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Kelvin Bridge Replacement Project in Pinal County, Arizona

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1 INTRODUCTION

1.1 Background

In 2012, the Bureau of Land Management (BLM) issued a permanent and temporary construction right-of-way (ROW) grant No. AZA-35391 to Pinal County to allow for the construction of a new bridge on the Florence-Kelvin Highway over the Gila River. The project is referred to as “the Kelvin Bridge Replacement Project.” An environmental assessment (EA) was completed in accordance with the National Environmental Policy Act (NEPA) and the BLM Tucson Field Office (TFO) issued a Finding of No Significant Impact (FONSI) for the project.

The Kelvin Bridge Replacement Project is located on the Florence-Kelvin Highway south of the town of Kelvin in Pinal County, Arizona. The existing bridge has only one traffic lane and there is an at-grade railroad crossing located on the bridge approach on the north side of the river. The Florence-Kelvin Highway is a minor collector road managed by Pinal County that serves traffic traveling between Florence and the towns of Kelvin, Kearny, and Riverside. The Proposed Action analyzed in the 2012 EA (BLM 2012a) and approved in the FONSI (BLM 2012b) would replace the existing bridge with a two-lane bridge that spans the Gila River and the railroad. The existing one-lane bridge would remain for non-motorized traffic only. The project is located in the NW ¼ of Section 12, Township 4 South, Range 13 East, on the U.S. Geological Survey (USGS) Kearny 7.5-minute quadrangle (Figures 1 and 2).

The 2012 EA analyzed the Proposed Action to be constructed outside the breeding season for the Yellow-billed Cuckoo (YBCU) and the Southwestern Willow Flycatcher (SWFL) in order to reduce impacts to these species. The cumulative breeding seasons for these two species restricted construction from occurring between April 15 and September 30. By avoiding the breeding season under the original proposal, construction of the new bridge would only occur between October 1 and April 14. Due to these construction schedule constraints, construction equipment and crews would mobilize and demobilize three or more times, vegetation clearance would be required prior to each mobilization for any regrowth that occurred during the breeding season, and the total construction timeframe would take 3 or more years.

Pinal County has determined that the construction schedule analyzed in the 2012 EA is no longer feasible due to the additional cost of multiple construction mobilizations and total construction timeframe that would be required to avoid constructing during the breeding season for the newly listed YBCU and the SWFL. Furthermore, the bridge design has been updated since the 2012 EA with the following modifications:

- Modifying the bridge pier locations to avoid all impacts to waters of the U.S. (the Gila River)
- Reducing the height of the proposed bridge by 2 feet across the span of the bridge
- Changing the bridge support pier system design from three dual-column piers system to seven single-column piers system

Based on these factors, Pinal County is requesting that the BLM amend and reauthorize the permanent and temporary construction ROW grant to allow for a modified construction schedule and the bridge design updates. These changes are being requested by Pinal County to reduce construction costs, reduce impacts to vegetation, and to avoid impacts to waters of the U.S. As a result of the changes to the Proposed Action described and analyzed in the 2012 EA, and upon which the FONSI was issued, a new analysis is considered in this EA in light of the modified Proposed Action.

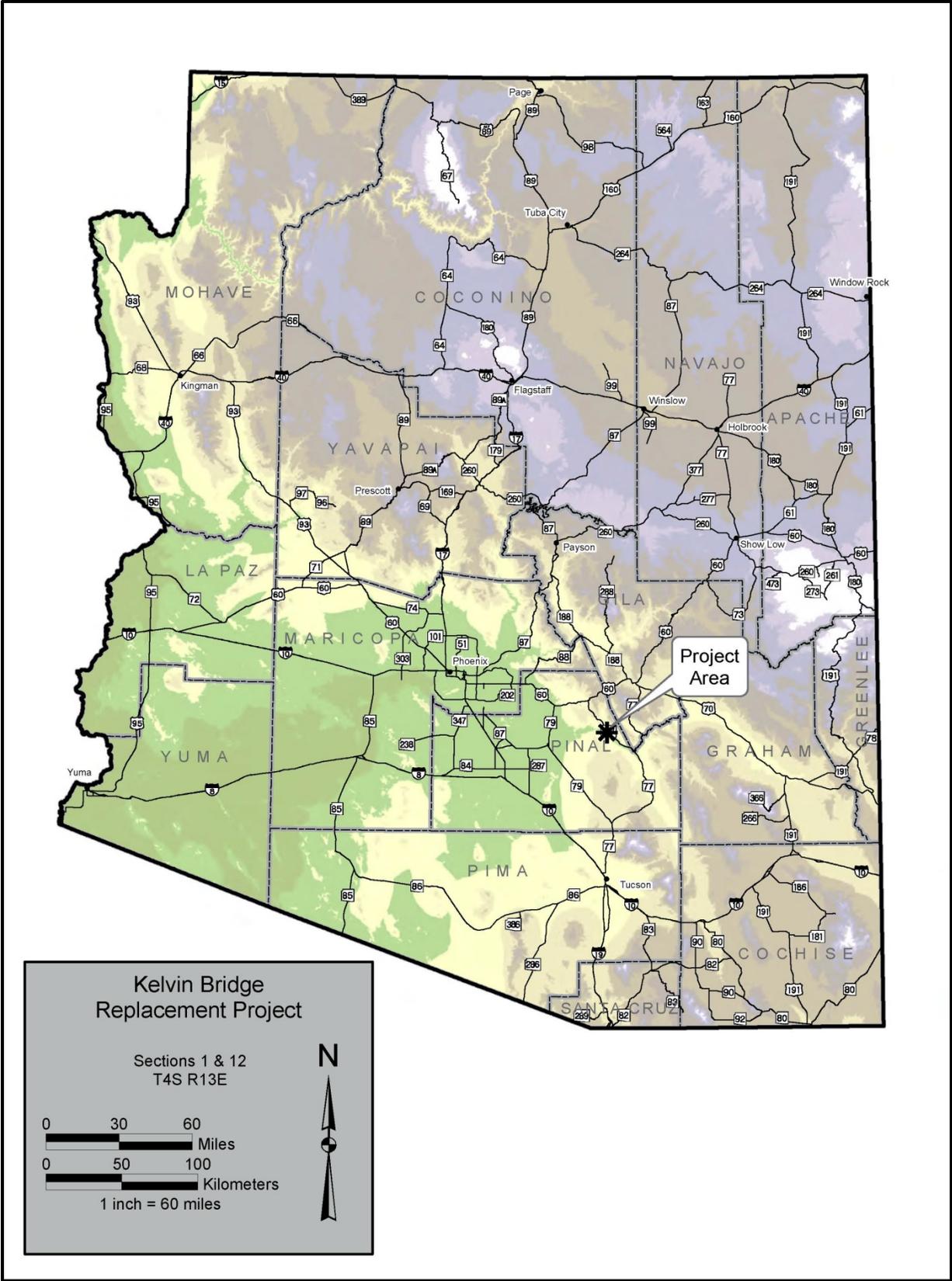


Figure 1. General location of the project area.

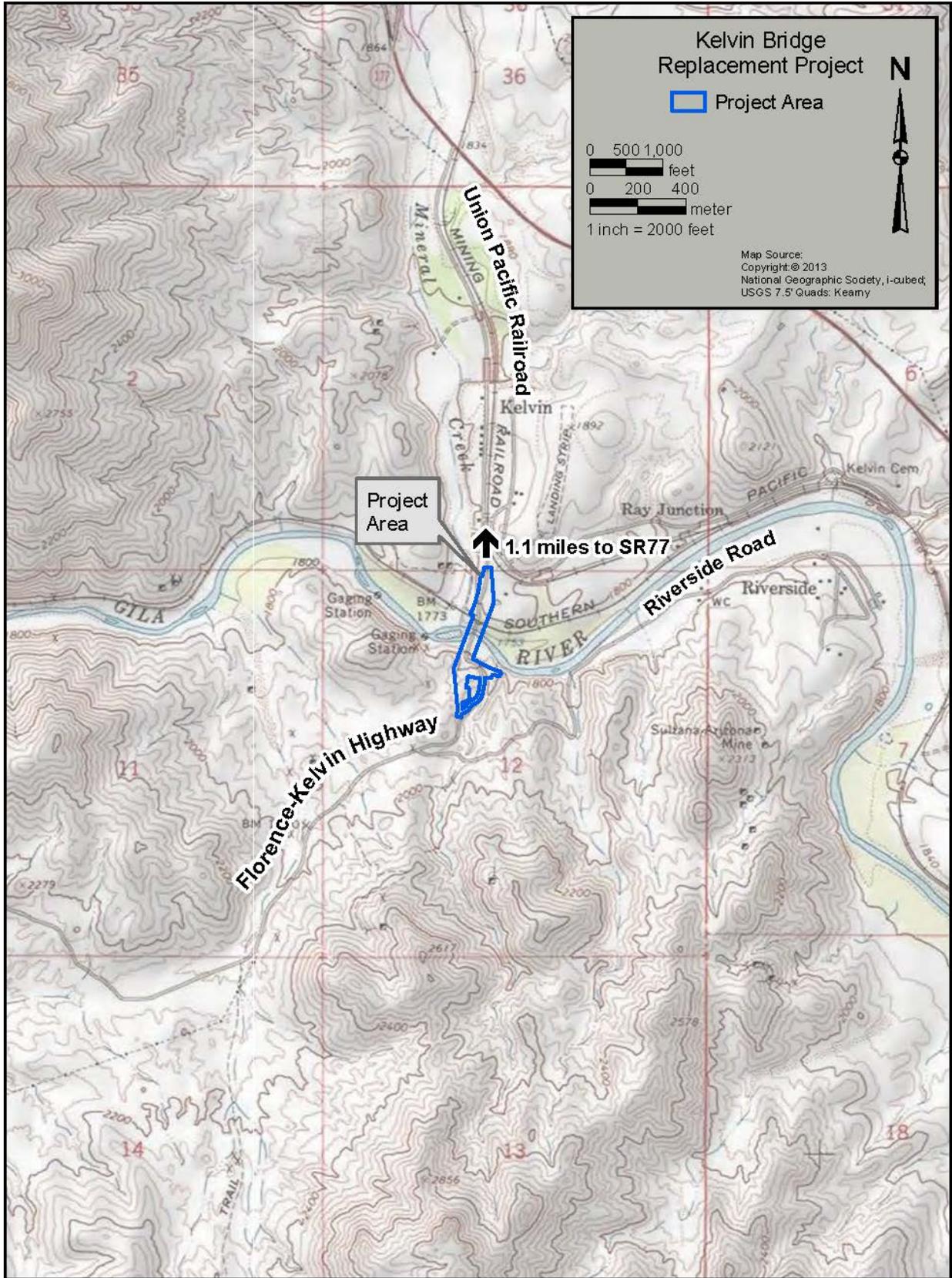


Figure 2. Project area location.

1.2 Purpose and Need for Action

The purpose of the Proposed Action is for BLM to amend and approve Pinal County's ROW grant No. AZA-35391 to allow for the construction of the Kelvin Road Bridge Project with the modified construction schedule and bridge design. The amended and approved ROW grant would authorize Pinal County to construct the new Kelvin Bridge during the breeding season for the YBCU and SWFL per the new bridge design. Construction of the new Kelvin Bridge would allow for improved access to the town of Kelvin along the Florence-Kelvin Highway.

The need for the Proposed Action is to respond to a Federal Land Policy and Management Act of 1976 (FLPMA) (43 United States Code [USC] 1761–1771) ROW request to amend and approve an existing ROW grant submitted by Pinal County to construct a new bridge on the Florence-Kelvin Highway over the Gila River on public lands administered by the BLM TFO.

The BLM has received a ROW amendment application from the County and must determine whether to allow the use of BLM-administered public lands for portions of the proposed project. In accordance with the FLPMA and the BLM's ROW regulations (43 Code of Federal Regulations [CFR] 2800), the BLM must manage public lands for multiple uses that take into account the long-term needs of future generations. The Secretary of the Interior is authorized to grant ROWs for "...roads, trails, highways, railroads, canals, tunnels, tramways, airways, livestock driveways, or other means of transportation..." (43 USC 1761(a)(6)).

Taking into account the BLM's multiple-use mandate, the need for the project is established by the BLM TFO's responsibility, under Title V of FLPMA (43 USC 1761) to respond to Pinal County's request for a ROW grant amendment on BLM-administered public land while avoiding or minimizing adverse impacts to other resource values and to locate the uses in conformance with land use plans.

1.3 Decision to be Made

BLM: The BLM TFO will decide whether or not to approve the amended ROW grant No. AZA-35391, and if so, under what terms and conditions.

Arizona Department of Transportation (ADOT)/Federal Highway Administration (FHWA): Prior to federal obligation for construction activities, the FHWA will require an additional NEPA document that fulfills the requirements of 23 CFR 771.117. To fulfill this requirement, the ADOT will issue a reevaluation of the Categorical Exclusion (CE) that was approved on November 9, 2006, in accordance with 23 CFR 771.129(c) for FHWA approval. During the reevaluation, the ADOT/FHWA will decide whether the updated Proposed Action continues to meet the conditional requirements for a CE, and if so, will approve the release of federal funds to construct the project.

1.4 Conformance with Applicable Land Use Plan(s)

1.4.1 BLM Resource Management Plan (RMP)

The Proposed Action is in conformance with the December 1988 Phoenix RMP and Record of Decision (ROD). According to the Land Use Management section of the RMP, land use authorizations, including ROWs, will be issued to promote the maximum utilization of existing ROW routes (BLM 1988). The Proposed Action will involve improvements to and expansion of an existing ROW and is thereby in general conformance with the RMP.

This Proposed Action has been reviewed to determine if it conforms to the land use plan terms and conditions required by 43 CFR 1610.5, BLM MS 1617.3, Title V of the FLPMA, and 43 CFR 2800. The Proposed Action is located within the BLM White Canyon Resource Conservation Area (RCA). No portion of the Proposed Action is within a BLM Area of Critical Environmental Concern (ACEC).

1.5 Relationship to Statutes, Regulations, or Other Plans

The following is a summary of land use plans, selected statutes, regulations, and executive orders (EOs) applicable to the proposed project.

Pinal County Comprehensive Plan. According to the Pinal County Comprehensive Plan (Pinal County 2009), the land use designation for the project area is “major open space.” Because the Proposed Action is limited to an existing road that is managed by Pinal County, the proposed action would be in conformance with the existing land use designations of the Pinal County Comprehensive Plan.

American Indian Religious Freedom Act. The American Indian Religious Freedom Act (AIRFA) says that on and after August 11, 1978, “it shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.” This law is designed to protect American Indians rights of religious freedom. It does not mandate that American Indian concerns are paramount but requires that the federal government consider such concerns in its decisions.

Arizona Native Plant Law. The Arizona Native Plant Law (ANPL) states that “a person shall not take, transport or possess any protected native plant taken from the original growing site in this state without possessing a valid permit issued by the Arizona Department of Agriculture [ADA]” (Arizona Revised Statutes [ARS] 3-906). The ANPL applies to listed plants that are naturally occurring, but not to landscaped or planted individuals. Native plants that are protected by the ANPL include all cacti, yucca, agave, and many leguminous tree species such as paloverde, mesquite, and ironwood.

Archaeological Resources Protection Act of 1979, as amended. This act provides for protection of archaeological resources on federal lands. The act requires permits for the excavation or removal of federally administered archaeological resources and encourages cooperation between federal agencies and private individuals in identifying and protecting important resources. In addition, the act invokes penalties for excavating, removing, damaging, or defacing any archeological resources older than 100 years on public or Indian lands.

Clean Air Act of 1963, as amended. The Clean Air Act (CAA) requires any federal entity engaged in an activity that may result in the discharge of air pollutants to comply with all applicable air pollution control laws and regulations (federal, state, or local). This act directs the attainment and maintenance of the National Ambient Air Quality Standards for six different criteria pollutants: carbon monoxide (CO), ozone (O₃), particulate matter (PM), sulfur oxides, nitrogen oxides (NO_x), and lead. As the proposed project is not located within a designated maintenance or non-attainment area, particulate matter is the only criteria pollutant considered in this analysis. Pinal County Air Quality Rules outline measures to be incorporated into construction specifications to minimize potential dust emissions.

Clean Water Act of 1977, as amended. Section 404 of the Clean Water Act (CWA) identifies conditions under which a permit is required for construction projects that result in the discharge of fill or dredged material into waters of the U.S. (WUS). Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) to regulate point source discharges of pollutants into WUS. Arizona is the authorized authority for enforcing the NPDES permit program.

Endangered Species Act of 1973, as amended. Section 7 of the ESA requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that undertaking, funding, permitting, or authorizing an action is not likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat, as defined under the act, exists only after USFWS officially designates it. Critical habitats are 1) areas within the geographic area that have features essential to the conservation of the species and that may require special management consideration or protection; and 2) those specific areas outside the geographic area occupied by a species at the time it is listed that are essential to the conservation of the species.

Executive Order 11988, Floodplain Management, May 24, 1977. EO 11988 requires federal agencies to avoid to the extent possible both long- and short-term adverse impacts associated with occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Executive Order 11990, Protection of Wetlands, May 24, 1977. EO 11990 requires federal agencies or federally funded projects to restrict uses of federal lands for the protection of wetlands through avoidance or minimization of adverse impacts. The EO was issued to “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 whenever there is a practicable alternative.”

Executive Order 13007, Indian Sacred Sites, May 24, 1996. This EO requires that all Executive Branch agencies (including BLM) having responsibility for the management of federal lands will, where practicable, permitted by law, and not clearly inconsistent with essential agency functions, provide access to and ceremonial use of Indian sacred sites by Indian religious practitioners and will avoid adversely affecting the integrity of such sacred sites. The EO also requires that federal agencies, when possible, maintain the confidentiality of sacred sites.

Executive Order 13112, Invasive Species, February 3, 1999. This EO seeks to improve coordination between federal agencies in efforts to combat invasive plant and animal species. EO 13112 established the National Invasive Species Council as a high-level, interdepartmental federal advisory panel to provide leadership and planning in the prevention and control of invasive species nationwide.

Executive Order 13274, Environmental Stewardship and Transportation Infrastructure Project Reviews, September 18, 2002. The goal of this EO is to promote environmental stewardship in the nation’s transportation system and to streamline the environmental review and development of transportation infrastructure projects. An interagency task force monitors the environmental reviews of certain high-priority projects.

Federal Land Policy and Management Act of 1976. Section 102 of the FLPMA mandates that the BLM manage public lands on the basis of multiple use and sustained yield. The FLPMA recognizes ROW grants as a valid use of the public lands and requires BLM to manage ROWs in the context of public use.

Migratory Bird Treaty Act of 1918, as amended. The Migratory Bird Treaty Act (MBTA) provides for the protection of migratory birds and prohibits their unlawful take or possession. The act bans “taking” any native birds; “taking” can mean killing a wild bird or possessing parts of a wild bird, including feathers, nests, or eggs. Exceptions are allowed for hunting game birds and for research purposes, both of which require permits.

National Environmental Policy Act of 1969, as amended. NEPA requires federal agencies to take into consideration the environmental consequences of proposed actions as well as input from state and local governments, Indian tribes, the public, and other federal agencies during their decision-making process. The Council on Environmental Quality (CEQ) was established under NEPA to ensure that all environmental, economic, and technical considerations are given appropriate consideration in this process.

National Historic Preservation Act of 1966, as amended. Major federal projects must comply with Section 106 of the NHPA, which mandates that potential impacts to significant historic properties be considered prior to approval of such projects. Significant historic properties are defined as sites, districts, buildings, structures, and objects eligible for the National Register of Historic Places (NRHP). Consideration of these resources is to be made in consultation with the relevant State Historic Preservation Office (SHPO) and other interested agencies and parties.

Native American Graves Protection and Repatriation Act of 1990. This act requires protection and repatriation of Native American cultural items found on, or taken from, federal or tribal lands and requires repatriation of cultural items controlled by federal agencies or museums receiving federal funds. Should

previously unidentified cultural resources, especially human remains, be encountered during construction, work will stop immediately at that location and BLM's cultural resources staff will be notified to ensure proper treatment of these resources.

Noise Pollution and Abatement Act. This act requires that all federal agencies establish mechanisms for setting emission standards for source of noise, including motor vehicles, aircraft, etc. The act also enables local governments to address noise mitigation in land use planning efforts.

Noxious Weed Act of 1974, as amended. This act requires that all federal agencies develop a management program to control undesirable plants on federal lands under the agency's jurisdiction; establish and adequately fund the program; implement cooperative agreements with state agencies to coordinate management of undesirable plants on federal lands; and establish integrated management systems to control undesirable plants targeted under cooperative agreements.

Taylor Grazing Act of 1934, as amended. Section 315 and 315b of this act established grazing districts and grazing permits and fees. The act recognizes grazing as a valid use of the public lands and requires BLM to manage livestock grazing in the context of public use.

Title 43 CFR Part 4100. This governs regulations for grazing administration on public lands. Approval of the amended ROW grant No. AZA-35391 would be authorized under the FLPMA (Title V [43 USC 1761–1771]).

1.6 Scoping Issues

1.6.1 Scoping

The BLM Interdisciplinary team (ID Team) met on July 5, 2015, at the Tucson Field Office and the Proposed Action was presented to the BLM ID Team. The BLM ID Team determined that the Proposed Action of amending and approving Pinal County's ROW grant does not require public scoping because of the relatively small change in the project scope since it was last analyzed in 2012. The BLM ID Team identified the following issues to address:

Issue 1: What would be the effect of dust generated during road construction and maintenance on air quality?

Issue 2: What would be the effect of road and bridge construction, vegetation removal, and road maintenance on floodplain function?

Issue 3: What would be the effect of road and bridge construction, vegetation removal, and road maintenance on YBCU and SWFL habitat?

Issue 4: What would be the effect of vegetation disturbance and removal on migratory bird habitat?

Issue 5: What would be the effect of vegetation disturbance and removal on wildlife habitat?

Issue 6: What would be the effect of the alternatives on hydrologic function?

Issue 7: What would be the effect of the alternatives on wetlands and riparian areas?

Issue 8: How would the Kelvin Bridge Relocation Project effect vegetation?

Issue 9: What would be the effect of the alternatives on the spread of invasive and non-native weeds from off-site vehicles and construction activities?

Issue 10: What would be the effect of the alternatives on soil erosion?

Issue 11: What would be the effect of the alternatives on public health and safety?

Issue 12: What would be the effect of the alternatives on recreational land users?

Issue 13: What would be the effect of the alternatives on visual resources?

Issue 14: What would be the effect of the alternatives on access and transportation?

1.6.2 Issues to be Analyzed

As a result of the scoping process, a number of issues to be analyzed were identified. Table 1-1 provides the resource issues identified during the scoping process and where the issues have been addressed in the EA. Issues for each resource are discussed in detail in Chapter 3, Affected Environment and Environmental Consequences.

Table 1-1. Summary of Issues Identified during Scoping

Issues	Where Addressed in EA
• Air Quality (Issue 1)	Chapter 3 Section 3.2
• Topography and Soils (Issue 10)	Chapter 3 Section 3.3
• Cultural Resources	Chapter 3 Section 3.6
• Biological Resources (including wildlife, vegetation, and noxious and invasive species) (Issues 3, 4, 5, 7, 8, and 9)	Chapter 3 Section 3.5
• Water Resources (Issues 2, 6, and 7)	Chapter 3 Section 3.4
• Visual Resources (Issue 13)	Chapter 3 Section 3.10
• Transportation Resources (Issues 11 and 14)	Chapter 3 Section 3.8
• Recreation (Issues 12 and 14)	Chapter 3 Section 3.9
• Socioeconomic Resources (Issue 11)	Chapter 3 Section 3.7

2 PROPOSED ACTION AND ALTERNATIVE(S)

2.1 Introduction

This chapter provides a description of the proposed project and includes information pertaining to the no action alternative. As described in Chapter 1, Pinal County is proposing to improve construction of the Kelvin Bridge Replacement Project with a modified construction schedule and updated bridge design since the project was analyzed in the 2012 EA (BLM 2012a).

2.2 Proposed Action

In 2012, the BLM issued a permanent and temporary construction ROW grant No. AZA-35391 to Pinal County to allow for the construction of a new bridge on the Florence-Kelvin Highway over the Gila River. The project is referred to as “the Kelvin Bridge Replacement Project.” An EA was completed in accordance with NEPA and the BLM TFO issued a FONSI for the project (BLM 2012a, 2012b). Pinal County requests that the BLM TFO amend and reauthorize ROW grant No. AZA-35391 to allow for two modifications to the Proposed Action that was analyzed in the 2012 EA.

The primary modification to the Proposed Action analyzed in this EA is Pinal County’s request to allow construction activities to occur during breeding season of the SWFL and the YBCU. The cumulative breeding season for these two species is between April 15 and September 30. Specifically, the SWFL breeding season is between April 15 and September 30, and the breeding season for the YBCU is between May 15 and September 30. In order to amend and reauthorize the ROW grant, the BLM must analyze the impacts of the modified Proposed Action of permitting construction activities during the breeding season of these species. The modification is being requested by Pinal County in order to minimize construction impacts to vegetation by avoiding the need to clear vegetation more than once and to reduce construction costs by only having to mobilize construction crew and equipment once.

In addition to this primary modification of the Proposed Action, several minor bridge design elements have been updated since the 2012 EA in order to minimize surface water impacts and reduce construction costs. These bridge design changes are identified in Section 2.2.2 below.

The project’s preliminary estimated cost is \$8 million and would be funded by a combination of funds from the FAHP administered through the FHWA and Pinal County funds. Because FAHP funds would be used for the project, ADOT would bid and administer project construction.

2.2.1 Location

The Kelvin Bridge Replacement Project is located in the E ½ of the NW ¼ of Section 12, Township 4 South, Range 13 East, Gila and Salt River Baseline and Meridian, as indicated on the Kearny, Arizona (1991), 7.5-minute 1:24:000 U.S. Geological Survey (USGS) topographic quadrangle (see Figures 1 and 2). The bridge replacement project would permanently impact 2.21 acres from the new bridge piers and roadways, and would temporarily impact 1.36 acres during construction from the geotechnical tests, temporary roads, and temporary bridge. The bridge replacement project would shift traffic from the existing two-lane bridge to the new bridge location. After construction of the new bridge is completed, the existing bridge would remain accessible for non-motorized use only as part of the Arizona National Scenic Trail (ANST).

Lands within and adjacent to the project area are owned or managed by the BLM, Pinal County, Copper Basin Railway, American Smelting and Refining Company, LLC (ASARCO), and private individuals (Figure 3). The East Florence-Kelvin Highway and existing Kelvin Bridge are managed by Pinal County and are located on ROW easements granted by the BLM. Within the project area, BLM lands account for 2.71 acres of land and private lands account for 5.31 acres. To improve clarity, the term “project area” is used when describing the 8.05-acre area within which all construction activities would occur, such as the geotechnical studies, the new and temporary bridge, roadway approach and bridge footings, etc. as depicted by the blue lines in Figure 3.

2.2.2 Project Description

The proposed bridge design and construction activities are generally consistent with their descriptions in the 2012 EA (BLM 2012a). However, the following bridge design changes have been made since the 2012 EA in order to minimize surface water impacts and reduce construction costs:

- Modifying the bridge pier locations to avoid all impacts to waters of the U.S.
- Reducing the height of the proposed bridge by 2 feet across the span of the bridge
- Changing the bridge support pier system design from three dual-column piers to seven single-column piers

There would be no difference in the types of construction activities (e.g., blading, grading, and paving road approach realignments, pier construction, bridge deck construction) as identified in the 2012 EA with respect to these design changes.

ACCESS

Bridge and approach roadwork would involve 2,100 feet of new roadway construction, of which 660 feet would be for the bridge itself. The bridge replacement project would begin approximately 800 feet south of the edge of the existing bridge and would end approximately 700 feet north of the edge of the existing bridge. A new access road would be constructed north of the river on the west side of the new bridge alignment to maintain access to the existing bridge as well as to residential areas west of the highway. South of the Gila River, access to the existing bridge would be provided following construction of the new bridge by a pedestrian path access road that crosses beneath the new bridge to connect with Riverside Road.

Approximately 1,500 feet of the Florence–Kelvin Highway would be realigned within the project area, and the existing bridge would be left in place but would no longer be a part of the Florence–Kelvin Highway. It would, however, become a corridor for pedestrian non-motorized use, and would continue to be a part of the Arizona National Scenic Trail (ANST) system. Ownership and maintenance responsibilities for the existing bridge would remain with Pinal County. Following construction of the new bridge, access to the ANST from the south side of the new bridge would be provided by a non-motorized path underneath the new bridge. The new bridge is designed to span the portion of the Gila River riparian corridor that contains flowing water and wetlands. Heavy equipment would not be used in the flowing channel or abutting wetlands. Paving the temporary traffic route road would not be necessary to allow for heavy construction machinery to access the site, since the ground surface consists of hard-packed soils that are not susceptible to becoming muddy or sandy.

BRIDGE

The deck of the new bridge would be approximately 30 feet higher than the existing bridge, and would span the existing railroad grade located north of the river. The bridge height would provide clearance for trains to safely pass underneath the bridge. The bridge design would allow for the clearance of a 100-year flood event to pass underneath the proposed bridge. The proposed roadway would be designed in conformance with Pinal County Standard Specifications for Public Improvements (Pinal County 2003). The new bridge would have two 3.7-m-wide (12-foot-wide) lanes and 1.8-m (6-foot) shoulders, thereby meeting current ADOT design standards, and would be paved with asphalt-concrete. The existing highway approaches and abutments would be horizontally and vertically re-aligned. Bridge abutments would be supported by 4-foot-diameter cast-in-place concrete shafts.

Seven single-column piers would be placed to support the new bridge span, and would be supported belowgrade by 8-foot-diameter concrete shafts. The concrete footings would not be placed within the delineated boundaries of the Gila River. Temporary disturbance impacts within the delineated boundaries of the Gila River would also be avoided during the installation a single temporary bridge to be used for transporting heavy equipment across the river, should the temporary bridge be determined necessary for construction.

The construction schedule of the Kelvin Bridge Replacement Project would ultimately be determined by ADOT (who would bid and administer project construction) and the construction contractor based on availability of equipment, materials, and crew, and the need to phase-out construction. The following description of construction activities and construction schedule is based on the assumption that construction of the project would only occur on one side of the river at a time. After construction activities are completed on one side of the river, construction would start on the other side of the river with the assistance of a temporary bridge to transport heavy equipment across the river. This assumption was made because this scenario would represent the longest continuous construction schedule (between 18 and 21 months) and, consequently, have the longest temporal temporary impacts within and adjacent to the project area.

Other construction scenarios, such as building on both sides of the river simultaneously could shorten the construction schedule and may preclude the need for the temporary bridge to transport equipment. Under such construction scenarios, more equipment and crew would be present at any given point in time during construction, but the project would be completed sooner and have shorter temporal impacts than the assumed scenario. The applicability of the shortened construction schedule scenarios would not be known until prior to construction. Therefore, this EA analyzes the construction scenario where construction would only occur on one side of the river at a time with the use of a temporary bridge in order to analyze the potential construction scenario worst case scenario with the longest potential temporal greatest potential impacts.

Under the assumed construction scenario, construction of the Kelvin Bridge Replacement Project would take between 18 and 21 months and would begin between October and December, 2017. An estimated project schedule is shown in Table 2-1. Construction would occur in four phases: 1) geotechnical and site preparation; 2) bridge construction; 3) local access and detour road construction; and 4) bridge approach road realignment construction. The following text provides a basic summary of the major construction elements that would occur for each phase; these phases and elements are described in greater detail in the following sections.

Phase 1: Geotechnical and Bridge Site Preparation (from October 2016 to December 2016):

- Vegetation clearance of approximately 0.1 acre
- Construct temporary fencing. Fencing shall be constructed before vegetation clearance in order to prevent unauthorized soil and vegetation disturbance outside of authorized ROW.
- Drill three new geotechnical borings
- Grade temporary construction area
- All native trees in the riparian corridor, such as cottonwood and willow, shall be marked before construction and left in place. If a native tree on BLM land in the riparian corridor must be removed, then BLM approval for removal shall be obtained by the contractor prior to removal.

Phase 2: Bridge Construction (from December 2016 to January 2018)

- Construct bridge superstructure (pier foundations, the abutments, footings, bridge deck and piers)
- Construct a temporary 80-foot bridge to transport construction equipment

Phase 3: Detour and Local Access Roads and Bridge Realignment (from October 2017 to November 2017)

- Vegetation removal near the southern portion of the bridge for bridge approach and realignment construction
- Detour road preparation (excavation, grading, and installation of traffic control)

Phase 4: Removing Detour Roads and Revegetation (from February 2017 to March 2017)

- Removal of detour road infrastructure and traffic control
- Temporary detours and temporary bridge workspace reseeded with appropriate species

Table 2-1. Estimated Project Schedule

	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sept 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018
Activity Type	Geotech Borings	Clear Vegetation	Bridge Construction														Revegetation	
Activity Type			Temporary Bridge											Detour Roads	Permanent Roads			
Activity Type																	Remove Detours	
Equipment and Schedule (Estimated Noise 50 feet from Source)	(Anticipated working days and hours per week (estimates are for purposes of analysis only))																	
Diesel Work Truck 1 (85 dBA)	6am-6pm, Monday-Sunday	6am-6pm, Monday-Sunday	24 hours/day, Monday-Sunday															
Diesel Work Truck 2 (85 dBA)		6am-6pm, Monday-Sunday	24 hours/day, Monday-Sunday														24 hours/day, Monday-Sunday	
Diesel Work Truck 3 (85 dBA)		6am-6pm, Monday-Sunday	24 hours/day, Monday-Sunday															
Crane (1) (85 dBA)					24 hours/day, Monday-Sunday													
Dozer (up to 2) (85 dBA)	..														24 hours/day, Monday-Sunday	24 hours/day, Monday-Sunday	24 hours/day, Monday-Sunday	
Excavator (1) (85 dBA)															24 hours/day, Monday-Sunday	24 hours/day, Monday-Sunday	24 hours/day, Monday-Sunday	
Cement Truck (1) (85 dBA)				24 hours/day, Monday-Sunday														
Drill Rig (1) (84 dBA)	6am-6pm, Monday-Sunday	6am-6pm, Monday-Sunday	24 hours/day, Monday-Sunday	24 hours/day, Monday-Sunday	24 hours/day, Monday-Sunday													
Paving Machine and roller (up to 2) (85 dBA)																	24 hours/day, Monday-Sunday	

* If construction does not begin in October of 2015 or 2016, then subsequent construction start dates involving soil and vegetation disturbance shall also be outside the April 1–September 30 nesting season.

Figures 4a and 4b show the overview of the proposed construction activities for the north and south sides of the Gila River, respectively. Figures 5a and 5b show the proposed temporary and permanent construction impacts for the north and south sides of the Gila River, respectively. Overall, the Proposed Action would disturb approximately 7.2 acres. This includes 2.1 acres of permanent impacts (shown as permanent impacts and permanent detour areas in Figures 5a and 5b), and 5.1 acres of temporary impacts (shown as temporary impacts in Figures 5a and 5b and temporary detour area on Figure 5b) associated with construction of this project.

As noted, one key change and reason for amending the ROW grant is due to project construction during breeding season. The project area contains 2.9 acres of designated critical habitat for the SWFL (USFWS 2013a) and 3.6 acres of proposed critical habitat for the YBCU, most of which overlap each other. Figures 4a and 4b through 5a and 5b show the critical habitat boundaries for these species. Some areas within the designated and proposed critical habitat boundaries do not contain habitat conditions, i.e., existing bridge, railroad, upland vegetation, and barren ground, but the majority of the critical habitat contains appropriate vegetative cover for nesting, foraging, and migration. As a result, this project would remove approximately 1.2 acres (0.4 acre permanent and 0.8 acre temporary) of SWFL designated critical habitat with vegetation and 1.7 acres (0.6 acre permanent, 1.1 acres temporary) of YBCU proposed critical habitat with vegetation. The total impacts to critical habitat for both species combined would be 2.9 acres. Table 2-2 summarizes these impacts.

Table 2-2. Permanent and Temporary Impacts within and outside Critical Habitat

	Impacts in SWFL and YBCU Critical Habitat with Vegetation (acres)	Impacts outside Critical Habitat (acres)	Total (acres)
Permanent	0.4	0.6	1.0
Temporary	0.8	1.1	1.9
Total	1.2	1.7	2.9

CONSTRUCTION PHASES AND SCHEDULE IN DETAIL

Construction phases of the bridge and its supporting elements, as depicted in the 95% design plans developed by Entellus, Inc., are described in the subsections below. The design modifications have not changed the types of construction activities (e.g., blading, grading, and paving road approach realignments, pier construction, bridge deck construction) since the 2012 EA (BLM 2012a).

The construction schedule has changed since the 2012 EA to include construction activities during breeding seasons for the SWFL and YBCU, as identified in Table 2-3. As noted, construction would take between 18 to 21 months under the assumed scenario that construction would only occur on one side of the river at a time. Construction would begin between October and December 2016 (or subsequently in October of future years) and would take place in four general phases:

1. Geotechnical borings and vegetation removal for bridge construction
2. Bridge construction
3. Local access, detour road construction and bridge approach road realignment construction (including vegetation removal for roads)
4. Detour road removal and revegetation

Notwithstanding local, state or federal restrictions, construction can be expected to occur at various levels of capacity throughout each day (for example, up to 24 hours a day, 7 days a week) within the specified time frames.

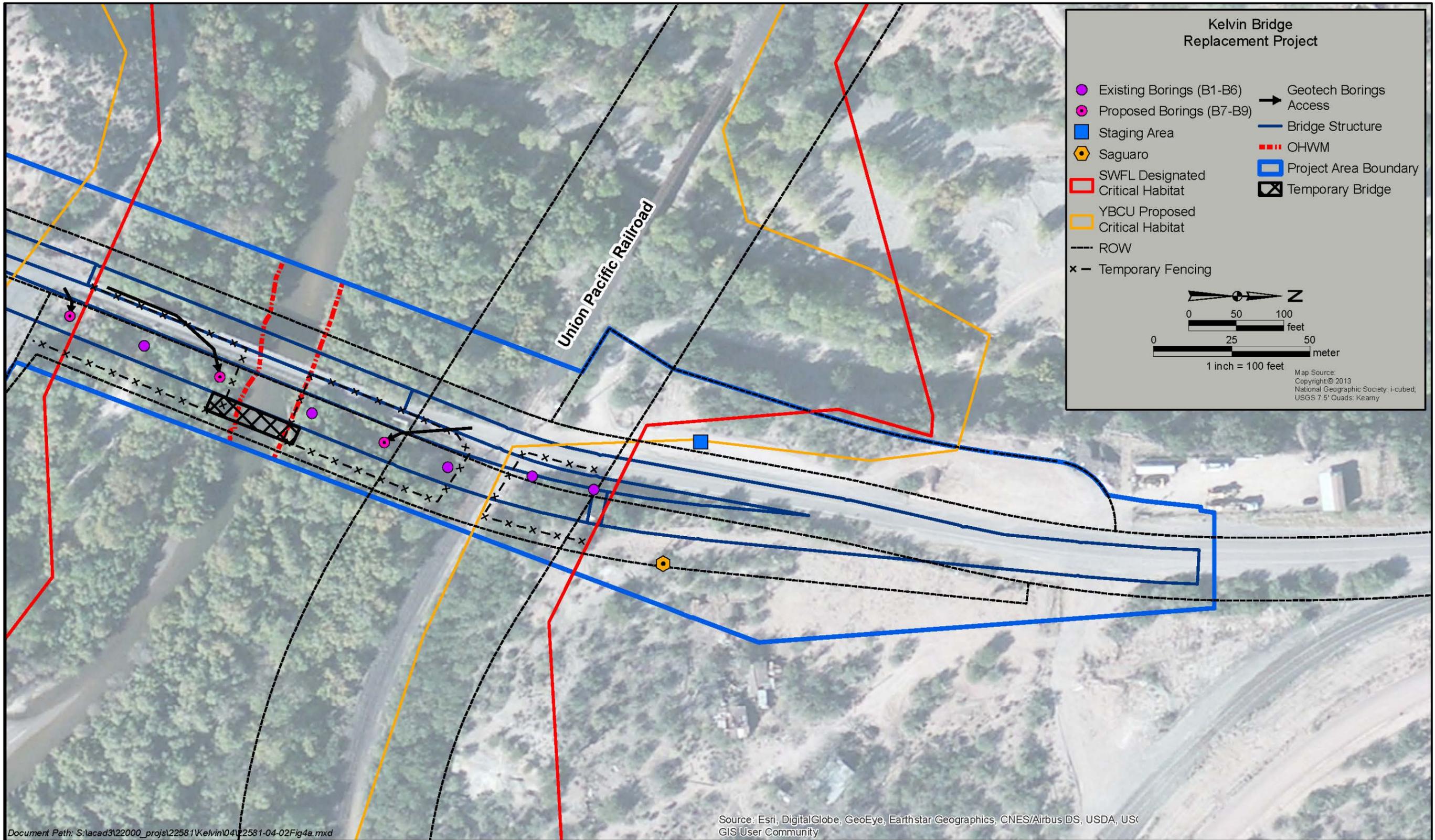


Figure 4a. Project area and Proposed Activities, northern end detail.

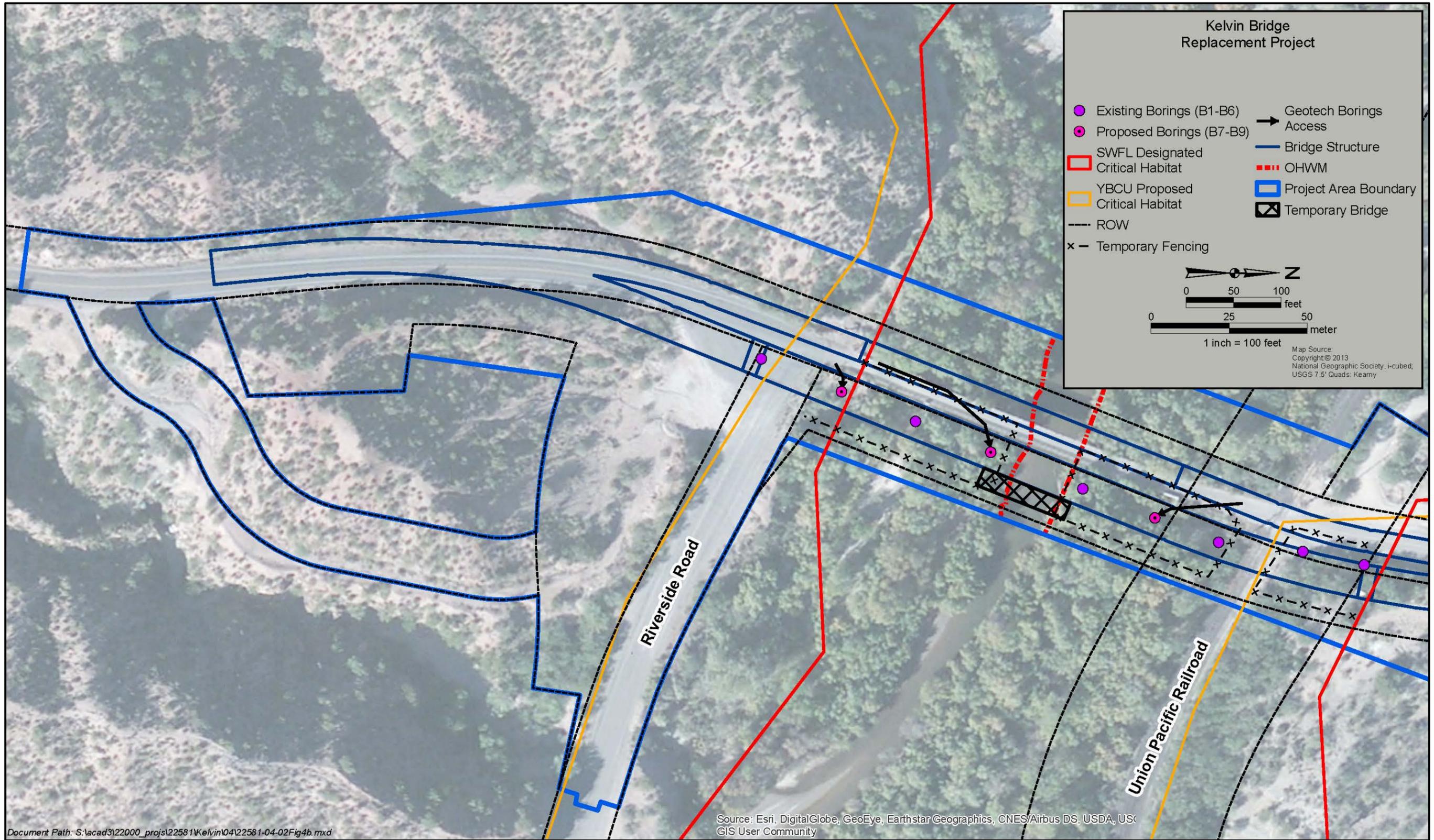


Figure 4b. Project area and Proposed Activities, southern end detail.

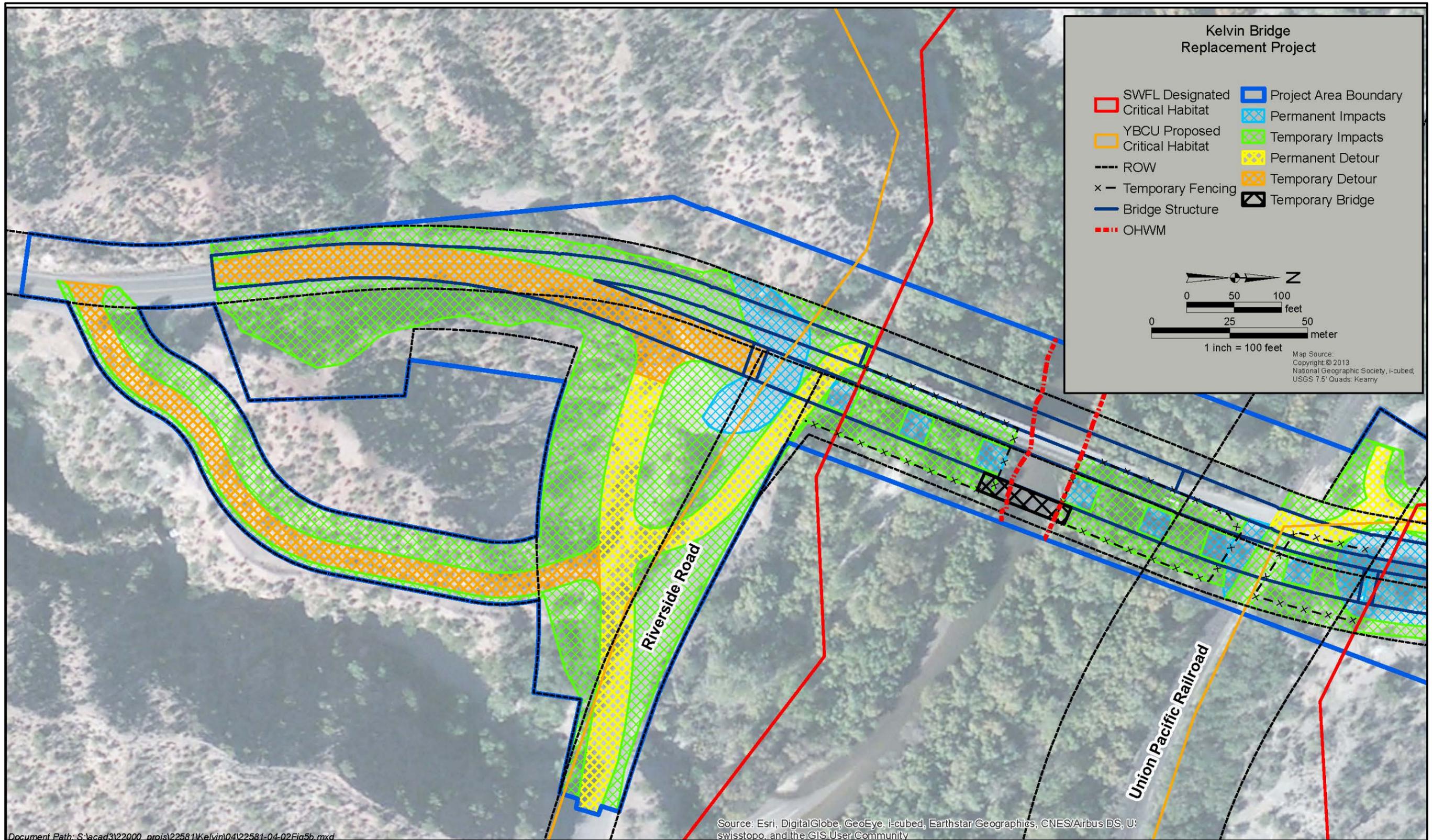


Figure 5b. Project area and Proposed Impacts, southern end detail.

Dates, times, and descriptions are approximate and used for analysis, however the only hard constraint applies to vegetation clearing for bridge construction and Phase 3: Detour and Local Access Roads and Bridge Realignment (from October 2016 to November 2016), which would only begin outside of the migratory bird (including YBCU and SWFL) breeding season. Specific construction equipment and times of use cannot be anticipated as those are determined by the contractor chosen for the work and could change over the course of construction. Table 2-3 provides an overview of the estimated construction activity timing and estimated range of noise generated by anticipated construction equipment.

CONSTRUCTION PHASE 1 - GEOTECHNICAL AND BRIDGE SITE PREPARATION PHASE

Construction Activity: Geotechnical Borings

Anticipated Start Date Range and Duration: Vegetation removal would be needed for drill rig access. It is anticipated that the three borings can be done in less than one day. Because vegetation removal will be required, this phase can only occur outside the migratory bird (including YBCU and SWFL) breeding season. Anticipated start date would be in October 2016.

Key Equipment: One truck-mounted drill rig for geotechnical boring holes with one work/haul truck and crew to man the drill rig and clear the vegetation.

Disturbance Summary: In order to complete the final bridge design, additional geotechnical borings need to be conducted to determine the structural integrity of the existing soil. This bearing capacity would affect the final bridge design. There are a total of nine boring locations, including six (B1–B6) existing borings that were completed in 2004, and the drilling of three (B7–B9) new holes (see Figures 4a and 4b). Also depicted in Figures 4a and 4b are the proposed access routes required to drill the new borings. The borings would be achieved by the use of a truck-mounted drilling rig that can back into each testing location. The (4- to 6-inch) drill would take core samples of the soil that can be taken to a geotechnical lab for further analysis. Vegetation would be cleared in a path that would allow the truck to back down to the boring location and to exit the boring site through the same path. This is the same process that was followed in testing the soil in 2004.

Acreage removal is assumed to be part of the stage for bridge construction due to the overlapping area and timing.

Construction Activity: Bridge Site Preparation

Anticipated Start Date Range and Duration: Between October 2016 and December 2016. The date range does not imply vegetation removal would last the entire range; rather, it is only an estimate of when overall project construction would begin, with geotechnical work and vegetation clearing being the first task of the phase.

Key Equipment: One dozer, and up to 3 work/haul trucks and crew to conduct vegetation removal.

Following geotechnical testing to confirm how deep pier supports need to be constructed; vegetation clearing where bridge construction crosses the Gila River would be needed for temporary work space. Fencing which delineates the area of soil and vegetation disturbance shall be constructed before any soil and vegetation disturbance occurs. Work trucks and crews would remove larger vegetation out of the riparian area, only within the prescribed limits.

No detour roads would be needed during bridge construction, thus vegetation removal for this element would occur following bridge construction, during the road realignment and approach phase.

Impact Summary: This phase involves clearing the vegetation within the project limits of the new bridge. Vegetation would be cleared for temporary workspace along the upper banks of the Gila River where bridge supports would be erected.

Table 2-3. Project-Related Noise Information

	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sept 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	
Listed Species Migratory Presence in Arizona																			
Southwestern Willow Flycatcher Activity [†]	Absent						Migration	Breeding					Migration	Absent					
Yellow-billed Cuckoo Activity [‡]	Migration	Absent						Migration	Breeding					Migration	Absent				
Ambient/Baseline Noise Levels at 100 feet																			
Train (twice/day) (70–95 dBA)																			
Train Whistle (twice/day) (95–115 dBA)																			
Local Traffic (50 dBA)																			
Construction Activities																			
Activity Type	Geotech Borings	Clear Vegetation	Bridge Construction														Revegetation		
Activity Type			Temporary Bridge												Detour Roads	Permanent Roads		Remove Detours	
Equipment Noise Levels 50 feet from Source																			
Diesel Work Truck 1 (85 dBA)			[Noise Level]																
Diesel Work Truck 2 (85 dBA)			[Noise Level]																
Diesel Work Truck 3 (85 dBA)			[Noise Level]																
Crane (85 dBA)																			
Dozer (85 dBA)																			
Excavator (85 dBA)																			
Cement Truck (85 dBA)																			
Drill Rig (84 dBA)																			
Paving Machine (85 dBA)																			
Highest Level of Combined Construction Noise*	87	91	91	92	93	92	92	92	92	92	92	91	91	91	93	93	91		

Notes:
[†] SWFL are usually considered breeding from mid-April through end of Sept. (with early and late nesting or re-nesting attempts). Migration may be in Sept. for some birds, but not all birds.
[‡] YBCU are usually considered breeding from very late May through end of Sept. (with early and late nesting or re-nesting attempts). Migration may be in Sept. for some birds, but not all birds.
 Source for noise levels by equipment and local traffic from Federal Highway Administration (2006).
 Train noise information from Federal Railroad Administration (2014).
 * The combination of noise from multiple sources was calculated following this guidance: 1) two noises with equal or ±1 dB combine to raise the noise level by 3 dB; 2) two noises that differ by more than 10 dB, then no increase is made; 3) two noises that differ by 2 to 3 dB combine to raise the noise level by 32 dB; and 4) two noises with that differ by 4 to 9 dB combine to raise the noise level by 1 dB.

Vegetation would be removed during this phase in the area south of the existing bridge, at the southern end of the project area where the new roadway would be aligned and also the bridge piers and rip rap areas. Temporary impact areas would be seeded after bridge construction, while some vegetation would grow back on its own after bridge construction. Native trees (e.g., willow, cottonwood) would be replanted using potted plants with local genotypes or using pole plantings. Plantings would receive irrigation for the first two years after planting.

Temporary fencing would be placed to denote the boundary of vegetation removal, which would be limited to the ROW and outside of waters of the U.S. The temporary construction area would be graded, and excess soils removed would be stockpiled or used for restoration after construction. The contractor would also use soils from an approved and permitted ADOT borrow pit facility when needed for grading activities. In addition, the required Stormwater Pollution Prevention Plan (SWPPP) will be used during the phase to prevent excess sediment (i.e., affect to water quality) from reaching the river following vegetation removal.

CONSTRUCTION PHASE 2: BRIDGE CONSTRUCTION

Anticipated Duration: December 2016–January 2018.

Key Equipment: One crane, one cement truck, one drill rig, up to 3 work/haul trucks and crew.

No detour roads would be needed during bridge construction, thus vegetation removal for this element would occur following bridge construction, during the road realignment and approach phase.

Impact Summary: No additional vegetation removal would take place in this phase. The permanent impacts in this stage include pillar footings, piers, riprap, bridge deck and one bridge support. The temporary elements would include a temporary bridge to transport materials and machinery across the river (see Figures 4a and 4b), and temporary workspace. The bridge would span the Gila River, and the river itself would not be altered.

Bridge construction requires drilling for pier foundations and installing steel wire cages and concrete belowgrade. Abovegrade, the piers would be framed and poured and then precast concrete girders would be lifted into place with a crane. The concrete deck would then be formed and poured, which would require frequent delivery of materials by concrete trucks to the project site.

Due to the presence of the Gila River, the bridge would be built in two steps; construction equipment would need to move from one side of the Gila River to the other when the bridge is roughly half way complete. To facilitate this process, the contractor would construct a temporary bridge across the river to transport materials and equipment from one side to the other. Load limit of the existing bridge is 15 tons, and insufficient for transporting heavy equipment and material from one side of the river to the other.

The temporary bridge would span 80 feet (see Figures 4a and 4b), avoiding impact to the Gila River's flowing channel and banks and all WUS, including wetland areas.

With respect to this process, higher than normal flows are not expected to be an issue during construction. The temporary bridge design is not final, but would be anchored via prefabricated concrete footings or driven piles located outside of the Ordinary High Water Mark (OHWM). In the event of a flood, water would likely overtop the temporary bridge in place, which the bridge would be designed to withstand. After subsiding, the temporary bridge's short approach ramps (consisting of ADOT-approved fill material) on either end would be rebuilt as needed.

During bridge construction, a netting device (or something similar as designed by the contractor and approved by the ADOT District Engineer) would be installed in order to keep any materials from falling into the Gila River below. However, users of the Gila River (i.e., for recreation) would not be impeded where it crosses the project area; the netting, temporary bridge and other items would allow access.

In those areas of temporary impacts, some of the vegetation removed in the previous phase is expected to grow back naturally at the completion of this phase, as well as through the proposed revegetation efforts following bridge completion.

CONSTRUCTION PHASE 3: REALIGNMENT OF DETOUR AND LOCAL ACCESS ROADS AND BRIDGE APPROACH REALIGNMENT

Construction Activity: Temporary Detour Roads

Anticipated Duration: October 2016-November 2016.

Key Equipment: One cement truck and up to 3 work/haul trucks and crew.

Impact Summary: Vegetation removal would take place within the detour road alignments prior to blading and grading the detour roads. As previously noted, paving the temporary traffic route road would not be necessary to allow for heavy construction machinery to access the site.

The temporary detour roads are south of the bridge and in the southeastern portion of the project area (see orange-hatched area in Figure 5b). This construction element would also take place outside of the breeding season. Moreover, unlike the vegetation removal under Phase 1, no riparian habitat or vegetation would be removed in this construction element; vegetation removal needed to construct the detour roads consist of upland desertscrub vegetation community with some pre-existing disturbances (e.g., an old road alignment that is not vegetated is planned to serve as a temporary traffic route, and one of the temporary workspace areas is along the road and currently is devoid of vegetation).

Traffic control signage for vehicle and pedestrian traffic detours would be implemented for the duration of the project.

Construction Activity: Bridge Approach Realignment

Anticipated Duration: December 2016 - February 2017.

Key Equipment: One excavator, bull dozer, paving machine and roller, cement truck and up to 3 work/haul trucks and crew.

Impact Summary: This construction element includes vegetation removal, most of which is south of the bridge, in the southeastern portion of the project area (see yellow-hatched area in Figures 5a and 5b). This phase would also take place outside of the breeding season. Moreover, unlike the vegetation removal under Phase 1, no riparian habitat or vegetation would be removed in this construction element; vegetation removal needed to construct the roads consist of upland desertscrub vegetation community with some disturbances; vegetative cover is approximately 25%. The remainder of the area contains either existing roadway or barren ground.

This construction element would include grading and removing some soil for use in other locations throughout the project. Excess dirt from upland and riparian areas will be stored separately (not mixed) in order to ensure the appropriate soil type is used for revegetation efforts in upland and riparian areas. Soils for use in restoration of the riparian area would come from these riparian stockpiled sources. If additional fill material is required, the additional fill material would come from an ADOT permitted materials source. Permanent roads, including realigning the Florence-Kelvin highway to the new bridge and a new local resident access road would last approximately 2 to 3 months, after completion of the detour roads. This would involve clearing the vegetation in areas for the new roadway followed by grading and paving. Construction of these roads is expected to take approximately 1 to 2 months.

PHASE 4: REMOVING DETOUR ROADS AND REVEGETATION

Anticipated Duration: February-March 2017.

Key Equipment: One excavator and up to 3 work/haul trucks and crew.

Impact Summary: No additional vegetation removal or ground disturbance would take place during this phase. Removal of detour road infrastructure and traffic control is expected to last approximately 1 month of construction time, expected within February 2017. The portions of the detour roads that are not permanent would be removed, and the areas would be reseeded with species that are indigenous to the project area, and approved by BLM for use on BLM land.

Restoration plans involve several components:

1. Pinal County would prepare a site restoration plan, to be implemented by the project contractor, using native woody riparian plant species within proposed and designated critical habitat. The site restoration plan would be reviewed and approved by the ADOT Roadside Development and BLM.
2. Pinal County would employ a qualified senior biologist (as defined by ADOT standards, with qualifications approved by ADOT) to monitor native woody riparian plant species planted as part of the site restoration plan, and naturally reestablishing vegetation, within proposed and designated critical habitat at least twice a year, in March and September, for a period of two years following construction to ensure that restoration efforts are successful and to track natural rates of re-colonization and recruitment of tamarisk and native riparian vegetation.
3. A report shall be provided to the BLM Field Manager on an annual basis which would include planting success rate by species with mapped locations, and species/density of any exotic plants with mapped locations. Irrigation of replanted woody vegetation should occur for two years following planting.

2.2.3 Construction Activities Common to All Phases

DRAINAGE

No culverts or major drainage improvements are included in the Proposed Action. The project is designed to mitigate flood risk of to the bridge from the Gila River.

TRAFFIC CONTROL

Traffic would be re-routed temporarily during construction south of the bridge construction area (see Figure 4b). The temporary traffic route would not be paved; as noted, the proposed route is an existing unpaved road, and its surface provides adequate support for construction equipment.

There would be no signalization included in the Proposed Action. U.S. Department of Transportation standards recommend regulatory signs at each crossover, major intersections, approaches, traffic interchanges, and arterial connections. Passive temporary signage (stop signs, barricades, turn signs, etc.) would be used for the duration of the project.

Local traffic access would be maintained during construction via the temporary detour route connecting the existing bridge to the detour road.

A detailed signing configuration in keeping with the American Association of State Highway and Transportation Officials (AASHTO) and Pinal County Department of Transportation requirements for the Proposed Action is included in the final design and engineering.

DUST CONTROL

Dust-control measures would be utilized as necessary during construction as required under the Pinal County Dust Control Permit. Water from approved off-site sources shall be used as needed to provide water for dust control. Water application by truck would be the primary means of dust control at areas impacted by construction. Speed limits of 5 to 10 miles per hour on access roads within the construction zone and the ROW would reduce particulate matter emissions. Gravel or other similar material would be used where dirt access roads intersect paved roadways to prevent mud and dirt track-out. All paved roads would be kept clean of objectionable amounts of mud, dirt, or debris, as necessary.

EROSION CONTROL

A SWPPP, including spill prevention, would be prepared for construction of the Proposed Action by Pinal County or a chosen contractor in compliance with the Arizona Pollutant Discharge Elimination System (AZPDES) requirements. In accordance with the best management practices (BMPs) in the SWPPP, totally enclosed containment would be provided for all hazardous materials (if needed) and trash.

All construction waste including trash, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials.

In general, construction erosion control would consist of BMPs, including techniques such as hay bales, silt fences, and revegetation, to minimize or prevent soils exposed during construction from becoming sediment carried off the site. Hay bales, silt fences, and/or other methods of erosion control shall not contain any netting due to the potential of creating entrapment hazards to wildlife.

TEMPORARY CONSTRUCTION EASEMENTS AND CONSTRUCTION STAGING

No temporary construction easements would be required outside the requested 100-foot ROW.

The County intends to utilize areas under its jurisdiction that are already disturbed primarily located northwest of the existing bridge. A staging area for construction equipment and materials would be required during the course of construction. The proposed staging area is to be located north of the Gila River along the west side of the existing highway in a previously-disturbed area. The construction staging area would be approximately 50 feet by 50 feet and fenced using self-supporting, chain-link temporary construction fencing.

Use of soils and gravel from an ADOT permitted borrow pit would be necessary if the quantity of salvaged soil was not sufficient for fill material needs; specific material source brokers have not been identified at this time. All excess dirt that may be generated from grading would be reused in revegetation efforts. Excess dirt from upland and riparian areas will be stored separately (not mixed) in order to ensure the appropriate soil type is used for revegetation efforts in upland and riparian areas.

The County would not disturb areas outside the ROW without prior written permission from the appropriate land managing agency or individual owner.

Temporary construction staging areas would be kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flags, would be removed from the sites and disposed of in an approved manner at an approved refuse facility.

Totally enclosed containment would be provided for all trash and hazardous materials such as oil or diesel fuel and would be located out of the floodplain of the Gila River. All construction waste, including trash, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials.

No construction equipment oil, antifreeze, or fuel would be drained on the ground. Oils or chemicals would be hauled to an approved site for disposal. No open burning of construction trash would be allowed

on BLM-administered lands. No unauthorized use would be permitted on the bridge during construction of the project.

CONSTRUCTION WATER USE AND SOURCE

No new groundwater wells would be required for this project, and no surface water sources would be needed for construction water use. The County would provide construction water and water trucks from approved, off-site sources.

CONSTRUCTION EQUIPMENT ROSTER AND WORKFORCE

The estimated number of workers required to construct the proposed Project would be approximately 20 crew members. Other secondary machinery that may be used during Project construction include a loader and a water truck. Additional equipment may be required on an as-needed basis to mobilize, maintain, and demobilize the other equipment.

2.2.4 Bridge Operation and Maintenance

Typical road operation and maintenance activities would include repairs to the roadway surface, roadway re-surfacing, and removal of sediment from the roadway. Maintenance activities would occur as needed. A sweeper would be used to clear sediment as needed.

The speed limit on the proposed roadway would be 25 miles per hour. The bridge would be monitored for issues that would affect roadway safety and integrity as specified in the right-of-way grant terms.

If the bridge is damaged as a result of flooding, repairs would restore the bridge to its original state after the flooding has subsided. If damage to the bridge is severe, the road would be closed, and Pinal County engineers would assess the damage to recommend the proper repairs that need to be completed in order for the bridge to reopen. Emergency consultation with the USFWS would occur for any necessary bridge repairs.

2.3 No Action

In addition to considering the Proposed Action, as described in Section 2.4, the no action alternative “provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives” (CEQ 1981:question 3). The No Action Alternative provides the environmental baseline against which the other alternatives are compared.

Under the No Action Alternative, the BLM would not amend ROW Grant # AZA-35391 to allow construction of the project to occur during the breeding season of the YBCU and SWFL. Pinal County would not construct the Kelvin Bridge Project as permitted by the BLM under the existing ROW grant because construction schedule restrictions during the breeding season for migratory birds from April 15 to September 30 would make the cost of the project too expensive to construct. Travelers on the Florence-Kelvin Highway would continue to cross the Gila River on the existing one-lane Kelvin Bridge and would cross the railroad at the at-grade railroad crossing.

2.4 Alternatives Considered but Eliminated from Detailed Study

Alternatives to the Proposed Action (BLM amending and reissuing ROW Grant AZA-35391 to allow for construction during migratory bird breeding season) other than the No Action Alternative are not feasible because any alternative that would modify the proposed construction schedule would not meet the purpose of the Proposed Action. As described in Section 2.2, construction scenarios such as simultaneously constructing on both sides of the river could shorten the construction schedule and still meet the purpose of the Proposed Action. The construction schedule of the Kelvin Bridge Replacement Project would ultimately be determined by ADOT (who would bid and administer project construction) and the construction contractor based on availability of equipment, materials, and crew, and the need to phase-out construction. While construction scenarios that would shorten the construction schedule may still be employed for this project, they are not analyzed in this EA because this EA analyzes the

construction scenario that would have the longest temporal temporary impacts within and adjacent to the project area. Therefore, no other alternatives are carried forward for detailed analysis in this EA.

2.5 Design Features

The following section describes the common features of the proposed Kelvin Bridge Project that were developed by ADOT, the BLM, and Pinal County, as well as activities that are anticipated to occur before and during project construction and throughout operation and maintenance of the project. Compliance with the design features listed in Table 2-4 below would be required for the implementation of the project.

2.6 ROW Grant Stipulations

Thirty ROW Stipulations were included in the October 30, 2012, approved ROW grant for the Kelvin Bridge Project and would be carried forward with the amended ROW grant. Pinal County would be required to adhere to the following ROW stipulations:

1. The holder of right-of-way No. AZA-35391 agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601, et seq., or the Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq.) on the right of way, unless the release is wholly unrelated to the right of way holder's activity on the right-of- way. This agreement applies without regard to whether a release is caused by the holder, its agent, or an unrelated third party.
2. The holder shall fully indemnify, or hold harmless, the United States for any liability, damage, or claims arising in connection with the holder's use and occupancy of the right- of-way.
3. The holder shall maintain the right of way in a safe, useable condition, as directed by the authorized officer and a regular maintenance program shall be maintained.
4. The Copper Basin Railway and local residents will be notified of the construction prior to the start of construction.
5. If any species listed as threatened or endangered under the Endangered Species Act is encountered during construction activities, all work will cease and telephone notification of the discovery will immediately be made to USFWS for those species without an incidental take statement in the biological opinion. Reinitiation of consultation will be required for any species encountered during construction activity that is not covered in the biological opinion. Construction activity may resume only after the authorized officer has issued a continuance.
6. In accordance with the Arizona Pollutant Discharge Elimination System (AZPDES), the construction contractor will develop a Storm Water Pollution Prevention Plan (SWPPP) and will submit the SWPPP and a Notice of Intent (NOI) to ADEQ to obtain a General Construction Permit. The SWPPP will include BMPs that ensure construction will not adversely impact soils and/or water quality in the Proposed Action area.
7. Prior to construction, wetland areas within the Proposed Action area, as delineated by SWCA Environmental Consultants (SWCA), and the OHWMs of the Gila River will be fenced with 1.5-m-high (5-foot-high) chain-link and orange construction fencing to reduce impacts the waters of the U.S. and the Gila River. The enclosed wetlands are to remain undisturbed, and the disturbance within the OHWM is to only occur to the extent described above.

Table 2-4. Design Features for Environmental Protection by Resource

Feature by Resource	ROW	Construction	Operation and Maintenance
Standard Mitigation			
Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder or any person working on the holder's behalf, on public or federal land shall be immediately reported to the authorized officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine the appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of the evaluation, and any decision as to the proper mitigation measures will be made by the authorized officer after consulting with the holder.	X	X	X
As required by Native American Graves Protection and Repatriation Act regulations at 43 CFR 10.4(g), "If in connection with the project operations under this authorization, any human remains, funerary objects, scared objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 USC 3001) are discovered, the ROW holder shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized Officer of the discovery. The ROW holder shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume."	X	X	X
The boundaries of construction activities would be predetermined and staked or flagged prior to any construction activity. No paint or permanent markings would be applied to rocks or vegetation.	X	X	
Prior to construction, all construction personnel would be instructed on the protection of cultural and ecological resources.	X		
All vehicle movement would be restricted to designated access, contracted acquired access, or public roads.	X	X	X
To limit disturbance, existing access roads would be used to the extent practicable, provided that doing so does not additionally impact resource values. Widening and grading of roads would be kept to the minimum required for access by project construction equipment.	X	X	X
All construction vehicle movement would be restricted to predesignated access, construction-required access, and public roads.		X	
Any vehicles and equipment that are brought in from outside the area would be power-washed, including the undercarriage, prior to entering the ROW and afterward before moving vehicles and equipment onto any other public lands, to prevent the introduction and spread of noxious weeds and/or invasive species.	X	X	X
The construction contractor shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes any access roads and adjacent land affected by the establishment of weeds as a result of this action. The operator shall consult with the authorized officer for acceptable weed control methods, which include following U.S. Environmental Protection Agency and BLM requirements and policies.	X	X	X
The width of construction and new temporary access roads would be kept to the minimum needed to avoid sensitive areas and to limit ground disturbance.		X	

Table 2-4. Design Features for Environmental Protection by Resource (Continued)

Feature by Resource	ROW	Construction	Operation and Maintenance
Reclamation			
Reclamation would be accomplished with native species, unless otherwise approved.		X	X
Seeding with a native seed mix would occur between November and March to ensure a greater chance of success.		X	X
Air Quality			
Dust-control measures would be utilized as necessary during construction as required under the Pinal County Dust Control Permit. Water from approved off-site sources may be used as needed to provide water for dust control. Water application by truck would be the primary means of dust control at areas impacted by construction. Speed limits of 5 to 10 miles per hour on access roads within the construction zone and the ROW would reduce particulate matter emissions. Gravel or other similar material would be used where dirt access roads intersect paved roadways to prevent mud and dirt track-out. All paved roads would be kept clean of objectionable amounts of mud, dirt, or debris, as necessary.		X	X
All necessary air quality permits would be obtained prior to construction or operating equipment that would result in regulated atmospheric or fugitive dust emissions.	X		
Topography and Soils			
Excess dirt from upland and riparian areas will be stored separately (not mixed) in order to ensure the appropriate soil type is used for revegetation efforts in upland and riparian areas. Soils for use in restoration of the riparian area would come from these riparian stockpiled sources.		X	
All disturbed areas will be revegetated with an approved seed mix and native trees. Native trees (e.g., willow, cottonwood) will be replanted using potted plants with local genotypes or using pole plantings. Plantings will receive irrigation for the first two years after planting.		X	
Any additional soil needed for grading activities will come from an approved and permitted ADOT borrow pit facility.		X	
In general, construction erosion control would consist of BMPs, including techniques such as hay bales, silt fences, and revegetation, to minimize or prevent soils exposed during construction from becoming sediment carried off the site. Hay bales, silt fences, and/or other methods of erosion control shall not contain any netting due to the potential of creating entrapment hazards to wildlife.		X	
Cultural Resources			
All known and discovered cultural resources will be avoided. During construction, if any cultural resources are discovered, the construction crew shall cease work immediately and contact the BLM.		X	
An archaeological monitor shall be present during all ground-disturbing activities. Should any archaeological resources or vertebrate fossils be discovered during construction, all surface-disturbing activities in the area of discovery shall cease. The archaeological monitor will evaluate the discovery and provide recommendations to the Authorized Officer. Surface-disturbing activities shall not resume until permission is obtained from the Authorized Officer.		X	

Table 2-4. Design Features for Environmental Protection by Resource (Continued)

Feature by Resource	ROW	Construction	Operation and Maintenance
Biological Resources			
Temporary fencing will be installed to delineate limits of vegetation clearing and ground-disturbing activities during construction.	X	X	
Mark all native trees in the riparian corridor, such as cottonwood and willow, prior to construction and left in place. If a native tree on BLM land in the riparian corridor must be removed, then BLM approval for removal shall be obtained by the contractor prior to removal.	X		
To minimize vegetation impacts from geotechnical boring, vegetation would be cleared in a path that would allow the truck to back down to the boring location and to exit the boring site through the same path.		X	
Water Resources			
The bridge's seven single-column pier system is designed to avoid all impacts to waters of the U.S.		X	
A project-specific construction SWPPP would be prepared prior to the start of construction of the road improvements in compliance with any CWA Section 402 permit terms and conditions, if required. As part of the SWPPP, soil disturbance at structure construction sites and access roads would be the minimum necessary for construction and would be designed to prevent long-term erosion, through activities such as restoration of disturbed soil, revegetation, and/or construction of permanent erosion control structures.	X	X	
During bridge construction, a netting device (or something similar as designed by the contractor and approved by the Engineer) will be installed in order to keep any materials from falling into the Gila River below.		X	
Heavy equipment will not be used in the flow channel of the Gila River or abutting wetlands.		X	
Travel Management			
Prior to the start of construction, Pinal County will inform local residents in an effort to minimize the proposed project's impacts to local traffic and roadways.	X	X	
Local traffic access would be maintained during construction via the temporary detour route connecting the existing bridge to the detour road.		X	
The new bridge will span the existing at-grade railroad crossing on the north side of the Florence Kelvin highway.			X
Recreation			
Public access to public lands that are currently open for recreational use would be maintained.	X	X	X
To prevent motorized access on the ANST, large boulders will be placed at the entrance of the trailheads within the project area.		X	X
The existing Kelvin Bridge will remain open for non-motorized use following construction and will continue to be a part of the Arizona National Scenic Trail (ANST).			X

Table 2-4. Design Features for Environmental Protection by Resource (Continued)

Feature by Resource	ROW	Construction	Operation and Maintenance
Human Health and Safety			
All hazardous materials would be disposed in approved manner at off-site, approved facilities by Pinal County and/or Pinal County contractors.		X	
Hazardous Materials and Waste			
All solid waste, such as residential-type garbage, shall be removed from the Proposed Action area on a daily basis.		X	
Totally enclosed containment would be provided for all trash and hazardous materials such as oil or diesel fuel and would be located out of the floodplain of the Gila River. All construction waste including trash, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials.		X	
No construction equipment oil, antifreeze, or fuel would be drained on the ground. Oils or chemicals would be hauled to an approved site for disposal. No open burning of construction trash would be allowed on BLM-administered lands. No unauthorized use would be permitted on the bridge during construction of the project.		X	
A SWPPP, including spill prevention, would be prepared for construction of the Proposed Action by Pinal County or a chosen contractor in compliance with the Arizona Pollutant Discharge Elimination System (AZPDES) requirements. In accordance with the best management practices in the SWPPP, totally enclosed containment would be provided for all hazardous materials (if needed) and trash.		X	

8. All construction equipment shall be maintained in good working condition in order to minimize impacts to air quality in the Proposed Action area from exhaust emissions.
9. Fugitive dust emissions shall be minimized in the Proposed Action area during construction by regular water application.
10. A Desert Tortoise survey shall be performed prior to construction to assess whether or not the Proposed Action area is utilized by the species. The standard Mitigation Measures outlined in *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* (AGFD 2014) shall be mandatory measures and are attached in Appendix A.
11. Prior to construction, orange construction fencing 1.5 m (5 feet) in height shall be placed 6.1 m (20 feet) beyond and parallel to the edges of the new bridge to delineate the eastern and western bridge construction access limits within SWFL critical habitat.
12. The construction contractor and qualified senior biologist shall closely monitor the Proposed Action area during construction to ensure that impacts to vegetation are minimized. Clearing of SWFL critical habitat required for construction access will be limited to no more than 6.1 m (20 feet) beyond the edge of the new bridge, as delineated by the placement of construction fencing described above. No vegetation shall be trimmed, removed, or otherwise disturbed within the OHWM of the Gila River, except as that described above.
13. Data recovery at AZ V: 13:33(ASM) shall be completed prior to construction.
14. An archaeological monitor shall be present during all ground-disturbing activities. Should any archaeological resources or vertebrate fossils be discovered during construction, all surface-disturbing activities in the area of discovery shall cease. The archaeological monitor will evaluate the discovery and provide recommendations to the Authorized Officer. Surface-disturbing activities shall not resume until permission is obtained from the Authorized Officer.
15. After construction of the Proposed Action, Pinal County will continue to maintain the historic Kelvin Bridge in perpetuity. A letter to this effect can be found in Appendix B of the EA.
16. If previously unidentified cultural resources are identified during construction of the new bridge, work will cease at that location, and the ADOT District Environmental Coordinator and BLM will be notified. The applicant will arrange for proper treatment of these resources. A treatment plan shall be approved by the Arizona SHPO if the discovery is on non-BLM land and by the Arizona SHPO and BLM if the discovery is on BLM land.
17. Any archaeological or historic artifacts or remains or vertebrate fossils discovered during operations shall be left intact and undisturbed; all work in the area shall stop immediately; and the Assistant Field Manager for Planning and Monitoring shall be notified immediately. Commencement of operations shall be allowed upon clearance by the Assistant Field Manager.
18. An additional cultural and paleontological resource survey may be required in the event the project location is changed or additional surface disturbing operations are added to the project after the initial survey. Any such survey would have to be completed prior to commencement of operations.
19. If in connection with operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) (L. 101-601; Stat. 3048; 25 USC 3001) are discovered, the permittee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Assistant Field Manager for Planning and Monitoring of the discovery. The permittee shall continue to protect the immediate area of the discovery until notified by the Assistant Field Manager that operations may resume.

20. With regard to portions of the current project area that cross lands administered by Pinal County, the client and all subcontractors are reminded that, in accordance with §41-844 of the Arizona Revised Statutes, the person supervising any survey, excavation, construction, or like activity on lands administered by the State of Arizona or any of its administrative subdivisions (i.e., counties or municipalities) is required, upon incidentally encountering cultural deposits more than 50 years old, to halt all work on the undertaking and immediately notify the Director of the Arizona State Museum (ASM) of the finding, so that a consultation process can be initiated and an appropriate course of treatment decided upon. Work in the area is not to resume until authorization is received from the Director.
21. With regard to portions of the project area that lie on privately owned land, the client and all subcontractors are reminded that, in accordance with §41-865 of the Arizona Revised Statutes, should buried human remains or funerary goods be encountered incidentally on private lands during any ground-disturbing activities associated with the current project or any follow-up work done at any time in the future, all such work must immediately be halted in the vicinity of the finding and the Director of the ASM must immediately be informed, so that a consultation process can be initiated and an appropriate course of treatment decided upon. Under the statute, the Director must make an initial response to such a notification within 10 working days; there is, however, no specified limit on the length of time that work may be delayed in order to deal with the finding in an appropriate manner. In any case, work is not to resume until authorization is received from the Director of the ASM. Should the Director fail to respond to the notification within the ten-day window provided in the statute, it can be assumed that authorization to resume work has been given.
22. The historic Kelvin Bridge shall be made a part of the Arizona Trail to be used as a pedestrian crossing over the Gila River.
23. Project plans shall be submitted to SHPO for review and comment and will comply with the Secretary of Interior's Standards for the Treatment of Historic Properties in order to ensure no adverse impacts occur to the visual context of the existing Kelvin Bridge.
24. A Spill Prevention Control and Countermeasures (SPCC) plan addressing the storage, handling, and release of fuels and lubricants on-site shall be followed during construction. The SPCC plan shall be in accordance with all Federal and state laws regarding the use of fuels and lubricants.
25. A Waste Management Plan (WMP) addressing the safe handling, storage, transportation, and disposal of solid waste, hazardous materials, or other waste used in the Proposed Action area shall be followed during construction. The WMP shall be in accordance with all applicable Federal and state laws regarding waste materials.
26. All solid waste, such as residential-type garbage, shall be removed from the Proposed Action area on a daily basis.
27. Pinal County and/or the construction contractor shall be held responsible if federal and/or state-listed noxious weeds become established within the project area. Weed control shall be required in areas where noxious weeds exist, which include the floodplain of the Gila River, roadsides, and adjacent areas affected by the establishment of weeds due to the Proposed Action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.
28. All vehicles and equipment brought in from outside the project area shall be power-washed, including the undercarriage, prior to entering the right of way and before moving vehicles onto any other public lands, in order to prevent the introduction and spread of noxious weeds and invasive species.
29. If suspected hazardous materials are encountered during construction or a spill occurs due to an unforeseen circumstance such as an equipment malfunction, the construction contractor will

notify ADOT and the BLM. In the event of a hazardous materials spill, the construction contractor will take appropriate measures to remove the contaminated soil and properly dispose of the contaminated soil at a certified hazardous materials disposal facility.

30. Yellow-billed cuckoo, southwestern willow flycatcher and Acuna cactus surveys shall be completed by the proponent's contractor in the summer immediately preceding soil and vegetation disturbing activities.
31. Per the USFWS Biological Opinion (BO), reinitiation of formal Section 7 consultation with the USFWS will be required if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action may affect listed species or critical habitat in a manner or to an extent not considered in the BO; 3) the agency action is subsequently modified in a manner or to an extent that causes an effect to a listed species or critical habitat that is not considered in the BO; or 4) a new species is listed or critical habitat designated that may be affected by the action.

2.7 Mitigation Measures

The following environmental protection measures and BMPs were developed by ADOT, BLM and the County to ensure that the Kelvin Bridge Project does not result in unnecessary or unreasonable environmental degradation. In addition, the following mitigation measures include the conservation measures for the SWFL, YBCU, and their designated/proposed critical habitat that the USFWS identified in the final BO that is provided in Appendix C. These mitigation measures are intended to complement the environmental protection measures included in the design features and ROW grant stipulations listed above. Environmental protection measures and BMPs are actions, practices, or design features that are part of the project and would be implemented by the proponent (the County). Under all alternatives, the mitigation measures listed in Table 2-5 are recommended to be implemented to minimize adverse impacts of the Proposed Action to sensitive environmental resources. The Decision Record for this project will determine which mitigation measures would be carried forward, would be included as conditions of approval, and would be binding in the event that Kelvin Bridge Project were transferred to or operated by another entity.

Table 2-5. Mitigation Measures

GENERAL	
1. General	A SWPPP and SPCC plan will be prepared prior to construction to ensure that the Proposed Action would not adversely impact soils or water quality.
2. General	A WMP and Waste Containment Plan will be developed to address the safe handling, storage, transportation, and disposal of construction waste, trash, litter, garbage, and hazardous materials (e.g., fuels, lubricants).
3. General	Erosion control BMPs, e.g., use of hay bales, silt fences, and other methods of erosion control would prevent soils exposed during construction from becoming sediment carried off the site and into the river.
4. Project Area	The Engineer will inform ADOT and the BLM if any change to the designated work area is needed. Any change to the work area may require additional environmental analysis.
5. Project Area	The contractor shall not conduct any activities outside of the designated work area without the approval of the Engineer and Pinal County designee. The contractor shall not conduct any activities outside of the designated ROW or Temporary Construction Easement (TCE) on BLM land.

Table 2-5. Mitigation Measures (Continued)

6. Construction	One pre-construction meeting, one on-site pre-vegetation clearing meeting, and up to three on-site construction meetings with project staff from ADOT, BLM, Pinal County, and the construction contractor (including the senior biologist construction monitor) will be held. The purpose of these meetings is to coordinate construction plans, ROW clearing limits, vegetation marking, etc. so that there is a common understanding of the construction activities.
7. Design	The final plan set will show the critical habitat areas, wetlands, OHWM and vegetation clearing limits. Vegetation clearing within southwestern willow flycatcher and yellow-billed cuckoo critical habitat required for construction access will be limited to no more than 20 feet beyond the edge of the new bridge, as shown in the final plan set.

TOPOGRAPHY AND SOILS

8. Soils	A site restoration plan will be prepared and will require that restoration activities include the use of native woody riparian plant species within proposed and designated critical habitat such as Fremont cottonwood (<i>Populus fremontii</i>), Goodding willow (<i>Salix gooddingii</i>), and velvet ash (<i>Fraxinus velutina</i>). Trees planted shall be of varying heights in order to produce a layered vegetation effect. Native understory plant species such as seepwillow (<i>Baccharis glutinosa</i>) and burrobrush (<i>Hymenoclea monogyra</i>) shall also be planted. All disturbed soils, inside and outside of proposed and designated critical habitat, that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity. Any seed mix used on BLM land shall be approved by BLM prior to seeding. The site restoration plan will include a preconstruction inventory of native plants in all areas where native vegetation will be disturbed in order to determine the location and number of plants that may be destroyed or removed. The site restoration plan will be reviewed and approved by the ADOT, and the BLM for all BLM land, and shall be implemented by the contractor following construction of the bridge and roadway improvements.
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BIOLOGICAL RESOURCES

9. General (BO)	At least 45 (forty-five) days prior to construction, a qualified senior biologist (biological monitor) will be hired under contract to ADOT to monitor construction activities at the Kelvin Bridge crossing and to report on the project's environmental effects, environmental compliance (i.e., with the general and specific mitigation measures summarized in the BO/CO), and to the extent possible the effectiveness of mitigation.
10. General (BO)	Monitoring frequency will depend on the type and timing of activities. Vegetation clearing, temporary bridge construction, and pier construction could require daily visits. At a minimum, the biological monitor will conduct weekly visits, beginning with preconstruction activities, and ending with completion of the bridge. Monitoring for the post-construction restoration effort will occur twice each year for two years.
11. General (BO)	Before construction, the biological monitor will present an environmental awareness program to all workers who will be involved with the project on the ground, focusing on flycatcher and cuckoo biology, critical habitats of both species, and construction avoidance areas within the project limits (see below).
12. General (BO)	Before construction, the biological monitor, ADOT, and BLM will identify and mark the perimeters of work areas, identify and mark individual trees that would be pruned or removed from work areas, and identify and flag native trees, shrubs, and cacti that would not be removed from work areas.
13. General (BO)	<p>Before construction, the biological monitor, ADOT, and BLM will identify and mark the following areas to be avoided during vegetation clearing and construction activities:</p> <ul style="list-style-type: none"> • Wetland areas. • The OHWM of the Gila River. • Active bird nests. • Critical Habitats.
14. General (BO)	Wetland areas and the OHWM will be fenced with orange construction fencing to reduce construction impact to the Gila River.
12. General (BO)	To prevent impacts to protected migratory birds, any active nest found within 100 feet of the construction area will be reported to the biological monitor who will then establish and mark an avoidance area, e.g., with plastic fence or T-posts.

Table 2-5. Mitigation Measures (Continued)

13. General (BO)	In work areas, vegetation clearing would be limited to an area extending 20 feet beyond and parallel to the edges of the new bridge. The work areas will be fenced with five-foot-high orange construction fencing. Proposed vegetation clearing inside work areas will involve removal of designated critical habitat for the SWFL and proposed critical habitat for the cuckoo. The work area limit and fencing will prevent further encroachment into designated and proposed critical habitat.
14. General	If the senior biologist monitor determines that unacceptable levels of resource damage are occurring outside of authorized activity, the senior biologist shall request that the Engineer immediately issues a work-stop order for the area where the unacceptable levels of resource damage is occurring. Pinal County and the BLM shall be immediately notified of any stop work decisions.
15. Invasive Species	All disturbed soils not paved that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.
16. Invasive Species	To prevent the introduction of invasive species seeds, the contractor shall inspect all earthmoving and hauling equipment at the equipment storage facility and the equipment shall be washed prior to entering the construction site.
17. Invasive Species	To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.
18. Vegetation	A Pesticide Use Proposal will be submitted to the BLM for approval prior to controlling federal and state-listed noxious and invasive plant species in the project area. Adhere to USFWS guidelines for herbicide use contained in our detailed guidance, <i>Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service</i> (White 2007).
19. Vegetation	If restoration of native vegetation within the temporary impacts is not successful, as determined by BLM on BLM land, then Pinal County and ADOT shall coordinate with BLM and provide further restoration efforts, such as seeding or plantings on the BLM land.
20. Vegetation	When cutting down a native tree (cottonwood, willow, hackberry, mesquite, etc.), retain the stump (1 foot above the ground or at least above the first limbs to facilitate resprouting) wherever possible.
21. Vegetation	Tree inventory must be shown clearly on construction plans and engineering data will be provided for tree locations, which can be easily identified in the field. Tree removals need to be identified precisely by tree names, tree sizes, trunk sizes and removal details. Trees not identified for removal will not be removed.
22. Wildlife	The Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat (2008) and the Sonoran Desert Tortoise Handling Procedures (2013) shall be mandatory measures and are attached in Appendix A.
23. Wildlife	Pima County will consider incorporating roosting sites for bats into bridge designs.
24. Wildlife	Only wildlife-friendly fence design shall be used for permanent fencing.
25. Wildlife (BO)	Vegetation clearing activities will be restricted to the period October 1–March 31 of any given year. No vegetation clearing activities will occur from April 1–September 30.
26. Wildlife (BO)	Vegetation clearing within SWFL and YBCU critical habitat required for construction access will be limited to no more than 20 feet beyond the edge of the new bridge.
27. Wildlife (BO)	If any species listed as threatened or endangered under the ESA is encountered during construction activities, all work will cease and the USFWS will be contacted for guidance.
28. Wildlife	Minimize removal of xeroriparian vegetation during construction at wash crossings.
29. Wildlife	A project speed limit of 5 to 10 mph would be followed when in the project area.
30. Wildlife	YBCU, SWFL, and Acuna cactus surveys shall be completed by the proponent's contractor in the summer immediately preceding soil and vegetation-disturbing activities.

2.8 Summary of Environmental Effects

Table 2-6 presents a summary comparison of resources potentially affected by the No Action Alternative and the Proposed Action. The information presented in this table is a summary comparison of the data

presented in detail in Chapter 3 of this EA. The effects identified in this table also assume that BMPs and mitigation measures will have been implemented. The comparison of effects also includes effects that are common to the alternatives and Proposed Action to demonstrate the relative effect of each.

Table 2-6. Summary of Environmental Effects

Resource Section	No Action	Proposed Action
AIR QUALITY	No impact.	Short-term, minor impacts to air quality from fugitive dust and equipment emissions during construction. Negligible impacts to climate change.
BIOLOGICAL RESOURCES	No impact.	Long-term impacts to vegetation from construction activities and permanent loss of vegetation and habitat on 2.1 acres. Short-term, minor impacts to wildlife, migratory birds, and special status species from construction, and temporary impacts to habitat on up to 7.2 acres.
CULTURAL RESOURCES	No impact.	No impact because known cultural resources within the project area have been recovered. In the event of an unanticipated discovery of cultural material during project activities, all work would stop at that location until the find is evaluated by a professional archaeologist.
GEOLOGY AND SOILS	No impact.	Construction of the Proposed Action could temporarily impact up to 7.1 acres of soil resources. Permanent impacts to 2.1 acres would result from the construction of the new bridge approaches and bridge. Direct impacts to the soils include erosion from the removal of vegetative cover and compaction from heavy equipment resulting in the loss of soil structure and porosity.
HUMAN HEALTH AND SAFETY	No impact.	The construction of the Proposed Action is expected to take between 18 and 21 months and would be confined to the footprint of the road within the ROW; thus the increase of potential risk to human health and safety associated with construction activities would be short-term and minor. The Proposed Action would provide a long-term moderate beneficial impact to public safety because traffic would no longer have to cross the railroad at an at-grade crossing.
HAZARDOUS MATERIALS	No impact.	During construction, operation, and maintenance, there is a potential risk of contamination to soil through leaks from equipment, vehicles or accidental releases along the ROW. A SWPPP will be developed to minimize the risk of an accidental release. If previously unidentified hazardous materials are encountered during construction or operation and maintenance, work would stop at that location until the material was investigated and proper action implemented. No adverse direct or indirect effects from hazardous materials are expected.

Table 2-6. Summary of Environmental Effects (Continued)

Resource Section	No Action	Proposed Action
NOISE	No impact.	Short-term, minor impacts resultant from temporary increase in noise levels (e.g., vehicles and construction equipment) during daytime hours may cause localized impacts in the immediate vicinity of the project during construction only.
RECREATION	Long-term minor impact would occur as a result of the existing Kelvin Bridge not becoming a non-motorized segment of the Arizona National Scenic Trail.	Temporary, minor impacts to recreation may occur during construction as a result of construction noise and temporary access restrictions to the trailhead for the Arizona National Scenic Trail, but would cease during operation and maintenance. Long-term beneficial impact would occur as a result of the existing Kelvin Bridge being converted to a non-motorized use bridge and incorporated into the Arizona National Scenic Trail. The trailhead at the bridge would be improved over existing condition as well.
SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE	Long-term, moderate impact to quality of life for area residents because there would be no new bridge construction, thus not improving access.	Long-term beneficial impacts would be expected to occur as a result of the improved access to Kelvin provided by the new Kelvin Bridge. Roadway users and nearby residents would benefit from the bridge by no longer needing to wait for opposing traffic on the bridge and no longer crossing the railroad at an at-grade crossing. No impact to environmental justice.
TRAVEL MANAGEMENT	No impact.	Because the existing Kelvin Bridge would remain open during construction, traffic delays during construction would not occur. The Proposed Action would have major beneficial impacts to local transportation because vehicles would no longer be required to wait for opposing traffic to clear the bridge. In addition, the Florence-Kelvin Highway would span the railroad; therefore traffic would no longer be delayed by trains at the existing at-grade railroad crossing.
WATER RESOURCES	No impact.	No impact to water resources. The bridge will span the OHWM of the Gila River and mitigation measures such as implementation of a SWPPP will prevent indirect impacts to surface waters.
VISUAL RESOURCES	No impact.	The Proposed Action would result in a minor modification of the existing landscape. The Proposed Action would not dominate the view of the casual observer. Since the Phoenix RMP does not specify visual resource management objectives, the minor modification would not be in conflict with the Phoenix RMP.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Introduction

This chapter describes the affected environment and the potential impacts to the resources and uses that exist in the affected environment. The affected environment is the baseline against which each project alternative is evaluated in terms of impacts to the human environment that would result from its implementation. The following sections describe the human environment that may potentially be affected by the proposed project and alternatives, including both natural and physical resources in the area and the relationships of people to these resources (40 CFR 1508.14).

Relevant environmental conditions and human uses within the analysis area have been identified and described using geographic information system (GIS) data, literature searches, electronic searches, interviews, detailed field surveys, and information from BLM resource specialists.

3.1.1. Resource Values and Uses Brought Forward for Analysis

Based on internal scoping, or issue identification, a number of issues and concerns were identified for analysis in this EA (see Chapter 1, Section 1.6). In order to analyze and respond to the issues and concerns, the resource values and uses of the affected environment must be identified and described. For this EA analysis, the following resources and uses are brought forward for analysis and are presented in this chapter.

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Socioeconomics and Environmental Justice
- Transportation
- Water Resources
- Visual Resources
- Recreation

3.1.2 Resource Values and Uses Considered but not Carried Forward for Analysis

Because the intent of a NEPA document is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail (40 CFR 1500.1(b)), elements that are not present or that would not be affected are not carried forward for detailed analysis in this EA. Internal scoping conducted by the BLM determined the following resources will not be analyzed in detail:

- Tribal Concerns
- Human Health and Safety
- Cave Resources
- Rangeland Resources
- Paleontological Resources
- Prime or Unique Farmlands

- Wild Horse and Burro Management
- Wilderness Characteristics
- Wildland Fire Management
- Special Designations

3.1.3 Analysis Area

The term “analysis area” describes the geographic extent of the resource or use that encompasses the area on which the impact assessment is focused. The analysis area varies by resource value or use, depending on the geographic extent of the resource or use and the extent of the effects of the Proposed Action and No Action Alternative on a resource or use. In this EA, the analysis area for identifying existing conditions and determining impacts to resources is the project area, unless specified otherwise in resource sections below. The project area is defined as the area within which all ground-disturbing activities will occur (refer to Figure 1).

3.1.4 Impact Definitions

The direct and indirect effects of the Proposed Action and Alternative 1 on resources present and brought forward for detailed analysis are discussed in this section. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. The effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8). The terms “effect” and “impact” are synonymous under NEPA. Actions that could impact the human environment (i.e., the natural and physical environment and the relationship of people with that environment) have been analyzed, and the conclusions drawn from analysis are described under the appropriate resource sections.

The resource issues identified during agency and public scoping are considered during detailed analysis in terms of whether or not potential impacts would occur. Each resource issue identified in Chapter 1 of this EA (Section 3.1.1) is addressed in the applicable resource section presented below.

Potential impacts are described in terms of type, context, duration, and intensity. Definitions are defined as follows.

- Type describes the classification of the impact as either beneficial or adverse, direct or indirect:
 - *Beneficial*: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
 - *Adverse*: A change that moves the resource away from a desired condition or detracts from its appearance or condition.
 - *Direct*: An effect that is caused by an action and occurs at the same time and place.
 - *Indirect*: An effect that is caused by an action but occurs later in time or is farther removed in distance but is still reasonably foreseeable.
- Context describes the area or location in which the impact would occur. Are the effects site specific, local, regional, or even broader?
- Duration describes the length of time an effect would occur, either short term or long term:
 - *Short-term* impacts generally last only during construction, and the resources return to preconstruction conditions within 5 years or less.
 - *Long-term* impacts last beyond the life of the ROW grant, and the resources may not return to preconstruction conditions for more than 50 years.

- Intensity describes the degree, level, or strength of an impact. For this analysis, intensity has been categorized as negligible, minor, moderate, and major.

An impact would be considered negligible if impact is at the lowest level of detection with neither adverse nor beneficial consequences. Impacts are considered minor if project-related impacts would occur but resources would retain existing character and overall baseline conditions. Impacts are considered moderate if project-related impacts would occur and resources would partially retain their existing character. Some baseline conditions would remain unchanged. Finally, major project-related impacts would occur that would create a high degree of change within the existing resource character and overall condition of resources.

A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts are interdisciplinary and multi-jurisdictional and usually do not conform to political boundaries. To determine any cumulative effects, all applicable past, present, and future actions within the same geographic extent as the Proposed Action and Alternative 1 were evaluated in each resource section. A discussion of past, present, and reasonably foreseeable future actions that have been taken into consideration in developing the cumulative effects analysis is included in each resource section.

3.2 Air Quality

3.2.1 Affected Environment

REGULATORY STANDARDS AND GOVERNING AGENCIES

Since 1970, the federal Clean Air Act (CAA) and subsequent amendments have provided the authority and framework for EPA regulation of emission sources and the establishment of requirements for the monitoring, control, and documentation of activities that will affect ambient concentrations of certain pollutants that may endanger public health or welfare. Under the CAA, each State or delegated permitting authority has the responsibility to achieve and maintain air quality that meets the National Ambient Air Quality Standards (NAAQS). EPA regulates activities affecting air quality on federal lands and most Indian lands. Federal lands are not subject to Arizona’s State Implementation Plan.

The EPA has promulgated primary and secondary NAAQS for six criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), two size categories of particulate matter (PM₁₀ and PM_{2.5}), O₃, sulfur dioxide (SO₂), and lead. The primary standards are concentration levels of pollutants in ambient air, averaged over a specific time interval, designed to protect public health with an adequate margin of safety.

The secondary standards are concentration levels judged necessary to protect public welfare and other resources from known or anticipated adverse effects of air pollution. Although States may promulgate more stringent ambient standards, the State of Arizona has adopted standards identical to the federal levels (see Arizona Administrative Code Title 18, Chapter 2, Article 2). Table 3-1 presents the NAAQS for five of the six “criteria” pollutants, including both primary standards (pertaining to human health) and secondary standards (pertaining to human welfare, such as visibility, socioeconomics, and effects on flora and fauna). Lead is not measured, as it generally does not pose a problem since the removal of lead from gasoline.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Averaging Period	Primary (µg/m ³)	Secondary (µg/m ³)
NO ₂	Annual	100 (0.05 ppm)	100 (0.05 ppm)
SO ₂	3-hour	–	1,300
	24-hour	365 (0.14 ppm)	–
	Annual	80 (0.03 ppm)	–

Table 3-1. National Ambient Air Quality Standards (Continued)

Pollutant	Averaging Period	Primary ($\mu\text{g}/\text{m}^3$)	Secondary ($\mu\text{g}/\text{m}^3$)
CO	1-hour	40 (35 ppm)	–
	8-hour	10 (9 ppm)	–
O ₃	1-hour	240 (0.12 ppm)	240 (0.12 ppm)
	8-hour	160 (0.08 ppm)	160 (0.08 ppm)
PM _{2.5}	24-hour	65	65
	Annual	15	15
PM ₁₀	24-hour	150	150
	Annual	50	50

Source: EPA (2011)

Note: $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; ppm = parts per million

CRITERIA POLLUTANT NONATTAINMENT AREAS IN THE PROJECT VICINITY

EPA identifies “attainment” areas as those regions within the country where the concentration of one or more criteria pollutants is below the NAAQS. “Nonattainment” areas are regions within the country where the concentration of one or more criteria pollutants exceeds the NAAQS. Particulate matter consists of small solid and liquid particles 10 microns in diameter or smaller, also called PM₁₀. The proposed project area is located within the Hayden Planning Nonattainment area for PM₁₀ and less than 1 mile away from the Nonattainment area for lead. Therefore, the analysis area for air quality is the Hayden Planning Nonattainment Area.

CLIMATE CHANGE

Climate change is a global phenomenon that results from global greenhouse gas (GHG) emissions. GHGs are chemical compounds in the Earth’s atmosphere that allow incoming short-wave solar radiation but absorb long-wave infrared radiation re-emitted from the Earth’s surface, trapping heat. The Phoenix RMP does not address climate change; however, information from the Lower Sonoran RMP climate change section is included for analysis. Most studies indicate that the Earth’s climate has warmed over the past century due to increased emissions of GHGs and that human activities affecting emissions to the atmosphere are likely an important contributing factor (BLM 2012c).

Climate change may be affected by numerous other factors, including solar radiation, ocean circulation, and human activities such as burning fossil fuels or altering the Earth’s surface through deforestation or urbanization (EPA 2015). There are more sources and actions emitting GHGs (in terms of both absolute numbers and types) than are typically encountered when evaluating the emissions of other pollutants. These emissions are often categorized as either anthropogenic (human-caused) or nonanthropogenic (naturally occurring). From a quantitative perspective, there is no single dominating anthropogenic source and fewer sources that would even be close to dominating total GHG emissions. Global climate change is much more the result of numerous and varied sources, each of which might seem to make a relatively small addition to global atmospheric GHG concentrations.

Global climate change models project impacts to include air temperature increases; sea level rise; changes in the timing, location, and quantity of precipitation; and increased frequency of extreme weather events such as heat waves, droughts, and floods. These changes vary regionally and may affect renewable resources, aquatic and terrestrial ecosystems, and agriculture. Although uncertainties remain regarding the timing and magnitude of climate change impacts, the scientific evidence predicts that continued increases in GHG emissions will lead to increased climate change. According to the Intergovernmental Panel on Climate Change (IPCC), increased atmospheric levels of CO₂ are correlated

with rising temperatures. Climate models indicate that temperatures will likely increase by 1.1 to 6.4 degrees Celsius (°C) (2.0 degrees Fahrenheit [°F] to 11.5°F) by 2100 (IPCC 2014). However, the Nongovernmental International Panel on Climate Change concluded that models are not the best predictors of climate change (Idso et al. 2013).

The BLM recognizes the importance of global climate change and the potential effects it may have on the local environment. Activities within the air quality analysis area that may generate emissions of climate changing pollutants (i.e., CO₂, CH₄, and N₂O) include, as examples, urban development, agricultural activities, large wildfires, and the use of internal-combustion engines (e.g., recreational use, transportation use, or commuter use). Other activities may sequester CO₂, such as managing vegetation and riparian areas, which may function as carbon sinks (BLM 2009).

Preliminary GHG emissions inventories have been prepared for each state in a cooperative effort between the Center for Climate Strategies (CCS) and the environmental departments for each state. According to the inventory for Arizona, the GHG emissions for reporting year 2000 were 89 million metric tons of carbon dioxide equivalent (CO₂e). The reference case GHG emissions for year 2020 were estimated at 153.5 million metric tons of CO₂e (CCS 2005).

3.2.2 Impacts from the No Action Alternative

DIRECT AND INDIRECT IMPACTS

No impacts to air quality would occur as a result of the No Action Alternative.

CUMULATIVE IMPACTS

Under the No Action Alternative, no additional impacts to air quality would occur. Sources of criteria pollutants within the Hayden Planning Area for PM₁₀, such as the nearby Ray Mine and off-road vehicle use, would be expected to continue to contribute to the planning area's nonattainment status.

3.2.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

Regulated air pollutant emissions that would be emitted as a result of the Proposed Action include diesel exhaust and PM₁₀. All construction activities under the Proposed Action would have temporary, minor impacts to air quality by emitting these criteria pollutants from combustion engines on vehicles and equipment and particulate matter emissions as fugitive dust from ground-disturbing activities. Emissions of all criteria pollutants would result from construction activities, including combustion of fuels from on-road haul trucks transporting materials and employee commuter emissions. Fugitive dust emissions would be greatest during initial site preparation activities and would vary from day to day, depending on the type of activity and prevailing weather conditions. Because the proposed project is not designed to increase traffic capacity of the existing roads, post-construction emissions from vehicles would not increase over current levels.

Direct and minor adverse impacts to air quality are expected during construction of the Proposed Action. These impacts will be from vehicle and equipment exhaust as well as from dust produced by construction activities. Fugitive dust will be limited by dust control measures, such as watering of disturbed areas by a spray bar-equipped water truck as necessary to comply with ADEQ, local ordinances, and/or other jurisdictional agencies' requirements. Exhaust emissions from equipment will be limited to the extent possible by the performance of proper maintenance as specified by the equipment manufacturers.

Construction vehicle and equipment use would temporarily emit GHGs during construction, but the emissions would not be expected to be a significant contributor to the CO₂e of Arizona. Because the new bridge is not designed to increase traffic over current levels and would prevent vehicles from idling while waiting for cross traffic to clear the bridge, GHGs emitted from traffic using the new bridge would be the same or lower than current levels.

CUMULATIVE IMPACTS

When combined with air quality impacts from other sources within the Hayden Planning Area such as ongoing operations at Ray Mine and continued off-road vehicle use, air quality impacts associated with the Proposed Action's construction activities would have temporary minor cumulative impacts to the Hayden Planning Area's nonattainment status for PM₁₀ during construction activities and emission of GHGs. The air quality cumulative impacts would not be expected to be a significant contribution to the CO₂e of Arizona. Because the proposed Ripsey Wash Tailings Storage Project would not be constructed at the same time as construction of the Kelvin Bridge project, no cumulative impacts to air quality would occur.

MITIGATION MEASURES AND RESIDUAL IMPACTS

Dust control measures would be utilized as necessary during construction as required under Pinal County Dust Control Permit, speeds would be limited to 5 to 10 miles per hour within the construction zone and ROW, gravel and other similar materials would be used where dirt access roads intersect paved roadways, all paved roads would be kept clean of mud, dirt or debris, and disturbed areas including material stock piles would be watered to prevent excessive dust conditions.

Dust control measures would minimize PM10 emissions during construction activities, but would not eliminate all fugitive dust emissions. Therefore, temporary minor impacts to air quality within the Hayden Planning Nonattainment Area would occur during construction of the Proposed Action.

3.3 Soils

3.3.1 Affected Environment

SOILS

Soils data from the Natural Resources Conservation Service (2015) indicate that three soil types are present in the project area. These soils include Fig Family-Topock complex, 5 to 50 percent slopes, Stagecoach-Delnorte complex, 5 to 45 percent slopes, and Quiburi-Gila complex, 0 to 3 percent slopes. All soil types are moderately- to well-drained, deep soils (over 80 inches to restrictive feature) found in floodplains and/or alluvial fans formed from mixed stream alluvium.

3.3.2 Impacts from the No Action Alternative

DIRECT AND INDIRECT IMPACTS

Under the No Action Alternative, no construction activities would occur. Therefore, no direct or indirect impact would occur to soils and prime and unique farmlands.

CUMULATIVE IMPACTS

No cumulative impacts to soils within the project area would occur as a result of the No Action Alternative.

3.3.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

Soils

Construction of the Proposed Action could temporarily impact up to 5 acres of soil resources. Permanent impacts to 2.1 acres would result from the construction of the bridge piers and bridge approaches. Direct impacts to the soils would include erosion from the removal of vegetative cover and compaction from heavy equipment, resulting in the loss of soil structure and porosity. These impacts could lead to increased rainfall runoff and susceptibility to high wind events and, consequently, increased erosion. The Proposed Action includes activities that would reduce impacts to soils such as stockpiling topsoil

types separately for use during post construction reclamation and cleaning all construction equipment prior to entering or leaving the project area to minimize the risk of spreading invasive weeds.

Indirect impacts to soil resources can include colonization of noxious weeds on disturbed soils. This can occur anywhere soil is disturbed. Weeds can outcompete native species due to their ability to thrive under conditions with low soil moisture content, poor nutrient availability, and coarse soil textures. BMPs such as washing construction equipment and removing any lodged vegetation prior to entering and leaving the construction site would be used to prevent the spread of weeds.

CUMULATIVE IMPACTS

No known reasonably foreseeable future actions would impact soils within or adjacent to the project area; therefore no cumulative impacts to soils would be expected as a result of the Proposed Action.

MITIGATION MEASURES AND RESIDUAL IMPACTS

Design features, ROW grant stipulations, and mitigation measures for soils are identified in Sections 2.5, 2.6, and 2.7, respectively, above. In general, impacts to soils would be minimized through the implementation of a SWPPP during construction and reclamation of all disturbed areas, including revegetation with a BLM-approved seed mix. Soils removed during construction would be stockpiled by soil type (upland vs riparian) in order to facilitate revegetation efforts after ground-disturbing activities. The SWPPP and revegetation efforts cannot completely mitigate impacts to soils from ground-disturbing activities; therefore short-term minor adverse residual impacts to soils would occur in the project area as a result of the Proposed Action.

3.4 Water Resources

3.4.1 Affected Environment

SURFACE WATER

Surface water resources generally consist of wetlands, lakes, rivers, and streams. All of these surface water components contribute to the economic, ecological, recreational, and human health of a community. Waters of the US are defined within the CWA, and jurisdiction is addressed by the EPA and the USACE. These agencies assert jurisdiction over traditional navigable waters and their relatively permanent tributaries, along with the wetlands that are adjacent to these waters.

The USACE regulates the discharge of dredged and fill material (e.g., concrete, riprap, soil, cement block, gravel, sand) into waters of the United States, including adjacent wetlands, under Section 404 of the CWA and work on structures in or affecting navigable waters of the United States under Section 10 of the Rivers and Harbors Act of 1899.

The proposed bridge would span the perennial Gila River, a traditional navigable water that generally flows from east from its source in New Mexico to west at the river's confluence with the Colorado River. The Gila River is defined by ACOE and an 'impaired water' as defined under Section 303 of the CWA. Peak flow generally occurs in August during the monsoon season. The period of lowest flow generally occurs during November, prior to the onset of winter precipitation (SWCA 2015). Mean peak flow measured just downstream of the project area is 837 cubic feet per second (cfs) in August. The lowest average level is 137 cfs in November (USGS 2015). Average annual flow is 302 cfs (USGS 2015).

The flow of the Gila River at the proposed bridge location is controlled by the Coolidge Dam, approximately 25 miles upstream to the east of the project area. The Coolidge Dam manages the seasonal release of water from the San Carlos Reservoir to irrigate farmlands downstream in central Arizona.

In addition to the Gila River, the ephemeral Mineral Creek is located just west of the proposed project area. No inflow from Mineral Creek occurs except during infrequent periods of heavy local rains (USGS 2015).

100-YEAR FLOODPLAIN

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 951E (effective December 4, 2007), the project area is within a 100-year floodplain.

GROUNDWATER

According to the Arizona Department of Water Resources (ADWR), the proposed project area is located in the Lower San Pedro Groundwater Basin but is not located within an active management area. There are approximately 30 wells registered with ADWR within 1 mile of the project area. Depth to groundwater at the three wells closest to the proposed project area varies between 11 to 17 feet. These wells are used for water production for domestic use (ADWR 2015). No wells are located within the proposed project area.

3.4.2 Impacts from the No Action

DIRECT AND INDIRECT IMPACTS

Under the No Action Alternative, the BLM would not amend the ROW grant, and no construction would take place. Thus, no adverse direct or indirect impacts to water resources would occur.

CUMULATIVE IMPACTS

No cumulative impacts to water resources would be expected as a result of the No Action Alternative.

3.4.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

Surface Water

The proposed bridge is designed to completely span the OHWM of the Gila River and its floodplain; therefore no Section 404 permit will be needed. The ACOE agreed with this determination on June 26, 2015, and the email correspondence is provided in Appendix D. BMPs identified in a SWPPP would be implemented during construction to meet Arizona stormwater regulations. Therefore no direct or indirect impacts to surface waters would occur.

100-year Floodplain

The proposed bridge is designed to completely span the floodplain of the Gila River; therefore the Proposed Action would not have a direct or indirect impact on the 100-year floodplain.

Groundwater

Construction excavation would not reach groundwater levels; therefore no direct or indirect impacts to groundwater resources would occur.

CUMULATIVE IMPACTS

Because the Proposed Action would not be expected to impact water resources, no cumulative impacts to water resources would be expected as a result of the Proposed Action Alternative when combined with the impacts of reasonably foreseeable future actions such as the proposed Ripsey Wash Tailings Storage Project.

MITIGATION MEASURES AND RESIDUAL IMPACTS

The Proposed Action would avoid direct impacts to surface water because the project's design feature to span the OHWM and 100-year floodplain of the Gila River. Indirect impacts to the Gila River would be minimized or avoided by the implementation of a spill prevention plan for the construction of the bridge,

as identified in the ROW grant stipulations in Section 2.6. Therefore, no residual impacts to water resources would occur as a result of the Proposed Action.

3.5 Biological Resources

3.5.1 Affected Environment

VEGETATION

General Vegetation

The analysis area has both upland and riparian vegetation. The upland portions of the analysis area are dominated by plants typical of the Arizona Upland subdivision of the Sonoran Desertscrub biotic community as defined by Brown (1994). The portions of the analysis area that are located adjacent to the Gila River are typical of the Sonoran riparian deciduous forest, Sonoran riparian scrubland, and Sonoran interior marshland biotic communities, and contain mixed native-exotic riparian vegetation communities and native wetland vegetation communities. The analysis area also has areas that have been previously disturbed.

To the south of the Gila River, dominant upland species include desertbroom (*Baccharis sarothroides*), jojoba (*Simmondsia chinensis*), yellow paloverde (*Parkinsonia microphylla*), purple three-awn grass (*Aristida purpurea*), sandmat (*Chamaesyce* sp.), catclaw acacia (*Acacia greggii*), annual buckwheat (*Eriogonum* sp.), and turpentine bush (*Ericameria laricifolia*). North of the river, dominant upland species include cholla (*Cylindropuntia* sp.), Coulter's spiderling (*Boerhavia coulteri*), velvet mesquite (*Prosopis velutinus*), purple three-awn grass, catclaw acacia, red brome (*Bromus rubens*), and Coues' cassia (*Senna covesii*) (SWCA 2015).

Along floodplain of the Gila River, the Sonoran riparian deciduous forest and Sonoran riparian scrubland communities is dominated by saltcedar (*Tamarix* sp.), with Fremont cottonwood (*Populus fremontii*), Gooding willow (*Salix goodingii*), burrobrush (*Hymenoclea monogyra*), desertbroom, Bermudagrass (*Cynodon dactylon*), mule-fat (*Baccharis salicifolia*), and velvet mesquite. The Sonoran interior marshland communities within the project area contained primarily cattail (*Typha domingensis*), bulrush (*Schoenoplectus pungens*), Mexican sprangletop grass (*Leptochloa uninervia*), Bermudagrass, and clustered dock (*Rumex conglomeratus*) (SWCA 2015).

Arizona Native Plant Law Protected Species

Thirteen plant species were identified within the analysis area that are Arizona Protected Native Plants: velvet mesquite, chain-fruit cholla (*Cylindropuntia fulgida*), Engelmann prickly pear (*Opuntia engelmannii*), blue paloverde (*Parkinsonia florida*), yellow paloverde, banana yucca (*Yucca baccata*), Kelvin pricklypear (*Cylindropuntia* × *kelvinensis*), barrel cactus (*Ferocactus wislizeni*), Engelmann's hedgehog (*Echinocereus engelmannii*), pincushion cactus (*Mammillaria grahamii* var. *grahamii*), saguaro (*Carnegiea gigantea*), ocotillo (*Fouquieria splendens*), and desert Christmas cactus (*Cylindropuntia leptocaulis*).

WILDLIFE

General Wildlife

The analysis area supports habitat for a variety of wildlife species, including small and medium-sized mammals, carnivores, big-game species, reptiles, aquatic species, and birds.

Wildlife species observed in the analysis area include raccoon (*Procyon lotor*), pocket mouse (*Perognathus* sp.), beaver (*Castor canadensis*), gray fox (*Urocyon cinereoargenteus*), white-throated wood rat (*Neotoma albigula*), Harris' antelope squirrel (*Ammospermophilus harrisi*), desert cottontail (*Sylvilagus audubonii*), side-blotched lizard (*Uta stansburiana*), and western whiptail (*Aspidoscelis tigris*). Aquatic species observed in the project area include mosquitofish (*Gambusia affinis*), a non-native fish species, and crayfish (*Orconectes virilis*), a non-native crustacean.

Birds

Desertscrub and riparian vegetation within the analysis area provide habitat for a variety of bird species. Bird species observed in the project area include ladder-backed woodpecker (*Picoides scalaris*), sharp-shinned hawk (*Accipiter striatus*), ruby-crowned kinglet (*Regulus calendula*), northern cardinal (*Cardinalis cardinalis*), northern flicker (*Colaptes auratus*), Gila woodpecker (*Melanerpes uropygialis*), verdin (*Auriparus flaviceps*), Anna's hummingbird (*Calypte anna*), Gambel's quail (*Callipepla gambelii*), common raven (*Corvus corax*), phainopepla (*Phainopepla nitens*), black-throated sparrow (*Amphispiza bilineata*), white-crowned sparrow (*Zonotrichia leucophrys*), rock wren (*Salpinctes obsoletus*), Abert's towhee (*Pipilo aberti*), cliff swallow (*Petrochelidon pyrrhonota*), house sparrow (*Carpodacus mexicanus*), curve-billed thrasher (*Toxostoma curvirostre*), mourning dove (*Zenaida macroura*), black-tailed gnatcatcher (*Polioptila melanura*), great blue heron (*Ardea herodias*), black phoebe (*Sayornis nigricans*), and common ground dove (*Columbina passerina*). All these bird species are protected under the Migratory Bird Treaty Act (MBTA).

Special Status Species

Threatened, endangered, and special-status plant and wildlife species were reviewed for the potential to occur in the analysis area. Twenty-nine special status species were determined to have the potential to occur in the analysis area. According to Arizona Heritage Geographic Information System (AZHGIS), there are nine occurrence records for special status species within 3 miles of the project area: southwestern willow flycatcher (*Empidonax traillii extimus*), designated critical habitat for the southwestern willow flycatcher, proposed critical habitat for the yellow-billed cuckoo (*Coccyzus americanus*), common black-hawk (*Buteogallus anthracinus*), Mississippi kite (*Ictinia mississippiensis*), California leaf-nosed bat (*Macrotus californicus*), Gila longfin dace (*Agosia chrysogaster chrysogaster*), desert sucker (*Catostomus clarkii*), and Sonora sucker (*Catostomus insignis*) (AZHGIS 2014). Of these species, only the southwestern willow flycatcher and critical habitat, and yellow-billed cuckoo and proposed critical habitat are currently protected under the authority of the Endangered Species Act. No proposed wildlife corridors occur within 3 miles of the analysis area (AZHGIS 2014).

Federally Listed Species

Out of the 18 species listed as threatened, endangered, proposed, and candidate species for Pinal County by USFWS, seven species may occur in the project area, with two having designated or proposed critical habitat (see Figures 4a and 4b). For the remaining 11 species, the project area is clearly beyond the known geographic or elevational range of these species, or it does not contain vegetation or landscape features known to support these species, or both (SWCA 2015). Species with the potential to occur in the project area are presented in Table 3-2.

BLM Special Status Species

Within the Gila District Office, the BLM lists 62 species as BLM Sensitive. Twenty-two of the 62 BLM Sensitive Species may occur in the project area. For the remaining 40 species, the project area is clearly beyond the beyond the known geographic or elevational range of these species, or it does not contain vegetation or landscape features known to support these species, or both (SWCA 2015). Species with the potential to occur in the project area are presented in Table 3-2.

Table 3-2. Special Status Species with the Potential to occur in the Project Area

Common Name	Scientific Name	Status*
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	T
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	E
Ocelot	<i>Leopardus pardalis</i>	E
Loach minnow	<i>Tiaroga cobitis</i>	E

Table 3-2. Special Status Species with the Potential to occur in the Project Area

Common Name	Scientific Name	Status*
Roundtail chub	<i>Gila robusta</i>	C
Spikedace	<i>Xyrauchen texanus</i>	E
Southwestern willow flycatcher Designated Critical Habitat	<i>Empidonax traillii extimus</i>	Designated
Yellow-billed cuckoo Proposed Critical Habitat	<i>Coccyzus americanus</i>	Proposed
Allen's (Mexican) big-eared bat	<i>Idionycteris phyllotis</i>	BLMS
American peregrine falcon	<i>Falco peregrinus anatum</i>	BLMS
Aravaipa sage	<i>Salvia amissa</i>	BLMS
Arizona myotis	<i>Myotis lucifugus occultus</i>	BLMS
Bald eagle	<i>Haliaeetus leucocephalus</i>	BLMS
Cactus ferruginous pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	BLMS
California leaf-nosed bat	<i>Macrotus californicus</i>	BLMS
Cave myotis	<i>Myotis velifer</i>	BLMS
Desert purple martin	<i>Progne subis hesperia</i>	BLMS
Desert sucker	<i>Catostomus clarki</i>	BLMS
Gilded flicker	<i>Colaptes chrysoides</i>	BLMS
Golden eagle	<i>Aquila chrysaetos</i>	BLMS
Great Plains narrow-mouthed toad	<i>Gastrophryne olivacea</i>	BLMS
Greater western mastiff bat	<i>Eumops perotis californicus</i>	BLMS
Longfin dace	<i>Agosia chrysogaster</i>	BLMS
Lowland leopard frog	<i>Lithobates yavapaiensis</i>	BLMS
Pima Indian mallow	<i>Abutilon parishii</i>	BLMS
Sonora mud turtle	<i>Kinosternon sonoriense sonoriense</i>	BLMS
Sonora sucker	<i>Catostomus insignis</i>	BLMS
Sonoran Desert tortoise	<i>Gopherus morafkai</i>	BLMS
Spotted bat	<i>Euderma maculatum</i>	BLMS
Townsend's big-eared bat	<i>Corynorhinus (=Plecotus) townsendii</i>	BLMS

* Status Definitions:

USFWS Definitions

C = Candidate. Candidate species are those for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as endangered or threatened under the ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.

E = Endangered. Endangered species are those in imminent jeopardy of extinction. The ESA specifically prohibits the take of a species listed as endangered. Take is defined by the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct.

T = Threatened. Threatened species are those in imminent jeopardy of becoming endangered. The ESA prohibits the take of a species listed as threatened under Section 4d of the ESA. Take is defined by the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct.

BLM Definitions

BLMS = Bureau of Land Management Sensitive

3.5.2 Impacts from the No Action

DIRECT AND INDIRECT IMPACTS

No impacts to biological resources including vegetation, wildlife, and special status species would occur as a result of the No Action Alternative.

CUMULATIVE IMPACTS

Under the No Action Alternative, no additional impacts to biological resources including vegetation, wildlife, and special status species would occur.

3.5.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

Vegetation

Construction of the Proposed Action would impact vegetation where vegetation would be removed in order to construct the new bridge. Vegetation impacts would occur within the 7.2 acres of the ROW.

Long-term, permanent impacts from the Proposed Action would include the construction of the bridge, resulting in the loss of 2.1 acres of vegetation.

Construction of the Proposed Action would not contribute to the spread of invasive species or noxious weeds with implementation of the following BMPs:

- Construction and maintenance equipment would be kept free of invasive species by washing the equipment prior to entering the construction site, prior to moving equipment from infested to non-infested areas of the project, and prior to departing the site.
- Any fill, seed, or mulch material brought in from off-site would be free of invasive and non-native species seed.
- Equipment and tools used in routine maintenance should be cleaned when moving from an infested area to an uninfested area to prevent spread of weeds in the area.

Wildlife

Short-term impacts to wildlife, migratory birds, and special status species include removal or crushing of existing vegetation and compaction of soils from construction. Species could also be disturbed by construction noise and human activity. Approximately 2.1 acres would be permanently removed for the construction of the bridge, thereby permanently removing potential habitat.

Short- and long-term effects on migratory birds and their habitat would occur as a result of construction noise, human activity, and permanent removal of approximately 2.1 acres of vegetation. Impacts to SWFL and YBCU are discussed in the Special Status Species subsection below. Due to vegetation clearing restrictions between March 1 and October 1, pre-clearing nesting bird surveys should not be necessary. If any vegetation clearing were to occur during the bird breeding season (March–August), pre-clearing nesting bird surveys would be conducted to ensure avoidance of any occupied nests; however, incidental displacement is possible on a local scale.

Special Status Species

Special status species with the potential to occur on lands included in the Proposed Action were evaluated for possible impacts from the Proposed Action. Twenty-nine special status species were identified as likely to occur within the Proposed Action area. Potential Impacts are discussed below:

Southwestern willow flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher (SWFL) is federally listed as an endangered species with designated critical habitat (USFWS 2015). These birds breed only in dense riparian forests near surface water or continuously saturated soil (USFWS 2013e). Dominant plant species in lower elevation habitats in Arizona include Fremont cottonwood, willow (*Salix* spp.), saltcedar, boxelder (*Acer negundo*), ash (*Fraxinus* spp.), alder (*Alnus* spp.), and buttonbush (*Cephalanthus occidentalis*) (Sogge et al. 1997).

As of January 2013, a total of 1,227 stream miles have been designated critical habitat for this species. Designated Critical habitat includes Primary Constituent Elements (PCEs), which for SWFL are as

follows: riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter) with trees and shrubs (e.g., willow species, box elder, tamarisk, Russian olive, cottonwood, etc.); dense riparian vegetation with thickets of trees and shrubs and with thickets; areas of dense riparian foliage; sites for nesting that contain a dense tree and/or shrub canopy; dense patches of riparian forests that are interspersed with small openings of open water or marsh, or shorter/sparser vegetation that creates a mosaic that is not uniformly dense; and a variety of insect prey populations found within or adjacent to riparian floodplains or moist environments (USFWS 2013a).

Primary threats to SWFL are the extensive loss, fragmentation, and alteration of riparian habitats due to urban growth and development, water diversion and impoundment, agricultural development, channelization of rivers and creeks, livestock grazing, and replacement of native riparian habitats with non-native plant species, such as saltcedar and Russian olive (*Elaeagnus angustifolia*).

The riparian vegetation in and around the project area contains suitable nesting, migratory and foraging habitat within the riparian vegetation. The project area contains 2.9 acres of designated critical habitat for the SWFL (USFWS 2013a) (see Figures 3, 4a, 4b).

Several named flycatcher sites occur within 0.5-mile upstream and downstream of the project area: GRN020, GRSN022, and portions of GRS020 and GRSN023. These areas have been surveyed almost every year since 1995. Available data show that over 17 years (1995–2013) of SWFL surveys in these areas, 8 years had negative results (no SWFLs detected), 6 years detected resident activity, and 2 years detected only migrant activity, with one year unknown (SWCA 2014). In 2013, three resident breeding territories with active nests were detected within the survey area (SWCA 2013). In 2014, surveys detected five probable territories adjacent to the project area: two downstream and three upstream. However, no nests were detected (WestLand Resources 2014). In 2015, surveys resulted in 11 detections of willow flycatchers, including at least two pair and up to four SWFL upstream and four SWFL downstream of the Kelvin Bridge (Westland Resources 2015).

Direct effects to SWFLs will include removal of suitable foraging, nesting, and migratory habitat, which could subsequently affect their habitat use and distribution and abundance in this area. The Proposed Action would remove approximately 1.2 acres (including 0.4 acre permanent and 0.8 acre temporary impact) of SWFL critical habitat. However, the vegetation clearing activities will occur outside of the time in which SWFLs are present in North America; thus, nest destruction and/or injury to a SWFL individual would not occur. Other direct effects that could occur include disturbances to any individuals that arrive to the area during construction. Although construction noise would be present, SWFLs are likely to avoid the area because of the noise and also because the habitat that they may have formerly used is now absent. If SWFLs do attempt to use the remaining vegetation for foraging, migration, or breeding, they may experience harassment from the noise and construction activities and subsequently effects to habitat use, distribution, and abundance in this area. Individual nesting pairs using traditional nesting sites near the project area may move nesting sites due to construction disturbance. However, they have used this area in the past, even though the ambient noise levels from the train and traffic are higher than the average construction noise throughout this project, and also the construction noise attenuates more rapidly than the ambient noise (SWCA 2015). Thus, SWFLs occurring upstream and downstream are unlikely to be affected by noise. SWFLs can likely habituate to noise since their calls have a wide range of frequency and data indicate that passerines with higher-frequency song ranges are less affected by noise (Goodwin and Shriver 2010). Further habitat fragmentation may cause an increase in the edge effect, which may increase the probability of cowbird nest parasitism on SWFL, reducing their nesting success.

Indirect effects to SWFL would include the period of time that the vegetation is regrowing (possibly up to 5 or 10 years) and, thus, unavailable for the SWFLs for migration, foraging, and/or breeding use and subsequently affecting their habitat use, distribution, and abundance in this area. Future activities related to bridge and road maintenance (e.g., channel clearing from flood events, repairs, weed control, etc.) may impact the SWFL as a result of this project due to noise or nearby activity.

In addition, designated critical habitat will be affected through removal with 0.4 acre of permanent loss. The PCEs within SWFL designated critical habitat that will be removed include riparian habitat in a dynamic riverine environment with trees and shrubs (including willow species, tamarisk, cottonwood),

dense riparian vegetation with thickets, and sites for nesting that contain dense canopy. Additionally, another PCE that may be impacted from vegetation clearing is that this area may experience a minor decrease in insect populations.

Because this project area is within 100 to 200 feet of a recently occupied SWFL site (GRS020, GRN020, and GRSN022), and because the project area contains suitable nesting, migratory and foraging habitat for the SWFL, as well as designated critical habitat and the associated PCEs, the Proposed Action may affect the SWFL and its designated critical habitat, and is likely to adversely affect the SWFL and its designated critical habitat. Approximately 1.2 acres of designated critical habitat will be removed, including 0.4 acre of permanent loss as part of this project, and SWFLs may be affected by the construction activities. Therefore, the Proposed Action may affect, and is likely to adversely affect, the SWFL and its critical habitat.

The BLM initiated consultation with the USFWS regarding this project on November 18, 2015, and the USFWS issued a final BO on June 28, 2016 (refer to Appendix C). The BO includes conservation measures for the SWFL and its designated critical habitat that have been identified as required mitigation measures in this EA (Table 2-5). The BO concludes that the Proposed Action is not likely to jeopardize the continued existence of the SWFL or destroy or modify its critical habitat.

Yellow-billed cuckoo (*Coccyzus americanus*)

The YBCU is a threatened species under the ESA. This species is also listed as Wildlife of Greatest Conservation Need in Arizona by the AGFD (AGFD 2013). In the western United States, this species is generally uncommon and occurs only at elevations lower than 6,600 feet above mean sea level (amsl), in riparian deciduous forests along creeks, rivers, and wetlands with cottonwood, willow, sycamore (*Platanus* sp.), ash, alder, saltcedar, and other trees (Corman and Magill 2000; USFWS 2013b). Also, Swarth (1914) and Phillips et al. (1964) reported YBCUs to be nesting in the dense mesquite bosques that historically occurred along the Santa Cruz River and its tributaries in the vicinity of Tucson. Dense understory foliage appears to be important for nest site selection, while cottonwood trees are important foraging areas (USFWS 2013b). In Arizona, this species occurs along creeks and rivers at low to mid-elevations, typically below about 5,800 feet amsl (Corman and Magill 2000).

Causes for western YBCU population declines are directly related to the loss, degradation, or fragmentation of riparian forest habitats. In Arizona, for example, approximately 95% of the riparian forest habitats that historically existed there has been lost, with losses being greatest at lower elevations (below 3,000 feet) along the lower Colorado River and its major tributaries. Rivers such as the Gila, Salt, Colorado, Little Colorado, and Bill Williams have been greatly affected by upstream dams, flow alterations, channel modification, and clearing of land for agriculture (USFWS 2013b). Altered flow regimes also change the character of riparian forest habitats. Areas along major river corridors that have reduced flow and water table levels often see replacement of native cottonwood–willow forests with dense forests of non-native saltcedar trees. Additionally, it has been well documented that major flood events can scour out and remove riparian forest habitats or cause them to die from being inundated with water for long periods of time (Rosenberg et al. 1991:27–28; USFWS 2013b).

The USFWS has proposed to designate approximately 546,335 acres of critical habitat in Arizona, California, Colorado, Idaho, Nevada, New Mexico, Texas, Utah, and Wyoming (USFWS 2014). PCEs in proposed critical habitat for western yellow-billed cuckoo are as follows: riparian woodlands (willow-cottonwood, mesquite thornforest, or a combination of these) in contiguous or nearly contiguous patches of at least 200 acres in extent and at least 325 feet wide, with at least one nesting grove (often willow dominated with average canopy closure of more than 70%), and a cooler, more humid environment than surrounding areas; adequate prey base, including a large insect fauna and treefrogs in breeding areas and post-breeding dispersal areas; and dynamic riverine processes, especially including river system having hydrologic processes that promote regular habitat regeneration (sediment movement, seedling germination, plant vigor and growth), which leads to patches of old and new riparian vegetation (USFWS 2014). Proposed critical habitat for YBCU is located within the project area (see Figure 3).

In surveys for YBCU in the project area, YBCU have been detected upstream of Kelvin Bridge from

0.5 to 2.8 miles away, and downstream from 1.7 to 2.5 miles away. No YBCU have been detected within the project area.

The riparian vegetation communities found within the project area are dominated by saltcedar, but does contain sparse (a few large and a few small) Fremont cottonwood and Goodding willow trees. Within the project area, riparian vegetation communities are not as described in the critical habitat PCE for YBCU because the vegetation within the project area is not dominated by willow-cottonwood riparian forests, and does not contain a willow-dominated nesting grove with above average canopy closure. Areas upstream and downstream where YBCUs were detected contain better suitable habitat with cottonwood and willow, which provide a canopy structure, which they prefer. The project area does contain 3.6 acres of proposed critical habitat for the YBCU.

Direct effects to YBCUs will include removal of 1.7 acres (including 0.6 acre permanent and 1.1 acres temporary impact) nesting, forging, and migratory habitat, which could subsequently affect their habitat use and distribution and abundance in this area. In addition, proposed critical habitat will be affected through removal, with 0.6 acre of permanent loss from the bridge piers. However, the vegetation clearing activities will occur outside of the time in which YBCUs are present in North America; thus, nest destruction and/or injury to a YBCU individual would not occur. Other direct effects that could occur include disturbances to any individuals that arrive to the area during construction, including disturbances to pairs nesting nearby. Although construction noise would be present, YBCUs are likely to avoid the area. Data indicate that YBCUs are more likely to avoid suitable habitat areas due to noise because they have a low-frequency call (Goodwin and Shriver 2010). Other areas upstream and downstream where YBCUs have been detected are unlikely to be affected by noise since the ambient noise levels from the train and traffic are higher than the average construction noise throughout this project, and also the construction noise attenuates more rapidly than the ambient noise (SWCA 2015).

Indirect effects to YBCUs would include the period of time that the vegetation is regrowing (possibly up to 5 or 10 years) and, thus, unavailable for the YBCUs for nesting, migration or foraging and subsequently affecting their habitat use, distribution, and abundance in this area. However, the revegetation plan specifies using native riparian species, such as cottonwood and willow trees. Thus, once the vegetation has recovered, the area could provide more optimal breeding habitat, therefore, a potential beneficial effect to the YBCU.

Because this project area contains suitable nesting, migratory and foraging habitat for the YBCU, the Proposed Action may affect, and is likely to adversely affect the YBCU. Approximately 1.7 acres of proposed critical habitat will be removed, including 0.6 acre of permanent loss as part of this project and YBCUs may be affected by the construction activities. In addition, the proposed project will not result in destruction or adverse modification of proposed critical habitat for YBCU.

The BLM initiated consultation with the USFWS regarding this project on November 18, 2015, and the USFWS issued a final BO on June 28, 2016 (refer to Appendix C). The BO includes conservation measures for the YBCU and its proposed critical habitat that have been identified as required mitigation measures in this EA (Table 2-5). The BO concludes that the Proposed Action is not likely to jeopardize the continued existence of the YBCU or destroy or modify its critical habitat.

Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*)

The lesser long-nosed bat is federally listed as an endangered species. Habitat includes desert grasslands and deserts scrub into the transition to oak-dominated communities. Lesser long-nosed bats feed primarily on the nectar of paniculate agaves and columnar cacti such as saguaros (AGFD 2013).

The primary threats to the lesser long-nosed bat are roost site loss or disturbance and impacts to forage availability. Other threats include roost disturbance and deterioration, border activities, recreation, vandalism, fire, mine closures, and forage availability (USFWS 2007).

The elevation of the project area is within the elevational range of lesser long-nosed bat but just outside of the general geographic range of this species (AGFD 2013). The project area does not contain agave plants (*Agave* spp.); however, a low density of saguaros is present. Therefore, the project area does

contain suitable foraging habitat for the lesser long-nosed bat. The closest known roost used by this species is in the Picacho Mountains, at least 50 miles from the project area.

This project area does not contain suitable bat roosts and it contains very limited lesser long-nosed bat food resources. There are a few saguaro cacti within the project area, and one individual within the disturbance area will be preserved in place during project construction. No saguaros will be disturbed, removed, or pruned for construction. These saguaros are very likely outside of the foraging range of lesser long-nosed bats that are present in Arizona at the time of saguaro blooming and fruiting. The lesser long-nosed bat is unlikely to occur in the project area; thus, the Proposed Action will have no effect to the lesser long-nosed bat and its habitat.

Ocelot (*Leopardus pardalis*)

The ocelot is listed as endangered under ESA (USFWS 1982). Rangewide, ocelots occur primarily within subtropical thorn forest, thornscrub, and dense, brushy thickets, or other dense vegetation with suitable amounts of prey. There are no documented occurrences of ocelots within 3 miles of the project area (AZHGIS 2014); however, in 2010 an adult male ocelot was found dead along SR 60 between Superior and Globe in Gila County, Arizona (AGFD 2013).

Ocelots in the project area could experience effects of habitat removal and noise that could alter their behavior (e.g., shift home range, movement patterns, and foraging areas) to avoid these anthropogenic disturbances. Noise from the Proposed Action could disturb ocelots, likely causing changes in dispersal, communication patterns, and hunting success; and increased stress response. The magnitude of impacts from noise is uncertain, but these impacts are expected to decrease as the distance from the construction increases. Effects on ocelots could also result from prey species experiencing the same effects as the ocelots, hence reducing prey availability and altering their predator-prey relationships. Changes to food sources could also result in changes in dispersal and hunting success.

Because this project area contains potentially suitable habitat for the ocelot, the proposed installation of the new Kelvin Bridge is likely to result in the disturbance of suitable ocelot habitat. However, only a small portion of that disturbance will likely occur in ocelot habitat (e.g., areas of high vegetative cover, undisturbed areas with high levels of vertebrate prey, and areas with low levels of human disturbance); thus, effects are considered insignificant and discountable. The Proposed Action may affect, but is not likely to adversely affect ocelot.

Loach minnow (*Tiaroga cobitis*)

The loach minnow is listed as endangered with critical habitat under the ESA; however, designated critical habitat does not occur in the project area. Suitable habitats for the loach minnow include rocky riffles of mainstream rivers and tributaries with moderate to swift velocities, cobble or gravel substrates, and filamentous algae. The nearest current population of the loach minnow is in Aravaipa Creek, approximately 25 to 30 miles upstream from the project area (AGFD 2013; USFWS 2013d).

The project area is outside of the known distribution range of this species, but it has the potential to be occupied by fish from Aravaipa Creek via the San Pedro River. Although the habitat has attributes that make it suitable, this species is susceptible to predation by non-native species (AGFD 2013), and would likely not survive for long in the Gila River at this time, due to the presence of many crayfish and aggressive non-native fish species.

A SWPPP, including spill prevention, would be prepared for construction of the Proposed Action in compliance with the AZPDES requirements. Best management practices within the SWPPP would prevent or minimize the addition of silt and other materials from being discharged into the river with storm runoff that may degrade fish habitat. Based on the lack of presence of the species, and the implementation of BMPs, it was determined the Proposed Action may affect, but is not likely to adversely affect the loach minnow.

Roundtail chub (*Gila robusta*)

The roundtail chub is listed as a candidate species under the ESA. This species is found in cool to warm water, mid-elevation streams and rivers with pools adjacent to swifter riffles and runs. The project area is

outside of the known distribution range of this species, but it has the potential to be occupied by fish from Aravaipa Creek via the San Pedro River. Although the habitat has attributes that make it suitable, this species is susceptible to predation by non-native species (AGFD 2013), and would likely not survive for long in the Gila River at this time, due to the presence of many crayfish and aggressive non-native fish species.

A SWPPP, including spill prevention, would be prepared for construction of the Proposed Action in compliance with the AZPDES requirements. Best management practices within the SWPPP would prevent or minimize the addition of silt and other materials from being discharged into the river with storm runoff that may degrade fish habitat. Based on the lack of presence of the species, and the implementation of BMPs, it was determined the Proposed Action may affect, but is not likely to result in a trend toward federal listing or loss of viability.

Spikedace (*Xyrauchen texanus*)

The spikedace is listed as endangered with critical habitat under the ESA; however, designated critical habitat does not occur in the project area. This species occurs in moderate to large perennial streams with gravel cobble substrates and moderate to swift velocities. The nearest current location of the spikedace is in Aravaipa Creek, approximately 25 to 30 miles from the project area (AGFD 2013).

The project area is outside of the known distribution range of this species, but it has the potential to be occupied by fish from Aravaipa Creek via the San Pedro River. Although the habitat has attributes that make it suitable, this species is susceptible to predation by non-native species (AGFD 2013), and would likely not survive for long in the Gila River at this time, due to the presence of many crayfish and aggressive non-native fish species.

A SWPPP, including spill prevention, would be prepared for construction of the Proposed Action in compliance with the AZPDES requirements. Best management practices within the SWPPP would prevent or minimize the addition of silt and other materials from being discharged into the river with storm runoff that may degrade fish habitat. Based on the lack of presence of the species, and the implementation of BMPs, it was determined the Proposed Action may affect, but is not likely to adversely affect the spikedace.

Allen's (Mexican) big-eared bat (*Idionycteris phyllotis*)

Allen's big-eared bat, a BLM sensitive species, is a medium-sized bat with large ears that is typically found in mountainous regions at higher elevations; roost sites include caves and mineshafts (AGFD 2013). Allen's big-eared bats are generally associated with ponderosa pine, pinyon-juniper woodland, and riparian areas with sycamores, cottonwoods, and willows, and they are typically netted near water (AGFD 2013). No roost sites occur within the project area. The project area is not located in mountainous regions and is outside of and just south of the known and predicted distribution of this species (AGFD 2013); further, this species is not known to occur within 3 miles of the project area (AZHGIS 2014). Even though water, cottonwoods, and willows do occur at the project area, it is highly unlikely that these bats will occur at the project area.

Because this project area contains potentially suitable habitat for the Allen's big-eared bat, the Proposed Action is likely to result in the disturbance of suitable Allen's big-eared bat foraging habitat, as well as individuals, if present, through noise during construction. The Proposed Action may affect individuals of the Allen's big-eared bat, but is not likely to result in a trend toward federal listing or loss of viability.

American peregrine falcon (*Falco peregrinus anatum*)

The American peregrine falcon is a BLM sensitive species. The species occurs over much of North America and in numerous counties within Arizona. Optimum nesting habitat is generally considered to be steep, sheer cliffs overlooking woodlands, riparian areas, or other areas that support an abundance of avian prey species. American peregrine falcons feed almost exclusively on birds.

The project area is within the known distribution of this species, and the project area does contain suitable hunting habitat for this species; however no nesting habitat occurs for this species within the project area. Further, there are no occurrence records for American peregrine falcons within 3 miles of the

project area (AZHGIS 2014), and this species has not been observed in the project vicinity (eBird 2014). Because this project area contains potentially suitable hunting habitat for the American peregrine falcon, the Proposed Action is likely to result in the disturbance of suitable American peregrine falcon hunting habitat, as well as individuals, if present, through noise during construction. The Proposed Action may affect individuals of the American peregrine falcon, but is not likely to result in a trend toward federal listing or loss of viability.

Aravaipa sage (*Salvia amissa*)

Aravaipa sage is a perennial herb that grows on upper floodplain terraces in shady canyon bottoms near streams in understory of mature sycamore, ash, walnut (*Juglans* sp.), and mesquite near permanent water, from 1,500 to 5,000 feet amsl (AGFD 2013).

The project area is within the general geographical range, i.e., south-central Arizona; however, the project area is not within the known distributional range of this species. The project area only contains marginally suitable habitat for the species, and there are no known occurrences of this species within the vicinity of the project area. The closest known occurrences of this species are approximately 30 miles to the east in Aravaipa Canyon (AGFD 2013). Therefore, this species is unlikely to occur in the project area. The Proposed Action will have no impact on the Aravaipa sage or its habitat.

Arizona myotis (*Myotis lucifugus occultus*)

This species is found near water in ponderosa pine and oak-pine woodlands habitat, and in desert areas with riparian forests or permanent water. The project area is within the known distribution of this species, and the project area does contain suitable habitat for this species. Additionally, there is one recorded location of this species in the vicinity of the project area, approximately 15 miles northeast of the project area (AGFD 2013). Because this project area contains potentially suitable habitat for the Arizona myotis, the Proposed Action is likely to impact suitable Arizona myotis habitat, as well as individuals, if present, through noise during construction. The Proposed Action may impact individuals of Arizona myotis, but is not likely to result in a trend toward federal listing or loss of viability.

Bald eagle (*Haliaeetus leucocephalus*)

Bald eagles inhabit coastal areas, estuaries, unfrozen inland waters, and some arid areas of the western interior and southwestern portion of the United States. They like areas with high water-to-land edge, and areas with unimpeded views including both horizontal and vertical aspects.

There is suitable hunting habitat for this species within the project area. Furthermore, the project area is within the known range of this species. The closest known currently active breeding area for bald eagles to the project area occurs approximately 30 miles from the site (McCarty et al. 2013).

Although this project area contains potentially suitable hunting habitat for the bald eagle, the Proposed Action will not affect its prey, i.e., fish in the river. Additionally, the construction-related disturbance may cause individual birds to avoid or leave the project site. Thus, any temporary impacts to the species from the construction disturbance would be insignificant and discountable. The Proposed Action may affect individual bald eagles, but is not likely to result in a trend toward federal listing or loss of viability. No 'take' of bald eagle is expected as a result of this project.

Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*)

The cactus ferruginous pygmy-owl (CFPO) is a small owl that is found in in streamside cottonwoods and willows and adjacent mesquite bosques, usually with saguaros on nearby slopes. Although this project area is outside of the current known geographic range of the CFPO, the project area does contain a small patch of native riparian woodland habitat, a narrow strip of mesquite woodland, and saguaro cacti used for nesting and the project area is within the elevational range of the CFPO in Arizona. However, CFPOs have not been known to occupy saltcedar-dominated woodland, and the USFWS and AGFD typically do not recommend CFPO surveys within those areas.

Because this project area contains potentially suitable habitat for the CFPO, the Proposed Action is likely to result in the disturbance and removal of suitable CFPO habitat, i.e., trees. However, no saguaros, i.e., potential cavity nest site, will be removed. Thus, in the unlikely event that CFPOs are present during

construction, noise may affect their activities. The Proposed Action may affect individuals of CFPO, but is not likely to result in a trend toward federal listing or loss of viability.

California leaf-nosed bat (*Macrotus californicus*)

The California leaf-nosed bat roosts in mines, rock shelters, and human-made structures. The project area is within the known distribution of this species, and the project area does contain suitable foraging habitat for this species. In addition, this species is known to occur within 3 miles of the project area (AZHGIS 2014). Because this project area contains potentially suitable habitat for the California leaf-nosed bat, the Proposed Action is likely to result in the disturbance of suitable California leaf-nosed bat foraging habitat. The Proposed Action may impact individuals of California leaf-nosed bat, but is not likely to result in a trend toward federal listing or loss of viability.

Cave myotis (*Myotis velifer*)

The cave myotis roosts in mines, caves, tunnels, mine shafts, and under bridges, and, at times, in buildings within a few miles of water. The project area is within the known distribution of this species, and the project area does contain suitable foraging and roosting habitat for this species. Additionally, the closest recorded location of this species in the vicinity of the project area is approximately 15 miles north of the project area (AGFD 2013). Because this project area contains potentially suitable habitat for the cave myotis, the Proposed Action is likely to result in the disturbance of suitable cave myotis habitat as well as individuals, if present, through noise during construction. The Proposed Action may impact individuals of cave myotis, but is not likely to result in a trend toward federal listing or loss of viability.

Desert purple martin (*Progne subis hesperia*)

The desert purple martin, a BLM listed sensitive species, is a small passerine bird that nests in cavities. In the Sonoran Desert, the species often uses cavities in saguaros for nesting. This species is not known to occur within 3 miles of the project area (AZHGIS 2014), though the project area is within the known distribution of this species. The nearest occurrence of this species is at Kearny Lake, approximately 5 miles southeast of the project area (eBird 2014). These birds are most commonly associated with saguaros which they use for nesting, and this project area contains few saguaros but none will be removed. Thus, this project area is likely only to be migratory habitat or foraging habitat for this species. Because this project area contains potentially suitable habitat for the desert purple martin, the Proposed Action is likely to result in the disturbance of suitable desert purple martin foraging habitat, as well as individuals, if present, through noise during construction. The Proposed Action may affect individuals of the desert purple martin but is not likely to result in a trend toward federal listing or loss of viability.

Desert sucker (*Catostomus clarki*)

The desert sucker, a BLM sensitive species, is found in rapids and flowing pools in streams and rivers of the Lower Colorado River downstream from the Grand Canyon and the Gila River drainage from 480 to 8,840 feet amsl (AGFD 2013). The desert sucker spawns in shallow riffles beginning in early spring and young occupy shallow areas on stream margins (Minckley and Marsh 2009). The project area is within the known distribution of this species, and the project area does contain suitable spawning, rearing and foraging habitat for this species. Additionally, there are known records of this species within the immediate vicinity of the project area (AGFD 2013). Like the longfin dace and Sonora sucker, the desert sucker is one of the few native fishes that can persist for long periods (decades) in the presence of non-native species.

Because this project area likely contains occupied habitat for the desert sucker, the Proposed Action is likely to result in minor, short-term disturbances to desert sucker and habitat, although the Gila River itself will not be altered. With a SWPPP and BMPs in place, it is anticipated that desert sucker population, as a whole, will be largely or completely unaffected. The proposed Kelvin Bridge project may affect individuals of the desert sucker and habitat, but is not likely to result in a trend toward federal listing or reduction in viability.

Gilded flicker (*Colaptes chrysoides*)

The gilded flicker, a BLM listed sensitive species, is a medium-sized bird that nests in cavities in saguaros. The project area is within the known distribution of this species, and the project area does contain suitable foraging and nesting habitat for this species. These birds are most commonly associated

with saguaros which they use for nesting, and this project area contains few saguaros but none will be removed. Thus, this project area is likely only to be migratory habitat or foraging habitat for this species. Because this project area contains potentially suitable habitat for the gilded flicker, the Proposed Action is likely to impact suitable gilded flicker habitat, as well as individuals, if present, through noise during construction. The Proposed Action may impact individuals of gilded flicker, but is not likely to result in a trend toward federal listing or loss of viability.

Golden eagle (*Aquila chrysaetos*)

The golden eagle is a very large raptor found throughout Arizona. The species nests on rock ledges, cliffs, or in large trees (AGFD 2002). There is no suitable breeding habitat for this species within the project area; however, there is suitable hunting habitat for this species within the project area. The project area is within the known distribution range of this species. Because this project area contains potentially suitable foraging habitat for the golden eagle, the Proposed Action is likely to result in disturbance to suitable golden eagle foraging habitat. The Proposed Action may affect individuals of golden eagles, but is not likely to result in a trend toward federal listing or loss of viability. No 'take' of golden eagle is expected as a result of this project.

Great Plains narrow-mouthed toad (*Gastrophryne olivacea*)

This species found in mesquite semidesert grassland to oak woodland, in the vicinity of streams, springs, and rain pools. They are more terrestrial than aquatic in habits. They can be found in deep, moist crevices or burrows, and under large flat rocks, dead wood, and other debris near water (AGFD 2013). There is suitable habitat for this species within the project area; however the project area is approximately 50 miles north of the known range for this species (AGFD 2013). Because this project area contains potentially suitable habitat for the Great Plains narrow-mouthed toad, the Proposed Action is likely to result in the disturbance of suitable Great Plains narrow-mouthed toad habitat, as well as individuals, if present, through noise during construction. The Proposed Action may affect individuals of the Great Plains narrow-mouthed toad, but is not likely to result in a trend toward federal listing or loss of viability.

Greater western mastiff bat (*Eumops perotis californicus*)

The greater western mastiff bat is a BLM sensitive species. This species is considered a year-round resident of Arizona, and is widespread in Arizona, occurring in lower and upper Sonoran desertscrub near cliffs, preferring the rugged rocky canyons with abundant crevices (AGFD 2013). The project area is within the known distribution of this species, and the project area does contain suitable foraging habitat for this species, though no suitable roosting habitat occurs in the project area. While this species is not known to occur within 3 miles of the project area, unidentified bat colonies do occur (AZHGIS 2014). Because this project area contains potentially suitable habitat for the greater western mastiff bat, the Proposed Action is likely to result in the disturbance of suitable greater western mastiff bat foraging habitat, as well as individuals, if present, through noise during construction. The Proposed Action may affect individuals of the greater western mastiff bat, but is not likely to result in a trend toward federal listing or loss of viability.

Longfin dace (*Agosia chrysogaster*)

The longfin dace is a BLM sensitive species (BLM 2010). This species occupies small streams in low desert to lower end conifer woodlands in Arizona, New Mexico, and Mexico at or below 4,900 feet amsl (AGFD 2013). This species typically occupies water less than 0.6 foot deep, and is highly susceptible to predation, particularly from non-native species (AGFD 2013). The project area is within the known distribution of this species, and the project area does contain suitable habitat for this species. In addition, this species is known to occur within 3 miles of the project area (AZHGIS 2014). This species is abundant and common in the Gila River main stem. It is likely to occur in the project area during the construction period. Unlike most other native fishes, longfin dace are often found in the presence of non-native species.

Because this project area is likely to contain occupied suitable habitat for the longfin dace during the span of the project, the Proposed Action is likely to result in minor, short-term disturbances to longfin dace and its habitat, although the Gila River itself will not be altered. With a SWPPP and BMPs in place, it is anticipated that the longfin dace population, as a whole, will be largely or completely unaffected.

The Proposed Action may affect individuals of the longfin dace and habitat, but is not likely to result in a trend toward federal listing or measurable reduction in viability.

Lowland leopard frog (*Lithobates yavapaiensis*)

The Project area has suitable habitat for this species (AGFD 2013). However, the habitat is not biologically suitable due to non-native fish species that consume adults and tadpoles and the widespread occurrence of bullfrogs in the Gila River system. There is suitable habitat for this species within the project area, and the project area is within the known range for this species (AGFD 2013). This species is very unlikely to occur in the Gila River including the project area. An individual has only the slimmest chance of occurring for a short time during the project. Because this project area contains potentially suitable habitat for the lowland leopard frog, the Proposed Action is likely to result in the disturbance of suitable lowland leopard frog habitat, as well as individuals, if present, through noise during construction.

Pima Indian mallow (*Abutilon parishii*)

This species is an herbaceous perennial that grows on rocky hillsides, cliff bases, canyon bottoms, and the lower side slopes and ledges of canyons among rocks and boulders. The project area is within the known distribution range of this species, and the project area does contain suitable habitat for this species. However, there are no known occurrences of this species in the vicinity of the project area (AZHGIS 2014). The Proposed Action will have no impact on the Pima Indian mallow or its habitat.

Sonora mud turtle (*Kinosternon sonoriense sonoriense*)

This species occurs in springs, creeks, ponds, and waterholes of intermittent streams at elevations from sea level to 6,000 feet amsl. In Arizona, this species occurs in the Gila River drainage of central and southeast Arizona; Quitobaquito Spring, Pima County; Laguna Dam area, Yuma County; and Big Sandy–Burro River drainages (AGFD 2013). The project area is within the known distribution range of this species, and the project area does contain suitable habitat for this species. However, there are no known occurrences of this species within the vicinity of the project area (AZHGIS 2014).

Because the project area contains potentially suitable habitat for the Sonora mud turtle, the Proposed Action may impact suitable Sonora mud turtle habitat, as well as individuals, if present, through noise during construction. The Proposed Action may affect individuals of Sonora mud turtle, but is not likely to result in a trend toward federal listing or loss of viability.

Sonora sucker (*Catostomus insignis*)

The Sonora sucker is a BLM sensitive species which occurs in warm-water rivers to trout streams in Arizona, New Mexico, and Mexico, typically preferring gravelly or rocky pools or deep, quiet waters (AGFD 2013). This sucker spawns in shallow riffles beginning in February and young occupy shallow areas on stream margins (Minckley and Marsh 2009).

The project area is within the known distribution of this species, and the project area does contain suitable spawning, rearing and foraging habitat for this species. In addition, this species is known to occur within 3 miles of the project area (AZHGIS 2014) and likely occurs at or near the project site. Sonora sucker is one of the few native fishes that can persist for long periods (decades) in the presence of non-native species.

Because this project area is likely to contain occupied habitat for the Sonora sucker, the Proposed Action is likely to result in minor, short-term disturbances to Sonora sucker and habitat, although the Gila River itself will not be altered. With a SWPPP and BMPs in place, it is anticipated that the Sonora sucker population, as a whole, will be largely or completely unaffected. The Proposed Action may affect individuals of the Sonora sucker and habitat, but is not likely to result in a trend toward federal listing or measurable reduction in viability.

Sonoran desert tortoise (*Gopherus morafkai*)

In October 2015 the USFWS determined that the Sonoran desert tortoise was not warranted for listing, and it was removed from the candidate species list. It is still considered a BLM sensitive species. The Sonoran Desert tortoise primarily occurs on rocky slopes and bajadas of Mojave and Sonoran desertscrub. In the Lower Colorado River Valley subdivision, caliche caves in cut banks of washes are

also used for shelter sites. Shelter sites are rarely found in shallow soils. The Sonoran Desert tortoise forage includes annuals, grasses, herbaceous perennials, trees and shrubs, subshrubs/woody vines, and succulents (AGFD 2013). Threats to this species include habitat alteration, off-highway vehicle use, and collection. The project area is within the known current range of this species.

Potential habitat for Sonoran desert tortoise does occur at the project area. Sonoran desert tortoise may be found in the project vicinity, and would most likely be encountered in the upland areas of Sonoran desertscrub in the northern and southern extents of the project area. Tortoises may be encountered while they are moving to and from other more suitable habitat areas in the project vicinity. It is unlikely that the Proposed Action will have any impact on the Sonoran Desert tortoise. In the unlikely event that a Sonoran desert tortoise is encountered during project construction, the *Sonoran Desert Tortoises Encountered on Development Projects* will be followed (AZGFD 2007). A tortoise survey shall be performed prior to construction to assess whether or not the Proposed Action area is utilized by the species. The standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat, including inspecting underneath parked vehicles prior to moving, and the Sonoran Desert Tortoise Handling Procedures (BLM 2007) (see Appendix A) will be applied.

Spotted bat (*Euderma maculatum*)

The spotted bat is a medium-sized bat that utilizes desertscrub habitats up to ponderosa pine forest. The project area is within the known distribution of this species, and the project area does contain suitable foraging habitat for this species. However, no suitable roosting sites are located within the project area, and there are no recorded locations of this species in the vicinity of the project area (AZHGIS 2014). Because this project area contains potentially suitable foraging habitat for the spotted bat, the Proposed Action is likely to result in the disturbance of suitable spotted bat habitat as well as individuals, if present, through noise during construction. The Proposed Action may impact individuals of spotted bat, but is not likely to result in a trend toward federal listing or loss of viability.

Townsend's big-eared bat (*Corynorhinus (=Plecotus) townsendii*)

Townsend's big-eared bat is medium-sized bat species with very large ears. The species is found in desertscrub to coniferous forests and roosts in areas with open ceilings, including abandoned buildings, caves, and mines. The project area is within the known distribution of this species, and the project area does contain suitable foraging habitat for this species. In addition, this species is known to occur within 3 miles of the project area (AZHGIS 2014). Because this project area contains potentially suitable foraging habitat for the Townsend's big-eared bat, the Proposed Action is likely to result in the disturbance of suitable Townsend's big-eared bat foraging habitat, as well as individuals, if present, through noise during construction. The Proposed Action may affect individuals of the Townsend's big-eared bat, but is not likely to result in a trend toward federal listing or loss of viability.

Acuna cactus (*Echinomastus erectocentrus* var. *acunensis*)

Acuna cactus occurs in disjunct populations across southern Arizona on well-drained gravel ridges and knolls on granite-derived soils. It grows in the Arizona Upland subdivision of the Sonoran desertscrub plant association at elevations between 1,198 and 2,789 feet amsl. While suitable habitat is present within the project area, several surveys for the species have been conducted and no individual species were found during any of those surveys. As part of the ROW stipulations, additional surveys shall be completed in the summer immediately preceding soil and vegetation disturbing activities.

CUMULATIVE IMPACTS

The project area would be maintained by Pinal County as an acquired right-of-way. The existing historical bridge would remain as part of the Arizona Trail; however, other than the proposed components of the Kelvin Bridge replacement project, Pinal County has no additional plans for activities within this right-of-way. Other activities within the project vicinity, combined with the expected effects from the proposed project, could cumulatively contribute to effects such as the degradation, loss, or fragmentation of habitat, increased disturbances to nesting individuals, increases in invasive species, decline of watershed conditions, or groundwater and surface water impacts. These activities may include: grazing activities, recreation (i.e., off road vehicle use, Christmas and Shores Receptions sites, Arizona National Scenic trail, and other recreation without a federal nexus), current and future development, nearby mining

activities (i.e., Ray Mine, and other small scale mining operations), operation of the Coolidge Dam, other ROWs or infrastructure, and other various unregulated activities on non-federal land in or near the project area.

The Ripsey Wash Tailing Storage Project proposed by ASARCO LLC is currently being reviewed by the U.S. Army Corps of Engineers and is the subject of an Environmental Impact Statement (EIS) that was issued on January 29, 2016. If approved, the proposed tailings facility would be located approximately ¼ mile southwest of Kelvin Bridge, and a proposed tailings drain-down pond would be located immediately adjacent to the east side of the Florence Kelvin Highway just north of the Kelvin bridge. Impacts from the proposed Ripsey Wash Tailing Storage Project are summarized in Table ES-3 in the Draft EIS. The Ripsey Wash Tailing Storage Project would not be constructed at the same time as the construction of the Kelvin Bridge Project; therefore no cumulative impacts from the construction of the Kelvin Bridge would occur to biological resources. The proposed tailings facility would permanently impact approximately 1,974 acres after it is completed; therefore, the Proposed Action, when combined with the impacts of the proposed Ripsey Wash Tailing Storage Project, would have a cumulative impact to biological resources from the permanent loss of vegetation and natural habitat.

MITIGATION MEASURES AND RESIDUAL IMPACTS

A qualified biologist would monitor all ground-disturbing activities, as required in the mitigation measures in Section 2.7. If it is determined that unacceptable levels of resource damage are occurring outside of authorized activity, all work would stop at that location and the BLM would be notified. Prior to construction, surveys for yellow-billed cuckoo, southwestern willow flycatcher, Acuna cactus, and desert tortoise would be conducted. The implementation of design features, ROW stipulations, and mitigation measures would minimize residual impacts to biological resources as a result of the Proposed Action. However, the measures cannot completely mitigate impacts to biological resources. Therefore, the Proposed Action would have long-term minor adverse residual impacts to biological resources.

3.6 Cultural Resources

3.6.1 Affected Environment

Cultural (and heritage) resources are defined as specific locations of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. The term includes archaeological, historic, and architectural sites and structures, as well as places with traditional cultural or religious importance within a social or cultural group. The analysis area for cultural resources is identified and evaluated within a 1-mile radius surround the Project area.

In accordance with Section 106 of the NHPA, several archaeological records searches, resource surveys of the Area of Potential Effect (APE), and data recovery activities have occurred for the project since 2002. The archaeological records searches identified known cultural resources within a 1-mile radius of the APE. The resource surveys confirmed the results of the archaeological records searches within the APE as well as identified any previously unknown cultural resources.

SWCA Environmental Consultants surveyed 7.55 acres of the APE in 2002 (Lundin et al. 2003) and additional 3.6 acres in 2015 (SWCA 2015) that had not previously been subject to the 2002 cultural resource survey. These two surveys represent complete survey coverage of the current project footprint. The cultural resource surveys identified three archaeological sites located within the surveyed area—the Kelvin Bridge, AZ U:16:299(ASM), and AZ V:13:33(ASM).

The Kelvin Bridge was constructed in 1917 and was listed in the National Register of Historic Places (NRHP) in 1988. It is one of two remaining concrete bridges in Arizona that was constructed with Luten arches developed and patented by engineer Daniel Luten.

AZ U:16:299(ASM) is the historic Phoenix & Eastern mining branch line of the former Southern Pacific Railroad. It was originally constructed in 1903–1904 and 1910; it is still actively used and maintained. The line runs between Winkelman and Magma and includes the Ray Mine spur that runs north just

outside of the project area (Lundin et al. 2003). The railroad is currently run by Copper Basin Railroad and serves the Ray Mine complex run by ASARCO (ASARCO 2015). The branch line crosses the project area just north of the Kelvin Bridge. AZ U:16:299(ASM) has been determined eligible for inclusion in the NRHP.

AZ V:13:33(ASM) is located on private land and consists of a prehistoric artifact scatter and the remnants of the historic community of Kelvin. The historic component consists of a 16-by-20-foot building foundation, a segment of fencing, and a historic artifact scatter located between the existing Florence-Kelvin Highway and the Ray Mine railroad spur. The prehistoric component of this site consists of prehistoric artifact scatters containing ceramic sherds and flaked stone attributed to the Hohokam culture and dating to A.D. 750–1450 (Lundin et al. 2003). The SHPO determined AZ V:13:33(ASM) eligible for inclusion in the NRHP under Criterion D for its potential to provide important information regarding the prehistoric and historic settlement of the area.

Because the Proposed Action would adversely affect AZ V:13:33(ASM), FHWA and ADOT developed a Memorandum of Agreement (MOA) with the SHPO to address the treatment of the site (Appendix E). The MOA was signed in 2004. As stipulated in the MOA, SWCA prepared the *A Phase I and Phase II Data Recovery Plan for the Portion of AZ V:13:33(ASM) within the Kelvin Bridge Replacement Area-of-Potential Effect, Pinal County, Arizona* (SWCA 2005). After the plan was approved by FHWA and ADOT, SWCA carried out the data recovery of AZ V:13:33(ASM) in 2009 to 2010. During the data recovery, 130 features were recorded within the project APE. A final data recovery report was drafted and approved in 2012, and presented the results in a report titled *Living Along the Gila River: Results of Archaeological Investigations at AZ V:13:33(ASM)* (SWCA 2012). The final data recovery report concluded that adverse effects to AZ V:13:33(ASM) were resolved as a result of the data recovery and the SHPO concurred with the conclusion in 2012.

The 2015 survey of the additional 3.6 acres not included in the original survey did not identify cultural resources that are eligible for inclusion in the NRHP.

3.6.2 Impacts from the No Action

DIRECT AND INDIRECT IMPACTS

Under the No Action Alternative the bridge would not be closed to motorized traffic that could potentially accelerate deterioration of the bridge. Therefore, the No Action Alternative would result in the direct and potentially adverse impact of continued wear on the historic Kelvin Bridge because it would continue to carry motorized traffic at present levels.

Because the bridge project would not be constructed under the No Action Alternative, no direct or indirect impacts to AZ U:16:299(ASM) would occur. The data recovery for site AZ V:13:33(ASM) resolved adverse effects to the site; therefore the No Action would not have a direct or indirect impact on AZ V:13:33(ASM).

CUMULATIVE IMPACTS

The No Action Alternative would not have a cumulative impact to cultural resources.

3.6.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

The Proposed Action will result in beneficial impacts of the historic bridge because the bridge would be closed to motorized traffic, thereby slowing the bridge's deterioration. The bridge will continue to be maintained by Pinal County after it is decommissioned and no longer part of the Florence-Kelvin Highway. The SHPO concurred in 2005 with the conclusion that the project would have "No Adverse Effect" on the historic bridge.

The Proposed Action will not impact AZ U:16:299(ASM), the historical alignment of the Magma-Winkelman branch of the Southern Pacific Railroad and current Copper Basin Railroad, because the new

bridge will span the historic railroad aerially and will not alter any of the characteristics of location, function, or setting that contributes to the railroad’s NRHP eligibility (ADOT 2004a).

AZ V:13:33(ASM), the ruins of the historic town of Kelvin and a prehistoric artifact scatter, is located on private land that would be acquired by Pinal County for a new ROW (ADOT 2004a). An MOA (ADOT 2004b) to address likely impacts to the site through data recovery was developed and implemented. Adverse effects to AZ V:13:33(ASM) have been resolved through data recovery (SWCA 2012).

CUMULATIVE IMPACTS

Because the Proposed Action would not be expected to impact cultural resources, the Proposed Action would not have a cumulative impact on cultural resources when combined with the impacts of reasonably foreseeable future actions such as the proposed Ripsey Wash Tailings Storage Project.

MITIGATION MEASURES AND RESIDUAL IMPACTS

To fulfill ROW Grant Stipulation #13, data recovery for site AZ V:13:33(ASM) has already been completed. A qualified archaeologist will monitor all ground-disturbing activities, as required in the ROW grant stipulations in Section 2.6. In the event of an unanticipated discovery of cultural material during project activities, all work would stop at that location until the find is evaluated by a professional archaeologist. The BLM Tucson Field Office would be notified, and work would not begin again in the area until clearance is obtained. With the implementation of the ROW stipulations and mitigation measures, no residual impacts to cultural resources would be expected occur.

3.7 Socioeconomic Resources and Environmental Justice

3.7.1 Affected Environment

POPULATION DEMOGRAPHICS, INCOME, AND EMPLOYMENT

The analysis area for socioeconomics and environmental justice is the US Census Tract 23 in Pinal County, where the project area is located. Census data for Pinal County and the State of Arizona are also provided for comparison (Table 3-3). According to employment and income data from the U.S. Census Bureau (Census Bureau), in 2012 Pinal County had a population of 375,770. The median age was 35.3 years, and the majority (72%) of the population was white/Caucasian; this also includes those of Latino origin (28.5%). American Indians (5.6%) and persons of Asian origin (1.7%) made up most of the remainder. Median household income was \$50,164, employment of those over 16 years of age was 47%, and approximately 10.6% of the population was below poverty level (Census Bureau 2014).

Table 3-3. Arizona Population, Income, and Employment Data

Location	Total Population (2010)	Minority Population (% non-white)	Families Below Poverty Level (%)	Unemployment (%)	Disabled Population (%)	Elderly Population (%)
State of Arizona*	6,392,017	15.4	16.2	5.5	Data not available	13.6
Pinal County*	375,770	27.6	10.6	6.0	Data not available	13.9
Pinal County Census Tract 23**	2,951	51.2	20.8	18.8	Data not available	22

Sources: *Census Bureau 2012; **Census Bureau 2010-2014 American Community Survey

Environmental Justice

Title IV of the Civil Rights Act of 1964 and related statutes ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal assistance on the basis of race, color, national origin, age, sex, or disability. Executive

Order 12898 on Environmental Justice directs that programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low-income populations.

The communities of Kelvin and Riverside are located just north and east of the proposed bridged project, respectively. Because these communities are unincorporated, census data specific to the communities are not available. However, census data are available for Census Tract 23, Pinal County, Arizona, within which the Kelvin and Riverside are located. According to the U.S. Census Bureau's 2010–2014 5-Year Community Survey data for 2014, approximately 51% of the population within the census tract is a minority population and approximately 21% of the population within the census tract is living below the poverty level (U.S. Census 2013). Therefore, the proposed project is within a demographic area that has populations protected by Executive Order 12898 on Environmental Justice.

Quality of Life

Increased growth in Pinal County over the past several decades has been a significant driving force in the current social and economic setting of the area. Although current population and development in the immediate vicinity of the Proposed Action is relatively sparse, Pinal County does provide dispersed recreation opportunities such as hiking, hunting, sightseeing, rock collecting, and OHV use (BLM 1988). The area that includes the Proposed Action is largely undeveloped and undisturbed desert. The undeveloped nature of the project area defines the quality of life and nature of the analysis area, which is quiet, non-commercial, and rural in character. The ASARCO Ray Mine is the primary employer for this area and the mining operation, including the tailings, can be seen and heard in the distance to the north of the project area.

3.7.2 Impacts from the No Action

DIRECT AND INDIRECT IMPACTS

Under the No Action Alternative, the ROW grant amendment would not be approved, and no construction would take place. Thus, the new bridge would not be constructed, residents and travelers would continue to use the existing one-way bridge and the at-grade railroad crossing, and the existing bridge would not transition to a non-motorized use bridge and become part of the ANST system.

There would be no impacts to environmental justice communities.

CUMULATIVE IMPACTS

The No Action Alternative would not have a cumulative impact on socioeconomic resources and environmental justice.

3.7.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

Impacts to social and economic conditions from the Proposed Action would be beneficial, major, and long term, because constructing a new bridge would benefit current nearby residents and travelers on the Florence-Kelvin Highway by providing a safer two-way bridge crossing over the Gila River and removing the at-grade railroad crossing (see Section 3.8 below for more on transportation). The Proposed Action would also enhance public health and safety and improve emergency service response by removing the risk of potential delays at the bridge and railroad crossing. Quality of life impacts would be beneficial and long term as well due to the conversion of the existing bridge to a non-motorized use bridge that is part of the Arizona National Scenic Trail system.

There would be no impacts to environmental justice communities.

CUMULATIVE IMPACTS

With the exception of the proposed Ripsey Wash Tailings Storage Project, no other known reasonably foreseeable future actions would occur at or adjacent to the proposed project area. The proposed Ripsey Wash Tailings Storage Project would have moderate impacts to employment during construction, negligible impacts to employment during operations, and negligible impacts to housing, utilities, public services, and present lifestyles in local communities. Therefore, the Proposed Action, when combined with the predicted impacts of the Ripsey Wash Tailings Storage Project, would not have a cumulative impact on socioeconomic resources and environmental justice.

MITIGATION MEASURES AND RESIDUAL IMPACTS

As required in the ROW grant stipulations, Pinal County will notify nearby residences and businesses prior to construction. Access to the Florence-Kelvin Highway and all adjacent roads and properties would remain open during construction. Therefore, no residual adverse impacts to Socioeconomic Resources and Environmental Justice would occur as a result of the Proposed Action.

3.8 Transportation

3.8.1 Affected Environment

Access to the proposed project area is via the Florence-Kelvin highway, which generally runs east and west between Florence, Arizona, and State Route 77. The Florence-Kelvin highway's current bridge over the Gila River is a single-lane bridge that requires traffic to stop and wait for opposing traffic to clear the bridge before proceeding on the bridge. The Florence-Kelvin highway crosses the Gila River, traverses through the unincorporated community of Kelvin, and terminates at the State Route 77 immediately north of the community. East Riverside Road, a two-lane dirt road, intersects the Florence-Kelvin Highway south of the bridge and provides access to residences east of the proposed project area.

3.8.2 Impacts from the No Action

DIRECT AND INDIRECT IMPACTS

The No Action alternative would have long-term minor adverse impacts to transportation because traffic along the Florence-Kelvin Highway would continue to have to wait for opposing traffic to clear the bridge before crossing. In addition, traffic would continue to cross the railroad at an at-grade crossing and occasionally be required to wait for trains. The improved traffic safety conditions from the new two-way bridge and separated grade crossing of the railroad would not occur under the No Action Alternative.

CUMULATIVE IMPACTS

The No Action Alternative would not have a cumulative impact on transportation resources.

3.8.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

The Florence-Kelvin Highway would continue to provide access to Kelvin, adjacent roads, and residences during construction. The existing one-lane bridge would remain open during construction, therefore no delays in traffic would result from bridge construction. Traffic flow would be improved after the completion of the project because vehicles would no longer be required to wait for opposing traffic on the bridge. In addition, the new bridge would span the railroad, further improving traffic flow and safety over existing conditions. Transportation connectivity within the analysis area would be improved since the new Kelvin Bridge would provide a more convenient travel route, which would be a beneficial, long-term impact.

The Proposed Action would not result in an increase in traffic on any roads. Therefore, the Proposed Action would not result in impacts to travel management.

CUMULATIVE IMPACTS

With the exception of the proposed Ripsey Wash Tailings Storage Project, no other known reasonably foreseeable future actions would occur at or adjacent to the proposed project area. The Ripsey Wash Tailing Storage Project would not be constructed at the same time as the construction of the Kelvin Bridge Project; therefore, no cumulative impacts to transportation resources from the construction of the Kelvin Bridge would occur. The proposed Ripsey Wash Tailings Storage Project would require the relocation of approximately 2.1 miles of the Florence-Kelvin highway.

MITIGATION MEASURES AND RESIDUAL IMPACTS

Access to the Florence-Kelvin Highway and all adjacent roads and properties would remain open during construction. Therefore, no residual adverse impacts to transportation would occur as a result of the Proposed Action.

3.9 Recreation

3.9.1 Affected Environment

The existing Florence-Kelvin Highway's bridge is a segment of the Arizona National Scenic Trail that is used by trail users to cross the Gila River. The Arizona Trail is an 820-mile, non-motorized trail that traverses Arizona from Mexico to Utah. The Arizona Trail is intended to be a primitive, long-distance trail that highlights the state's topographic, biologic, historic and cultural diversity. The Florence-Kelvin highway bridge is the southern terminus of the Gila River Canyons Passage section and is popular for use by mountain bikers, day hikers, and equestrians. After the bridge, the trail follows the southern side of the Gila River for many miles before continuing south towards the Arizona-Mexico border. Motorized use of the trail (with the exception of the Florence-Kelvin highway bridge) is prohibited.

No other special recreation management areas exist within the proposed project area.

3.9.2 Impacts from the No Action

DIRECT AND INDIRECT IMPACTS

The No Action Alternative would have a long-term minor adverse impact to recreation because the existing bridge would not transition to a non-motorized use bridge only. The existing bridge would remain part of the ANST system, but trail users would continue to share the bridge with motorized traffic.

CUMULATIVE IMPACTS

The No Action Alternative would not have a cumulative impact to recreation.

3.9.3 Impacts from the Proposed Action

DIRECT AND INDIRECT IMPACTS

The Proposed Action would have long-term moderate beneficial impacts to recreation because the existing bridge would be designated for non-motorized use only, support trail connectivity, and remain part of the ANST. Trail users crossing the river would no longer share the bridge with motorized traffic on the Florence-Kelvin Highway. The trailhead on the southern side of the bridge would be improved to keep motorized vehicles off of the trail by placing large boulders at the trailhead. Pedestrian access across the Florence-Kelvin Highway would be provided on the southern side of the bridge by an underpass that leads to the ANST trailhead.

CUMULATIVE IMPACTS

With the exception of the proposed Ripsey Wash Tailings Storage Project, no reasonably foreseeable future actions would impact recreation within the project area. The Ripsey Wash Tailing Storage Project would not be constructed at the same time as the construction of the Kelvin Bridge Project; therefore, no

cumulative impacts to recreation from the construction of the Kelvin Bridge would occur. The proposed Ripsey Wash Tailings Storage Project would require the relocation of approximately 6.4 miles of the ANSTI.

MITIGATION MEASURES AND RESIDUAL IMPACTS

The project's design feature to convert the existing bridge to a non-motorized use only bridge and improving access to the ANST would have a long-term beneficial impact on recreation in the project area. Therefore, no residual adverse impacts to recreation would result from the Proposed Action.

3.10 Visual Resources

3.10.1 *Affected Environment*

The project area is located at the Gila River- a perennial river at this location lined with dense riparian vegetation. Developed land within the project area consists of the existing alignment of the Florence-Kelvin Highway, the existing bridge, the Union Pacific railroad, and a road maintenance staging area north of the bridge on the west side of the Florence-Kelvin Highway. The surrounding area is predominantly natural/undisturbed, but sparse development such as houses can be seen within 1 mile of the project area. The ASARCO Ray Mine's tailings facilities are visible to the north of the project area. Beyond the ASARCO Ray Mine, the surrounding background is predominantly natural/undisturbed desert mountains that are characteristic of the Gila River canyons area.

The Phoenix RMP does not include Visual Resource Inventory (VRI) classes or Visual Resource Management (VRM) objectives. There are no BLM or other visual resource requirements for the analysis area.

3.10.2 *Impacts from the No Action*

DIRECT AND INDIRECT IMPACTS

The No Action Alternative would not impact visual resources.

CUMULATIVE IMPACTS

No cumulative impacts would occur to visual resources as a result of the No Action Alternative.

3.10.3 *Impacts from the Proposed Action*

DIRECT AND INDIRECT IMPACTS

The Proposed Action would result in an alteration of the existing landscape on 7.1 acres. In the short term, construction of the Proposed Action would cause dust to be emitted from earthmoving activities, construction vehicles and equipment, and construction worker vehicles, and from areas within the construction zone that have been disturbed or where excavation material is stockpiled. Fugitive dust, if emitted in sufficient quantities and if adverse weather conditions persist, would have minor impacts and would degrade existing views in the short term. Disturbed areas would contrast with adjacent undisturbed and vegetated areas.

The Proposed Action, once constructed, would add a new bridge over the Gila River that is approximately 30 feet higher than the existing bridge. The new bridge and bridge approaches would be visible to observers on the Florence-Kelvin Highway, to trail users on the ANST, and from adjacent land. The new bridge would be generally consistent with the existing characteristics of the area because of the existing Florence-Kelvin Highway and Kelvin Bridge over the Gila River. The new bridge and bridge approaches would attract attention and be seen, but would not dominate the view of the casual observer any more than is currently experienced. Over time, the bridge would be less prominent as revegetation efforts help to restore land disturbed during construction. Therefore, long-term minor adverse impacts to visual resources would occur as a result of the Proposed Action.

Because the Phoenix RMP currently does not classify VRM for BLM lands within the Phoenix RMP planning area, the Proposed Action would not be in conflict with BLM VRM classifications.

CUMULATIVE IMPACTS

The proposed Ripsey Wash Tailings Storage Project would have significant impact on visual resources but would not be constructed until after the Kelvin Bridge project is completed. Because the Kelvin Bridge project would be consistent with the existing visual characteristics, it would not have a significant cumulative impact on visual resources when combined with the visual impacts of the Ripsey Wash Tailings Storage Project.

MITIGATION MEASURES AND RESIDUAL IMPACTS

Design features, ROW grant stipulations, and mitigation measures require that all disturbed areas are revegetated to reduce impacts to visual resources, amongst other mitigation purposes. However, revegetation would not fully reduce the long-term minor adverse impact to visual resources created by the new bridge and bridge approaches. Therefore, the Proposed Action would have long-term adverse minor residual impacts to the visual character of the surrounding area.

4 SUPPORTING INFORMATION

4.1 Tribes, Individuals, Organizations, or Agencies Consulted

CEQ regulations implementing NEPA require that federal agencies provide meaningful opportunities for the public and stakeholders to provide input and identify their concerns with regard to the NEPA process. Federal laws, such as the ESA, CWA, and the NHPA, mandate public involvement and consultation with agencies or federally recognized tribal governments. Table 4-1 identifies the persons and agencies were contacted or consulted during preparation of this EA.

Table 4-1. Summary of Consultation and Coordination

Federal
<i>U.S. Fish and Wildlife Service: Ongoing</i>
State
<i>Arizona Game and Fish Department: Ongoing</i>
<i>State Historic Preservation Office: Consultation for additional 3.6 acres survey and cultural resource report sent on December 2, 2015; SHPO concurrence of No Historic Properties Affected received on December 9, 2015</i>
Tribal
<i>Gila River Indian Community: Consultation for additional 3.6 acres survey and cultural resource report sent on November 10, 2015; THPO concurrence of No Historic Properties Affected received on December 21, 2015</i>
<i>Hopi Tribe: Consultation for additional 3.6 acres survey and report sent on December 2, 2015; THPO concurrence of No Historic Properties Affected received on December 7, 2015</i>

4.2 List of Preparers

The Draft EA was written by a team composed of BLM and third-party contractor personnel. Under direction of the BLM, the consulting team prepared the description of the Proposed Action, collected data for the analysis, assessed potential effects of the Proposed Action, No Action Alternative, and Alternative 1, and prepared other chapters with additional comments and critiques from the BLM and Pinal County. The BLM has approved the content of this Draft EA. Table 4-2 identifies the agencies and individuals involved with the preparation and review of this Draft EA.

Table 4-2. List of Preparers

Entity		Responsibility	Title
Bureau of Land Management			
Warren	Melissa	Authorized Officer	Field Office Manager
Dunlavey	Linda	Project Management, Lands and Realty	Project Manager
Radke	Marcia	Wildlife	Wildlife Biologist
Simms	Jeffrey	Fish	Fishery Biologist
Mendoza	Francisco	Recreation, Travel Management, Visual Resources	Outdoor Recreation Manager
Lomeli	Ben	Soils, Water, and Air Resources	Hydrologist
Markstein	Amy	NEPA Adequacy	NEPA Coordinator

Table 4-2. List of Preparers (Continued)

Entity		Responsibility	Title
Arizona Department of Transportation			
Konomi	Marinela	Environmental Planner	Environmental Planner
White	Justin	Biologist	Biologist
Davidson	Jeff	Engineer	Project Manager
Pinal County Public Works Department			
Ortiz	Joe	Pinal County Project Manager	Engineer
SWCA Environmental Consultants			
Bellavia	Cara	Office Director	Senior NEPA Planner
Gladding	Eleanor	Project Management	Project Manager
Rigg	Jonathan	EA Author	NEPA Planner
Tremblay	Adrienne	Cultural and Heritage Resources, Tribal Concerns	Senior Archaeologist
Addy	Jenny	Biological Resources	Environmental Planner
Bell	Shari	Document Formatting	Formatter
Orcutt-Gachiri	Heidi	Technical Editing	Technical Editor
Query	Chris	Maps and Figures	GIS/CADD Specialist

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APPENDIX A.
DESERT TORTOISE HANDLING GUIDELINES

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES
ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department
Revised September 22, 2014

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

The Sonoran desert tortoise occurs south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position parallel to the ground at all times, and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 40° Celsius (105° Fahrenheit) unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to one-half mile, but no further than necessary from its original location. If a release site or alternate burrow is unavailable within this distance, and ambient air temperature exceeds 40° Celsius (105° Fahrenheit), contact the Department for guidance. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, may be placed in the Department's tortoise adoption program. *Managers of projects likely to affect desert tortoises should obtain a [scientific collecting license](#) from the Department to facilitate handling or temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- Use the Department's [Environmental On-Line Review Tool Department](#) during the planning stages of any project that may affect desert tortoise habitat.
- Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.
- Take is prohibited by state law.
- These guidelines do not apply to Mojave desert tortoises (north and west of the Colorado River). Mojave desert tortoises are listed as threatened under the Endangered Species Act, administered by the U.S. Fish and Wildlife Service.
- These guidelines are subject to revision at the discretion of the Department.

APPENDIX B.
2006 PINAL COUNTY MAINTENANCE LETTER
FOR ORIGINAL KELVIN BRIDGE

**Pinal County
Development Services
Department of Public Works**



P.O. Box 727
31 North Pinal Street, Bldg F
Florence, Arizona 85232

ENGINEERING TRANSPORTATION FLOOD CONTROL RECYCLING-SOLID WASTE EMERGENCY MANAGEMENT

January 12, 2006

Kae Neustadt, ADOT – Historic Preservation Team Leader
1221 S. 2nd Ave.
Tucson, AZ 85713

RE: Pinal County commitment to maintenance of the existing Kelvin Bridge

Dear Ms. Neustadt:

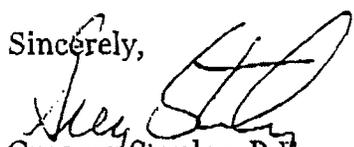
It has come to our attention there maybe a concern on the maintenance of the existing Kelvin Bridge. It is understood the concern arises from the proposed new bridge to be built in the nearby vicinity of the old existing bridge, which would therefore have the possibility to neglect the maintenance of the old bridge.

This letter should be considered as notification, that after the completion of the proposed new bridge, Pinal County intends to continue maintenance of the existing old bridge. Pinal County has no intentions of abandoning the old existing bridge. Pinal County currently and will continue to have the old existing bridge be part of the National Bridge Inspection Program. The program is administered by the Arizona Department of Transportation – Intermodal Transportation Division which does inspection reports every two years on numerous structures in Pinal County. These inspections help Pinal County monitor the physical conditions of our structures.

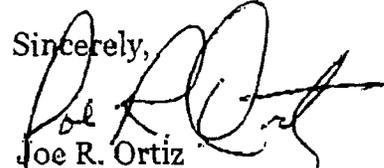
Another concept that is to be considered is the proximity of the old existing bridge to the Arizona Trail. Pinal County anticipates the old existing bridge becoming a part of the Arizona Trail as a pedestrian bridge.

If you have any questions regarding this letter, please do not hesitate to contact this office.

Sincerely,


Gregory Stanley, P.E.
County Engineer/Director

Sincerely,


Joe R. Ortiz
District 1 Project Engineer/Manager

Cc: Adrian Rodriguez, ADOT – Environmental Planner

F:\ENG\DESIGN SECTION\District 1\Projects\Kelvin Bridge Replacement\2507 BR-TPN-0(169)\Correspondence\Maintenances Existing Kelvin Bridge.doc

Telephone 520 866-6411

TDD 520-866-6523

FAX 520 866-6511

APPENDIX C.
USFWS FINAL BIOLOGICAL OPINION JUNE 28, 2016



United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Office

9828 N. 31st Avenue Ste C3
Phoenix, AZ 85051

Telephone: (602) 242-0210 Fax: (602) 242-2513



June 28, 2016

AESO/SE

02EAAZ00-2016-F-0222

Memorandum

To: Tucson Field Manager, U.S. Bureau of Land Management, Tucson, Arizona

From: Field Supervisor

Re. Kelvin Bridge Replacement Project
FHWA File # BR-PPN-0(169)T
ADOT File # 0000-PN-PPN-SB-410-01C
DOI-BLM-AZ-G020-2016-0002-EA

Thank you for your correspondence and request for consultation and conference with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated January 4, 2016 and was received by us via certified mail on January 7, 2016. The final biological evaluation (BE) for the proposed action, dated December 2015, was also received on January 7, 2016. At issue are the possible effects to threatened and endangered species of a bridge replacement project on the Gila River and Florence-Kelvin Highway just south of the town of Kelvin, Pinal County, Arizona.

Your letter concluded that the proposed action "may affect, and is likely to adversely affect" the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) (flycatcher) and its designated critical habitat, and the threatened Distinct Population Segment (DPS) of the western yellow billed cuckoo (*Coccyzus americanus*) (cuckoo) and its proposed critical habitat. You also concluded that the project "may affect, but is not likely to adversely affect" the endangered ocelot (*Leopardus pardalis*), endangered spikedace (*Meda fulgida*), and endangered loach minnow (*Tiaroga cobitis*). You also asked that we provide conservation recommendations for the former candidate species, Sonoran desert tortoise (*Gopherus morafkai*).

Below, we provide our biological opinion (BO) for the flycatcher, cuckoo, and flycatcher designated critical habitat. We also provide our conference opinion (CO) on proposed critical habitat for the cuckoo, which can be converted to a BO if proposed critical habitat for the cuckoo is designated in the future. We concur with your determinations on the ocelot, spikedace, and loach minnow and provide our rationales in Appendix A.

On October 6, 2015, we removed the Sonoran desert tortoise from the candidate list (80 FR 60321), and as a result, there is no requirement to consult with FWS on this species at this time. Note that the Arizona Department of Transportation (ADOT) is a signatory to a Candidate

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Conservation Agreement (CCA) for the tortoise, issued in May 2015. Pursuant to that agreement, ADOT has agreed to a number of conservation actions on behalf of the tortoise, as outlined on page 49 of the CCA. The CCA is available on our website (http://www.fws.gov/southwest/es/arizona/Conservation_Agreements.htm).

This biological and conference opinion is based on information provided in the December 2015 BE, email correspondence, telephone conversations, and other sources of information found in the administrative record supporting this biological and conference opinion. Literature cited in this BO/CO is not a complete bibliography of all literature available on the species of concern, the effects of bridge building on those species, or on other topics considered in this opinion. A complete administrative record of this consultation is on file at this office (file number 02EAAZ00-2016-F-0222).

Consultation History

The Kelvin Bridge Replacement Project was the subject of a formal and informal consultation with the Federal Highway Administration (FHWA) in 2006. FHWA, the lead Federal agency on the project at that time, initiated consultation because of possible effects of the project on the endangered southwestern willow flycatcher and its designated critical habitat, the threatened bald eagle (*Haliaeetus leucocephalus*), and endangered cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*) (consultation # 02EAAZ00-2006-F-0429). On June 27, 2006, we issued a final biological opinion on the project stating that neither incidental take of flycatchers or adverse modification of flycatcher critical habitat were likely to occur as a result of the proposed action, due primarily to the lack of suitable flycatcher breeding habitat in the project area at the time, the small amount of vegetation removal that would occur, and the fact that construction activities were to take place outside the flycatcher breeding period. We also issued a concurrence letter for the bald eagle. We took no action on the pygmy owl because it had been removed from the endangered species list before we received FHWA's consultation request.

The Florence-Kelvin Highway (highway) and the existing Kelvin Bridge (bridge) is managed by Pinal County but is located on a right-of-way (ROW) easement granted by the U.S. Bureau of Land Management (BLM). A similar easement will be required for the new bridge location. On January 27, 2012, BLM informed us that it was negotiating with Pinal County to establish an easement for the new bridge, and on March 29, 2012 BLM informed us that it had assumed discretion as the lead Federal agency for the proposed action. The March 2012 memo asked if re-initiation of the 2006 consultation would be necessary, given that estimates of impacts to flycatcher critical habitat (i.e., amount of vegetation removal) had changed since 2006. On April 23, 2012, we responded that the proposed changes were within the scope of the effects analysis and conclusions found in our June 2006 BO, and that re-initiation would not be required.

After 2012, changes to the bridge design and bridge replacement proposal occurred, and BLM re-analyzed the project's potential effects on threatened and endangered species. As a result, BLM updated the BE for the project and initiated formal and informal consultation. The consultation history for the current request follows:

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- November 18, 2015 We received a draft BE for the project, dated September 29, 2015, with a request for our review and comments. The cuckoo, ocelot, spikedace, and loach minnow had been added to the BE's list of affected species, and construction plans had changed to include work on the bridge during the flycatcher and cuckoo breeding periods. Design changes to the proposed bridge included modification of the bridge pier system from three dual column piers to seven single column piers, relocation of bridge piers to avoid impacts to Waters of the U.S., and reduction of the bridge height by two feet.
- December 1, 2015 We received a revised mitigation section for the draft BE.
- December 3, 2015 We sent you our comments on the draft BE and revised mitigation measures.
- January 7, 2015 We received the final BE for the project and your request for consultation.
- May 17, 2016 We sent you our draft biological and conference opinion.
- June 28, 2016 We sent you our final biological and conference opinion.

BIOLOGICAL AND CONFERENCE OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed bridge would be constructed by ADOT with funds provided by the FHWA and Pinal County. The following summary of the proposed action is taken from the final BE. Maps, photographs, and diagrams of the action area are included in the BE and are incorporated herein by reference.

General Project Description

The highway and existing bridge serve traffic traveling between the Town of Florence and Communities of Kelvin, Kearny, and Riverside. The bridge replacement would shift traffic from the existing two-lane bridge to a new bridge with two lanes located 50 feet (ft) east (upstream) of the existing bridge. After the new bridge is built, the existing bridge would remain accessible to the public for non-motorized use as part of the Arizona National Scenic Trail.

The new bridge is designed to span the Gila River with seven single-column piers arranged so that none of them would be placed in the river channel. Heavy equipment would not be used in the flowing channel or adjacent wetlands, nor would the river itself be altered in any way. The "project limits," defined in the BE as the construction footprint (area of disturbance), would include 2.1 acres (ac) that would be permanently impacted by the new bridge piers, riprap, and new roadways. Temporary surface disturbances and vegetation removal would occur within 5.0 ac as a result of geotechnical testing, construction of temporary roads and workspace, and

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construction of a temporary bridge. Thus, the construction footprint would include a total of 7.1 ac of permanent and temporary disturbance. The project would take between 18-21 months to complete and would begin between October and December 2016. Construction activities are expected to occur at various levels of capacity throughout each day, up to 24 hours a day and 7 days a week. Construction of the new bridge would occur in four steps, as follows:

1. Geotechnical Borings and Site Preparations

Geotechnical borings would be needed to determine how deep the bridge pier supports need to be constructed. Six borings were done at six locations in 2004. Three new borings would be required to complete the project. The new borings would require one truck-mounted drill rig and one work haul truck. Vegetation would be cleared in a path that would allow the drill rig to back down to each boring location and to exit along the same path.

Site preparations would involve clearing of vegetation at the new bridge site to provide access, work space, and pier and rip rap locations. Vegetation would also be removed south of the existing bridge, at the southern end of the project area, where new roadway would connect the existing highway to the new bridge. Removal of native riparian woodland vegetation, such as cottonwood, willow, and seep willow, would be avoided where possible, and natural regeneration of native plants would be encouraged by cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

A staging area for construction equipment and materials would be required during the course of construction. The proposed staging area is to be located north of the Gila River along the west side of the existing highway in a previously-disturbed area. The construction staging area would be approximately 50 ft by 50 ft and would be fenced using self-supporting, chain-link temporary construction fencing.

2. Bridge Construction

Construction of the bridge would require drilling for seven pier foundations, each of which would be supported below grade by 8-ft diameter concrete shafts. Above grade, piers would be framed and poured and then precast concrete girders to support the bridge deck would be lifted into place with a crane. The bridge's concrete deck, abutments, and ramps would then be formed and poured. Completion of the bridge would require frequent delivery of concrete and other materials to the project site and to both sides of the Gila River. However, the load limit of the existing bridge (15 tons) is insufficient for transporting heavy equipment and material from one side of the river to the other.

Under the assumed construction scenario described in the BE, the bridge would be built on one side of the river and continue on that side until the bridge reached the halfway point of its span. Construction would then start on the other side of the river. Work on the second part of the span would rely on a temporary bridge to transport heavy equipment and materials across the river.

The temporary bridge would span 80 ft and would be designed to avoid impacts to the Gila River's flowing channel, banks, and wetland areas. The temporary bridge design is not final, but the bridge would be anchored on prefabricated concrete footings or driven piles. In the event of

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a flood, water would likely overtop the temporary bridge; however, the temporary bridge would be designed to withstand floodwaters, and after floodwaters had subsided, the bridge's short approach ramps would be rebuilt as needed. During construction, a containment system would be installed on the temporary bridge and the new bridge to keep construction materials from falling into the Gila River.

3. Detour and Access Road Construction and Highway Realignment

During construction of the new bridge, the old bridge would remain open to traffic; thus, detours would not be needed until after the new bridge is built (i.e., when the highway is realigned to the new bridge). During construction of the new roadway, detour roads would be necessary to control local traffic. Vegetation removal would take place within the detour road alignments prior to blading and grading, but paving the detour roads would not be necessary. However, paving of the realigned highway and a new local resident access road would be necessary. Grading of the new paved roadways would involve some soil removal. This excess soil would be stockpiled for use in post-construction re-vegetation efforts. Total length of the realignment would be approximately 1,500 ft. Vegetation removal for the roadway realignment, access road construction, and detour roads would occur outside the riparian zone.

4. Detour Road Removal and Re-vegetation

After bridge and road construction are complete, temporary detour and access roads would be removed and all temporary impact areas (e.g., roads, work areas) where vegetation removal occurred would be reseeded and replanted with species that are indigenous to the area. To guide restoration efforts, a site restoration plan would be prepared *before* vegetation clearing and other surface disturbances occur. The plan would include a pre-construction inventory of native plants in all areas that would be temporarily disturbed. The inventory would provide a "snapshot" of vegetation in these areas before construction, and ultimately would allow a close match between the original site condition and the restored condition, with an emphasis on establishing native riparian species, e.g., cottonwoods and willows.

During restoration, trees would be planted at various heights to simulate the original condition. Trees would be planted as potted plants or pole plantings and would receive irrigation for the first two years after planting.

The contractor would also be required to control noxious weeds that may occur within the project limits, and would follow Environmental Protection Agency and BLM requirements and policies on weed control methods. The contractor would submit A Pesticide Use Proposal to BLM for approval prior to using herbicides to control noxious and invasive plants. FWS guidelines for herbicide use, contained in *Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service* (White 2007), should be incorporated into that proposal.

After the restoration plan has been implemented, a qualified biologist would monitor restored areas at least twice a year, once in April and once in September, for two years. Annual reports

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with supporting maps would be provided to BLM and would include information on planting success by species, species composition, and density of noxious weeds.

Conservation Measures

Conservation measures not already discussed, or not discussed in other sections below, include general measures, such as best management practices (BMPs) to avoid negative effects to soil and water quality in the Gila River, and measures specific to this project that would clearly define and limit work areas and minimize removal of native and riparian vegetation, all of which would help to reduce the project's negative effects on the flycatcher and its designated critical habitat, and the cuckoo and its proposed critical habitat.

General Measures

- A Storm Water Pollution Prevention Plan and Spill Prevention and Pollution Prevention Plan would be prepared prior to construction to assure that the proposed action would not adversely impact soils or water quality.
- Waste Management and Containment Plans would be developed to address the safe handling, storage, transportation, and disposal of construction waste, trash, litter, garbage, and hazardous materials (e.g., fuels, lubricants).
- Erosion control BMPs, e.g., use of hay bales, silt fences, and other methods of erosion control would prevent soils exposed during construction from becoming sediment carried off the site and into the river.

Specific Measures

- At least 45 days prior to construction, a qualified senior biologist (biological monitor) would be hired under contract to ADOT to monitor construction activities at the Kelvin Bridge crossing and to report on the project's environmental effects, environmental compliance (i.e., with the general and specific mitigation measures summarized in this section and throughout the BO/CO), and to the extent possible the effectiveness of mitigation.
- Monitoring frequency would depend on the type and timing of activities. Vegetation clearing, temporary bridge construction, and pier construction could require daily visits. At a minimum, the biological monitor would conduct weekly visits, beginning with pre-construction activities, and ending with completion of the bridge. Monitoring for the post-construction restoration effort would occur twice each year for two years.
- Before construction, the biological monitor would present an environmental awareness program to all workers who would be involved with the project on the ground, focusing on flycatcher and cuckoo biology, critical habitats of both species, and construction avoidance areas within the project limits (see below).
- Before construction, the biological monitor, ADOT, and BLM would identify and mark the perimeters of work areas, identify and mark individual trees that would be pruned or removed from work areas, and identify and flag native trees, shrubs, and cacti that would not be removed from work areas.

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- Before construction, the biological monitor, ADOT, and BLM would identify and mark the following areas to be avoided during vegetation clearing and construction activities:
 - Wetland areas.
 - The ordinary high water mark (OHWM) of the Gila River.
 - Active bird nests.
 - Critical habitats.
- Wetland areas and the OHWM would be fenced with orange construction fencing to reduce construction impacts to the Gila River.
- To prevent impacts to protected migratory birds, any active bird nest found within 100 ft of the construction area would be reported to the biological monitor who would then establish and mark an avoidance area, e.g., with plastic fence or T-posts.
- In work areas, vegetation clearing would be limited to an area extending 20 ft beyond and parallel to the edges of the new bridge. The work areas would be fenced with five-ft-high orange construction fencing. Proposed vegetation clearing inside work areas would involve removal of designated critical habitat for the flycatcher and proposed critical habitat for the cuckoo. The work area limit and fencing would prevent further encroachment into designated and proposed critical habitats.

Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo

- Vegetation clearing activities would be restricted to the period October 1-March 31 of any given year. No vegetation clearing activities would occur from April 1-September 30.
- Vegetation clearing within southwestern willow flycatcher and yellow-billed cuckoo critical habitat required for construction access would be limited to no more than 20 ft beyond the edge of the new bridge.
- If any species listed as threatened or endangered under the Act is encountered during construction activities, all work would cease and FWS would be contacted for guidance.

Action Area

FWS defines the action area as all areas to be affected directly or indirectly by the proposed action, and not merely the immediate area involved in the action (50 CFR § 402.02). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment, focusing on, but not exclusive to, the Florence-Kelvin Highway crossing of the Gila River, as described above.

STATUS OF THE SPECIES AND CRITICAL HABITATS

Southwestern Willow Flycatcher

The flycatcher was listed as endangered without critical habitat on February 27, 1995 (60 FR 10694). Critical habitat was designated on July 22, 1995 (62 CFR 39129) and revised on January 2, 2013 (78 CFR 344). The original critical habitat designation included 1,556 stream

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mi in the desert Southwest. The revised rule reduced designated critical habitat to approximately 1227 stream mi. A recovery plan for the species was completed in 2002 (U.S. Fish and Wildlife Service [USFWS] 2002), and a 5-year review was done in 2014 (USFWS 2014). The 5-year review determined that no change was needed to the species' classification as endangered.

The flycatcher is one of four currently recognized subspecies of the willow flycatcher, a neotropical migrant and spring/summer resident of North America (Unitt 1987, Browning 1993). This subspecies breeds in the southwestern U.S. and winters in Mexico, Central America, and possibly northern South America (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). In Arizona, the subspecies increased from 145 to 459 breeding territories from 1996 to 2007 (English et al. 2006, Durst et al. 2008). Currently, population stability of the subspecies in Arizona depends on two large populations at Roosevelt Lake and the confluence of the San Pedro and Gila Rivers. However, catastrophic events and losses of birds within these populations could alter the status of the subspecies quickly and significantly. Conversely, expansion into new habitats or discovery of other populations would improve the bird's known status.

The flycatcher is a riparian obligate species breeding in mesic areas with standing water or saturated soils. Flycatchers are typically found along rivers, lakesides, and other wetlands with dense riparian habitat consisting of multi-layered tree canopies of varying sizes and age classes. Occupied flycatcher territories are usually located near or over surface water or saturated soils in habitat patches at least 33 ft in diameter. In the Southwest, flycatchers arrive on territories in late April or early May, and nest building begins in mid-May. Flycatchers are insectivores, foraging in dense shrub and tree vegetation along rivers, streams, and other wetlands.

Flycatcher territories occur within two distinct habitat types in Arizona: 1) mixed riparian/tamarisk (*Tamarix* spp.) habitats below 4,000 ft in elevation; and 2) willow (*Salix* spp.) thickets in broad, flat drainages above 7,000 ft. Historical egg/nest collections and species descriptions throughout its range describe the flycatcher's widespread use of willow for nesting (Phillips 1948, Phillips et al. 1964, Hubbard 1987, Unitt 1987). The subspecies also nests in boxelder (*Acer negundo*), tamarisk (also called saltcedar), Russian olive (*Elaeagnus angustifolia*), and live oak (*Quercus agrifolia*).

Tamarisk is an important component of this flycatcher's nesting and foraging habitats. In 2001, 323 of the 404 known flycatcher nests in Arizona (80 percent) were in tamarisk (Smith et al. 2002). Tamarisk had been thought to represent poorer flycatcher habitat; however, comparison of reproductive performance, prey populations, and physiological condition of flycatchers breeding in native and exotic vegetation showed no differences (Durst 2004, Owen and Sogge 2002, Sogge et al. 2005, Sogge et al. 2008, USFWS 2002).

Flycatcher habitat is dynamic and can change rapidly (Finch and Stoleson 2000). Tamarisk can develop from seed to suitability in 4-5 years. Heavy flooding can eliminate or reduce the quality of habitat in a day. Flycatcher use of habitat in different successional stages may also be dynamic. Over-mature or developing riparian vegetation not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial flycatchers (McLeod et al. 2005, Cardinal and Paxton 2005).

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The flycatcher is endangered primarily because land and water management actions associated with agriculture and urban development have reduced, degraded, and eliminated much of its riparian habitats. Other threats include human recreation along rivers and streams, livestock grazing, predation, brood parasitism by brown-headed cowbirds (*Molothrus ater*), invasion of the tamarisk-eating leaf beetle (*Diorhabda carinulata*), and wildfires that have become more frequent and destructive as a result of the proliferation of exotic vegetation and degraded watersheds. Nestling predation and brood parasitism are the most common forms of direct mortality. All existing threats are compounded by the risk of stochastic events because the subspecies' habitats are fragmented and because populations occur at low numbers.

Because tamarisk is prevalent throughout the flycatcher's range and is used heavily by the subspecies (Durst et al. 2008), the introduced tamarisk-eating leaf beetle is a particularly serious threat. In 2009, 13 of 15 flycatcher nests on the Virgin River in Utah failed following defoliation of tamarisk by this beetle (Paxton et al. 2010). As of 2012, the insect had been found in southern Nevada and Utah and northern Arizona and New Mexico. Tamarisk often flourishes in areas where native trees are unable to grow due to water diversions, flow regulation, and groundwater pumping. Loss of tamarisk, without replacement by native trees will likely impact flycatchers wherever their range overlaps with the tamarisk leaf-eating beetle.

In pre-settlement times, fire was not a primary disturbance factor in southwestern riparian areas (USFWS 2002). Recently, however, fire size and frequency have increased because of an increase in dry, fine fuels in riverbeds and riparian systems. Drying of river beds due to human land-use practices, increases in human-caused ignitions, and the presence of tamarisk, a highly flammable plant, are largely responsible for these fuels. In June 1996, a fire destroyed approximately one-half mile of occupied tamarisk flycatcher nesting habitat on the San Pedro River in Pinal County, Arizona resulting in the loss of up to eight nesting pairs (Paxton et al. 1996).

Designated Critical Habitat

In 2013, FWS designated 208,973 ac of critical habitat for the southwestern willow flycatcher along 1,227 mi of rivers and streams in 24 management units in California, Arizona, New Mexico, Colorado, Utah, and Nevada (78 CFR 344). FWS proposed the following primary constituent elements (PCEs) for flycatcher critical habitat based on riparian plant species, structure and quality of habitat, and insects for prey:

1. Primary Constituent Element 1— *Riparian vegetation*. Riparian habitat along a dynamic river or lakeside, in a natural or manmade successional environment (for nesting, foraging, migration, dispersal, and shelter) that is comprised of trees and shrubs (that can include Gooddings willow, coyote willow, Geyer's willow, arroyo willow, red willow, yewleaf willow, pacific willow, boxelder, tamarisk, Russian olive, buttonbush, cottonwood, stinging nettle, alder, velvet ash, poison hemlock, blackberry, seep willow, oak, rose, sycamore, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut) and some combination of:
 - (a) Dense riparian vegetation with thickets of trees and shrubs that can range in height

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from about 2 to 30 m (about 6 to 98 ft). Lower-stature thickets (2 to 4 m or 6 to 13 ft tall) are found at higher elevation riparian forests and tall-stature thickets are found at middle and lower-elevation riparian forests;

- (b) Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 ft) above ground or dense foliage only at the shrub or tree level as a low, dense canopy;
- (c) Sites for nesting that contain a dense (about 50 percent to 100 percent) tree or shrub (or both) canopy (the amount of cover provided by tree and shrub branches measured from the ground);
- (d) Dense patches of riparian forests that are interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat that is not uniformly dense. Patch size may be as small as 0.1 ha (0.25 ac) or as large as 70 ha (175 ac).

2. Primary Constituent Element 2—*Insect prey populations*. A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, which can include: flying ants, wasps, and bees (*Hymenoptera*); dragonflies (*Odonata*); flies (*Diptera*); true bugs (*Hemiptera*); beetles (*Coleoptera*); butterflies, moths, and caterpillars (*Lepidoptera*); and spittlebugs (*Homoptera*).

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo was listed as threatened under the Act on October 3, 2014 (79 FR 59992). Critical habitat for the cuckoo was proposed on August 15, 2014 (79 FR 48548).

The yellow-billed cuckoo is a Neotropical migrant that winters in South America and breeds in North America. Cuckoos throughout the western continental United States and Mexico are generally larger than their eastern counterparts, with significantly longer wings, longer tails, and longer and deeper bills (Franzreb and Laymon 1993). Birds with these characteristics occupy the Western Distinct Population Segment (DPS) and we refer to them as the “western yellow-billed cuckoo.” Only the Western DPS was listed as threatened in 2014. Cuckoos in the west arrive on their breeding grounds 4 to 8 weeks later than eastern yellow-billed cuckoos at similar latitudes (Franzreb and Laymon 1993, Hughes 1999).

Cuckoos in the DPS were formerly widespread and locally common in California and Arizona, more narrowly distributed but locally common in New Mexico, Oregon, and Washington and uncommon along the western front of the Rocky Mountains north to British Columbia (American Ornithologists’ Union 1998, Hughes 1999). The species may be extirpated from British Columbia, Washington, and Oregon (Hughes 1999). The cuckoo is now very rare in scattered drainages in western Colorado, Idaho, Nevada, and Utah, with single, nonbreeding birds most likely to occur (79 FR 48548, 79 FR 59992). The largest remaining breeding areas are in southern and central California, Arizona, along the Rio Grande in New Mexico, and in northwestern Mexico (79 FR 59992).

In Arizona, the species was a common resident in the (chiefly lower) Sonoran zones of southern, central, and western Arizona; scarce in the north-central part of the state; and very rare in the

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northeast (Phillips et al. 1964). In Arizona, the cuckoo now nests primarily in the central and southern parts of the state.

Western populations of the cuckoo are most commonly found in dense woodlands, consisting primarily of cottonwood (*P. fremontii*), willow (*Salix* spp.), and mesquite (*Prosopis* spp.) along riparian corridors in otherwise arid areas (Laymon and Halterman 1989, Hughes 1999). Occupied riparian habitat in Arizona may also contain box elder (*Acer negundo*), Arizona alder (*Alnus oblongifolia*), Arizona walnut, Arizona sycamore (*Platanus wrightii*), oak (*Quercus* spp.), netleaf hackberry (*Celtis reticulata*), velvet ash (*Fraxinus velutina*), Mexican elderberry (*Sambucus mexicanus*), tamarisk (*Tamarix* spp.; also called saltcedar), acacia (*Acacia* spp.), and seepwillow (Corman and Magill 2000, Corman and Wise-Gervais 2005). Tamarisk may be a component of breeding habitat, but there is usually a native riparian tree component within occupied habitats (Gaines and Laymon 1984, Johnson et al. 2008, McNeil et al. 2013, Carstensen et al. 2015). Although cuckoos are most commonly found in riparian gallery forests in Arizona, they may also use narrow bands of riparian woodland (Arizona Game and Fish Department [AGFD] 2015), Cornell Lab of Ornithology 2015). Adjacent habitat on terraces or in upland areas (such as mesquite) can enhance the value of these narrow bands of riparian woodland.

Throughout the West, the majority of nests are placed in willow trees, but cottonwood, mesquite, walnut, box elder, sycamore, hackberry, oak, alder, soapberry (*Sapindus saponaria*), acacia, and tamarisk are also used (Laymon 1980, Hughes 1999, Corman and Magill 2000, Corman and Wise-Gervais 2005, Holmes et al. 2008, Tucson Audubon 2015a, Tucson Audubon 2015b).

Within the boundaries of the DPS, cuckoos occur from sea level to elevations up to 7,000 ft or more; however, the moist conditions that support riparian plant communities typically occur at lower elevations. In southeastern Arizona, however, cuckoos are also found nesting along more arid ephemeral and intermittent drainages with sycamore, mesquite, walnut, hackberry, alder, or mixed oak assemblages (Corman and Magill 2000, Corman and Wise-Gervais 2005, AGFD 2015, Cornell Lab of Ornithology 2015).

Habitat for the cuckoo in much of its range is associated with perennial rivers and streams that support the expanse of vegetation characteristics needed for breeding. The range and variation of stream flow frequency, magnitude, duration, and timing that will establish and maintain riparian habitat can occur in different types of regulated and unregulated flows depending on the interaction of the water and the physical characteristics of the landscape (Poff et al. 1997, USFWS 2002). Hydrologic conditions at western yellow-billed cuckoo breeding sites can vary widely between years, and especially among years of low rainfall. Water or saturated soil may not always be present in occupied cuckoo habitats. Cuckoos may move from one area to another within and between years in response to hydrological conditions. They may also nest at more than one location in a year. Some individuals roam widely (several hundred miles), apparently assessing food resources before selecting a nest site (Sechrist et al. 2012).

Humid conditions created by surface and subsurface moisture and a multi-layered canopy appear to be important habitat parameters for cuckoos. The species appears to be restricted during nesting to drainages where humidity is adequate for successful hatching and rearing of young (Hamilton and Hamilton 1965, Gaines and Laymon 1984).

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The association of breeding with large tracts of suitable riparian habitat is likely related to home range size. Individual home ranges during the breeding period average over 40 ha, and home ranges up to 202 ha have been recorded (Laymon and Halterman 1987, Halterman 2009, Sechrist et al. 2009, McNeil et al. 2011, McNeil et al. 2012). Within riparian habitat, cuckoos require relatively large patches of multilayered habitat for nesting (>20 hectares), with optimal size generally greater than 80 ha (Laymon and Halterman 1989).

In addition to dense, multi-layered woodlands, cuckoos need adequate foraging areas near the nest. Foraging areas can be less dense or patchy with lower levels of canopy cover and may include a mix of shrubs, ground cover, and scattered trees (Carstensen et al. 2015, Sechrist et al. 2009, USFWS, unpubl. data). Cuckoos often forage in open areas, woodlands, orchards and adjacent streams (Hughes 1999), which include stands of smaller mesquite trees and even tamarisk. In Arizona, adjacent habitat is usually more arid than occupied nesting habitat. Habitat types include Sonoran desertscrub, Mojave desertscrub, Chihuahuan desertscrub, chaparral, semidesert grassland, plains grassland, and Great Basin grasslands (Brown 1994, Brown et al. 2007, Brown and Lowe 1982).

Habitat needs during migration are not well understood, although they appear to include a relatively wide variety of conditions. Migrating cuckoos have been found in coastal scrub, second-growth forests and woodlands, hedgerows, forest edges, and in smaller riparian patches than those used for breeding.

The primary threat to the western yellow-billed cuckoo is loss or fragmentation of high-quality riparian habitat suitable for nesting (Corman and Wise-Gervais 2005, 79 FR 48548, 79 FR 59992). Factors leading to habitat loss and degradation include alteration of flows in rivers and streams, encroachment into suitable habitats due to agricultural and other developments, stream channelization and stabilization, diversion of surface and ground water for agricultural and municipal purposes, livestock grazing, wildfire, establishment of nonnative vegetation, drought, and prey scarcity due to pesticides (Ehrlich et al. 1992, 79 FR 59992). Pesticide use is widespread in agricultural areas in the U.S. and northern Mexico.

Ongoing threats to small isolated populations cause remaining populations to be increasingly susceptible to further declines and local extirpations through increased predation rates, barriers to dispersal, chance weather events, fluctuating availability of prey populations, collisions with tall vertical structures during migration, defoliation of tamarisk by the introduced tamarisk leaf beetle (*Diorhabda* spp.), increased fire risk, and climate change events (Thompson 1961, McGill 1975, Wilcove et al. 1986). The warmer temperatures already occurring in the southwestern United States may alter the plant species composition of riparian forests over time. An altered climate may also disrupt food availability for the western yellow-billed cuckoo if the timing of peak insect emergence changes in relation to when the cuckoos arrive on their breeding grounds.

In summary, habitat for the western yellow-billed cuckoo has been modified and curtailed, resulting in the availability of only remnants of formerly large tracts of native riparian forests, many of which are no longer occupied by western yellow-billed cuckoos. Despite recent efforts to protect existing habitats, and to restore additional, riparian habitats in the Sacramento, Kern,

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and Colorado Rivers, and other rivers in the range of the western yellow-billed cuckoo, these efforts offset only a small fraction of historical habitat that has been lost. Therefore, we expect the threat resulting from the combined effects associated with small and widely separated habitat patches to continue to affect a large portion of the cuckoo's range.

Proposed Critical Habitat

In 2014, FWS proposed 546,335 ac of riparian woodlands as critical habitat for the western yellow-billed cuckoo in 80 units in California, Arizona, New Mexico, Colorado, Utah, Idaho, Nevada, Wyoming, and Texas on August 15, 2014 (79 FR 48548). FWS proposed the following primary constituent elements (PCEs) for cuckoo critical habitat:

PCE 1: Riparian woodlands. Riparian woodlands with mixed willow and cottonwood vegetation, mesquite-thorn forest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches that are greater than 325 ft (100 meters) in width and 200 ac (81 ha) or more in extent. These habitat patches contain one or more nesting groves, which are generally willow-dominated, have above average canopy closure (greater than 70 percent), and have a cooler, more humid environment than the surrounding riparian and upland habitats.

PCE 2: Adequate prey base. Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and tree frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

PCE 3: Dynamic riverine processes. River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor (e.g. lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the subspecies and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Description of the Action Area

The Gila River begins in western New Mexico and flows westward through southern Arizona to the Colorado River. Within the action area, the Gila River is classified as perennial (U.S. Geological Survey [USGS] 2013). Flows are variable, however, due to regulated releases from

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Coolidge Dam and the San Carlos Reservoir, about 40 mi upstream of the project limits. The Bureau of Indian Affairs operates Coolidge Dam and releases water based on the demands of downstream users. Water releases occur year-round with the highest generally occurring during summer months. However, in some years, the reservoir does not have sufficient volume to maintain continual releases, and as a result the Gila River can have intermittent flows, although the channel within the project limits usually retains saturated soils and isolated pools at a minimum. Natural inflows from the San Pedro River, which joins the Gila River approximately 15 mi upstream of the project area, contributes to the Gila River's hydrograph. The San Pedro River is undammed, but flows depend on a variety of factors including groundwater pumping and water diversions for agricultural use (Arizona Department of Water Resources [ADWR] 2010). Recent studies indicate that San Pedro groundwater is being pumped in excess of recharge (National Riparian Service Team 2012).

Within the project limits, the floodplain of the river extends approximately to twice the width of the river itself, and the river banks slope gently toward the channel from the south, but climb sharply on the north side of the channel. Peak flows for this reach of the river usually occur in August during the summer monsoon season. Lowest flows usually occur in November, prior to the onset of winter precipitation. Average flows have a water depth of approximately one to five feet, as measured at the USGS gauging station directly downstream of the project area (USGS 2013).

The upland portions of the project limits include disturbed and undisturbed areas within the Sonoran desertscrub biotic community (Brown 1994). Disturbed areas are primarily associated with existing roadways, which include the highway, paved county roads, unpaved secondary roads, and roadway shoulders. The Southern Pacific Railroad runs east to west about 300 ft north of the river. The community of Kelvin is one mi north of the existing bridge. Riverside is one mi east of the bridge. Both towns have populations under 250.

Riparian areas within the project limits are classified as Sonoran riparian deciduous forest, Sonoran riparian scrubland, or Sonoran interior marshland (Brown 1994). The riparian zone forms a belt 100-200 ft wide on each side of the river, but narrows somewhat upstream and downstream of the project limits. Within the project limits, vegetation is dominated by dense, mature stands of tamarisk (*Tamarix* spp.), with some Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), and velvet mesquite intermixed. Some tamarisk trees are up to 40 ft in height, and most of the cottonwoods and willows are 20-40 ft tall. Vegetative cover is 80% or more, and tree branches hang over the river and in places extend over the water 5-15 ft. Habitat conditions upstream and downstream of the project limits are similar, but include patches of monotypic tamarisk and patches dominated by willow and cottonwood.

Status of the Species and Critical Habitat in the Action Area

Southwestern Willow Flycatcher

Flycatcher occurrence on the Gila River and at Kelvin Bridge has been well documented since 1995 as a result of increased monitoring efforts that followed the species' listing that year, and protocol surveys done specifically to assess the effects of this proposed action (Kelvin Bridge

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replacement), since it was first proposed in 2006. Protocol surveys on the Gila River also occurred from 1996-2006 in response to the raising of Roosevelt Dam, in Gila County, in 1996, and subsequent inundation of large tracts of flycatcher habitat on Roosevelt Lake in 2005. Our 1996 biological opinion on this project required the dam operator, the U.S. Bureau of Reclamation (BOR), in cooperation with AGFD, to assess flycatcher responses at Roosevelt Lake and to monitor adjacent flycatcher populations on the Gila River and San Pedro River. One objective was to assess relationships between flycatcher abundance and distribution on the Gila River and dam operations at Coolidge Dam. BOR subsequently contracted with SWCA Environmental Consultants (SWCA), Flagstaff, Arizona, to continue flycatcher monitoring on the Gila River after 2006. Results of these and other surveys are detailed in the final BE, in our 2006 biological opinion on the first Kelvin Bridge proposal, and in numerous reports generated by the AGFD/BOR study and subsequent SWCA studies (e.g., Ellis et al. 2008, Graber et al. 2012, and others cited below). We provide a brief summary of these data below.

Protocol surveys involved the use of call play-back methods, repeated site visits, and confirmation of flycatcher identity by the species characteristic song (see Sogge et al. 2010). Flycatcher protocol surveys require a minimum of 5 surveys within three time periods: Late May (1 survey), June (2 surveys), early July (2 surveys). Four established protocol survey sites occur within or partially within 0.5 mi of the project limits at Kelvin Bridge. At least one of these sites was surveyed every year from 1995-2015. Flycatchers were not detected at the Kelvin protocol sites in 1995, 2000-2001, 2003-2004, 2007, 2009-2011. Resident flycatchers, territories, or confirmed pairs were found in 1996-1999, 2006, and 2012-2015. Migrants only, but no resident or territorial birds, were detected in 2002 and 2005. A single flycatcher was detected in 2008; however, its status was not confirmed.

Surveys to assess the effects of the current action were done by BLM in 2012 and by SWCA in 2013. WestLand Resources, Inc. (WestLand), Phoenix, Arizona, conducted surveys in 2014 and 2015 (presumably for purposes related to a proposed tailings storage facility; see the cuckoo section below). The final BE provides the following summary of flycatcher protocol surveys conducted from 2012-2015:

- 2012 Two flycatcher territories were identified immediately upstream of the existing bridge (Marcia Radke, BLM, personal communication to Eleanor Gladding, SWCA Environmental Consultants, 2015).
- 2013 Three occupied nests were confirmed and each had two or three eggs. All three nests were in tamarisk and all three were within 280 ft of the existing bridge. The nearest nest was about 112 ft downstream of the bridge (Westland 2013). One nest produced at least 2 fledglings.
- 2014 Five territories were occupied within and adjacent to the project limits. The upstream territories were about 60, 250, and 400 ft from of the existing bridge. The downstream territories were 100 and 200 ft from the bridge. Breeding status was not confirmed at any of the five territories. Three territories were occupied 2.8 to 3.0 mi upstream of the project limits (Westland 2014).

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2015 Eleven detections occurred, one approximately 300 ft upstream of the bridge, 5 within 100 ft of the bridge, and five 250-500 ft downstream. Detections included 2 confirmed pairs. Breeding status was not confirmed for any of the individuals or pairs.

Thus, flycatchers were detected within 0.5 mi of the existing Kelvin Bridge during 12 of the 21 years that surveys occurred. Territories (2-5 each year) were confirmed from 1996-1999, but flycatchers were absent from the area from 2000-2011, with the exception of one year (2006). From 2012-2015, two to five territories were again detected each year at the bridge, and in 2013 three breeding attempts were confirmed.

Protocol surveys extending through 50-mi of the Gila River during the same time period showed a similar pattern during the same years, but at a larger scale. Kelvin Bridge lies within the flycatcher's Middle Gila-San Pedro Critical Habitat Unit in Cochise, Pima, Pinal, and Gila Counties, Arizona (78 CFR 344). Critical habitat in the 6,703-ac Gila River segment begins at Dripping Springs Wash, approximately 15 mi downstream of Coolidge Dam, and extends 50.1 mi downstream, past the San Pedro/Gila River confluence, to the Ashurst-Hayden Diversion Dam near the Town of Cochran. Flycatcher numbers within this segment fell from 69 territories in 1999 to 14 in 2004, then doubled to 28 territories in 2005, 39 in 2006, and 62 in 2007 (Graber et al. 2008). Territory numbers on the Gila River increased steadily after 2007 to 188 territories in 2011 (Graber et al. 2012).

Factors Affecting Species Environment and Critical Habitat Within the Action Area— Flycatcher

Two primary and related factors influence flycatcher abundance and distribution within and near the project limits and throughout the designated critical habitat unit: 1) water releases from Coolidge Dam; and 2) the effects of stream flows on flycatcher habitat. The timing of releases is also important.

Ellis et al. (2008) and Graber and Koronkiewicz (2009) examined the effects of declining stream flows on flycatchers from Coolidge Dam during the late 1990s and early 2000s, followed by the return of more consistent flows from 2005-2007, using linear regression. Graber et al. 2012 continued monitoring flycatchers and flows after 2007. The study included protocol survey points from Dripping Springs Wash to the Kelvin Bridge, or to the town of Florence, downstream of the Ashurst-Hayden Diversion Dam when flows were high enough to survey from rafts or kayaks. They used mean monthly Gila River streamflow data collected at two USGS gauging stations (#09469500, below Coolidge Dam; #09474000, at Kelvin). Monthly streamflows from the two stations were averaged for use in the analysis. Linear regressions were performed on streamflow over four periods: 1) May of the previous year through April of the current year (annual); 2) July of the previous year through April of the current year (monsoon to breeding); 3) April–August (breeding); and 4) December–April (winter and spring).

All linear regressions showed a positive relationship between Gila River streamflow and the number of flycatcher territories. Streamflow from the beginning of the previous monsoon season through the beginning of the breeding season (July of the previous year through April of the current year) had the strongest relationship with the number of territories ($R^2 = 0.58$, $t = 3.31$, P

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= 0.011). July through April streamflow explained 58% of the variation in flycatcher territories from 1998 to 2007. On average, an increase of 1.3 territories occurred for every additional 100 cubic feet per second (cfs) of water flow.

From 1998 to 1999, mean monthly streamflow from July to April was 327 cfs and territory numbers increased by 30% along the Gila River (Appendix I). A high of 69 flycatcher territories were detected in 1999. From 2000 to 2004, July to April streamflow at the Gila River study area decreased to 160 cfs and became inconsistent due to limited releases from Coolidge Dam (the years 2000-2004 were drought years; McPhee et al. 2004). In 2004, only 14 territories were confirmed. The drought ended in 2005, storage at the San Carlos Reservoir increased, along with downstream water demand, and mean monthly flows increased to 300 cfs, 88 percent higher than the 2000-2004 flows. Territory numbers increased to 39 in 2006 and to 62 in 2007. Graber et al. (2012) reported streamflows above 300 cfs every year from 2008-2011, and during that time flycatcher abundance continued to increase, from 63 to 188 pairs.

Graber et al. (2012) concluded that the presence of water and/or saturated soil immediately adjacent to and/or under river bank vegetation is likely the primary habitat feature that drives flycatcher colonization and breeding. The presence of water at the time flycatchers arrive depends on precipitation and/or water releases prior to their arrival (Ellis et al. 2012). Surface water may positively affect flycatchers in several ways. Stream flows, standing pools, even saturated soils along with a substantially closed canopy help to create microclimates that are cooler and more humid than surrounding areas. Surface water may also influence the abundance of insect prey (Brown and Li 1996). These factors may contribute to adult physiological condition after adults arrive on nesting areas, may improve offspring survival, and may increase the chances of a successful second nesting attempt. Streamflows before flycatchers arrive on their territories (and presumably during the breeding period) may also have positive effects on streamside vegetation. Surface and ground water availability (influenced by rainfall and dam discharge) positively affected woody and herbaceous species richness and cover on the San Pedro River near its confluence with the Gila River (Lite et al. 2005).

The importance of surface water to flycatchers and their streamside vegetation is also evident when we focus on flycatchers and habitat conditions (i.e., critical habitat) at the Kelvin Bridge. Results of protocol surveys there from 1995-2015 show a pattern of occupancy and abundance similar to that of the critical habitat unit as a whole. Flycatchers were found at Kelvin from 1996 to 1999 (2 territories each year, 5 in 1999), in 2006 (1 territory), and from 2012-2015 (at least 2 territories each year, 5 in 2014). Thus, flycatchers were present before the drought, were absent during the drought, and returned after the drought (1 territory was found in 2006). Interestingly, flycatcher numbers at Kelvin did not increase steadily immediately after the drought, as they did in the critical habitat unit as a whole. Territory numbers at Kelvin did not reach pre-drought levels until 2014. The reason for this, we suspect, is that habitat conditions declined during the drought and did not fully recover until well after the drought ended. When we issued our first biological opinion for this project in 2006, vegetation within the project limits was dominated by tamarisk with intermixed cottonwood and willow, as it is today. However, in our 2006 biological opinion we noted that the riparian woodland at and near the Kelvin Bridge had "intermediate" density, presumably meaning that canopy closure was well less than it is now (80%). We also described the riparian habitat as "nominal" migration, stopover, foraging,

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dispersal, and feeding habitat, and referred to the “baseline near-absence of breeding habitat within the project area.” In 2006, we considered it probable that habitat suitable for nesting flycatchers would develop at the site over time, and this is what occurred.

Flycatcher habitat within the project limits and immediately upstream and downstream contain all physical and biological features of PCE 1 (riparian vegetation) that are essential for flycatcher breeding, foraging, dispersal and migration. Within the project limits, riparian vegetation occurs as a broad, continuous belt of dense, young to mature woodland with a multilayered closed canopy and adjacent perennial surface water providing moisture and shade. Vegetation structure is patchy and complex, with variable species compositions, and tamarisk as the dominant species overall. We have no data on insect prey populations (PCE 2), but judging from recent survey results, indicating that flycatcher numbers at Kelvin have reached pre-drought levels, we assume that insect prey are readily available for flycatchers.

Western Yellow-billed Cuckoo

Cuckoo surveys were not done for the purposes of the Kelvin Bridge project; however, surveys were done from 2012-2014 in the vicinity of the bridge as part of the environmental review for another project, a proposed tailings storage facility for the Ray Mine in Pinal County. The surveys were done by Westland Resources, Phoenix, Arizona and followed a draft FWS survey protocol for cuckoos that has since been finalized (see Halterman et al 2015). The protocol was designed to assess presence or absence of cuckoos using call-playback methods, but it also provided guidelines for assessing breeding status, when possible, based on cuckoo behavior and the timing and location of detections. A minimum of four surveys are required during cuckoo protocol surveys, one in mid to late June, two in July, and one in early to mid-August. Below, we briefly summarize Westland’s surveys results by year (see Westland 2012, 2013, 2014 for details), and we discuss evidence that cuckoos breed in or near the action area.

- 2012 Surveys occurred along a single 2.5-mi segment of the Gila River that included the Kelvin Bridge. Detections occurred during all 4 surveys, and included 14 confirmed detections and one unconfirmed detection. These included 13 cuckoos that were heard (i.e., birds that returned calls in response to call playback) and one cuckoo that was seen but did not return calls. Eight of the 13 cuckoos that returned calls were also detected visually. Nine of 14 confirmed detections were within 0.5 mi of the existing Kelvin Bridge, and two of these were visual sightings that occurred no more than 200 ft upstream of the project limits.
- 2013 Surveys were along a single 3.9 mi segment of the river that included the Kelvin Bridge. No cuckoos were heard or seen in June or August, but six detections occurred during the July surveys. All six birds returned calls during call playback efforts, and two were also seen. All detections occurred outside the project limits. The nearest detection was approximately 0.6 mi upstream of the bridge. Other detections occurred downstream one to two miles away.
- 2014 Surveys occurred at eight non-contiguous river segments extending from one mi below the Town of Kearny to a point 0.5 mi below Zelleweger Wash. Collectively, the eight

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segments were about 5.1 mi in length, and Area 3, a 3,000-ft-long segment, included the Kelvin Bridge. Three cuckoo detections (none of them visual) occurred in June. No cuckoos were recorded in July or August. All detections were in segments adjacent to Area 3 and all of them were two or more mi from the bridge.

Cuckoos detected during call playback surveys can be confirmed as breeders only by directly observing copulation, fledglings, or an active nest (Halterman et al. 2015). Breeding can be inferred from other observed behaviors, e.g., courtship display, birds carrying food or nest material, birds traveling in pairs, or birds exchanging vocalizations. If these behaviors are not observed, breeding can be inferred from call playback data. Clusters of call playback detections in July, or detections of birds at the same location during at least two survey periods, suggest that breeders are present in an area. Most birds detected in July are assumed to be breeders because most migrants have left the area by then. The survey protocol is specific about reporting these detections: A *possible breeding pair* is reported if one or more birds are detected at a call-playback point during two of the required four surveys. A *probable breeding pair* is reported if birds are detected during three of the four required surveys. Most of Westland's confirmed cuckoo detections, 17 of 23 (>70%), occurred in July. In 2013, Westland reported a possible breeding pair based on a detection in August that was within about 0.17 mi of a detection in July. These detections occurred more than a mi downstream of the existing bridge.

The Kelvin Bridge is located within the cuckoo's proposed Lower San Pedro and Gila River Critical Habitat Unit in Cochise, Pinal, and Pima Counties, Arizona (79 FR 48548). On the San Pedro River, the unit extends from above the Town of Mammoth downstream to the San Pedro/Gila River confluence. On the Gila River, the unit begins at the confluence and continues downstream nearly to the town of Florence. The unit encompasses 23,399 ac and 59 mi of the river.

The riparian woodlands in and around the project limits that were surveyed for cuckoos contain some but not all of the physical and biological features of PCE 1 (riparian vegetation). Woodlands at the bridge extend continuously upstream and downstream of the bridge for many miles and have the spatial extent, canopy closure (80%), and structural development of cuckoo breeding and foraging habitat, but they are dominated by tamarisk. Cuckoos occasionally nest in tamarisk, but nests are usually in willows within mixed willow/cottonwood stands (Laymon 1980, Hughes 1999, Corman and Magill 2000). Cottonwoods and willows are present in the project area but are intermixed with tamarisk or occur in small patches where they are the dominant species.

Recent FWS guidance on consultations involving cuckoos caution that habitats containing tamarisk should not be overlooked as potential cuckoo breeding habitat (USFWS 2015). In Arizona and New Mexico, cuckoos breed in mixed native/tamarisk habitat, and tamarisk may contribute toward cover, temperature amelioration, increased humidity, and insect production where native habitat has been compromised by altered hydrology. In some areas, if tamarisk is removed, the remaining more exposed, hotter and drier habitat may be rendered unsuitable. For example, on the Rio Grande in New Mexico, a dense understory comprised of tamarisk, Russian olive, or native vegetation (e.g. willow) appears to be an important component for territory establishment (Sechrist et al. 2009). Cuckoos have not been found breeding in monotypic

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tamarisk habitat in Arizona, but in some areas, in particular several reaches of the Gila River, cuckoos have been found breeding in tamarisk-dominated habitat.

FWS guidance on consultations involving cuckoos (USFWS 2015) also points out that cuckoo foraging may extend into the uplands adjacent to currently suitable breeding habitat and may vary in species composition and density. The amount of non-riparian foraging habitat cuckoos use in fact may exceed the amount of riparian habitat they use. Foraging habitat types include mesquite bosques, Madrean evergreen woodlands, shrubby habitat that may or may not include mesquite, and semi-desert grassland. Cuckoos may use monotypic tamarisk habitat for foraging if it is adjacent to or near mixed native/tamarisk habitat.

The cuckoo survey protocol (Halterman et al. 2015), results of Westland's cuckoo surveys in and near the project limits (Westland 2012, 2013, 2014), and recent FWS guidance on consultations involving cuckoos (USFWS 2015) suggest that some of the 23 cuckoos detected during protocol surveys were migrants, and that riparian vegetation at and near the Kelvin Bridge is suitable as resting and foraging habitat for migrants. The survey protocol (Page 16, Figure 2) indicates that cuckoos detected during any of the 3 survey periods could be migrants, but birds detected during the first period only (June 15-July 1) are likely to be migrants. In 2014, all three detections were in June. Habitat needs during migration are not well understood; however, they appear to include a relatively wide variety of conditions. Migrating cuckoos have been found in coastal scrub, second-growth forests and woodlands, hedgerows, forest edges, and in smaller riparian patches than those used for breeding.

The survey protocol also indicates that most cuckoos detected during July are likely to be breeders. The fact that more than 70 percent of Westland's detections occurred in July suggests that some of the 23 cuckoos detected during all three years of surveys were breeding birds. Although we have no direct evidence of cuckoos breeding in or near the project limits, we consider it probable that cuckoos do breed within the action area.

Factors Affecting Species Environment and Critical Habitat Within the Action Area— Cuckoo

The cuckoo is a riparian obligate breeder but 90-95 percent of its historical riparian habitat has been lost, altered, or degraded (Governor's Riparian Habitat Task Force 1990, Ohmart 1994). Most riparian habitats in the Southwest have been fundamentally altered by a century or more of urban and agricultural development, water diversions, dam building, ground water pumping, livestock grazing, and other human disturbances.

In the past, riparian habitats occupied by cuckoos by their nature were dynamic and were governed primarily by floods and flow patterns. Historically, cuckoos depended on natural flood cycles to generate the riparian woodlands and galleries it used for nesting, and to recycle old habitats as they grew out of suitability. Periodic flooding allowed the deposition of moist sediments and regeneration of native riparian species, i.e., willows and cottonwoods.

The stretch of the Gila River downstream from Coolidge Dam does not receive the magnitude and variability of annual peak flows from flood events that occurred prior to construction of the

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dam, and today very few patches of native riparian habitat exist below the dam. Currently, water releases from Coolidge Dam may occur year-round with the highest releases generally occurring during summer months, and the lowest during Spring. However, in some years, the reservoir does not have sufficient volume to maintain continual releases, and as a result the Gila River can have intermittent flows. Natural inflows from the San Pedro River, which joins the Gila River approximately 15 mi upstream of the project area, contributes to the Gila River's hydrograph. However, flows from the San Pedro River depend on a variety of factors, including groundwater pumping and water diversions for agricultural use (Arizona Department of Water Resources [ADWR] 2010). Recent studies indicate that San Pedro groundwater is being pumped in excess of recharge (National Riparian Service Team 2012).

Thus, past and current conditions within the action area—the loss of natural, periodic flooding, diminished and in some years non-existent spring peak flows, combined with relatively higher late-spring and summer flows in the Gila River, along with intermittent contributions from the San Pedro River—tend to disfavor the establishment and/or maintenance of native cottonwood/willow forests while creating the conditions under which nonnative tamarisk thrives. Current conditions within the project limits tend to promote flycatcher nesting habitat at the expense of cuckoo nesting habitat. These factors, coupled with the inability of native vegetation to regenerate under altered hydrological conditions, are a significant threat to the cuckoo within the action area and throughout its range.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Southwestern Willow Flycatcher

Direct effects to flycatchers from the proposed action would involve removal of 1.2 ac of suitable nesting, foraging, and migration habitat, including 0.4 ac of riparian vegetation that would be permanently removed for bridge piers, and 0.8 ac that would be removed temporarily for workspace and equipment access and would be restored after project completion. Direct effects also include disturbance and harassment of flycatchers that arrive in the project area during construction, including migrants and resident birds that would remain in the area to breed. Vegetation removal activities would be restricted to the period October 1-March 31, when flycatchers are on the wintering grounds; thus, no direct impacts (injuries or fatalities) to adult flycatchers, their eggs, or young would be expected to occur as a result of vegetation removal operations.

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Effects of vegetation removal

The removal of riparian vegetation will adversely affect nesting flycatchers by removing breeding and foraging habitat and altering overall breeding habitat quality. Protocol surveys from 2012-2015 confirmed the presence of two to five flycatcher territories in the immediate vicinity of the Kelvin Bridge during each of those years. Nesting attempts (nests with eggs) and fledglings were confirmed in 2013. Surveyors reported 11 detections of flycatchers within 0.1 mi of the bridge in 2015. Our analysis indicates that two nesting territories were wholly or partially contained within the project limits in 2013 and 2014, and at least one territory probably overlapped into the project limits in 2015. Thus, it is likely that one to two pairs of flycatchers will be displaced by the direct loss of breeding and foraging habitat in the 2017 and 2018 breeding periods, or subsequent two year period.

In addition, vegetation removal will create gaps in the continuity of flycatcher habitat that may affect adjacent pairs that are not displaced. These gaps may result in increased temperatures and lower relative humidity in the adjacent nesting territories, reducing egg-hatching rates, productivity of insects, and the overall suitability of nesting and foraging habitats for the adjacent pairs. Increasing habitat fragmentation and reducing cover can also improve access to flycatcher territories, eggs, and nestlings by predators and cowbirds (79 FR 48548).

Thus, as a result of vegetation removal, we anticipate fewer territories and fewer nesting attempts to occur. From those flycatchers that do attempt to nest, we also expect reduced productivity (numbers of nesting attempts, eggs laid and hatched, nestlings, and fledglings) from reduced habitat quality and possibly increased levels of predation and brood parasitism.

Because the removal of 1.2 acres of habitat is a small fraction of the 6,703-ac of critical habitat in the Gila segment of the Middle Gila/San Pedro River Critical Habitat Unit, we do not anticipate significant impacts to occur to migrating flycatchers. Migrant flycatchers are able to take advantage of a broader range of riparian habitats than nesting flycatchers for shelter, cover, and food and will use areas briefly as they move from one location to another. Thus the relatively small amount of Gila River habitat temporarily affected by this project is not expected to substantially influence the overall quality of migration habitat or adversely affect migrating flycatchers. We expect they will utilize unaffected available habitat as needed.

Effects of the timing of bridge construction

Vegetation removal will occur before flycatchers arrive on their breeding grounds on the Gila River, but construction activities will be well underway when they arrive. Construction will take approximately 18-21 months to complete and will affect suitability of the area for breeding flycatchers during the 2017 and 2018 breeding periods, or subsequent two year period (given the project does not remain on schedule).

Construction of the new bridge will involve heavy equipment operations in the work zone through the spring migration period, the breeding period, and fall migration period in 2017. In 2018, work on the bridge could be ongoing through about June, under the current construction schedule. This would result in noise and dust affecting flycatchers using habitats upstream and

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downstream of the bridge for an unknown distance. Construction, noise, and dust during the time southwestern willow flycatchers are migrating through the action area or returning to the action area to nest, may affect how individuals choose to use the area for migrating, foraging, or nesting in 2017 and 2018.

We do anticipate that the close proximity of construction activities to nesting southwestern willow flycatchers during the 2017 and 2018 breeding periods, and the corresponding noise, dust, and overall change in activity will displace southwestern willow flycatchers and reduce survivorship and productivity of breeding southwestern willow flycatchers.

Even if flycatchers do not breed within the project limits, they may forage in the area during the breeding period and are likely to move through the area during dispersal and migration. Thus, noise levels and human activities may cause flycatchers to avoid using the area near the bridge during construction.

Effects on Critical Habitat

There are 2.9 ac of designated flycatcher critical habitat within the project limits, 1.2 ac of which will be removed prior to construction. The 2.9 acres include the existing bridge, parts of the highway, railroad, upland vegetation, and barren ground, areas that have no conservation value for the flycatcher. They are mapping artifacts, i.e., areas that could not be removed at the mapping scales used in the designation (78 CFR 344). The 1.2 ac of riparian vegetation that will be removed prior to construction also falls entirely within designated critical habitat. Thus, vegetation clearing and bridge construction would result in the loss of a PCE of flycatcher critical habitat, i.e., riparian woodland, within the immediate vicinity of the new bridge. In addition, removal of trees and vegetation in the construction zone would reduce habitat for flycatcher prey species in the same area, thereby directly affecting the PCE of adequate insect prey.

Long-term Effects

The long-term effects of vegetation removal will be mitigated by a planned re-vegetation program (only about one-third of vegetation removal will be permanent), and short term effects will be mitigated if displaced breeders nest elsewhere. Ultimately, the amount of habitat lost permanently is minimal compared to the amount of habitat available in the Gila segment of the Middle Gila/San Pedro River Critical Habitat Unit.

Western Yellow-billed Cuckoo

Direct effects to cuckoos from the proposed action would involve removal of 1.7 ac of suitable nesting, foraging, and migration habitat, including 0.6 ac of riparian vegetation that would be permanently removed for bridge piers, and 1.1 ac that would be removed temporarily for workspace and equipment access and would be restored after project completion. Direct effects also include disturbance and harassment of flycatchers that arrive in the project area during construction, including migrants and resident birds that may remain in the area to breed. Vegetation removal activities would be restricted to the period October 1-March 31, when

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cuckoos are on the wintering grounds; thus, no direct impacts (injuries or fatalities) to adult cuckoos, their eggs, or young would be expected to occur as a result of vegetation removal operations.

Effects of vegetation removal

The removal of riparian vegetation may adversely affect nesting cuckoos by removing breeding and foraging habitat and altering overall breeding habitat quality. However, protocol surveys from 2012-2014 did not confirm breeding by cuckoos in or near the project limits. Nine of 14 confirmed detections in 2012 were within 0.5 mi of the existing Kelvin Bridge, and two of these were visual sightings that occurred no more than 200 ft upstream of the project limits. In 2013, the nearest detection was approximately 0.6 mi upstream of the bridge, and in 2014 the nearest detection was more than 2 mi from the bridge.

Given the lack of confirmed breeding, we cannot say if vegetation removal will displace or otherwise affect breeding cuckoos. Because the removal of 1.7 acres of habitat is a small fraction of the 23,399 ac of critical habitat in the Gila segment of the Lower San Pedro and Gila River Critical Habitat Unit, we do not anticipate significant impacts to occur to migrating cuckoos. Migrant cuckoos are able to take advantage of a broader range of riparian habitats than nesting cuckoos for shelter, cover, and food and will use areas briefly as they move from one location to another. Thus the relatively small amount of Gila River habitat temporarily affected by this project is not expected to substantially influence the overall quality of migration habitat or adversely affect migrating cuckoos. We expect cuckoos will utilize unaffected available habitat as needed.

Effects of the timing of bridge construction

Vegetation removal will occur before cuckoos arrive on the Gila River, but construction activities will be well underway when they arrive. Construction will take approximately 18-21 months to complete and will affect suitability of the area for breeding cuckoos if they are present during the 2017 and 2018 breeding periods.

Construction of the new bridge will involve heavy equipment operations in the work zone through the spring migration period, the breeding period, and fall migration period in 2017. In 2018, work on the bridge could be ongoing through about June, under the current construction schedule. This would result in noise and dust affecting cuckoos using habitats upstream and downstream of the bridge for an unknown distance. Construction, noise, and dust during the time cuckoos are migrating through the action area or returning to the action area to nest, may affect how individuals use the area for migrating, foraging, or nesting in 2017 and 2018.

Even if cuckoos do not breed within the project limits, they are likely to move through the area during dispersal and migration. Thus, noise levels and human activities may cause flycatchers to avoid using the area near the bridge during construction.

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Effects on Critical Habitat

There are 3.6 ac of proposed cuckoo critical habitat within the project limits, 1.7 ac of which will be removed prior to construction. The 3.6 acres include the existing bridge, parts of the highway, railroad, upland vegetation, and barren ground, areas that have no conservation value for the flycatcher. They are mapping artifacts, i.e., areas that could not be removed at the mapping scales used in the designation (79 FR 48548). The 1.7 ac of riparian vegetation that will be removed prior to construction also falls entirely within proposed critical habitat. Thus, vegetation clearing and bridge construction would result in the loss of a PCE of cuckoo critical habitat, i.e., riparian vegetation, within the immediate vicinity of the new bridge. In addition, removal of trees and vegetation in the construction zone would reduce habitat for cuckoo prey species in the same area, thereby directly affecting the PCE of adequate insect prey.

Long-term Effects

The long-term effects of vegetation removal will be mitigated by a planned re-vegetation program (only about one-third of vegetation removal will be permanent), and short term effects will be mitigated if displaced breeders nest elsewhere. Ultimately, the amount of habitat lost permanently is minimal compared to the amount of habitat available in the Gila segment of the Lower San Pedro and Gila River Critical Habitat Unit.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BE. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Approximately 30 percent of the lands within and adjacent to the project limits are managed by BLM, and any actions by BLM in or near the project limits that could potentially affect flycatchers and cuckoos would be subject to section 7 consultation.

Other lands within and adjacent to the project limits are owned or managed by Pinal County, Union Pacific Railroad, American Smelting and Refining Company, San Carlos Irrigation Project, and private individuals. The Florence-Kelvin Highway and existing Kelvin Bridge are managed by Pinal County and are located on ROW easements granted by BLM. However, other than the proposed bridge replacement, as described in this BO/CO, Pinal County has no additional plans for activities within this right-of-way. Use of the old bridge as part of a national trail system may increase non-motorized recreational use within and adjacent to the project limits and could increase access to critical habitat, habitat fragmentation, fire risk, spread of invasive species, trash deposition, and contamination of surface and groundwater. Livestock grazing, nearby mining activities (e.g., Ray Mine, Ripsey Wash Tailing Storage Project), operation of the Coolidge Dam, and other various unregulated activities on non-Federal lands in or near the project area could also affect endangered species.

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CONCLUSIONS

After reviewing the current status of the southwestern willow flycatcher, western yellow-billed cuckoo, and their designated and proposed critical habitats, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological and conference opinion that the proposed action is not likely to jeopardize the continued existence of the flycatcher or cuckoo or destroy or adversely modify their critical habitats. We base this conclusion on the following reasons:

Southwestern Willow Flycatcher

- We anticipate permanent or temporary effects to designated PCEs 1 (riparian vegetation) and 2 (insect prey populations) within 1.2 ac of the project limits—or approximately 0.00009 percent of the 12,824.2 ac of the designated Middle Gila-San Pedro Critical Habitat Management Unit, and 0.000006 percent of the 208,973 ac of designated critical habitat range-wide. Thus, although there is a measurable amount of riparian vegetation affected and the amount of insect prey may decrease proportionately, the effect to proposed critical habitat in this unit and rangewide from the amount of vegetation and prey impacted at the new bridge location is so small that the proposed critical habitat would remain functional to serve the intended conservation role for the flycatcher.
- Vegetation clearing activities would occur outside the flycatcher breeding period (April 15-September 30).
- Bridge construction would occur during the breeding period, but would be ongoing when flycatchers arrive at their breeding areas. As a result, flycatchers may simply avoid the construction area and move into adjacent habitat. As we noted earlier, riparian vegetation in the action area is continuous for many miles upstream and downstream of the Kelvin Bridge.
- Of the 1.2 ac of flycatcher habitat that would be removed during the project, 0.8 ac would be restored after the project is complete.

Western Yellow-billed Cuckoo

- We anticipate permanent or temporary effects to proposed PCEs 1 (riparian vegetation) and 2 (insect prey populations), and no effects to PCE 3 (dynamic riverine processes), within 1.7 ac of the project limits—or approximately 0.00007 percent of the 23,399 ac of the proposed Lower San Pedro and Gila River Critical Habitat Unit, and 0.000003 percent of the 546,335 ac of proposed critical habitat range-wide. Thus, although there is a measurable amount of riparian woodland affected and the amount of prey may decrease proportionately, the effect to proposed critical habitat in this unit and rangewide from the amount of vegetation and prey impacted at the new bridge site is so small that the proposed critical habitat would remain functional to serve the intended conservation role for the cuckoo.
- Vegetation clearing activities would occur outside the cuckoo breeding period (May 15-September 30).
- Bridge construction would occur during the breeding period, but would be ongoing when cuckoos arrive at their breeding areas, if cuckoos breed in or near the project limits. As a

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result, cuckoos may simply avoid the construction area and move into adjacent habitat. As we noted earlier, riparian vegetation in the action area is continuous for many miles upstream and downstream of the Kelvin Bridge.

- Of the 1.7 ac of cuckoo habitat that would be removed during the project, 1.1 ac would be restored after the project is complete.

The conclusions of this biological opinion are based on full implementation of the project as described in the *Description of the Proposed Action* section of this document, including the *Conservation Measures* that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm," is defined (50 CFR 17.3) and means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. "Harass" is defined (50 CFR 17.3) and means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT AND EXTENT OF TAKE

Southwestern Willow Flycatcher

The FWS anticipates take of southwestern willow flycatchers as a result of this proposed action. Although flycatchers are migratory and spend only part of the year at the construction site, the area is still considered to be occupied because flycatchers exhibit high site fidelity and are expected to return to the same areas to nest from one year to the next (U.S. Fish and Wildlife Service 2002). The incidental take is expected to be in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of noise and increased activity from construction activities occurring adjacent to nesting southwestern willow flycatchers for up to two breeding periods. Based on the existence of one to two territories within and directly adjacent to the project limits, we estimate that four individuals will be taken from habitat loss and disturbance associated with construction activities each year of the project.

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Take will be considered to be exceeded if any portion of the occupied habitat outside of the construction zone is physically damaged by equipment during construction of the new Kelvin Bridge.

Western Yellow-billed Cuckoo

Cuckoos have been detected in and near the project limits during three consecutive years (2012-2014), and there is a high degree of probability that cuckoos breed in the Kelvin Bridge area. Western yellow-billed cuckoos require large blocks of riparian habitat for breeding. Home ranges are large but vary in size depending on seasonal food abundance. Recent radio telemetry studies on the Rio Grande in New Mexico, the San Pedro River in Arizona, and the Colorado River in Arizona and California have shown that cuckoos use home ranges between 95 and 204 acres (USFWS 2013). Given the size of a cuckoo home range, and acreage within the project limits (7.1 ac), we anticipate that no more than 1 nesting territory, i.e., a single pair of cuckoos, would be affected by the project. Thus, we anticipate take in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of noise and increased activity from construction activities occurring adjacent to one cuckoo nesting territory; thus, we estimate that two individuals will be taken during each year of the project.

Take will be considered to be exceeded if any portion of the occupied habitat outside of the construction zone is physically damaged by equipment during construction of the new Kelvin Bridge.

EFFECT OF THE TAKE

In this biological opinion, the FWS determines that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat for the reasons stated in the Conclusions section. Although the proposed action may adversely affect the southwestern willow flycatcher and yellow-billed cuckoo in the short-term through habitat loss and disturbance, the proposed action will not result in the permanent loss of either species in the action area.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

No reasonable and prudent measures above and beyond the BMP's and conservation measures outlined within this BO/CO are necessary or advisable to minimize the effects of incidental take.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- We recommend that FHWA, ADOT, BLM, and Pinal County work with us and AGFD to participate in recovery planning and implementation of conservation actions for the

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southwestern willow flycatcher and western yellow-billed cuckoo and improve the abundance and quality of riparian woodland habitats.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request, and no further section 7 consultation is required for this project at this time. As provided in 50 CFR ' 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (Eagle Act). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA and Eagle Act, please visit the following websites. More information on the MBTA and available permits can be retrieved from <http://www.fws.gov/migratorybirds> and <http://www.fws.gov/migratorybirds/mbpermits.html>. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007 (<http://www.fws.gov/southwest/es/arizona/BaldEagle.htm>), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

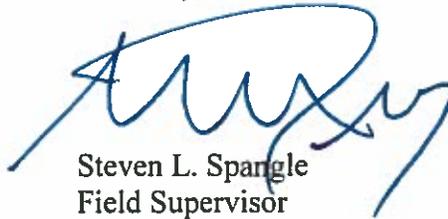
The FWS appreciates efforts by BLM, FHWA, and ADOT to identify and minimize effects to listed species from this project. We encourage you to coordinate the review of this project with AGFD. We also appreciate your ongoing coordination during implementation of this program. In keeping with our trust responsibilities to American Indian Tribes, we are providing copies of

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this biological and conference opinion to the Bureau of Indian Affairs and are notifying affected Tribes.

For further information please contact Robert Lehman at (602) 242-0210 or Brenda Smith at (928) 556-2157. In all future correspondence on this project, please refer to consultation number 02EAAZ00-2016-F-0222.

Sincerely,



Steven L. Spangle
Field Supervisor

cc (electronic)

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 Fish and Wildlife Biologist, Fish and Wildlife Service, Phoenix
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 Fish and Wildlife Biologist, Fish and Wildlife Service, Tucson
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 Supervisor, Region 5, Arizona Game and Fish Department, Tucson, AZ
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 Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
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 (Attn: Kris Gade, Josh Fife, Justin White, Audrey Navarro)
 Environmental Coordinators, Federal Highway Administration, Phoenix, AZ
 (Attn: Rebecca Yedlin, Tremaine Wilson)
 Chairman, Ak Chin Indian Community, Maricopa, AZ
 Chairman, White Mountain Apache Tribe, Whiteriver, AZ
 Chairman, Fort McDowell Yavapai Nation, Fort McDowell, AZ
 Chairman, Salt River Pima-Maricopa Indian Community, Scottsdale, AZ
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APPENDIX A: CONCURRENCES

This appendix contains our concurrences with your “may affect, not likely to adversely affect” determinations for the endangered ocelot, endangered spikedace, and endangered loach minnow.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is described above in the Biological and Conference Opinion and is incorporated herein by reference. In summary, the proposed action is to replace the existing bridge over the Gila River on the Florence-Kelvin Highway just south of the town of Kelvin, Pinal County, Arizona. The bridge replacement would shift traffic from the existing two-lane bridge to a new bridge with two lanes located 50 feet (ft) east of the existing bridge. After the new bridge is built, the existing bridge would remain accessible to the public for non-motorized use as part of the Arizona National Scenic Trail.

Ocelot

No surveys for the endangered ocelot (*Leopardus pardalis*) were done for the purposes of this project. Prior to 2009, there were eight records of the species in Arizona (seven historical records and one fossil record) (AGFD, unpublished data, 2016). Since 2009, at least five ocelots have been detected in Arizona, including four detected by trail cameras and hunting dogs, and one dead ocelot that had been struck by a vehicle. Details of these detections follow:

- In November 2009, a live ocelot (sex unknown) was documented in the Whetstone Mountains in Cochise County, Arizona, with the use of camera-traps (Avila-Villegas and Lamberton-Moreno 2013).
- In April 2010, a second ocelot was found dead (struck by a vehicle) along State Route (SR) 60 between the Towns of Globe and Superior in Gila County.
- In February 2011, a third male ocelot was treed by a hunting dog and photographed in the Huachuca Mountains, Cochise County. He was subsequently detected multiple times by trail cameras, including one in the Patagonia Mountains, in Santa Cruz County, in May 2012 (Culver et al. 2016). After being detected in the Patagonia Mountains, he was treed again by hunting dogs in the Huachuca Mountains (Culver et al. 2016), a round trip distance of mi. He was most recently detected in May 2013.
- In May 2012, a fourth male ocelot was detected in the Huachuca Mountains via trail camera. He has been detected by trail cameras many times since then, most recently in October 2015, and was treed by hunting dogs once.
- A fifth ocelot was detected by a trail camera in the Santa Rita Mountains, Pima County, in December 2013.
- In April 2014, a male ocelot was detected in the Santa Rita Mountains via trail camera. He was photographed several times over a two-month period but has not been detected since. In April 2014, a male ocelot was detected in the Santa Rita Mountains via trail camera. This may have been the same ocelot detected in December 2013.

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There are no documented occurrences of ocelots within the project limits; however, the cat found dead on SR 60 in 2010 was less than 20 miles from the Kelvin Bridge. This ocelot represents the northernmost confirmed record for the species in Arizona; it was found over 65 mi north of the Santa Rita Mountains, where an ocelot or ocelots were photographed in 2013 and 2014, and is approximately 125 mi from the Huachuca and Patagonia Mountains.

DETERMINATION

We concur with your determination that the proposed action “may affect, but is not likely to adversely affect” the ocelot for the following reason:

- There is only one confirmed record of an ocelot this far north in Arizona; thus, the likelihood of an ocelot occurring within the project limits during construction of the Kelvin Bridge is discountable.

Literature Cited

- Avila-Villegas, S. and J.A. Lamberton-Moreno. 2013. Wildlife survey and monitoring in the Sky Island Region with an emphasis on neotropical felids. In: Gottfried, G.J., P.F. Ffolliott, B.S. Gebow, and L.G. Eskew, compilers. Proceedings RMRS-P-67, Merging science and management in a rapidly changing world: biodiversity and management of the Madrean Archipelago III, May 1-5, 2012, Tucson, Arizona. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado.
- Culver, M., S. Malusa, J.L. Childs, K. Emerson, T. Fagan, P.M. Harveson, L.E. Haynes, J.G. Sanderson, J.H. Sheehy, T. Skinner, N. Smith, K. Thompson, and R.W. Thompson. 2016. Jaguar surveying and monitoring in the United States: U.S. Geological Survey Open-File Report 2016-1095. <http://dx.doi.org/10.3133/ofr20161095>.

Spikedace

No surveys for the endangered spikedace (*Meda fulgida*) were done for the purposes of this project; however, the Kelvin Bridge is outside of the known range of the species and no designated critical habitat occurs near the project limits. The nearest record of spikedace is from the Gila River, near the town of Cochran, Arizona, approximately 18 mi west of the bridge. This record of one adult spikedace is from 1991, and no spikedace have been detected there since that time (Jakle 1992). The nearest location where spikedace currently occur, and the nearest designated critical habitat, is Aravaipa Creek, approximately 25 miles upstream of the Kelvin Bridge (77 FR 10810, AGFD 2013). Aravaipa Creek is a tributary of the San Pedro River.

Although designated critical habitat does not occur near the Kelvin Bridge, the Middle Gila River, and specifically the reach of the river within the project limits, exhibits stream characteristics that may be favorable to spikedace. Spikedace are found in moderate to large perennial streams where they inhabit moderate to fast velocity waters over gravel and rubble substrates (Barber and Minckley 1966, Propst et al. 1986). The BE for this project indicates that the river within the project limits is broad and turbid with a cobbled streambed, and may be

Melissa D. Warren

suitable for spikdace. It is unlikely, but possible, that a flood event during construction could bring spikdace downstream from Aravaipa Creek into the project limits, as evidenced by the 1991 spikdace record further downstream. However, the Middle Gila River also supports crayfish and non-native fish species (AGFD 2013), and spikdace that entered this area would likely not survive for long.

Conservation Measures

- Heavy equipment would not be used in the flowing channel of the Gila River nor would the river itself be altered in any way by the proposed action.
- A Storm Water Pollution Prevention Plan and Spill Prevention and Pollution Prevention Plan would be prepared prior to construction to assure that the proposed action would not adversely impact soils or water quality.
- Waste Management and Containment Plans would be developed to address the safe handling, storage, transportation, and disposal of construction waste, trash, litter, garbage, and hazardous materials (e.g., fuels, lubricants).
- Erosion control BMPs would prevent soils exposed during construction from becoming sediment carried off the site and into the river. Hay bales, silt fences, and other methods of erosion control that may be used would not contain any netting due to entrapment hazards to wildlife.

DETERMINATION

We concur with your determination that the proposed action “may affect, but is not likely to adversely affect” the spikdace for the following reasons:

- The nearest confirmed population of the spikdace is at least 25 mi from the proposed Kelvin Bridge project site; therefore, we do not expect any spikdace to be affected by the proposed action.
- Conservation measures, especially those that prohibit heavy equipment to enter the Gila River or alteration of the river in any way, and those designed to prevent pollutants and sediments from reaching the Gila River, would assure that the river channel or water quality in the river would not be negatively affected by the proposed action in the unlikely event that spikdace appeared in the Middle Gila River during construction.

Literature Cited

Arizona Game and Fish Department (AGFD). 2013. Plant and animal abstracts, distributions maps, and illustrations. Available at: http://www.azgfd.com/w_c/edits/hdms_abstracts.shtml. Accessed December 23, 2014.

Barber, W.E. and W.L. Minckley. 1966. Fishes of Aravaipa Creek, Graham and Pinal Counties, Arizona. *Southwestern Naturalist* 11:313–324.

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Jakle, M. 1992. Memorandum dated February 26, 1992 re: Summary of fish and water quality sampling along the San Pedro River from Dudleyville to Hughes Ranch near Cascabel, Oct. 24 and 25, 1992, and the Gila River from Coolidge Dam to Ashurst/Hayden Diversion Dam, Oct. 28 31, 1991. U.S. Bureau of Reclamation, Phoenix, Arizona. 11 pages.

Propst, D.L., K.R. Bestgen, and C.W. Painter. 1986. Distribution, status, biology, and conservation of the spikedace (*Meda fulgida*) in New Mexico. Endangered Species Report No. 15. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Loach Minnow

No surveys for the endangered loach minnow (*Tiaroga cobitis*) were done for the purposes of this project; however, the Kelvin Bridge is outside of the known range of the species and no designated critical habitat occurs near the project limits. The nearest location where loach minnow are known to occur, and the nearest designated critical habitat, is Aravaipa Creek. Loach minnow have been detected at the lower end of Aravaipa Creek (above the existing fish barrier) as recently as April 2016 (M. Richardson, USFWS, personal communication, May 2016). However, this area is approximately 25 miles upstream of the Kelvin Bridge (77 FR 10810, AGFD 2013).

Although designated critical habitat does not occur near the Kelvin Bridge, the Middle Gila River, and specifically the reach of the river within the project limits, exhibits some stream characteristics that may be favorable to the loach minnow. Loach minnows are found in small to large perennial streams and use shallow, turbulent riffles with primarily cobble substrate and swift currents (Propst et al. 1988, Rinne 1989, Propst and Bestgen 1991). The BE for this project indicates that the river within the project limits is broad and turbid with a cobbled streambed, and may be suitable for the loach minnow. It is unlikely, but possible, that a flood event during construction could bring loach minnows downstream from Aravaipa Creek into the project limits. However, the Middle Gila River also supports crayfish and non-native fish species (AGFD 2013), and loach minnow that entered this area would likely not survive for long.

Conservation Measures

- Heavy equipment would not be used in the flowing channel of the Gila River nor would the river itself be altered in any way by the proposed action.
- A Storm Water Pollution Prevention Plan and Spill Prevention and Pollution Prevention Plan would be prepared prior to construction to assure that the proposed action would not adversely impact soils or water quality.
- Waste Management and Containment Plans would be developed to address the safe handling, storage, transportation, and disposal of construction waste, trash, litter, garbage, and hazardous materials (e.g., fuels, lubricants).
- Erosion control BMPs would prevent soils exposed during construction from becoming sediment carried off the site and into the river. Hay bales, silt fences, and other methods of erosion control that may be used would not contain any netting due to entrapment hazards to wildlife.

Melissa D. Warren

DETERMINATION

We concur with your determination that the proposed action “may affect, but is not likely to adversely affect” the spikedace for the following reasons:

- The nearest confirmed population of loach minnows is at least 25 mi from the proposed Kelvin Bridge project site; therefore, we do not expect any loach minnows to be affected by the proposed action.
- Conservation measures, especially those that prohibit heavy equipment to enter the Gila River or alteration of the river in any way, and those designed to prevent pollutants and sediments from reaching the Gila River, would assure that the river channel or water quality in the river would not be negatively affected by the proposed action in the unlikely event that loach minnows appeared in the Middle Gila River during construction.

Literature Cited

- Arizona Game and Fish Department (AGFD). 2013. Plant and animal abstracts, distributions maps, and illustrations. Available at:
http://www.azgfd.com/w_c/edits/hdms_abstracts.shtml. Accessed December 23, 2014.
- Propst, D.L., K.R. Bestgen, and C.W. Painter. 1988. Distribution, status, biology, and conservation of the loach minnow (*Tiaroga cobitis*) in New Mexico. Endangered Species Report No. 17. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- Propst, D.L., and K.R. Bestgen. 1991. Habitat and biology of the loach minnow, *Tiaroga cobitis*, in New Mexico. *Copeia* 1991 (1): 29–38.

APPENDIX D.
ACOE CORRESPONDENCE LETTER

From: [Markstein, Amy](#)
To: [Marinela Konomi](#)
Cc: [Linda Dunlavy](#); [Karen Simms](#)
Subject: Re: FW: [EXTERNAL] Kelvin Bridge (UNCLASSIFIED)
Date: Friday, June 26, 2015 2:55:43 PM
Attachments: [image001.jpg](#)

Thank you!

Amy Markstein
Planning & Environmental Specialist
BLM--Tucson Field Office
3201 E. Universal Way
Tucson, AZ 85756
amarkstein@blm.gov
520-258-7231

On Fri, Jun 26, 2015 at 2:51 PM, Marinela Konomi <MKonomi@azdot.gov> wrote:

Hello Amy,

I forwarded the Corps e-mail to Marcia and attached it to your email.

Below here is the full attachment.

Thanks,

Marinela P. Konomi

Environmental Project Manager

ADOT, Environmental Planning Group

1611 W. Jackson St., MD EM02

Phoenix, Az 85007

602- 712-4232

www.azdot.gov



From: Marinela Konomi
Sent: Friday, June 26, 2015 1:49 PM
To: mradke@blm.gov
Cc: Julia Manfredi
Subject: FW: [EXTERNAL] Kelvin Bridge (UNCLASSIFIED)

Hello Marcia,

Please see Corps reply on Section 404 permit requirements for the Kelvin Bridge project.

Feel free to contact Julia or I if you have any questions. Thank you.

Marinela P. Konomi

Environmental Project Manager

ADOT, Environmental Planning Group

1611 W. Jackson St., MD EM02

Phoenix, Az 85007

602- 712-4232

www.azdot.gov



From: Tucker, Kathleen A SPL [mailto:Kathleen.A.Tucker@usace.army.mil]
Sent: Friday, June 26, 2015 10:57 AM
To: Marinela Konomi
Cc: Julia Manfredi; Tucker, Kathleen A SPL
Subject: RE: [EXTERNAL] Kelvin Bridge (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

So to clarify, if the construction plans and mitigation is followed and no discharge of dredge or fill material goes into the jurisdictional waters and/or wetlands either temporarily or permanently then **a Section 404 permit is not required.**

Let me know if there is anything else.

Thanks.

Assist us in better serving you!

You are invited to complete our customer survey, located at the following link: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

Kathleen A. Tucker, ADOT Projects

Phone: 602.230.6956 Cell: 602.526.0183

"A person's a person, no matter how small." -- Dr. Seuss

From: Marinela Konomi

Sent: Thursday, April 30, 2015 10:55 AM

To: 'Tucker, Kathleen A SPL'

Cc: Julia Manfredi; mradke@blm.gov

Subject: RE: [EXTERNAL] Kelvin Bridge (UNCLASSIFIED)

Hello Kathleen,

On March 16, 2015 a copy of the draft 95% construction plans for Kelvin Bridge project was sent to you. The current plans show no work on the WOUS.

Can you confirm for BLM that the previous determination of no CWA permit for the project is still valid?

Please note that Pinal County was advised that the Corps based their determination on CWA requirements for the project on the previously agreed conditions that all the project activities will avoid the wetlands and a temporary bridge will be build spanning over the WOUS to facilitate the equipment movement.

Let me know if you need additional information.

Thanks,

Marinela P. Konomi

Environmental Project Manager

APPENDIX E.
SHPO/PINAL COUNTY MOA

**MEMORANDUM OF AGREEMENT
AMONG
FEDERAL HIGHWAY ADMINISTRATION
ARIZONA STATE HISTORIC PRESERVATION OFFICE
ARIZONA DEPARTMENT OF TRANSPORTATION
THE GILA RIVER INDIAN COMMUNITY
THE BUREAU OF LAND MANAGEMENT
PINAL COUNTY
AND
ARIZONA STATE MUSEUM**

**REGARDING DATA RECOVERY AT ARCHAEOLOGICAL SITE AZ V:13:33 (ASM)
KELVIN BRIDGE REPLACEMENT
PROJECT NO. BR-PPN-0(169)A
TRACS NO. 0000 PN PPN SB410 01C
PINAL COUNTY, ARIZONA**

WHEREAS, the Federal Highway Administration (FHWA) proposes to replace the Kelvin Bridge (#8441), a federally-funded project in Pinal County, Arizona (hereafter referred to as “the Project”); and

WHEREAS, the area of potential effect for the project has not yet been defined, but will be chosen from two alternatives, one upstream and the other downstream of the current Kelvin Bridge, northwest of Kearney, Pinal County; and

WHEREAS, project construction will occur on land owned by the Arizona Department of Transportation (ADOT), land owned by Pinal County, and ADOT easement across public land administered by the Bureau of Land Management (BLM); and

WHEREAS, the proposed project may have an adverse effect upon AZ V:13:33 (ASM), an archaeological site which is eligible for listing on the National Register of Historic Places and may possibly have effects to unidentified subsurface archaeological resources; and

WHEREAS, ADOT, acting as agent for FHWA has participated in consultation and has been invited to be a signatory to this Memorandum of Agreement (Agreement); and

WHEREAS, the FHWA has consulted with the Arizona State Historic Preservation Office (SHPO), the Arizona State Museum (ASM), Pinal County, the BLM, the Hopi Tribe, the Gila River Indian Community, and the Advisory Council on Historic Preservation (the Council) in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR §800.6(b)(2)) to resolve the possible adverse effects of the Project on historic properties; and

WHEREAS, SHPO is authorized to enter into this agreement in order to fulfill its role of advising and assisting Federal agencies in carrying out their Section 106 responsibilities under the following federal statutes: Sections 101 and 106 of the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470f, and pursuant to 36 CFR Part 800, regulations implementing Section 106, at 800.2 (c)(1)(i) and 800.6(b); and

WHEREAS, SHPO is authorized to advise and assist federal and state agencies in carrying out their historic preservation responsibilities and cooperate with these agencies under A.R.S. §41-511.04(d)(4); and

WHEREAS, the Indian Tribes that may attach religious or cultural importance to affected properties have been consulted [pursuant to 36 CFR § 800.2 (c)(2)(ii)(A-F)], and the Hopi Tribe and the Gila River Indian Community have been invited to be a concurring party in the Agreement; and

WHEREAS, in their role as lead federal agency, FHWA has consulted with SHPO pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) as revised in 2000; and

WHEREAS, by their signature all parties agree that the regulations specified in the ADOT document, "ADOT Standard Specifications for Road and Bridge Construction" (Section 104.12, 2000) will account for the cultural resources in potential material sources used in project construction; and

WHEREAS, an agreement regarding the treatment and disposition of Human Remains, Associated Funerary Objects, Sacred Objects, and Objects of Cultural Patrimony would be developed for the Arizona State Museum (ASM) for state and private land, pursuant to A.R.S. §41-844 and 41-865; and

WHEREAS, an agreement regarding the treatment and disposition of Graves and Human Skeletal Material would follow the Archaeological Resource Protection Act (ARPA) of 1979, Section 4.3.b and 4.c, for federal land; and

WHEREAS, Human Remains, Associated Funerary Objects, and Objects of Cultural Patrimony recovered on federal land will be treated in accordance with the Native American Graves and Protection Repatriation Act (NAGPRA); and

WHEREAS, the data recovery necessitated by the Project and located on state land must be permitted by the Arizona State Museum pursuant to A.R.S. § 41-842, and

WHEREAS, data recovery necessitated by the Project on federal land must be permitted through a BLM and ARPA permit; and

NOW, THEREFORE, all parties agree that upon FHWA's decision to proceed with the Project, FHWA shall ensure that the following stipulations are implemented in order to take into account the effects of the Project on historic properties, and that these stipulations shall govern the Project and all of its parts until this MOA expires or is terminated.

Stipulations

FHWA will ensure that the following measures are carried out.

1) Development of a Data Recovery Work Plan

The data recovery plan will be submitted by ADOT, on behalf of FHWA, to all parties to this Agreement for 30 calendar days' review. The data recovery plan will be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37). Unless any signatory or concurring party objects to the data recovery plan within 30 calendar days after receipt of the plan, FHWA shall ensure that it is implemented prior to construction.

2) The Data Recovery Work Plan (the Work Plan) will specify:

- a) The properties or portions of properties where data recovery is to be carried out. Also, it will specify any property or portion of property that would be destroyed or altered without treatment;
- b) The results of previous research relevant to the project, the research questions to be addressed through data recovery, with an explanation of their relevance and importance;
- c) The field and laboratory analysis methods to be used, with an explanation of their relevance to the research questions;
- d) The methods to be used in analysis, data management, and dissemination of data to the professional community and the public, including a proposed schedule for project tasks, including a schedule for the submission of draft and final reports to consulting parties;
- e) The proposed disposition and curation of recovered materials and records in accordance with 36 CFR 79, A.R.S. §41-844 and ARPA (Sections 4.b.3 and 4.c);
- f) Procedures for monitoring, evaluating and treating discoveries of unexpected or newly identified properties during construction of the project, including consultation with other parties;

g) A protocol for the treatment of human remains, in the event that such remains are discovered, describing methods and procedures for the recovery, analysis, treatment, and disposition of Human Remains, Associated Funerary Objects, Sacred Objects, and Objects of Cultural Patrimony. This protocol will reflect concerns and/or conditions identified as a result of consultations among parties to this Agreement.

3) Review and Comment on the Data Recovery Work Plan

a) Upon receipt of a draft of the Work Plan, ADOT, on behalf of FHWA, will review and subsequently submit such documents concurrently to all consulting parties for review. All consulting parties will have 30 calendar days from receipt to review and provide comments to ADOT. All comments shall be in writing with copies provided to the other consulting parties. Lack of response within this review period will be taken as concurrence with the plan.

b) If revisions to the Work Plans are made all consulting parties have 20 calendar days from receipt to review the revisions and provide comments to ADOT. Lack of response within this review period will be taken as concurrence with the plan or report.

c) Once the Data Recovery Plan is determined adequate by all parties (with SHPO concurrence), FHWA shall issue authorization to proceed with the implementation of the Plan, subject to obtaining all necessary permits.

d) Final drafts of the Data Recovery Plan will be provided to all consulting parties.

4) Review and Comment on Preliminary Report of Findings

a) Upon completion of fieldwork, the institution, firm, or consultant responsible for the work will prepare and submit a brief Preliminary Report of Findings.

b) Upon receipt of a draft of the Work Plans, ADOT, on behalf of FHWA, will review and subsequently submit such documents concurrently to all consulting parties for review. All consulting parties will have 30 calendar days from receipt to review and provide comments to ADOT. All comments shall be in writing with copies provided to the other consulting parties. Lack of response within this review period will be taken as concurrence with the plan.

c) If revisions to the Preliminary Report of Findings are made, all consulting parties have 20 calendar days from receipt to review the revisions and provide comments to ADOT. Lack of response within this review period will be taken as concurrence with the plan or report.

d) Once the Preliminary Report of Findings has been accepted as a final document, ADOT, on behalf of FHWA, will notify appropriate project participants that construction may proceed.

5) Review and Comment on Data Recovery Report

- a) Within 180 days of completion of data recovery, a report will be prepared incorporating all appropriate data analyses and interpretations, and the report will be submitted to signatories and concurring parties who will be provided with 30 calendar days to review and comment upon the data report.
- b) Upon receipt of the data recovery report, ADOT, on behalf of FHWA, will review and subsequently submit such documents concurrently to all consulting parties for review. All consulting parties will have 30 calendar days from receipt to review and provide comments to ADOT. All comments shall be in writing with copies provided to the other consulting parties. Lack of response within this review period will be taken as concurrence with the plan.
- c) If revisions to the data recovery report are made, all consulting parties have 20 calendar days from receipt to review the revisions and provide comments to ADOT. Lack of response within this review period will be taken as concurrence with the plan or report.

5) Standards for Data Recovery

All historic preservation work carried out pursuant to this Agreement shall be carried out by or under the supervision of a person, or persons, meeting at a minimum the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-44739).

6) Curation

All materials and records resulting from the data recovery program conducted within the Project area shall be curated in accordance with either ASM or ARPA.

- a) For materials and records located on state or private land, curation shall take place in accordance with standards outlined in A.R.S. § 41-844, and guidelines generated by ASM. The repository for materials either will be ASM or one located in Pinal County that meets those standards and guidelines. Materials subject to repatriation under A.R.S. § 41-844 and A.R.S. § 41-865 shall be maintained in accordance with the burial agreement.
- b) Archaeological Resources, excavated or removed from federal land, will be preserved by a suitable university, museum, or other scientific or educational institution (ARPA, Section 4.b.3). Objects collected on BLM lands will be stored at a BLM repository, to be identified. Resources having religious or cultural importance shall be maintained in accordance with the burial agreement until any specified analyses, as determined following the consultation with the appropriate Indian tribes and individuals, are complete and the resources are returned.

7) Additional Inventory Survey

ADOT, on behalf of FHWA, in consultation with all parties to this agreement shall ensure that new inventory surveys of additional rights-of-way and temporary construction easements will include determinations of eligibility that are made in accordance with 36 CFR § 800.4 for all historic properties, including any added staging or use areas. Should any party to this Agreement disagree with FHWA regarding eligibility, the SHPO shall be consulted and resolution sought within 20 calendar days. If the FHWA and SHPO disagree on eligibility, FHWA shall request a formal determination from the Arizona Historical Advisory Committee and/or the Advisory Council on Historic Preservation.

8) Objection by a Signatory or Concurring Party

Should any signatory or concurring party to this Agreement object within 30 days to any plan or report provided for review or to any aspect of this undertaking related to historic preservation issues, FHWA shall consult with the objecting party to resolve the objection. If the objection cannot be resolved, FHWA shall request further comments of the Council with reference only to the subject of the dispute; the FHWA's responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

9) Discoveries

If potential historic or prehistoric archaeological materials or properties or human remains are discovered after construction begins, the person in charge of the construction shall require construction to immediately cease within the area of the discovery, take steps to protect the discovery, and promptly report the discovery to the ADOT Historic Preservation Specialist, representing FHWA. The ADOT Historic Preservation Specialist, representing FHWA shall notify and consult with appropriate agencies.

- a) If the discovery appears to involve Human Remains or Remains as defined in ASM rules implementing A.R.S. § 41-844 and 41-865, the Director of ASM shall be notified. In consultation with the Director, ADOT, on behalf of FHWA, and the person in charge of construction shall ensure that the discovery is treated according to the burial agreement.
- b) If the discovery is graves or Human Remains as defined in ARPA Section 3.1, and is located on federal land, the Federal Land Manager (the BLM) shall also be informed. In consultation with the BLM and ADOT, the person in charge of construction shall immediately take steps to secure and maintain preservation of the discovery. The BLM and ADOT shall ensure that the discovery is treated according to the burial agreement.
- c) If Remains are not involved, and the discovery is located on state land, ADOT, on behalf of FHWA, shall notify ASM as required under A.R.S. § 41-844. ADOT, on behalf of FHWA in consultation with the Director and SHPO, if appropriate, shall determine if the Plan previously approved by ASM according to Stipulation 2 is appropriate to the nature of the discovery. If appropriate, the Plan shall be

implemented by ADOT, on behalf of FHWA. If the Plan is not appropriate to the discovery, FHWA shall ensure that an alternate plan for the resolution of adverse effect is developed and circulated to the consulting parties, who will have 48 hours to review and comment upon the alternate plan. FHWA shall consider the resulting comments, and shall implement the alternate plan once a project specific permit has been issued.

- d) If Remains are not involved and the discovery is located on private land, ADOT, on behalf of FHWA, shall evaluate the discovery, and SHPO shall be notified as appropriate. The ADOT Historic Preservation Specialist, on behalf of FHWA, shall determine if the plan previously approved according to Stipulation 2 is appropriate to the nature of the discovery. If appropriate, the Plan shall be implemented by ADOT, on behalf of FHWA. If the Plan is not appropriate to the discovery, FHWA shall ensure that an alternate plan for the resolution of adverse effect is developed and circulated to the consulting parties, who will have 48 hours to review and comment upon the alternate plan. FHWA shall consider the resulting comments, and shall implement the alternate plan once a project specific permit has been issued.
- e) If the discovery is located on federal land, ADOT, on behalf of FHWA, shall determine if the discovery classifies as an "archaeological resource" as defined in Section 3.1 of ARPA, and contact the BLM as appropriate.

10) Amendments

This Agreement may be amended by the signatories pursuant to 36 CFR § 800.6(c)(7). FHWA shall file any amendments with the Council and provide notice to the concurring parties.

11) Termination

Any signatory may terminate the Agreement by providing 30 day written notification to the other signatories. During this 30 day period, the signatories may consult to seek agreement on amendments or other actions that would avoid termination pursuant to 36 CFR § 800.6 (b). If the parties cannot agree on actions to resolve disagreements, FHWA will comply with 36 CFR § 800.7(a).

12) Fulfillment of Terms

In the event the FHWA or ADOT cannot carry out the terms of this agreement, the FHWA will comply with 36 CFR § 800.3 through 800.6.

13) Annual Meeting

There shall be an annual meeting among FHWA, SHPO, and ADOT to review the effectiveness and application of this agreement, to be held on or near the anniversary date of the execution of this agreement.

This agreement shall be null and void if its terms are not carried out within ten (10) years from the date of its execution, unless the signatories agree in writing to an extension for carrying out its terms.

Execution of this Agreement by the signatories and its subsequent filing with the Council is evidence that the Federal Highway Administration has afforded the Advisory Council on Historic Preservation an opportunity to comment on the Kelvin Bridge Replacement Project and its effects on historic properties, and that the Federal Highway Administration has taken into account the effects of the undertaking on historic properties.

SIGNATORIES

FEDERAL HIGHWAY ADMINISTRATION

By *Steph D. [Signature]*
Title Environmental Program Manager

Date 11/26/04

ARIZONA STATE HISTORIC PRESERVATION OFFICER

By _____
Title _____

Date _____

INVITED SIGNATORIES

ARIZONA DEPARTMENT OF TRANSPORTATION

By *[Signature]*
Title Environmental & Enhancement Group Manager

Date 10-28-04

PINAL COUNTY

By _____
Title _____

Date _____

BUREAU OF LAND MANAGEMENT

By _____
Title _____

Date _____

CONCURRING PARTIES

ARIZONA STATE MUSEUM

By _____
Title _____

Date _____

GILA RIVER INDIAN COMMUNITY

By *Mary V. Thomas*
Title *H. Guernier*

Date 12-16-04

This agreement shall be null and void if its terms are not carried out within ten (10) years from the date of its execution, unless the signatories agree in writing to an extension for carrying out its terms.

Execution of this Agreement by the signatories and its subsequent filing with the Council is evidence that the Federal Highway Administration has afforded the Advisory Council on Historic Preservation an opportunity to comment on the Kelvin Bridge Replacement Project and its effects on historic properties, and that the Federal Highway Administration has taken into account the effects of the undertaking on historic properties.

SIGNATORIES

FEDERAL HIGHWAY ADMINISTRATION

By *[Signature]*
Title Environmental Program Manager

Date 11/26/04

ARIZONA STATE HISTORIC PRESERVATION OFFICER

By _____
Title _____

Date _____

INVITED SIGNATORIES

ARIZONA DEPARTMENT OF TRANSPORTATION

By *[Signature]*
Title Environmental & Enhancement Group Manager

Date 10-28-04

PINAL COUNTY

By _____
Title _____

Date _____

BUREAU OF LAND MANAGEMENT

By _____
Title _____

Date _____

CONCURRING PARTIES

ARIZONA STATE MUSEUM

By *[Signature]*
Title Associate Curator of Archaeology

Date 12 17 04

GILA RIVER INDIAN COMMUNITY

By _____
Title _____

Date _____