/08/ARCH_HistoricArtifactsGuide.pdf, accessed September 20, 2022.

Sandelin, Linda C.

1998 Clorox Bottles: A Key to Their Identification and Date of Manufacture. Electronic resource, https://www.fire.ca.gov/programs/resource-management/resource-protectionimprovement/environmental-protection-program/cultural-resources-managementprogram/clorox-bottles-a-key-to-their-indetification-and-date-of-manufacture/, accessed September 14, 2022.

Richard, S.M., Reynolds, S.J., Spencer, J.E., and Pearthree, P.A.

2000 Geologic Map of Arizona: Arizona Geological Survey Map 35, 1 sheet, scale 1:1,000,000.

Schroeder, William

2019 Beverage Can Key Card. Electronic resources, https://soda.sou.edu/cans/ANTH02m_schr.xx.01.pdf, accessed September 14, 2022.

U.S. Department of Agriculture (USDA)

2022 Web Soil Survey. Soil Survey Staff, USDA, Natural Resources Conservation Service (NRCS). Electronic resource, http://websoilsurvey.sc.egov.usda.gov/, accessed September 14, 2022.

Figure 1. Vicinity Map

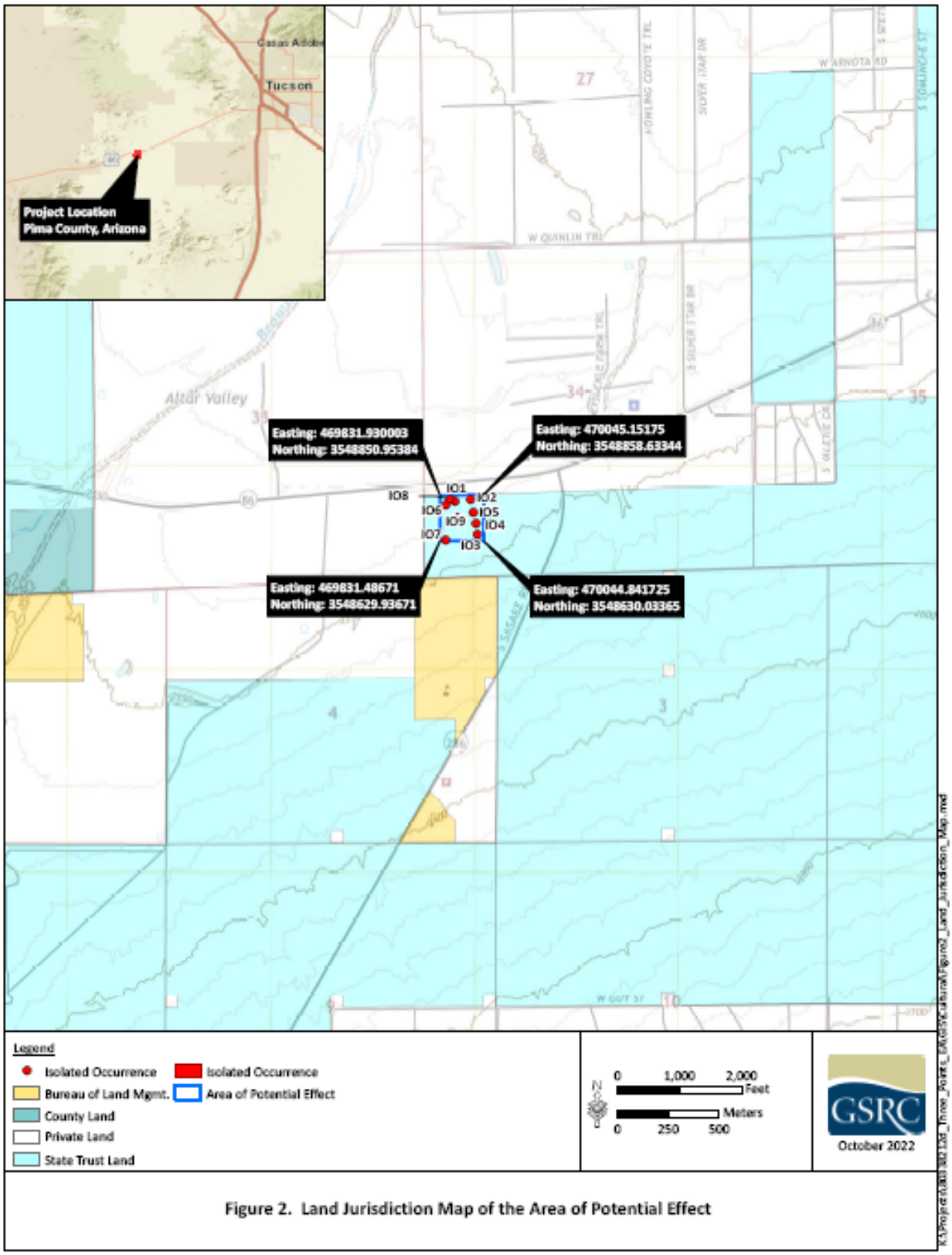


Figure 2. Land Jurisdiction Map of the Area of Potential Effect

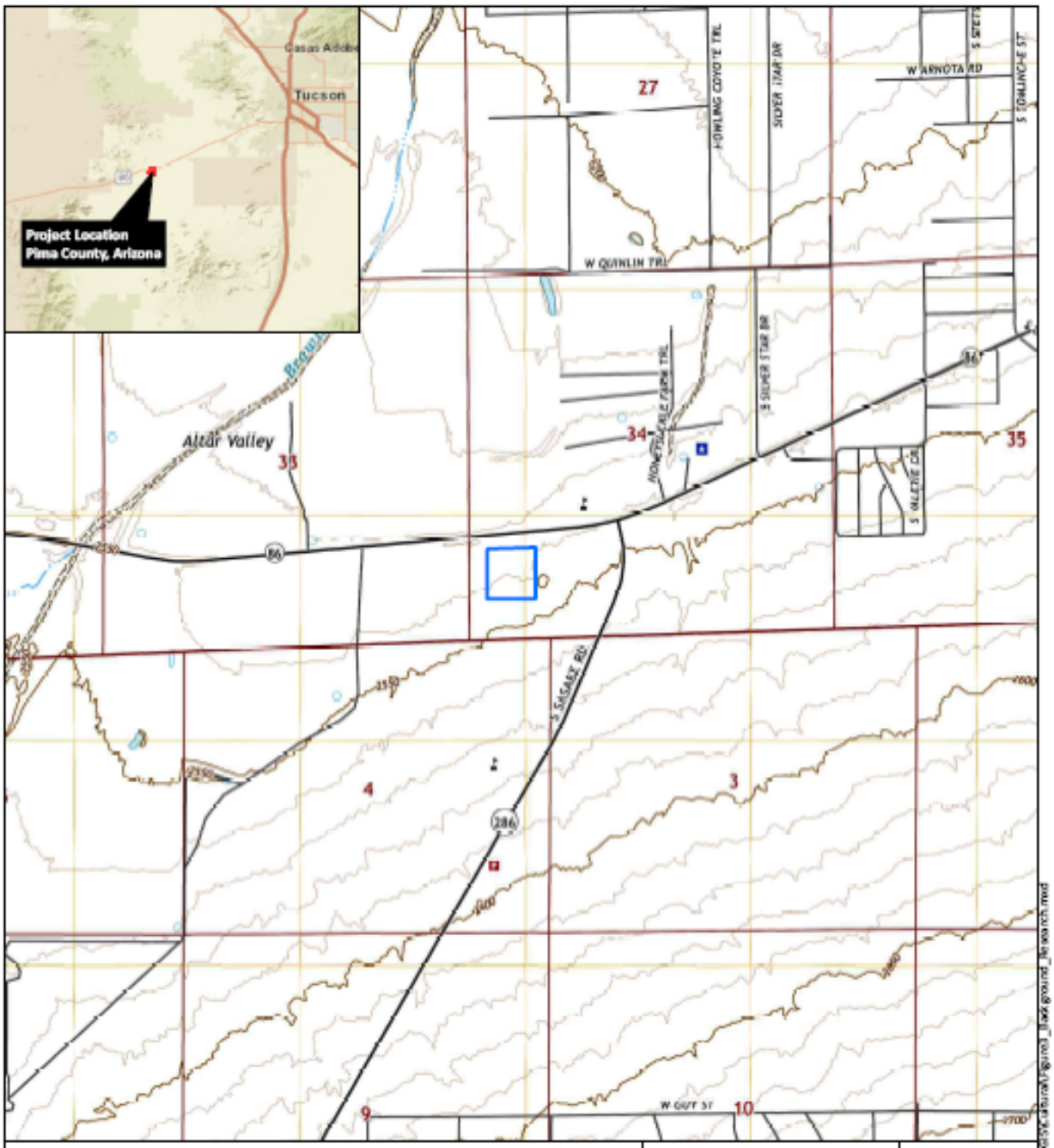


Figure 3. Background Research Map for the Area of Potential Effect.

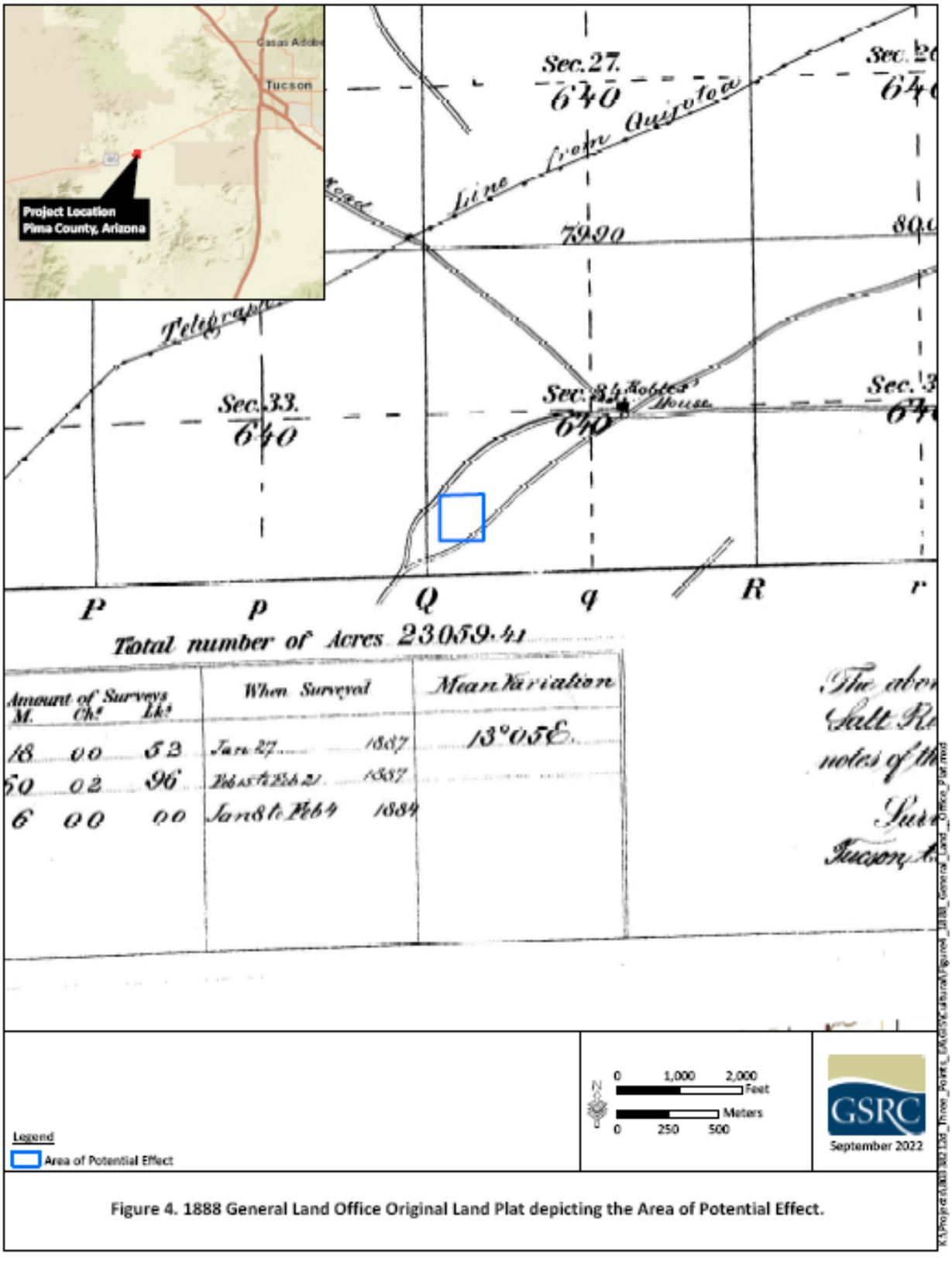


Figure 4. 1888 General Land Office Original Land Plat depicting the Area of Potential Effect.

Figure 5. Overview of Project Area from Northern Boundary, Facing South.

Figure 6. Overview of Project Area from Southern Boundary, Facing North.

November 7, 2022

Mr. John Petrilla, Acting Environmental Branch Chief
Border Patrol & Air and Marine PMO
U.S. Customs and Border Protection
1300 Pennsylvania Avenue NW
Washington, D.C. 20229

RE: Proposed Three Points Border Patrol Station Expansion, Three Points, Arizona

Dear Mr. Petrilla:

The Arizona Game and Fish Department (Department) appreciates the opportunity to provide preliminary input on the proposed Three Points Border Patrol Station Expansion (Project). The Department understands the United States Customs and Border Patrol (USBP) is preparing an Environmental Assessment to address the potential effects resulting from a proposed expansion of the existing Three Points Border Patrol Station (BPS) located south of West Ajo Highway in Three Points, Pima County, Arizona. The Proposed Action Alternative that will be evaluated would expand the current Three Points BPS south and west of the current BPS footprint by 12 acres. The 12-acre parcel is described as disturbed shrubland and would be leased from the State of Arizona. The proposed expansion would accommodate up to 200 personnel and have the capability to house vehicles, animals, equipment, and other materials necessary to meet the objective of the Three Points BPS. The proposed expansion, design, and construction would result in the Three Points BPS meeting USBP facilities guidelines and security standards.

Under Title 17 of the Arizona Revised Statues, the Department, by and through the Arizona Game and Fish Commission (Commission), has jurisdictional authority and public trust responsibilities to conserve and protect the state fish and wildlife resources. In addition, the Department manages threatened and endangered species through authorities of Section 6 of the Department to conserve and protect Arizona's diverse fish and wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations. For your consideration, the Department provides the following comments based on the agency's statutory authorities, public trust responsibilities, and special expertise related to wildlife resources and recreation.

The Department recognizes national security as a top priority for the State of Arizona and of the United States and supports federal efforts to improve it. The Department generated a project specific report using its Online Environmental Review Tool, or ERT. The tool can be found at https://ert.azgfd.gov/content/home. The report identifies documented occurrences of special status species occurring within three miles of the project vicinity, as well as State Species of Greatest Conservation Need (SGCN) and Species of Economic and Recreation Importance (SERI), predicted within the project vicinity. A PDF of the report (HGIS-17581) is attached for your review and reference. Based on this report, the Department offers the following comments:

- The ERT report indicates that Pima pineapple cactus, which is listed as endangered under the Endangered Species Act (ESA), has been documented within the project vicinity. Additionally, the cactus ferruginous pygmy-owl, which is proposed to be listed as threatened under the ESA, has been recorded within three miles of the project boundary. The Department recommends conducting surveys in the project area to determine species presence and potential conflicts. If it is uncertain how the project will affect these species, or if it is anticipated the project will not be in compliance with the ESA, the Department recommends contacting the U.S. Fish and Wildlife Service[1] (USFWS) for technical assistance. The USFWS will provide options to comply with the ESA, such as conservation measures to avoid or minimize adverse effects to listed species.

- The Sonoran desert tortoise, which is covered under a Candidate Conservation Agreement (CCA), could occur in the project area. The Department recommends conducting surveys, in accordance with the *Desert Tortoise Survey Guidelines for Environmental Consultants*,[2] to determine the presence of this species or its habitat. If tortoises are identified, please refer to and implement the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat*[3] and *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects*[4]

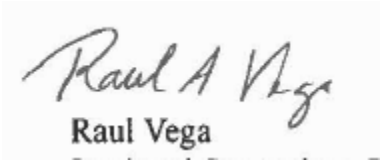
- If any animals are observed during construction activities, the Department recommends moving them no more than 0.25 mile outside the project boundary into similar habitat.

- To minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects, and pathogens, precautions should be taken to wash and/or decontaminate all equipment utilized in the project construction activities before entering and leaving the site. See the Arizona Department of Agriculture website[5] for a list of prohibited and restricted noxious weeds and the Arizona Native Plant Society[6]for recommendations on how to control them. To view a list of documented invasive species or to report invasive species in or near your project area, visit iMaplnvasives[7] which is a national cloud-based application for tracking and managing invasive species.

[1] https://www.fws.gov/office/arizona-ecological-services/contact-us
[2] https://s3.amazonaws.com/azgfd-portal-wordpress/Portallmages/files/wildlifel2010SurveyguidelinesForConsultants.odf
[3] https:/ls3.amazonaws.com/azgfd-portal-wordpress/Portallmages/files/wildlife/MitigationMeasures.pdf
[4] htms:/ls3.amazonaws.com/azgfd-portal-wordpress/Portallmages/files/wildlife/2014%20Tortoise%20handling%20guidelines.pdf
[5] https:/lagriculture.az. gov/pestspest-control/agriculture-pestslnoxious-weeds
[6] https://aznps.comLinvas
[7] https://imap.natureserve.org/imap/services/page/map.html

Thank you for the opportunity to provide input on the Proposed Three Points Border Patrol Station Expansion Project. For further coordination, please contact Laura Paulson, the Region V Habitat, Evaluation, and Lands Specialist at lpaulson@azgfd.gov or 520-388-4447.

Sincerely,



Regional Supervisor, Tucson

Cc: Luke Thompson, Habitat Evaluation, and Lands Branch Chief
Ginger Ritter, Project Evaluation Program Supervisor
John Windes, Region V Habitat Evaluation and Lands Program Manager
Laura Paulson, Region V Habitat Evaluation and Lands Specialist

AZGFD #M22-10134904

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources *and manage for safe, compatible outdoor recreation opportunities for current and future generations.*

Project Name:
Three Points BPS Expansion Project

Project Description:
United States Customs and Border Patrol (US CBP) is preparing an Environmental Assessment to address the potential effects resulting from a proposed expansion of the existing Three Points Border Patrol Station (BPS). The Proposed Action Alternative that will be evaluated would expand the current Three Points BPS south and west of the current BPS footprint by 12 acres. The 12-acre parcel consists of disturbed shrubland and would be leased from the State of Arizona. The proposed expansion would accommodate up to 200 personnel and have the capability to house vehicles, animals, equipment and other materials necessary to meet the objectives of the Three Points BPS. The proposed expansion, design and construction would result would result in the Three Points BPS meeting USBP facilities guidelines and security standards.

Project Type:
Law Enforcement Activities Associated with the Border, Permanent facilities (weigh stations, check points, etc.)

Contact Person:
Laura Paulson

Organization:
Arizona Game and Fish Department

On Behalf Of:
AZGFD

Project ID:

HGIS-17581

Please review the entire report for project type and/or recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer

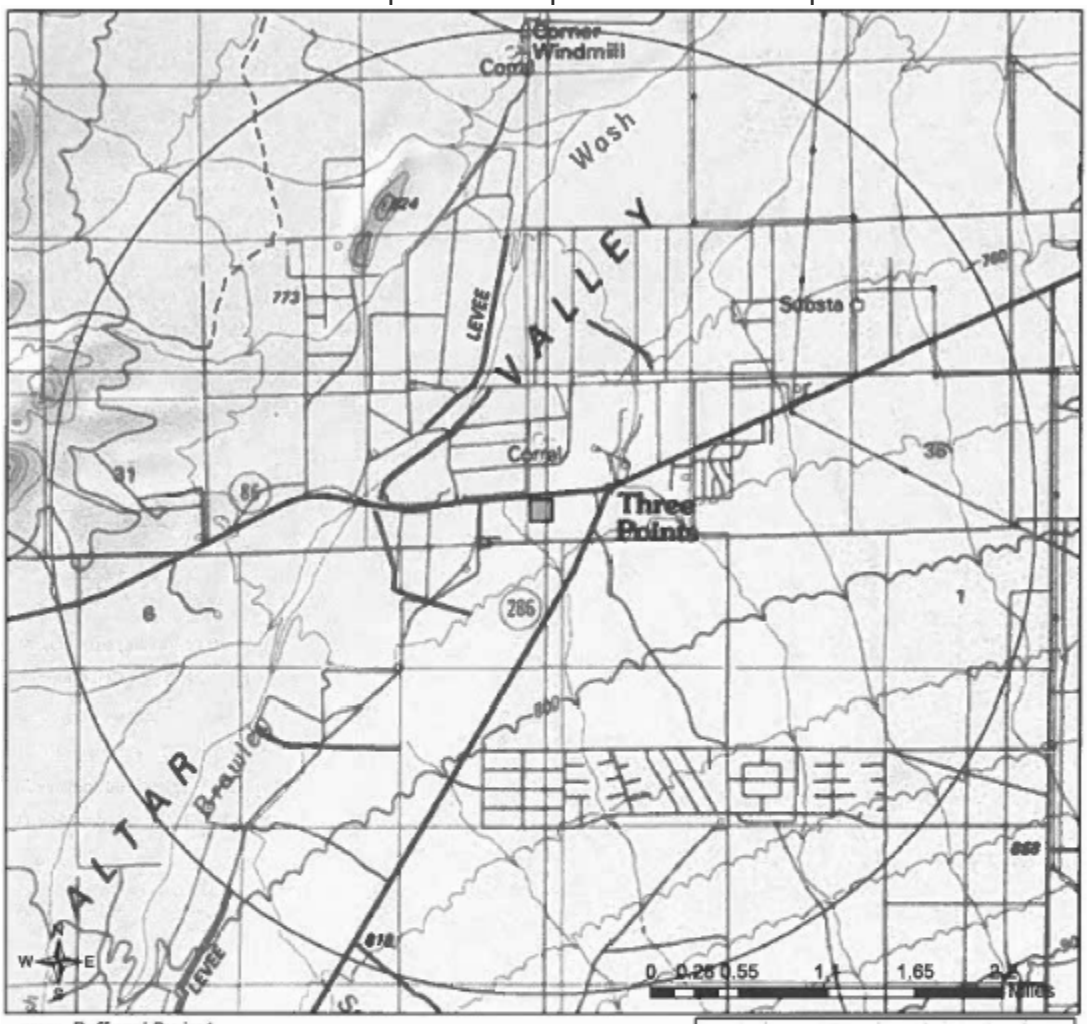
1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land usepermitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HOMS) 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 tonger occur there. HOMS data contains information about species occurrences that have actually been reported to the Department. 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. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

Locations 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 Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. 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).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
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. Further coordination with the Department requires the submittal of this Environmental Review Report 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). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send 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
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis orbthrough coordination with affected agencies

Three Points BPS Expansion Project
USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 12.05

Lat/Long (DD): 32.0745 / -111.3185

County(s): Pima

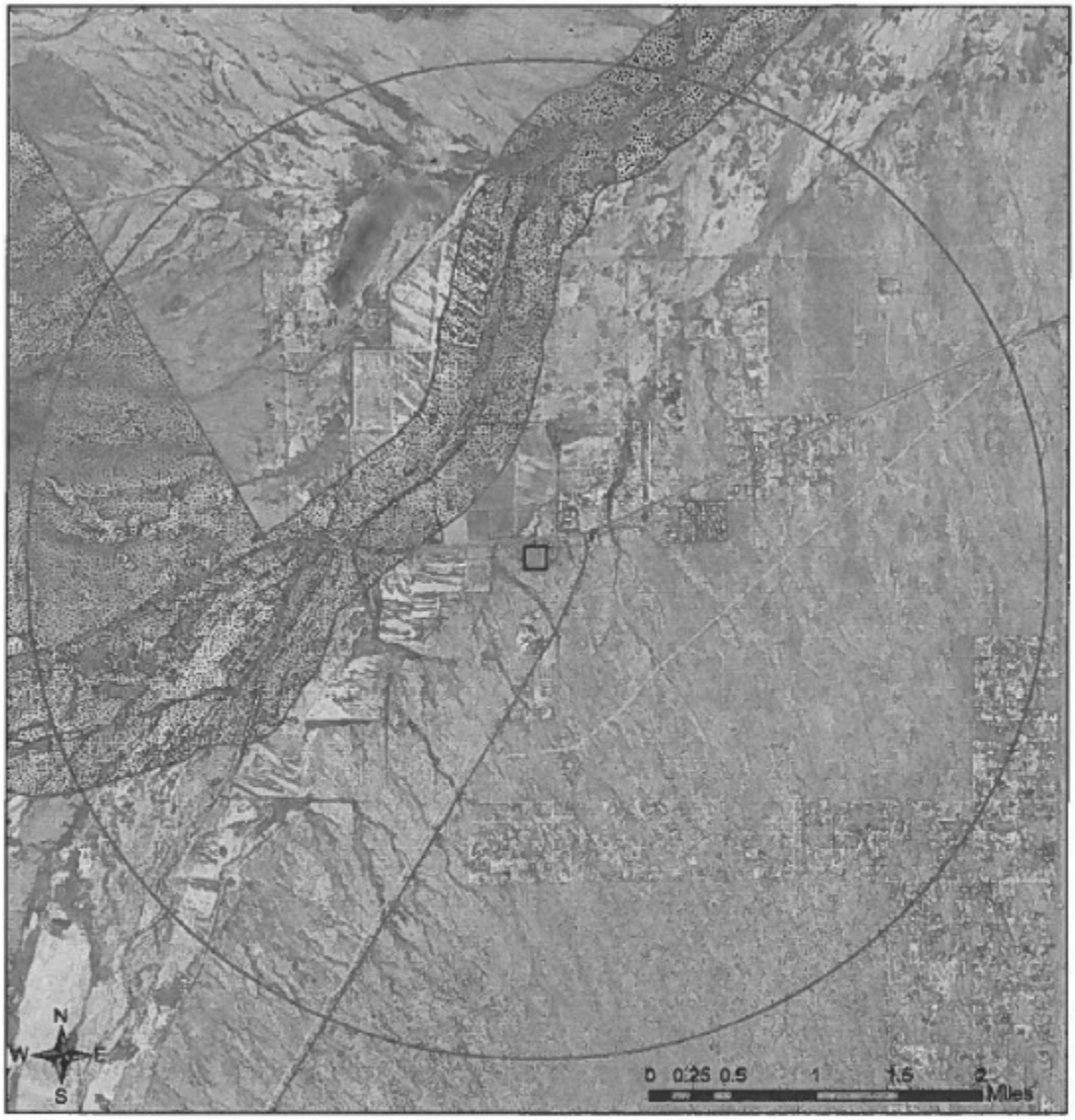
AGFD Region(s): Tucson

Township/Range(s): T15S, R10E

USGS Quad(s): THREE POINTS

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Three Points BPS Expansion Project
Web Map As Submitted By User

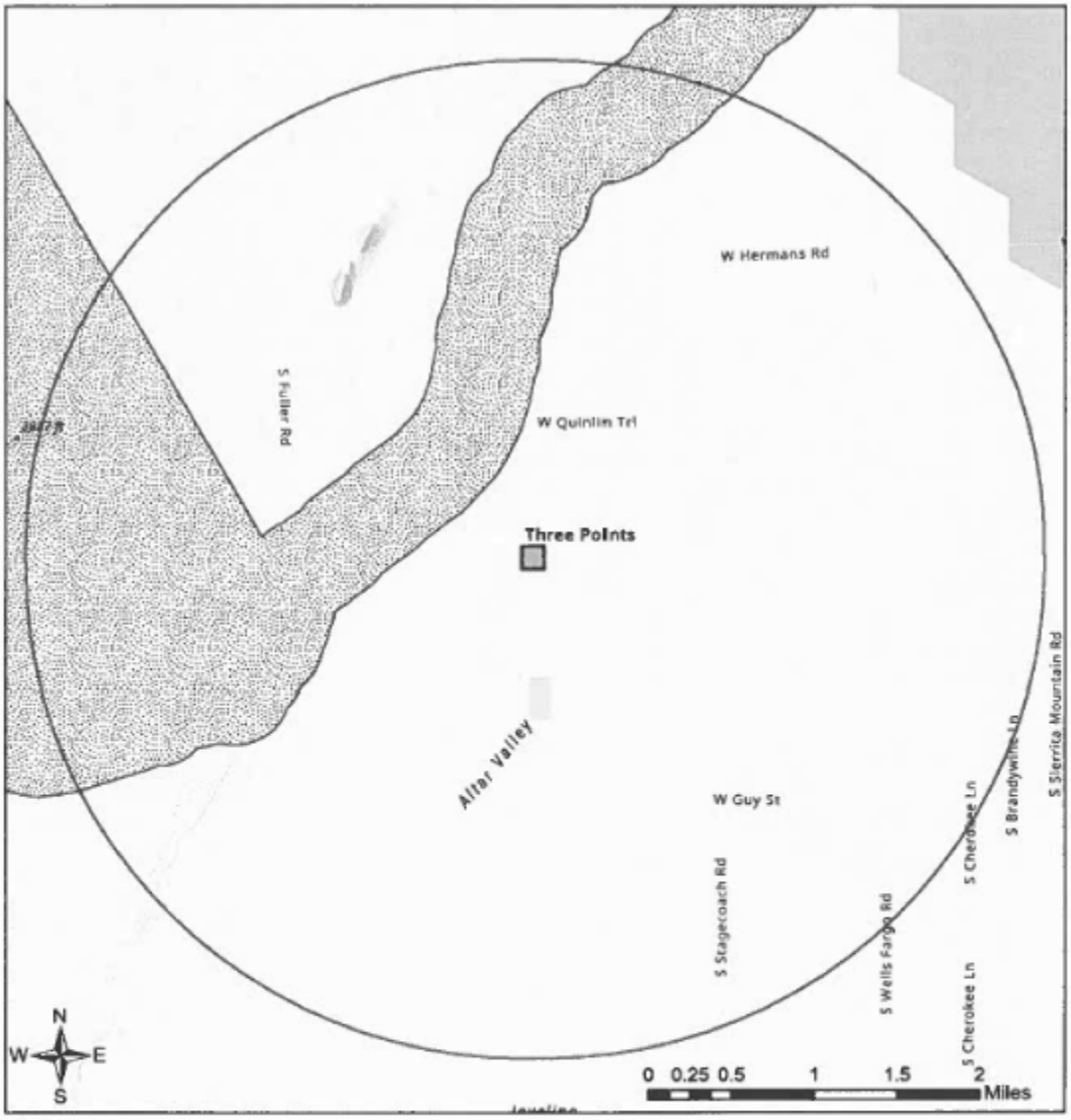


Wildlife Connectivity
Buffered Project Boundary
Project Boundary

Project Size (acres): 12.05
Lat/Long (DD): 32.0745 / -111.3185
County(s): Pima
AGFD Region(s): Tucson
Township/Range(s): T15S, R10E
USGS Quad(s): THREE POINTS

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Three Points BPS Expansion Project
Important Areas

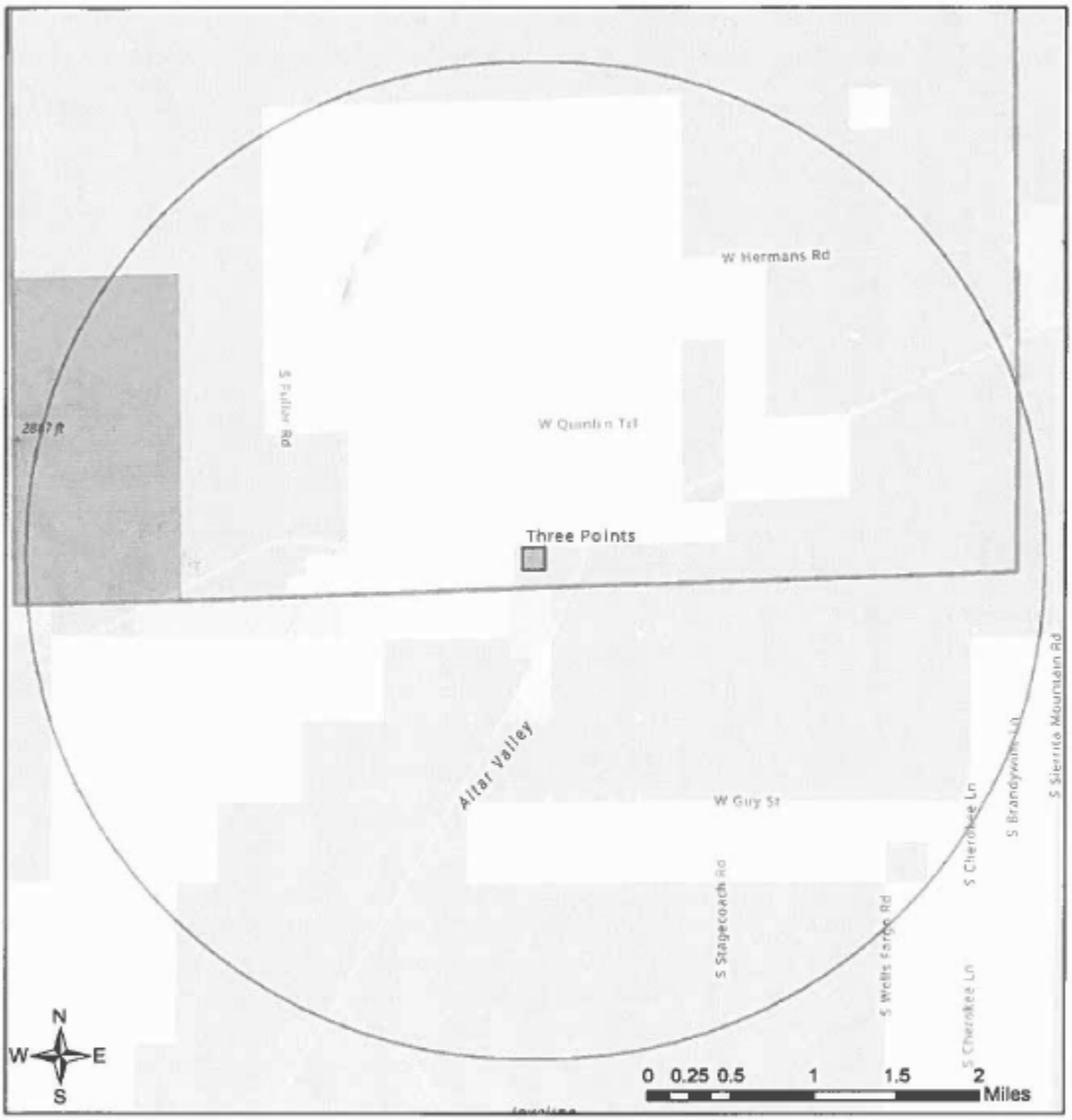


- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 12.05
Lat/Long (DD): 32.0745 / -111.3185
County(s): Pima
AGFD Region(s): Tucson
Township/Range(s): T15S, R10E
USGS Quad(s): THREE POINTS

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Three Points BPS Expansion Project
Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 12.05
Lat/Long (DD): 32.0745 / -111.3185
County(s): Pima
AGFD Region(s): Tucson
Township/Range(s): T15S, R10E
USGS Quad(s): THREE POINTS

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE			HS	
Erigeron arisolius	Arid Throne Fleabane		S			
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Lepus alleni	Antelope Jackrabbit					1B
Panthera onca	Jaguar Area of Capture Concern	LE				1A
Tumamoca macdougalii	Tumamoc Globeberry	SC	S	S	SR	

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Antilocapra americana sonoriensis	10J area for Sonoran Pronghorn	LE,XN				

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Anthus spragueii	Sprague's Pipit	SC				1A
Aspidoscelis xanthonota	Red-backed Whiptail	SC	S			1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Buteo swainsoni	Swainson's Hawk					1C
Calypte costae	Costa's Hummingbird					1C
Chilomeniscus stramineus	Variable Sandsnake					1B
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Crotalus tigris	Tiger Rattlesnake					1B
Crotaphytus nebrius	Sonoran Collared Lizard					1B
Cynanthus latirostris	Broad-billed Hummingbird		S			1B
Dipodomys spectabilis	Banner-tailed Kangaroo Rat			S		1B
Empidonax wrightii	Gray Flycatcher					1C
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Eumops underwoodi	Underwood's Bonneted Bat	SC				1B
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	PT	S	S		1B
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Leopardus pardalis	Ocelot	LE				1A
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				1A
Lepus alleni	Antelope Jackrabbit					1B
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micrathene whitneyi	Elf Owl					1C
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myiarchus tyrannulus	Brown-crested Flycatcher					1C
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Oreoscoptes montanus	Sage Thrasher					1C
Oreothlypis luciae	Lucy's Warbler					1C
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Peucaea carpalis	Rufous-winged Sparrow					1B
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B
Progne subis hesperia	Desert Purple Martin			S		1B
Setophaga petechia	Yellow Warbler					1B
Spizella breweri	Brewer's Sparrow					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Toxostoma lecontei	LeConte's Thrasher			S		1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Callipepla squamata	Scaled Quail					1C
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Law Enforcement Activities Associated with the Border, Permanent facilities {weigh stations, check points, etc.)

Project Type Recommendations:
Fence recommendations will be dependent upon the goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located on Wildlife Friendly Guidelines page, which is part of the Wildlife Planning button at https://www,azgfd.com/wildlife/planning/wildlifegujdeljnesl.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wjldlife/plannjng/wild!jfegujdelinesl.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.inyasjyespecjesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/jnyas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMaplnvasives - a national cloud-based application for tracking and managing invasive species at https:llimap.natureserve.org/jmap/servjces/page/map.html.

- To build a list: zoom to your area of interest. use the identify/measure tool to draw a polygon around your area of interest, and select "See What's Here" for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component. consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons). and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources. wetlands, streams, springs. and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species. density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:
Your project site is within one or more defined Areas of Possible Occurrence. Please follow Department protocols while working within an Area of Potential Occurrence at U:\Agency Directives\Jaguar Ocelot and Mexican Wolf Management Directive 20171215.pdf

HDMS 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. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ. 85007
Phone: 602.542.4373
https://agrjculture.az,goy/sjtes/default/files/Natjye%20Plant%20Rules%20-%20AZ%20Dept%20of%2QAg,pdf starts on page 44

HOMS 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. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at https:Uwww.tws.gov/office/arjzona=ecologjcal-servjces or:

Phoenix Main Office
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-021 O
Fax: 520-670-6155

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 602-242-2513

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HOMS records indicate that Sonoran Desert Tortoise have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at:
https:IJwww.azgfd.com/wildlife/nongamemanagemenVtortojse/

APPENDIX B
STATE-LISTED SPECIES FOR PIMA COUNTY, ARIZONA

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	SGCN	NPL	ELCODE	SRANK	GRANK
Apache	Fish	Catostomus sp. 3	Little Colorado Sucker	CCA	S	S			1A		AFCJC02250	S2	G1
Apache	Mammal	Sciurus aberti chuscensis	Abert's Chuska Squirrel						1B		AMAFB07032	S3	G5T3
Apache	Plant	Chrysothamnus molestus	Tusayan Rabbitbrush	SC		S					PDAST2C060	S2S3	G3
Apache	Plant	Cirsium parryi	Parry Thistle			S				SR	PDAST2E260	S3	G4
Apache	Plant	Pediocactus simpsonii	Simpson Plains Cactus							SR	PDCAC0E110	S1	G5?
Apache	Plant	Trifolium neurophyllum	White Mountains Clover	SC		S					PDFAB401N0	S2	G2
Apache	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Apache	Plant	Sclerocactus whipplei	Whipple's Fishhook Cactus							SR	PDCAC0J0V0	S2	G2G3
Apache	Plant	Calypso bulbosa var. americana	Fairy Slipper							SR	PMORC0D011	S3	G5T5
Apache	Plant	Penstemon linarioides var. maguirei	Maguire's Penstemon			S				SR	PDSCR1L3S1	S1	G5T1
Apache	Plant	Platanthera purpurascens	Purple-petal Bog Orchid							SR	PMORC1Y1G0	S2	GNR
Apache	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Apache	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Apache	Bird	Pica hudsonia	Black-billed Magpie						1B		ABPAV09010	S2	G5
Apache	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Apache	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Apache	Reptile	Chrysemys picta bellii	Western Painted Turtle					A	1B		ARAAD01011	S1,SE2	G5T5
Apache	Plant	Asclepias welshii	Welsh's Milkweed	LT			3			HS	PDASC02290	S1	G1
Apache	Plant	Mammillaria wrightii var. wrightii	Wright Fishhook Cactus							SR	PDCAC0A0E2	S1	G4T3
Apache	Plant	Clematis hirsutissima	Clustered Leather Flower			S				HS	PDRAN080E0	S2	G4
Apache	Plant	Botrychium crenulatum	Dainty Moonwort	SC		S					PPOPH010L0	S1	G4
Apache	Amphibian	Lithobates pipiens	Northern Leopard Frog		S	S	2		1A		AAABH01170	S1S2	G5
Apache	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Apache	Bird	Catharus ustulatus	Swainson's Thrush						1B		ABPBJ18100	S1B	G5
Apache	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Apache	Mammal	Canis lupus baileyi	Mexican Wolf	LE,XN			1	E	1A		AMAJA01032	SXS1	G5T1
Apache	Plant	Astragalus nutriosensis	Nutrioso Milk-vetch	SC						SR	PDFAB0FB70	S3?	G3?
Apache	Plant	Rumex orthoneurus	Blumer's Dock	SC		S				HS	PDPGN0P0Z0	S3	G3
Apache	Plant	Puccinellia parishii	Parish Alkali Grass	SC		S	4			HS	PMPOA530T0	S2	G2G3
Apache	Plant	Stephanomeria exigua ssp. exigua	Small Wirelettuce		S						PDAST8U054	S4	G5T5
Apache	Plant	Platanthera sparsiflora	Sparse Flowered Bog Orchid							SR	PMORC1Y0N0	S3	G4G5
Apache	Plant	Platanthera aquilonis	Northern Green Orchid							SR	PMORC1Y150	S2S3	G5
Apache	Plant	Salix bebbiana	Bebb's Willow			S					PDSAL020E0	S2S3	G5
Apache	Plant	Allium gooddingii	Goodding Onion	CCA		S	3			HS	PMLIL02120	S2	G2
Apache	Plant	Eremocrinum albomarginatum	Utah Solitaire Lily							SR	PMLIL0T010	S2	G3
Apache	Plant	Cypripedium parviflorum var. pubescens	Yellow Lady's-slipper			S	4			HS	PMORC0Q092	S1	G5T5
Apache	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Apache	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Apache	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Apache	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Apache	Fish	Catostomus discobolus yarrowi	Zuni Bluehead Sucker	LE			4		1A		AFCJC02071	S1	G4T1
Apache	Mammal	Sorex navigator	Western Water Shrew			S			1B		AMABA01300	S1	G5
Apache	Mammal	Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC		S			1B		AMAFD01031	S2	G5T3
Apache	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Apache	Plant	Carex specuicola	Navajo Sedge	LT			3			HS	PMCYP03CQ0	S2S3	G3
Apache	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Apache	Plant	Malaxis porphyrea	Purple Adder's Mouth							SR	PMORC1R0Q0	S2	G4
Apache	Fish	Catostomus discobolus discobolus	Bluehead Sucker	CCA	S		4		1A		AFCJC02072	S3	G4T4
Apache	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Apache	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4
Apache	Mammal	Ictidomys tridecemlineatus monticola	White Mountains Ground Squirrel			S			1C		AMAFB05092	S2	G5T1?
Apache	Invertebrate	Psephenus montanus	White Mountains Water Penny Beetle	SC							IICOL63020	S2	G2
Apache	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	SGCN	NPL	ELCODE	SRANK	GRANK
Apache	Plant	Hieracium brevipilum	Mogollon Hawkweed			S					PDAST4W0H1	S1	G5T2T3
Apache	Plant	Castilleja mogollonica	White Mountains Paintbrush	SC		S				SR	PDSCR0D3Q0	S1	G1Q
Apache	Plant	Stellaria porsildii	Porsild's Starwort			S					PDCAR0X160	S1	G1
Apache	Plant	Streptopus amplexifolius	White Mandarin Twisted Stalk							SR	PMLIL1X010	S2S3	G5
Apache	Plant	Goodyera repens	Lesser Rattlesnake Plantain							SR	PMORC17030	S2	G5
Apache	Plant	Packera hartiana	Hart's Groundsel	SC						SR	PDASTE60N0	S3	G3G4
Apache	Reptile	Lampropeltis gentilis	Western Milksnake				4		1A		ARADB19D5B	S2	G5
Apache	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
Apache	Bird	Dumetella carolinensis	Gray Catbird			S			1B		ABPBK01010	S1	G5
Apache	Bird	Pinicola enucleator	Pine Grosbeak						1B		ABPBY03010	S1	G5
Apache	Fish	Oncorhynchus apache	Apache Trout	LT					1A		AFCHA02102	S2	G3
Apache	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Apache	Plant	Erigeron rhizomatus	Zuni Fleabane	LT			2			HS	PDAST3M3N0	S1	G2
Apache	Plant	Cylindropuntia whipplei	Whipple Cholla							SR	PDCAC0D1N3	S3	G4?
Apache	Plant	Zigadenus vaginatus	Sheathed Deathcamas				3			SR	PMLIL280C0	S1	G2
Apache	Mammal	Microtus mexicanus	Mexican Vole						1B		AMAFF11220	S3	G5
Apache	Plant	Echinocereus engelmannii var. variegatus	Echinocereus Hedgehog Cactus							SR	PDCAC06039	S2	G5T3?
Apache	Plant	Hieracium abscissum	Rusby's Hawkweed			S					PDAST4W1A0	S1	G2?
Apache	Plant	Zigadenus virescens	Green Death Camas							SR	PMLIL280E0	S4	G4
Apache	Plant	Platanthera zothecina	Alcove Bog Orchid	SC		S	3			SR	PMORC1Y130	S2	G2G3
Apache	Invertebrate	Anodonta californiensis	California Floater	SC		S			1A		IMBIV04220	S1	G3
Apache	Fish	Lepidomeda vittata	Little Colorado Spinedace	LT					1A		AFCJB20040	S1S2	G1G2
Apache	Mammal	Euderma maculatum	Spotted Bat	SC	S	S		PR	1B		AMACC07010	S2S3	G4
Apache	Mammal	Microtus montanus arizonensis	Arizona Montane Vole			S			1B		AMAFF11022	S4	G5T4
Apache	Mammal	Zapus hudsonius luteus	New Mexico Meadow Jumping Mouse	LE		S			1A		AMAFH01014	S1	G5T1
Apache	Plant	Helenium arizonicum	Arizona Sneezeweed			S					PDAST4L020	S3	G3
Apache	Plant	Draba standleyi	Standley Whitlow-grass	SC							PDBRA112G0	S2S3	G2G3
Apache	Plant	Astragalus xiphoides	Gladiator Milkvetch	SC						SR	PDFAB0F9T0	S3	G3
Apache	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Apache	Plant	Platanthera tescamnis	Intermountain Rein Orchid							SR	PMORC1Y1E0	SH	GNR
Apache	Plant	Astragalus humistratus var. crispulus	Villous Ground-cover Milkvetch			S					PDFAB0F454	S1	G4G5T3?
Apache	Plant	Helianthus arizonensis	Arizona Sunflower			S					PDAST4N060	S1	G2G4
Apache	Bird	Haliaeetus leucocephalus	Bald Eagle	SC	S	S	2	P	1A		ABNKC10010	S2S3,S4N	G5
Apache	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Apache	Bird	Charadrius montanus	Mountain Plover	SC			4	A	1B		ABNNB03100	S1B,S2N	G3
Apache	Fish	Tiaroga cobitis	Loach Minnow	LE				E	1A		AFCJB37140	S1	G2
Apache	Reptile	Thamnophis rufipunctatus	Narrow-headed Gartersnake	LT		S			1A		ARADB36110	S2	G3G4
Apache	Invertebrate	Lycaena ferrisi	Ferris Copper			S					IILEPC1090	S2	G5T2Q
Apache	Invertebrate	Pyrgulopsis trivialis	Three Forks Springsnail	LE					1A		IMGASJ0560	S1	G1
Apache	Plant	Salix arizonica	Arizona Willow	CCA		S				HS	PDSAL02080	S2	G2G3
Apache	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Apache	Invertebrate	Daihinibaenetes arizonensis	Arizona Giant Sand Treader Cricket	SC							IIORT21010	S1S3	G1G3
Cochise	Amphibian	Lithobates blairi	Plains Leopard Frog		S				1A		AAABH01040	S1	G5
Cochise	Bird	Lampornis clemenciae	Blue-throated Mountain-gem						1B		ABNUC34040	S2B	G5
Cochise	Bird	Peucaea carpalis	Rufous-winged Sparrow						1B		ABPBX91080	S4	G4
Cochise	Fish	Gila purpurea	Yaqui Chub	LE				P	1A		AFCJB13140	S1	G1
Cochise	Mammal	Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		A	1C		AMACB02010	S2	G3G4
Cochise	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Cochise	Mammal	Myotis ciliolabrum	Western Small-footed Myotis	SC							AMACC01140	S3S4	G5
Cochise	Mammal	Baiomys taylori	Northern Pygmy Mouse			S					AMAFF05010	S3	G4G5
Cochise	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Cochise	Reptile	Crotalus lepidus klauberi	Banded Rock Rattlesnake					PR	1A		ARADE02051	S3	G5T5
Cochise	Reptile	Crotalus pricei	Twin-spotted Rattlesnake			S		PR	1A		ARADE02080	S2	G5
Cochise	Reptile	Crotalus willardi willardi	Arizona Ridge-nosed Rattlesnake			S		PR	1A		ARADE02132	S1S2	G5T4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Cochise	Plant	Packera neomexicana var. toumeyi	Toumey Groundsel			S					PDAST8H274	S2	G5T2
Cochise	Plant	Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	SC						SR	PDCAC0J0E2	S3	G3QT3Q
Cochise	Plant	Peniocereus greggii var. greggii	Night-blooming Cereus	SC				PR		SR	PDCAC0V011	S1	G3G4T3
Cochise	Plant	Manihot davisiae	Arizona Manihot			S					PDEUP0Z010	S2	G4
Cochise	Plant	Gentianella wislizeni	Wislizeni Gentian	SC		S				SR	PDGEN07090	S1	G2
Cochise	Plant	Potentilla albiflora	White-flowered Cinquefoil			S					PDROS1B010	S2	G2
Cochise	Plant	Dichromanthus michuacanus	Michoacan Ladies'-tresses							SR	PMORC2B0L0	S3	G4
Cochise	Plant	Asplenium dalhousiae	Dalhouse Spleenwort		S						PPASP020A0	S1	G4
Cochise	Bird	Ammodramus savannarum ammolegus	Arizona grasshopper sparrow		S	S			1B		ABPBXA0021	S1S2	G5TU
Cochise	Mammal	Notiosorex cockrumi	Cockrum's Desert Shrew						1B		AMABA05020	S1	G2
Cochise	Plant	Echinocereus pseudopectinatus	Devil-thorn							SR	PDCAC060P0	S1	G4
Cochise	Plant	Echinomastus intertextus	White Fishhook Cactus							SR	PDCAC0J0G0	S2	G4
Cochise	Bird	Calothorax lucifer	Lucifer Hummingbird			S					ABNUC44010	S2	G5
Cochise	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Cochise	Invertebrate	Gastrocopta dalliana	Shortneck Snaggletooth	CCA					1C		IMGAS15080	S1	G2G4
Cochise	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Cochise	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Cochise	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Cochise	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Cochise	Reptile	Kinosternon flavescens	Yellow Mud Turtle						1B		ARAAE01020	S1	G5
Cochise	Reptile	Sceloporus slevini	Slevin's Bunchgrass Lizard		S	S			1B		ARACF14180	S2	G4
Cochise	Plant	Asclepias uncialis	Greene Milkweed	SC		S					PDASC022L0	S1	G2
Cochise	Plant	Erigeron kuschei	Chiricahua Fleabane	SC		S				SR	PDAST3M240	S1	G1
Cochise	Plant	Draba standleyi	Standley Whitlow-grass	SC							PDBRA112G0	S2S3	G2G3
Cochise	Plant	Lobelia fenestralis	Leafy Lobelia							SR	PDCAM0E0H0	S1	G4
Cochise	Plant	Tragia laciniata	Sonoita Noseburn			S					PDEUP1D060	S3	G4
Cochise	Plant	Salvia amissa	Aravaipa Sage	SC	S	S					PDLAM1S020	S2	G2
Cochise	Plant	Phemeranthus humilis	Pinos Altos Flameflower	SC		S				SR	PDPOR080A0	S1	G2
Cochise	Plant	Samolus vagans	Chiricahua Mountain Brookweed			S					PDPRI09040	S2	GUQ
Cochise	Plant	Vauquelinia californica ssp. pauciflora	Limestone Arizona Rosewood	SC						SR	PDROS1R022	S1	G4T3
Cochise	Plant	Heuchera glomerulata	Chiricahua Mountain Alumroot			S					PDSAX0E0F0	S3	G3
Cochise	Plant	Viola umbraticola	Ponderosa Violet			S					PDVIO042E0	S2	G3G4
Cochise	Plant	Echinocereus arizonicus ssp. nigrihorridispinus	Black-spined Hedgehog Cactus							SR	PDCAC060V1	S2	GNRTNR
Cochise	Plant	Hexalectris arizonica	Arizona Crested coral-root			S				SR	PMORC1C041	S2	G5T2T4
Cochise	Plant	Stellaria porsildii	Porsild's Starwort			S					PDCAR0X160	S1	G1
Cochise	Plant	Peritoma multicaulis	Slender Spiderflower	SC						SR	PDCPP03080	SH	G2G3
Cochise	Plant	Apacheria chiricahuensis	Chiricahua Rock Flower							SR	PDCRO01010	S2	G2
Cochise	Bird	Trogon elegans	Elegant Trogon			S			1B		ABNWA02070	S3	G5
Cochise	Bird	Euptilotis neoxenus	Eared Quetzal			S		A			ABNWA03010	SAB,S1N	G3
Cochise	Invertebrate	Danaus plexippus	Monarch	C	S			PR			IILEPP2010	S2S4N	G4
Cochise	Invertebrate	Discus shimekii	Striate Disc	SC					1C		IMGAS54120	S2?	G5
Cochise	Bird	Plegadis chihi	White-faced Ibis	SC							ABNGE02020	S?B,S2S3N	G5
Cochise	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Cochise	Bird	Buteo plagiatus	Gray Hawk	SC							ABNKC19150	S3	GNR
Cochise	Bird	Antrostomus ridgwayi	Buff-collared Nightjar			S			1B		ABNTA07060	S2S3	G5
Cochise	Bird	Catharus ustulatus	Swainson's Thrush						1B		ABPBJ18100	S1B	G5
Cochise	Bird	Dumetella carolinensis	Gray Catbird			S			1B		ABPBK01010	S1	G5
Cochise	Bird	Coccothraustes vespertinus	Evening Grosbeak						1B		ABPBY09020	S2B, S3N	G5
Cochise	Fish	Cyprinella formosa	Beautiful Shiner	LT				A	1A		AFCJB49080	SX, S1	G3
Cochise	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Cochise	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Cochise	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Cochise	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Cochise	Mammal	Sciurus nayaritensis chiricahuae	Chiricahua Fox Squirrel	SC		S			1B		AMAFB07051	S2	G5T2

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Cochise	Reptile	Phrynosoma cornutum	Texas Horned Lizard	SC							ARACF12010	S3S4	G4G5
Cochise	Reptile	Plestiodon callicephalus	Mountain Skink			S					ARACH01030	S2	G4G5
Cochise	Reptile	Senticolis triaspis intermedia	Northern Green Ratsnake			S			1B		ARADB44011	S3	G5T4
Cochise	Reptile	Sistrurus tergeminus edwardsii	Desert Massasauga		S			PR	1A		ARADE03012	S1	G3G4T3T4
Cochise	Invertebrate	Pyrgulopsis bernardina	San Bernardino Springsnail	LT					1A		IMGASJ0950	S1	G1
Cochise	Plant	Coryphantha scheeri var. valida	Slender Needle Corycactus							SR	PDCAC040C4	S1	G4T4
Cochise	Plant	Echinocereus ledingii	Pinaleno Hedgehog Cactus							SR	PDCAC06066	S2	G4G5T4
Cochise	Plant	Euphorbia macropus	Woodland Spurge	SC						SR	PDEUP0Q2U0	S2	G4
Cochise	Plant	Astragalus cobrensis var. maguirei	Coppermine Milk-vetch	SC		S				SR	PDFAB0F262	S1	G4T1
Cochise	Plant	Polemonium pauciflorum ssp. hinckleyi	Hinckley's Ladder	SC		S					PDPLM0E0G1	S1	G3G5T2Q
Cochise	Reptile	Hypsiglena sp. nov.	Hooded Nightsnake						1B		ARADB18050	S4	G4
Cochise	Plant	Echinocereus santaritensis	Santa Rita Hedgehog Cactus							SR	PDCAC060U0	S3	GNR
Cochise	Plant	Limosella pubiflora	Chiricahua Mudwort	SC		S					PDSCR10040	S1	G1Q
Cochise	Plant	Heterotheca rutteri	Huachuca Golden Aster	SC	S	S					PDAST4V0J0	S2	G2
Cochise	Plant	Hieracium pringlei	Pringle Hawkweed	SC							PDAST4W170	S1	G4
Cochise	Plant	Allium rhizomatum	Redflower Onion							SR	PMLIL02320	S1	G3?Q
Cochise	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Cochise	Bird	Charadrius nivosus nivosus	Snowy Plover					A	1B		ABNNB03031	S1B	G3T3
Cochise	Bird	Rhynchopsitta pachyrhyncha	Thick-billed Parrot					P	1A		ABNQA08010	SH	G2
Cochise	Bird	Tyrannus crassirostris	Thick-billed Kingbird			S			1B		ABPAE52040	S2	G5
Cochise	Bird	Anthus spragueii	Sprague's Pipit	SC					1A		ABPBM02060	S2N	G3G4
Cochise	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Cochise	Mammal	Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				Pr	1A		AMACB03030	S2S3	G3
Cochise	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Cochise	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Cochise	Mammal	Peromyscus merriami	Merriam's Deermouse			S					AMAFF03020	S2	G5
Cochise	Plant	Stevia lemmonii	Lemmon's Stevia			S					PDAST8V010	S2	G3G4
Cochise	Plant	Coryphantha robbinsorum	Cochise Pincushion Cactus	LT						HS	PDCAC0X0C0	S1	G1
Cochise	Plant	Astragalus hypoxylus	Huachuca Milkvetch	SC	S	S				SR	PDFAB0F470	S1	G1
Cochise	Plant	Lupinus lemmonii	Lemmon's Lupine			S					PDFAB2B2A0	S1	G1Q
Cochise	Plant	Carex ultra	Cochise Sedge		S	S					PMCYP03E50	S2S3	G3?
Cochise	Plant	Spiranthes delitescens	Canelo Hills Ladies'-tresses	LE						HS	PMORC2B140	S1	G1
Cochise	Plant	Penstemon discolor	Catalina Beardtongue			S				HS	PDSCR1L210	S2	G2
Cochise	Plant	Potentilla rhyolitica var. chiricahuensis	Chiricahua Cinquefoil			S					PDROS1B2X1	S1	G1G2T1
Cochise	Plant	Graptopetalum bartramii	Bartram Stonecrop	LT	S	S				SR	PDCRA06010	S2	G2
Cochise	Bird	Camptostoma imberbe	Northern Beardless-Tyrannulet			S					ABPAE04010	S4	G5
Cochise	Plant	Allium plummerae	Plummer Onion							SR	PMLIL021V0	S3	G4
Cochise	Plant	Hypoxis mexicana	Yellow Star Grass							SR	PMLIL16030	S1	G5
Cochise	Plant	Malaxis corymbosa	Madrean Adder's Mouth							SR	PMORC1R020	S3	G4
Cochise	Invertebrate	Pyrgulopsis thompsoni	Huachuca Springsnail	CCA		S			1A		IMGASJ0230	S2	G2
Cochise	Reptile	Lampropeltis nigrita	Mexican Black Kingsnake					A	1B		ARADB19120	S2	GNR
Cochise	Bird	Ictinia mississippiensis	Mississippi Kite					PR	1B		ABNKC09010	S2B	G5
Cochise	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Cochise	Mammal	Sorex arizonae	Arizona Shrew	SC		S		P	1B		AMABA01240	S2	G3
Cochise	Plant	Erigeron lemmonii	Lemmon Fleabane	SC						HS	PDAST3M2A0	S1	G1
Cochise	Plant	Mammillaria wrightii var. wilcoxii	Wilcox Fishhook Cactus							SR	PDCAC0A0E1	S4	G4T4
Cochise	Plant	Lupinus huachucanus	Huachuca Mountain Lupine			S					PDFAB2B210	S2	G2
Cochise	Plant	Pediomelum pentaphyllum	Chihuahua Scurfpea	SC	S	S					PDFAB5L070	S1S2	G1G2
Cochise	Plant	Rumex orthoneurus	Blumer's Dock	SC		S				HS	PDPGN0P0Z0	S3	G3
Cochise	Plant	Choisya mollis	Santa Cruz Star Leaf	SC		S					PDRUT02022	S2	G2
Cochise	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4
Cochise	Fish	Agosia chrysogaster ssp. 1	Yaqui Longfin Dace	SC	S			A	1B		AFCJB37152	S1	G4T1
Cochise	Plant	Escobaria orcuttii	Orcutt's Foxtail Cactus							SR	PDCAC0X010	S1	G3?
Cochise	Plant	Mammillaria heyderi var. bullingtoniana	Cream Cactus							SR	PDCAC0A035	S1S2	G4?T2T4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Cochise	Plant	Lilium parryi	Lemon Lily	SC		S				SR	PMLIL1A0J0	S2	G3
Cochise	Plant	Malaxis abieticola	Slender-flowered Malaxis							SR	PMORC1R090	S1	G4
Cochise	Plant	Malaxis porphyrea	Purple Adder's Mouth							SR	PMORC1R0Q0	S2	G4
Cochise	Plant	Platanthera limosa	Thurber's Bog Orchid							SR	PMORC1Y0G0	S4	G4
Cochise	Reptile	Lampropeltis gentilis	Western Milksnake				4		1A		ARADB1905B	S2	G5
Cochise	Amphibian	Ambystoma mavortium stebbinsi	Sonoran Tiger Salamander	LE					1A		AAAAA01145	S1	G5T1
Cochise	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Cochise	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Cochise	Bird	Megascops trichopsis	Whiskered Screech-owl			S			1B		ABNSB01070	S3	G5
Cochise	Bird	Sialia sialis fulva	Azure Bluebird						1B		ABPBJ15012	S3	G5TU
Cochise	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Cochise	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Cochise	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
Cochise	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Cochise	Reptile	Tantilla yaquia	Yaqui Black-headed Snake			S			1B		ARADB35130	S2	G4
Cochise	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Cochise	Plant	Lilaeopsis schaffneriana ssp. recurva	Huachuca Water-umbel	LE						HS	PDAPI19051	S2	G4T2
Cochise	Plant	Asclepias lemmonii	Lemmon Milkweed			S					PDASC020Z0	S2	G4?
Cochise	Plant	Erigeron arisolius	Arid Throne Fleabane			S					PDAST3M510	S2	G2?
Cochise	Plant	Pennellia tricornuta	Chiricahua Rock Cress			S					PDBRA06Z00	S2	G1G2
Cochise	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0ADD0	S4	G4
Cochise	Plant	Coursetia glabella	Smooth Baby-bonnets	SC		S					PDFAB140B0	S1	G3
Cochise	Plant	Sisyrinchium cernuum	Nodding Blue-eyed Grass			S					PMIRI0D0B0	S2	G5
Cochise	Plant	Muhlenbergia elongata	Sycamore Muhly			S					PMPOA48360	S3	G3G5
Cochise	Plant	Eriogonum terrenatum	San Pedro River Wild Buckwheat		S						PDPGN08760	S1S2	G1G2
Cochise	Reptile	Aspidoscelis arizonae	Arizona Striped Whiptail		S				1B		ARACJ02071	S1S2	G5T2
Cochise	Plant	Muhlenbergia palmeri	Palmer's Muhly			S					PMPOA48350	S2	G2
Cochise	Plant	Castilleja nervata	Trans-pecos Indian-paintbrush			S					PDSCR0D270	S1	G3Q
Cochise	Plant	Desmodium metcalfei	Metcalfe's Tick-trefoil			S					PDFAB1D0V0	S3	G3?
Cochise	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Cochise	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Cochise	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Cochise	Bird	Cynanthus latirostris	Broad-billed Hummingbird			S			1B		ABNUC19020	S3	G5
Cochise	Bird	Leucolia violiceps	Violet-crowned Hummingbird			S			1B		ABNUC29150	S3	G5
Cochise	Bird	Polioptila nigriceps	Black-capped Gnatcatcher						1B		ABPBJ08040	S1	G5
Cochise	Fish	Campostoma ornatum	Mexican Stoneroller	SC		S			1A		AFCJB03030	S1	G3G4
Cochise	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Cochise	Fish	Meda fulgida	Spikedace	LE					1A		AFCJB22010	S1	G2
Cochise	Fish	Tiaroga cobitis	Loach Minnow	LE				E	1A		AFCJB37140	S1	G2
Cochise	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4
Cochise	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Cochise	Mammal	Sigmodon ochrognathus	Yellow-nosed Cotton Rat	SC					1C		AMAFF07040	S4	G4G5
Cochise	Mammal	Panthera onca	Jaguar	LE				P	1A		AMAJH02010	S1	G3
Cochise	Reptile	Tantilla wilcoxi	Chihuahuan Black-headed Snake			S			1B		ARADB35120	S1	G4
Cochise	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Cochise	Reptile	Crotalus willardi obscurus	New Mexico Ridge-nosed Rattlesnake	LT				PR	1A		ARADE02131	S1	G5T1T2
Cochise	Invertebrate	Stygobromus arizonensis	Arizona Cave Amphipod	SC	S				1B		ICMAL05360	S1	G1
Cochise	Invertebrate	Psephenus arizonensis	Arizona Water Penny Beetle	SC							IICOL63010	S2?	G2?
Cochise	Invertebrate	Agathymus evansi	Huachuca Giant-skipper			S					IILEP87110	S1	G1G3
Cochise	Plant	Conioselinum mexicanum	Mexican Hemlock Parsley	SC		S					PDAPI0P030	S1	G2?
Cochise	Plant	Eryngium sparganophyllum	Arizona Eryngo	LE	S						PDAPI0Z0T0	S1	G1G2
Cochise	Plant	Lobelia laxiflora	Mexican Lobelia							SR	PDCAM0E0X0	S1	G4
Cochise	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Cochise	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Cochise	Plant	Schiedeella arizonica	Fallen Ladies'-tresses							SR	PMORC67020	S4	G4
Cochise	Plant	Potentilla rhyolitica var. rhyolitica	Huachuca Cinquefoil			S					PDROS1B2X2	S1S2	G1G2T1T2
Cochise	Plant	Hieracium abscissum	Rusby's Hawkweed			S					PDAST4W1A0	S1	G2?
Cochise	Plant	Pectis imberbis	Beardless Cinchweed	LE		S					PDAST6W0A0	S1	G3
Cochise	Bird	Empidonax fulvifrons pygmaeus	Northern Buff-breasted Flycatcher	SC		S			1B		ABPAE33141	S1	G5T5
Cochise	Bird	Centronyx bairdii	Baird's Sparrow	SC		S			1C		ABPBXA0010	S2N	G4
Cochise	Fish	Ictalurus pricei	Yaqui Catfish	LT				A	1A		AFCKA01090	S1	G2
Cochise	Fish	Poeciliopsis occidentalis sonoriensis	Yaqui Topminnow	LE				A	1A		AFCNC05022	S1	G3
Cochise	Mammal	Thomomys bottae mearnsi	Mearns' Southern Pocket Gopher	SC							AMAFC0102G	S5	G5T5
Cochise	Mammal	Leopardus pardalis	Ocelot	LE				P	1A		AMAJH05010	S1	G4
Cochise	Reptile	Terrapene ornata luteola	Desert Box Turtle		S			PR	1A		ARAAD08021	S2S3	G5T4
Cochise	Reptile	Aspidoscelis stictogramma	Giant Spotted Whiptail	SC		S			1B		ARACJ02011	S2	G4
Cochise	Plant	Metastelma mexicanum	Wiggins Milkweed Vine	SC		S					PDASC050P0	S1S2	G3G4
Cochise	Plant	Senecio multidentatus var. huachucanus	Huachuca Groundsel			S				HS	PDAST8H411	S2	G2G4T2
Cochise	Plant	Psilactis gentryi	Mexican Tansyaster			S					PDASTE7010	S2	G3
Cochise	Plant	Epithelantha micromeris	Button Cactus					PR		SR	PDCAC07020	S1	G4
Cochise	Plant	Opuntia martiniana	Seashore Cactus							SR	PDCAC0D2E0	S1S2	G1Q
Cochise	Plant	Eriogonum capillare	San Carlos Wild-buckwheat	SC						SR	PDPGN08100	S4	G4
Cochise	Plant	Phemeranthus marginatus	Tepic Flameflower	SC		S				SR	PDPOR080N0	S1S2	G2
Cochise	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Cochise	Plant	Hexalectris colemanii	Coleman's coral-root	SC		S				SR	PMORC1C060	S2	G2T2
Cochise	Plant	Perityle cochisensis	Chiricahua Rock Daisy			S				SR	PDAST70080	S1	G1
Cochise	Amphibian	Craugastor augusti cactorum	Western Barking Frog			S			1B		AAABD04171	S2	G5T5
Cochise	Plant	Zigadenus virescens	Green Death Camas							SR	PMLIL280E0	S4	G4
Cochise	Plant	Hexalectris warnockii	Texas Purple Spike	SC	S	S				HS	PMORC1C050	S1	G2G3
Coconino	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Coconino	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Coconino	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Coconino	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Coconino	Mammal	Myotis evotis	Long-eared Myotis	SC				PR	1C		AMACC01180	S3	G5
Coconino	Mammal	Myotis ciliolabrum	Western Small-footed Myotis	SC							AMACC01140	S3S4	G5
Coconino	Mammal	Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC		S			1B		AMAFD01031	S2	G5T3
Coconino	Mammal	Dipodomys microps leucotis	Houserock Valley Chisel-toothed Kangaroo Rat	SC	S	S	4		1B		AMAFD03024	S2	G5T2T3
Coconino	Plant	Asclepias welshii	Welsh's Milkweed	LT			3			HS	PDASC02290	S1	G1
Coconino	Plant	Phacelia welshii	Welsh's Phacelia	SC							PDHYD0C4U0	S2	G2
Coconino	Plant	Pinus aristata	Rocky Mountain Bristlecone Pine							SR	PGPIN04020	S2	G3
Coconino	Plant	Thelypteris puberula var. sonorensis	Aravaipa Woodfern		S	S					PPTHE05192	S2	G5T3
Coconino	Reptile	Aspidoscelis pai	Pai Striped Whiptail						1B		ARACJ02300	S1	G5T3T4
Coconino	Mammal	Microtus mexicanus	Mexican Vole						1B		AMAFF11220	S3	G5
Coconino	Plant	Platanthera aquilonis	Northern Green Orchid							SR	PMORC1Y150	S2S3	G5
Coconino	Plant	Castilleja kaibabensis	Kaibab Indian Paintbrush			S					PDSCR0D1J0	S1	G1
Coconino	Plant	Salix bebbiana	Bebb's Willow			S					PDSAL020E0	S2S3	G5
Coconino	Plant	Triteleia lemmoniae	Oak Creek Triteleia							SR	PMLIL210C0	S3	G3
Coconino	Plant	Malaxis porphyrea	Purple Adder's Mouth							SR	PMORC1R0Q0	S2	G4
Coconino	Reptile	Lampropeltis gentilis	Western Milksnake				4		1A		ARADB1905B	S2	G5
Coconino	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Coconino	Bird	Cinclus mexicanus	American Dipper				3	PR	1B		ABPBH01010	S2S3	G5
Coconino	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Coconino	Mammal	Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		A	1C		AMACB02010	S2	G3G4
Coconino	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Coconino	Mammal	Canis lupus baileyi	Mexican Wolf	LE,XN			1	E	1A		AMAJA01032	SXS1	G5T1
Coconino	Plant	Chrysothamnus molestus	Tusayan Rabbitbrush	SC		S					PDAST2C060	S2S3	G3
Coconino	Plant	Cirsium parryi	Parry Thistle			S				SR	PDAST2E260	S3	G4
Coconino	Plant	Packera franciscana	San Francisco Peaks Ragwort	LT						HS	PDAST8H1C0	S1	G1

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Coconino	Plant	Opuntia nicholii	Navajo Bridge Pricklypear							SR	PDCAC0D0W0	S4	G4Q
Coconino	Plant	Pediocactus sileri	Siler Pincushion Cactus	LT	S					HS	PDCAC0E060	S2	G2G3
Coconino	Plant	Coryphantha missouriensis	Missouri Corycactus							SR	PDCAC0X020	S3	G5
Coconino	Plant	Astragalus cremnophylax var. cremnophylax	Sentry Milk-vetch	LE						HS	PDFAB0F2H1	S1	G1G2T1
Coconino	Plant	Astragalus cremnophylax var. hevronii	Marble Canyon Milk-vetch		S	S	3				PDFAB0F2H3	S1	G1G2T1
Coconino	Plant	Chylismia exilis	Cottonwood Springs suncup	SC						SR	PDONA030J0	S2	G2
Coconino	Plant	Primula specuicola	Grand Canyon Primrose				4			SR	PDPRI080H0	S2	G4Q
Coconino	Plant	Puccinellia parishii	Parish Alkali Grass	SC		S	4			HS	PMPOA530T0	S2	G2G3
Coconino	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Coconino	Plant	Zigadenus vaginatus	Sheathed Deathcamas				3			SR	PMLIL280C0	S1	G2
Coconino	Plant	Desmodium metcalfei	Metcalfe's Tick-trefoil			S					PDFAB1D0V0	S3	G3?
Coconino	Plant	Silene rectiramea	Grand Canyon Catchfly	SC							PDCAR0U1F0	S1	G1
Coconino	Plant	Allium bigelovii	Bigelow Onion							SR	PMLIL02070	S2S3	G3
Coconino	Plant	Listera convallarioides	Broad-leaved Twayblade							SR	PMORC1N050	S1	G5
Coconino	Invertebrate	Anodonta californiensis	California Floater	SC		S			1A		IMBIV04220	S1	G3
Coconino	Plant	Echinocactus polycephalus var. xeranthemoides	Grand Canyon Cottontop Cactus							SR	PDCAC05032	S2S3	G3G4T2T3
Coconino	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Coconino	Bird	Buteo regalis	Ferruginous Hawk	SC	S		3	PR	1B		ABNKC19120	S2B,S4N	G4
Coconino	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Coconino	Fish	Gila cypha	Humpback Chub	LT			2		1A		AFCJB13080	S1	G1
Coconino	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Coconino	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Coconino	Mammal	Euderma maculatum	Spotted Bat	SC	S	S		PR	1B		AMACC07010	S2S3	G4
Coconino	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Coconino	Plant	Erigeron saxatilis	Rock Fleabane			S					PDAST3M560	S3	G3
Coconino	Plant	Sclerocactus parviflorus ssp. intermedius	Intermediate Fishhook Cactus							SR	PDCAC0J041	S2	G4T3?
Coconino	Plant	Eremogone aberrans	Mt. Dellenbaugh Sandwort			S					PDCAR04010	S2	G2
Coconino	Plant	Astragalus ampullarius	Gumbo Milk-vetch	SC		S					PDFAB0F0L0	S1	G2
Coconino	Plant	Lupinus lemmonii	Lemmon's Lupine			S					PDFAB2B2A0	S1	G1Q
Coconino	Plant	Psorothamnus thompsoniae var. whitingii	Whiting's Indigobush	SC							PDFAB3C092	S1S2	G3?T2
Coconino	Plant	Hedeoma diffusa	Flagstaff False Pennyroyal			S				SR	PDLAM0M0N0	S3	G3
Coconino	Plant	Argemone arizonica	Arizona Pricklypoppy	SC							PDPAP03030	S1	G1
Coconino	Plant	Phemeranthus validulus	Tusayan Flameflower	SC						SR	PDPOR080M0	S3	G3
Coconino	Plant	Aquilegia desertorum	Mogollon Columbine							SR	PDRAN05070	S4	G4
Coconino	Plant	Agave phillipsiana	Phillips Agave			S				HS	PMAGA01100	S2S3	G2
Coconino	Plant	Yucca whipplei	Our Lords Candle							SR	PMAGA0B0X0	S3S4	G4G5
Coconino	Plant	Carex specuicola	Navajo Sedge	LT			3			HS	PMCYP03CQ0	S2S3	G3
Coconino	Plant	Botrychium crenulatum	Dainty Moonwort	SC		S					PPOPH010L0	S1	G4
Coconino	Plant	Calypso bulbosa var. americana	Fairy Slipper							SR	PMORC0D011	S3	G5T5
Coconino	Bird	Gymnogyps californianus	California Condor	LE,XN	S		4	P	1A		ABNKA03010	SX,S1	G1
Coconino	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Coconino	Plant	Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus							SR	PDCAC05033	S2	G3G4T3T4
Coconino	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Coconino	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Coconino	Fish	Catostomus sp. 3	Little Colorado Sucker	CCA	S	S			1A		AFCJC02250	S2	G1
Coconino	Mammal	Perognathus amplus cineris	Wupatki Arizona Pocket Mouse	SC			4		1B		AMAFD01053	S2	G5T2?
Coconino	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Coconino	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Coconino	Plant	Pteryxia davidsonii	Davidson Cliff Carrot			S					PDAPI1X010	S1	G2
Coconino	Plant	Physaria kingii ssp. kaibabensis	Kaibab Bladderpod	SC		S					PDBRA1N1R0	S3	G3Q
Coconino	Plant	Pediocactus simpsonii	Simpson Plains Cactus							SR	PDCAC0E110	S1	G5?
Coconino	Plant	Sclerocactus parviflorus ssp. parviflorus	Smallflower Fishhook Cactus							SR	PDCAC0J042	S1	G4T4?
Coconino	Plant	Sclerocactus sileri	Siler Fishhook Cactus		S					SR	PDCAC0J0T0	S1	G1
Coconino	Plant	Astragalus xiphoides	Gladiator Milkvetch	SC						SR	PDFAB0F9T0	S3	G3

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Coconino	Plant	Errazurizia rotundata	Roundleaf Errazurizia		S		3			SR	PDFAB1L010	S2	G2
Coconino	Plant	Eremothera gouldii	Diamond Valley Suncup	SC							PDONA030K0	S2	G2
Coconino	Plant	Chylismia specicola ssp. hesperia	Kaibab Suncup	SC							PDONA031J1	S1	G2T1
Coconino	Plant	Rumex orthoneurus	Blumer's Dock	SC		S				HS	PDPGN0PDZ0	S3	G3
Coconino	Plant	Rosa stellata ssp. abyssa	Grand Canyon Rose	SC	S	S				SR	PDROS1J153	S3	G4T3
Coconino	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Coconino	Plant	Sclerocactus parviflorus ssp. terrae-canyonae	Longspine Fishhook Cactus							SR	PDCAC0J080	S1	G2Q
Coconino	Plant	Platanthera sparsiflora	Sparse Flowered Bog Orchid							SR	PMORC1Y0N0	S3	G4G5
Coconino	Plant	Helianthus arizonensis	Arizona Sunflower			S					PDAST4N060	S1	G2G4
Coconino	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Coconino	Bird	Euptilotis neoxenus	Eared Quetzal			S		A			ABNWA03010	SAB,S1N	G3
Coconino	Invertebrate	Discus shimekii	Striate Disc	SC					1C		IMGAS54120	S2?	G5
Coconino	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Coconino	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Coconino	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Coconino	Mammal	Mustela nigripes	Black-footed Ferret	LE,XN			2		1A		AMAJF02040	SXS1	G1
Coconino	Plant	Cirsium mohavense	Mohave Thistle							SR	PDAST2E1T0	S2	G3
Coconino	Plant	Helenium arizonicum	Arizona Sneezeweed			S					PDAST4L020	S3	G3
Coconino	Plant	Pediocactus bradyi	Brady Pincushion Cactus	LE			2			HS	PDCAC0E010	S1	G1
Coconino	Plant	Pediocactus paradinei	Paradine (Kaibab) Plains Cactus	CCA	S	S				HS	PDCAC0E040	S1	G1G2
Coconino	Plant	Eriogonum ripleyi	Ripley Wild-buckwheat	SC		S				SR	PDPGN08520	S2	G2
Coconino	Plant	Rosa woodsii var. ertterae	Ertter's Rose			S					PDROS1J198	S1	G5T1
Coconino	Invertebrate	Metrichia nigritta	Page Spring Micro Caddisfly	SC							IITRI97010	S1	G5
Coconino	Bird	Pinicola enucleator	Pine Grosbeak						1B		ABPBY03010	S1	G5
Coconino	Fish	Lepidomeda vittata	Little Colorado Spinedace	LT					1A		AFCJB20040	S1S2	G1G2
Coconino	Fish	Catostomus latipinnis	Flannelmouth Sucker	CCA	S				1A		AFCJC02110	S1S2	G3G4
Coconino	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Coconino	Mammal	Neotamias umbrinus	Uinta Chipmunk						1B		AMAFB02190	S3	G5
Coconino	Reptile	Thamnophis rufipunctatus	Narrow-headed Gartersnake	LT		S			1A		ARADB36110	S2	G3G4
Coconino	Plant	Cymopterus megacephalus	Cameron Water-parsley	SC							PDAPI0U0M0	S3	G3
Coconino	Plant	Cryptantha semiglabra	Pipe Springs Cryptantha		S						PDBOR0A2R0	S1	G1
Coconino	Plant	Pediocactus peeblesianus ssp. fickeiseniae	Fickeisen Plains Cactus	LE		S	3			HS	PDCAC0E051	S1S2	G2T2
Coconino	Plant	Phacelia serrata	Cinder Phacelia	SC							PDHYD0C4B0	S3	G3
Coconino	Plant	Actaea arizonica	Arizona Bugbane	CCA		S				HS	PDRAN07020	S2	G2
Coconino	Plant	Clematis hirsutissima	Clustered Leather Flower			S				HS	PDRAN080E0	S2	G4
Coconino	Invertebrate	Succinea grosvenori	Santa Rita Ambersnail						1C		IMGAS68080	S1	G5
Coconino	Plant	Eriogonum heermannii var. argense	Heermann's Rough Wild Buckwheat							SR	PDPGN082P8	S3S4	G5T3
Coconino	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
Coconino	Plant	Penstemon clutei	Sunset Crater Beardtongue	SC		S				SR	PDSCR1L1E0	S2	G2
Coconino	Plant	Echinocereus engelmannii var. variegatus	Echinocereus Hedgehog Cactus							SR	PDCAC06039	S2	G5T3?
Coconino	Bird	Plegadis chihi	White-faced Ibis	SC							ABNGE02020	S?B,S2S3N	G5
Coconino	Amphibian	Lithobates pipiens	Northern Leopard Frog		S	S	2		1A		AAABH01170	S1S2	G5
Coconino	Bird	Coccothraustes vespertinus	Evening Grosbeak						1B		ABPBY09020	S2B, S3N	G5
Coconino	Fish	Oncorhynchus apache	Apache Trout	LT					1A		AFCHA02102	S2	G3
Coconino	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Coconino	Plant	Flaveria mcdougallii	Grand Canyon Flaveria							SR	PDAST3V070	S2	G2
Coconino	Plant	Ferocactus cylindraceus	Desert Barrel Cactus					PR		SR	PDCAC08080	S4	G5
Coconino	Plant	Opuntia aurea	Golden Prickly-pear							SR	PDCAC0D300	S3	G3
Coconino	Plant	Astragalus rusbyi	Rusby's Milk-vetch			S					PDFAB0F7Q0	S3	G3
Coconino	Plant	Psorothamnus arborescens var. pubescens	Mojave Indigo Bush		S		4				PDFAB3C013	S2S3	G5T2
Coconino	Plant	Heuchera eastwoodiae	Senator Mine Alumroot			S					PDSAX0E0B0	S3	G3
Coconino	Plant	Platanthera zothecina	Alcove Bog Orchid	SC		S	3			SR	PMORC1Y130	S2	G2G3
Coconino	Plant	Allium atrorubens var. cristatum	Dark-red Onion							SR	PMLIL02063	S1	G4T4
Coconino	Plant	Penstemon nudiflorus	Flagstaff Beardtongue			S					PDSCR1L4A0	S2S3	G2G3

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Coconino	Plant	Zigadenus virescens	Green Death Camas							SR	PMLIL280E0	S4	G4
Coconino	Invertebrate	Stenopelmatus navajo	Navajo Jerusalem Cricket	SC							IIORT26020	S1S3	G1G3
Coconino	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
Coconino	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Coconino	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4
Coconino	Plant	Opuntia basilaris var. longiareolata	Grand Canyon Beavertail Cactus							SR	PDCAC0D054	S2	G5T2
Coconino	Plant	Opuntia martiniana	Seashore Cactus							SR	PDCAC0D2E0	S1S2	G1Q
Coconino	Plant	Astragalus cremnophylax var. myriorrhaphis	Cliff Milk-vetch	SC	S	S				SR	PDFAB0F2H2	S1	G1G2T1
Coconino	Plant	Eriogonum thompsoniae var. atwoodii	Atwood Wild-buckwheat	SC		S				SR	PDPGND85T2	S1	G4T1
Coconino	Plant	Phlox amabilis	Arizona Phlox			S					PDPLM0D050	S2S3	G2
Coconino	Plant	Sclerocactus whipplei	Whipple's Fishhook Cactus							SR	PDCAC0J0V0	S2	G2G3
Coconino	Plant	Stephanomeria exigua ssp. exigua	Small Wirelettuce		S						PDAST8U054	S4	G5T5
Coconino	Plant	Pellaea lyngholmii	Lyngholm's Brakefern			S					PPADI0H0H0	S1	G1
Coconino	Invertebrate	Archeolarca cavicola	Grand Canyon cave pseudoscorpion	SC							ILARA38020	S1	G1G2
Coconino	Bird	Haliaeetus leucocephalus	Bald Eagle	SC	S	S	2	P	1A		ABNKC10010	S2S3,S4N	G5
Coconino	Fish	Catostomus discobolus discobolus	Bluehead Sucker	CCA	S		4		1A		AFCJC02072	S3	G4T4
Gila	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Gila	Invertebrate	Agathon arizonicus	Netwing Midge			S					IIDIP46010	S1	G1
Gila	Plant	Erigeron saxatilis	Rock Fleabane			S					PDAST3M560	S3	G3
Gila	Plant	Echinocereus arizonicus ssp. arizonicus	Arizona Hedgehog Cactus	LE						HS	PDCAC060K1	S1S2	G5T2
Gila	Plant	Rumex orthoneurus	Blumer's Dock	SC		S				HS	PDPGN0P0Z0	S3	G3
Gila	Plant	Agave x arizonica	Arizona agave							HS	PMAGA01030	SHYB	GNA
Gila	Invertebrate	Sonorella ambigua verdensis	Papago Verde Talussnail						1C		IMGASC9022	S1	G5TNR
Gila	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Gila	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Gila	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Gila	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Gila	Mammal	Myotis yumanensis	Yuma Myotis	SC					1B		AMACC01020	S3S4	G5
Gila	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Gila	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4
Gila	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Gila	Plant	Packera neomexicana var. toumeyi	Toumey Groundsel			S					PDAST8H274	S2	G5T2
Gila	Plant	Abutilon parishii	Pima Indian Mallow	SC	S	S				SR	PDMAL020E0	S3S4	G3
Gila	Invertebrate	Wormaldia planae	A Caddisfly			S					IITRI78190	S1S2	G4
Gila	Amphibian	Craugastor augusti cactorum	Western Barking Frog			S			1B		AAABD04171	S2	G5T5
Gila	Bird	Camptostoma imberbe	Northern Beardless-Tyrannulet			S					ABPAE04010	S4	G5
Gila	Bird	Haliaeetus leucocephalus	Bald Eagle	SC	S	S	2	P	1A		ABNKC10010	S2S3,S4N	G5
Gila	Bird	Buteo plagiatus	Gray Hawk	SC							ABNKC19150	S3	GNR
Gila	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
Gila	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Gila	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Gila	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Gila	Plant	Helenium arizonicum	Arizona Sneezeweed			S					PDAST4L020	S3	G3
Gila	Plant	Ferocactus cylindraceus	Desert Barrel Cactus					PR		SR	PDCAC08080	S4	G5
Gila	Plant	Phlox amabilis	Arizona Phlox			S					PDPLM0D050	S2S3	G2
Gila	Plant	Agave delamateri	Tonto Basin Agave	SC		S				HS	PMAGA010W0	S2	G2
Gila	Plant	Agave phillipsiana	Phillips Agave			S				HS	PMAGA01100	S2S3	G2
Gila	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Gila	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Gila	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Gila	Fish	Meda fulgida	Spikedace	LE					1A		AFCJB22010	S1	G2
Gila	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Gila	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Gila	Plant	Erigeron anchana	Sierra Ancha Fleabane	SC		S					PDAST3M580	S2	G2

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Gila	Plant	Perityle gilensis var. salensis	Salt River Rock Daisy			S					PDAST700D2	S1	G2T1
Gila	Plant	Eriogonum capillare	San Carlos Wild-buckwheat	SC						SR	PDPGN08100	S4	G4
Gila	Plant	Agave murpheyi	Hohokam Agave	SC	S	S				HS	PMAGA010F0	S2?	G2?
Gila	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4
Gila	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
Gila	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
Gila	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Gila	Bird	Cinclus mexicanus	American Dipper				3	PR	1B		ABPBH01010	S2S3	G5
Gila	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Gila	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Gila	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Gila	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
Gila	Plant	Heuchera glomerulata	Chiricahua Mountain Alumroot			S					PDSAX0E0F0	S3	G3
Gila	Plant	Carex ultra	Cochise Sedge		S	S					PMCYP03E50	S2S3	G3?
Gila	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Gila	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Gila	Plant	Platanthera sparsiflora	Sparse Flowered Bog Orchid							SR	PMORC1Y0N0	S3	G4G5
Gila	Plant	Echinocereus santaritensis	Santa Rita Hedgehog Cactus							SR	PDCAC060U0	S3	GNR
Gila	Bird	Euptilotis neoxenus	Eared Quetzal			S		A			ABNWA03010	SAB,S1N	G3
Gila	Invertebrate	Anodonta californiensis	California Floater	SC		S			1A		IMBIV04220	S1	G3
Gila	Invertebrate	Pyrgulopsis simplex	Fossil Springsnail	SC		S			1A		IMGASJ0210	S1	G1
Gila	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Gila	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Gila	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Gila	Mammal	Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC		S			1B		AMAFD01031	S2	G5T3
Gila	Plant	Eremogone aberrans	Mt. Dellenbaugh Sandwort			S					PDCAR04010	S2	G2
Gila	Plant	Salvia amissa	Aravaipa Sage	SC	S	S					PDLAM1S020	S2	G2
Gila	Plant	Agave toumeyana var. bella	Toumey Agave							SR	PMAGA010R1	S3	G3T3
Gila	Plant	Echinocereus yavapaiensis	Yavapai Hedgehog Cactus							SR	PDCAC060T0	S2S3	G2G3
Gila	Invertebrate	Danaus plexippus	Monarch	C	S			PR			IILEPP2010	S2S4N	G4
Gila	Invertebrate	Pyrgulopsis sola	Brown Springsnail	SC		S			1A		IMGASJ0220	S1	G1
Gila	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Gila	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Gila	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Gila	Reptile	Xantusia bezyi	Bezy's Night Lizard			S			1B		ARACK01060	S2	G2
Gila	Plant	Hedeoma diffusa	Flagstaff False Pennyroyal			S				SR	PDLAM0M0N0	S3	G3
Gila	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Gila	Reptile	Aspidoscelis pai	Pai Striped Whiptail						1B		ARACJ02300	S1	G5T3T4
Gila	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Gila	Fish	Tiaroga cobitis	Loach Minnow	LE				E	1A		AFCJB37140	S1	G2
Gila	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Gila	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Gila	Mammal	Canis lupus baileyi	Mexican Wolf	LE,XN			1	E	1A		AMAJA01032	SXS1	G5T1
Gila	Reptile	Thamnophis rufipunctatus	Narrow-headed Gartersnake	LT		S			1A		ARADB36110	S2	G3G4
Gila	Plant	Perityle saxicola	Roosevelt Dam Rockdaisy	SC		S					PDAST700P0	S1	G1
Gila	Plant	Lupinus latifolius ssp. leucanthus	Broadleaf Lupine			S					PDFAB2B29D	S1	G5T1T2
Gila	Plant	Actaea arizonica	Arizona Bugbane	CCA		S				HS	PDRAN07020	S2	G2
Gila	Plant	Heuchera eastwoodiae	Senator Mine Alumroot			S					PDSAX0E0B0	S3	G3
Gila	Plant	Fremontodendron californicum	Flannel Bush		S					SR	PDSTE03010	S2S3	G4
Gila	Plant	Penstemon nudiflorus	Flagstaff Beardtongue			S					PDSCR1L4A0	S2S3	G2G3
Gila	Plant	Desmodium metcalfei	Metcalfe's Tick-trefoil			S					PDFAB1D0V0	S3	G3?
Gila	Plant	Triteleia lemmoniae	Oak Creek Triteleia							SR	PMLIL210C0	S3	G3
Gila	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Graham	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Graham	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Graham	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Graham	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Graham	Mammal	Thomomys bottae mearnsi	Mearns' Southern Pocket Gopher	SC							AMAFC0102G	S5	G5T5
Graham	Reptile	Terrapene ornata luteola	Desert Box Turtle		S			PR	1A		ARAAD08021	S2S3	G5T4
Graham	Reptile	Phrynosoma cornutum	Texas Horned Lizard	SC							ARACF12010	S3S4	G4G5
Graham	Invertebrate	Pyrgulopsis arizonae	Bylas Springsnail	SC	S				1A		IMGASJ0770	S1	G1
Graham	Plant	Eriogonum capillare	San Carlos Wild-buckwheat	SC						SR	PDPGN08100	S4	G4
Graham	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Graham	Plant	Allium bigelovii	Bigelow Onion							SR	PMLIL02070	S2S3	G3
Graham	Invertebrate	Sonorella imitator	Mimic Talussnail	CCA		S			1B		IMGASC9320	S1	G1
Graham	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Graham	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Graham	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Graham	Mammal	Myotis ciliolabrum	Western Small-footed Myotis	SC							AMACC01140	S3S4	G5
Graham	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Graham	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Graham	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Graham	Reptile	Crotalus pricei	Twin-spotted Rattlesnake			S		PR	1A		ARADE02080	S2	G5
Graham	Reptile	Sistrurus tergeminus edwardsii	Desert Massasauga		S			PR	1A		ARADE03012	S1	G3G4T3T4
Graham	Plant	Platanthera aquilonis	Northern Green Orchid							SR	PMORC1Y150	S2S3	G5
Graham	Invertebrate	Oreohelix grahamensis	Pinaleno Mountainsnail	CCA		S			1B		IMGASB5120	S1S2	G1G2
Graham	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Graham	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Graham	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Graham	Mammal	Myotis yumanensis	Yuma Myotis	SC					1B		AMACC01020	S3S4	G5
Graham	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Graham	Mammal	Sigmodon ochrognathus	Yellow-nosed Cotton Rat	SC					1C		AMAFF07040	S4	G4G5
Graham	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Graham	Plant	Echinocereus ledingii	Pinaleno Hedgehog Cactus							SR	PDCAC06066	S2	G4G5T4
Graham	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0ADD0	S4	G4
Graham	Plant	Mammillaria wrightii var. wilcoxii	Wilcox Fishhook Cactus							SR	PDCAC0ADE1	S4	G4T4
Graham	Plant	Pediomelum pentaphyllum	Chihuahua Scurfpea	SC	S	S					PDFAB5L070	S1S2	G1G2
Graham	Plant	Potentilla albiflora	White-flowered Cinquefoil			S					PDROS1B010	S2	G2
Graham	Plant	Carex ultra	Cochise Sedge		S	S					PMCYP03E50	S2S3	G3?
Graham	Plant	Penstemon discolor	Catalina Beardtongue			S				HS	PDSCR1L210	S2	G2
Graham	Plant	Hieracium abscissum	Rusby's Hawkweed			S					PDAST4W1A0	S1	G2?
Graham	Bird	Trogon elegans	Elegant Trogon			S			1B		ABNWA02070	S3	G5
Graham	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Graham	Fish	Meda fulgida	Spikedace	LE					1A		AFCJB22010	S1	G2
Graham	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Graham	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4
Graham	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Graham	Mammal	Tamiasciurus fremonti grahamensis	Mt Graham Red Squirrel	LE					1A		AMAFB08011	S1	GNRT1
Graham	Reptile	Thamnophis rufipunctatus	Narrow-headed Gartersnake	LT		S			1A		ARADB36110	S2	G3G4
Graham	Plant	Rumex orthoneurus	Blumer's Dock	SC		S				HS	PDPGN0P0Z0	S3	G3
Graham	Plant	Purshia subintegra	Arizona Cliff Rose	LE						HS	PDROS1E080	S2	G2
Graham	Plant	Schiedeella arizonica	Fallen Ladies'-tresses							SR	PMORC67020	S4	G4
Graham	Plant	Echinocereus santaritensis	Santa Rita Hedgehog Cactus							SR	PDCAC060U0	S3	GNR
Graham	Plant	Malaxis porphyrea	Purple Adder's Mouth							SR	PMORC1R0Q0	S2	G4
Graham	Invertebrate	Eumorsea pinaleno	Pinaleno Monkey Grasshopper	SC		S					IIORT14010	S1S3	G1G3
Graham	Invertebrate	Anodonta californiensis	California Floater	SC		S			1A		IMBIV04220	S1	G3
Graham	Invertebrate	Sonorella christenseni	Clark Peak Talussnail	CCA		S			1B		IMGASC9150	S1	G1?
Graham	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Graham	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Graham	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Graham	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Graham	Reptile	Kinosternon flavescens	Yellow Mud Turtle						1B		ARAAE01020	S1	G5
Graham	Plant	Erigeron heliographis	Pinalenos Fleabane	SC		S					PDAST3M500	S1	G1
Graham	Plant	Heuchera glomerulata	Chiricahua Mountain Alumroot			S					PDSAX0E0F0	S3	G3
Graham	Reptile	Aspidoscelis arizonae	Arizona Striped Whiptail		S				1B		ARACJ02071	S1S2	G5T2
Graham	Plant	Platanthera purpurascens	Purple-petal Bog Orchid							SR	PMORC1Y1G0	S2	GNR
Graham	Bird	Buteo plagiatus	Gray Hawk	SC							ABNKC19150	S3	GNR
Graham	Bird	Leucolia violiceps	Violet-crowned Hummingbird			S			1B		ABNUC29150	S3	G5
Graham	Fish	Oncorhynchus gilae	Gila Trout	LT					1A		AFCHA02101	S1	G2
Graham	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Graham	Fish	Tiaroga cobitis	Loach Minnow	LE				E	1A		AFCJB37140	S1	G2
Graham	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Graham	Reptile	Aspidoscelis stictogramma	Giant Spotted Whiptail	SC		S			1B		ARACJ02011	S2	G4
Graham	Invertebrate	Tryonia gilae	Gila Tryonia	SC	S				1A		IMGASJ7160	S1	G1
Graham	Plant	Abutilon parishii	Pima Indian Mallow	SC	S	S				SR	PDMAL020E0	S3S4	G3
Graham	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Graham	Bird	Camptostoma imberbe	Northern Beardless-Tyrannulet			S					ABPAE04010	S4	G5
Graham	Invertebrate	Sonorella grahamensis	Pinaleno Talussnail	CCA		S			1B		IMGASC9280	S1	G1
Graham	Mammal	Canis lupus baileyi	Mexican Wolf	LE,XN			1	E	1A		AMAJA01032	SXS1	G5T1
Graham	Plant	Cirsium parryi	Parry Thistle			S				SR	PDAST2E260	S3	G4
Graham	Plant	Salvia amissa	Aravaipa Sage	SC	S	S					PDLAM1S020	S2	G2
Graham	Plant	Agave phillipsiana	Phillips Agave			S				HS	PMAGA01100	S2S3	G2
Graham	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4
Graham	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Graham	Fish	Oncorhynchus apache	Apache Trout	LT					1A		AFCHA02102	S2	G3
Graham	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Graham	Mammal	Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		A	1C		AMACB02010	S2	G3G4
Graham	Mammal	Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				Pr	1A		AMACB03030	S2S3	G3
Graham	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
Graham	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Graham	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Graham	Mammal	Lepus alleni	Antelope Jackrabbit					|	1B		AMAEB03070	S3	G5
Graham	Mammal	Baiomys taylori	Northern Pygmy Mouse			S					AMAFF05010	S3	G4G5
Graham	Mammal	Microtus longicaudus leucophaeus	White-bellied Long-tailed Vole			S			1B		AMAFF11061	S1S2	G5T1
Graham	Plant	Erigeron piscaticus	Fish Creek Fleabane	SC	S	S				SR	PDAST3M4X0	S1	G1
Graham	Plant	Eriogonum heermannii var. argense	Heermann's Rough Wild Buckwheat							SR	PDPGN082P8	S3S4	G5T3
Graham	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
Graham	Plant	Echinocereus arizonicus ssp. nigrihorridispinus	Black-spined Hedgehog Cactus							SR	PDCAC060V1	S2	GNRTNR
Graham	Invertebrate	Sonorella macrophallus	Wet Canyon Talussnail	CCA		S			1A		IMGASC9360	S1	G1
Graham	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Greenlee	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Greenlee	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Greenlee	Mammal	Myotis evotis	Long-eared Myotis	SC				PR	1C		AMACC01180	S3	G5
Greenlee	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Greenlee	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Greenlee	Plant	Conioselinum mexicanum	Mexican Hemlock Parsley	SC		S					PDAPI0P030	S1	G2?
Greenlee	Plant	Schiedeella arizonica	Fallen Ladies'-tresses							SR	PMORC67020	S4	G4
Greenlee	Plant	Echinocereus arizonicus ssp. nigrihorridispinus	Black-spined Hedgehog Cactus							SR	PDCAC060V1	S2	GNRTNR
Greenlee	Plant	Coeloglossum viride var. virescens	Frog Orchid							SR	PMORC0K011	S1	G5T5
Greenlee	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Greenlee	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Greenlee	Plant	Heuchera glomerulata	Chiricahua Mountain Alumroot			S					PDSAX0E0F0	S3	G3

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Greenlee	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Greenlee	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Greenlee	Mammal	Microtus montanus arizonensis	Arizona Montane Vole			S			1B		AMAFF11022	S4	G5T4
Greenlee	Reptile	Thamnophis rufipunctatus	Narrow-headed Gartersnake	LT		S			1A		ARADB36110	S2	G3G4
Greenlee	Plant	Eriogonum capillare	San Carlos Wild-buckwheat	SC						SR	PDPGN08100	S4	G4
Greenlee	Plant	Calypso bulbosa var. americana	Fairy Slipper							SR	PMORC0D011	S3	G5T5
Greenlee	Plant	Penstemon linarioides var. maguirei	Maguire's Penstemon			S				SR	PDSCR1L3S1	S1	G5T1
Greenlee	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Greenlee	Plant	Malaxis porphyrea	Purple Adder's Mouth							SR	PMORC1R0Q0	S2	G4
Greenlee	Plant	Packera hartiana	Hart's Groundsel	SC						SR	PDASTE60N0	S3	G3G4
Greenlee	Invertebrate	Psephenus montanus	White Mountains Water Penny Beetle	SC							IICOL63020	S2	G2
Greenlee	Plant	Packera cardamine	Cress Groundsel			S					PDAST8H0N0	S1S2	G3
Greenlee	Plant	Potentilla albiflora	White-flowered Cinquefoil			S					PDROS1B010	S2	G2
Greenlee	Plant	Platanthera aquilonis	Northern Green Orchid							SR	PMORC1Y150	S2S3	G5
Greenlee	Bird	Euptilotis neoxenus	Eared Quetzal			S		A			ABNWA03010	SAB,S1N	G3
Greenlee	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Greenlee	Fish	Meda fulgida	Spikedace	LE					1A		AFCJB22010	S1	G2
Greenlee	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Greenlee	Mammal	Canis lupus baileyi	Mexican Wolf	LE,XN			1	E	1A		AMAJA01032	SXS1	G5T1
Greenlee	Plant	Perityle ambrosiifolia	Lace-leaf Rockdaisy		S						PDAST70120	S1	G1
Greenlee	Plant	Echinocereus fasciculatus	Magenta-flower Hedgehog-cactus							SR	PDCAC06065	S3	G4G5T4T5
Greenlee	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Greenlee	Plant	Desmodium metcalfei	Metcalfe's Tick-trefoil			S					PDFAB1D0V0	S3	G3?
Greenlee	Plant	Zigadenus virescens	Green Death Camas							SR	PMLIL280E0	S4	G4
Greenlee	Plant	Cypripedium parviflorum var. pubescens	Yellow Lady's-slipper			S	4			HS	PMORC0Q092	S1	G5T5
Greenlee	Plant	Goodyera repens	Lesser Rattlesnake Plantain							SR	PMORC17030	S2	G5
Greenlee	Plant	Platanthera purpurascens	Purple-petal Bog Orchid							SR	PMORC1Y1G0	S2	GNR
Greenlee	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Greenlee	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Greenlee	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Greenlee	Fish	Oncorhynchus apache	Apache Trout	LT					1A		AFCHA02102	S2	G3
Greenlee	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Greenlee	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Greenlee	Mammal	Zapus hudsonius luteus	New Mexico Meadow Jumping Mouse	LE		S			1A		AMAFH01014	S1	G5T1
Greenlee	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Greenlee	Plant	Trifolium neurophyllum	White Mountains Clover	SC		S					PDFAB401N0	S2	G2
Greenlee	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4
Greenlee	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Greenlee	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Greenlee	Amphibian	Lithobates pipiens	Northern Leopard Frog		S	S	2		1A		AAABH01170	S1S2	G5
Greenlee	Fish	Oncorhynchus gilae	Gila Trout	LT					1A		AFCHA02101	S1	G2
Greenlee	Reptile	Phrynosoma cornutum	Texas Horned Lizard	SC							ARACF12010	S3S4	G4G5
Greenlee	Plant	Packera neomexicana var. toumeyi	Toumey Groundsel			S					PDAST8H274	S2	G5T2
Greenlee	Plant	Rumex orthoneurus	Blumer's Dock	SC		S				HS	PDPGN0P0Z0	S3	G3
Greenlee	Invertebrate	Anodonta californiensis	California Floater	SC		S			1A		IMBIV04220	S1	G3
Greenlee	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
Greenlee	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Greenlee	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Greenlee	Fish	Tiaroga cobitis	Loach Minnow	LE				E	1A		AFCJB37140	S1	G2
Greenlee	Invertebrate	Lycaena ferrisi	Ferris Copper			S					IILEPC1090	S2	G5T2Q
Greenlee	Plant	Cirsium parryi	Parry Thistle			S				SR	PDAST2E260	S3	G4
Greenlee	Plant	Lupinus lemmonii	Lemmon's Lupine			S					PDFAB2B2A0	S1	G1Q
Greenlee	Plant	Gentianella wislizeni	Wislizeni Gentian	SC		S				SR	PDGEN07090	S1	G2
Greenlee	Plant	Salix bebbiana	Bebb's Willow			S					PDSAL020E0	S2S3	G5

Special Status Species by County, Taxonomic Group, Scientific Name
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Updated: 8/15/2022

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Greenlee	Plant	Allium bigelovii	Bigelow Onion							SR	PMLIL02070	S2S3	G3
Greenlee	Plant	Allium gooddingii	Goodding Onion	CCA		S	3			HS	PMLIL02120	S2	G2
La Paz	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
La Paz	Mammal	Myotis yumanensis	Yuma Myotis	SC					1B		AMACC01020	S3S4	G5
La Paz	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
La Paz	Reptile	Chionactis annulata	Resplendent Shovel-nosed Snake						1C		ARADB05013	S3	G5
La Paz	Plant	Stephanomeria exigua ssp. exigua	Small Wirelettuce		S						PDAST8U054	S4	G5T5
La Paz	Bird	Plegadis chihi	White-faced Ibis	SC							ABNGE02020	S?B,S2S3N	G5
La Paz	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
La Paz	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
La Paz	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
La Paz	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
La Paz	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
La Paz	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
La Paz	Plant	Echinomastus johnsonii	Johnson's Fishhook Cactus							SR	PDCAC0J0H0	S2	G3G4Q
La Paz	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
La Paz	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
La Paz	Mammal	Sigmodon arizonae plenus	Colorado River Cotton Rat						1B		AMAFF07022	S2	G5T2T3
La Paz	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
La Paz	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
La Paz	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
La Paz	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
La Paz	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
La Paz	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
La Paz	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
La Paz	Reptile	Uma scoparia	Mohave Fringe-toed Lizard		S				1B		ARACF15030	S2?	G3G4
La Paz	Plant	Cirsium mohavense	Mohave Thistle							SR	PDAST2E1T0	S2	G3
La Paz	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
La Paz	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
La Paz	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
La Paz	Bird	Catharus ustulatus	Swainson's Thrush						1B		ABPBJ18100	S1B	G5
La Paz	Bird	Lanius ludovicianus	Loggerhead Shrike	SC							ABPBR01030	S3	G4
La Paz	Plant	Cylindropuntia echinocarpa	Golden Cholla							SR	PDCAC0D2W0	S5	G5
La Paz	Bird	Laterallus jamaicensis coturniculus	California Black Rail	SC	S			P	1B		ABNME03041	S1	G3T1
La Paz	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
La Paz	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
La Paz	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
La Paz	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
La Paz	Fish	Gila elegans	Bonytail Chub	LE			1	E	1A		AFCJB13100	S1	G1
La Paz	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
La Paz	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
La Paz	Mammal	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE,XN	S			P	1A		AMALD01012	S1	G5T1
La Paz	Plant	Pholisma arenarium	Scaly Sandplant		S					HS	PDLNN02010	S2	G3
Maricopa	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
Maricopa	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Maricopa	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Maricopa	Mammal	Myotis yumanensis	Yuma Myotis	SC					1B		AMACC01020	S3S4	G5
Maricopa	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Maricopa	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Maricopa	Reptile	Kinosternon arizonense	Arizona Mud Turtle						1B		ARAAE01060	S2	G4
Maricopa	Plant	Cryptantha ganderi	Gander's Cryptantha	SC							PDBOR0A120	S1	G3?
Maricopa	Plant	Purshia subintegra	Arizona Cliff Rose	LE						HS	PDROS1E080	S2	G2
Maricopa	Plant	Agave x arizonica	Arizona agave							HS	PMAGA01030	SHYB	GNA
Maricopa	Reptile	Crotaphytus nebrius	Sonoran Collared Lizard						1B		ARACF04050	S3S4	G4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Maricopa	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
Maricopa	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Maricopa	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Maricopa	Plant	Berberis harrisoniana	Kofa Mountain Barberry		S						PDBER02030	S1	G2
Maricopa	Plant	Lotus alamosanus	Sonoran Bird's-foot Trefoil			S					PDFAB2A020	S1	G3G4
Maricopa	Plant	Abutilon parishii	Pima Indian Mallow	SC	S	S				SR	PDMAL020E0	S3S4	G3
Maricopa	Plant	Rhinotropis rusbyi	Rusby's Milkwort			S					PDPGL021H0	S3	G3
Maricopa	Plant	Vauquelinia californica ssp. sonorensis	Arizona Sonoran Rosewood		S						PDROS1R024	S1S2	G4T2
Maricopa	Plant	Allium bigelovii	Bigelow Onion							SR	PMLIL02070	S2S3	G3
Maricopa	Invertebrate	Maricopella allynsmithi	Phoenix Talussnail	SC					1B		IMGASC9010	S3	G3
Maricopa	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Maricopa	Bird	Catharus ustulatus	Swainson's Thrush						1B		ABPBJ18100	S1B	G5
Maricopa	Reptile	Phyllorhynchus browni	Saddled Leaf-nosed Snake					PR	1B		ARADB25010	S5	G5
Maricopa	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Maricopa	Plant	Erigeron piscaticus	Fish Creek Fleabane	SC	S	S				SR	PDAST3M4X0	S1	G1
Maricopa	Plant	Opuntia engelmannii var. flavispina	Cactus Apple							SR	PDCAC0D224	S3	G5T3?
Maricopa	Plant	Stenocereus thurberi	Organ Pipe Cactus							SR	PDCAC10020	S4	G5
Maricopa	Plant	Lotus mearnsii var. equisolensis	Horseshoe Deer Vetch			S					PDFAB2A0Q1	S1	G3T1
Maricopa	Plant	Eriogonum ripleyi	Ripley Wild-buckwheat	SC		S				SR	PDPGN08520	S2	G2
Maricopa	Plant	Mabrya acerifolia	Mapleleaf False Snapdragon			S					PDSCR2L010	S2	G2
Maricopa	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Maricopa	Bird	Ictinia mississippiensis	Mississippi Kite					PR	1B		ABNKC09010	S2B	G5
Maricopa	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Maricopa	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Maricopa	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
Maricopa	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Maricopa	Mammal	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE,XN	S			P	1A		AMALD01012	S1	G5T1
Maricopa	Reptile	Xantusia bezyi	Bezy's Night Lizard			S			1B		ARACK01060	S2	G2
Maricopa	Plant	Perityle saxicola	Roosevelt Dam Rockdaisy	SC		S					PDAST700P0	S1	G1
Maricopa	Plant	Ferocactus emoryi	Emory's Barrel-cactus							SR	PDCAC08090	S1S2	G4
Maricopa	Plant	Lupinus huachucanus	Huachuca Mountain Lupine			S					PDFAB2B210	S2	G2
Maricopa	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
Maricopa	Plant	Echinocereus yavapaiensis	Yavapai Hedgehog Cactus							SR	PDCAC060T0	S2S3	G2G3
Maricopa	Amphibian	Anaxyrus retiformis	Sonoran Green Toad		S			PR	1B		AAABB01140	S3	G4
Maricopa	Invertebrate	Danaus plexippus	Monarch	C	S			PR			IILEPP2010	S2S4N	G4
Maricopa	Amphibian	Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad		S				1C		AAABE01030	S3	G4
Maricopa	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Maricopa	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Maricopa	Fish	Ptychocheilus lucius	Colorado Pikeminnow	LE,XN			2	E	1A		AFCJB35020	S1	G1
Maricopa	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Maricopa	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Maricopa	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Maricopa	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Maricopa	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Maricopa	Reptile	Aspidoscelis xanthonota	Red-backed Whiptail	SC		S			1B		ARACJ02012	S2	G3
Maricopa	Plant	Echinomastus erectocentrus var. acunensis	Acuna Cactus	LE				P		HS	PDCAC0J0E1	S1	G3QT1T2Q
Maricopa	Plant	Lupinus lemmonii	Lemmon's Lupine			S					PDFAB2B2A0	S1	G1Q
Maricopa	Plant	Heuchera eastwoodiae	Senator Mine Alumroot			S					PDSAX0E0B0	S3	G3
Maricopa	Reptile	Chionactis annulata	Resplendent Shovel-nosed Snake						1C		ARADB05013	S3	G5
Maricopa	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Maricopa	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Maricopa	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Maricopa	Reptile	Sauromalus ater	Common Chuckwalla	SC			4	PR			ARACF13010	S4	G5
Maricopa	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Maricopa	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Maricopa	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Maricopa	Plant	Fremontodendron californicum	Flannel Bush		S					SR	PDSTE03010	S2S3	G4
Maricopa	Plant	Agave delamateri	Tonto Basin Agave	SC		S				HS	PMAGA010W0	S2	G2
Maricopa	Plant	Echinomastus johnsonii	Johnson's Fishhook Cactus							SR	PDCAC0J0H0	S2	G3G4Q
Maricopa	Amphibian	Smilisca fodiens	Lowland Burrowing Treefrog		S				1B		AAABC06010	S2	G4
Maricopa	Reptile	Lichanura trivirgata	Three-Lined Boa	SC				A	1B		ARADA01020	S1S2	G4G5
Maricopa	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Maricopa	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Maricopa	Bird	Charadrius nivosus nivosus	Snowy Plover					A	1B		ABNNB03031	S1B	G3T3
Maricopa	Bird	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	PT	S	S			1B		ABNSB08041	S1S2	G5T2
Maricopa	Bird	Toxostoma lecontei	LeConte's Thrasher		S				1B		ABPBK06100	S3	G4
Maricopa	Fish	Gila elegans	Bonytail Chub	LE			1	E	1A		AFCJB13100	S1	G1
Maricopa	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Maricopa	Mammal	Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				Pr	1A		AMACB03030	S2S3	G3
Maricopa	Mammal	Lepus alleni	Antelope Jackrabbit					|	1B		AMAEB03070	S3	G5
Maricopa	Reptile	Aspidoscelis stictogramma	Giant Spotted Whiptail	SC		S			1B		ARACJ02011	S2	G4
Maricopa	Plant	Ferocactus cylindraceus	Desert Barrel Cactus					PR		SR	PDCAC08080	S4	G5
Maricopa	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
Maricopa	Plant	Cylindropuntia echinocarpa	Golden Cholla							SR	PDCAC0D2W0	S5	G5
Maricopa	Plant	Tumamoca macdougalii	Tumamoc Globeberry	SC	S	S				SR	PDCUC0S010	S3	G4
Maricopa	Plant	Agave murpheyi	Hohokam Agave	SC	S	S				HS	PMAGA010F0	S2?	G2?
Maricopa	Plant	Agave toumeyana var. bella	Toumey Agave							SR	PMAGA010R1	S3	G3T3
Maricopa	Reptile	Aspidoscelis pai	Pai Striped Whiptail						1B		ARACJ02300	S1	G5T3T4
Mohave	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Mohave	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Mohave	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Mohave	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Mohave	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Mohave	Plant	Cycladenia humilis var. jonesii	Jones Cycladenia	LT						HS	PDAPO09012	S1	G3G4T3Q
Mohave	Plant	Cryptantha semiglabra	Pipe Springs Cryptantha		S						PDBOR0A2R0	S1	G1
Mohave	Plant	Cylindropuntia multigeniculata	Blue Diamond Cholla	SC						SR	PDCAC0D1N1	S2S3	G2
Mohave	Plant	Opuntia aurea	Golden Prickly-pear							SR	PDCAC0D300	S3	G3
Mohave	Plant	Astragalus holmgreniorum	Holmgren (Paradox) Milk-vetch	LE						HS	PDFAB0F9Z0	S1	G1
Mohave	Plant	Rhinotropis rusbyi	Rusby's Milkwort			S					PDPGL021H0	S3	G3
Mohave	Plant	Eriogonum mortonianum	Fredonia Wild Buckwheat	SC		S				SR	PDPGN083Z0	S1	G1
Mohave	Plant	Purshia subintegra	Arizona Cliff Rose	LE						HS	PDROS1E080	S2	G2
Mohave	Plant	Penstemon distans	Mt. Trumbull Beardtongue	SC	S					SR	PDSCR1L6W0	S2	G2
Mohave	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Mohave	Mammal	Microtus mexicanus	Mexican Vole						1B		AMAFF11220	S3	G5
Mohave	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Mohave	Bird	Gymnogyps californianus	California Condor	LE,XN	S		4	P	1A		ABNKA03010	SX,S1	G1
Mohave	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Mohave	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Mohave	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Mohave	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Mohave	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Mohave	Plant	Cirsium mohavense	Mohave Thistle							SR	PDAST2E1T0	S2	G3
Mohave	Plant	Cylindropuntia echinocarpa	Golden Cholla							SR	PDCAC0D2W0	S5	G5
Mohave	Plant	Astragalus newberryi var. aquarii	Aquarius Milkvetch		S						PDFAB0F5Y5	S1	G5T1
Mohave	Plant	Chylismia specicola ssp. hesperia	Kaibab Suncup	SC							PDONA031J1	S1	G2T1
Mohave	Plant	Arctomecon californica	Las Vegas Bearpoppy	SC						SR	PDPAP02010	S2	G3
Mohave	Plant	Phlox amabilis	Arizona Phlox			S					PDPLM0D050	S2S3	G2
Mohave	Plant	Cylindropuntia whipplei	Whipple Cholla							SR	PDCAC0D1N3	S3	G4?

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Mohave	Plant	Mentzelia memorabilis	September 11 Stickleaf		S						PDLOA03290	S1	G1
Mohave	Plant	Eriogonum heermannii var. argense	Heermann's Rough Wild Buckwheat							SR	PDPGN082P8	S3S4	G5T3
Mohave	Plant	Penstemon albomarginatus	White-margined Penstemon	SC	S					SR	PDSCR1L070	S1S2	G2
Mohave	Invertebrate	Pyrgulopsis bacchus	Grand Wash Springsnail	SC	S				1A		IMGASJ0150	S1	G1
Mohave	Invertebrate	Pyrgulopsis conica	Kingman Springsnail	SC	S				1A		IMGASJ0160	S1	G1
Mohave	Amphibian	Lithobates onca	Relict Leopard Frog	CCA	S				1A		AAABH01150	S1	G1G2
Mohave	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Mohave	Fish	Gila cypha	Humpback Chub	LT			2		1A		AFCJB13080	S1	G1
Mohave	Fish	Gila seminuda	Virgin River Chub	LE					1A		AFCJB13170	S1	G1
Mohave	Fish	Lepidomeda mollispinis mollispinis	Virgin Spinedace	CCA	S				1A		AFCJB20031	S1	G2T2
Mohave	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Mohave	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Mohave	Plant	Pediocactus peeblesianus ssp. fickeiseniae	Fickeisen Plains Cactus	LE		S	3			HS	PDCAC0E051	S1S2	G2T2
Mohave	Plant	Coryphantha missouriensis	Missouri Corycactus							SR	PDCAC0X020	S3	G5
Mohave	Plant	Astragalus toanus var. scidulus	Diamond Butte Milkvetch		S						PDFAB0F8Z1	S1	G4G5T1
Mohave	Plant	Chylismia exilis	Cottonwood Springs suncup	SC						SR	PDONA030J0	S2	G2
Mohave	Plant	Allium atrorubens var. cristatum	Dark-red Onion							SR	PMLIL02063	S1	G4T4
Mohave	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Mohave	Fish	Catostomus discobolus discobolus	Bluehead Sucker	CCA	S		4		1A		AFCJC02072	S3	G4T4
Mohave	Bird	Laterallus jamaicensis coturniculus	California Black Rail	SC	S			P	1B		ABNME03041	S1	G3T1
Mohave	Bird	Catharus ustulatus	Swainson's Thrush						1B		ABPBJ18100	S1B	G5
Mohave	Fish	Gila elegans	Bonytail Chub	LE			1	E	1A		AFCJB13100	S1	G1
Mohave	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Mohave	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Mohave	Mammal	Myotis yumanensis	Yuma Myotis	SC					1B		AMACC01020	S3S4	G5
Mohave	Plant	Opuntia basilaris var. longiareolata	Grand Canyon Beavertail Cactus							SR	PDCAC0D054	S2	G5T2
Mohave	Plant	Opuntia phaeacantha	New Mexican Prickly-pear							SR	PDCAC0D0Z0	S5	G5
Mohave	Plant	Pediocactus sileri	Siler Pincushion Cactus	LT	S					HS	PDCAC0E060	S2	G2G3
Mohave	Plant	Eremogone aberrans	Mt. Dellenbaugh Sandwort			S					PDCAR04010	S2	G2
Mohave	Plant	Eriogonum thompsoniae var. atwoodii	Atwood Wild-buckwheat	SC		S				SR	PDPGN085T2	S1	G4T1
Mohave	Plant	Penstemon bicolor ssp. roseus	Cerbat Beardtongue	SC	S					SR	PDSCR1L0S2	S2	G3T3Q
Mohave	Plant	Echinocereus engelmannii var. variegatus	Echinocereus Hedgehog Cactus							SR	PDCAC06039	S2	G5T3?
Mohave	Plant	Echinomastus johnsonii	Johnson's Fishhook Cactus							SR	PDCAC0J0H0	S2	G3G4Q
Mohave	Invertebrate	Pyrgulopsis deserta	Desert Springsnail		S				1A		IMGASJ0390	S1	G2
Mohave	Plant	Echinocactus polycephalus var. xeranthemoides	Grand Canyon Cottontop Cactus							SR	PDCAC05032	S2S3	G3G4T2T3
Mohave	Bird	Buteo regalis	Ferruginous Hawk	SC	S		3	PR	1B		ABNKC19120	S2B,S4N	G4
Mohave	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Mohave	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Mohave	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Mohave	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Mohave	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Mohave	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Mohave	Plant	Escobaria vivipara var. rosea	Viviparous Foxtail Cactus							SR	PDCAC0X0G8	S3	G5T3
Mohave	Plant	Astragalus ampullarius	Gumbo Milk-vetch	SC		S					PDFAB0F0L0	S1	G2
Mohave	Plant	Phacelia parishii	Parish's Phacelia		S						PDHYD0C3G0	S1	G3
Mohave	Plant	Eriogonum viscidulum	Sticky Buckwheat	SC	S						PDPGN08690	S1	G2
Mohave	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Mohave	Reptile	Chionactis annulata	Resplendent Shovel-nosed Snake						1C		ARADB05013	S3	G5
Mohave	Plant	Allium bigelovii	Bigelow Onion							SR	PMLIL02070	S2S3	G3
Mohave	Plant	Allium parishii	Parish Onion		S					SR	PMLIL021N0	S1	G3
Mohave	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
Mohave	Fish	Catostomus latipinnis	Flannelmouth Sucker	CCA	S				1A		AFCJC02110	S1S2	G3G4
Mohave	Mammal	Myotis ciliolabrum	Western Small-footed Myotis	SC							AMACC01140	S3S4	G5
Mohave	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	SGCN	NPL	ELCODE	SRANK	GRANK
Mohave	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Mohave	Plant	Enceliopsis argophylla	Silverleaf Sunray		S						PDAST3G010	S2	G2
Mohave	Plant	Flaveria mcdougallii	Grand Canyon Flaveria							SR	PDAST3V070	S2	G2
Mohave	Plant	Opuntia nicholii	Navajo Bridge Pricklypear							SR	PDCAC0D0W0	S4	G4Q
Mohave	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Mohave	Plant	Sclerocactus whipplei	Whipple's Fishhook Cactus							SR	PDCAC0J0V0	S2	G2G3
Mohave	Plant	Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus							SR	PDCAC05033	S2	G3G4T3T4
Mohave	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Mohave	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Mohave	Mammal	Euderma maculatum	Spotted Bat	SC	S	S		PR	1B		AMACC07010	S2S3	G4
Mohave	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Mohave	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
Mohave	Plant	Astragalus geyeri var. triquetrus	Beaver Dam Milk-vetch	SC	S						PDFAB0F3M2	S1	G4T2T3
Mohave	Plant	Sphaeralcea gierischii	Gierisch Mallow	LE							PDMAL140T0	S1	G1
Mohave	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
Mohave	Amphibian	Pseudacris hypochondriaca	Baja California Treefrog						1B		AAABC05180	S3,SE	G5
Mohave	Plant	Penstemon clutei	Sunset Crater Beardtongue	SC		S				SR	PDSCR1L1E0	S2	G2
Mohave	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
Mohave	Amphibian	Lithobates pipiens	Northern Leopard Frog		S	S	2		1A		AAABH01170	S1S2	G5
Mohave	Fish	Plagopterus argentissimus	Woundfin	LE,XN					1A		AFCJB33010	S1	G1
Mohave	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Mohave	Mammal	Sigmodon arizonae plenus	Colorado River Cotton Rat						1B		AMAFF07022	S2	G5T2T3
Mohave	Reptile	Gopherus agassizii	Mohave Desert Tortoise	LT				A	1A		ARAAF01012	S2	G3
Mohave	Plant	Opuntia martiniana	Seashore Cactus							SR	PDCAC0D2E0	S1S2	G1Q
Mohave	Plant	Sclerocactus parviflorus ssp. intermedius	Intermediate Fishhook Cactus							SR	PDCAC0J041	S2	G4T3?
Mohave	Plant	Astragalus lentiginosus var. ambiguus	Freckled Milk-vetch	SC							PDFAB0FB91	S1	G5T1Q
Mohave	Plant	Lupinus latifolius ssp. leucanthus	Broadleaf Lupine			S					PDFAB2B29D	S1	G5T1T2
Mohave	Plant	Pediomelum castoreum	Beaver Dam Scurfpea	SC							PDFAB5L050	S1	G3
Mohave	Plant	Pediomelum megalanthum var. epipsilum	Kane Breadroot	SC							PDFAB5L0F1	S1	G4?T2
Mohave	Plant	Hedeoma diffusa	Flagstaff False Pennyroyal			S				SR	PDLAM0M0N0	S3	G3
Mohave	Plant	Eremothera gouldii	Diamond Valley Suncup	SC							PDONA030K0	S2	G2
Mohave	Plant	Rosa stellata ssp. abyssa	Grand Canyon Rose	SC	S	S				SR	PDROS1J153	S3	G4T3
Mohave	Plant	Fremontodendron californicum	Flannel Bush		S					SR	PDSTE03010	S2S3	G4
Mohave	Plant	Yucca whipplei	Our Lords Candle							SR	PMAGA0B0X0	S3S4	G4G5
Mohave	Plant	Thelypteris puberula var. sonorensis	Aravaipa Woodfern		S	S					PPTHE05192	S2	G5T3
Mohave	Plant	Leucocrinum montanum	Mountain Star-lily							SR	PMLIL18010	S1	G5
Mohave	Bird	Haliaeetus leucocephalus	Bald Eagle	SC	S	S	2	P	1A		ABNKC10010	S2S3,S4N	G5
Navajo	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4
Navajo	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Navajo	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Navajo	Mammal	Myotis evotis	Long-eared Myotis	SC				PR	1C		AMACC01180	S3	G5
Navajo	Mammal	Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC		S			1B		AMAFD01031	S2	G5T3
Navajo	Plant	Asclepias welshii	Welsh's Milkweed	LT			3			HS	PDASC02290	S1	G1
Navajo	Plant	Chrysothamnus molestus	Tusayan Rabbitbrush	SC		S					PDAST2C060	S2S3	G3
Navajo	Plant	Pediocactus peeblesianus ssp. peeblesianus	Peebles Navajo Cactus	LE						HS	PDCAC0E053	S1	G2T1
Navajo	Plant	Sclerocactus papyracanthus	Grama-grass Cactus	SC						SR	PDCAC0J0K0	S2S3	G4
Navajo	Plant	Eriogonum heermannii var. argense	Heermann's Rough Wild Buckwheat							SR	PDPGN082P8	S3S4	G5T3
Navajo	Plant	Astragalus humistratus var. crispulus	Villous Ground-cover Milkvetch			S					PDFAB0F454	S1	G4G5T3?
Navajo	Invertebrate	Anodonta californiensis	California Floater	SC		S			1A		IMBIV04220	S1	G3
Navajo	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Navajo	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Navajo	Plant	Zigadenus vaginatus	Sheathed Deathcamas				3			SR	PMLIL280C0	S1	G2
Navajo	Plant	Penstemon nudiflorus	Flagstaff Beardtongue			S					PDSCR1L4A0	S2S3	G2G3
Navajo	Plant	Helenium arizonicum	Arizona Sneezeweed			S					PDAST4L020	S3	G3

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Navajo	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Navajo	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Navajo	Fish	Lepidomeda vittata	Little Colorado Spinedace	LT					1A		AFCJB20040	S1S2	G1G2
Navajo	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Navajo	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Navajo	Reptile	Thamnophis rufipunctatus	Narrow-headed Gartersnake	LT		S			1A		ARADB36110	S2	G3G4
Navajo	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Navajo	Reptile	Lampropeltis gentilis	Western Milksnake				4		1A		ARADB1905B	S2	G5
Navajo	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Navajo	Plant	Astragalus xiphoides	Gladiator Milkvetch	SC						SR	PDFAB0F9T0	S3	G3
Navajo	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Navajo	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4
Navajo	Mammal	Panthera onca	Jaguar	LE				P	1A		AMAJH02010	S1	G3
Navajo	Plant	Carex specuicola	Navajo Sedge	LT			3			HS	PMCYP03CQ0	S2S3	G3
Navajo	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Navajo	Mammal	Microtus mexicanus	Mexican Vole						1B		AMAFF11220	S3	G5
Navajo	Plant	Helianthus arizonensis	Arizona Sunflower			S					PDAST4N060	S1	G2G4
Navajo	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Navajo	Amphibian	Lithobates pipiens	Northern Leopard Frog		S	S	2		1A		AAABH01170	S1S2	G5
Navajo	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Navajo	Mammal	Vulpes vulpes	Red Fox						1B		AMAJA03010	S3	G5
Navajo	Plant	Platanthera zothecina	Alcove Bog Orchid	SC		S	3			SR	PMORC1Y130	S2	G2G3
Navajo	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Navajo	Plant	Sclerocactus whipplei	Whipple's Fishhook Cactus							SR	PDCAC0J0V0	S2	G2G3
Navajo	Bird	Buteo regalis	Ferruginous Hawk	SC	S		3	PR	1B		ABNKC19120	S2B,S4N	G4
Navajo	Plant	Pteryxia davidsonii	Davidson Cliff Carrot			S					PDAPI1X010	S1	G2
Navajo	Plant	Phlox amabilis	Arizona Phlox			S					PDPLM0D050	S2S3	G2
Navajo	Plant	Salix bebbiana	Bebb's Willow			S					PDSAL020E0	S2S3	G5
Navajo	Fish	Catostomus sp. 3	Little Colorado Sucker	CCA	S	S			1A		AFCJC02250	S2	G1
Navajo	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Navajo	Mammal	Canis lupus baileyi	Mexican Wolf	LE,XN			1	E	1A		AMAJA01032	SXS1	G5T1
Navajo	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Navajo	Plant	Errazurizia rotundata	Roundleaf Errazurizia		S		3			SR	PDFAB1L010	S2	G2
Navajo	Bird	Haliaeetus leucocephalus	Bald Eagle	SC	S	S	2	P	1A		ABNKC10010	S2S3,S4N	G5
Navajo	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Pima	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Pima	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Pima	Bird	Buteo plagiatus	Gray Hawk	SC							ABNKC19150	S3	GNR
Pima	Bird	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	PT	S	S			1B		ABNSB08041	S1S2	G5T2
Pima	Bird	Pachyramphus aglaiae	Rose-throated Becard			S			1B		ABPAE53070	S1	G4G5
Pima	Bird	Amphispiza quinquestriata	Five-striped Sparrow						1B		ABPBX97030	S2	G4
Pima	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Pima	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Pima	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Pima	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Pima	Mammal	Cynomys ludovicianus	Black-tailed Prairie Dog	CCA	S			P	1A		AMAFB06010	SX,S1	G4
Pima	Mammal	Sigmodon ochrognathus	Yellow-nosed Cotton Rat	SC					1C		AMAFF07040	S4	G4G5
Pima	Mammal	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE,XN	S			P	1A		AMALD01012	S1	G5T1
Pima	Reptile	Uma rufopunctata	Yuman Desert Fringe-toed Lizard	SC	S			P	1B		ARACF15050	S2	GUQ
Pima	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Pima	Plant	Asclepias lemmonii	Lemmon Milkweed			S					PDASC020Z0	S2	G4?
Pima	Plant	Pennellia tricornuta	Chiricahua Rock Cress			S					PDBRA06200	S2	G1G2
Pima	Plant	Mammillaria mainiae	Counter Clockwise Fishhook Cactus							SR	PDCAC0A060	S1	G3
Pima	Plant	Opuntia versicolor	Stag-horn Cholla							SR	PDCAC0D1K0	S2S3	G4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Pima	Plant	Opuntia engelmannii var. flavispina	Cactus Apple							SR	PDCAC0D224	S3	G5T3?
Pima	Plant	Peniocereus greggii var. transmontanus	Desert Night-blooming Cereus					PR		SR	PDCAC0V012	S3S4	G3G4T3T4
Pima	Plant	Peniocereus striatus	Dahlia Rooted Cereus							SR	PDCAC0V020	S1	G4
Pima	Plant	Pseudabutilon thurberi	Thurber Indian Mallow							SR	PDMAL020P0	S1	G2G3
Pima	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4
Pima	Reptile	Lampropeltis nigrita	Mexican Black Kingsnake					A	1B		ARADB19120	S2	GNR
Pima	Bird	Dendrocygna bicolor	Fulvous Whistling-Duck	SC							ABNJB01010	SAN	G5
Pima	Amphibian	Lithobates tarahumarae	Tarahumara Frog	SC		S			1A		AAABH01210	SX,S1	G1G3
Pima	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Pima	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Pima	Bird	Tyrannus crassirostris	Thick-billed Kingbird			S			1B		ABPAE52040	S2	G5
Pima	Bird	Toxostoma lecontei	LeConte's Thrasher		S				1B		ABPBK06100	S3	G4
Pima	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Pima	Mammal	Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				Pr	1A		AMACB03030	S2S3	G3
Pima	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Pima	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Pima	Mammal	Eumops underwoodi	Underwood's Bonneted Bat	SC					1B		AMACD02020	S1	G4
Pima	Mammal	Lepus alleni	Antelope Jackrabbit						1B		AMAEB03070	S3	G5
Pima	Mammal	Baiomys taylori	Northern Pygmy Mouse			S					AMAFF05010	S3	G4G5
Pima	Plant	Eryngium sparganophyllum	Arizona Eryngo	LE	S						PDAPI0Z0T0	S1	G1G2
Pima	Plant	Perityle ajoensis	Ajo Rock Daisy							SR	PDAST700Y0	S1	G1
Pima	Plant	Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE						HS	PDCAC040C1	S2	G4T2Q
Pima	Plant	Ferocactus cylindraceus	Desert Barrel Cactus					PR		SR	PDCAC08080	S4	G5
Pima	Plant	Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	SC						SR	PDCAC0J0E2	S3	G3QT3Q
Pima	Plant	Lupinus lemmonii	Lemmon's Lupine			S					PDFAB2B2A0	S1	G1Q
Pima	Plant	Abutilon parishii	Pima Indian Mallow	SC	S	S				SR	PDMAL020E0	S3S4	G3
Pima	Plant	Vauquelinia californica ssp. sonorensis	Arizona Sonoran Rosewood		S						PDROS1R024	S1S2	G4T2
Pima	Plant	Psilotum nudum	Whisk Fern			S				HS	PPPSI01020	S1	G5
Pima	Plant	Echinocereus arizonicus ssp. nigrihorridispinus	Black-spined Hedgehog Cactus							SR	PDCAC060V1	S2	GNRTNR
Pima	Plant	Penstemon discolor	Catalina Beardtongue			S				HS	PDSCR1L210	S2	G2
Pima	Plant	Pectis imberbis	Beardless Cinchweed	LE		S					PDAST6W0A0	S1	G3
Pima	Bird	Camptostoma imberbe	Northern Beardless-Tyrannulet			S					ABPAE04010	S4	G5
Pima	Plant	Allium gooddingii	Goodding Onion	CCA		S	3			HS	PMLIL02120	S2	G2
Pima	Plant	Lilium parryi	Lemon Lily	SC		S				SR	PMLIL1A0J0	S2	G3
Pima	Invertebrate	Sonorella eremita	San Xavier Talussnail	CCA					1A		IMGASC9240	S1	G1
Pima	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Pima	Reptile	Crotaphytus nebrius	Sonoran Collared Lizard						1B		ARACF04050	S3S4	G4
Pima	Invertebrate	Sonorella magdalenensis	Sonoran Talussnail	UR	S	S			1C		IMGASC9370	S1S2	G2
Pima	Bird	Leucolia violiceps	Violet-crowned Hummingbird			S			1B		ABNUC29150	S3	G5
Pima	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Pima	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
Pima	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Pima	Reptile	Phrynosoma cornutum	Texas Horned Lizard	SC							ARACF12010	S3S4	G4G5
Pima	Plant	Amoreuxia gonzalezii	Saiya	SC		S				HS	PDBIX01010	S1	G1
Pima	Plant	Echinocactus horizonthalonius var. nicholii	Nichol Turk's Head Cactus	LE						HS	PDCAC05022	S2	G4T2
Pima	Plant	Echinocereus fasciculatus	Magenta-flower Hedgehog-cactus							SR	PDCAC06065	S3	G4G5T4T5
Pima	Plant	Echinomastus erectocentrus var. acunensis	Acuna Cactus	LE				P		HS	PDCAC0J0E1	S1	G3QT1T2Q
Pima	Plant	Manihot davisiae	Arizona Manihot			S					PDEUP0Z010	S2	G4
Pima	Plant	Choisya mollis	Santa Cruz Star Leaf	SC		S					PDRUT02022	S2	G2
Pima	Plant	Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	SC		S		A		HS	PMAGA010L2	S3	G3T3
Pima	Plant	Notholaena lemmonii	Lemmon Cloak Fern	SC							PPADI0G0D0	S1S2	G3?
Pima	Bird	Ammodramus savannarum ammolegus	Arizona grasshopper sparrow		S	S			1B		ABPBXA0021	S1S2	G5TU
Pima	Plant	Muhlenbergia palmeri	Palmer's Muhly			S					PMPOA48350	S2	G2
Pima	Plant	Triteleiopsis palmeri	Blue Sand Lily		S					SR	PMLIL22010	S1	G3

Special Status Species by County, Taxonomic Group, Scientific Name
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Updated: 8/15/2022

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Pima	Plant	Malaxis porphyrea	Purple Adder's Mouth							SR	PMORC1R0Q0	S2	G4
Pima	Invertebrate	Sonorella ambigua ambigua	Papago Talussnail						1C		IMGASC9021	S1S2	G5TNR
Pima	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Pima	Mammal	Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		A	1C		AMACB02010	S2	G3G4
Pima	Reptile	Aspidoscelis stictogramma	Giant Spotted Whiptail	SC		S			1B		ARACJ02011	S2	G4
Pima	Reptile	Aspidoscelis xanthonota	Red-backed Whiptail	SC		S			1B		ARACJ02012	S2	G3
Pima	Reptile	Phyllorhynchus browni	Saddled Leaf-nosed Snake					PR	1B		ARADB25010	S5	G5
Pima	Reptile	Crotalus willardi willardi	Arizona Ridge-nosed Rattlesnake			S		PR	1A		ARADE02132	S1S2	G5T4
Pima	Plant	Lilaeopsis schaffneriana ssp. recurva	Huachuca Water-umbel	LE						HS	PDAPI19051	S2	G4T2
Pima	Plant	Erigeron lemmonii	Lemmon Fleabane	SC						HS	PDAST3M2A0	S1	G1
Pima	Plant	Cylindropuntia x kelvinensis	Kelvin Cholla							SR	PDCAC0D2M0	SHYB	GNA
Pima	Plant	Lophocereus schottii	Senita							SR	PDCAC14010	S1S2	G4
Pima	Plant	Dalea tentaculoides	Gentry's Indigo Bush	SC	S	S				HS	PDFAB1A1K0	S1	G1
Pima	Plant	Lupinus huachucanus	Huachuca Mountain Lupine			S					PDFAB2B210	S2	G2
Pima	Plant	Ayenia jaliscana	Ayenia			S					PDSTE010C0	S1	GNR
Pima	Plant	Agave schottii var. treleasei	Trelease Agave	SC		S				HS	PMAGA010N2	S1	G5T1Q
Pima	Plant	Sisyrinchium cernuum	Nodding Blue-eyed Grass			S					PMIRI0D0B0	S2	G5
Pima	Mammal	Notiosorex cockrumi	Cockrum's Desert Shrew						1B		AMABA05020	S1	G2
Pima	Bird	Peucaea botterii arizonae	Arizona Botteri's Sparrow		S				1B		ABPBX91063	S3?B,S1N	G4T4
Pima	Plant	Mammillaria heyderi var. bullingtoniana	Cream Cactus							SR	PDCAC0A035	S1S2	G4?T2T4
Pima	Amphibian	Smilisca fodiens	Lowland Burrowing Treefrog		S				1B		AAABC06010	S2	G4
Pima	Plant	Allium plummerae	Plummer Onion							SR	PMLIL021V0	S3	G4
Pima	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Pima	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Pima	Bird	Antrostomus ridgwayi	Buff-collared Nightjar			S			1B		ABNTA07060	S2S3	G5
Pima	Bird	Empidonax fulvifrons pygmaeus	Northern Buff-breasted Flycatcher	SC		S			1B		ABPAE33141	S1	G5T5
Pima	Bird	Polioptila nigriceps	Black-capped Gnatcatcher						1B		ABPBJ08040	S1	G5
Pima	Bird	Catharus ustulatus	Swainson's Thrush						1B		ABPBJ18100	S1B	G5
Pima	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Pima	Mammal	Sorex arizonae	Arizona Shrew	SC		S		P	1B		AMABA01240	S2	G3
Pima	Mammal	Peromyscus merriami	Merriam's Deermouse			S					AMAFF03020	S2	G5
Pima	Reptile	Terrapene ornata luteola	Desert Box Turtle		S			PR	1A		ARAAD08021	S2S3	G5T4
Pima	Reptile	Sceloporus slevini	Slevin's Bunchgrass Lizard		S	S			1B		ARACF14180	S2	G4
Pima	Reptile	Crotalus lepidus klauberi	Banded Rock Rattlesnake					PR	1A		ARADE02051	S3	G5T5
Pima	Reptile	Crotalus pricei	Twin-spotted Rattlesnake			S		PR	1A		ARADE02080	S2	G5
Pima	Plant	Erigeron arisolius	Arid Throne Fleabane			S					PDAST3M510	S2	G2?
Pima	Plant	Stevia lemmonii	Lemmon's Stevia			S					PDAST8V010	S2	G3G4
Pima	Plant	Mammillaria thornberi	Thornber Fishhook Cactus							SR	PDCAC0A0C0	S4	G4
Pima	Plant	Stenocereus thurberi	Organ Pipe Cactus							SR	PDCAC10020	S4	G5
Pima	Plant	Viola umbraticola	Ponderosa Violet			S					PDVIO042E0	S2	G3G4
Pima	Plant	Carex ultra	Cochise Sedge		S	S					PMCYP03E50	S2S3	G3?
Pima	Plant	Paspalum virletii	Virlet Paspalum			S					PMPOA4P1L0	S1	G4
Pima	Reptile	Chionactis annulata	Resplendent Shovel-nosed Snake						1C		ARADB05013	S3	G5
Pima	Reptile	Aspidoscelis arizonae	Arizona Striped Whiptail		S				1B		ARACJ02071	S1S2	G5T2
Pima	Reptile	Hypsiglena sp. nov.	Hooded Nightsnake						1B		ARADB18050	S4	G4
Pima	Plant	Hexalectris colemanii	Coleman's coral-root	SC		S				SR	PMORC1C060	S2	G2T2
Pima	Plant	Echinomastus intertextus	White Fishhook Cactus							SR	PDCAC0J0G0	S2	G4
Pima	Bird	Trogon elegans	Elegant Trogon			S			1B		ABNWA02070	S3	G5
Pima	Bird	Centronyx bairdii	Baird's Sparrow	SC		S			1C		ABPBXA0010	S2N	G4
Pima	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Pima	Mammal	Sciurus arizonensis	Arizona Gray Squirrel					A	1B		AMAFB07060	S4	G4
Pima	Mammal	Panthera onca	Jaguar	LE				P	1A		AMAJH02010	S1	G3
Pima	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Pima	Reptile	Coluber bilineatus	Sonoran Whipsnake						1B		ARADB21010	S5	G5

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Pima	Invertebrate	Tryonia quitobaquitae	Quitobaquito Tryonia	SC					1A		IMGASJ7130	S1	G1
Pima	Plant	Packera neomexicana var. toumeyi	Toumey Groundsel			S					PDAST8H274	S2	G5T2
Pima	Plant	Ferocactus emoryi	Emory's Barrel-cactus							SR	PDCAC08090	S1S2	G4
Pima	Plant	Tragia laciniata	Sonoita Noseburn			S					PDEUP1D060	S3	G4
Pima	Plant	Eriogonum capillare	San Carlos Wild-buckwheat	SC						SR	PDPGN08100	S4	G4
Pima	Plant	Samolus vagans	Chiricahua Mountain Brookweed			S					PDPRI09040	S2	GUQ
Pima	Plant	Capsicum annuum var. glabriusculum	Chiltepin			S					PDSOL06012	S2	G5T5
Pima	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Pima	Plant	Echinocereus nicholii	Nichol's Hedgehog Cactus							SR	PDCAC060L0	S2	G4?Q
Pima	Amphibian	Craugastor augusti cactorum	Western Barking Frog			S			1B		AAABD04171	S2	G5T5
Pima	Plant	Malaxis abieticola	Slender-flowered Malaxis							SR	PMORC1R090	S1	G4
Pima	Invertebrate	Sonorella papagorum	Black Mountain Talussnail						1B		IMGASC9480	S1	G1
Pima	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Pima	Bird	Colinus virginianus ridgwayi	Masked Bobwhite	LE				P	1A		ABNLC21022	SX,S1	G4G5T1
Pima	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Pima	Bird	Sialia sialis fulva	Azure Bluebird						1B		ABPBJ15012	S3	G5TU
Pima	Bird	Peucaea carpalis	Rufous-winged Sparrow						1B		ABPBX91080	S4	G4
Pima	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Pima	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Pima	Mammal	Leopardus pardalis	Ocelot	LE				P	1A		AMAJH05010	S1	G4
Pima	Reptile	Kinosternon arizonense	Arizona Mud Turtle						1B		ARAAE01060	S2	G4
Pima	Reptile	Plestiodon callicephalus	Mountain Skink			S					ARACH01030	S2	G4G5
Pima	Reptile	Oxybelis aeneus	Brown Vinesnake			S			1B		ARADB24010	S2	G5
Pima	Plant	Amsonia grandiflora	Large-flowered Blue Star	SC		S					PDAPO03060	S2	G2
Pima	Plant	Metastelma mexicanum	Wiggins Milkweed Vine	SC		S					PDASC050P0	S1S2	G3G4
Pima	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
Pima	Plant	Lobelia fenestralis	Leafy Lobelia							SR	PDCAM0E0H0	S1	G4
Pima	Plant	Tumamoca macdougalii	Tumamoc Globeberry	SC	S	S				SR	PDCUC0S010	S3	G4
Pima	Plant	Muhlenbergia elongata	Sycamore Muhly			S					PMPOA48360	S3	G3G5
Pima	Plant	Thelypteris puberula var. sonorensis	Aravaipa Woodfern		S	S					PPTHE05192	S2	G5T3
Pima	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Pima	Plant	Eriogonum terrenatum	San Pedro River Wild Buckwheat		S						PDPGN08760	S1S2	G1G2
Pima	Plant	Schiedeella arizonica	Fallen Ladies'-tresses							SR	PMORC67020	S4	G4
Pima	Plant	Passiflora arizonica	Arizona Passionflower			S					PDPAS01073	S2	G5T3T5
Pima	Plant	Platanthera limosa	Thurber's Bog Orchid							SR	PMORC1Y0G0	S4	G4
Pima	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
Pima	Bird	Cynanthus latirostris	Broad-billed Hummingbird			S			1B		ABNUC19020	S3	G5
Pima	Fish	Cyprinodon eremus	Quitobaquito Pupfish	LE					1A		AFCNB02140	S1	G1
Pima	Reptile	Kinosternon sonoriense longifemorale	Sonoyta Mud Turtle	LE				P	1A		ARAAE01041	S1	G4T1
Pima	Reptile	Chionactis palarostris organica	Organ Pipe Shovel-nosed Snake						1B		ARADB05021	S1	G3G4T2
Pima	Reptile	Senticolis triaspis intermedia	Northern Green Ratsnake			S			1B		ARADB44011	S3	G5T4
Pima	Plant	Amsonia kearneyana	Kearney Blue-star	LE						HS	PDAPO030M0	S1	G1
Pima	Plant	Erigeron piscaticus	Fish Creek Fleabane	SC	S	S				SR	PDAST3M4X0	S1	G1
Pima	Plant	Berberis harrisoniana	Kofa Mountain Barberry		S						PDBER02030	S1	G2
Pima	Plant	Potentilla albiflora	White-flowered Cinquefoil			S					PDROS1B010	S2	G2
Pima	Plant	Asplenium dalhousiae	Dalhouse Spleenwort		S						PPASP020A0	S1	G4
Pima	Plant	Lysiloma watsonii	Littleleaf False Tamarind							SR	PDFAB2C040	S1	G4?
Pima	Plant	Stephanomeria exigua ssp. exigua	Small Wirelettuce		S						PDAST8U054	S4	G5T5
Pima	Plant	Echinocereus santaritensis	Santa Rita Hedgehog Cactus							SR	PDCAC060U0	S3	GNR
Pima	Plant	Zephyranthes longifolia	Copper Zephyr Lily							SR	PMLIL27060	S3	G4?
Pima	Plant	Hexalectris arizonica	Arizona Crested coral-root			S				SR	PMORC1C041	S2	G5T2T4
Pima	Plant	Heterotheca rutteri	Huachuca Golden Aster	SC	S	S					PDAST4V0J0	S2	G2
Pima	Plant	Hieracium pringlei	Pringle Hawkweed	SC							PDAST4W170	S1	G4
Pima	Amphibian	Anaxyrus retiformis	Sonoran Green Toad		S			PR	1B		AAABB01140	S3	G4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Pima	Plant	Graptopetalum bartramii	Bartram Stonecrop	LT	S	S				SR	PDCRA06010	S2	G2
Pima	Plant	Listera convallarioides	Broad-leaved Twayblade							SR	PMORC1N050	S1	G5
Pima	Invertebrate	Danaus plexippus	Monarch	C	S			PR			IILEPP2010	S2S4N	G4
Pima	Invertebrate	Argia sabino	Sabino Canyon Dancer	SC		S					IIODO68100	S2	G2
Pima	Amphibian	Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad		S				1C		AAABE01030	S3	G4
Pima	Reptile	Lichanura trivirgata	Three-Lined Boa	SC				A	1B		ARADA01020	S1S2	G4G5
Pinal	Bird	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	PT	S	S			1B		ABNSB08041	S1S2	G5T2
Pinal	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Pinal	Reptile	Xantusia bezyi	Bezy's Night Lizard			S			1B		ARACK01060	S2	G2
Pinal	Plant	Ferocactus cylindraceus	Desert Barrel Cactus					PR		SR	PDCAC08080	S4	G5
Pinal	Plant	Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	SC						SR	PDCAC0J0E2	S3	G3QT3Q
Pinal	Plant	Zephyranthes longifolia	Copper Zephyr Lily							SR	PMLIL27060	S3	G4?
Pinal	Plant	Allium rhizomatum	Redflower Onion							SR	PMLIL02320	S1	G3?Q
Pinal	Bird	Buteo plagiatus	Gray Hawk	SC							ABNKC19150	S3	GNR
Pinal	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Pinal	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Pinal	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Pinal	Mammal	Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		A	1C		AMACB02010	S2	G3G4
Pinal	Plant	Echinocereus arizonicus ssp. arizonicus	Arizona Hedgehog Cactus	LE						HS	PDCAC060K1	S1S2	G5T2
Pinal	Plant	Abutilon parishii	Pima Indian Mallow	SC	S	S				SR	PDMAL020E0	S3S4	G3
Pinal	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
Pinal	Bird	Antrostomus ridgwayi	Buff-collared Nightjar			S			1B		ABNTA07060	S2S3	G5
Pinal	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Pinal	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Pinal	Mammal	Myotis ciliolabrum	Western Small-footed Myotis	SC							AMACC01140	S3S4	G5
Pinal	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Pinal	Plant	Mammillaria thornberi	Thornber Fishhook Cactus							SR	PDCAC0ADC0	S4	G4
Pinal	Invertebrate	Danaus plexippus	Monarch	C	S			PR			IILEPP2010	S2S4N	G4
Pinal	Bird	Tyrannus crassirostris	Thick-billed Kingbird			S			1B		ABPAE52040	S2	G5
Pinal	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Pinal	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Pinal	Mammal	Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				Pr	1A		AMACB03030	S2S3	G3
Pinal	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Pinal	Mammal	Leopardus pardalis	Ocelot	LE				P	1A		AMAJH05010	S1	G4
Pinal	Plant	Lilaeopsis schaffneriana ssp. recurva	Huachuca Water-umbel	LE						HS	PDAPI19051	S2	G4T2
Pinal	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4
Pinal	Plant	Thelypteris puberula var. sonorensis	Aravaipa Woodfern		S	S					PPTHE05192	S2	G5T3
Pinal	Amphibian	Anaxyrus retiformis	Sonoran Green Toad		S			PR	1B		AAABB01140	S3	G4
Pinal	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Pinal	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Pinal	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
Pinal	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Pinal	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Pinal	Fish	Tiaroga cobitis	Loach Minnow	LE				E	1A		AFCJB37140	S1	G2
Pinal	Reptile	Terrapene ornata luteola	Desert Box Turtle		S			PR	1A		ARAAD08021	S2S3	G5T4
Pinal	Reptile	Aspidoscelis stictogramma	Giant Spotted Whiptail	SC		S			1B		ARACJ02011	S2	G4
Pinal	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
Pinal	Plant	Echinomastus erectocentrus var. acunensis	Acuna Cactus	LE				P		HS	PDCAC0J0E1	S1	G3QT1T2Q
Pinal	Plant	Fremontodendron californicum	Flannel Bush		S					SR	PDSTE03010	S2S3	G4
Pinal	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Pinal	Fish	Meda fulgida	Spikedace	LE					1A		AFCJB22010	S1	G2
Pinal	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Pinal	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
Pinal	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4

Special Status Species by County, Taxonomic Group, Scientific Name
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Updated: 8/15/2022

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Pinal	Reptile	Aspidoscelis xanthonota	Red-backed Whiptail	SC		S			1B		ARACJ02012	S2	G3
Pinal	Reptile	Phyllorhynchus browni	Saddled Leaf-nosed Snake					PR	1B		ARADB25010	S5	G5
Pinal	Plant	Opuntia versicolor	Stag-horn Cholla							SR	PDCAC0D1K0	S2S3	G4
Pinal	Plant	Tumamoca macdougalii	Tumamoc Globeberry	SC	S	S				SR	PDCUC0S010	S3	G4
Pinal	Plant	Agave murpheyi	Hohokam Agave	SC	S	S				HS	PMAGA010F0	S2?	G2?
Pinal	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Pinal	Plant	Penstemon discolor	Catalina Beardtongue			S				HS	PDSCR1L210	S2	G2
Pinal	Amphibian	Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad		S				1C		AAABE01030	S3	G4
Pinal	Bird	Ictinia mississippiensis	Mississippi Kite					PR	1B		ABNKC09010	S2B	G5
Pinal	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Pinal	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Pinal	Mammal	Myotis yumanensis	Yuma Myotis	SC					1B		AMACC01020	S3S4	G5
Pinal	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Pinal	Plant	Erigeron anchana	Sierra Ancha Fleabane	SC		S					PDAST3M580	S2	G2
Pinal	Plant	Eriogonum capillare	San Carlos Wild-buckwheat	SC						SR	PDPGN08100	S4	G4
Pinal	Plant	Mabrya acerifolia	Mapleleaf False Snapdragon			S					PDSCR2L010	S2	G2
Pinal	Plant	Agave toumeyana var. bella	Toumey Agave							SR	PMAGA010R1	S3	G3T3
Pinal	Reptile	Chionactis annulata	Resplendent Shovel-nosed Snake						1C		ARADB05013	S3	G5
Pinal	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Pinal	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Pinal	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Pinal	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Pinal	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Pinal	Mammal	Lepus alleni	Antelope Jackrabbit						1B		AMAEB03070	S3	G5
Pinal	Plant	Echinocactus horizonthalonius var. nicholii	Nichol Turk's Head Cactus	LE						HS	PDCAC05022	S2	G4T2
Pinal	Plant	Stenocereus thurberi	Organ Pipe Cactus							SR	PDCAC10020	S4	G5
Pinal	Plant	Salvia amissa	Aravaipa Sage	SC	S	S					PDLAM1S020	S2	G2
Pinal	Plant	Carex ultra	Cochise Sedge		S	S					PMCYP03E50	S2S3	G3?
Pinal	Plant	Echinocereus santaritensis	Santa Rita Hedgehog Cactus							SR	PDCAC060U0	S3	GNR
Pinal	Bird	Camptostoma imberbe	Northern Beardless-Tyrannulet			S					ABPAE04010	S4	G5
Santa Cruz	Bird	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	PT	S	S			1B		ABNSB08041	S1S2	G5T2
Santa Cruz	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Santa Cruz	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Santa Cruz	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Santa Cruz	Mammal	Sigmodon ochrognathus	Yellow-nosed Cotton Rat	SC					1C		AMAFF07040	S4	G4G5
Santa Cruz	Reptile	Crotalus pricei	Twin-spotted Rattlesnake			S		PR	1A		ARADE02080	S2	G5
Santa Cruz	Plant	Coryphantha recurvata	Santa Cruz Beehive Cactus			S				HS	PDCAC04090	S3	G3
Santa Cruz	Plant	Euphorbia macropus	Woodland Spurge	SC						SR	PDEUP0Q2U0	S2	G4
Santa Cruz	Plant	Lupinus huachucanus	Huachuca Mountain Lupine			S					PDFABZB210	S2	G2
Santa Cruz	Plant	Pseudabutilon thurberi	Thurber Indian Mallow							SR	PDMAL020P0	S1	G2G3
Santa Cruz	Plant	Ayenia jaliscana	Ayenia			S					PDSTE010C0	S1	GNR
Santa Cruz	Invertebrate	Danaus plexippus	Monarch	C	S			PR			IILEPP2010	S2S4N	G4
Santa Cruz	Invertebrate	Tuberochernes ubicki	A Cave Obligate Pseudoscorpion			S					ILARAD3020	S1	G1
Santa Cruz	Reptile	Lampropeltis nigrita	Mexican Black Kingsnake					A	1B		ARADB19120	S2	GNR
Santa Cruz	Amphibian	Ambystoma mavortium stebbinsi	Sonoran Tiger Salamander	LE					1A		AAAAA01145	S1	G5T1
Santa Cruz	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Santa Cruz	Fish	Gila ditaenia	Sonora Chub	LT				A	1A		AFCJB13090	S1	G2G3
Santa Cruz	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Santa Cruz	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Santa Cruz	Mammal	Sciurus arizonensis	Arizona Gray Squirrel					A	1B		AMAFB07060	S4	G4
Santa Cruz	Reptile	Tantilla yaquia	Yaqui Black-headed Snake			S			1B		ARADB35130	S2	G4
Santa Cruz	Invertebrate	Adopaeoides prittwitzi	Sunrise Skipper			S					IILEP59010	S1	G3G4
Santa Cruz	Plant	Amoreuxia gonzalezii	Saiya	SC		S				HS	PDBIX01010	S1	G1
Santa Cruz	Plant	Mammillaria wrightii var. wilcoxii	Wilcox Fishhook Cactus							SR	PDCAC0A0E1	S4	G4T4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Santa Cruz	Plant	Manihot davisiae	Arizona Manihot			S					PDEUP0Z010	S2	G4
Santa Cruz	Plant	Coursetia glabella	Smooth Baby-bonnets	SC		S					PDFAB140B0	S1	G3
Santa Cruz	Plant	Abutilon parishii	Pima Indian Mallow	SC	S	S				SR	PDMAL020E0	S3S4	G3
Santa Cruz	Plant	Phemeranthus marginatus	Tepic Flameflower	SC		S				SR	PDPOR080N0	S1S2	G2
Santa Cruz	Plant	Muhlenbergia elongata	Sycamore Muhly			S					PMPOA48360	S3	G3G5
Santa Cruz	Plant	Paspalum virletii	Virlet Paspalum			S					PMPOA4P1L0	S1	G4
Santa Cruz	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Santa Cruz	Plant	Graptopetalum bartramii	Bartram Stonecrop	LT	S	S				SR	PDCRA06010	S2	G2
Santa Cruz	Invertebrate	Pyrgulopsis thompsoni	Huachuca Springsnail	CCA		S			1A		IMGASJ0230	S2	G2
Santa Cruz	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Santa Cruz	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Santa Cruz	Mammal	Thomomys umbrinus intermedius	Southern Pocket Gopher						1B		AMAFC01013	S3	G5T3
Santa Cruz	Reptile	Terrapene ornata luteola	Desert Box Turtle		S			PR	1A		ARAAD08021	S2S3	G5T4
Santa Cruz	Reptile	Sceloporus slevini	Slevin's Bunchgrass Lizard		S	S			1B		ARACF14180	S2	G4
Santa Cruz	Reptile	Crotalus lepidus klauberi	Banded Rock Rattlesnake					PR	1A		ARADE02051	S3	G5T5
Santa Cruz	Plant	Asclepias uncialis	Greene Milkweed	SC		S					PDASC022L0	S1	G2
Santa Cruz	Plant	Erigeron arisolius	Arid Throne Fleabane			S					PDAST3M510	S2	G2?
Santa Cruz	Plant	Opuntia versicolor	Stag-horn Cholla							SR	PDCAC0D1K0	S2S3	G4
Santa Cruz	Plant	Macroptilium supinum	Supine Bean	SC		S				SR	PDFAB330L0	S1	G2
Santa Cruz	Plant	Samolus vagans	Chiricahua Mountain Brookweed			S					PDPRI09040	S2	GUQ
Santa Cruz	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Santa Cruz	Reptile	Hypsiglena sp. nov.	Hooded Nightsnake						1B		ARADB18050	S4	G4
Santa Cruz	Plant	Muhlenbergia palmeri	Palmer's Muhly			S					PMPOA48350	S2	G2
Santa Cruz	Plant	Echinocereus santaritensis	Santa Rita Hedgehog Cactus							SR	PDCAC060U0	S3	GNR
Santa Cruz	Plant	Potentilla rhyolitica var. rhyolitica	Huachuca Cinquefoil			S					PDROS1B2X2	S1S2	G1G2T1T2
Santa Cruz	Amphibian	Craugastor augusti cactorum	Western Barking Frog			S			1B		AAABD04171	S2	G5T5
Santa Cruz	Bird	Trogon elegans	Elegant Trogon			S			1B		ABNWA02070	S3	G5
Santa Cruz	Invertebrate	Sonorella magdalenensis	Sonoran Talussnail	UR	S	S			1C		IMGASC9370	S1S2	G2
Santa Cruz	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Santa Cruz	Bird	Antrostomus ridgwayi	Buff-collared Nightjar			S			1B		ABNTA07060	S2S3	G5
Santa Cruz	Bird	Cynanthus latirostris	Broad-billed Hummingbird			S			1B		ABNUC19020	S3	G5
Santa Cruz	Bird	Leucolia violiceps	Violet-crowned Hummingbird			S			1B		ABNUC29150	S3	G5
Santa Cruz	Bird	Anthus spragueii	Sprague's Pipit	SC					1A		ABPBM02060	S2N	G3G4
Santa Cruz	Mammal	Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		A	1C		AMACB02010	S2	G3G4
Santa Cruz	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Santa Cruz	Reptile	Aspidoscelis stictogramma	Giant Spotted Whiptail	SC		S			1B		ARACJ02011	S2	G4
Santa Cruz	Reptile	Tantilla wilcoxi	Chihuahuan Black-headed Snake			S			1B		ARADB35120	S1	G4
Santa Cruz	Plant	Choisya mollis	Santa Cruz Star Leaf	SC		S					PDRUT02022	S2	G2
Santa Cruz	Plant	Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	SC		S		A		HS	PMAGA010L2	S3	G3T3
Santa Cruz	Plant	Psilotum nudum	Whisk Fern			S				HS	PPPSI01020	S1	G5
Santa Cruz	Bird	Ammodramus savannarum ammolegus	Arizona grasshopper sparrow		S	S			1B		ABPBXA0021	S1S2	G5TU
Santa Cruz	Plant	Passiflora arizonica	Arizona Passionflower			S					PDPAS01073	S2	G5T3T5
Santa Cruz	Plant	Heterotheca rutteri	Huachuca Golden Aster	SC	S	S					PDAST4V0J0	S2	G2
Santa Cruz	Plant	Hieracium pringlei	Pringle Hawkweed	SC							PDAST4W170	S1	G4
Santa Cruz	Bird	Calothorax lucifer	Lucifer Hummingbird			S					ABNUC44010	S2	G5
Santa Cruz	Plant	Allium rhizomatum	Redflower Onion							SR	PMLIL02320	S1	G3?Q
Santa Cruz	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Santa Cruz	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Santa Cruz	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Santa Cruz	Mammal	Cynomys ludovicianus	Black-tailed Prairie Dog	CCA	S			P	1A		AMAFB06010	SX,S1	G4
Santa Cruz	Mammal	Baiomys taylori	Northern Pygmy Mouse			S					AMAFF05010	S3	G4G5
Santa Cruz	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Santa Cruz	Reptile	Plestiodon callicephalus	Mountain Skink			S					ARACH01030	S2	G4G5
Santa Cruz	Reptile	Gyalopion quadrangulare	Thornscrub Hook-nosed Snake			S		PR	1B		ARADB16020	S1	G4

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

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Santa Cruz	Reptile	Crotalus willardi willardi	Arizona Ridge-nosed Rattlesnake			S		PR	1A		ARADE02132	S1S2	G5T4
Santa Cruz	Plant	Lilaeopsis schaffneriana ssp. recurva	Huachuca Water-umbel	LE						HS	PDAPI19051	S2	G4T2
Santa Cruz	Plant	Amsonia grandiflora	Large-flowered Blue Star	SC		S					PDAPO03060	S2	G2
Santa Cruz	Plant	Stevia lemmonii	Lemmon's Stevia			S					PDAST8V010	S2	G3G4
Santa Cruz	Plant	Lobelia laxiflora	Mexican Lobelia							SR	PDCAM0E0X0	S1	G4
Santa Cruz	Plant	Tragia laciniata	Sonoita Noseburn			S					PDEUP1D060	S3	G4
Santa Cruz	Plant	Lotus alamosanus	Sonoran Bird's-foot Trefoil			S					PDFAB2A020	S1	G3G4
Santa Cruz	Plant	Schiedeella arizonica	Fallen Ladies'-tresses							SR	PMORC67020	S4	G4
Santa Cruz	Plant	Penstemon discolor	Catalina Beardtongue			S				HS	PDSCR1L210	S2	G2
Santa Cruz	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Santa Cruz	Plant	Lilium parryi	Lemon Lily	SC		S				SR	PMLIL1A0J0	S2	G3
Santa Cruz	Plant	Malaxis corymbosa	Madrean Adder's Mouth							SR	PMORC1R020	S3	G4
Santa Cruz	Bird	Megascops trichopsis	Whiskered Screech-owl			S			1B		ABNSB01070	S3	G5
Santa Cruz	Bird	Empidonax fulvifrons pygmaeus	Northern Buff-breasted Flycatcher	SC		S			1B		ABPAE33141	S1	G5T5
Santa Cruz	Bird	Pachyramphus aglaiae	Rose-throated Becard			S			1B		ABPAE53070	S1	G4G5
Santa Cruz	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Santa Cruz	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Santa Cruz	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
Santa Cruz	Mammal	Leopardus pardalis	Ocelot	LE				P	1A		AMAJH05010	S1	G4
Santa Cruz	Invertebrate	Stygobromus arizonensis	Arizona Cave Amphipod	SC	S				1B		ICMAL05360	S1	G1
Santa Cruz	Plant	Conioselinum mexicanum	Mexican Hemlock Parsley	SC		S					PDAPI0P030	S1	G2?
Santa Cruz	Plant	Metastelma mexicanum	Wiggins Milkweed Vine	SC		S					PDASC050P0	S1S2	G3G4
Santa Cruz	Plant	Pennellia tricornuta	Chiricahua Rock Cress			S					PDBRA06200	S2	G1G2
Santa Cruz	Plant	Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE						HS	PDCAC040C1	S2	G4T2Q
Santa Cruz	Plant	Astragalus hypoxylus	Huachuca Milkvetch	SC	S	S				SR	PDFAB0F470	S1	G1
Santa Cruz	Plant	Phemeranthus humilis	Pinos Altos Flameflower	SC		S				SR	PDPOR080A0	S1	G2
Santa Cruz	Plant	Browallia eludens	Bush-violet	SC		S					PDSOL03030	S1	G2G3
Santa Cruz	Plant	Capsicum annuum var. glabriusculum	Chiltepin			S					PDSOL06012	S2	G5T5
Santa Cruz	Plant	Viola umbraticola	Ponderosa Violet			S					PDVIO042E0	S2	G3G4
Santa Cruz	Plant	Carex chihuahuensis	Chihuahuan Sedge			S					PMCYP032T0	S3	G3G4
Santa Cruz	Plant	Sisyrinchium cernuum	Nodding Blue-eyed Grass			S					PMIRI0D0B0	S2	G5
Santa Cruz	Plant	Dichromanthus michuacanus	Michoacan Ladies'-tresses							SR	PMORC2B0L0	S3	G4
Santa Cruz	Plant	Hexalectris colemanii	Coleman's coral-root	SC		S				SR	PMORC1C060	S2	G2T2
Santa Cruz	Amphibian	Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad		S				1C		AAABE01030	S3	G4
Santa Cruz	Invertebrate	Gastrocopta dalliana	Shortneck Snaggletooth	CCA					1C		IMGAS15080	S1	G2G4
Santa Cruz	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Santa Cruz	Bird	Lampornis clemenciae	Blue-throated Mountain-gem						1B		ABNUC34040	S2B	G5
Santa Cruz	Bird	Tyrannus crassirostris	Thick-billed Kingbird			S			1B		ABPAE52040	S2	G5
Santa Cruz	Bird	Amphispiza quinquestriata	Five-striped Sparrow						1B		ABPBX97030	S2	G4
Santa Cruz	Bird	Centronyx bairdii	Baird's Sparrow	SC		S			1C		ABPBXA0010	S2N	G4
Santa Cruz	Mammal	Sorex arizonae	Arizona Shrew	SC		S		P	1B		AMABA01240	S2	G3
Santa Cruz	Mammal	Panthera onca	Jaguar	LE				P	1A		AMAJH02010	S1	G3
Santa Cruz	Reptile	Oxybelis aeneus	Brown Vinesnake			S			1B		ARADB24010	S2	G5
Santa Cruz	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Santa Cruz	Reptile	Senticolis triaspis intermedia	Northern Green Ratsnake			S			1B		ARADB44011	S3	G5T4
Santa Cruz	Plant	Senecio multidentatus var. huachucanus	Huachuca Groundsel			S				HS	PDAST8H411	S2	G2G4T2
Santa Cruz	Plant	Dalea tentaculoides	Gentry's Indigo Bush	SC	S	S				HS	PDFAB1A1K0	S1	G1
Santa Cruz	Plant	Notholaena lemmonii	Lemmon Cloak Fern	SC							PPADI0G0D0	S1S2	G3?
Santa Cruz	Plant	Echinomastus intertextus	White Fishhook Cactus							SR	PDCAC0J0G0	S2	G4
Santa Cruz	Plant	Hexalectris arizonica	Arizona Crested coral-root			S				SR	PMORC1C041	S2	G5T2T4
Santa Cruz	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Santa Cruz	Amphibian	Lithobates tarahumarae	Tarahumara Frog	SC		S			1A		AAABH01210	SX,S1	G1G3
Santa Cruz	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Santa Cruz	Bird	Buteo plagiatus	Gray Hawk	SC							ABNKC19150	S3	GNR

Special Status Species by County, Taxonomic Group, Scientific Name
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Updated: 8/15/2022

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Santa Cruz	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Santa Cruz	Bird	Polioptila nigriceps	Black-capped Gnatcatcher						1B		ABPBJ08040	S1	G5
Santa Cruz	Bird	Sialia sialis fulva	Azure Bluebird						1B		ABPBJ15012	S3	G5TU
Santa Cruz	Bird	Catharus ustulatus	Swainson's Thrush						1B		ABPBJ18100	S1B	G5
Santa Cruz	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Santa Cruz	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Santa Cruz	Mammal	Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				Pr	1A		AMACB03030	S2S3	G3
Santa Cruz	Plant	Asclepias lemmonii	Lemmon Milkweed			S					PDASC020Z0	S2	G4?
Santa Cruz	Plant	Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	SC						SR	PDCAC0J0E2	S3	G3QT3Q
Santa Cruz	Plant	Lobelia fenestralis	Leafy Lobelia							SR	PDCAM0E0H0	S1	G4
Santa Cruz	Plant	Carex ultra	Cochise Sedge		S	S					PMCYP03E50	S2S3	G3?
Santa Cruz	Plant	Spiranthes delitescens	Canelo Hills Ladies'-tresses	LE						HS	PMORC2B140	S1	G1
Santa Cruz	Plant	Desmodium metcalfei	Metcalfe's Tick-trefoil			S					PDFAB1D0V0	S3	G3?
Santa Cruz	Plant	Pectis imberbis	Beardless Cinchweed	LE		S					PDAST6W0A0	S1	G3
Santa Cruz	Bird	Camptostoma imberbe	Northern Beardless-Tyrannulet			S					ABPAE04010	S4	G5
Santa Cruz	Plant	Malaxis porphyrea	Purple Adder's Mouth							SR	PMORC1R0Q0	S2	G4
Santa Cruz	Invertebrate	Argia sabino	Sabino Canyon Dancer	SC		S					IIODO68100	S2	G2
Yavapai	Bird	Accipiter gentilis	Northern Goshawk	SC	S	S	4	A	1B		ABNKC12060	S3	G5
Yavapai	Mammal	Myotis velifer	Cave Myotis	SC	S				1B		AMACC01050	S3S4	G4G5
Yavapai	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Yavapai	Plant	Ferocactus cylindraceus	Desert Barrel Cactus					PR		SR	PDCAC08080	S4	G5
Yavapai	Plant	Mammillaria viridiflora	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
Yavapai	Plant	Eriogonum heermannii var. argense	Heermann's Rough Wild Buckwheat							SR	PDPGN082P8	S3S4	G5T3
Yavapai	Plant	Pellaea lyngholmii	Lyngholm's Brakefern			S					PPADI0H0H0	S1	G1
Yavapai	Plant	Penstemon nudiflorus	Flagstaff Beardtongue			S					PDSCR1L4A0	S2S3	G2G3
Yavapai	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
Yavapai	Bird	Pinicola enucleator	Pine Grosbeak						1B		ABPBY03010	S1	G5
Yavapai	Fish	Meda fulgida	Spikedace	LE					1A		AFCJB22010	S1	G2
Yavapai	Mammal	Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S			1B		AMACC09010	S2S3	G4
Yavapai	Plant	Cymopterus megacephalus	Cameron Water-parsley	SC							PDAPI0U0M0	S3	G3
Yavapai	Plant	Erigeron anchana	Sierra Ancha Fleabane	SC		S					PDAST3M580	S2	G2
Yavapai	Plant	Lotus mearnsii var. equisolensis	Horseshoe Deer Vetch			S					PDFAB2A0Q1	S1	G3T1
Yavapai	Plant	Agave mckelveyana	Mckelvey Agave							SR	PMAGA010D0	S4	G4
Yavapai	Plant	Agave delamateri	Tonto Basin Agave	SC		S				HS	PMAGA010W0	S2	G2
Yavapai	Plant	Pediomelum verdiensis	Verde Breadroot			S					PDFAB5L0R0	S1	G1
Yavapai	Plant	Echinomastus johnsonii	Johnson's Fishhook Cactus							SR	PDCAC0J0H0	S2	G3G4Q
Yavapai	Plant	Hexalectris arizonica	Arizona Crested coral-root			S				SR	PMORC1C041	S2	G5T2T4
Yavapai	Invertebrate	Pyrgulopsis morrisoni	Page Springsnail	CCAA		S			1A		IMGASJ0200	S1S2	G1G2
Yavapai	Plant	Eriogonum ericifolium var. ericifolium	Yavapai County Buckwheat			S					PDPGN08231	S2	G3T2
Yavapai	Bird	Aix sponsa	Wood Duck						1B		ABNJB09010	S2B,S3N	G5
Yavapai	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Yavapai	Bird	Falco peregrinus anatum	American Peregrine Falcon	SC	S	S	4	PR	1A		ABNKD06071	S4	G4T4
Yavapai	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Yavapai	Fish	Gila intermedia	Gila Chub	LE				P	1A		AFCJB13160	S2	G2
Yavapai	Mammal	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3S4	G5
Yavapai	Mammal	Leopardus pardalis	Ocelot	LE				P	1A		AMAJH05010	S1	G4
Yavapai	Plant	Escobaria vivipara var. rosea	Viviparous Foxtail Cactus							SR	PDCAC0X0G8	S3	G5T3
Yavapai	Plant	Lupinus latifolius ssp. leucanthus	Broadleaf Lupine			S					PDFAB2B29D	S1	G5T1T2
Yavapai	Plant	Hedeoma diffusa	Flagstaff False Pennyroyal			S				SR	PDLAM0M0N0	S3	G3
Yavapai	Plant	Abutilon parishii	Pima Indian Mallow	SC	S	S				SR	PDMAL020E0	S3S4	G3
Yavapai	Plant	Purshia subintegra	Arizona Cliff Rose	LE						HS	PDROS1E080	S2	G2
Yavapai	Plant	Thelypteris puberula var. sonorensis	Aravaipa Woodfern		S	S					PPTHE05192	S2	G5T3
Yavapai	Plant	Agave verdensis	Sacred Mountain Agave			S				SR	PMAGA01120	S2	G2
Yavapai	Plant	Muhlenbergia palmeri	Palmer's Muhly			S					PMPOA48350	S2	G2

Special Status Species by County, Taxonomic Group, Scientific Name
Arizona Game and Fish Department, Heritage Data Management System
Updated: 8/15/2022

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	SGCN	NPL	ELCODE	SRANK	GRANK
Yavapai	Plant	Echinocereus yavapaiensis	Yavapai Hedgehog Cactus							SR	PDCAC060T0	S2S3	G2G3
Yavapai	Invertebrate	Pyrgulopsis glandulosa	Verde Rim Springsnail	SC		S			1A		IMGASJ0180	S1	G1
Yavapai	Invertebrate	Pyrgulopsis montezumensis	Montezuma Well Springsnail	SC					1A		IMGASJ0190	S1	G1
Yavapai	Invertebrate	Pyrgulopsis sola	Brown Springsnail	SC		S			1A		IMGASJ0220	S1	G1
Yavapai	Fish	Gila robusta	Roundtail Chub	SC	S	S	2	A	1A		AFCJB13150	S2S3	G3
Yavapai	Fish	Catostomus clarkii	Desert Sucker	SC	S	S			1B		AFCJC02040	S3S4	G3G4
Yavapai	Fish	Catostomus insignis	Sonora Sucker	SC	S	S		P	1B		AFCJC02100	S3	G3G4
Yavapai	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Yavapai	Fish	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				A	1A		AFCNC05021	S1S2	G3
Yavapai	Mammal	Lasiurus blossevillii	Western Red Bat			S			1B		AMACC05060	S3	G4
Yavapai	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Yavapai	Plant	Erigeron saxatilis	Rock Fleabane			S					PDAST3M560	S3	G3
Yavapai	Plant	Agave murpheyi	Hohokam Agave	SC	S	S				HS	PMAGA010F0	S2?	G2?
Yavapai	Plant	Agave phillipsiana	Phillips Agave			S				HS	PMAGA01100	S2S3	G2
Yavapai	Plant	Puccinellia parishii	Parish Alkali Grass	SC		S	4			HS	PMPOA530T0	S2	G2G3
Yavapai	Mammal	Myotis occultus	Arizona Myotis	SC	S				1B		AMACC01160	S3	G4G5
Yavapai	Bird	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S	S	2	P	1A		ABNKC10014	S2S3	G5TNRQ
Yavapai	Plant	Agave yavapaiensis	Page Springs Agave			S				SR	PMAGA01130	S1	G1
Yavapai	Invertebrate	Wormaldia planae	A Caddisfly			S					IITRI78190	S1S2	G4
Yavapai	Amphibian	Hyla wrightorum	Arizona Treefrog						1C		AAABC02080	S3S4	G3G4
Yavapai	Invertebrate	Pyrgulopsis simplex	Fossil Springsnail	SC		S			1A		IMGASJ0210	S1	G1
Yavapai	Amphibian	Lithobates pipiens	Northern Leopard Frog		S	S	2		1A		AAABH01170	S1S2	G5
Yavapai	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Yavapai	Bird	Buteo regalis	Ferruginous Hawk	SC	S		3	PR	1B		ABNKC19120	S2B,S4N	G4
Yavapai	Fish	Tiaroga cobitis	Loach Minnow	LE				E	1A		AFCJB37140	S1	G2
Yavapai	Mammal	Myotis ciliolabrum	Western Small-footed Myotis	SC							AMACC01140	S3S4	G5
Yavapai	Invertebrate	Cicindela oregona maricopa	Maricopa Tiger Beetle	SC							IICOL02362	S3	G5T3
Yavapai	Plant	Astragalus newberryi var. aquarii	Aquarius Milkvetch		S						PDFAB0F5Y5	S1	G5T1
Yavapai	Plant	Rhinotropis rusbyi	Rusby's Milkwort			S					PDPGL021H0	S3	G3
Yavapai	Fish	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S			A	1B		AFCJB37151	S3S4	G4T3T4
Yavapai	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Yavapai	Invertebrate	Hyalella montezuma	Montezuma Well amphipod						1B		ICMAL29050	S1	G1
Yavapai	Plant	Triteleia lemmoniae	Oak Creek Triteleia							SR	PMLIL210C0	S3	G3
Yavapai	Invertebrate	Sonorella ambigua verdensis	Papago Verde Talussnail						1C		IMGASC9022	S1	G5TNR
Yavapai	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Yavapai	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Yavapai	Amphibian	Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				A	1A		AAABH01080	S2S3	G3?
Yavapai	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Yavapai	Bird	Strix occidentalis lucida	Mexican Spotted Owl	LT			3	A	1A		ABNSB12012	S3	G3G4T3T4
Yavapai	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Yavapai	Mammal	Myotis volans	Long-legged Myotis	SC							AMACC01110	S3S4	G4G5
Yavapai	Mammal	Euderma maculatum	Spotted Bat	SC	S	S		PR	1B		AMACC07010	S2S3	G4
Yavapai	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Yavapai	Mammal	Mustela nigripes	Black-footed Ferret	LE,XN			2		1A		AMAJF02040	SXS1	G1
Yavapai	Reptile	Thamnophis eques megalops	Northern Mexican Gartersnake	LT		S		A	1A		ARADB36061	S2	G4T3
Yavapai	Invertebrate	Cylloepus parkeri	Parker's Cylloepus Riffle Beetle	SC		S					IICOL59010	S1	GH
Yavapai	Plant	Eremogone aberrans	Mt. Dellenbaugh Sandwort			S					PDCAR04010	S2	G2
Yavapai	Plant	Salvia dorrii ssp. mearnsii	Verde Valley Sage	SC		S				SR	PDLAM1S0G5	S3	G5T3
Yavapai	Plant	Phlox amabilis	Arizona Phlox			S					PDPLM0D050	S2S3	G2
Yavapai	Plant	Agave toumeyana var. bella	Toumey Agave							SR	PMAGA010R1	S3	G3T3
Yavapai	Plant	Washingtonia filifera	California Fan Palm							SR	PMARE0G010	S1	G4
Yavapai	Plant	Allium bigelovii	Bigelow Onion							SR	PMLIL02070	S2S3	G3
Yavapai	Reptile	Lampropeltis gentilis	Western Milksnake				4		1A		ARADB1905B	S2	G5
Yavapai	Amphibian	Anaxyrus microscaphus	Arizona Toad	SC	S				1B		AAABB01110	S3	G3G4

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COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	SGCN	NPL	ELCODE	SRANK	GRANK
Yavapai	Fish	Rhinichthys osculus	Speckled Dace	SC	S			E	1B		AFCJB37050	S3S4	G5
Yavapai	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Yavapai	Mammal	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Yavapai	Plant	Heuchera eastwoodiae	Senator Mine Alumroot			S					PDSAX0E0B0	S3	G3
Yavapai	Plant	Fremontodendron californicum	Flannel Bush		S					SR	PDSTE03010	S2S3	G4
Yavapai	Plant	Agave x arizonica	Arizona agave							HS	PMAGA01030	SHYB	GNA
Yavapai	Mammal	Microtus mexicanus	Mexican Vole						1B		AMAFF11220	S3	G5
Yavapai	Plant	Desmodium metcalfei	Metcalfe's Tick-trefoil			S					PDFAB1D0V0	S3	G3?
Yavapai	Invertebrate	Danaus plexippus	Monarch	C	S			PR			IILEPP2010	S2S4N	G4
Yavapai	Invertebrate	Metrichia nigritta	Page Spring Micro Caddisfly	SC							IITRI97010	S1	G5
Yavapai	Fish	Ptychocheilus lucius	Colorado Pikeminnow	LE,XN			2	E	1A		AFCJB35020	S1	G1
Yavapai	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Yavapai	Reptile	Xantusia arizonae	Arizona Night Lizard						1B		ARACK01050	S1	G1G2
Yavapai	Reptile	Thamnophis rufipunctatus	Narrow-headed Gartersnake	LT		S			1A		ARADB36110	S2	G3G4
Yavapai	Plant	Eriogonum ripleyi	Ripley Wild-buckwheat	SC		S				SR	PDPGN08520	S2	G2
Yavapai	Plant	Phemeranthus validulus	Tusayan Flameflower	SC						SR	PDPOR080M0	S3	G3
Yavapai	Plant	Actaea arizonica	Arizona Bugbane	CCA		S				HS	PDRAN07020	S2	G2
Yavapai	Plant	Carex ultra	Cochise Sedge		S	S					PMCYP03E50	S2S3	G3?
Yavapai	Reptile	Chionactis annulata	Resplendent Shovel-nosed Snake						1C		ARADB05013	S3	G5
Yavapai	Invertebrate	Protoptila balmorhea	Balmorhea Saddle-case Caddisfly	SC		S					IITRI34040	S1	G1
Yavapai	Bird	Ictinia mississippiensis	Mississippi Kite					PR	1B		ABNKC09010	S2B	G5
Yuma	Plant	Ferocactus cylindraceus	Desert Barrel Cactus					PR		SR	PDCAC08080	S4	G5
Yuma	Plant	Washingtonia filifera	California Fan Palm							SR	PMAREDG010	S1	G4
Yuma	Bird	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	4	PR	1B		ABNSB10012	S3	G4T4
Yuma	Bird	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	PT	S	S			1B		ABNSB08041	S1S2	G5T2
Yuma	Bird	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE			2	E	1A		ABPAE33043	S2S3B	G5T2
Yuma	Bird	Toxostoma lecontei	LeConte's Thrasher		S				1B		ABPBK06100	S3	G4
Yuma	Mammal	Myotis yumanensis	Yuma Myotis	SC					1B		AMACC01020	S3S4	G5
Yuma	Mammal	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S				1B		AMACD02011	S2S3	G4G5T4
Yuma	Mammal	Sigmodon hispidus eremicus	Yuma Hispid Cotton Rat	SC					1B		AMAFF07013	S2	G5T2T3
Yuma	Plant	Pholisma sonorae	Sandfood	SC	S					HS	PDLNN02020	S1	G2
Yuma	Amphibian	Lithobates tarahumarae	Tarahumara Frog	SC		S			1A		AAABH01210	SX,S1	G1G3
Yuma	Amphibian	Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		PR	1A		AAABH01250	S2S3	G4
Yuma	Bird	Lanius ludovicianus	Loggerhead Shrike	SC							ABPBR01030	S3	G4
Yuma	Plant	Berberis harrisoniana	Kofa Mountain Barberry		S						PDBER02030	S1	G2
Yuma	Plant	Cylindropuntia echinocarpa	Golden Cholla							SR	PDCAC0D2W0	S5	G5
Yuma	Plant	Euphorbia platysperma	Dune Spurge	SC							PDEUP0D1X0	S1	G3
Yuma	Reptile	Heloderma suspectum	Gila Monster					A	1A		ARACE01010	S4	G4
Yuma	Mammal	Euderma maculatum	Spotted Bat	SC	S	S		PR	1B		AMACC07010	S2S3	G4
Yuma	Mammal	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S	4		1B		AMACC08014	S3S4	G4T3T4
Yuma	Mammal	Tadarida brasiliensis	Brazilian Free-tailed Bat						1B		AMACD01010	S3S4	G5
Yuma	Plant	Rhus kearneyi	Kearney Sumac		S					SR	PDANA08050	S2	G4
Yuma	Reptile	Phrynosoma goodei	Goode's Horned Lizard						1B		ARACF12090	S3S4	G3G4
Yuma	Plant	Triteleiopsis palmeri	Blue Sand Lily		S					SR	PMLIL22010	S1	G3
Yuma	Reptile	Uma thurmanae	Mohawk Dunes Fringe-toad Lizard		S				1B		ARACF15060	S1	G1
Yuma	Reptile	Crotaphytus nebrius	Sonoran Collared Lizard						1B		ARACF04050	S3S4	G4
Yuma	Mammal	Macrotus californicus	California Leaf-nosed Bat	SC	S				1B		AMACB01010	S3	G3G4
Yuma	Mammal	Lasiurus xanthinus	Western Yellow Bat			S			1B		AMACC05070	S2S3	G4G5
Yuma	Reptile	Phrynosoma mcallii	Flat-tailed Horned Lizard	CCA	S			A	1A		ARACF12040	S2	G3
Yuma	Reptile	Sauromalus ater	Common Chuckwalla	SC			4	PR			ARACF13010	S4	G5
Yuma	Plant	Cryptantha ganderi	Gander's Cryptantha	SC							PDBOR0A120	S1	G3?
Yuma	Plant	Lophocereus schottii	Senita							SR	PDCAC14010	S1S2	G4
Yuma	Reptile	Chionactis annulata	Resplendent Shovel-nosed Snake						1C		ARADB05013	S3	G5
Yuma	Plant	Palafoxia arida var. gigantea	Giant Spanish Needles	SC							PDAST6T012	S1	G5T2

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COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	USFS	NESL	MEXFED	SGCN	NPL	ELCODE	SRANK	GRANK
Yuma	Bird	Aquila chrysaetos	Golden Eagle		S		3	A	1B		ABNKC22010	S4	G5
Yuma	Bird	Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S	2		1A		ABNRB02020	S3	G5
Yuma	Fish	Cyprinodon macularius	Desert Pupfish	LE				P	1A		AFCNB02060	S1	G1
Yuma	Mammal	Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				Pr	1A		AMACB03030	S2S3	G3
Yuma	Plant	Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus							SR	PDCAC05033	S2	G3G4T3T4
Yuma	Fish	Xyrauchen texanus	Razorback Sucker	LE, PT			2	P	1A		AFCJC11010	S1	G1
Yuma	Mammal	Nyctinomops femorosaccus	Pocketed Free-tailed Bat						1B		AMACD04010	S3S4	G5
Yuma	Mammal	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE,XN	S			P	1A		AMALD01012	S1	G5T1
Yuma	Reptile	Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		A	1A		ARAAF01013	S4	G4
Yuma	Reptile	Lichanura trivirgata	Three-Lined Boa	SC				A	1B		ARADA01020	S1S2	G4G5
Yuma	Bird	Laterallus jamaicensis coturniculus	California Black Rail	SC	S			P	1B		ABNME03041	S1	G3T1
Yuma	Bird	Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE	S			P	1A		ABNME0501A	S3	G3T3
Yuma	Fish	Gila elegans	Bonytail Chub	LE			1	E	1A		AFCJB13100	S1	G1
Yuma	Reptile	Uma rufopunctata	Yuman Desert Fringe-toed Lizard	SC	S			P	1B		ARACF15050	S2	GUQ
Yuma	Bird	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S	S	2	P	1A		ABNKC10015	S4N	G5TNRQ
Yuma	Plant	Stephanomeria exigua ssp. exigua	Small Wirelettuce		S						PDAST8U054	S4	G5T5
Yuma	Plant	Helianthus niveus ssp. tephrodes	Algodones Sunflower	SC							PDAST4N0Z2	S2	G4T2
Yuma	Plant	Allium parishii	Parish Onion		S					SR	PMLIL021N0	S1	G3

APPENDIX C
PIMA PINEAPPLE CACTUS REPORTS AND CORRESPONDENCE

December 21, 2022

Sarah E. Rinkevich
U.S. Fish and Wildlife Service
Arizona Ecological Services Field Office
201 North Bonita Avenue Suite 141
Tucson, Arizona 85745

Subject: Pima Pineapple Cactus at the Three Points Border Patrol Station Expansion, Three Points, Arizona

Dear Ms. Rinkevich

United States (U.S.) Customs and Border Protection (CBP) is proposing to expand the existing Three Points Border Patrol Station (BPS). The existing Three Points BPS was first established to support 50 U.S. Border Patrol (USBP) agents. Currently, over 200 agents are assigned to the station. The additional staff and supporting equipment and vehicles create overcrowded conditions at the facility, which negatively affects the CBP mission. The proposed expansion and associated supporting infrastructure are designed for continuous operation in support of the Border Patrol Strategic Plan to gain and maintain effective control of the borders of the United States.

The Three Points BPS is located just south of West Ajo Highway in Three Points, Arizona on leased property consisting of two parcels (Enclosure, Figure 1). The east parcel is owned by the State of Arizona. The west parcel is privately owned. The Proposed Action Alternative that will be evaluated as part of the EA would expand the current Three Points BPS south and west of the current BPS footprint by 12 acres (Enclosure, Figure 2). This 12-acre parcel consists of disturbed shrubland and would be leased from the State of Arizona. The proposed expansion would accommodate up to 200 personnel to meet current and future labor demands and the objectives of the USBP in the Three Points BPS Area of Responsibility (AOR). Additionally, the site would have the capability to house vehicles, animals, equipment, and other materials necessary to meet the objectives of the Three Points BPS. The proposed expansionwould result in the Three Points BPS meeting USBP facilities guidelines and security standards.

CBP carefully reviewed your agency's Section 7 Consultation website for a list of species and critical habitat that "may be present" within the project area. CBP commissioned biological resources surveys to examine the effects of the proposed project on sensitive biological resources including Federally protected species. While conducting biological surveys, biologists observed potential habitat for Pima pineapple cactus (*Coryphantha robustispina* var. *robustispina*; PPC). CBP determined a species-specific protocol survey for this species was warranted, and upon completion of the survey, four individual PPC were found within or adjacent to the boundaries of the Three Points project area (Enclosure 1, Figure 3). The results of the PPC species-specific protocol survey are in Enclosure 1 of this document. This letter focuses on the observed PPC, and it will address how CBP intends to minimize impacts where these plants overlap with the construction footprint.

PPC are found in southeastern Arizona and northern Sonora, Mexico, and it was listed as federally endangered on September 23, 1993 (United States Fish and Wildlife Service [USFWS] 2017). The PPC is a perennial succulent that is associated with desert-scrubland or desert-grassland habitats.

This cactus species may grow singularly or in clumps, with each stem reaching about 20 inches tall and 8 inches in diameter at maturity. Like other members of the *Coryphantha* genus, this species has many leathery tubercles that project off the main stem, each of which are approximately one inch long. Nectaries used to attract insect pollinators can be found on the upper surface of the tubercles. The greatest threats to this species are loss of suitable habitat through human development as well as climate and drought related stressors (USWFWS 2017).

As part of project, CBP intends to collect the three individual PPC from the project area and relocate them adjacent to the project area into suitable habitat that is outside the construction footprint. The relocation would be conducted in accordance with USFWS guidelines. CBP will coordinate with the USFWS to ensure the appropriate steps are taken to maximize the success of the PPC relocations. We respectfully request that you concur with our findings that the above measures will minimize impacts to the federally endangered PPC individuals found within the proposed construction footprint and that the project may affect, but is not likely to adversely affect, PPC.

If you require additional information or have any questions, please contact Kreg Ellzey at (520) 519-2648 or by e-mail at kreg.d.ellzey@associates.cbp.dhs.gov and reference the "*Proposed Three Points Border Patrol Station Expansion"* in the subject line. Thank you.

Sincerely,

JOHN P PETRILLA

Digitally signed by JOHN P PETRILLA
Date: 2022.12.21 15:40:54 -08'00'

John Petrilla
Acting Environmental Branch Chief
Border Patrol & Air and Marine PMO
U.S. Customs and Border Protection

Enclosure
Pima Pineapple Cactus Survey Letter Report, Three Points, Pima County, Arizona

References

United States Fish and Wildlife Service (USFWS). 2017. Endangered and Threatened Wildlife andnPlants; Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*) Draft Recovery Plan. CFR Vol. 82, No. 131. URL: https://www.govinfo.gov/content/pkg/FR-2017-06-26/pdf/2017-13309.pdf#page=1.

ENCLOSURE

October 31, 2022

Mr. John Petrilla
U.S. Customs & Border Protection
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Subject: Draft Pima Pineapple Cactus Survey Letter Report, Three Points, Pima County, Arizona Task Order 70B01C21F00001569, Work Order 10-12

Dear Mr. Petrilla:

At the request of United States (U.S.) Customs and Border Protection (CBP), Gulf South Research Corporation (GSRC) conducted surveys for Pima pineapple cactus (*Coryphantha robustispina robustispina*; PPC) at the Three Points Border Patrol Station (BPS) expansion site (project area). On October 13, 2022, GSRC biologists Sandra Villarreal and Rob Nixon surveyed the project area for the presence of PPC. The project area is a single 12-acre square parcel of land in Pima County, Arizona (Attachment 1, Figure 1). Specifically, the project area is located at 16435 W Ajo Hwy, Tucson, Arizona 85735 (Attachment 1, Figure 2). The project area is mostly level to gently sloping, undeveloped Sonoran Desert scrub.
This letter report is intended to provide CBP with the findings and locations of PPC observed within the 12-acre project area.

Materials and Methods

GSRC conducted a species-specific survey for the presence of PPC on October 13, 2022. This survey followed the survey protocol for PPC described by Roller (1996). The GSRC Biologists walked a series of parallel transects spaced approximately 15 feet apart, in a north-south orientation across the entire 12-acre project area to allow for complete visual coverage and increased probability for detecting the presence of PPC.

General Site Conditions and Vegetative Community

The project area is located immediately adjacent and southwest of the current Three Points BPS. The elevation of the project area is approximately 2,540 feet above mean sea level. The terrain is level to gently sloping, and the project area is undeveloped and generally undisturbed. The project area occurs in the Arizona Upland Subdivision Sonoran Desertscrub, as described by Brown and Lowe (1994). Dominant species observed included velvet mesquite (*Prosopis velutina*), creosote (*Larrea tridentata*), and needle grama (*Bouteloua aristidoides*).

Results

GSRC biologists located and recorded the presence of four PPC during the survey effort. One of the PPC was located immediately south of the southern boundary of the project area. The locations of all PPC specimens were recorded using a hand-held Trimble Global Positioning System with sub-meter accuracy (Table 1; Attachment 1, Figure 3). Photographs documenting the PPC specimens observed during the survey can be found in Attachment 2.

Table 1. Coordinates of PPC Observed

ID	Northing	Easting
PPC 1	32.074707˚N	111.319014˚W
PPC 2	32.074949˚N	111.318617˚W
PPC 3	32.073967˚N	111.318585˚W
PPC 4	32.073339˚N	111.318087˚W

Conclusions and Recommendations

GSRC biologists conducted protocol pedestrian surveys for the presence of PPC located within the approximately 12-acre project area. GSRC biologists observed three PPC's within the project area, and one PPC immediately south of the project area. GSRC recommends that the three PPC (PPC 1, PPC 2, and PPC 3) found within the project area be relocated and transplanted as close as possible to the original locations. The sites selected for the relocation of each plant should be based on the original site conditions (e.g, soil type, proximity to nurse trees providing shade, orientation to the sun, etc.). Care should be taken to avoid disturbing the PPC specimen (PPC 4) that was observed immediately south of the southern project boundary.

Should you need further information or clarification of this report, please contact me at (225)-757-8088 or email at beau@gsrcorp.com.

Respectfully,

Beau Rapier
Natural Resources Specialist
Gulf South Research Corporation

Attachment 1 – Figures
Attachment 2 – Photographs

References

Brown, David E. and Charles H. Lowe. 1994. Biotic Communities of the Southwest. University of Utah Press, Salt Lake City, Utah.

Roller, P.S. 1996. Pima Pineapple Cactus 3-tier Survey Methods. Unpublished report. U.S. Fish & Wildlife Service. Phoenix, Arizona.

ATTACHMENT 1
FIGURES

Figure 1. Vicinity Map

K:\Projects\80338212d_Three_Points_EA\GIS\Pima_Pineapple\Figure1_Vicinity_Map.mxd

Legend
Project Area

N

0 100 200
Feet
Meters
0 30 60

GSRC
October 2022

K:\Projects\80338212d_Three_Points_EA\GIS\Pima_Pineapple\Figure2_Project_Area_Map.mxd

Figure 2. Project Area Map

Legend

Pima Pineapple Cactus

Project Area

0 100 200 Feet

0 30 60 Meters

GSRC

October 2022

K:\Projects\80338212d_Three_Points_EA\GIS\Pima_Pineapple_Cactus\Figure3_PPC.mxd

Figure 3. Pima Pineapple Cactus Survey Map

ATTACHMENT 2
PHOTOGRAPHS

Photograph 1. Pima pineapple cactus (PPC) Number 1.

Photograph 2. PPC Number 2.

Photograph 3. PPC Number 3.

Photograph 4. PPC Number 4.

APPENDIX D
AIR QUALITY DATA

18.81.040 General grading performance standards.

A. Scope:

1. The performance standards of this section are general grading performance requirements. A companion grading design manual elaborates minimum performance standards referenced by this section and includes nonregulatory guidelines for superior grading performance.

2. The grading design manual shall be adopted and amended in accordance with Section1 8.01.070 (General Provisions).* The commission may hold the preliminary and public hearings concurrently. The technical review committee (refer to Section 18.99.040, Review Committees) shall provide a recommendation prior to commission public hearing.

B. Site revegetation and stabilization: All graded areas except those to be used for agriculture or livestock purposes, not revegetated, stabilized or constructed on upon expiration of the grading permit shall be revegetated or stabilized within sixty days of permit expiration in accordance with the grading design manual, and furthermore, in cases where the purpose of the grading permit is not met, shall be designed to restore the native vegetative community.

C. Slopes: All exposed cut or fill slopes shall be revegetated or stabilized in accordance with the grading design manual and the approved grading sketch or plan.

D. Terracing: Terracing to control surface drainage and debris on cut or fill slopes may be required in accordance with the grading design manual. The width of a terrace shall be a minimum of six feet.

E. Fill: Fill shall be compacted and soil tested in accordance with the grading design manual.

F. Setbacks: The following setbacks shall be increased by the county engineer if considered necessary for safety or stability, or to prevent possible damage from water, soil or debris:

1. Top of Cut Slope: The top of cut slopes shall be made not nearer to a site boundary line than one fifty of the vertical height of cut, with a minimum of two feet and a maximum of ten feet. The setback may need to be increased for any required interceptor drains.

2. Toe of Fill Slope: The toe of fill slope shall be made not nearer to the site boundary line than one-half the height of the slope, with a minimum of two feet and a maximum of twenty feet.

3. Buildings: Buildings shall be set back from the toe and top of slopes in accordance with the county building codes (Title 15), Illustration 18.81-3 in Section 18.81.110 or the approved soils report. This shall not reduce the required building setback from property line.

4. Rights-of-way: The required setback of a slope toe adjacent to a public right-of-way may be reduced with the approval of the county engineer, if there will be no adverse effect and:

a. Easements are not required; or

b. Retaining walls are used.

G. Building height: The finished grade and building pads shall be established so that the maximum building height shall not exceed the building height contour line (refer to Illustration 18.81-1, Section 18.81.110).

H. Drainage control systems:

1. Permanent systems:

a. Erosion control shall be constructed and maintained to prevent erosion of slopes, and cleared, brushed, grubbed or graded areas, in accordance with the grading design manual.

b. Where cut slopes are not subject to erosion due to the erosion-resistant character of the native materials, erosion control may be omitted upon approval by the county engineer.

c. Erosion control devices to prevent erosion or sediment deposition on off-site property may be required in accordance with the grading design manual.

d. The shoulders of a paved public or private roadway shall be protected against erosion wherever curbing or constructed spillways are not provided, in accordance with the Grading Design Manual.

e. Surface drainage:

1) Cut and fill slopes shall be provided with approved surface drainage for stability and erosion protection of affected properties in accordance with the Grading Design Manual;

2) Surface drainage interceptors shall be provided at the top of cut and fill slopes where there is surface runoff and erosion potential in accordance with the Grading Design Manual;

3) Drainage slopes to protect foundations shall be provided in accordance with the Grading Design Manual.

f. Subsurface drainage: Subsurface drainage for stability and protection of affected properties from ground water seepage may be required in accordance with the Grading Design Manual.

2. Interim systems: Interim drainage control systems shall be provided in accordance with the Grading Design Manual.

I. Import and export of earth material:

1. Loading of earth material shall occur only within the time limits of subsection J of this section, and dust palliatives shall be applied in accordance with the Grading Design Manual.

2. The transportation of earth material on public rights-of-way shall be in a manner that minimizes blowing soil and other hazards.

J. Hours of grading:

1. Grading equipment operation within one-half mile of a structure occupied by humans shall not be conducted between sunset and seven a.m.

2. Normal equipment maintenance involving lights, motors or generators, and occurring within six hundred feet of a structure occupied by humans, shall not be conducted between nine p.m. and seven a.m.

3. The county engineer may allow grading equipment operation or maintenance during other hours if such operations are not detrimental to the health, safety or welfare of the inhabitants of the structure.

4. Permitted hours of operation or maintenance may be shortened by written notice, if the county engineer finds a substantial adverse effect on the health, safety or welfare of the surrounding community.

K. Restriction of vehicles:

1. No vehicles shall be driven over "natural open space areas," as designated on the approved grading sketch or grading plan.

2. Points-of-entry to the site during grading shall be only as designated on the approved grading sketch or grading plan.

3. For Type 2 permits, access roads to the site during grading shall be only as designated on the approved grading plan.

L. Additional requirements:

1. During grading, and until revegetation or stabilization has taken place, dust shall be minimized through application of approved dust controls in accordance with the Grading Design Manual.

2. Public rights-of-way, sidewalks and other improvements shall be maintained during grading in a neat and clean condition, free of loose soil, construction debris and trash.

3. Debris, fill or equipment shall not be stored within a public right-of-way without the written approval of the county engineer.

4. Cut or fill material in excess of that allowed by the grading permit shall be disposed of in accordance with the Grading Design Manual.

(Ord. 1990-61 § 1 (part), 1990; Ord. 1986-187 § 1 (part), 1986)

* Editor's note: Section 2 of Ordinance No. 1990-61 states as follows: "The Grading Design Manual, which is attached to and incorporated in this ordinance as Exhibit A, and which contains technical requirements for grading, is hereby adopted and shall have all of the force and authority of an ordinance. The Grading Design Manual shall not be published as a part of the Pima County Zoning Code, but shall be published as a separate booklet."

Janet Napolitano
Governor

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

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Stephen A. Owens
Director

Mr. Wayne Nastri
Regional Administrator
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

RE: Submittal of Rillito Moderate Area PM_{10} Limited Maintenance Plan and Request for Redesignation to Attainment

Dear Mr. Nastri:

Consistent with the provisions of Arizona Revised Statutes (ARS) Title 49, §§ 49-104, 49-106, 49-404 and 49-406 (Enclosure 1) and the Code of Federal Regulations (CFR) Title 40, §§ 51.102-51.104, the Arizona Department of Environmental Quality (ADEQ) hereby adopts and submits to the U.S. Environmental Protection Agency (EPA), two paper copies and one electronic copy of the *Rillito Moderate Area PM_{10} Maintenance Plan and Request For Redesignation to Attainment* as a revision to the Arizona State Implementation Plan (SIP).

On October 6, 2006, EPA determined that the Rillito PM_{10} Nonattainment Area (RNA) had attained the 24-hour PM_{10} NAAQS and qualified for EPA's Clean Data Policy (71 FR 44920). The proposed plan summarizes the progress of the nonattainment area in attaining the PM_{10} NAAQS, demonstrates that all Clean Air Act requirements for attainment have been met, and includes a plan to assure continued attainment for the first ten year period of the LMP, 2009-2019.

With this submittal, ADEQ requests that EPA approve the June 2008 SIP and redesignate the RNA to attainment for the 24-hour NAAQS. Enclosure 2 is the SIP Completeness Checklist. Enclosure 3 contains two paper copies and one electronic copy of the SIP revisions for your review and action.

If you have any questions, please contact Nancy Wrona, Director, Air Quality Division, at (602) 207-2308 or Diane Arnst, Air Quality Planning Section Manager, at (602) 207-2375.

Sincerely,

Stephen A. Owens
Director

Enclosures(3)

JCS:dk1

cc: Nancy Wrona, w/o enclosures, ADEQ
Colleen McKaughan, w/o enclosures, EPA
Ursula Kramer, w/ enclosures, Pima County Department of Environmental Quality
Lee Comrie, w/ enclosures, Pima Association of Governments
Mayor Ed Honea, w/ enclosures, City of Marana

ENCLOSURE 1

Arizona Revised Statutes §§ 49-104 and 49-404

49-104. Powers and duties of the department and director

A. The department shall:

1. Formulate policies, plans and programs to implement this title to protect the environment.

2. Stimulate and encourage all local, state, regional and federal governmental agencies and all private persons and enterprises that have similar and related objectives and purposes, cooperate with those agencies, persons and enterprises and correlate department plans, programs and operations with those of the agencies, persons and enterprises.

3. Conduct research on its own initiative or at the request of the governor, the legislature or state or local agencies pertaining to any department objectives.

4. Provide information and advice on request of any local, state or federal agencies and private persons and business enterprises on matters within the scope of the department.

5. Consult with and make recommendations to the governor and the legislature on all matters concerning department objectives.

6. Promote and coordinate the management of air resources to assure their protection, enhancement and balanced utilization consistent with the environmental policy of this state.

7. Promote and coordinate the protection and enhancement of the quality of water resources consistent with the environmental policy of this state.

8. Encourage industrial, commercial, residential and community development that maximizes environmental benefits and minimizes the effects of less desirable environmental conditions.

9. Assure the preservation and enhancement of natural beauty and man-made scenic qualities.

10. Provide for the prevention and abatement of all water and air pollution including that related to particulates, gases, dust, vapors, noise, radiation, odor, nutrients and heated liquids in accordance with article 3 of this chapter and chapters 2 and 3 of this title.

11. Promote and recommend methods for the recovery, recycling and reuse or, if recycling is not possible, the disposal of solid wastes consistent with sound health, scenic and environmental quality policies.

12. Prevent pollution through the regulation of the storage, handling and transportation of solids, liquids and gases that may cause or contribute to pollution.

13. Promote the restoration and reclamation of degraded or despoiled areas and natural resources.

14. Assist the department of health services in recruiting and training state, local and district health department personnel.

15. Participate in the state civil defense program and develop the necessary organization and facilities to meet wartime or other disasters.

16. Cooperate with the Arizona-Mexico commission in the governor's office and with researchers at universities in this state to collect data and conduct projects in the United States and Mexico on issues that are within the scope of the department's duties and that relate to quality of life, trade and economic development in this state in a manner that will help the Arizona-Mexico commission to assess and enhance the economic competitiveness of this state and of the Arizona-Mexico region.

B. The department, through the director, shall:

1. Contract for the services of outside advisers, consultants and aides reasonably necessary or desirable to enable the department to adequately perform its duties.

2. Contract and incur obligations reasonably necessary or desirable within the general scope of department activities and operations to enable the department to adequately perform its duties.

3. Utilize any medium of communication, publication and exhibition when disseminating information, advertising and publicity in any field of its purposes, objectives or duties.

4. Adopt procedural rules that are necessary to implement the authority granted under this title, but that are not inconsistent with other provisions of this title.

5. Contract with other agencies including laboratories in furthering any department program.

6. Use monies, facilities or services to provide matching contributions under federal or other programs that further the objectives and programs of the department.

7. Accept gifts, grants, matching monies or direct payments from public or private agencies or private persons and enterprises for department services and publications and to conduct programs that are consistent with the general purposes and objectives of this chapter. Monies received pursuant to this paragraph shall be deposited in the department fund corresponding to the service, publication or

program provided.
8. Provide for the examination of any premises if the director has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed on the premises. The director shall give the owner or operator the opportunity for its representative to accompany the director on an examination of those premises. Within forty-five days after the date of the examination, the department shall provide to the owner or operator a copy of any report produced as a result of any examination of the premises.
9. Supervise sanitary engineering facilities and projects in this state, authority for which is vested in the department, and own or lease land on which sanitary engineering facilities are located, and operate the facilities, if the director determines that owning, leasing or operating is necessary for the public health, safety or welfare.
10. Adopt and enforce rules relating to approving design documents for constructing, improving and operating sanitary engineering and other facilities for disposing of solid, liquid or gaseous deleterious matter.
11. Define and prescribe reasonably necessary rules regarding the water supply, sewage disposal and garbage collection and disposal for subdivisions. The rules shall:
(a) Provide for minimum sanitary facilities to be installed in the subdivision and may require that water systems plan for future needs and be of adequate size and capacity to deliver specified minimum quantities of drinking water and to treat all sewage.
(b) Provide that the design documents showing or describing the water supply, sewage disposal and garbage collection facilities be submitted with a fee to the department for review and that no lots in any subdivision be offered for sale before compliance with the standards and rules has been demonstrated by approval of the design documents by the department.
12. Prescribe reasonably necessary measures to prevent pollution of water used in public or semipublic swimming pools and bathing places and to prevent deleterious conditions at such places. The rules shall prescribe minimum standards for the design of and for sanitary conditions at any public or semipublic swimming pool or bathing place and provide for abatement as public nuisances of premises and facilities that do not comply with the minimum standards. The rules shall be developed in cooperation with the director of the department of health services and shall be consistent with the rules adopted by the director of the department of health services pursuant to section 36-136, subsection H, paragraph 10.
13. Prescribe reasonable rules regarding sewage collection, treatment, disposal and reclamation systems to prevent the transmission of sewage borne or insect borne diseases. The rules shall:
(a) Prescribe minimum standards for the design of sewage collection systems and treatment, disposal and reclamation systems and for operating the systems.
(b) Provide for inspecting the premises, systems and installations and for abating as a public nuisance any collection system, process, treatment plant, disposal system or reclamation system that does not comply with the minimum standards.
(c) Require that design documents for all sewage collection systems, sewage collection system extensions, treatment plants, processes, devices, equipment, disposal systems, on-site wastewater treatment facilities and reclamation systems be submitted with a fee for review to the department and may require that the design documents anticipate and provide for future sewage treatment needs.
(d) Require that construction, reconstruction, installation or initiation of any sewage collection system, sewage collection system extension, treatment plant, process, device, equipment, disposal system, on-site wastewater treatment facility or reclamation system conform with applicable requirements.
14. Prescribe reasonably necessary rules regarding excreta storage, handling, treatment, transportation and disposal. The rules shall:
(a) Prescribe minimum standards for human excreta storage, handling, treatment, transportation and disposal and shall provide for inspection of premises, processes and vehicles and for abating as public nuisances any premises, processes or vehicles that do not comply with the minimum standards.
(b) Provide that vehicles transporting human excreta from privies, septic tanks, cesspools and other treatment processes shall be licensed by the department subject to compliance with the rules.
15. Perform the responsibilities of implementing and maintaining a data automation management system to support the reporting requirements of title III of the superfund amendments and reauthorization act of 1986 (P.L. 99-499) and title 26, chapter 2, article 3.
16. Approve remediation levels pursuant to article 4 of this chapter.

C. The department may charge fees to cover the costs of all permits and inspections it performs to insure compliance with rules adopted under section 49-203, subsection A, paragraph 6, except that state agencies are exempt from paying the fees. Monies collected pursuant to this subsection shall be deposited in the water quality fee fund established by section 49-210.
D. The director may:
1. If he has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed, inspect any person or property in transit through this state and any vehicle in which the person or property is being transported and detain or disinfect the person, property or vehicle as reasonably necessary to protect the environment if a violation exists.
2. Authorize in writing any qualified officer or employee in the department to perform any act that the director is authorized or required to do by law.

49-404. State implementation plan

A. The director shall maintain a state implementation plan that provides for implementation, maintenance and enforcement of national ambient air quality standards and protection of visibility as required by the clean air act.

B. The director may adopt rules that describe procedures for adoption of revisions to the state implementation plan.

C. The state implementation plan and all revisions adopted before September 30, 1992 remain in effect according to their terms, except to the extent otherwise provided by the clean air act, inconsistent with any provision of the clean air act, or revised by the administrator. No control requirement in effect, or required to be adopted by an order, settlement agreement or plan in effect, before the enactment of the clean air act in any area which is a nonattainment or maintenance area for any air pollutant may be modified after enactment in any manner unless the modification insures equivalent or greater emission reductions of the air pollutant. The director shall evaluate and adopt revisions to the plan in conformity with federal regulations and guidelines promulgated by the administrator for those purposes until the rules required by subsection B are effective.

ENCLOSURE 2

State Implementation Plan Completeness Checklist

STATE IMPLEMENTATION PLAN COMPLETENESS CHECKLIST

Submittal of
Final Arizona State Implementation Plan Revision, Rillito PM_{10} Nonattainment Area, June 2008

1. SUBMITTAL LETTER FROM GOVERNOR/DESIGNEE

   See cover letter.

2. EVIDENCE OF ADOPTION

   See cover letter.

3. STATE LEGAL AUTHORITY FOR ADOPTION/IMPLEMENTATION

   See Enclosure 1.

4. COMPLETE COPY OF STATUTE/REGULATION/DOCUMENT

   See Enclosure 3.

5. WRITTEN SUMMARY OF RULE/RULE CHANGE

   Not applicable.

6. RULE CHANGES INDICATED BY UNDERLINING AND CROSS-OUTS

   Not applicable.

7. EVIDENCE THAT ARIZONA ADMINISTRATIVE PROCEDURE ACT REQUIREMENTS WERE MET FOR RULE/PLAN

   See Enclosure 3.

8. EVIDENCE OF PUBLIC HEARING PER 40 CFR 51.102

   See Enclosure 3, Appendix D.

9. PUBLIC COMMENTS AND AGENCY RESPONSE

   See Enclosure 3, Appendix D.

10. IDENTIFICATION OF POLLUTANTS REGULATED BY RULE/PLAN

    PM_{10}.

11. IDENTIFICATION OF SOURCES/ATTAINMENT STATUS

    See Enclosure 3.

12. RULE'S/PLAN'S EFFECT ON EMISSIONS

    See Enclosure 3.

13. DEMONSTRATION THAT NAAQS, PSD INCREMENTS AND RFP ARE PROTECTED

    See Enclosure 3.

14. MODELING SUPPORT

    Not applicable.

15. EVIDENCE THAT EMISSIONS LIMITATIONS ARE BASED ON CONTINUOUS EMISSIONS REDUCTION TECHNOLOGY

    Not Applicable.

16. IDENTIFICATION OF RULE SECTIONS CONTAINING EMISSION LIMITS, WORK PRACTICE STANDARDS, AND/OR RECORD KEEPING/REPORTING REQUIREMENTS

    Not applicable.

17. COMPLIANCE/ENFORCEMENT STRATEGIES

    Not applicable.

18. ECONOMIC TECHNICAL JUSTIFICATION FOR DEVIATION FROM U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) POLICIES

    No known deviation from EPA policy.

ECLOSURE 3

Final Arizona State Implementation Plan Revision, Rillito PM_{10} Nonattainment Area, June 2008

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

Final

Arizona State Implementation Plan

Rillito
PM_{10} Nonattainment Area

Air Quality Division
June 2008

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

The community of Rillito and Arizona Portland Cement (APC) share an area northwest of Tucson alongside Interstate 10. Following the Clean Air Act (CAA) amendments of 1990, nine townships near APC were designated nonattainment of particulate matter equal to or less than 10 microns (PM10) National Ambient Air Quality Standard (NAAQS) by operation of law. The U.S. Environmental Protection Agency (EPA) based its decision on emissions from APC and high PM_{10} concentrations measured in the area. Based on several years of air quality data that are below the NAAQS, in October 2006, EPA determined the Rillito Nonattainment Area (RNA) met the first test for redesignation to attainment.

The CAA states that an area designated as nonattainment due to a violation of the NAAQS may be redesignated to attainment if the State submits and EPA approves a plan demonstrating that permanent emission controls that resulted in attainment will remain in place. This plan demonstrates that all CAA requirements for attainment and maintenance have been met and summarizes the progress of the area in attaining the PM_{10} standard. This plan also summarizes and demonstrates that the RNA qualified for EPA's Clean Data Policy and the Limited Maintenance Plan (LMP) option. The LMP option is a plan design approach that assures continued attainment without many of the burdens of a standard maintenance plan. To qualify for the LMP option the State must submit an approved maintenance plan, the area must be in attainment of the NAAQS for a minimum of five years, and expect only limited growth in motor vehicle traffic.

This document includes a formal request to EPA to redesignate the Rillito, Arizona PM_{10} nonattainment area to attainment for the health-based 24-hour average PM_{10} NAAQS. Chapter 1 includes the regulatory requirements for PM_{10} nonattainment area plans for areas that have attained the NAAQS, along with a detailed description of the economic and physical makeup of the RNA. Chapter 2 demonstrates that monitors in the RNA have not recorded an exceedance of the PM_{10} NAAQS since 1989.[1] Chapter 3 contains the emissions inventory and lists sources within the RNA. Chapter 4 describes the control measures that were implemented to achieve attainment of the PM_{10} NAAQS along with contingency measures designed to ensure continued maintenance of the NAAQS for the required ten year maintenance period (2010-2020) following redesignation of the area to attainment. Finally, Chapter 5 includes administrative commitments required under the LMP option.

With this submittal, ADEQ requests that EPA approve this LMP for the Rillito PM_{10} nonattainment area and redesignate the area to attainment for the 24-hour PM_{10} NAAQS.

---

[1]On April 12, 2007, a statewide wind event triggered high readings at a number of air quality monitors across the state, including the Rillito monitor. The measurement recorded by the monitor, 123.6 $\mu g/m^3$, was not a violation of the NAAQS but above the standard criteria to qualify for a LMP, 98 $\mu g/m^3$. The measurement was flagged as an exceptional wind event and a technical demonstration was submitted to EPA in accordance with EPA's Exceptional Events Policy. On July 5, 2007, an intensive thunderstorm cell throughout the Tucson region triggered an exceedance of the NAAQS. The measurement was flagged as an exceptional wind event and a technical demonstration was submitted to EPA in accordance with EPA's Exceptional Events Policy.

1.0 BACKGROUND

The Rillito Nonattainment Area (RNA) was designated as nonattainment for PM_{10}. This means that in the past the area did not meet federal health-based standards for PM_{10}. Nonattainment status was attributed to nearby agricultural areas, emissions from Arizona Portland Cement (APC) and fugitive dust emissions from vehicular traffic. Since that time, the region has experienced significant growth, yet managed to attain the PM_{10} NAAQS. The current condition of the RNA and ADEQ's approach to redesignation are discussed in the following subsections.

1.1 Physical, Demographic, and Economic Description of the RNA

Sections 1.1.1 through 1.1.3 describe the climate, physiography, and economy of the RNA.

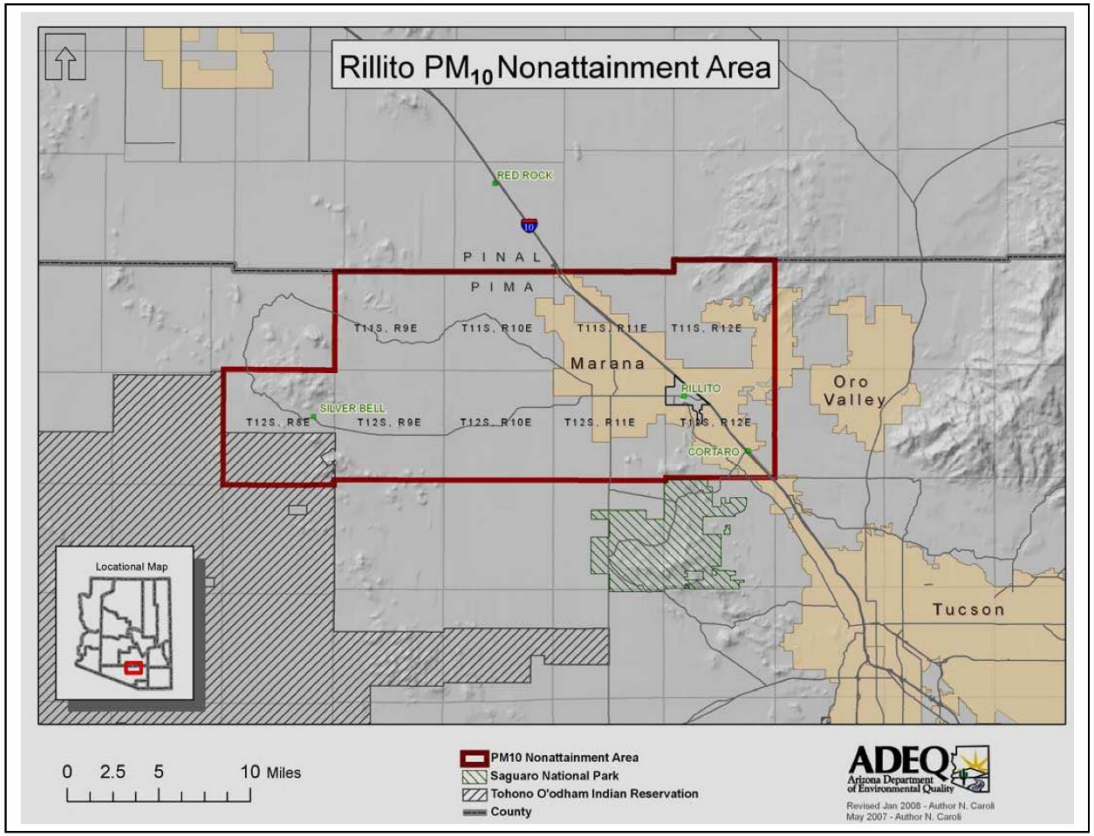
1.1.1 Climate and Physiography

The RNA is a 324 square mile area located in the Sonoran Desert region of Southern Arizona, 88 miles southeast of Phoenix and 15 miles northwest of Tucson. The small, unincorporated community known as Rillito is within a county island bordered on all sides by the Town of Marana. The RNA, as described in 40 CFR 81.303 contains the following townships and ranges: T11S, R9-R12E; T12S, R8-R12E, for a total of nine townships as shown in Figure 1.1.

Foothills of three small mountain ranges rise from the desert floor on the eastern, western, and southern boundaries of the nonattainment area. Vast sections are comprised of undeveloped land. Approximately 30 percent of the area consists of land cleared for agricultural purposes. Interstate 10 transverses the northeastern corner and the Silver Bell copper mine is situated in the southwestern corner of the area. Saguaro National Park borders the nonattainment area's southern boundary.

Prevailing winds are generally out of the southeast. Haboobs, intense sandstorms that develop during summer monsoon thunderstorms, can inundate the area with transported windblown dust. The warmest months of the year are July and August, when the daily maximum temperature averages 98° Fahrenheit (F). January is the coolest month with an average daily minimum temperature of 39° F. An annual average of 12 inches of rain falls within the region. Precipitation arrives in two distinct seasons: 52 percent falls during the summer monsoon season (July–September) and 28 percent from December through March.

Figure 1.1 – Map of Rillito PM_{10} Nonattainment Area



1.1.2 Population

The RNA has undergone a transformation since the 1994 SIP was submitted. What was a rural agricultural area became more urbanized with each passing year. The Town of Marana has annexed vast sections of the RNA and now encircles the Rillito community. Marana is predicted to grow by over 100 percent by 2015; projections are similar for neighboring Oro Valley. The population of the Rillito community has experienced some growth and is projected to modestly increase. Table 1.1 portrays the projected growth of Rillito, Marana, Oro Valley, the RNA, and Pima County in five-year increments from 2006 to 2015.

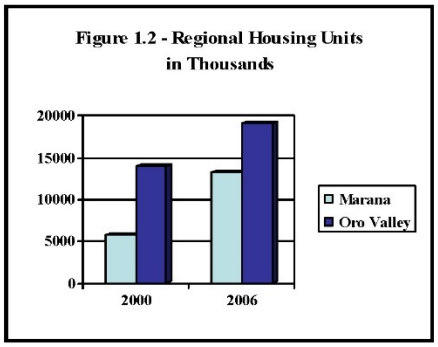
Table 1.1 – Historical Population Data and Projections for the Region

	1990	2000	2006	2010	2015
RNA	n/a	n/a	49,200	67,300	86,800
Rillito Community	n/a	n/a	330	405	455
Marana	2,187	13,556	30,345	43,352	60,809
Oro Valley	6,670	29,700	40,215	45,199	50,222
Pima County	666,880	843,746	981,280	1,070,723	1,175,967

Sources: Historical data and Pima County projections provided by Arizona Department of Economic Security; other data provided by Pima Association of Governments.

1.1.3 Economy

In pace with the increasing population, Marana has a growing economy as evidenced by taxable sales of $995.2 million in 2005, an increase of over 50 percent from the year 2000. Building permits issued in 2005 totaled 4,188 – more than twice the number issued in 2000. Housing units in Marana, as shown in Figure 1.2, have nearly tripled since 2000. Oro Valley has also experienced a marked increase in key growth indicators. Unemployment in the region was lower than the national average in 2007, 3.1 percent vs. 4.3 percent. Additional background economic information can be found in Table 1.2.



Sources: U.S. Census Bureau, April, 2000 Census; Arizona Department of Economic Security, July, 2007.

Table 1.2 – Civilian Labor Force Data for the Region

City/County	1990	2000	2005
Marana	1,005	6,686	7,114
Oro Valley	3,201	13,471	14,591
Pima County	248,900	391,724	450,226

Source: Arizona Department of Economic Security.

1.2 Rillito Regulatory History

ADEQ began monitoring particulate matter in the RNA in 1971. The original measurement for particulate matter, known as total suspended particulate matter (TSP), included a size range of particles collected by hi-volume samplers, generally up to 40 microns in diameter. ADEQ began monitoring PM_{10} in 1985. In 1987, the U.S. Environmental Protection Agency (EPA) revised the standards to include only PM_{10} (52 FR 24634, July 1, 1987). As part of the implementation policy for the new standards, where insufficient PM_{10} data were available, EPA categorized areas of the country based on their probability of violating the standards. Group I areas were determined to have a high probability of violating the standards, Group II areas a moderate probability of violating, and Group III areas as likely to be attaining the standards. In EPA's published group descriptions, the Rillito area was listed as a "Group I Area" or one with a strong likelihood of violating the PM_{10} NAAQS. The State was required to submit a state implementation plan (SIP) within nine months of promulgation of the NAAQS (52 FR 24672, July 1, 1987, and 52 FR 29383, August 7, 1987).

Prior to the State's submission of a SIP, EPA updated the initial geographic descriptions for the Group I and Group II areas. Consistent with EPA's PM_{10} grouping scheme, the Rillito Group I Area was designated and classified as a moderate PM_{10} nonattainment area upon enactment of the 1990 Clean Air Act (CAA) amendments, effective November 15, 1990. This action included requirements for submittal of an attainment demonstration and reasonably available control measures (RACM) implementation provisions by November 15, 1991.

ADEQ submitted a moderate area PM_{10} plan for the Rillito area on November 14, 1991. In a letter dated May 14, 1992, EPA found this plan to be incomplete due to a lack of an emissions inventory. On April 22, 1994, ADEQ submitted a revised PM_{10} plan for Rillito. In a letter dated August 18, 1994, EPA found the plan to be incomplete due to a lack of reasonably available control measures (RACM). EPA has not taken any further action on the 1994 PM_{10} plan.

On October 10, 2006, EPA determined that the RNA had continued to meet the PM_{10} NAAQS and issued a clean data finding for the area. EPA's Clean Data Policy relieves the State from certain demonstrations of attainment, since by qualifying for a clean data finding, attainment has already been achieved.

1.2.1 EPA's Particulate Matter NAAQS

The CAA requires EPA to assess the latest scientific information and review the particulate matter NAAQS every five years. In September 2006, EPA reviewed the latest scientific information on the health effects of exposure to PM_{10}. During the 2006 review period, EPA received comments from external scientific advisors and the general public about the science and policy review reports. After reviewing over 120,000 written comments, on September 27, 2006, EPA revised the 1997 standards by retaining the existing 24-hour PM_{10} standard and revoking the Annual PM_{10} standard. Therefore, this LMP addresses EPA's current

policy for the 24-hour PM_{10} standard. The following table reviews the history of EPA's particulate matter NAAQS.

Table 1.3 –
History of EPA's Particulate Matter NAAQS

Date	EPA Action
1971	Established TSP Standard
1987	Established 24-hour and Annual PM_{10} Standards
1997	Established 24-hour and Annual $PM_{2.5}$ Standards
2006	Revoked the PM_{10} Annual Standard

1.3 Applicable CAA Requirements

Section 107(d)(3)(E) of the CAA, as amended, states that an area can be redesignated to attainment if the following conditions are met:

1. The PM_{10} NAAQS have been attained;
2. The applicable implementation plan has been fully approved under Section 110(k);
3. The improvement in air quality is due to permanent and enforceable reductions in emissions;
4. The State has met all applicable requirements for the area under Section 110 and Part D; and
5. A maintenance plan with contingency measures has been fully approved under Section 175A.

1.4 Requirements for Nonattainment Areas That Have Attained the NAAQS

EPA issued a clean data finding for the RNA on October 10, 2006 (71 FR 44920). EPA's Clean Data Policy applies to PM_{10} nonattainment areas that are meeting the NAAQS. Specifically, it addresses whether such areas must develop an attainment demonstration. The requirements for the approach and how the Rillito area meets them are described below in Table 1.3.

Table 1.3 - Requirements for Nonattainment Areas That Have Attained the NAAQS	
CAA Requirement	**Action to Meet Requirement**
The area must be attaining the 24-hour PM_{10} NAAQS based on the three most recent years of quality assured monitored air quality data.	Based on air quality data for the years 2004-2006, the three-year average number of exceedances was less than 1.0. Therefore, Rillito attained the 24-hour PM_{10} NAAQS.
The State must continue to operate an appropriate PM_{10} air quality monitoring network, in accordance with 40 CFR Part 58, in order to verify the attainment status of the area.	The State intends to continue to operate the Rillito monitoring network, in accordance with 40 CFR Part 58, in order to continue to verify the attainment status of the area. The Rillito monitoring network is described in Section 2.0 of this plan.
The control measures responsible for bringing the area into attainment must meet EPA standards for RACM and RACT requirements.	Control measures responsible for bringing the area into attainment are located in Section 4.0 of this plan and meet RACM and RACT requirements.
An emissions inventory must be developed for the area. The State may substitute an inventory developed for an area that is similar in overall composition.	The ambient monitoring data used to calculate the design values for this plan are contained in Section 3.0 of this plan.
EPA must make a finding that the area attained the 24-hour PM_{10} NAAQS, known as a "clean data finding".	On August 8, 2006, EPA issued a clean data finding for the RNA.

In addition to the above requirements, any requirements that are connected solely to designation or classification, such as new source review (NSR) and RACM/RACT, must remain in effect. Certain requirements under CAA Section 172(c), including modeling, attainment demonstrations, and reasonable further progress (RFP) demonstrations, are waived due to the fact that the areas which are eligible under this approach have already attained the PM_{10} NAAQS. General conformity requirements continue to apply, see Section 4.0 of this plan.

1.5 EPA's Limited Maintenance Plan (LMP) Option

The LMP option applies to qualified moderate PM_{10} nonattainment areas seeking redesignation to attainment. The option was established to readily redesignate nonattainment areas that present a low risk of future violations of the PM_{10} NAAQS. EPA determined that by qualifying for a LMP, a nonattainment area has demonstrated the ability to continue attainment of the PM_{10} NAAQS. Therefore, a nonattainment area seeking redesignation under an LMP is relieved of some requirements that are mandatory in a traditional maintenance plan. Among these requirements are emission inventory projections, modeling for maintenance and conformity analyses (for more information on conformity, see Section 4.5).

Under a LMP, the State is obligated to ensure the control measures responsible for helping the area reach attainment will remain in place through the duration of the LMP. Section Four of this plan provides details on control measures for the RNA. The State must also complete an emissions inventory, included in Section 3.0, as well as calculate a motor vehicle regional emissions analysis to project future growth in vehicle emissions, referenced in Table 1.5 of this section and shown in detail in Appendix C.1. Finally, the State must provide contingency measures to bring the area back into attainment should an exceedance occur. Section 4.0 contains a menu of contingency measures.

To qualify for the LMP option, an area should be attaining the NAAQS and the average PM_{10} design value for the area, based upon the most recent 5 years of air quality data at monitors in the area, should be less than 98 $\mu g/m^3$ for the 24-hr PM_{10} standard. If the area cannot meet this test, EPA offers another option to qualify for an LMP. To meet this qualification, the average design value (DV) of the site must be less than the area's site-specific Critical Design Value (CDV). When this calculation was performed, the RNA's average DV (119 $\mu g/m^3$) was less than the CDV (142 $\mu g/m^3$), indicating that the RNA has a very low probability of exceeding the NAAQS in the future and thus qualifies for the LMP option.

Tables 1.4 and 1.5 list EPA's LMP criteria and how the RNA qualifies. The analyses that determined the DV, CDV, and a detailed justification of the LMP option for the RNA appears in Appendix C.1.

In order to qualify for a LMP, an area should expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) and must pass EPA's motor vehicle regional emissions analysis test. The scientific analysis that determined the RNA meets this criterion appears in Appendix C.1.

Table 1.4 - 24-hour Design Values and Critical Design Value for Rillito PM_{10} Nonattainment Area

3-Year Period	24-hour Design Value ($\mu g/m^3$)
2002-2004	118
2003-2005	118
2004-2006	122
Average	119
Critical Design Value	142

Table 1.5 - Limited Maintenance Plan Option

Criteria	RNA Qualifications
1. The PM_{10} nonattainment area must comply with the 24-hour PM_{10} NAAQS based upon the most recent five years of air quality data for all monitors in the PM_{10} nonattainment area.	During the most recent five-year period from 2002 to 2006, monitors in the RNA measured 24-hour PM_{10} levels below the NAAQS (150 $\mu g/m^3$), thus, criterion #1 has been achieved.
2. A PM_{10} nonattainment area may qualify for the LMP option if the average 24-hour DV is less than its respective site-specific critical design value CDV.	Calculations conducted in accordance with EPA guidelines established the DV as 119 $\mu g/m^3$. The CDV for the area was determined to be 142 $\mu g/m^3$. Because the DV is less than the CDV, criterion #2 has been met.
3. The PM_{10} nonattainment area should expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) and must pass the motor vehicle regional emissions analysis test.	To pass the test, the projected increase of onroad motor vehicle PM_{10} emissions during the first ten-year period of the LMP must not cause the DV to exceed the CDV. The adjusted DV for the RNA (119.26 $\mu g/m^3$), is less than the CDV, therefore criterion #3 has been met.

1.6 Applicable EPA Guidance

EPA guidances consulted for this plan are listed in Appendix B.

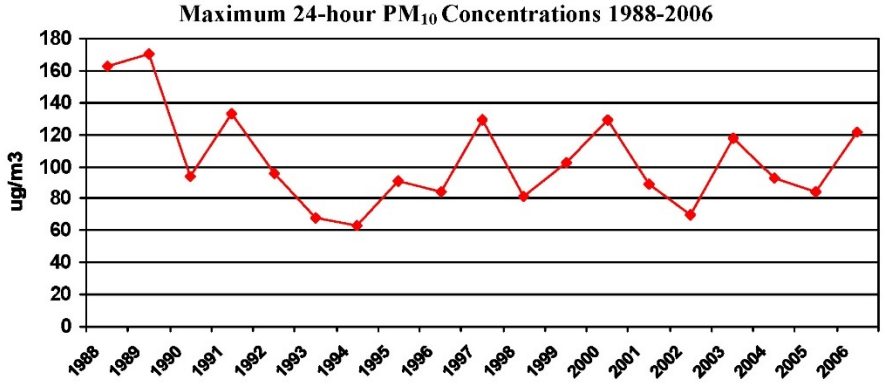
2.0 AIR QUALITY

2.1 Historical Air Quality Data

Monitoring for the Annual and 24-hour PM_{10} standards began in the Rillito Nonattainment Area (RNA) in 1985. EPA revoked the Annual standard in 2007 based on their assessment that there is a lack of evidence linking health problems to long-term exposure of coarse particle pollution; but retained the 24-hour PM_{10} standard. Therefore, this plan addresses only the 24-hour standard. The following table contains air quality data recorded at the Rillito monitor operated by ADEQ on a once in every six day sampling schedule.

Table 2.1 -
2002-2006 PM_{10} Summary Statistics for Rillito Nonattainment Area
PM_{10} Concentrations are for Standard Conditions and are in ug/m^3

Year	Quarter	# of Observations	Max 24-hour Concentration	2nd Highest Concentration	# of Exceedances
2002	1	15	43	40	0
	2	15	70	69	0
	3	16	65	43	0
	4	15	57	56	0
	Annual	61	70	69	0
2003	1	15	48	45	0
	2	15	118	72	0
	3	16	74	59	0
	4	13	76	70	0
	Annual	59	118	76	0
2004	1	14	48	43	0
	2	15	93	47	0
	3	15	62	41	0
	4	15	92	56	0
	Annual	59	93	92	0
2005	1	14	39	36	0
	2	15	73	72	0
	3	15	69	58	0
	4	15	84	78	0
	Annual	59	84	78	0
2006	1	13	95	71	0
	2	15	57	50	0
	3	14	47	46	0
	4	16	122	66	0
	Annual	58	122	95	0



2.2 Monitoring Network and Quality Assurance Procedures

The monitoring network was developed and is maintained in accordance with federal siting and design criteria set forth in 40 CFR Part 58, Appendices D and E, and consistent with ADEQ's State of Arizona Air Monitoring Network Plan. From 1988 to 1991, ADEQ operated a Sierra Anderson 321 B monitor at 8820 West Water Street in Rillito. In 1991, ADEQ began using a Dichot sampler at the same location. In July 2005, the location of the monitor was moved to 8840 West Robinson Street, less than 1,000 feet away from the Water Street site. Details appear in Table 2.2. The Robinson Street site is in close proximity to residential and industrial areas. Based upon the location and siting details, the site adequately represents general exposure of the Rillito population to PM_{10} emissions. The ADEQ data for Rillito have been collected and quality assurance procedures have been conducted in accordance with 40 CFR Part 58. Data from the monitor are entered into EPA's Air Quality System (AQS) database in accordance with federal guidelines.

Table 2.2 – Rillito PM_{10} Monitor History

Site Address	Began Operating	Latitude	Longitude	Pollutants Measured	Classification	Scale	Objective
8820 W. Water Street	1/1985 – 7/2005	32" 25'	111" 10'	PM_{10}	SLAMS[2]	Neighbor-hood	Source Impact
8840 W. Robinson Street	7/2005 – Current	32" 41'	112" 48'	PM_{10}	SLAMS	Neighbor-hood	Source Impact

[2] The Clean Air Act requires every state to establish a network of air monitoring stations for criteria pollutants, using criteria set by EPA for their location and operation. The monitoring stations in this network are called the State and Local Air Monitoring Stations (SLAMS). The states must provide EPA with an annual summary of monitoring results at each SLAMS monitor, and detailed results must be available to EPA upon request.

3.0 RILLITO NONATTAINMENT AREA (RNA) EMISSIONS INVENTORY

According to the LMP guidance, the State's maintenance plan should include an emissions inventory. The inventory should represent emissions during the same five-year period associated with the air quality data used to determine whether the area meets the applicability requirements of this policy (i.e., the most recent five years of air quality data). For the Rillito Nonattainment Area (RNA), 2004 was selected as the base year for the emissions inventory. March 21, 2004, was selected to be the emissions inventory design day based on the greatest potential for windblown dust, seasonal emissions from agriculture, and average precipitation. Table 3.1 features estimated emissions for the design day.

Table 3.1
Rillito Nonattainment Area Daily Emissions
Design Day March 21, 2004

	All Sources (tons/day)	**Vehicular (tons/day)**
Onroad Mobile - Exhaust, Brake, and Tire Wear	0.383	0.383
Nonroad Mobile	0.119	N/A
Fugitive Dust from Paved Roads	0.933	0.933
Fugitive Dust from Unpaved Roads	1.325	1.325
Fugitive Dust from Unpaved Road Shoulders	0.498	0.498
Fugitive Dust from Trackout	0.285	0.285
Windblown Dust March 21, 2004	936.000	N/A
Industrial Sources (Arizona Portland Cement Company)	1.317	N/A
Total	**940.860**	**3.424**

*This inventory addresses EPA's 24-hour PM_{10} standard; to calculate tons per year, multiply by 365. Note March 2, 2004, was selected to calculate windblown dust due to conditions that contribute to the greatest possible emissions.

For vehicular emissions, the PM_{10} emission factors from exhaust, brake and tire wear were estimated using EPA's MOBILE6 model. Fugitive PM_{10} emission factors were calculated based on the equations outlined in Chapter 13 of AP-42. The number of vehicle miles traveled (VMT) was obtained from the 2004 Highway Performance Monitoring System (HPMS).

Descriptions of emission estimation methods by source category are described under separate headings below.

Onroad Mobile – Exhaust, Brake and Tire Wear: Particulate matter and gaseous precursors generated by vehicles are termed primary and secondary emissions. Primary emissions are particles emitted by mobile sources which are distributed directly into the atmosphere, for example carbon particles originating from tire wear. Secondary emissions include gases and exhaust generated by vehicles that develop through chemical reactions and form particles in the atmosphere.

MOBILE6 requires a variety of inputs, including meteorological conditions, fuel properties, and local vehicle fleet and traffic information. The calculation also requires data from the HPMS, a database containing information on all public roads in the U.S. HPMS data categories include road classifications, speed limits, surface type, shoulder conditions, and the annual average daily traffic. The emission factors were calculated using MOBILE6 for each road segment reported in the 2004 HPMS for the nonattainment area. VMT for each road segment was determined by its segment length and average annual daily traffic. The PM_{10} emissions for each road segment were determined by multiplying the emission factor by the VMT. For the private roads in the nonattainment area, VMT was estimated based on population.

For the RNA, primary PM_{10} emissions are calculated to be .143 tons per day and secondary emissions are calculated to be .240 tons per day. The total of primary and secondary emissions is .383 tons per day. These figures were compared to the 2000 onroad mobile source emissions inventory developed by Pima Association of Governments (PAG) for Tucson Air Planning Area (TAPA), which includes the RNA. The comparison revealed primary and secondary emissions calculated by ADEQ for the RNA are equivalent to those in the TAPA emissions inventory. Analyses used to calculate emissions for this section of the inventory can be found in Appendices C.1 and C.2.

Unpaved Roads - Fugitive Dust: EPA's emission factor equation depends upon the surface material silt content, the average speed of vehicles traveling on the unpaved roads, the surface material moisture content, and the number of days with measurable precipitation.

The calculated emission factor is representative of a fleet average emission factor rather than a vehicle-specific emission factor. A value of 0.64% for the surface material moisture content was chosen to be representative of conditions in the RNA. A silt content value of 3.51% is representative for local unpaved road conditions. Precipitation data for unpaved roads are from a site within the RNA. Emissions from unpaved roads total 1.325 tons per day. The analysis for this emissions category is located in Appendix C.3.

Paved Roads - Fugitive Dust: Paved road emissions factors were calculated for each road segment reported in 2004 HPMS. The emission factors were then multiplied by the VMT to generate emissions. For the private roads in the nonattainment area, VMT was estimated based on population.

Using EPA's AP-42 model, the PM_{10} emission factor depends on road surface silt loading, vehicle weight, and precipitation. A silt loading of 0.085 g/m^2 was used for streets and roadways, and a loading of 0.02 g/m^2 was used for freeways. PM_{10} emissions from paved roads total .933 tons per day. The analysis for this emissions category is located in Appendix C.4.

Trackout – Fugitive Dust: ADEQ staff identified dust trackout during a field trip to the RNA and by using satellite images. While most roads within the nonattainment area have been paved, a significant number of residences do not have paved or stabilized driveways and therefore contribute to fugitive PM_{10} emissions in the area. Emissions due to trackout in the

RNA total .285 tons per day. The analysis for this emissions category is located in Appendix C.5.

Agricultural Activities: To estimate the contributions of agricultural to the 24-hour PM_{10} emissions inventory, hourly wind data for the base year, 2004, ADEQ's AAAQD database was filtered for values of wind speed equal to or greater than 15 mph. The results found there were a total of 16 hours of wind speed meeting that qualification. Two days in the spring with multiple hours of wind speed greater than 15 mph were identified. The wind data was then compared with the crop calendar to determine the date with the highest potential for windblown dust resulting from freshly tilled agricultural fields. That date is March 21, 2004, as shown in Table 5.1. The analysis for this emissions category is located in Appendix C.6.

Industrial Activities: Arizona Portland Cement Company (APC) is the only major source permitted by ADEQ operating in the RNA. ADEQ's air quality monitor is situated less than one-quarter of a mile north of the APC plant. Facilities associated with the plant are approximately four miles to the southwest. Production at the plant has remained constant in recent years. Pima Department of Environmental Quality permits sand and gravel operations in the area, as well as the Silver Bell copper mine, approximately twenty miles west of APC. Table 3.1 features average annual and daily PM_{10} emissions generated by APC for the most recent five years of monitoring data. More data on this emissions category are located in Appendix C.7.

Nonroad Mobile Sources: EPA's NONROAD model was used to estimate PM_{10} emissions from Nonroad Mobile Sources. The NONROAD model contains Total emissions for Pima County, which were then proportionally allocated to the estimated population of the RNA. Data from the NONROAD model were used for each category listed in Table 3.2, with the exceptions of Aircraft and Locomotive. Data from those categories were extracted from the respective EPA guidance on emissions factors for each. For the complete analysis on this section, see Appendix C.8.

Table 3.2
PM_{10} Emissions from Nonroad Mobile Sources (tons per day)

Category	Emissions
Lawn & Garden	.014
Aircraft	.030
Railway Maintenance	.0002
Locomotive	.034
Agricultural	.001
Recreational	.0001
Commercial	.003
Construction	.037
Total	**.1193**

4.0 CONTROL MEASURES

Sections 4.1 and 4.2 describe control measures for sources within the Rillito Nonattainment Area (RNA). Section 4.3 describes the contingency measures that will be considered if the predetermined trigger level is reached or if an exceedance of the Critical Design Value (CDV) occurs. Section 4.4 describes the trigger in further detail. Section 4.5 discusses conformity and the LMP option.

EPA's Limited Maintenance Plan (LMP) guidance requires areas seeking redesignation to demonstrate improvements in air quality are not due to temporary economic downturns. Chapter 2 contains economic and population data for the region. The data reveal that since 1970 the population of the RNA has steadily increased. Housing units in the region have nearly doubled. Key indicators point to a healthy economy. In addition, during this time, Arizona Portland Cement Company (APC) has been in operation without interruption.

The LMP guidance also requires the State to demonstrate air quality improvements are not due to favorable meteorological conditions. Pima County has experienced drought conditions for several years. In April 2007, the County declared a Stage 1 drought following several years of decreasing precipitation. Recent years have provided a worst-case scenario for PM_{10} monitors in the region, yet despite adverse conditions there has not been an exceedance of the NAAQS.

4.1 Reasonably Available Control Measures (RACM)

The Clean Air Act (CAA) requires moderate PM_{10} nonattainment area plans to ensure RACM will be implemented no later than four years after designation. The Act further requires the plan to provide for the implementation of controls reflecting reasonably available control technology (RACT) within the same time period. RACM and RACT are not required for sources which do not contribute significantly to violations of the 24-hour PM_{10} NAAQS or where additional controls on the sources would not expedite attainment of the NAAQS.

As discussed previously, the RNA was classified as a Group I area by EPA due to known PM_{10} emissions and preliminary monitoring data. EPA based this finding due emissions from Arizona Portland Cement (APC), industrial sand and gravel operations, and fugitive dust emissions resulting from extensive agricultural practices. In addition, monitors installed prior to promulgation of the standard measured several exceedances of the PM_{10} NAAQS. Permits issued for existing industrial sources ensure adequate controls are in practice. The permit for APC requires the implementation and maintenance of RACT, including: baghouses, dust collectors, spray bars, hoods, shrouds, and a continuously operating monitor system. The permit also includes record keeping requirements.

The 1994 SIP submitted to EPA contained a series of control measures designed to mitigate PM_{10} emissions. Since then, the area has become more urbanized and less agricultural. Some of the control measures included in the 1994 SIP have been discontinued or were one-time only actions. The following table provides the status of these measures.

Table 4.1 - Creditable Control Measures from the 1994 Rillito PM_{10} SIP			
	Control Measure	**Details**	**Status**
1	APC Plant and Quarry Operations	Comprehensive road stabilization plan to mitigate emissions.	In effect, included in the APC operating permit issued October 7, 2003.
2	Pima County Grading Ordinance, Chapter 18.81 of the Pima County Zoning Code (January 2001)	Permits for earth moving require stabilization to mitigate fugitive emissions.	In effect.
3	Bank Stabilization of Santa Cruz River	One time control measure implemented in 1988 during the development of nearby residential neighborhoods.	Complete.
4	Reduced Tillage Program	United States Department of Agriculture pilot program was discontinued.	Discontinued.
5	Dust Stabilization – Rillito Community	Approximately 1 mile of dirt roads within the community are now paved.	Complete.
6	Avra Valley Road Shoulder Dust Stabilization	2.5 miles will undergo blading and rolling followed by application of magnesium chloride once per year.	In effect on an as needed basis.

The implementation of these measures helped bring the area into timely attainment of the 24-hour standard, thus the measures meet the CAA requirement for RACM. In addition to these RACM controls, the Arizona Department of Transportation's (ADOT) Standard Specification Section 810 mandates that State contractors utilize a comprehensive series of control measures designed to mitigate airborne PM_{10} emissions during road construction projects. ADOT also implemented Encroachments in Highway Rights-of-Way, Arizona Administrative Code (AAC) R17-3-702, which authorizes ADOT to issue permits to allow private landowners and tenants to enter or exit the State Highway System but directs mitigation of trackout nuisances.

These supplemental strategies contributed to fugitive dust reductions and protection of the public health. Continued implementation of these measures will help ensure the Rillito area continues to meet the NAAQS.

4.2 Permanent and Enforceable Control Measures

The CAA requires that all types of maintenance plans demonstrate that measures credited with bringing the area into attainment are federally enforceable and continued into the future. Measures 1, 2, and 6 meet these requirements; measure 3 was discontinued by the United States Department of Agriculture and was not replaced; and measures 4 and 5 are no longer necessary because public roadways within the community have since been paved. These measures resulted in emissions reductions sufficient for attaining the PM_{10} standard in the Rillito Nonattainment Area. Therefore, measures 1, 2, and 6 meet the CAA requirement for permanent and enforceable control measures. The RACM included in this LMP are sufficient and the deficiencies of the attainment plan submitted by ADEQ in 1994 have been now been addressed.

New major sources or major modifications to existing sources located in nonattainment areas are subject to Arizona Administrative Code (AAC) R18-2-403 (Permits for Sources

Located in Nonattainment Areas). Following redesignation, AAC R18-2-406 (Permit Requirements for Sources Located in Attainment and Unclassifiable Areas) will apply for any major source or major modification to a source located within the maintenance area.

4.3 Contingency Measures

Section 175A of the CAA requires a maintenance plan's contingency provisions to be enacted should a violation of the PM_{10} standard occur following redesignation to attainment. EPA's memo, *Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas* (Lydia Wegman, August 9, 2001), states that contingency measures do not have to be fully adopted at the time of redesignation, but the LMP should identify measures to be implemented if necessary.

The State commits to act promptly if an exceedance of the area's design value occurs following redesignation to attainment. Specifically, the State commits to determine if an exceedance occurred within six months of the close of the calendar year. The State also commits to identify and implement the appropriate control measure(s) needed to remedy the situation by the end of the same calendar year.

A redesignated area with an LMP is also required to recalculate annually the average design value for the area to determine if the area has continued to meet the qualifications to be eligible for a LMP. If after performing the annual recalculation the State determines that the area no longer qualifies for a LMP, the State commits to take actions to reduce PM_{10} concentrations sufficiently to re-qualify for a LMP or prepare a Maintenance Plan.

4.4 Contingency Measure Trigger

The contingency measures featured in Table 4.2 will be considered for implementation by the State should an exceedance of the CDV occur. In order to prevent an exceedance from occurring, ADEQ opted to identify a specific indicator, or trigger, if PM_{10} concentrations reach a level that signals an exceedance may be imminent. The trigger will be used by ADEQ to determine if it is necessary to implement contingency measures in order to prevent an exceedance from occurring.

For this LMP, contingency measures will be considered if ambient concentrations reach the trigger activation level – in this case 95 percent of the area's CDV or 135 $\mu g/m^3$. The causes of the trigger activation will help the State determine the appropriate contingency measure or measures to be implemented. While not a requirement for a LMP, ADEQ believes that identifying a trigger will increase protection of the public health and help assure the area will continue to qualify for an LMP.

4.5 Conformity

The Transportation Conformity Rule (40 CFR parts 51 and 93) and General Conformity Rule (58 FR 63214; November 30, 1993) apply to nonattainment areas and maintenance areas

operating under maintenance plans. Under transportation conformity rules, one means of demonstrating conformity of federal actions is to indicate that expected emissions from planned actions are consistent with the emissions budget for the area. Emissions budgets in LMP areas may be treated as essentially non-constraining for the length of the maintenance period because it is unreasonable to expect that an LMP area would experience so much growth during that period of time that a violation of the PM_{10} NAAQS would result. This does not exempt an LMP area from the need to affirm conformity, but it does allow the area to demonstrate conformity without undertaking certain rule requirements. For transportation conformity purposes, EPA would most likely conclude that emissions in these areas do not require a cap for the duration of the maintenance period, and, therefore, a regional emissions analysis will not be required.

General Conformity requires that non-transportation based projects in areas that have air quality plans for either nonattainment or maintenance areas submit a description of the project to the State. The description must show either that the project will not increase the relevant emissions for the area, or that specific control measures will be applied for the duration of the project in order to prevent increased emissions, in this case, increased emissions of PM_{10}.

Table 4.2 - Contingency Measure Options

	Contingency Measures	Implementing Entity
1	If any PM_{10} generating source within the maintenance area is found to be contributing to monitored readings above the LMP allowable limits, ADEQ will review existing air quality permits and/or applicable rules to identify additional control measures that may be needed. If a PM_{10} source does not have a permit, ADEQ will determine if an air quality permit and PM_{10} controls are needed.	ADEQ
2	Review and revise dust control measures for material storage piles to determine if additional action is needed.	ADEQ
3	Pave any new unpaved public roads, vacant lots, and unpaved parking lots located in the PM_{10} maintenance area subject to limits of statutory authority.	Pima County
4	Review and revise existing grading ordinance, if necessary.	Pima County
5	Reduce particulate matter by paving or stabilizing unpaved or unimproved shoulders and alleys.	Town of Marana and Pima County
6	Review and revise standards for installation and maintenance of landscaping and screening, if necessary.	Pima County
7	Review and revise roadway maintenance practices following exceptional events, if necessary.	Pima County

5.0 LIMITED MAINTENANCE PLAN ADMINISTRATION

5.1 Commitment to Calculate PM_{10} Design Values Annually

The State commits to recalculate the area's PM_{10} design values annually to track the area's air quality levels. If the concentrations rise above the threshold or trigger that qualifies the area for the limited maintenance plan (LMP), the State will act to correct the problem. If the actions fail to restore eligibility for the LMP, the State commits to submit a full maintenance plan.

5.2 Discussion of Permitting Program to Ensure that New Sources Will Not Jeopardize Continued Maintenance

As previously discussed in Section 4.2, Arizona Administrative Code (AAC) R18-2-403 (Permits for Sources Located in Nonattainment Areas) and AAC R18-2-406 (Permit Requirements for Sources Located in Attainment and Unclassifiable Areas) will apply for any major source or major modification to a source located within the maintenance area.

5.3 CAA Section 175(A) Maintenance Plans

ADEQ commits to submit a limited maintenance plan for the second ten-year period (2020-2030) by 2017. ADEQ also commits to submit an annual attainment report and review the emissions inventory every three years to ensure emissions growth is incorporated in the attainment inventory.

LIST OF APPENDICES

APPENDIX A: APPLICABLE CLEAN AIR ACT (CAA) REQUIREMENTS

Appendix A - CAA Regulatory Requirements		
CAA Citation	**Action to Meet Requirement**	**Location in Document**
CAA Section 172(c), Nonattainment Plan Provisions		
172(c)(1) General	"...Such plan provisions shall provide for the implementation of all reasonably available control measures (RACM) as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology (RACT)) and shall provide for attainment of the national primary ambient air quality standards."	Chapter 4 contains an explanation of applicable RACM/RACT for PM_{10} point sources in the nonattainment area.
172(c)(2) Reasonable Further Progress (RFP)	Plan provisions shall demonstrate reasonable further progress or "annual incremental reductions in emissions … for the purpose of ensuring attainment of the applicable national ambient air quality standards by the applicable date."	Chapter 4 of this submittal demonstrates that the RNA has attained and will maintain the PM_{10}NAAQS with current control measures.
172(c)(3) Emissions Inventory	The plan provisions "… shall include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant(s)..." ADEQ maintains a database of historical and current actual emissions from State permitted point and area sources. The Pima County Department of Environmental Quality maintains a similar database of actual emissions from County permitted sources. All non-permitted source emissions data (i.e.: mobile sources) are obtained from EPA's national emissions inventory.	Base-year emissions are contained in Chapter 3. In qualifying for the LMP option, the requirement for projecting emissions is waived.
172(c)(4) Identification and Quantification	Plan provisions "… shall expressly identify and quantify the emissions, if any, of any such pollutant or pollutants which will be allowed, in accordance with Section 173(a)(1)(B), from the construction and operation of major new or modified stationary sources in each such area. The plan shall demonstrate to the satisfaction of the Administrator that the emissions quantified for this purpose will be consistent with the achievement of reasonable further progress and will not interfere with attainment of the applicable national ambient air quality standard …" The permit requirements of CAA Section 173(a)(1)(B) are applicable to sources located in a targeted economic development zone as determined by the Administrator under consultation with the Secretary of Housing and Urban Development. No such zones exist within the Rillito Nonattainment Area.	

172(c)(5) Permits for New and Modified Major Stationary Sources	The plan provisions "…shall require permits for the construction and operation of new or modified major stationary sources anywhere in the nonattainment area…" All new sources and modifications to existing sources in Arizona are subject to state requirements for preconstruction review and permitting pursuant to AAC, Title 18, Chapter 2, Articles 3 and 4. All new major sources and major modifications to existing major sources in Arizona are subject to the New Source Review (NSR) provisions of these rules or Prevention of Significant Deterioration (PSD) for maintenance areas. ADEQ currently has full approval of its Title V permit program. Sources within Pima County jurisdiction are subject to the Pima County Air Quality Control District, NSR program in Code of Regulations, Chapter 17.20.	
172(c)(6) Other Measures	The plan "... shall include enforceable emissions limitations, and such other control measures, means or techniques …, as well as schedules and timetables for compliance, as may be necessary or appropriate to provide for attainment of such standard in such area by the applicable attainment date..."	Emissions limitations and control measures for PM_{10} sources in the nonattainment area may be found in Chapter 5.
172(c)(7) Compliance with Section 110(a)(2), Implementation Plans	The plan provisions "... shall also meet the applicable provisions of Section 110(a)(2)." The requirements of Section 110(a)(2) are detailed elsewhere in this Table.	
172(c)(8) Equivalent Techniques	The plan may include upon application by the state "... the use of equivalent modeling, emission inventory, and planning procedures …" as allowed by the administrator. Per the conditions of the Limited Maintenance Plan option, the obligation to model is waived.	
172(c)(9) Contingency Measures	The plan "... shall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard … Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or the Administrator." As noted in 172(c)(2) above, this submittal includes monitoring data and source permit information that demonstrate that the applicable area has attained, and will maintain. Per the conditions of the Limited Maintenance Plan option, the obligation to model is waived. The RNA is meeting EPA's NAAQS with the control measures currently fully implemented. As such, the RFP requirement is met.	
CAA Section 175(A), Maintenance Plans		
175(A)(a) Plan Revisions	"Each State which submits a request under Section 107(d) for redesignation of a nonattainment area … shall also submit a revision of the applicable State implementation plan to provide for the maintenance of the national primary ambient air quality standard … for at least 10 years after the redesignation…" This submittal demonstrates attainment through 2019. ADEQ commits to submit a maintenance plan for the second ten year period (2019-2029) by 2018.	

175(A)(b) Subsequent Plan Revisions	"8 years after redesignation of any area as an attainment area under Section 107(d), the State shall submit to the Administrator an additional revision of the applicable State implementation plan for maintaining the national primary ambient air quality standard for 10 years after the expiration of the 10-year period referred to in subsection (a)." ADEQ commits to submit an additional SIP revision ten years after redesignation.	
175(A)(c) Nonattainment Requirements Applicable Pending Plan Approval	"Until such plan revision is approved and an area is redesignated as attainment for any area designated as a nonattainment area, the requirements of this part shall continue in force and effect with respect to such area." ADEQ commits to keeping all applicable measures in place.	
175(A)(d) Contingency Provisions	"Each plan revision submitted under this Section shall contain such contingency provisions as the Administrator deems necessary to assure that the State will promptly correct any violation of the standard which occurs after the redesignation of the area as an attainment area. Such provisions shall include a requirement that the State will implement all measures with respect to the control of the air pollutant concerned which were contained in the state implementation plan for the area before redesignation…" ADEQ commits to implementing all identified measures as necessary.	
CAA Section 110(a)(2) – Implementation Plans		
110(a)(2)(A) Control Measures and Emission Limits	Section 110(a)(2)(A) requires that states provide for enforceable emission limitations and other control measures, means, or techniques, as well as schedules for compliance necessary to meet applicable requirements of the CAA.	Chapter 4 includes the measures utilized to bring this area into attainment and ensure future maintenance of the PM_{10} NAAQS.
110(a)(2)(B) Ambient Monitoring	Section 110(a)(2)(B) requires that states provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, compile, and analyze data on ambient air quality.	Chapter 2 includes ambient monitoring network information and data for the Rillito nonattainment area.

110(a)(2)(C) Permitting and Compliance	Section 110 (a)(2)(C) requires states to have permitting, compliance, and source reporting authority. Arizona Revised Statutes (ARS) 49-402 establishes ADEQ's permitting and enforcement authority. Under ADEQ's air permits program, stationary sources that emit regulated pollutants are required to obtain a permit before constructing, changing, replacing, or operating any equipment or process which may cause air pollution. This includes equipment designed to reduce air pollution. Permits are also required if an existing facility that causes air pollution transfers ownership, relocates, or otherwise changes operations. Under ADEQ's air quality compliance program, scheduled and unscheduled inspections are conducted at the major sources annually. The ADEQ Air Compliance Section also implements compliance assistance initiatives to address non-compliance issues (i.e., seminars and workshops for the regulated community explaining the general permit requirements, individual inspections of all portable sources within a geographical area, mailings, etc.). In addition, compliance initiatives are developed to address upcoming or future requirements and include such actions as training for inspectors; development of checklists and other inspection tools for inspectors; public education workshops; targeted inspections; mailings, etc. ADEQ's Air Compliance Section also has an internal performance measure to respond to all complaints as soon as possible, but within five working days. The Pima County Department of Environmental Quality has approved or delegated permitting programs and enforcement authority for sources under their jurisdiction.
110(a)(2)(D) Other States	Section 110 (a)(2)(D) requires adequate provisions to ensure that emissions activity within the state does not contribute significantly to nonattainment in or interfere with maintenance by any other state or interfere with any other state's required applicable implementation plan to prevent significant deterioration of air quality or to protect visibility. Also required are provisions to ensure compliance with Sections 126 and 115 relating to interstate and international pollution abatement. Analysis of the Rillito nonattainment area demonstrates attainment and maintenance of the PM_{10} air quality standards. Based on enforceable emission reductions, no significant contribution or interference with air quality in any other state is expected.
110(a)(2)(E) Adequate Resources	Section 110 (a)(2)(E) requires that states have adequate personnel, funding, and authority under state law to carry out the implementation plan. As authorized under ARS 49-104, 49-402, and 49-404, ADEQ retains adequate funding and employs adequate personnel to administer the air quality program. Appendix C includes the organization chart for ADEQ's Air Quality Division.

110(a)(2)(F) Emissions Monitoring and Reporting	Section 110 (a)(2)(F) requires, as prescribed by the Administrator, provision for emissions monitoring and reporting, by owners or operators of stationary sources and periodic reports on the nature and amounts of emissions as well as correlation of such reports by the state agency with any emission limitations or standards. AAC R18-2-327 requires that any source subject to a permit must complete and submit to the Director their responses to an annual emissions inventory questionnaire. A current air pollutant emissions inventory of both permitted and non-permitted sources within the state is necessary to properly evaluate the air quality program effectiveness, as well as determine appropriate emission fees for major sources. This inventory encompasses those sources subject to state permitting requirements emitting 1 ton per year or more of any individual regulated air pollutant, or 2.5 tons per year or more of any combination of regulated air pollutants. ADEQ is responsible for the preparation and submittal of an emissions inventory report to EPA for major sources and emission points prescribed in 40 CFR 51.322, and for sources that require a permit under ARS 49-426 for criteria pollutants. Pima County Air Quality Control District, Code of Regulations, Chapter 17, contains emissions monitoring and reporting requirements for sources under its jurisdiction.
110(a)(2)(G) Emergency Powers	Section 110(a)(2)(G) requires that states provide for authority to establish emergency powers and authority and contingency measures to prevent imminent endangerment. ARS 49-465 authorizes state actions to alleviate or prevent an emergency health risk to the public. AAC R18-2-220 prescribes the procedures the ADEQ Director shall implement in order to prevent the occurrence of ambient air pollution concentrations which would cause significant harm to the public health. In addition, as authorized by ARS 49-426.07, ADEQ may seek injunctive relief upon receipt of evidence that a source or combination of sources is presenting an imminent and substantial endangerment to public health or the environment.
110(a)(2)(H) Plan Revisions	Section 110(a)(2)(H) requires revisions to plans to take account of revised primary or secondary ambient air quality standards or the availability of improved or more expeditious methods of attaining such standards. This Section also requires states to provide for plan revisions to ensure the adequacy of the plan to attain the air quality standards or to otherwise comply with any additional requirements established under the CAA. ADEQ will revise this plan as necessary to comply with the requirements of the Clean Air Act.

APPENDIX B

Applicable EPA Guidance Documents

PM_{10} SIP Development Guideline, U.S. Environmental Protection Agency, OAQPS, EPA-450/2-86-001, Research Triangle Park, NC, June 1987.

Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni, Director, Air Quality Management Division, memorandum dated September 4, 1992.

PM_{10} Emission Inventory Requirements, U.S. Environmental Protection Agency, OAQPS, Research Triangle Park, NC, September 1994.

Reasonable Further Progress, Attainment Demonstration, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone National Ambient Air Quality Standard. John S. Seitz, Director, Office of Air Quality Planning and Standards (MD-10), May 15, 1995.

Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas, Lydia Wegman, Director, AQSSD (MD-15), memorandum dated August 9, 2001.

Clean Data Policy for the Fine Particulate National Ambient Air Quality Standards. St[illegible] D[illegible] Page, Director, Office of Air Quality Planning [illegible] Standards, December 14, 2004.

US EPA, AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Source, Chapter 13.2.1. November 2006.

APPENDIX C

Appendix C - Emissions Inventory Analyses

C.1. Justification for LMP Option for the RNA
C.2. 24-hour Emissions Inventory
C.3. On-Road Mobile Source Emissions Inventory
C.4. Fugitive Emissions from On-Road Mobile Sources
C.5. PM_{10} Emissions from Trackouts in the RNA
C.6. Windblown Dust from Agricultural Fields
C.7. Arizona Portland Cement Company Emissions
C.8. Off-Road Mobile Source PM_{10} Emissions Inventory for the RNA

APPENDIX C.1
Justification for Limited Maintenance Plan Option for
Rillito PM_{10} Nonattainment Area

BACKGROUND

1. **No Violations of 24-hour PM_{10} Standard**
   - The PM_{10} nonattainment area must be in compliance with the 24-hour PM_{10} National Ambient Air Quality Standards (NAAQS) based upon the most recent five years of air quality data for all PM_{10} monitors in the PM_{10} nonattainment area (24-hour PM_{10} standard = 150 $\mu g/m^3$). Note: EPA revoked the annual PM_{10} NAAQS in 2006, thus it is not necessary to consider the annual PM_{10} NAAQS when qualifying for the LMP option as per e-mail correspondence with EPA Region 9.[2]

2. **Average 24-Hour PM_{10} Design Value be At or Below 98 $\mu g/m^3$ or Otherwise Below Critical Design Value**
   - The average 24-hour PM_{10} design value (DV) for the PM_{10} nonattainment area must be at or below 98 $\mu g/m^3$. Note: EPA revoked the annual PM_{10} NAAQS in 2006, thus it is not necessary to consider the annual PM_{10} DV when qualifying for the LMP option as per e-mail correspondence with EPA Region 9.[2]

   - If a PM_{10} nonattainment area cannot meet the DV test, it may still be able to qualify for the LMP option if the average 24-hour design value for the PM_{10} nonattainment area is less than its respective site-specific critical design valu (CDV).[1]

3. **Pass Motor Vehicle Regional Emissions Analysis Test**
   - The PM_{10} nonattainment area should expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) and must have passed the motor vehicle regional emissions analysis test.[1]

LMP OPTION ANALYSES

The following section describes the data and calculations that ADEQ used to demonstrate that the Rillito PM_{10} Nonattainment Area meets the criteria for the LMP option.

Criterion #1 – 24-Hour PM_{10} Standard:
The Rillito PM_{10} Nonattainment Area has one PM_{10} monitor (AQS site ID: 04-019-0020) which measures 24-hour PM_{10} concentrations on a 1-in-6 day schedule. During the most recent 5-year period from 2002 to 2006, this monitor measured 24-hour PM_{10} levels below the 24-hour NAAQS (150 $\mu g/m^3$). Attainment of 24-hour PM_{10} NAAQS has been achieved, and the first criterion has been met.

Criterion #2 – Design Value / Critical Design Value:
Besides the requirement of attaining 24-hour PM_{10} NAAQS, the average 24-hour PM_{10} design value for the Rillito PM_{10} Nonattainment Area should be at or below 98 $\mu g/m^3$. ADEQ calculated the 24-hour PM_{10} design values following EPA's PM_{10} SIP Development Guideline.[3] The design values were determined by selecting the highest 24-hour PM_{10} concentration in a 3-year period. The 24-hour design values for the most recent five years (2002 – 2006) are listed in Table 1. The most recent five years of data consist of three consecutive 3-year periods (2002 – 2004, 2003 – 2005, and 2004 – 2006). The data in Table 1 indicate that the 24-hour design values for all these 3-year periods and the average of those three design values are all above the 24-hour design value of 98 $\mu g/m^3$.

EPA guidance states that if a PM_{10} nonattainment area's average 24-hour design value exceeds 98 $\mu g/m^3$, but is below the critical design value (CDV), then the PM_{10} nonattainment area can still qualify for the LMP option.[3]

Table 1
24-hour Design Values, Statistics and Critical Design Value for Rillito PM_{10} Nonattainment Area

3-Year Period	24-hour Design Value { $\mu g/m^3$ }
2002-2004	118
2003-2005	118
2004-2006	122
Average	119
Standard Deviation	2.3
Coefficient of Variation	0.02
Critical Design Value	142

ADEQ calculated a 24-hour PM_{10} CDV of 142 $\mu g/m^3$ using the following formula:[4]

$$CDV = NAAQS/(1 + t_c \times CV) \quad (1)$$

where:

CDV	Critical Design Value in $\mu g/m^3$
NAAQS	National Ambient Air Quality Standards, which is 150 $\mu g/m^3$ for 24-hr PM_{10} concentration
t_c	Critical t value for the given n, and 95% confidence level; n is the degree of freedom
CV	Coefficient of Variation

All three design values listed in Table 1 were used in the calculation of the CDV, thus, the degree of freedom, n, is 2. The CDV is 142 $\mu g/m^3$ assuming a confidence level of 95%.

Details:

NAAQS = 150 $\mu g/m^3$
t_c = 2.919986
CV = 0.02

Then:

CDV = 150 $\mu g/m^3$ / (1 + 2.919986 × 0.02) = 142 $\mu g/m^3$

This result shows that although the 24-hour design values for all these 3-year periods and the average of these three design values are above 98 $\mu g/m^3$, they are well below the CDV. The Rillito PM_{10} Nonattainment Area has met the second criterion of the LMP analysis.

Criterion 3 – Motor Vehicle Regional Emissions Analysis Test:
This criterion is related to projected growth of mobile source emissions in a PM_{10} nonattainment area. The motor vehicle regional emissions analysis test is a test in which the projected increase in 24-hour PM_{10} concentrations resulting from an increase in vehicle miles traveled (VMT) by onroad mobile sources over the next 10-year period is added to the PM_{10} design values for a PM_{10} nonattainment area. This projected 24-hour PM_{10} design value must be less than 98 $\mu g/m^3$ or the site-specific CDV to qualify for a LMP.

ADEQ used the following equation for the motor vehicle regional emissions analysis,[5]

$$\text{Projected } DV = DV + \left(VMT_{pi} \times DV_{mv}\right) \leq MOS \qquad (2)$$

where:

DV	The area's average 24-hour PM_{10} design value based on the most recent 5 years of quality assured data in $\mu g/m^3$
VMT_{pi}	The projected % increase in vehicle miles traveled (VMT) over the next 10 years
DV_{mv}	Motor vehicle design value based on on-road mobile portion of the attainment year inventory in $\mu g/m^3$ calculated by multiplying DV by the percentage of the attainment year 24-hour PM_{10} emissions inventory represented by on-road mobile sources
MOS	Margin of safety for the 24-hour PM_{10} standard for a given area: 98 $\mu g/m^3$ (or using site-specific CDV)

The average 24-hour PM_{10} design value is 119 $\mu g/m^3$ according to Table 1. The projected VMT increase over the next ten years (2009 – 2019) was estimated from information provided by the Pima Association of Governments[6] as shown in Table 2.

Table 2 VMT for the Rillito PM_{10} Nonattainment Area	
Year	Daily VMT
2005	1,468,823
2009 (Interpolated)	1,954,449
2012	2,318,669
2019 (Interpolated)	3,144,823
2030	4,443,064

Year 2009 and year 2019 daily VMT were estimated by interpolation. The projected VMT increase (VMT_{pi}) from 2009 – 2019 is 60.9%. The motor vehicle portion of the 24-hour Rillito PM_{10} Emissions Inventory for March 21, 2004 was 0.364%.

Details:

$DV = 119\ \mu g/m^3$

$VMT_{pi} = 60.9\%$

$DV_{mv} = 119\ \mu g/m^3 \times 0.364\% = 0.433\ \mu g/m^3$

Then:

Projected $DV = 119\ \mu g/m^3 + (60.9\% \times 0.433\ \mu g/m^3) = 119.26\ \mu g/m^3$

The projected DV was calculated to be 119.26 $\mu g/m^3$, which is less than the CDV. Thus, the motor vehicle regional emissions analysis test has been satisfied and the third criterion has been met.

CONCLUSION

In conclusion, the Rillito PM_{10} Nonattainment Area qualifies for the LMP option because it meets the three criteria set forth by EPA: (1) No violations of 24-hour PM_{10} standard, (2) Average 24-Hour PM_{10} design value is at or below 98 $\mu g/m^3$ or otherwise below the critical design value, and (3) Projected growth in onroad mobile emissions does not cause 24-hour PM_{10} concentrations to be greater than 98 $\mu g/m^3$ or the critical design value.

REFERENCES

1. Lydia Wegman, Memorandum: Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas, 2001

2. Wienke Tax, USEPA R9, Personal Communications, 2007

3. USEPA, PM_{10} SIP Development Guideline, 1987

4. Shao-Hang Chu, Critical Design Value Estimation and Its Applications, Attachment A to the EPA Memorandum: Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas, 2001

5. Motor Vehicle Regional Analysis Methodology, Attachment B to the EPA Memorandum: Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas, 2001

6. Aichong Sun, Pima Association of Governments, Personal Communications, 2007

APPENDIX C.2
RILLITO NONATTAINMENT AREA (RNA) DAILY EMISSIONS

Since ADEQ qualifies for a 24-hour PM_{10} Limited Maintenance Plan (LMP) for the Rillito Nonattainment Area (RNA), an annual inventory is not required. ADEQ has focused on a 24 hour emission inventory. A full year of hourly wind data was obtained for the area from ADEQ's Azurite database. The data was filtered for values of wind speed equal to or greater than 15 mph ($\geq$ 15 mph or 33.6 meters/sec) and is shown in Table 1. The table shows a total of 16 hours with wind speed $\geq$ 15 mph and two days in the spring where the wind speed fits the category with multiple hours having wind speed $\geq$ 15 mph. All other windy days are outside the potential crop/windblown dust window.

Table 1 - Rillito 2004 Wind Speed and Direction Data for Wind Speed $\geq$ 15 mph

Date	Time	Wind Direction (from)	Wind Speed (miles per hour)
21-Mar-2004	9:00	134	15.9
21-Mar-2004	10:00	133	19.2
21-Mar-2004	11:00	135	18.3
21-Mar-2004	12:00	136	15.9
21-Mar-2004	13:00	140	15.7
29-Apr-2004	12:00	247	16.3
29-Apr-2004	13:00	246	16.6
29-Apr-2004	14:00	256	17.9
29-Apr-2004	15:00	268	17.7
17-Jul-2004	20:00	139	15.2
1-Aug-2004	17:00	143	17.2
1-Aug-2004	18:00	141	15.2
25-Sep-2004	18:00	64	15.2
13-Oct-2004	22:00	70	16.8
13-Oct-2004	23:00	67	15.9
14-Oct-2004	0:00	67	16.1

Comparing the wind data with the crop calendar shows that the highest potential for windblown dust from freshly tilled cotton fields is on March 21, 2004. This day was selected as the 24-hour PM_{10} design day. By April 29, the cotton plants would be sufficiently high to shield the soil from the strong wind.

WINDBLOWN DUST FROM AGRICULTURAL FIELDS

Estimation of Windblown PM10 Emissions from Bare Agricultural Fields in the Rillito PM10 Study Area

A description of the methods and data used to estimate PM10 emissions from wind erosion of agricultural land in the Rillito PM10 Study Area appears below.

Identification of Crops

The types of crops and the locations of the fields in the Rillito PM_{10} Study area were identified through a number of steps:

1. Field surveys – ADEQ staff located agricultural fields and identified some of the crop types using printouts of gridded satellite images (QuickBird and IKONOS, 2003/2004) of the Rillito PM10 Study Area.

2. Digitizing – ADEQ staff digitized the following crop areas on the gridded satellite images of the Rillito PM10 Study Area based on the field surveys done by ADEQ staff (see Figure 1):

   Cotton was the major crop grown in all fields in the Rillito PM10 Study Area

   Oats/wheat (Haylage), Alfalfa and Pasture represent a miniscule portion of the crops

3. GIS was used to calculate the area (square meters) of each of the above crop types in each grid cell of the Rillito PM10 Study Area.

Crop Calendar

A crop calendar (see Table 1) was developed to show the time period that agricultural tillage and harvesting occurred in the Rillito PM10 Study Area. The calendar was based on the following:

Meeting with University of Arizona Cooperative Extension Service.

ADEQ's analysis of aerial photography book for 2002/2004 ("Real Estate Photo Book for Tucson", Landiscor Aerial Information, 1710 East Indian School Road, Phoenix, AZ 85016, Phone: 602-248-8989) to define the months when the land use transition occurred.

University of Arizona Cooperative Extension Service website on crop budgets (http://www.ag.arizona.edu/arec/ext/budgets/Maricopa-map.html)

Agricultural Tillage and Harvest Days

The design days selected by ADEQ for 24-hour ambient PM10 concentrations in the Rillito PM_{10} Study Area were compared to the previously mentioned crop calendar (Table 1) to determine which design days may have had open agricultural fields.

The high wind design days that were compared to the crop calendar are listed below:

Primary Design Days

- March 21, 2004
- April 29, 2004

Optional Design Days

- July 17, 2004
- August 1, 2004
- September 25, 2004
- October 13/14, 2004

After reviewing the crop calendar, it was found that March 21, 2004 was the only design day that had a potential for open agricultural fields and high winds. The major crop that may have had open fields was cotton.

Table F-1 Year 2004 Crop Calendar for Rillito PM10 Study Area												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Cotton												
Oats (Haylage)												
Pasture/Alfalfa												
Alfalfa/Oats												
Alfalfa												
Pasture												
Design Days (red = high wind day)			**3/21/04**	4/29/04								
Design Days – Optional							**7/17/04**	**8/1/04**	9/25/07	10/13/04 10/14/04		
Legend:	**Source of Data:** o Meeting with U of A Cooperative Extension o Phone Calls with U of A Cooperative Extension **Note:** Wind erosion during planting months is reduced due to irrigation keeping topsoil moist. Harvesting crop as haylage produces minimal emissions since crop is harvested green. May not landplane every year.											
Tilling =		Planting =		Crop in Field =		Harvest =						

Wind Erosion from Agriculture

The two high wind design days (total high wind design days = 6) were compared to the crop calendar (Table 1) to determine which of these days have a potential for wind erosion of agricultural land and for which crops. The March 21, 2004, and April 29, 2004, design days have a potential for wind erosion of agricultural fields with cotton. The primary drawback from using the April 29, 2004 day is the fact that the cotton plants may be sufficiently tall to provide cover for the soil. This is also the case for the October 13/14, 2004, optional design day, since the crop calendar indicates that this is the time frame for harvesting leaving sufficient standing plant material to provide cover for the soil. In addition, the October 13/14, 2004, optional design day has a potential for wind erosion of agricultural fields with oats and other grains because it is in the time window for tilling/planting. It turns out that there are only two small fields in which grain oats or wheat had been planted.

In order to compute the PM_{10} 24 hour emission for the March 21, 2004, design day, ADEQ staff multiplied the total agricultural land area subject to wind erosion by the number of hours of wind by the windblown dust emission factor to determine the total windblown dust (tons/day) for the Rillito Study area. Agricultural fields are considered to be vulnerable to wind erosion when the topsoil has been disturbed (e.g., by tilling) and before the crop is tall enough to shield the soil from wind. However, irrigation and the development of a crust on the soil (in the Rillito PM_{10} Study Area) during the month a crop is planted will reduce wind erosion.

The fields for some crops are tilled after harvest, while other crops are not tilled until shortly before planting. This is reflected in the crop calendar. University of Arizona Cooperative Extension Service provided the information on the typical months for wind erosion for the crops present in the Rillito PM_{10} Study Area.

Summary

Of the six design days selected by the Evaluation Unit, following are the design days that have either potential agricultural tillage or harvesting activity.

- March 21, 2004 - agricultural tillage activity
- April 29, 2004 - agricultural planting activity
- October 13/14, 2004 - harvesting activity

Sources of Data:

- Year 2004 surface area of agricultural land from QuickBird and IKONOS satellite images digitized by ADEQ
- Year 2004 surface area of agricultural land from 2004/2005 field trips by ADEQ

Methodology for Calculating Agricultural Land Conversion:

- The amount of agricultural land in the Rillito PM10 Study Area was determined for Years 2003 through 2005 through satellite image analysis, field surveys, and discussions with the University of Arizona Cooperative Extension Service staff.

The daily emissions have been summarized and are tabulated in Table 3.

Table 3 - Rillito Nonattainment Area Daily Emissions (tons/day) Design day March 21, 2004			
		All sources	**Vehicular**
Onroad Mobile			
(Mobile6.2 including: exhaust, brakes and tires)			
Primary Emission	0.143		
Secondary Emission	0.240		
Subtotal		**0.383**	**0.383**
Nonroad Mobile			
Lawn & Garden	0.013		
Aircraft	0.030		
Railway Maintenance	0.000		
Airport Service	0.000		
Locomotive	0.034		
Recreational	0.000		
Commercial	0.003		
Construction	0.037		
Subtotal		**0.119**	
Fugitive PM10 Emissions from On-road Mobile Sources			
Paved roads	0.933		
Unpaved roads	1.325		
Unpaved shoulders	0.498		
Trackout	0.285		
Subtotal		**3.041**	**3.041**
Windblown Dust March 21, 2004			
Agricultural Fields (bare)	921.6		
Alluvial Area	14.4		
Subtotal		**936.0**	
Cement Plant			
	1.317		
Subtotal		**1.317**	
TOTAL		**940.9**	**3.424**

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APPENDIX C.3
2004 On-Road Mobile Source PM_{10} Emissions Inventory
for the Rillito Nonattainment Area

INTRODUCTION

This paper documents how the PM_{10} emissions from on-road mobile sources in Rillito Nonattainment Area were quantified.

Methodology

EPA's MOBILE6 model was used to calculate the emission factors. MOBILE6 requires a variety of input parameters, such as meteorological conditions, fuel properties, and vehicle information. Each required parameter can be found in Table 1 along with its value and estimation method. It also can be seen from Table 1 that the calculation requires a lot of information reported in the Highway Performance Monitoring System (HPMS).[1] HPMS is a database containing system information on all public roads in the country. The information includes road classifications, speed limit, surface type, shoulder type, and average annual daily traffic (AADT). As many as 31 fields for all the road segments in Rillito Nonattainment Area were extracted from 2004 HPMS database. There are 181 public road segments in the area.

Sensitivity Analysis

Before compiling the contents in Table 1, several sensitivity analyses were conducted to investigate the effects of temperature, fuel properties (Reid Vapor Pressure – RVP, oxygen content, gasoline and diesel sulfur level), Inspection/Maintenance programs, vehicle speed, and vehicle registration distribution on the PM_{10} emissions from onroad mobile vehicles. The conclusions from this study are as follows:

- PM_{10} emissions are insensitive to the changes in temperature, fuel RVP and oxygen content. The presence of I/M programs does not influence the emissions either.

- The emissions vary with the sulfur content in gasoline or diesel. Higher sulfur content will lead to higher emissions.

- Vehicle registration distribution influences the emissions. Maricopa County has a newer fleet than Pima County. For example, in 2005, 36.7% of vehicles in Maricopa County were less than 5 years old, but 30.8% in Pima County; 5.8% of vehicles in Maricopa County were aged 20 and older, but 10.0% in Pima County.[2] Fleets with a higher percentage of older vehicles tend to produce higher emissions because older vehicles have more miles and their emission control systems are not as effective as newer ones.

- Vehicle speed influences the level of emissions. In general, PM_{10} emissions drop as speed increases; however, this occurs only if the speed is between certain ranges. MOBILE6 defines two speed bins: 19.6 miles/hr and 34.8 miles/hr. [3] If the speed stays constantly below 19.6 miles/hr or over 34.8 miles/hr, the PM_{10} emissions will not change with speed.

Table 1 - MOBILE6 Input Analysis for Rillito Nonattainment Area		
Parameter	Value	Notes
Pollutants	PM_{10}	
Calendar year	2004	
Month of evaluation	--	Not necessary since season does not affect PM_{10} emissions.
Altitude	Low	Average elevation of Marana is 2561 ft[3]. Although a small portion of the study area in the mountains exceeds 4000 ft, e.g., 4550 ft around (32°16'23", 111°09'), low altitude was selected, which is consistent with the recommendation by EPA.[3]
Min/Max temperature	55.85/84.16°F	No influence on PM_{10} emissions. Average values for the whole year were chosen.
Humidity	--	Not included since it has no influence on PM_{10} emissions.
Barometric pressure	--	Not included since it has no influence on PM_{10} emissions.
Refueling	None	Only Area A (Phoenix) requires Stage II Refueling in Arizona.
Average percent cloud over, period of peak sun,	MOBILE6 default	EPA recommends using national averages for SIP purposes.[3]
Sunrise/sunset time	--	Not included since it has no influence on PM_{10} emissions.
Age distribution of vehicle registration	Pima County's January 2004 vehicle registration[5]	The vehicles traveling in the nonattainment area can come from local area (Pima County), other counties in the state such as Maricopa County, or even from other states. Majority of the non-local vehicles are from Maricopa County. Pima County has an older fleet than Maricopa County. An older fleet tends to emit more PM_{10} according to the sensitivity analysis. To be conservative, Pima County's vehicle registration is used to determine the vehicle registration distribution in the nonattainment area.
Annual mileage accumulation rate	MOBILE6 default	EPA recommends using national default if local data is unavailable.[3]
Diesel fractions	Local information[5] + national default[6]	MOBILE6 requires 350 diesel fractions for 25 ages of 14 composite vehicle types. Diesel fractions of light duty vehicles and bus were obtained from Motor Vehicle Division's vehicle registration report directly.[5] National default values were used for other 12 vehicle types.[6]
Natural gas vehicle	--	Neglect since the fraction is low.

VMT by vehicle class	Based on HPMS database[1]	EPA expects states to develop local estimates.[3] HPMS reports percentages of AADT by single truck unit (25 ~ 50 feet) and multi-truck unit (>50 feet). Vehicles longer than 25 feet are considered as heavy duty vehicles.[7] Based on this information, the split over light duty and heavy duty can be determined.
VMT by facility	--	Not necessary since each link or (similar links) will be modeled separately.
VMT by hour	MOBILE6 default	States may choose to use the default values instead of developing local values.[3] If local data is difficult to obtain, MOBILE6 defaults can be used.
VMT by speed	--	EPA expects states to develop local estimates.[3] At a minimum speeds should be estimated separately by roadway function class using 'Average Speed'.
Average speed		Average speed for each link was estimated based on the information in HPMS database. For all freeways, it is assumed that the average speed is 60 miles/hr; For arterials/collectors/rural local, the speed is assumed to be 35 miles/hr; For urban local roads, the speed is set to 12.9 miles/hr by MOBILE6; For unpaved roads, the speed is assumed to be 15 miles/hr.
Idle emission rates	--	Not necessary.
Vehicle engine starts per day, by hour of the day, vehicle soak time between engine starts, vehicle soak time after engine shut down, vehicle diurnal soak time, vehicle trip length (duration) distributions	MOBILE6 default	Local data is unavailable and they have negligible effect on overall emissions.
Weekday and weekend day activity	MOBILE6 default	Not necessary and local data is unavailable.
Fuel RVP	10.87 psi	It is a required input although it has no influence on PM_{10} emissions. Fuel properties were obtained from the 2004 inspection report provided by the Arizona Department of Weights and Measures.[8] Average value was chosen.

Fuel oxygen content	--	Not included since it has no influence on PM_{10} emissions.
Gasoline sulfur content	130.32 ppm	Average value was chosen.[8]
Diesel sulfur content	326.33 ppm	Average value was chosen.[8]
Inspection/Maintenances program Anti-tampering	--	Not included since it has no influence on PM_{10} emissions.

VMT by Vehicle Class

This input, VMT by vehicle class, is used to allocate VMT to 16 specific vehicle types. These 16 vehicle types can be found in Table B.1 in MOBILE6 User's Guide.[6] As mentioned in Table 1, EPA expects states to develop local estimates.[3] HPMS database[1] obtained from the Arizona Department of Transportation lists the percentages of annual average daily traffic counts (AADT) of single truck unit (25 ~ 50 feet) and multi-truck unit (> 50 feet) for several road segments. All single truck unit and multi-truck unit are considered as heavy duty vehicles; the rest (< 25 feet) are considered light duty vehicles, including motorcycles and light duty trucks.[1] MOBILE6 Technical Guidance[3] describes the method to calculate the VMT fraction for each vehicle type. Assume the percentage of heavy duty vehicles is x and that of light duty vehicles is (1-x). The calculations are as follows,

VMT fraction of each light duty type = national default of VMT fraction for this type * (1-x) / national default of percentage of light duty vehicles

VMT fraction of each heavy duty type = national default of VMT fraction for this type * x / national default of percentage of heavy duty vehicles

The national default of VMT fraction for each vehicle type can be found in Table 2.

Table 2. National Default VMT Fraction for Each Vehicle Type

Vehicle type	VMT fraction	Description
LDV	0.4858	Light duty vehicles (passenger cars)
LDT1	0.0671	Light duty trucks 1
LDT2	0.2230	Light duty trucks 2
LDT3	0.0690	Light duty trucks 3
LDT4	0.0321	Light duty trucks 4
HDV2b	0.0383	Class 2b heavy duty vehicles
HDV3	0.0038	Class 3 heavy duty vehicles
HDV4	0.0029	Class 4 heavy duty vehicles
HDV5	0.0022	Class 5 heavy duty vehicles
HDV6	0.0083	Class 6 heavy duty vehicles
HDV7	0.0099	Class 7 heavy duty vehicles
HDV8a	0.0109	Class 8a heavy duty vehicles
HDV8b	0.0389	Class 8b heavy duty vehicles
HDBS	0.0019	School buses
HDBT	0.0009	Transit and urban buses
MC	0.0051	Motorcycles

HPMS database does not provide the percentages of AADT of single truck unit and multi-truck unit for all the road segments. There are totally 181 road segments in the HPMS database in the nonattainment area. Only a handful of 20 segments have the information to directly determine VMT fractions. A lot of segments among those 20 segments share the same VMT fractions. There are 5 different sets of VMT fractions. VMT by vehicle type class (A, B, C, D, or E) is used to denote these different sets of VMT fractions. For other roads, satellite images were used to determine their locations and VMT by vehicle class of an adjacent road was assigned.

MOBILE6 Cases and Emission Factors

Each of the 181 road segments in the nonattainment area was modeled separately by MOBILE6.

After inspecting the HPMS database, it was discovered that there are 5 different combinations of VMT by vehicle class and 3 different roadway types. All the estimated speeds can be classified into two categories: > 34.8 miles/hr and < 19.6 miles/hr. Since PM_{10} emissions do not vary with speed when speed is below 19.6 miles/hr or over 34.8 miles/hr, only two speeds should be simulated in MOBILE6, 35 miles/hr (> 34.8 miles/hr, high speed) and 15 miles/hr (< 19.6 miles/hr, low speed). Along with combinations of VMT by vehicle class and roadway types, 12 different cases should be run to generate emission factors as shown in Table 3. The five combinations of VMT by vehicle class are denoted as A, B, C, D and E. The emission factors of both primary PM_{10} and total PM_{10} (including secondary PM_{10}) for each case are also shown in this table.

Table 3.MOBILE6 Cases and Emission Factors

Case ID	Description	Emission Factor – Primary (g/mile)	Emission Factor – Total (g/mile)
111	High speed, VMT-A, Freeway	0.125	0.3046
113	High speed, VMT-A, Arterial	0.125	0.3046
123	High speed, VMT-B, Arterial	0.0766	0.2323
133	High speed, VMT-C, Arterial	0.0437	0.1833
143	High speed, VMT-D, Arterial	0.0538	0.1984
153	High speed, VMT-E, Arterial	0.0716	0.2248
213	Low speed, VMT-A, Arterial	0.1254	0.3049
223	Low speed, VMT-B, Arterial	0.0772	0.2328
233	Low speed, VMT-C, Arterial	0.0444	0.1838
242	Low speed, VMT-D, Local	0.0545	0.1989
243	Low speed, VMT-D, Arterial	0.0545	0.1989
253	Low speed, VMT-E, Arterial	0.0722	0.2253

Calculation of Exhaust, Tire and Brake Wear Emissions from All Road Segments Reported by HPMS Database

For each link, HPMS database reports its AADT and length. Thus, the daily VMT of each link can be calculated by the following equation:

Daily VMT = Link length * Link AADT

Then, the emissions from each link are calculated as follows:

Daily PM_{10} emissions for each link = Daily VMT * Emission factor

HPMS database does not report AADT for all road segments. For example, the AADTs of some segments of I-10 frontage road were not reported. In this case, the average of 10 known AADTs from the I-10 frontage roads was used. The AADTs of some secondary road segments were not reported. Ten percent rule was employed here to estimate the AADTs of those roads; that is, 10% of AADT from an adjacent primary road. HPMS database reports AADT ranges for some segments and medium values were assumed for these segments.

The total PM_{10} emissions from HPMS reported roads are the sum of emissions from all the links in the nonattainment area. The primary PM_{10} emissions from HPMS reported road segments are calculated to be **0.141 tons/day**. The total PM_{10} (including secondary PM_{10}) are **0.373 tons/day**.

Calculation of Exhaust, Tire and Brake Wear Emissions from Road Segments not Reported by HPMS Database

After inspecting the HPMS database, it was discovered that some roads were not reported in the database. The majority of those roads are local ones in the residential area. The traffic on those roads was estimated using population.

In 2004, the estimated Pima County population was 931,835.[9] The number of private vehicles in 2004 was 580,130.[5] The ratio of the number of private vehicles to population is 0.623. That means, out of 1000 people, 623 own a vehicle.

It was estimated that the 2004 population of the nonattainment area was 45,600.[10] The number of vehicles owned by the residents in the Non-Attainment Area is then 45,600 × 0.623 = 28,409.

It is assumed that each vehicle would travel 4 times and average 0.5 miles from local residential roads to adjacent major roads or from adjacent major roads to local residential roads. Thus, the vehicle miles traveled can be calculated by the following equation,

Daily VMT = 28,409 × 4 (trips/day) × 0.5 (mile/trip) = 56,818 miles

MOBILE6 model was run to generate the emission factor. All the input parameters are same as those listed in Table 1 except VMT by vehicle class and average speed. It is assumed that the all the VMTs are generated by light duty vehicles. The average speed is assumed to be 15 miles/hr.

The primary PM_{10} emission factor is 0.0293 gram/mile and the total PM_{10} (including secondary PM_{10}) emission factor is 0.1611 gram/mile.

The primary PM_{10} emissions from those road segments not reported in HPMS database is,

56,818 (miles/day) × 0.0293 (gram/mile) / 1000000 (grams/tons) = **.002 tons/day**.

The total PM_{10} (including secondary PM_{10}) emissions from those road segments not reported in HPMS database is,

56,818 (miles/day) × 0.1611 (gram/mile) / 1000000 (grams/tons) = **.009 tons/day.**

Results and Discussions

The total primary PM_{10} emissions are calculated to be **0.143 tons/day**. The total primary and secondary PM_{10} emissions are **0.383 tons/day**. This number was checked against the 2000 emissions inventory developed by Pima Association of Governments (PAG).[11] PAG developed a 2000 on-road mobile source emissions inventory for Tucson Air Planning Area. The total PM_{10} emissions are 401.1 tons/yr for calendar year 2000. Rillito Nonattainment Area is part of Tucson Air Planning Area. The value of total PM_{10} emissions calculated for Rillito Nonattainment Area is reasonable in terms of magnitude compared to that of Tucson Air Planning Area.

Reference

1. Arizona Department of Transportation, HPMS Database, 2004.
2. Arizona Department of Transportation, January 2005 MVD Vehicle Registration Report, 2005.
3. US EPA, Technical Guidance on the Use of MOBILE6.2 for Emission Inventory Preparation, August 2004.
4. http://www.agequalified.com/arizona/marana.htm.
5. Arizona Department of Transportation, January 2004 MVD Vehicle Registration Report for Pima County, 2004.
6. US EPA, User's Guide to MOBILE6.1 and MOBILE6.2: Mobile Source Emission Factor Model, October 2002.
7. US EPA, Use of Locality-Specific Transportation Data for the Development of Mobile Source Emission Inventories, Final Report, September 1996.
8. Arizona Department of Weights and Measures, 2004 Pima County Fuel Inspection Report, 2004.
9. Arizona Department of Economic Security, July 1, 2004 Population Estimates for Arizona's Counties, Incorporated Places and Balance of County, February 2007.
10. David Lillie, 2004 Population in Rillito Nonattainment Area, 2007.
11. Pima Association of Governments, 2000 On-Road Mobile Source Emissions Inventory, September 2004.

APPENDIX C.4
2004 Fugitive PM_{10} Emissions from On-road Mobile Sources for the Rillito Nonattainment Area

The fugitive emissions include re-entrained road dusts from paved roads and unpaved roads, trackout onto the paved roads and unpaved shoulders of paved roads due to vehicle traveling. They are usually calculated using the methodologies outlined in Chapter 13 of AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Source.[1,2] The fugitive emissions must be calculated separately for paved and unpaved roads. The calculation for each category will be described next.

There is a field in HPMS (Highway Performance Monitoring System) database[3] that specifies the type of road surface, such as unpaved, low type, intermediate type, and high type flexible. HPMS database does not provide this information for all the road segments in the nonattainment area. Only 43 road segments have this value specified. For the rest of the road segments, satellite images were utilized to determine whether the road was paved or unpaved before the calculations were performed.

Paved roads:

The equation[1] to calculate reentrained emissions on paved road is:

$$E = k\left(\frac{sL}{2}\right)^{0.65} \times \left(\frac{W}{3}\right)^{1.5} - C \qquad (1)$$

k is the particle size multiplier and is 7.3 grams/VMT.[1]

sL is the road silt loading (g/m^2). sL for different roads is estimated based a study[4] conducted by Engineering Science in 1987. A total of 9 samples were collected at different locations in Pima County, and their silt loadings were measured. The silt loading ranges between 0.02 and 1.82 grain/ft^2 as shown in Table 1.

It was observed during the field survey that the freeway (I-10) was very clean. The silt loading should be similar to that of a clean arterial, which is assumed to be 0.020 g/m^2. For other roads in the study area, average of 5 samples excluding top two and bottom two, 0.085 g/m^2, was used as the average silt loading.

W is the average weight (tons) of the vehicles traveling on the roads. It can be estimated by the vehicle mix traveling on the roads. HPMS reports percentages of AADT by single truck unit (25 ~ 50 feet) and multi-truck unit (>50 feet). Vehicles longer than 25 feet are considered as heavy duty vehicles.[3] Based on this information, the split over light duty and heavy duty can be determined. It is then assumed that the average weight of light duty vehicles is 2 tons and that of heavy duty vehicles is 10 tons. Thus,
W = 2 tons × percentage of light duty vehicles + 10 tons × percentage of heavy duty vehicles.

Table 1. Paved Street Silt Loading Measurement Results in Pima County[4]			
Location	**Street Type**	**Silt Loading (grain/ft^2)**	**Silt Loading (gram/m^2)**
6th Ave. at 28th St.	Collector	1.82	1.269
Speedway Blvd., E of Pantano	Arterial	0.57	0.398
22nd St., E. of Camino Seco	Arterial	0.04	0.028
Amklam Rd. near St. Mary's Road	Collector	0.02	0.014
Fort Lowell Rd., E. of Alvernon Way	Arterial	0.16	0.112
Oracle Rd., S. of Kanmar Pl.	Arterial	0.02	0.014
Ina Rd., E. of La Cholla Blvd.	Arterial	0.03	0.021
Orange Grove, E. of Camino de la Tierra	Arterial	0.23	0.160
La Canada, N. of Orange Grove	Arterial	0.15	0.105

HPMS database does not provide the percentages of AADT of single truck unit and multi-truck unit for all the road segments. There are totally 181 road segments in HPMS database[3] in the nonattainment area. Only a handful of 20 segments have the information to directly determine average weight. For other roads, satellite images were used to determine their locations and average weight of vehicles from an adjacent road was assigned.

C is the emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear. Its value is 0.2119 grams/VMT.[1]

The emission factor should be adjusted based on precipitation,

$$E = \left[k \left(\frac{sL}{2} \right)^{0.65} \times \left(\frac{W}{3} \right)^{1.5} - C \right] \left(1 - \frac{P}{4N} \right) \qquad (2)$$

where P is the number of wet days with at least 0.254 mm of precipitation during the average period, and N is the number of days in the averaging period.

It was assumed that no control measures were implemented to reduce re-entrained road dust.

According to the measurements by AZMET – Marana Station,[5] in 2004, there was an average of 35 days with precipitation over 0.254 mm. Thus, P is 35 and N is 366.

The emissions from each road segment reported in HPMS database was calculated and then aggregated into the total emissions. The total emissions are **0.916 tons/day**.

For the roads that were not reported in HPMS database, it was determined during the field survey that the majority of those roads were the local roads in the residential areas. The VMT generated on those roads were due to private vehicles traveling from residents to major roads or from major

roads to residents. It was then assumed that each private vehicle would travel 4 times each day and 0.5 miles each time on those roads. Thus, the daily VMT generated by each vehicle is 2 miles.

In 2004, the estimated Pima County population was 931,835.[6] The number of private vehicles in 2004 was 580,130.[7] The ratio of the number of private vehicles to population is 0.623. That means, out of 1000 people, 623 own a vehicle.

It was estimated that the 2004 population of the nonattainment area was 45,600.[8] The number of vehicles owned by the residents in the nonattainment area is then 45,600 × 0.623 = 28,409.

Thus, the vehicle miles traveled can be calculated by the following equation,

Daily VMT = 28,409 × 4 (trips/day) × 0.5 (mile/trip) = 56,818 miles

It was assumed that 99% percent of VMT was generated on paved local residential roads, thus the VMT on paved local residential roads was 56,250 miles. The emission factor was calculated using equation (2), in which the silt loading was assumed to be 0.085 g/m^2 and the average weight of vehicles was assumed to be 2 tons. The emission factor then is 0.298 g/mile. The PM_{10} emissions from paved local residential roads are **0.017 tons/day.**

Unpaved roads:

The following equation calculates the emission factor in lb/VMT for vehicles traveling on publicly accessible roads,

$$E = \frac{k\left(\frac{s}{12}\right)^a \left(\frac{S}{30}\right)^d}{\left(\frac{M}{0.5}\right)^c} - C \qquad (4)$$

k is particle size multiplier and is 1.8 lb/VMT.[2]

a, c and d are constants and their values are 1, 0.2 and 0.5.[2]

C is the emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear and it is 0.00047 lb/VMT.[2]

s is the surface material silt content (%). s for different roads is estimated based a study[4] conducted by Engineering Science in 1987. Six values of silt content from bulk sample measurements on unpaved roads in Pima County were presented in Table 2. The silt content ranges from 0.104% to 5.710%. The average excluding top one and bottom one is 3.51% and used as the average silt content.

Table 2. Unpaved Street Silt Content Measurement Results in Pima County[4]	
Location	**Silt Content (%)**
La Cholla Blvd. at Canada del oro	5.710
Lambert Lane, W. of La Canada	4.459
Kelting Drive	0.104
Panorama Road	4.363
El Moraga Drive	4.397
El Camino de la Tierra at Rillito Creek	0.826

S is the mean vehicle speed in mph. The mean speed was estimated for each road segment in the nonattainment area.

M is the surface material moisture content (%). It is assumed to be 0.64%.[4]

The equation above should also be adjusted based on precipitation,

$$E_{ext} = E\left(\frac{(365 - P)}{365}\right) \quad (5)$$

where P is the number of days in a year with at least 0.254 mm of precipitation. Since 2004 was a leap year, the above equation is revised to reflect this situation.

$$E_{ext} = E\left(\frac{(366 - P)}{366}\right) \quad (6)$$

The emission from each unpaved road segment was calculated and then aggregated into the total emissions. The total emissions are **1.249 tons/day**.

The same method as paved roads was used to calculate fugitive emissions from those unpaved local residential roads that were not reported in HPMS database. It was assumed that only 1% of VMT (568 miles) was generated on unpaved local residential roads. The emission factor was calculated using equation (4), in which the speed is assumed to be 15 miles/hr. The emission factor then is 160.523 g/mile. The total emissions from unpaved local residential roads are **0.076 tons/day**.

Unpaved shoulders:

Unpaved shoulders on paved roads were determined based on the information from HPMS database. The database provides a field called "shoulder type". Many of the road segments are marked as "no shoulders or curbs". Satellite images were further utilized to identify what was

the meaning of "no shoulders or curbs". A field trip was conducted to verify the observations from the satellite images. In conclusion, although many of the road segments are marked as "no shoulders or curbs", most of them have in fact unpaved shoulders and some of them have semi-stable shoulders although unpaved.

After all the road segments with unpaved and unstable shoulders were identified, the emissions for each segment were calculated using the following equation,

$$\text{Emissions from unpaved shoulders (tons/yr)} = \text{AADT} \times \text{Length of Unpaved Shoulder} \times \text{Emission Factor}_{\text{road shoulder}} \quad (7)$$

The emission factor was extracted from a study by Moosmuller.[9] This study reported that high profile vehicles, traveling at 50 ~ 60 mph, had a PM_{10} emission factor of 12.88 ± 6.44 grams/VMT. The emission factor for the overall fleet is then 12.88 × percentage of high profile vehicle. It was assumed that high profile vehicles were heavy duty vehicles. Therefore,

$$\text{Emission Factor}_{\text{road shoulder}} = 12.88 \times \text{percentage of heavy duty vehicles} \quad (8)$$

The percentage of heavy duty vehicles were determined based on HPMS database as discussed in the section of Paved Roads.

The emission from each road segments was then calculated using equation (7) and aggregated to the total emissions, which are, **0.498 tons/yr**.

Trackout

The emissions from trackout were documented in a separate document.[10] The total emissions from this category are **0.285 tons/yr**.

Summary

The emissions for each category and total emissions are organized in Table 3.

Table 3 - 2004 Fugitive PM_{10} Emission Inventory

Category		Emissions (tons/day)
Paved roads	HPMS reported roads	0.916
	Local residential roads	0.016
Unpaved roads	HPMS reported roads	1.250
	Local residential roads	0.076
Unpaved shoulders		0.50
Trackout		0.285
Total		**3.041**

Reference

1. US EPA, AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Source, Chapter 13.2.1, November 2006.
2. US EPA, AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Source, Chapter 13.2.2, November 2006.
3. Arizona Department of Transportation, HPMS Database, 2004.
4. Final Report for Collection and Reduction of PM_{10} Emissions Inventory Data for the Maricopa and Pima Planning Areas, Engineering-Science, 1987.
5. Arizona Meteorological network, http://ag.arizona.edu/azmet/.
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8. David Lillie, 2004 Population in Rillito Nonattainment Area, 2007.
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10. Hui Chen, 2004 PM_{10} Emissions from Trackouts in Rillito Non-Attainment Area, 2008.

APPENDIX C.5
2004 PM_{10} Emissions from Trackout in the Rillito Nonattainment Area

Identification of Trackout

Trackout was identified using satellite images and verified during the field trip. During the field trip, it was observed that most of the trackout was from rural residential areas, agricultural areas, and construction areas. Numerous trackout was observed at a residential construction site. However, most of the trackout took place within the boundaries of the construction site where traffic was minimal. Little trackout occurred on public roads. In some rural residential areas, several access roads are unpaved and many of the homes do not have a paved driveway, causing trackout at almost every exit to paved public roads.

Observations for each township and range are organized as follows.

[11S 9E] The section is in an undeveloped mountainous area, where traffic is negligible.

[11S 10E] The categories and amount of trackout are shown in the following tables. The annual average daily traffic (AADT)[1] and VMT by vehicle class[2] are also featured in these tables.

Table 1 - Trackout in 11S, 10E

Road	Trackout Category	VMT by Vehicle Class	AADT	Incidence of Trackout
Trico Road Trico Marana ~ Hardin	Agricultural	C	999	2
Trico Road Trico Marana ~ Avra Valley	Private	C	999	2
Trico Marana Road Trico ~ Marana	Agricultural Private	C	2260	2 1
Silverbell Road Marana TB ~ Trico	Industrial	D	399	1
Silverbell Road Trico ~ Aguirre	Private	D	399	3
El Tiro Road Cicio ~ Anway	Private	D	540	4
El Tiro Road Anway ~ Trico	Private	D	540	3
Anway Road Avra Valley ~ El Tiro	Private	C	645	8

[11S 11E]

Table 2 - Trackout in 11S, 11E				
Road	**Trackout Category**	**VMT by Vehicle Class**	**AADT**	**Incidence of Trackout**
Luckett Road Imogene Pl ~ Marana Road	Agricultural	C	350	8
Sanders Road Marana ~ Moore	Agricultural	C	2782	7
Sanders Road Moore ~ Silverbell	Private Agricultural	C	2782	4 2
Marana Road I-10 frontage ~ Sanders	Private Agricultural	C	2181	3 1
Marana Road Sanders ~ Luckett	Private Agricultural	C	2181	4 1
Grier Road I-10 front ~ Sandario	Industrial	C	934	2
Grier Road Sandario ~ Sanders	Agricultural Private	C	934	3 3
Grier Road Sanders ~ Wentz	Agricultural Private	C	934	4 1
Barnett Road I-10 frontage ~ Sandario	Private	B	543	1
Barnett Road Sandario ~ Sanders	Construction Agricultural	B	543	1 1
Moore Road I-10 frontage ~ Postvale	Agricultural	B	870	2
Moore Road Postvale ~ Sanders	Agricultural Construction	B	870	1 2
Tangerine Road I-10 frontage ~ Postvale	Agricultural Industrial	B	1200	3 1
Sandario Road Moore ~ Barnett	Construction	B	2782	1
Sandario Road Moore ~ Silverbell	Construction	B	2782	4
Sandario Road Barnett ~ Grier	Private Agricultural	B	900	3 3
Sandario Road Grier ~ Marana	Private	B	900	4

[11S 12E]

Table 3 - Trackout in 11S, 12E				
Road	**Trackout Category**	**VMT by Vehicle Class**	**AADT**	**Incidence of Trackout**
Dove Mountain Blvd Tangerine ~ Gallery Canyon	Construction	B	662	4

[12S, 8E and 12S, 9E]

Table 4 - Trackout in 12S, 8E and 12S, 9E				
Road	**Trackout Category**	**VMT by Vehicle Class**	**AADT**	**Incidence of Trackout**
Avra Valley Road Begin/End/Culdesac ~ Pump Station	Industrial	B	5761	2

[12S, 10E]

Table 5 - Trackout in 12S, 10E				
Road	**Trackout Category**	**VMT by Vehicle Class**	**AADT**	**Incidence of Trackout**
Avra Valley Road Pump Station ~ Trico	Private	B	5761	3
Avra Valley Road Trico ~ Sanders	Private Agricultural	B	4961	2 3
Anway Road Manville ~ Avra Valley	Agricultural	C	430	4
Anway Road Avra Valley ~ El Tiro	Commercial Private	C	645	1 7
Trico Road Avra Valley ~ El Tiro	Private	C	999	1

[12S, 11E]

Table 6 - Trackout in 12S, 11E				
Road	**Trackout Category**	**VMT by Vehicle Class**	**AADT**	**Incidence of Trackout**
Avra Valley Road Trico ~ Sanders	Agricultural	B	4961	6
Avra Valley Road Sanders ~ Sandario	Private	B	6515	1
Avra Valley Road Sandario ~ Airline	Agricultural Industrial	B	7059	3 1
Twin Peaks Road Clayton ~ Sanders	Agricultural	E	648	3
Twin Peaks Road Sanders ~ Sandario	Agricultural	E	648	2
Twin Peaks Road Sandario ~ Silverbell	Agricultural	E	10718	3
Sanders Road Avra Valley ~ Silverbell	Agricultural	C	2782	1
Sanders Road Silverbell ~ Moore	Agricultural	C	2782	5
Sandario Road Ina ~ Emigh	Private Agricultural Commercial	B	5732	1 2 1
Sandario Road Ina ~ Picture Rock	Private	B	5732	1

[12S 12E]

Table 7 - Trackout in 12S, 12E				
Road	**Trackout Category**	**VMT by Vehicle Class**	**AADT**	**Incidence of Trackout**
Tangerine Road I-10 frontage ~ El Camino De Manana	Agricultural Private Industrial	B	6622	3 3 3
I-10 frontage	Agricultural	D	1496	4
Silverbell Road Lambert ~ Coachline	Private Industrial Agricultural	D	6776	5 2 1
Silverbell Road Coachline ~ Twin Peaks	Private	D	6776	3
Silverbell Road Cortaro ~ Ina	Construction	D	9269	2
Cortaro Road I-10 frontage ~ Ina	Industrial Private	E	1700	1 2
Wade Road Ina ~ Picture Rock	Private	E	7552	4
Twin Peaks Road Silverbell ~ Sandario	Agricultural Private Industrial	E	10718	2 1 1
Ina Road Cortaro ~ Wade	Private	E	4400	3
Ina Road Wade ~ Artesiano	Private	E	4400	5
Camino De Oeste Road Cortaro Farm ~ Linda Vista	Construction Private	B	9500	1 1
Camino De Oeste Road Linda Vista ~ Turkey	Private	B	1398	10
Cortaro Farm Road Hartman ~ Camino De Oeste	Private	E	17165	2
Hartman Lane Cortaro Farm ~ Linda Vista	Construction Private	E	1000	4 2
Linda Vista Blvd Marana TB ~ Hartman	Private Industrial	E	522	3 1
Linda Vista Blvd Hartman ~ Camino De Oeste	Private	E	1600	1

Emission Calculation

The calculation of PM_{10} emissions from trackout followed the procedures outlined in PM_{10} State Implementation Plan for the Salt River Area.[3] The emission factors were calculated using the equations from AP-42[4] shown as follows,

$$E = \left[k\left(\frac{sL}{2}\right)^{0.65} \times \left(\frac{W}{3}\right)^{1.5} - C \right]\left(1 - \frac{P}{4N}\right) \quad (1)$$

k is the particle size multiplier and is 7.3 grams/VMT.[4]

sL is the road silt loading (g/m^2). sL for each trackout category was estimated based on the study[3] conducted for Salt River SIP in 2005.

W is the average weight (tons) of the vehicles traveling on the roads. It can be estimated by the vehicle mix traveling on the roads. HPMS database reports the percentages of AADT (annual average daily traffic) by single truck unit (25 ~ 50 feet) and multi-truck unit (>50 feet). Vehicles longer than 25 feet are considered as heavy duty vehicles[1]. Based on this information, the split over light duty and heavy duty can be determined. It is then assumed that the average weight of light duty vehicles is 2 tons and that of heavy duty vehicles is 10 tons. Thus,

W = 2 tons × percentage of light duty vehicles + 10 tons × percentage of heavy duty vehicles

HPMS database does not provide the percentages of AADT of single truck unit and multi-truck unit for all the road segments. There are totally 181 road segments in HPMS database[1] in the nonattainment area. Only a handful of 20 segments have the information to directly determine the average weight. For other roads, satellite images were used to determine their locations and average weight of vehicles from an adjacent road was assigned.

C is the emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear. Its value is 0.2119 grams/VMT.[1]

P is the number of wet days with at least 0.254 mm of precipitation during the average period, and N is the number of days in the averaging period. According to the measurements by AZMET – Marana Station,[5] in 2004, there was an average of 35 days with precipitation over 0.254 mm. Thus, P is 35 and N is 366.

The emissions from trackout for each involved road segment were then calculated by equation (2). Table 8[3] shows the trackout distance and silt loading for each trackout category.

Emissions (tons/yr) = Emission Factor × AADT × Trackout Distance × Incidence of Trackout × 0.000621371 mi/m × 1ton/1000000 grams (2)

Then the total emissions are the sum of those emissions from all involved road segments, which were calculated to be **0.285 tons/day**.

Table 8 - Trackout Distance and Silt Loading for Each Trackout Category		
Trackout Category	**Distance (m)**	**Silt Loading (g/m^2)**
Agricultural	100	1.90
Construction	200	1.67
Industrial	200	3.06
Private	50	0.75
Commercial	50	1.08

References

1. Arizona Department of Transportation, HPMS database, 2004.
2. Hui Chen, 2004 On-Road Mobile Source PM_{10} Emissions Inventory for Rillito Non-Attainment Area, 2008.
3. Arizona Department of Environmental Quality, Revised PM_{10} State Implementation Plan for the Salt River Area, Technical Support Document, June 2005.
4. US EPA, AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Source, Chapter 13.2.1, November 2006.
5. Arizona Meteorological network, http://ag.arizona.edu/azmet/.

APPENDIX C.6
WINDBLOWN DUST FROM AGRICULTURAL FIELDS

Estimation of Windblown PM10 Emissions from Bare Agricultural Fields in the Rillito PM10 Study Area

Following is a description of the methods and data used to estimate PM10 emissions from wind erosion of agricultural land in the Rillito PM10 Study Area.

Identification of Crops

The types of crops and the locations of the fields in the Rillito PM10 Study area were identified through a number of steps:

1. Field surveys – ADEQ staff located agricultural fields and identified some of the crop types using printouts of gridded satellite images (QuickBird and IKONOS, 2003/2004) of the Rillito PM10 Study Area.

2. Digitizing – ADEQ staff digitized the following crop areas on the gridded satellite images of the Rillito PM10 Study Area based on the field surveys done by ADEQ staff (see Figure 1):
   - Cotton was the major crop grown in all fields in the Rillito PM10 Study Area
   - Oats/wheat (Haylage), Alfalfa and Pasture represent a miniscule portion of the crops

3. GIS was used to calculate the area (square meters) of each of the above crop types in each grid cell of the Rillito PM10 Study Area.

Crop Calendar

A crop calendar (see Table 1) was developed to show the time period that agricultural tillage and harvesting occurred in the Rillito PM10 Study Area. The calendar was based on the following:

- Meeting with University of Arizona Cooperative Extension Service.
- ADEQ's analysis of aerial photography book for 2002/2004 ("Real Estate Photo Book for Tucson", Landiscor Aerial Information, 1710 East Indian School Road, Phoenix, AZ 85016, Phone: 602-248-8989) to define the months when the land use transition occurred.
- University of Arizona Cooperative Extension Service website on crop budgets
- (http://www.ag.arizona.edu/arec/ext/budgets/Maricopa-map.html)

Agricultural Tillage and Harvest Days

The design days selected by ADEQ for 24 hour ambient PM10 concentrations in the Rillito PM10 Study Area were compared to the previously mentioned crop calendar (Table 1) to determine which design days may have had open agricultural fields.

Following are the high wind design days that were compared to the crop calendar:

- Primary Design Days
  - March 21, 2004
  - April 29, 2004
- Optional Design Days
  - July 17, 2004
  - August 1, 2004
  - September 25, 2004
  - October 13/14, 2004

After reviewing the crop calendar, it was found that March 21, 2004 was the only design day that had a potential for open agricultural fields and high winds. The major crop that may have had open fields was cotton.

Table F-1 Year 2004 Crop Calendar for Rillito PM10 Study Area												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Cotton												
Oats (Haylage)												
Pasture/Alfalfa												
Alfalfa/Oats												
Alfalfa												
Pasture												
Design Days (red = high wind day)			3/21/04	4/29/04								
Design Days – Optional							7/17/04	8/1/04	9/25/07	10/13/04 10/14/04		
Legend:	**Source of Data:** o Meeting with U of A Cooperative Extension o Phone Calls with U of A Cooperative Extension **Note:** Wind erosion during planting months is reduced due to irrigation keeping topsoil moist. Harvesting crop as haylage produces minimal emissions since crop is harvested green. May not landplane every year.											
Tilling =		Planting =			Crop in Field =				Harvest =			

Wind Erosion from Agriculture

The two high wind design days (total high wind design days = 6) were compared to the crop calendar (Table 1) to determine which of these days have a potential for wind erosion of agricultural land and for which crops. The March 21, 2004 and April 29, 2004 design days have a potential for wind erosion of agricultural fields with cotton. The primary drawback from using the April 29, 2004 day is the fact that the cotton plants may be sufficiently tall to provide cover for the soil. This is also the case for the October 13/14, 2004, optional design day, since the crop calendar indicates that this is the time frame for harvesting thus there would be sufficient standing plant material to provide cover for the soil. In addition, the October 13/14, 2004 optional design day has a potential for wind erosion of agricultural fields with oats and other grains because it is in the time window for tilling/planting. It turns out that there are only two small fields in which grain oats or wheat had been planted.

In order to compute the PM10 24 hour emission for the March 21, 2004 design day, ADEQ staff multiplied the total agricultural land area subject to wind erosion by the number of hours of wind by the windblown dust emission factor to determine the total windblown dust (tons/day) for the Rillito Study area. Agricultural fields are considered to be vulnerable to wind erosion when the topsoil has been disturbed (e.g., by tilling) and before the crop is tall enough to shield the soil from wind. However, irrigation and the development of a crust on the soil (in the Rillito PM10 Study Area) during the month a crop is planted will reduce wind erosion.

The fields for some crops are tilled after harvest, while other crops are not tilled until shortly before planting. This is reflected in the crop calendar. University of Arizona Cooperative Extension Service provided the information on the typical months for wind erosion for the crops present in the Rillito PM10 Study Area.

Summary

Of the six design days selected by the Evaluation Unit, following are the design days that have either
potential agricultural tillage or harvesting activity in the Salt River PM10 Study Area:

- March 21, 2004 - agricultural tillage activity
- April 29, 2004 - agricultural planting activity
- October 13/14, 2004 - harvesting activity

Sources of Data:

- Year 2004 surface area of agricultural land from QuickBird and IKONOS satellite images digitized by ADEQ

- Year 2004 surface area of agricultural land from 2004/2005 field trips by ADEQ

Methodology for Calculating Agricultural Land Conversion:

- The amount of agricultural land in the Rillito PM10 Study Area was determined for Years 2003 through 2005 through satellite image analysis, field surveys, and discussions with the University of Arizona Cooperative Extension Service staff.

References

ARB, 1997. *Methods for Assessing Area Source Emissions*. California Environmental Protection Agency, Air Resources Board. October

Arizona Agricultural Statistics Service, 2001. *2001 Arizona Agricultural Statistics Bulletin,* July 2002. (http://www.nass.usda.gov/az/)

Fish and Clay, 2003. Meeting with Jeannette Fish, Maricopa County Farm Bureau, and Patrick Clay, University of Arizona Cooperative Extension, with Randy Sedlacek, Phil DeNee, Darlene Jenkins, ADEQ. May 21, 2003.

URS and ERG. *Technical Support Document for Quantification of Agricultural Best Management Practices.* June 18, 2001, 2001. Prepared for Arizona Department of Environmental Quality, ADEQ Contract No. 98-0159-BF, Task Assignment No. 00-0210-01.

APPENDIX C.7
Arizona Portland Cement (APC) Emissions

The following table contains data from ADEQ's Compliance section concerning PM_{10} emissions from APC. The data was abstracted from ADEQ's Major Sources Emission Inventory.

Year	PM_{10} Emission tons/day
2006	1.294
2005	1.365
2004	1.317
2003	1.203
2002	1.535

APPENDIX C.8
2004 Off-Road Mobile Source PM_{10} Emissions Inventory
for the Rillito Nonattainment Area

NONROAD Input

Fuel RVP: 10.87 psi (average from 2004 Pima County fuel survey).[8]
Oxygen content: 0% (it was assumed to be zero since it had no influence on PM_{10} emissions).
Average temperature: 20.14°C (68.25°F) (AZMET – Marana station).[5]
Min/Max temperature: 55.85/84.16°F (average for the whole year).
Gasoline/diesel sulfur: 130.32/326.33ppm (average from 2004 Pima County fuel survey.)[8]
CNG/LNG sulfur %: 30ppm (EPA NONROAD model default; WRAPMSEI2 2002 inputs).
Off-road diesel sulfur: same as on-road diesel (Arizona Department of Weights and Measures mentioned that in most of the state, off-road diesel is the same as on-road diesel with just red dye added).[3]
Marine diesel sulfur: same as off-road diesel.
Stage II control %: 0%.

Lawn & Garden

EPA's NONROAD model was used to estimate the PM_{10} emissions from this category for Pima County in 2004. The total emissions were estimated to be 0.284 tons/day. The total emissions for Pima County were then allocated to the nonattainment area using populations.

Staff at ADEQ estimated the 2004 population of the nonattainment area as 45,600.[8] Arizona Department of Economic Security estimated that the total population of Pima County in 2004 was 931,835.[5]

PM_{10} emissions (lawn & garden) = PM_{10} emissions in Pima County (lawn & garden) × population in the nonattainment area / Pima County populations = 103.72 (tons/year) × 45,600 / 931,835 = 5.076 / 365 = 0.014 tons/day.

Industrial

It is not necessary to calculate emissions from this category since the emissions were included in the permits.

Aircraft

The aircraft emissions are calculated by AEIS software. The emission factors were extracted from *National Emission Inventory, NEI: Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emission Inventory, Vol.1 – Methodology, Appendix A, 30 September 2002*.[6]

Marana Northwest Regional Airport is not equipped with control towers so that the traffic is not monitored. The numbers of landing and takeoffs (LTO) by different types of carriers are not available according to Charles Mangum,[7] Director of the Airport. The only information available is the estimated number of landing and takeoffs. In 2004, it had over 90,000 takeoffs and landings.

However, it was found that the latest operational counts reported to Federal Aviation Administration by the airport in 2005 indicates the number of LTOs for different types of carriers for 12 months operations ending in July 31, 2005 as shown in Table 1.[8]

Table 1.Activity Data and Emission Factors

	Number of LTOs	Emission Factor (lb/LTO)
Air taxi	8000	0.6033
General aviation, local	58000	0.2367
General aviation, itinerant	23950	0.2367
Military	50	0.6033

PM_{10} emissions (air craft) = **0.030 tons/day**

Airport Service

Marana Regional Airport is a non-commercial airport. Emissions from ground support equipment are negligible.

Railway Maintenance

According to the information obtained from Union Pacific Railroad Company, total length of railroad in Pima County was added up to 143.64 miles (including all the tracks). The length of railroad in the nonattainment area is assumed to be the length of I-10, which is 16.350237 miles estimated by ADEQ staff.

EPA's NONROAD model was used to estimate PM_{10} emissions from this category for Pima County. The total emissions were estimated to be 0.001 tons/day. The total emissions for Pima County were then allocated to the nonattainment area using lengths of railroad.

PM_{10} emissions (railway maintenance) = PM_{10} emissions in Pima County (railway maintenance) × 16.35 (miles) / 143.64 (miles) = 0.49 (tons/year) × 16.35 (miles) / 143.64 (miles) / 365 = **0.0002 tons/day**

Locomotive

The emission factors were extracted from *U.S. Environmental Protection Agency Form APR420-F-97-051, Emission Factors for Locomotives, for 1996 Table 9: Fleet Average Emission Factors for All Locomotives (Projected 1999), December 1997.*[9] The emissions from locomotive are related to its type (i.e., line haul class I, class I yard, line haul class II/III, passenger, and commuter) and engine type and distribution (2-stroke and 4-stroke). For PM_{10}, except class I yard, the emissions factors for all other locomotive types are 0.01477 lb/gallon (6.7 grams/gallon) for any types of engines. The activity data required is the amount of fuel oil consumed.

According to the information obtained from Union Pacific Railroad Company, Rillito is located at or near Milepost 96.74 on their Gila Subdivision, Track Segment 4958-0. It was calculated that the amount of fuel consumed per mile is 114,208 gallons/mile. The length of railroad in the nonattainment area was assumed to be the length of I-10, which is 16.350237 miles estimated by Juan Declet.

PM_{10} emissions (locomotive) = 6.7 (grams/gallon) × 114,208 (gallons/mile) × 16.35 (miles) = 12,510,915.36 grams /365 = **0.034 tons/year**

Agricultural

EPA's NONROAD model was used to estimate PM_{10} emissions from this category for Pima County. The total emissions were estimated to be 0.016 tons/day. The total emissions for Pima County were then allocated to the nonattainment area using area of agriculture field.

ADEQ staff estimated that there were 32.166 $mile^2$ agricultural fields in the nonattainment area and 345.519 $mile^2$ in Pima County using 2004 land use GIS cover.

PM_{10} emissions (agricultural) = 5.69 (tons/year) × area of agricultural field in Non-Attainment Area / Area of agricultural field in Pima County = 5.69 (tons/year) × 32.166 ($mile^2$) / 345.519 ($mile^2$) / 365 = **0.001 tons/day.**

Recreational

EPA's NONROAD model was used to estimate PM_{10} emissions from this category for Pima County. The total emissions were estimated to be 0.05 tons/day. Table 2 shows the emissions from different types of recreational equipment.

Table 2. PM_{10} Emissions from Recreational Equipment		
Recreational Equipment	**PM_{10} Emissions (tons/day)**	**Allocation Parameter**
Motorcycles: off-road (2 stroke)	0.020	Number of recreational vehicle park establishments
ATVs (2 stroke)	0.024	
Specialty vehicles/carts (2 stroke)	0.030	
Motorcycles: off-road (4 stroke)	0.0008	
ATVs (4 stroke)	0.003	
Golf carts (4 stroke)	0.0005	Number of golf courses
Specialty vehicles/carts (4 stroke)	0.00005	Number of recreational vehicle park establishments
Specialty vehicles/carts (diesel)	0.001	
Total	0.050	

The emissions for Pima County for each type of equipment were then allocated to the nonattainment area according to the allocation surrogates shown in Table 2.

Dan Catlin mentioned that there are no recreational vehicle park establishments in the nonattainment area, thus, the PM_{10} emissions from recreational vehicles were then zero. NONROAD model reports 19 golf courses in Pima County for 2002.

PM_{10} emissions (golf carts) = PM_{10} emissions in Pima County (golf carts) × number of golf course in the nonattainment area / number of golf courses in Pima County = 0.19 × 2 / 19 = **0.00005 tons/day.**

Commercial

EPA's NONROAD model was used to estimate PM_{10} emissions from this category for Pima County. The total emissions were estimated to be 0.059 tons/day. The total emissions for Pima County were then allocated to the nonattainment area using populations.

PM_{10} emissions (commercial) = PM_{10} emissions in Pima County (commercial) × population in the nonattainment area / Pima County populations = 21.38 (tons/day) × 45,600/ 931,835/ 365 = **0.003 tons/day.**

Construction

EPA's NONROAD model was used to estimate PM_{10} emissions from this category for Pima County. The total emissions were estimated to be 0.763 tons/day. The total emissions for Pima County are then allocated to the nonattainment area using populations.

PM_{10} emissions (construction) = PM_{10} emissions in Pima County (construction) × population in the nonattainment area / Pima County populations = 278.32 (tons/year) × 45,600/ / 931,835 / 365 = **0.038 tons/day**

Logging, Underground Mining and Marine Recreational

No logging, underground mining and marine recreational activities in the nonattainment area.

Summary

The emissions from each nonroad category and total nonroad emissions are summarized in Table 3.

Table 3. Emissions Summary

Category	Emissions (tons/day)
Lawn & Garden	0.014
Aircraft	0.030
Railway Maintenance	0.0001
Locomotive	0.034
Agricultural	0.002
Recreational	0.0001
Commercial	0.003
Construction	0.037
Total	**0.120**

Reference:

1. Arizona Department of Weights and Measures, 2004 Pima County Fuel Inspection Report, 2004.
2. Arizona Meteorological network, http://ag.arizona.edu/azmet/.
3. Duane Yantorno, Arizona Department of Weights and Measures, Personal Communications, 2007.
4. David Lillie, 2004 Population in Rillito Nonattainment Area, 2007.
5. Arizona Department of Economic Security, July 1, 2004 Population Estimates for Arizona's Counties, Incorporated Places and Balance of County, February 2007.
6. US EPA, National Emission Inventory, NEI: Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emission Inventory, Vol.1 – Methodology, Appendix A, 30 September 2002.
7. Charles Mangum, Marana Northwest Regional Airport, Personal Communication, 2007.
8. http://www.gcr1.com/5010web/airport.cfm?Site=AVQ
9. US EPA, U.S. Environmental Protection Agency Form APR420-F-97-051, Emission Factors for Locomotives, for 1996 Table 9: Fleet Average Emission Factors for All Locomotives (Projected 1999), December 1997.

APPENDIX D

Public Process Documentation

D.1. Public Notice and Affidavit
D.2. Public Hearing Agenda
D.3. Public Hearing Sign-in Sheet
D.4. Public Hearing Presiding Officer Certification
D.5. Public Hearing Transcripts
D.6. Public Comments and Responsiveness Summary

APPENDIX D.1.

Public Notice and Affidavit

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TUCSON NEWSPAPERS

Tucson, Arizona

STATE OF ARIZONA)
COUNTY OF PIMA)

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

Legal Notice

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

May 13, 2008

Debbie Capanear

Subscribed and sworn to before me this 21 day of May, 2008

Notary Public

SILVIA H VALDEZ
Notary Public - Arizona
Pima County
Expires 12/15/09

My commission expires _____

TNI AD NO. 6227818

PUBLIC NOTICE

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY PUBLIC HEARING ON RILLITO MODERATE AREA PM10 MAINTENANCE PLAN AND REQUEST FOR REDESIGNATION TO ATTAINMENT

The Arizona Department of Environmental Quality (ADEQ) will hold a public hearing to receive comments on the proposed Rillito Moderate Area PM10 Limited Maintenance Plan. The Plan is a formal request to the U.S. Environmental Protection Agency (EPA) to redesignate the Rillito, Arizona PM10 nonattainment area to attainment for the health-based 24-hour average PM10 National Ambient Air Quality Standards (NAAQS). The Plan summarizes the progress of the area in attaining the PM10 NAAQS, demonstrates that all Clean Air Act (CAA) requirements for attainment have been adopted and includes a plan to assure continued attainment for ten years after the redesignation.

A public hearing on the Rillito Moderate Area PM10 Limited Maintenance plan and Request for Redesignation to Attainment will be held on Thursday, June 12, 2008, at 6:00 p.m. at Rillito Vista Community Center, 8820 W. Robinson Street, Rillito, Arizona. All interested parties will be given an opportunity at the public hearing to submit relevant comments, data, and views, orally and in writing. Written comments must be received at ADEQ by 5:00 p.m. on Friday, June 13, 2008. ADEQ anticipates sending this Maintenance Plan and Request for Redesignation to the EPA in June, 2008.

All written comments should be addressed, faxed, or e-mailed to:

Jim Wagner
Air Quality Planning Section
Arizona Department of Environmental Quality
1110 W. Washington St
Phoenix, AZ 85007
PHONE: (602) 771-2388
FAX: (602) 771-2366
E-Mail: JW3@azdeq.gov

A copy of the proposal is available for review on the ADEQ website's Events and Notices Calendar at the following web address http://www.azdeq.gov/cgi-bin/vertical.pl or at the following locations:

ADEQ Library
1110 W. Washington St
Phoenix, AZ 85007
First Floor
Attn: Lori Cona, (602) 771-2217

Geasa-Marana Branch Library
13370 N. Lon Adams Rd.
Marana, AZ 85653
Attn: Nancy Lindeman, (520) 682-4216

Publish May 13, 2008
Arizona Daily Star
Tucson Citizen

TUCSON NEWSPAPERS

Tucson, Arizona

STATE OF ARIZONA)
COUNTY OF PIMA)

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

Legal Notice

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

May 30, 2008

Debbie Capanear

Subscribed and sworn to before me this 5 day of June, 2008

Silvia H Valdez
Notary Public

SILVIA H VALDEZ
Notary Public - Arizona
Pima County
Expires 12/15/09

My commission expires _____

TNI AD NO. 6253223

SECOND NOTICE

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY PUBLIC HEARING ON RILLITO MODERATE AREA PM10 MAINTENANCE PLAN AND REQUEST FOR REDESIGNATION TO ATTAINMENT

The Arizona Department of Environmental Quality (ADEQ) will hold a public hearing to receive comments on the proposed Rillito Moderate Area PM10 Limited Maintenance Plan. The Plan is a formal request to the U.S. Environmental Protection Agency (EPA) to redesignate the Rillito, Arizona PM10 nonattainment area to attainment for the health-based 24-hour average PM10 National Ambient Air Quality Standards (NAAQS). The Plan summarizes the progress of the area in attaining the PM10 NAAQS, demonstrates that all Clean Air Act (CAA) requirements for attainment have been adopted and includes a plan to assure continued attainment for ten years after the redesignation.

A public hearing on the Rillito Moderate Area PM10 Limited Maintenance plan and Request for Redesignation to Attainment will be held on Thursday, June 12, 2008, at 6:00 p.m., at Rillito Vista Community Center, 8820 W. Robinson Street, Rillito, Arizona. All interested parties will be given an opportunity at the public hearing to submit relevant comments, data, and views, orally and in writing. Written comments must be received at ADEQ by 5:00 p.m. on Friday, June 13, 2008. ADEQ anticipates sending this Maintenance Plan and Request for Redesignation to the EPA in June, 2008.

All written comments should be addressed, faxed, or e-mailed to:

Jim Wagner
Air Quality Planning Section
Arizona Department of Environmental Quality
1110 W. Washington St
Phoenix, AZ 85007
PHONE: (602) 771-2368
FAX: (602) 771-2366
E-Mail: JW3@azdeq.gov

A copy of the proposal is available for review on the ADEQ website's Events and Notices Calendar at the following web address http://www.azdeq.gov/cgi-bin/vertical.pl or at the following locations:

ADEQ Library
1110 W. Washington St
Phoenix, AZ 85007
First Floor
Attn: Lori Cona, (602) 771-2217

Geasa-Marana Branch Library
13370 N. Lon Adams Rd.
Marana, AZ 85653

Attn: Nancy Lindeman, (520) 682-4216

Publish May 30, 2008
Arizona Daily Star
Tucson Citizen

APPENDIX D.2.

Public Hearing Agenda

ADEQ Arizona Department of Environmental Quality

Public Hearing Agenda

AIR QUALITY DIVISION

PUBLIC HEARING ON THE PROPOSED ARIZONA AIR QUALITY STATE IMPLEMENTATION PLAN (SIP) FOR THE RILLITO PM_{10} NONATTAINMENT AREA

PLEASE NOTE THE MEETING LOCATION AND TIME:

Rillito Vista Community Center
8820 W. Robinson St., Rillito, Arizona
Thursday, June 12, 2008, 6:00 p.m.

Pursuant to 40 CFR § 51.102 notice is hereby given that the above referenced meeting is open to the public.

1. Welcome and Introductions
2. Purposes of the Oral Proceeding
3. Procedure for Making Public Comment
4. Brief Overview of the proposed SIP revision
5. Question and Answer Period
6. Oral Comment Period
7. Adjournment of Oral Proceeding

Copies of the proposal are available for review at the Arizona Department of Environmental Quality (ADEQ) Library, 1110 W. Washington St., Phoenix, Arizona, and the Geasa-Marana Branch Library, 13370 N. Lon Adams Rd., Marana, Arizona. For additional information regarding the hearing please call Jim Wagner, ADEQ Air Quality Division, at (602) 771-2388 or 1-800-234-5677, Ext. 771-2388.

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Dan Flukas at (602) 771-4795 or 1-800-234-5677, Ext. 771-4795. Requests should be made as early as possible to allow sufficient time to make the arrangements for the accommodation. This document is available in alternative formats by contacting ADEQ TDD phone number at (602) 771-4829.

APPENDIX D.3.

Public Hearing Sign-in Sheet

ADEQ Arizona Department of Environmental Quality

Air Quality Division Sign-In Sheet

Please Sign In

SUBJECT Rillito PM10 Nonattainment Area DATE 6/12/08

	NAME	ORGANIZATION	PHONE	FAX	E-MAIL
1.	Lila Altamirano		520-682-3757		
2.	Janelle Kennedy	APC	520-616-1231	520-682-2291	jKennedy1@calportland.com
3.	DAVID N. BITTEL	APC	520-616-1200	520-682-2221	dbittel@calportland.com
4.	Carol McKnight		520-682-4240		
5.	LARRY BOGDANSKI	ADEQ	520-628-6738		lab@azdeq.gov
6.	Cathy Manuel	ADEQ	~~602~~ 771-2372 -2366		dam@~~az~~deq.gov.
7.	Jim Wagner	ADEQ	602-771-2388		JW2@AZDEQ.GOV
8.	Bruce Friedly	ADEQ	602-771-2259		bjf@azdeq.gov

APPENDIX D.4.

Public Hearing Presiding Officer Certification

ADEQ
Arizona Department
of Environmental Quality

Air Quality Division

Public Hearing Presiding Officer Certification

I, Bruce Friedl, the designated Presiding Officer, do hereby certify that the public hearing held by the Arizona Department of Environmental Quality was conducted on June 12, 2008, at the Rillito Vista Community Center, 8820 W. Robinson St., Rillito, Arizona, in accordance with public notice requirements by publication in the *Arizona Daily Star* and other locations beginning May 13, 2008. Furthermore, I do hereby certify that the public hearing was recorded from the opening of the public record through concluding remarks and adjournment, and the transcript provided contains a full, true, and correct record of the above-referenced public hearing.

Dated this 17 day of June 2008.

Bruce Friedl

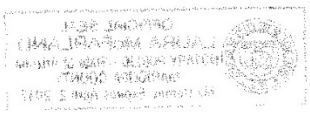
State of Arizona)
) ss.
County of Maricopa)

Subscribed and sworn to before me on this 17 day of June 2008.

OFFICIAL SEAL
LAURA McFARLAND
NOTARY PUBLIC - State of Arizona
MARICOPA COUNTY
My Comm. Expires April 2, 2012

Laura McFarland
Notary Public

My commission expires: 4/2/12



APPENDIX D.5.

Public Hearing Transcripts

PROPOSED REVISION TO THE
ARIZONA AIR QUALITY STATE IMPLEMENTATION PLAN (SIP)
FOR THE RILLITO PM_{10} NONATTAINMENT AREA

Oral Proceeding Transcript

June 12, 2008

MR. FRIEDL: Good evening, thank you for coming. I now open this hearing on a proposed revision to the Arizona State Implementation Plan (or SIP) for the Rillito PM_{10} Nonattainment Area.

It is now Thursday, June 12, 2008, and the time is 6:09 p.m. The location is the Rillito Vista Community Center, 8820 W. Robinson St., Rillito, Arizona. My name is Bruce Friedl and I have been appointed by the Director of the Arizona Department of Environmental Quality (ADEQ) to preside at this proceeding.

The purposes of this proceeding are to provide the public an opportunity to:
(1) hear about the substance of the proposed SIP revision,
(2) ask questions regarding the revision, and
(3) present oral argument, data and views regarding the revision in the form of comments on the record.

Representing the Department are Deborah "Corky" Martinkovic seated right here, to my left, and Jim Wagner of the Air Quality Planning Section, seated to my left.

Public notice appeared in the *Arizona Daily Star*, on ADEQ's website, two copies were sent to each mailbox holder in the Rillito community. Copies of the proposal titled, ***Proposed Arizona State Implementation Plan, Rillito PM_{10} Nonattainment Area, June 2008,*** were made available at the ADEQ Phoenix office and at the Geasa-Marana Branch Library.

The procedure for making a public comment on the record is straightforward. If you wish to comment, you need to fill out a speaker slip, which is available at the sign-in table, and give it to me. Using speaker slips allows everyone an opportunity to be heard and allows us to match the name on the official record with the comments. You may also submit written comments to me today. Please note, the comment period for the proposed SIP ends on June 13, 2008, which is tomorrow. All written comments must be postmarked if sent via U.S. mail or received if sent via e-mail at ADEQ by June 13, 2008. Written comments can be mailed to Jim Wagner, Air Quality Planning Section, Arizona Department of Environmental Quality, 1110 W. Washington Street, Phoenix, Arizona 85012-2905 or e-mailed directly to JW3@azdeq.gov. Comments may also be faxed to (602) 771-2366, attention Jim Wagner.

Comments made during the formal comment period are required by law to be considered by the Department when preparing the final state implementation plan. This is done through the preparation of a responsiveness summary in which the Department responds in writing to written and oral comments made during the formal comment period.

The agenda for this hearing is simple. First, we will present a brief overview of the proposed revision to the state implementation plan.

Second, I will conduct a question and answer period. The purpose of the question and answer period is to provide information that may help you in making comments on the proposed revision.

Thirdly, I will conduct the oral comment period. At that time, I will begin to call speakers in the order that I have received speaker slips.

Please be aware that any comments at today's hearing that you want the Department to formally consider must be given either in writing or on the record at today's hearing during the oral comment period of this proceeding.

At this time, Jim Wagner will give a brief overview of the proposal:

MR. WAGNER: The proposed SIP consists of a maintenance plan and redesignation to attainment request for the Rillito PM_{10} Nonattainment Area. The purpose of the plan is to demonstrate the Area has met the National Ambient Air Quality Standards for particulate matter 10 microns or less and how compliance with the standards in the Rillito area will be maintained.

The Rillito Area was designated nonattainment for PM_{10} in 1990. Ambient air quality monitors located in the Rillito nonattainment area have recorded no violations of the primary 24-hour standard for PM_{10} since 1989.

The plan also demonstrates that the emission reductions responsible for the air quality improvement have resulted from permanent and enforceable control measures. Based on point, area, and mobile source emissions inventories, the primary sources of PM_{10} emissions in the nonattainment area were windblown dust from nearby agricultural areas and reentrained emissions from onroad vehicular traffic. A State Implementation Plan submitted to EPA in 1994 described the control measures implemented in the Rillito Nonattainment Area which were responsible for the reduction of PM_{10} emissions and attainment of the air quality standards.

The clean air quality record, enforceable control measures, and projections of future emissions presented in the proposed plan, demonstrate that the area has attained and will continue to maintain the PM_{10} air quality standards through 2019. To ensure continued attainment, the State has included a series of preventative measures that will be considered for implementation if airborne PM_{10} concentrations reach levels approaching an exceedance of the allowable limits.

The proposed plan also includes a request to the U.S. Environmental Protection Agency to redesignate the Rillito area to attainment for PM_{10}.

MR. FRIEDL: Thank you, Jim. This concludes the explanation period of this proceeding on the proposed revision to the state implementation plan.

Are there any questions before we move to the oral comment period?

MS. MARTINKOVIC: I have one, it's not a question – it's a clarification, it

appears - to those who might be mailing in, the zip code that was given, 85012, the zip code for ADEQ is 85007. So, I just wanted to clarify that because we don't want it going somewhere else.

MR. FRIEDL: O.k. Are there any questions on the proposed plan?

COMMENTER #1: Can I just ask a general question?

MR. FRIEDL: Sure.

COMMENTER #1: On the handout here, the trigger, the yellow action trigger, any idea how often since 1989 how many times that has been exceeded?

MR. WAGNER: Actually, I am not, I am not certain of that. 135?

MS. MARTINKOVIC: That is the 135, to my knowledge it never has.

MR. FRIEDL: That is an 85 percent trigger.

MR. WAGNER: Other than the flagged exceptional events, I am not aware that of an exceedance of that.

COMMENTER #1: It states in here that ADEQ would take action, my question would be do you only have to hit it once before something is done or would it be a couple times? That is all I have.

MR. FRIEDL: Any other questions?

COMMENTER #2: When he was reading that, he said, you know, the dust from the farming, the land that was being planted, but now that it is a gravel pit does that change?

MS. MARTINKOVIC: Well, we'll keep monitoring the area, every year we will look at it and look at all the activity going on, so if we see anything that shows up on the monitors, that gets even close to that, we will track that annually and there will be annual report will be available for everyone to review. So anything that might change, in the area will always be looked at.

COMMENTER #2: When you were here last time, the charts showed it was several years back and don't have anything newer yet? Do you know what I mean?

MR. WAGNER: I think she's referring to – are you referring to the exceptional events demonstrations?

COMMENTER #2: Yeah.

MR. WAGNER: That was the most current data available, um, and that is pertaining to those dates of those exceptional events.

MS. MARTINKOVIC: Yeah, that might be a confusing. When you have an exceptional event and you have to go in and work with that particular event, it is for that kind of, that period in time. But every year we will look at all

the activities each year, and that will be in that report. So it will always be current.

MR. FRIEDL: Any other questions? This concludes the question and answer period of this proceeding on the proposed state implementation plan revision.

I now open this proceeding for oral comments.

It doesn't look like I have received any speaker slips, just one written comment. Does anyone wish to speak? Seeing no speaker slips, this concludes the oral comment period of this proceeding.

If you have not already submitted written comments, you may submit them to me at this time. And again, the comment period for this proposed revision to the state implementation plan ends tomorrow, June 13, 2008.

Thank you for attending. The time is now 6:19 p.m. and I now close this oral proceeding. Thanks again everybody for coming.

APPENDIX D.6.

Public Comments and Responsiveness Summary

To Whom It May Concern,

We were surprised that the dust control standard is being met in Rillito. Our concern is that there are adequate dust control measures in place. This is of great concern for us, because our lungs have become increasingly worse. Also, the amount of dust we deal with on a daily bases even when the wind is not blowing. Would you clarify what is consider a high wind speed , where do you draw the line.

monitoring C. Mc.

Would you, please, address these matters for us.

Sincerely,

Jesse and Carol McKnight

Jesse McKnight

Carol McKnight

P.O. Box 651
Rillito, AZ 85654
1[520]682-4240

ADEQ Arizona Department of Environmental Quality

Air Quality Division
Speaker Slip

SPEAKER SLIP

Date: Speaker Slip No.

Name:

Representing:

Mailing Address:

I wish to make an oral statement.

I have submitted written comments.

I will submit written comments at a later time.

Subject:

R----------

ARIZONA PORTLAND CEMENT COMPANY

A Division of California Portland Cement Company
P. O. Box 338
RILLITO, ARIZONA 85654

Tel (520) 682-2221 Fax (520) 682-4345

June 13, 2008 Via Email and Certified Mail

Mr. Jim Wagner
Air Quality Planning Section
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, Arizona 85007

Re: Comments on the Proposed Arizona State Implementation Plan for the Rillito PM_{10} Nonattainment Area

Dear Mr. Wagner:

The Arizona Portland Cement Company (APCC) greatly appreciates the opportunity provided by the Arizona Department of Environmental Quality (ADEQ) to submit these comments on the Proposed Arizona State Implementation Plan for the Rillito PM_{10} Nonattainment Area (Proposed SIP) and welcomes this long overdue recognition that the Rillito area should no longer be classified as a nonattainment area.

As explained in the Regulatory History section, the Rillito area was designated nonattainment, not as a result of valid monitoring data showing exceedances, but instead by operation of law. Subsequent monitoring data has demonstrated that the Rillito area has consistently met the PM_{10} NAAQS, year after year.

Given that the Rillito area has demonstrated attainment for so many years, APCC respectfully requests that ADEQ seek prompt EPA review of this SIP submittal and prompt redesignation to attainment.

Following are APCC's specific comments on the Proposed SIP:

1. Table 3.1 and Appendix C.7: APCC requests that ADEQ review the emission inventory data used to calculate daily emissions from APCC, as shown in Table 3.1 (for the Design Day March 21, 2004). The estimate of 1.365 tons per day corresponds to the estimate for 2005, rather than the 1.317 figure for 2004, as shown in Appendix C.7.

   APCC acknowledges that this is a minor point. Emissions from agriculture on the design day are 685 times greater than emissions from Arizona Portland Cement.

2. Section 4.0: There is a typo on page 14, third paragraph. Reference should be to Pima County, not Gila County.

3. Sections 4.3 and 4.4: APCC requests clarification and reconsideration of its commitments to: (1) "act promptly if a violation of the area's design value occurs..." in Section 4.3; and (2) identify a contingency measure trigger tied to the design value in Section 4.4.

   As the Proposed SIP acknowledges, these commitments are not required under Section 175A, and APCC questions the authority of ADEQ to voluntarily accept them. Further, given that this area has been in attainment for two decades, there does not appear to be any compelling justification to voluntarily accept restrictions greater than those imposed under Section 175A.

4. Table 4.2: The list of Contingency Measures is of great concern to APCC. It appears the contingency measures are skewed toward the one source that is already subject to extremely stringent controls, while others that contribute far more particulate matter emissions, are not even listed in Table 4.2. According to Table 3.1, APCC contributes 0.15% of the emissions in the Rillito area. Agricultural sources are responsible for 97.95%. In the unlikely event contingency measures are ever necessary in the Rillito area, it is critical that they target the one source category that is responsible for the lion's share of emissions.

Conclusion:

Notwithstanding our concerns with the proposed contingency measures, APCC greatly appreciates the efforts of ADEQ personnel to develop this Proposed SIP and looks forward to prompt redesignation of the Rillito area.

This significant step demonstrates the commitment and success of ADEQ, Pima County, Rillito residents, and Rillito business to protect air quality in the Rillito area.

If you have questions, please don't hesitate to contact me at 520-682-2221.

Sincerely,

David N. Bittel

David N. Bittel
Plant Manager
Arizona Portland Cement Company

RESPONSIVENESS SUMMARY
to
Testimony Taken at Oral Proceedings and Written Comments Received on the *Proposed Arizona State Implementation Plan, Rillito PM_{10} Nonattainment Area, June 2008*

The oral proceeding on the *Proposed Arizona State Implementation Plan (SIP),* ***Rillito PM_{10}*** *Nonattainment Area* was held on Thursday, June 12, 2008, 6:00 p.m., at the Rillito Vista Community Center, 8820 W. Robinson St., Rillito, Arizona. The public comment period closed on Friday, June 13, 2008. No oral comments were received during the hearing. The Arizona Department of Environmental Quality (ADEQ) received two written comments during the public comment period. The public comments and ADEQ's responses are described below.

Comment #1:
One commenter stated that she and her husband were surprised to know the PM_{10} standard was being met in Rillito. She questions if adequate dust control measures are in place because she has observed dust in the air on occasions when wind is not a factor. She has asked for clarification on what is considered a high wind speed and if a standard has been created to measure wind speed.

Response:
With the exception of flagged exceptional events, there has not been an exceedance of EPA's PM_{10} NAAQS since 1989. Control measures included in the proposed SIP have been in place during the period of attainment and resulted in attainment of the NAAQS. ADEQ feels the control measures responsible for attainment of the NAAQS will continue to ensure the area meets EPA's health-based air quality standards.

ADEQ has not established a standard for wind speed. However, if monitors in the nonattainment area record an unusually high particulate matter reading, ADEQ researches weather conditions to determine if an exceptional event contributed to the reading. Wind speed is a criterion ADEQ considers to determine if an exceptional event took place on the day of the reading and is included in the technical demonstration if ADEQ elects to flag the reading as an exceptional event in EPA's Air Quality System database.

Comment #2:

The commenter identified typographical error in Table 3.1, which cited the 2005 tons per day emission value (1.365 tons/day) instead of the 2004 value (1.317 tons/day). The value in Table 1 was corrected. The commenter also cited a typographical error on page 14; this error was corrected by replacing "Gila County" with "Pima County".

The commenter requested clarification and reconsideration of ADEQ's commitment to review and implement contingency measures if ambient concentrations reach the proposed plan's trigger level, described in Section 4.3. Specifically, the commenter requested clarification of ADEQ's commitment to "act promptly if a violation of the area's design value occurs." The commenter also expressed concerns about ADEQ's authority to include a trigger level and contingency

measures in the proposed maintenance plan. The commenter expressed concern that the list of contingency measures did not address emissions from agricultural practices.

Section 175A(d) of the Clean Air Act requires contingency measures to promptly correct any violation of the standard which occurs after the redesignation of the area as an attainment area. The term "violation" in the previous sentence has been changed to "exceedance" in the final version of the proposed plan. ADEQ commits to review monitoring data to determine if an exceedance of the trigger level (135 $\mu g/m^3$) has occurred within six months of the close of the calendar year. Once an exceedance of the trigger level has been confirmed, ADEQ commits to identify and implement the appropriate contingency measure(s) needed to remedy the situation by the end of the same calendar year.

ADEQ is exercising its duty to consider proscriptive measures designed to prevent an exceedance or violation of the NAAQS. The trigger level and contingency measures included in the proposed plan are preventative measures designed to ensure the Rillito area continues to qualify for a Limited Maintenance Plan. If an exceedance of LMP allowable limits were to occur following approval of the proposed plan, the State would be required to submit a standard maintenance plan, which would require consideration of new control measures in addition to those currently in place, and requirements under Clean Air Act Section 172(c) waived under an LMP, including modeling, attainment demonstrations, and reasonable further progress demonstrations. Furthermore, ADEQ has concluded that inclusion of the trigger level and contingency measures provides greater protection of the public health.

Contingency measure #1 was rewritten to ensure agricultural sources will be subject to review if the implementation of contingency measures is required. As written, measure #1 now encompasses all PM_{10} generating sources in the maintenance area.

Edits to the Final Plan:

ADEQ determined a few minor formatting, typographical, and grammatical revisions were appropriate. In addition the following clarifications were made:

1. Section 4.3, Page 16, paragraph two – The word "violation(s)" in sentences one and two was replaced with the word "exceedance(s)" to clarify the meaning of the sentence.

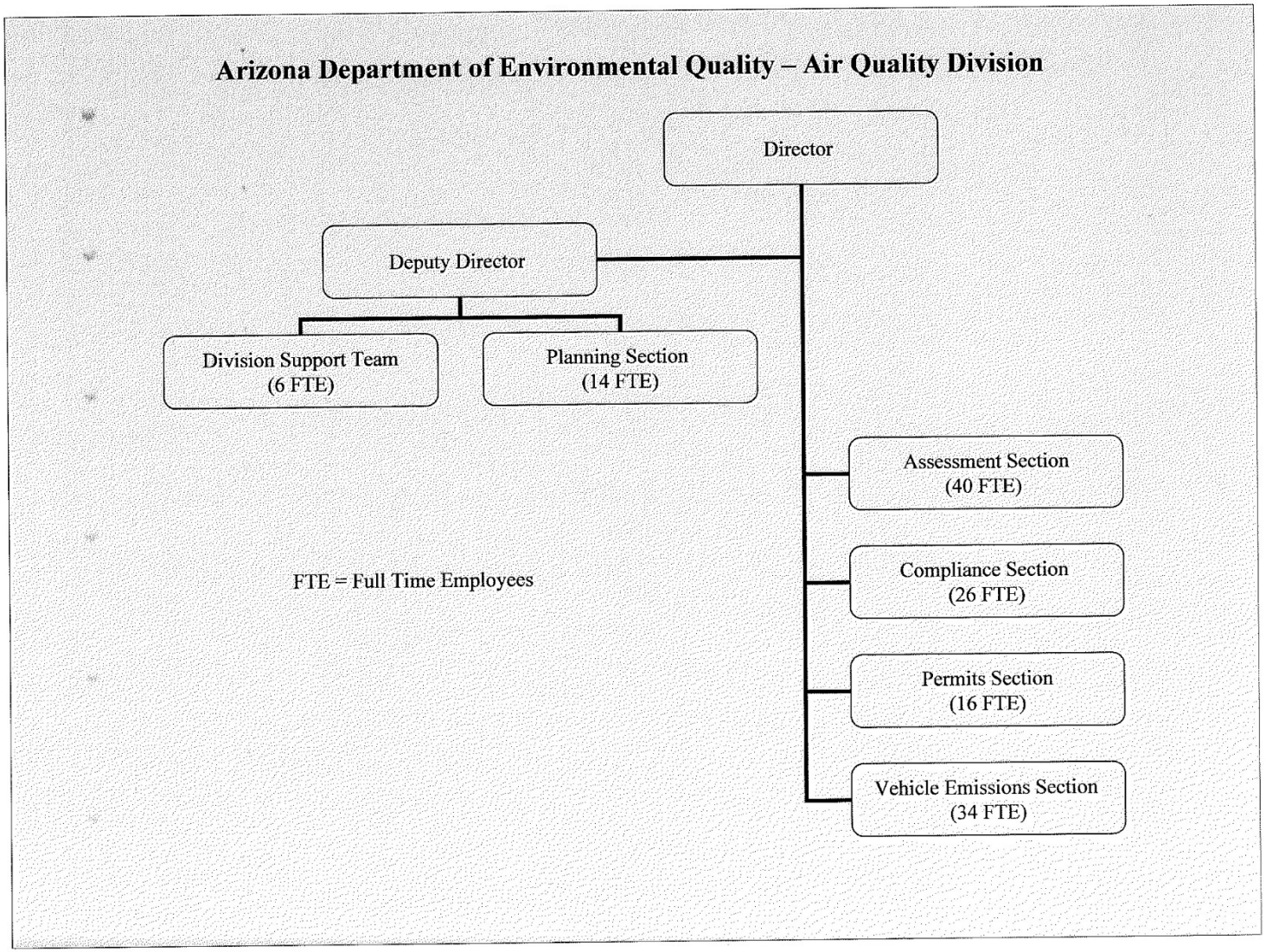
   The State commits to act promptly if an exceedance of the area's design value occurs following redesignation to attainment. Specifically, the State commits to determine if an exceedance occurred within six months of the close of the calendar year.

2. Table 4.2, page 17 - The words "industrial" and "permitted" were omitted from the first sentence of contingency measure #1 to clarify all sources are subject to review. The words "and/or applicable rules" were added to the first sentence to clarify that the practices of non-permitted sources are also subject to review. In the second sentence, the words "permitting authority" were replaced with "ADEQ" to clarify the meaning of the sentence.

If any PM_{10} generating source within the maintenance area is found to be contributing to monitored readings above the Limited Maintenance Plan allowable limits, ADEQ will review existing air quality permits and/or applicable rules to identify additional control measures that may be needed. If a PM_{10} source does not have a permit, ADEQ will determine if an air quality permit and PM_{10} controls are needed.

APPENDIX E

Arizona Department of Environmental Quality Organizational Chart


Arizona Department of Environmental Quality – Air Quality Division
Director
Deputy Director
Division Support Team
(6 FTE)
Planning Section
(14 FTE)
Assessment Section
(40 FTE)
Compliance Section
(26 FTE)
Permits Section
(16 FTE)
Vehicle Emissions Section
(34 FTE)
FTE = Full Time Employees

APPENDIX E

Arizona Department of Environmental Quality Organizational Chart