



APPENDIX 2

TECHNICAL MEMORANDUM NO. 2 – ENVIRONMENTAL OVERVIEW



Hidden Waters Parkway Corridor Feasibility Study – Watermelon Road to Interstate 10

Contract No.: 2008-046
Work Order No.: TT005

FINAL Technical Memorandum No. 2 Environmental Overview

Prepared by:



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1. INTRODUCTION

Technical Memorandum No. 2 (TM 2), entitled *Environmental Overview* (EO), focuses on environmental resources within and adjacent to the project study area for the Hidden Waters Parkway Corridor Feasibility Study. An EO is not intended to meet the needs of a National Environmental Policy Act (NEPA) environmental clearance document. The purpose of an EO is to identify environmental issues, constraints, and potential opportunities early in the project development stages. Additional detailed information is included in the following companion documents: *Existing and Future Corridor Features* (TM 1), *Conceptual Drainage Report* (TM 3), *Development and Evaluation of Candidate Alternative Alignments* (TM 4), and *Detailed Preferred Alignment* (TM 5).

1.1 Study Background

In July 2008, the Maricopa Association of Governments (MAG) completed the *Interstate 10/Hassayampa Valley Transportation Framework Study* (known as the *Hassayampa Framework Study*), which recommended a comprehensive roadway network to meet the future traffic demands that result when the area west of the White Tank Mountains is completely developed (hereafter referred to as build-out travel demand). This long-range regional transportation network included the “Arizona Parkway” as a new facility type to supplement more traditional roadway classifications in meeting projected travel demand within the study area.

The Arizona Parkway utilizes a distinct intersection treatment that prohibits left-turns at major cross-street intersections and controls all traffic movements with simple two-phased signal control. Left-turn movements are made indirectly using directional left-turn crossovers immediately downstream of the crossroad intersection.

A north-south Arizona Parkway known as the Hidden Waters Parkway was demonstrated to be needed in the *Hassayampa Framework Study* that generally is offset about two miles to the west of the Hassayampa River. The northern portion of the Hidden Waters Parkway is proposed to cross Interstate 10 at 339th Avenue (where a traffic interchange already exists) and extend southward to Old U.S. Highway 80 (Old US 80).

Similar to the *Hassayampa Framework Study*, the *Interstate 8 and Interstate 10 Hidden Valley Transportation Framework Study* (known as the *Hidden Valley Framework Study*), completed by MAG in October 2009, indicates the need for a system of Arizona Parkways to meet the future build-out travel demand for the area southwest of Interstate 10 (I-10) and north of Interstate 8 (I-8). In the *Hidden Valley Framework Study*, the need was demonstrated for the Hidden Waters Parkway identified previously in the *Hassayampa Framework Study* to extend further south, generally following the Old US 80 alignment, to Watermelon Road in Gila Bend.

In May 2009, the Maricopa County Department of Transportation (MCDOT) retained Kimley-Horn and Associates, Inc. (KHA) to conduct a corridor feasibility study for the southern portion of the Hidden Waters Parkway between Watermelon Road and I-10.

1.2 Project Study Area

The project study area for the proposed Hidden Waters Parkway is approximately 38 miles in length between Watermelon Road and I-10 and is roughly two miles wide, centered on the north-south segment of Old US 80. North of the Cactus Rose Road/Old US 80 intersection, where Old US 80 diverges to the east, the study area broadens to a four-mile wide corridor, centered on the 347th Avenue section-line alignment, extending north to the Salome Highway. North of the Salome Highway, the study area width narrows back to two miles, following the 339th Avenue



alignment north to I-10. The study area covers approximately 93.9 square miles. **Figure 1** shows the project location in the context of the state of Arizona. The project study area is shown in more detail in **Figure 2**.

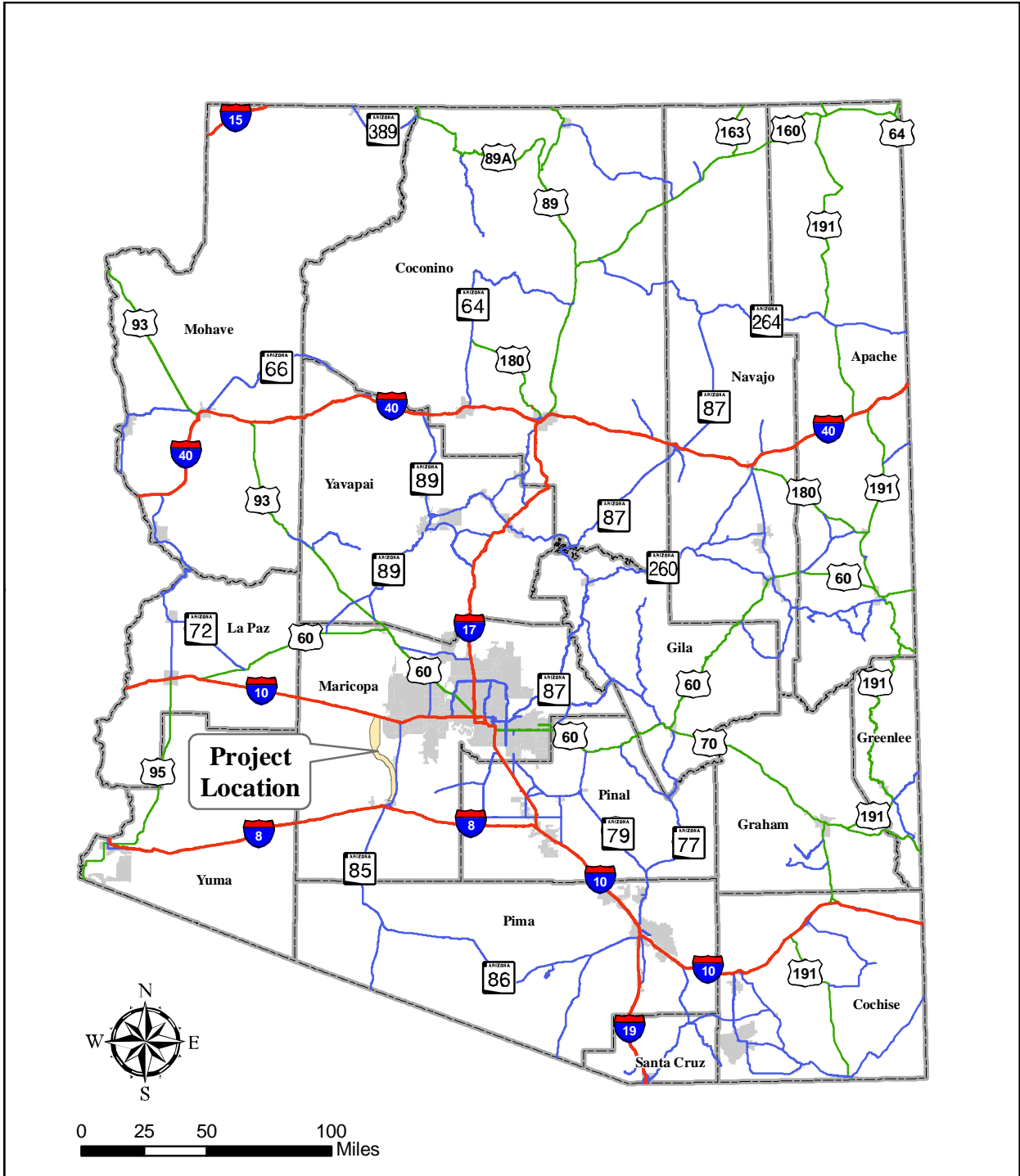


Figure 1 – Statewide Map

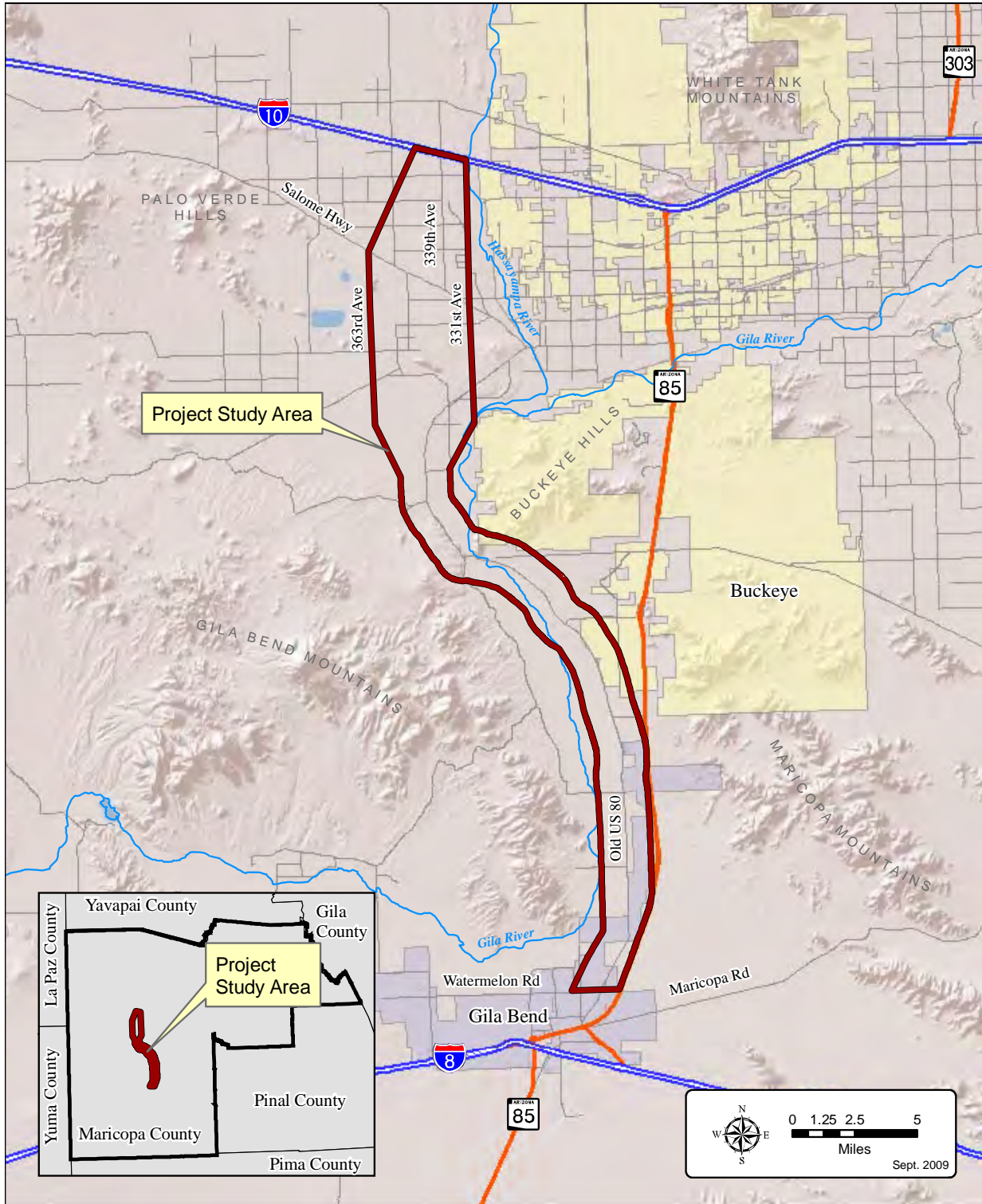


Figure 2 – Project Study Area



2. GENERAL INFORMATION

This EO report includes descriptions of the existing environmental resources within the study area, including the built environment, socioeconomic conditions, and cultural, natural, and Section 4(f) and 6(f) resources. This EO also contains potential environmental issues, constraints, and opportunities within the study area vicinity and will serve as a planning tool during project development.

The study area is approximately 38 miles long, varies between two and four miles in width, and generally follows Old US 80 and the 339th Avenue alignment from Gila Bend north to I-10. The Township (T), Range (R), and Section information associated with the project study area includes:

- T1N R5W Sections 3-10, 15-21, 28-33;
- T1N R6W Sections 12, 13, 24, 25, 36;
- T1S R5W Sections 4-9, 16-21, 28-33;
- T1S R6W Sections 1, 12, 13, 24, 25, 36;
- T2N R5W Sections 31 and 32;
- T2S R4W Sections 30-32;
- T2S R5W Sections 4-9, 16-23, 25-30, 32-36;
- T2S R6W Section 1;
- T3S R4W Sections 4-9, 15-22, 27-29, 32-34;
- T3S R5W Sections 1-3, 12;
- T4S R4W Sections 3-5, 8-10, 15-17, 20-23, 26-29, 32-35; and
- T5S R4W Sections 3-5, 8-10, 15-17, 19-21.

2.1 Land Jurisdiction and Ownership

The entire Hidden Waters corridor study area is located within Maricopa County. Maricopa County has jurisdiction over the majority of the land and roadways within the project study area. The Town of Buckeye and the Town of Gila Bend have jurisdiction over the land within their respective town limits adjacent to and within the study area. Portions of the project study area currently under Maricopa County jurisdiction are also within the Gila Bend Municipal Planning Area and the Buckeye Municipal Planning Area.

The project study area contains a mix of both public and private lands. The majority of the land in the project study area (43,617 acres, or 72.6 percent of the study area land) is privately owned. Public land owners in the study area are the Arizona State Land Department (ASLD), which owns 13,384 acres (22.3 percent of the study area land) and the Bureau of Land Management (BLM), which owns 3,087 acres (5.1 percent of the study area land). Land ownership in the project study area is shown in **Figure 3**, as per the Geographic Information Systems (GIS) data provided by Public Works of Maricopa County in May 2009.

The northern portion of the study area consists mostly of private land with scattered parcels of ASLD land. The central and southern portions of the study area consist mostly of private land with a few tracts of BLM and ASLD land.

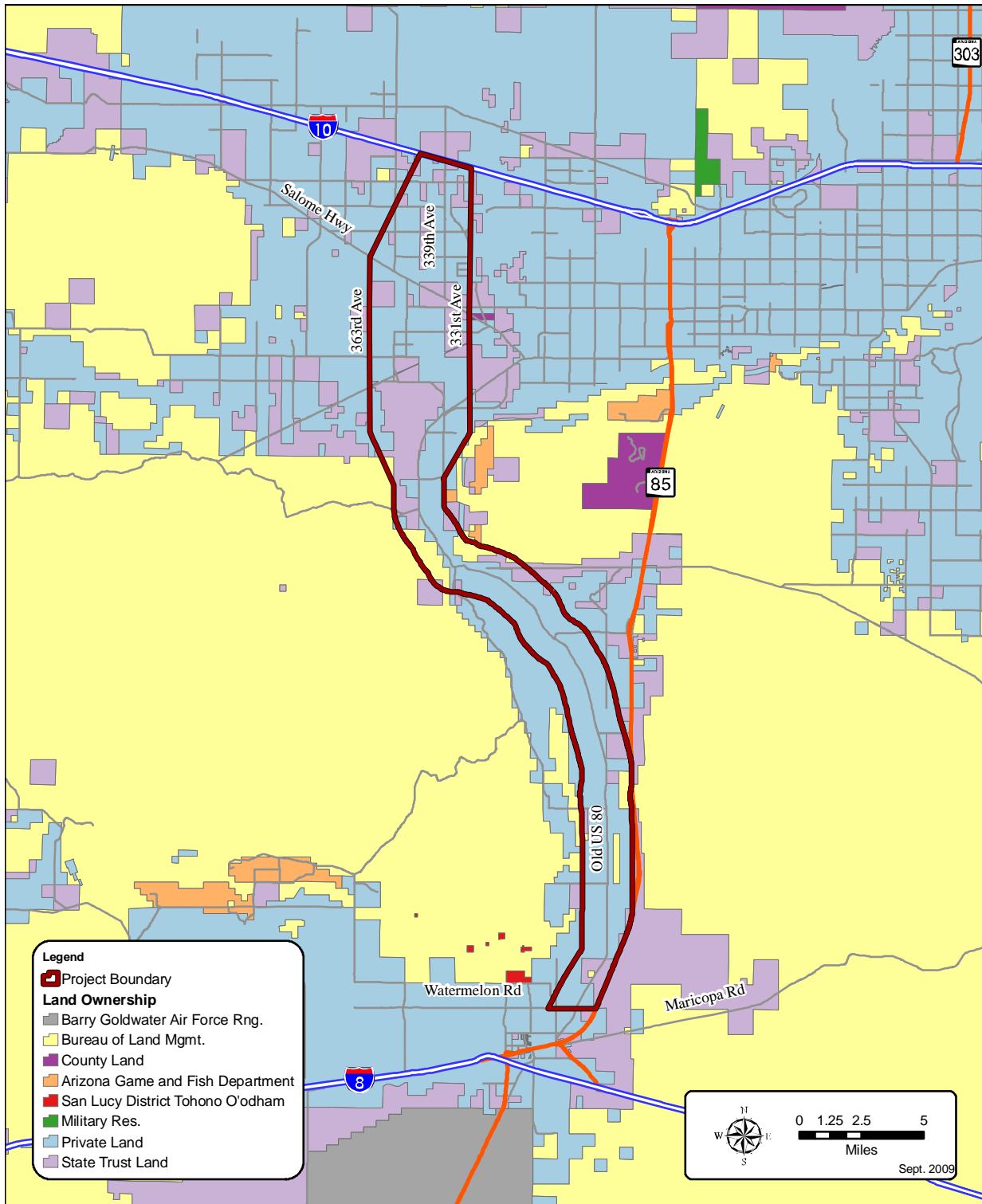


Figure 3 – Land Ownership

Just outside the eastern edge of the project study boundary in the central portion of the study area, the Arizona Game and Fish Department (AGFD) owns land that is part of the Powers Butte and Arlington Wildlife Areas. AGFD manages over 5,000 acres of wildlife areas along the Gila River adjacent to the Buckeye Hills that are collectively known as the Lower Gila River Wildlife Management Areas Complex (LGRWMAC). The LGRWMAC includes the Robbins Butte Wildlife Area, the Arlington Wildlife Area, the Powers Butte Wildlife Area, the Fred Weiler Greenbelt, and the PLO 1015 lands that are BLM lands withdrawn to the U.S. Fish and Wildlife Service and managed by the AGFD for wildlife management.

2.2 Land Use

The current land uses within or adjacent to the study area are primarily agriculture and rural residential. Other land uses include one sand and gravel operation and the aforementioned Powers Butte and Arlington Wildlife Areas.

Most of the ASLD and the BLM land remains undeveloped desert with some livestock grazing. BLM does manage several wilderness areas just outside of the project study area. These wilderness areas include:

- North Maricopa Mountains Wilderness Area and South Maricopa Mountains Wilderness Area, both located to the southeast of the study area; and
- Signal Mountain Wilderness Area and Woolsey Peak Wilderness Area both located to the west of the study area.

There are also four schools (Arlington Elementary School, Winters' Well Elementary, Gila Bend Elementary School and Gila Bend High School), four observed places of worship (Arlington Baptist Church, First Baptist Church, Church of Jesus Christ of Latter-Day Saints, and Faith Assembly of God), and limited commercial enterprises within or adjacent to the study area. The Gatlin Site, a National Historic Landmark is partially located within the study area and planning is currently underway to make the site a regional cultural park. The 110-acre Gatlin Site is owned by the Town of Gila Bend.

According to the *Old Highway 80 Area Plan* (MCDOT, 2007) and the *State Route 85 Area Plan* (MCDOT, 2003), the future land use within the study area will continue to be mostly rural residential. However, it is expected that mixed-use developments, small commercial centers, and master planned communities will eventually develop within the study area over time. Both plans identify master planned communities within the vicinity of the study area. These planned communities are large and may impact the study area's growth patterns.

2.3 Socioeconomic Considerations and Title VI/Environmental Justice Populations

The purpose of a socioeconomic analysis is to describe the existing social conditions within the study area and identify populations that may require additional consideration during future NEPA studies. Socioeconomic analyses are also used to identify environmental justice populations that may experience disproportionate adverse impacts from a project.

Environmental justice populations are minority populations that are protected by *Title VI and Executive Order 12898*, *Title VI of the Civil Rights Act of 1964* and *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, issued February 11, 1994, require federally-funded projects to include identification of any disproportionately high and adverse human health effects from environmental impacts on minority and low-income people. These federal regulations also ensure that individuals are not



excluded from participation in, denied the benefit of, or subjected to discrimination as a result of, proposed projects on the basis of race, color, age, sex, disability, income level, or national origin.

Disproportionately high and adverse effects on minority or low-income populations can be defined as an adverse effect that (1) is predominantly borne by a minority or low-income population; or (2) will be suffered by the minority or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or the non-low-income population. For the purpose of social impact analyses for minority and low-income populations, disproportionate adverse impacts are likely to occur when the minority or low-income population is either 50 percent or greater than the total population for the block group, or is more than double the percentage of the population within the comparative county (Maricopa County).

The U.S. Census Bureau Decennial 2000 databases were utilized to determine the composition of the populations within the study area vicinity. For the purposes of this EO, the study area population is comprised of the Towns of Buckeye and Gila Bend (since the study area crosses both boundaries) and U.S. Census Bureau block groups. The block groups associated with the study area are much larger than the study area boundaries; however, they represent the study area population likely to be affected by a project. **Table 1** illustrates the racial and ethnic demographics for the study area. **Table 2** illustrates elderly, low-income, disabled and female head of household populations (referred to as Title VI/Environmental Justice Populations) for the study area. **Table 3** illustrates the Limited English Proficiency (LEP) populations for the study area.

As depicted in **Table 1**, the total minority population (23 percent) in the study area is slightly lower than the minority populations in Arizona and Maricopa County (36 percent and 34 percent respectively); however, the Town of Gila Bend has a high Total Minority Population (68 percent), which is mostly comprised of Hispanic or Latino of Any Race (55 percent). Census Tract (CT) 7233.02, Block Group (BG) 2 also has a high Total Minority Population (67 percent), which is also mostly comprised of Hispanic or Latino of Any Race Populations (45 percent). In addition, the Native American population in CT 7233.02, BG 2 is more than double the percentage of the population in Arizona, Maricopa County and the Towns of Buckeye and Gila Bend. Finally, the low-income populations (see **Table 2**) for the Town of Gila Bend and three out of the five Census Tract/Block Groups associated with the study area (CT 506.03, BG 2; CT 506.03, BG 3; and CT 72233.02, BG2) are more than double the percentage of the population within the comparative county.

As indicated above, there are total minority, Hispanic or Latino of Any Race, native American and low-income populations within the study area that exceed the thresholds previously described for disproportionate adverse impacts. Because a project within the study area will enhance overall mobility for the surrounding areas, those living in and around the study area will benefit from these improvements. Most of the Title VI/Environmental Justice and LEP populations are comparable to both the State and County and do not exceed either of the two thresholds described above. Because this is a feasibility study and a specific roadway alignment, actual right-of-way (R/W) needs, and project schedules are unknown at this time, exact impacts cannot be determined yet. Some general types of impacts such as new R/W, increases in ambient noise levels, socioeconomic impacts and community disruptions can be assumed with a major roadway project. Further consideration for these populations may be warranted for future environmental clearance documents.

Table 1 – Racial and Ethnic Demographics for the Study Area – Decennial 2000 Census

Area/Census Tract Block Group	Total Population	Population of One Race/ Not Hispanic or Latino*						Population of Two or More Races/ Not Hispanic or Latino*	Hispanic or Latino* Of Any Race	Total Minority Population
		White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Other			
State of Arizona	5,130,632	3,272,065	146,183	233,352	88,856	5,396	6,175	83,288	1,295,317	1,858,567
		64%	3%	5%	2%	0%	0%	2%	25%	36%
Maricopa County	3,072,149	2,033,420	106,204	45,466	64,757	3,344	4,076	51,549	763,333	1,038,729
		66%	3%	1%	2%	0%	0%	2%	25%	34%
Town of Buckeye	6,417	3,741	233	47	40	0	0	68	2,288	2,676
		58%	4%	1%	1%	0%	0%	1%	36%	42%
Town of Gila Bend	1,944	627	13	163	13	0	0	69	1,059	1,317
		32%	1%	8%	1%	0%	0%	4%	54%	68%
CT 506.02, BG 1	2,112	1,333	10	32	4	0	0	21	712	779
		63%	0%	2%	0%	0%	0%	1%	34%	37%
CT 506.02, BG 2	2,721	2,129	29	18	27	0	0	52	466	592
		78%	1%	1%	1%	0%	0%	2%	17%	22%
CT 506.03, BG 2	1,663	1,026	24	25	0	0	0	8	580	637
		62%	1%	2%	0%	0%	0%	0%	35%	38%
CT 506.03, BG 3	183	99	0	0	0	0	0	0	84	84
		54%	0%	0%	0%	0%	0%	0%	46%	46%
CT 7233.02, BG 2	2,562	839	13	471	13	0	0	69	1,157	1,723
		33%	1%	18%	1%	0%	0%	3%	45%	67%
Total Study Area	17,602	4,368	246	210	53	0	0	137	3,347	3,993
		25%	1%	1%	0%	0%	0%	1%	19%	23%

Source: U.S. Census Bureau. Census 2000 Summary File 3 (SF-3)

* Hispanic or Latino refers to ethnicity and is derived from the total population; Hispanic or Latino is not classified as a separate race.

Table 2 – Elderly, Low-Income, Disabled, and Female Head of Household Demographics for the Study Area – Decennial 2000 Census

Area/ Census Tract (CT)	Age 60 Years and Over			Low-Income			Disabled*			Female Head of Household**		
	Population	Number	%	Population	Number	%	Population	Number	%	Population	Number	%
State of Arizona	5,130,632	870,065	17%	5,021,238	698,669	14%	4,667,187	902,252	19%	1,901,625	515,611	27%
Maricopa County	3,072,149	465,849	15%	3,027,299	355,668	12%	2,802,278	504,992	18%	1,133,048	303,905	27%
Town of Buckeye	6,417	697	11%	6,393	1200	19%	5,801	1242	21%	2,140	569	27%
Town of Gila Bend	1,944	240	12%	1,941	481	25%	1,758	295	17%	647	170	26%
CT 506.02, BG 1	2,112	299	14%	2,103	442	21%	1,951	408	21%	706	172	24%
CT 506.02, BG 2	2,721	263	10%	2,710	151	6%	2,545	491	19%	861	89	10%
CT 506.03, BG 2	1,663	216	13%	1,643	455	28%	1,511	342	23%	522	68	13%
CT 506.03, BG 3	183	16	9%	183	48	26%	170	13	8%	74	4	5%
CT 7233.02, BG 2	2,562	337	13%	2,557	684	27%	2,337	430	18%	839	217	26%
Total Study Area	17,602	2,068	12%	17,530	1,681	10%	16,073	1,537	10%	5,789	739	13%

Source: U.S. Census Bureau. Census 2000 Summary File 3 (SF-3)

* Disabled population is comprised of individuals within the population 5 years of age and older.

** Female Head of Household population is comprised of individuals in '1-person' households, '2 or more person' households, and 'non-family' non-married households either living alone or not living alone.



Table 3 – Limited English Proficiency (LEP) Population Demographics for the Study Area – Decennial 2000 Census

Area/ Census Tract (CT)	Total Population 5 Years and Over	Total Population That Speak English “Not Well” or “Not at All”	LEP Percentage (%)
State of Arizona	4,752,724	288,699	6.1%
Maricopa County	2,832,694	191,744	6.8%
Town of Buckeye	5,824	384	6.6%
Town of Gila Bend	1,762	200	11.4%
CT 506.02, BG 1	1,955	260	13.3%
CT 506.02, BG 2	2,562	59	2.3%
CT 506.03, BG 2	1,522	212	13.9%
CT 506.03, BG 3	170	47	27.6%
CT 7233.02, BG 2	2,341	261	11.1%
Total Study Area	16,136	1,423	8.8%

Source: U.S. Census Bureau. Census 2000 Summary File 3 (SF-3)

3. NATURAL RESOURCES

The study area is located within the Lower Colorado River Valley subdivision of the Sonoran Deserts scrub Biotic Community (Brown, 1994), as shown in **Figure 4**. According to Brown (1994), the Lower Colorado River Valley subdivision is the largest and most arid subdivision in Arizona. Species commonly found in this subdivision include: honey mesquite (*Prosopis glandulosa*), ironwood (*Olneya tesota*), blue paloverde (*Cercidium floridum*), desert willow (*Chiopsis linearis*), canyon ragweed (*Ambrosia ambrosioides*), catclaw acacia (*Acacia greggii*), burrobrush (*Hymenoclea salsola*), and desert broom (*Baccharis sarothroides*).

The scrub-shrub vegetation community within the study area is comprised mostly of creosotebush and white bursage and concentrated in the broad valleys. Ephemeral drainages bisect the broad valleys and contain linear strips of xero-riparian habitats comprised of native trees and shrubs. The most common vegetation associated with study area drainages includes catclaw acacia, paloverde species, and mesquite species. Sparsely scattered saguaros were identified throughout the study area and were mostly concentrated on hills with rocky soils. Dense riparian vegetation is located along the Gila River floodplain where the land is not under agricultural use. The Powers Butte and Arlington Wildlife Areas associated with the LGRWMAC contain dense riparian vegetation along the Gila River. The southern portion of the study area is comprised mostly of agricultural lands and creosote flats. The northern portion of the study area is comprised mostly of disturbed range lands and creosote flats.

3.1 Threatened and Endangered Species

A review was conducted of the U.S. Fish and Wildlife Service (USFWS) threatened, endangered, proposed, and candidate species list for Maricopa County on August 19, 2009, per the list obtained from the website of the Arizona Ecological Services Field Office (<http://www.fws.gov/southwest/es/arizona/default.htm>). The USFWS identifies 15 threatened, endangered, candidate, and proposed species found in Maricopa County. **Table 4** summarizes the list and discusses the known presence or absence of, and potential effects on, each species.

On July 7, 2009, a windshield-level survey was performed to document vegetation communities, identify areas of significant natural resource value and suitable habitat for federally-protected species with the study area vicinity. The roadways within the study area vicinity were driven to inspect as much of the 93.9 sq miles as possible. Access into many portions of the study area was not feasible due to private land ownership and access restrictions. Federally-protected species were not observed during the survey; however, suitable habitat for federally-protected species was observed within portions of the study area. Suitable habitat areas include a reach of the Gila River and associated floodplain and the Powers Butte, and Arlington Wildlife Areas. These areas contain dense multi-leveled riparian vegetation which provides suitable nesting, roosting, and foraging habitat for several federally-protected species. These species include the bald eagle, California brown pelican, California least tern, southwestern willow flycatcher, Yuma clapper rail, and the western yellow-billed cuckoo.

Impacts to natural resources can be assumed with a 38-mile long roadway project and include: new R/W, removal of native vegetation, new bridged crossing over ephemeral drainages and the Gila River can be assumed with a major roadway project. Before construction-related activities occur within the study area, the presence or absence of these species should be determined and a Biological Evaluation should be performed to identify and analyze potential project-related impacts associated with a specific roadway alignment. The Biological Evaluation will require coordination with natural resource agencies to document project compliance efforts and necessary mitigation measures.



Figure 4 – Biotic Communities



**Table 4 – USFWS List of Threatened, Endangered,
Proposed and Candidate Species for Maricopa County, Arizona**

Common Name	Scientific Name	Status	Suitable Habitat Present	Occupied Habitat Present	Critical Habitat Present	Species Affected	Critical/Suitable Habitat Affected
Arizona cliffrose	<i>Purshia subintegra</i>	E	No	No	No	No	No
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	Yes	Unknown	No	Unknown	Unknown
California brown pelican	<i>Pelecanus occidentalis californicus</i>	PD	Yes	Unknown	No	Unknown	Unknown
California least tern	<i>Sterna antillarum browni</i>	E	Yes	Unknown	No	Unknown	Unknown
Desert pupfish	<i>Cyprinodon macularius</i>	E	No	No	No	No	No
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	E	No	No	No	No	No
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuenae</i>	E	No	No	No	No	No
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	No	No	No	No	No
Razorback sucker	<i>Xyrauchen texanus</i>	E	No	No	No	No	No
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	E	Yes	Unknown	No	Unknown	Unknown
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	Yes	Yes	No	Unknown	Unknown
Woundfin	<i>Plagopterus argentissimus</i>	E	No	No	No	No	No
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	E	Yes	Yes	No	Unknown	Unknown
Roundtail Chub	<i>Gila robusta</i>	C	Yes	Unknown	No	Unknown	Unknown
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C	Yes	Yes	No	Unknown	Unknown

C= Candidate, E= Endangered, T= Threatened, PD= Proposed Delisted

3.2 Wildlife of Special Concern in Arizona

The AGFD online review tool was accessed on July 20, 2009, from the AGFD’s website (<http://www.azgfd.gov/hgis/>). Information from this database search was utilized to obtain state-listed special status species that may be found within the study area. The AGFD listed 11 special status species known to occur within three miles of the study area:

- Yellow-billed cuckoo (western U.S.) (*Coccyzus americanus*);
- Lowland leopard frog (*Lithobates yavapaiensis*);
- Yuma clapper rail (*Rallus longirostris yumanensis*);
- Straw-top cholla (*Opuntia echinocarpa*);



- Southwestern willow flycatcher (*Empidonax traillii extimus*);
- Roundtail chub (*Gila robusta*);
- Sonoran desert tortoise (*Gopherus agassizii* – Sonoran population);
- California leaf-nosed Bat (*Macrotus californicus*)
- Cave myotis (*Myotis velifer*);
- Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*); and
- Western burrowing owl (*Athene cunicularia hypugaea*);

The AGFD online review tool reported that the study area is within three miles of a wildlife corridor (Gila Bend-Sierra Estrella Linkage) and the San Lucy District Tohono O’odham Reservation (formerly Gila Bend Indian Reservation). The linkage design report for the Gila Bend-Sierra Estrella Linkage, *Arizona Missing Linkages Gila Bend – Sierra Estrella Linkage Design*, was prepared by Northern Arizona University (Beier, P., E. Garding, and D. Majka, 2008).

Several of the species noted by the AGFD online review tool are also federally-protected species which were previously discussed in Section 3.1 of this report. These species include yellow-billed cuckoo, Yuma clapper rail, and southwestern willow flycatcher.

Within the study area, the Sonoran Desert provides a suitable habitat for the Sonoran desert tortoise (AGFD, 2001a) and western burrowing owl (AGFD, 2001b). The western burrowing owl is also protected under the Migratory Bird Treaty Act of 1918 and potential impacts to this species should be evaluated prior to construction activities. Specific surveys to determine presence or absence of both species, the Sonoran desert tortoise (AGFD, 2007a, 2007b, 2008) and the western burrowing owl (AGFD, 2009), should be performed prior to construction. If these species are located within the project limits, a qualified biologist will need to remove and/or relocate these species prior to construction. Specific mitigation measures may be necessary to minimize impacts to these state-listed sensitive species.

The straw-top cholla is not known to be present in this portion of Arizona (www.efloras.org; accessed August 11, 2009). Currently, the Tucson shovel-nosed snake is known to be present only in Pima and Pinal counties, but a historical record of this species exists in Maricopa County just south of Gila Bend, Arizona (AGFD, 2002a).

The Gila River and associated riparian habitat may provide suitable habitat for the lowland leopard frog (AGFD, 2006). The current distribution of the roundtail chub does not include this portion of the Gila River (AGFD, 2002b). The cave myotis and the California leaf-nosed bat are documented inhabitants of desert scrub-shrub vegetation communities within the Sonoran Desert. Documented sightings of these bats within the study area vicinity have been recorded (AGFD, 2002c, AGFD 2001c). It is unlikely that impacts to roost sites will occur from this new roadway, and as opportunistic feeders the bats should not be significantly impacted by a new roadway.

Impacts to natural resources can be assumed with a new 38-mile long roadway that includes new R/W, removal of native vegetation, and new bridge crossings over ephemeral drainages and the Gila River. Before construction-related activities occur within the study area, it is recommended that field studies be performed to determine the presence or absence of these species, analyze potential project-related impacts, and develop appropriate mitigation measures to minimize impacts to these species.

3.3 Wildlife Crossing and Movement Corridors

The *Arizona Wildlife Linkage Assessment* identifies two potential linkage zones (PLZ) that are partially within the study area (Nordhaugen, et al., 2006). Potential linkage zones are portions of a habitat block critical for wildlife movement between two or more habitat blocks. Habitat blocks are defined as areas of land that consist of important wildlife habitat and can reasonably be expected to remain wild for at least 50 years. The PLZ in the study area include PLZ No.73 – Gila Bend-North Maricopa Mountains and PLZ No.151 – Gila/Salt River Corridor Granite Reef Dam-Gillespie Dam (see **Figure 5**). PLZ 151 is a zone that crosses multiple habitat blocks and therefore is a significant resource for habitat connectivity and wildlife movement. Both of these linkage zones are located along the Gila River and include riparian vegetation which supports a variety of birds, fish, reptiles, amphibian, and mammal species.

The *Arizona Wildlife Linkage Assessment* was a coarse scale analysis. The *Arizona Missing Linkages Gila Bend – Sierra Estrella Linkage Design* report is a fine scale design that was modeled for a suite of focal species for the PLZs 73 & 151. This final linkage design is identified on **Figure 5**. In addition to the wildlife linkages identified within the study area, there are several linkages that are located in the study area vicinity, including:

- PLZ No. 64 – Bighorn Belmont-Saddle Mountain;
- PLZ No. 65 – White Tanks-Hassayampa River;
- PLZ No. 68 – Saddle Mountain-Gila Bend Mountains;
- PLZ No. 72 – Sentinel Plain;
- PLZ No. 74 – North Maricopa Mountains-Sierra Estrella Mountains;
- PLZ No. 76 – South Maricopa Mountains-Sand Tanks;
- PLZ No. 126 – Bunyan Peak-Painted Rock Mountains;
- PLZ No. 127 – Margies Peak-Sheep Mountain; and
- PLZ No. 128 – North Maricopa- South Maricopa Mountains.

Wilderness areas and wildlife areas/refuges are important natural resources because they provide food, shelter, and other habitat requirements (including connectivity) to sustain many species of wildlife (AGFD, 1997). Numerous wildlife species, including mule deer, utilize the washes and undeveloped uplands within the study area to move between wildland habitats to the west and the LGRWMAC to the east. Species such as mule deer utilize the agricultural lands in the area as foraging areas. Conversion of these agricultural lands into other uses may impact wildlife movement patterns, population maintenance processes (immigration/emigration/genetics) as well as the local availability of food resources.

The AGFD has noted that the PLZs and natural drainage channels are critical for the movement and genetic diversity of the various wildlife species found in the study area vicinity. Wildlife movement between these habitat blocks and the wildlife linkage zones should be considered during final design to determine the best way to construct the roadway while maintaining uninhibited wildlife movement and connectivity within the project study area and vicinity. Major drainages and upland areas that have been identified as wildlife PLZs should incorporate wildlife-friendly roadway design considerations such as wildlife-friendly fencing and oversized select drainage culverts/bridges for maximum large mammal passage to adequately address maintaining or improving wildlife movement capabilities within and through the roadway R/W, especially along regional drainages.

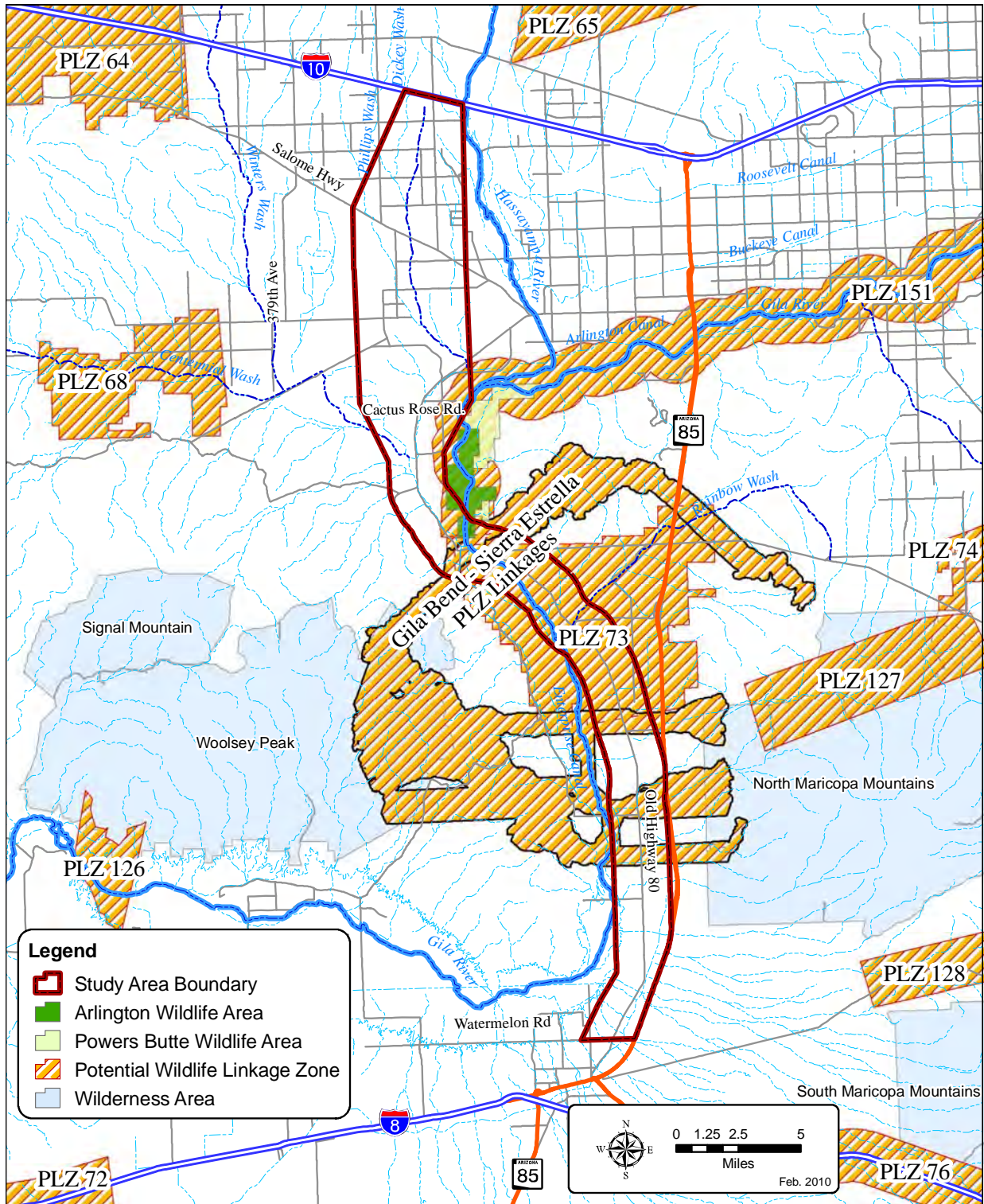


Figure 5 – Potential Wildlife Linkage Zones

In its Desert Spaces Plan (MAG, 1997), MAG has identified areas of open space for conservation, retention and areas of secured open space. Conservation Areas are defined as those that have outstanding open space value for recreational, aesthetic and biological purposes. Retention Areas include areas that have significant open space value that can co-exist with sensitive development. Secured Open Space Areas include federally managed multi-use and wilderness areas, AGFD lands, Maricopa County Regional Parks and municipal mountain preserves. There are portions of the study area that reflect all three of these categorizations. These open spaces provide wildlife habitat and also allow for the movement of wildlife. Consideration should be given as to the impact of the roadway in segmenting these open areas.

3.4 Invasive/Noxious Weeds

Invasive and noxious weeds are plants that are not native to Arizona and were introduced accidentally or intentionally. The weeds rapidly displace desirable plants that provide habitat for wildlife and food for people and livestock. The weeds are listed by state and federal law and are generally considered exotic and negatively impact agriculture, navigation, fish, wildlife, and public health.

Under *Executive Order 13112*, dated February 3, 1999, projects that occur on federal lands or are federally-funded must be “subject to the availability of appropriations, and within Administrative budgetary limits, use relevant programs and authorities to; (1) prevent the introduction of invasive species; (2) detect and respond rapidly to, and control, populations of such species in a cost-effective and environmentally sound manner; (3) monitor invasive species populations accurately and reliably; and (4) provide for restoration of native species and habitat conditions in ecosystems that have been invaded.”

Prior to construction, a field survey should be conducted by a qualified noxious weed authority to determine if any invasive or noxious weeds are present within the construction areas to determine if any mitigation measures are necessary.

3.5 Protected Native Plants

Native vegetation helps prevent erosion while providing food and shelter for wildlife. The Arizona Native Plant Law protects listed native plant species from collection, removal, and/or destruction on all lands regardless of ownership. Any action on or against protected native plant species is regulated by the Arizona Department of Agriculture (AZDA).

A limited native plant survey was conducted for easily accessible portions of the study area on July 7, 2009 by a qualified biologist. The limited survey determined that native plants are present within the study area. Native plants that were noted include various mesquite species, paloverde species, ironwood, saguaro, and catclaw acacia. Coordination with the AZDA should be conducted if any protected native plants are identified within the study area and could be impacted by the proposed project. If impacts to native plants are anticipated, a Notice of Intent and/or specific permitting may be required from AZDA prior to construction.

Impacts to native plants can be assumed with a new 38-mile long roadway as new R/W is acquired and converted to roadway use. As future construction limits are defined, a native plant survey should be conducted to determine if any protected native plant species would be impacted as a result from proposed improvements related to the roadway.

3.6 Floodplains

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for the study area vicinity indicated that the study area has a mapped floodplain and floodway. The major floodways within the study area boundary are shown on **Figure 6**. The following is a list of the FEMA FIRM panels for the study area:

- 04013C1980G;
- 04013C1985G;
- 04013C1990G;
- 04013C1995G;
- 04013C2455G;
- 04013C2460H;
- 04013C2465G;
- 04013C2470H;
- 04013C2830F;
- 04013C2835H;
- 04013C2855H;
- 04013C2860H;
- 04013C2865H;
- 04013C2870G;
- 04013C3230G;
- 04013C3235G;
- 04013C3240G;
- 04013C3245G;
- 04013C3480H; and
- 04013C3485H.

Impacts to floodplains occur when the floodplain is substantially modified either by the placement of structures or removal of materials within the floodplain. The proposed roadway project will cross several large drainages with floodplains and will require the construction of drainage structures such as bridges and box culverts. The roadway project is anticipated to impact FEMA floodplains and floodways. A Conditional Letter of Map Revision (CLOMR) will need to be prepared during final design and coordinated with the local floodplain manager (Flood Control District of Maricopa County). For a more detailed drainage and floodplain analysis, see Technical Memo #3 (Conceptual Drainage Report) associated with this project.

3.7 Water Quality

The Arizona Department of Environmental Quality (ADEQ) maintains the 303(d) List and Other Impaired Waters information for the U.S. Environmental Protection Agency (EPA) (<http://www.azdeq.gov/environ/water/assessment/assess.html>). This information indicated that the Gila River is impaired for the entire length of the study area. The southern portion of the Hassayampa River, from the intersection with Old US 80 to where it enters the Gila River, is also impaired. The Gila and Hassayampa Rivers are impaired due to dichlorodiphenyltrichloroethane (DDT) metabolites, toxaphene, and chlordane. These pesticides are found in fish tissue causing fish consumption from these water bodies to be hazardous to human health.

Because the Gila River is listed as an impaired water within the study area, the Arizona Administrative Code R18-11-107 anti-degradation policy dictates that ADEQ shall determine whether there is degradation of water quality in surface water on a pollutant-by-pollutant basis. This code states that “No degradation of existing water quality is permitted in a surface water where the existing water quality does not meet the applicable water quality standard.” Because the Gila River is impaired, additional coordination with ADEQ will be required during final design to ensure compliance with the federal Clean Water Act (CWA).

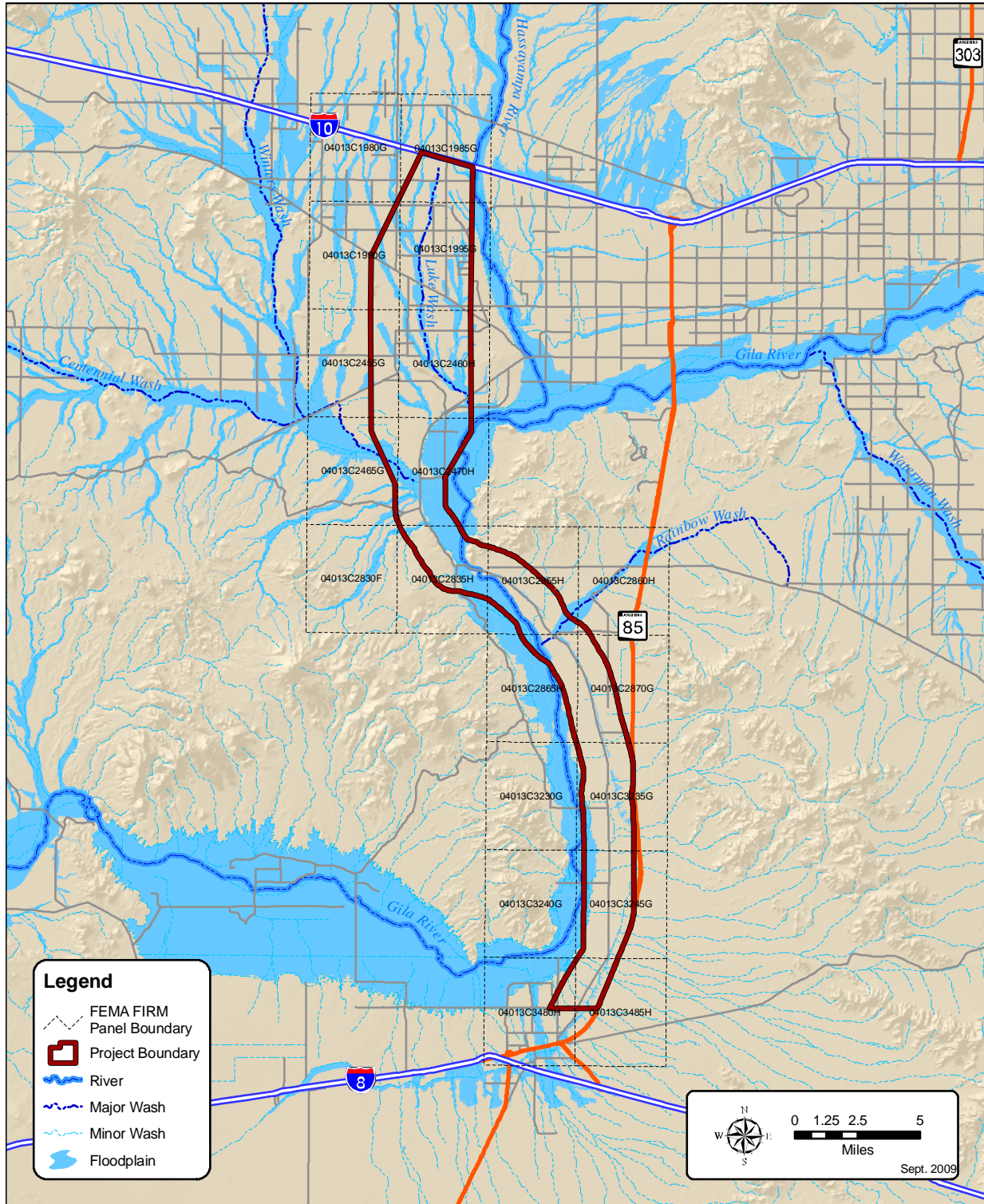


Figure 6 – FEMA Floodplains

3.8 Section 404/401 of the CWA

The United States Army Corps of Engineers (Corps) regulates the discharge of dredge and fill material into waters of the U.S. under Section 404 of the CWA. Any activity that will discharge dredge or fill material into jurisdictional waters, including wetlands, will require a CWA Section 404 Permit (either a Nationwide or Individual Permit). These activities include, but are not limited to, the installation of riprap, channel maintenance activities, bank protection, new or extensions of bridges, corrugated metal pipes, and box culverts.

The study area includes 13 named drainages and canals and several unnamed drainages. Other than the Gila River, the drainages within the study area are ephemeral, which means they only have flows in response to stormwater runoff from the contributing watershed. The following is a list of major drainages within the study area:

- Arlington Canal;
- Buckeye Canal;
- Centennial Wash;
- Dickie Wash;
- Enterprise Canal;
- Gila Bend Canal;
- Gila River – **impaired**;
- Hassayampa River – **impaired**;
- Luke Wash;
- Phillips Wash;
- Rainbow Wash; and
- Roosevelt Canal.

A preliminary evaluation to determine the presence or absence of potentially jurisdictional waters of the U.S. (including wetlands) within the study area was not conducted. Portions of the Gila River within the study area vicinity have been previously determined as Traditional Navigable Waters (TNW) under the new *Rapanos* jurisdictional determination guidelines (Corp Regulatory Guidance Letter No. 08-02). Therefore, drainages that flow into the TNWs may be subsequently determined to have ‘Significant Nexus’ and may also be considered waters of the U.S. In general, drainage channels within the study area that exhibit an ordinary high water mark (OHWM), have downstream hydrologic connectivity, and biological integrity may also be regulated under the CWA. A formal evaluation by the Corps to determine boundaries of waters of the U.S. will be required during final design.

Because the Gila River is listed as an impaired water, this project will be required to follow the Corps’ Pre-Construction Notification (PCN) process with a formal permit submittal even if impacts can be kept below 0.10 acres. In previous delineations of the Gila River within the study area vicinity, the Corps has claimed the entire floodplain as waters of the U.S. and any major bridged-crossing over the Gila River may require an Individual Permit with the Corps prior to construction. Furthermore, an individual application for a Section 401 certification will need to be submitted to the ADEQ instead of following the standard conditionally-certified process associated with the existing CWA Nationwide Permit Program.

3.9 Arizona Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) is a national program under Section 402 of the CWA that regulates discharges of pollutants from point sources into waters of the U.S. including sediment and pollutants that can be generated during ground-disturbing activities and transported by stormwater runoff. Arizona has been delegated authority from the U.S. Environmental Protection Agency to implement the permit program within the state. The state program is referred to as the Arizona Pollutant Discharge Elimination System (AZPDES). The AZPDES permit program requires a general permit for construction activities that disturbs one or more acres of land. A Stormwater Pollution Prevention Plan (SWPPP) must be prepared as a part of the permit. Although this is only a planning level study, it can be assumed that a 38-mile long roadway project would impact more than one acre of land and an AZPDES and SWPPP will be required during future project development.

3.10 Soils

According to the United States Department of Agricultural (USDA) Natural Resource Conservation Service’s soils website (<http://websoilsurvey.nrcs.usda.gov>, accessed June 29, 2009), the major soil types within the study area are Gunsight-Rillito-Chuckawalla (approximately 63 percent of the study area), Gilman-Lagunita-Indio (approximately 16 percent of the study area), Carrizo-Brios-Antho (approximately 11 percent of the study area), Denure (approximately 9 percent of the study area) and Quilotosa-Vaiva-Rock Outcrop Complex (approximately 1 percent of the study area). **Table 5** lists the characteristics of the soil types and **Figure 7** indicates where the soils are located in the study area.

Table 5 – Soil Type Characteristics

Soil Type	Typical Location	Depth to Restrictive Layer	Drainage Comments
Gunsight-Rillito-Chuckawalla	Alluvial fans at 0-10% slopes	More than 80 inches	Well drained to somewhat excessively drained, with a moderately high to high water transmission rate, which makes runoff from this soil type very slow or almost negligible.
Gilman-Lagunita-Indio	Floodplains at 0-1% slopes	More than 80 inches	Well to excessively drained, with a moderately high to very high water transmission rate, which makes runoff from this soil type almost negligible.
Carrizo-Brios-Antho	Floodplains at 0-1% slopes	More than 80 inches	Excessively drained with a high water transmission rate, which makes runoff from this soil type almost negligible.
Denure	Fan terraces at 1-3% slopes	More than 80 inches	Somewhat excessively drained with a moderately high to high water transmission rate, which makes runoff from this soil type very slow and almost negligible.
Quilotosa-Vaiva-Rock Outcrop Complex	Mountains at 15-55% slopes	More than 80 inches	Somewhat excessively drained with a very low to low water transmission rate, which creates a high potential for stormwater runoff.

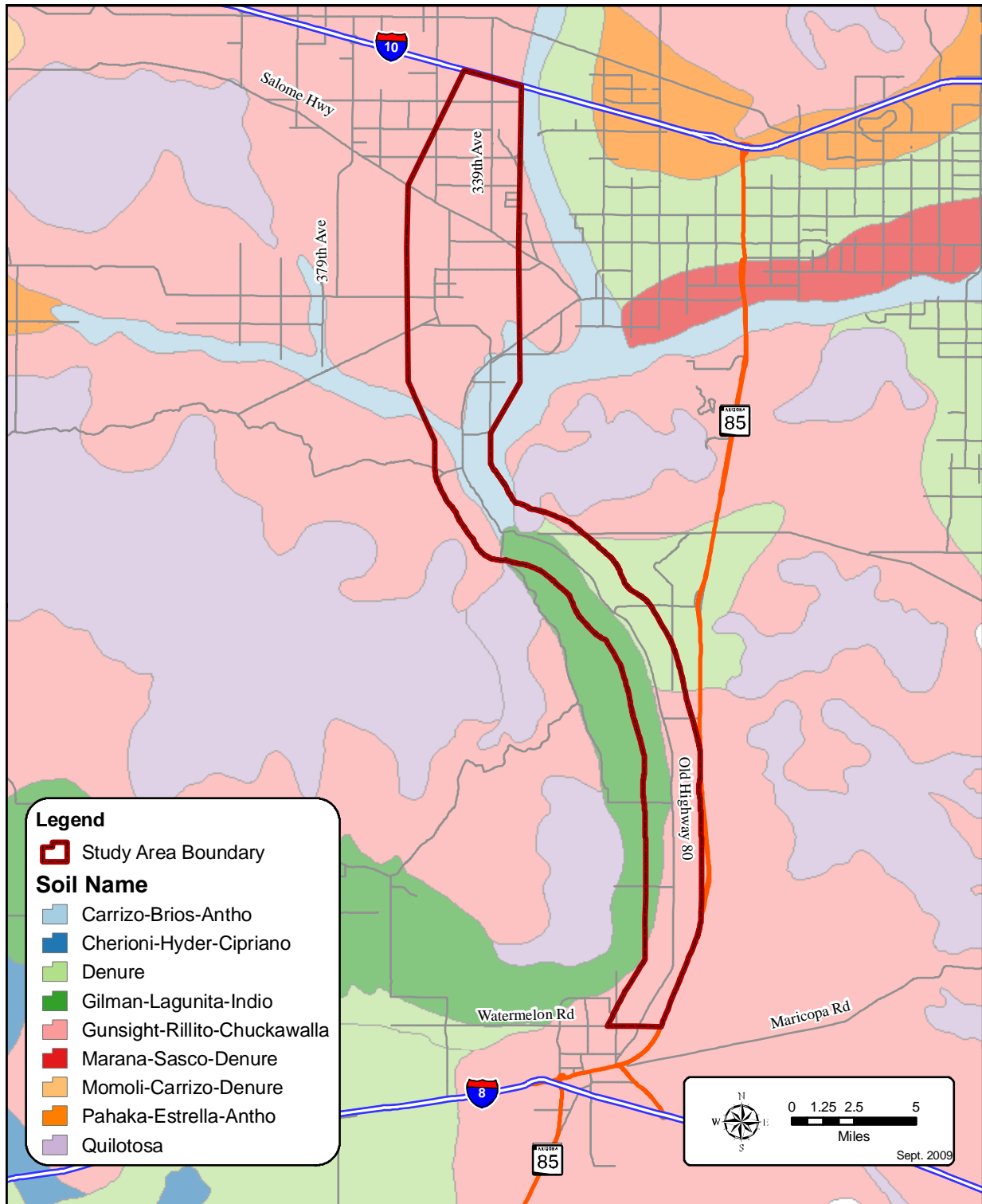


Figure 7 – Soils

3.11 Visual Resources

Impact to the visual quality of the study area is determined by the impairment or obstruction of views created by a project. In the north, the visual character of the study area is currently comprised of relatively flat lands with views of the Palo Verde Hills and Saddle Mountains. More distant views to the west/northwest are comprised of Big Horn Peak and Burnt Mountain. The visual character of the middle and southern portions of the study area consist of views of Signal Mountain, Woolsey Peak, Buckeye Hills, Gila Bend Mountains, Maricopa Mountains, riparian areas around the Gila River, and open farmland. A new roadway facility will have some visual impacts within the study area.

The BLM has some land management responsibilities within the study area and vicinity which include numerous wilderness areas. The BLM is responsible for ensuring that the scenic values of these public lands are considered before allowing uses that may have negative visual impacts. BLM strives to preserve scenic values through its Visual Resource Management (VRM) system. This system entails taking an inventory of scenic values and establishing management objectives for those values through the resource management planning process. Then, proposed activities are evaluated to determine whether they conform to the management objectives.

Impacts to existing viewsheds can be assumed with a 38-mile long new roadway that includes new R/W, conversion of native desert to roadway use, and visual changes in the landscape due to the new roadway facility. General impacts include altered viewsheds from area residences which may include a new roadway or improved roadway features. Viewsheds from various public access lands (BLM and ASLD) may include a new roadway or improved roadway feature that were not previously within or as dominant in the viewshed. Visual impacts associated with this project will also include a new crossing over the Gila River near the location of the existing Old US 80 Bridge and Gillespie Dam.

A visual resource analysis will be required as part of any future environmental document process and should include VRM staff from the BLM for those portions of the project located near BLM-managed land.

3.12 Air Quality

The federal Clean Air Act (CAA) requires that impacts to air quality be analyzed and addressed in the preparation of environmental documents. Pursuant to the CAA, the EPA has established National Ambient Air Quality Standards (NAAQS) for six air pollutants:

- Carbon monoxide (CO);
- Lead (Pb);
- Nitrogen dioxide (NO₂);
- Ozone (O₃);
- Particulate matter (PM) for both PM₁₀ and PM_{2.5}; and
- Sulfur dioxide (SO₂).

Based on federal and state air quality standards, a specific geographic area can be classified under the federal CAA as either being in “attainment,” “non-attainment,” or “maintenance” for each criteria pollutant. The criterion for non-attainment designation varies by pollutant so that an area can be in attainment for some pollutants and non-attainment for others.

The study area is located in an area of attainment for CO, Pb, NO₂, PM, SO₂. The study area is currently in non-attainment for eight-hour ozone (O₃), which is emitted from motor vehicle exhaust, gasoline vapors, and chemical solvents. High levels of eight-hour ozone can cause or increase existing respiratory problems, and can damage valuable ecosystems. The populations in the Towns of Buckeye and Gila Bend are projected to double between 2010 and 2020 according to the *MAG 2007 8-Hour Ozone Plan*, which will potentially increase the number of pollutant contributing vehicles in the study area. The *Ozone Plan* also estimates that vehicle miles traveled (VMT) between 2006 and 2026 will increase 72 percent in the non-attainment area from 89.4 million to 154.2 million (the non-attainment area is 4,880 square miles and contains 25 cities and towns, including Phoenix, and other jurisdictions). Increased VMT in the non-attainment area will have a negative impact to the air quality of the area.

The Hidden Waters Parkway will provide a major roadway transportation corridor connecting the growing Towns of Gila Bend and Buckeye. Currently, there is no main highway within the study area. State Route 85 is located east of the study area. Because eight-hour ozone is emitted from chemicals relating to motor vehicle sources, identifying and understanding the long-term air quality impacts of the new Hidden Waters Parkway, in an otherwise rural area, will require further analysis. However, since the alignment has not yet been identified, specific air quality impacts cannot yet be determined. Furthermore, construction could result in negative air quality impacts due to construction related traffic delays and from construction vehicles. The phasing of this project has yet to be determined. All construction activities must adhere to Maricopa County air quality rules and ordinances to minimize air quality impacts. Air quality impacts should be evaluated in greater detail once the alignment has been determined.

3.13 Noise Impacts

MCDOT employs the following guidelines to determine the need, feasibility, and reasonableness of noise abatement measures on all roadway projects according to the MCDOT Noise Abatement Policy, April 1998 (revised 2001). This policy is based on accepted practices and procedures used by federal and state transportation agencies to assess roadway-related noise impacts. As directed by 23 CFR Part 772, the Federal Highway Administration (FHWA) has developed specific, hourly, A-weighted noise abatement criteria that serve as the upper limit of acceptable traffic noise levels for various types of land use (see **Table 6**).

Table 6 – Noise Abatement Criteria

Activity Category	Description	Leq(h)
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose	57 dBA (exterior)
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals	67 dBA (exterior)
C	Developed lands, properties, or activities not included in Categories A or B	72 dBA (exterior)
D	Undeveloped lands	None
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums	52 dBA (interior)

Source: Title 23, CFR Part 772

Noise impacts occur if the anticipated sound levels for the study area meet or exceed the thresholds for each of the land use categories or approach 67 dBA Leq for Category B-type land uses. “Approach” is considered to be 66 dBA Leq. These levels are typically applied to exterior areas where lower noise levels would be of benefit. Traffic noise impacts also occur when the projected traffic noise levels substantially exceed the existing noise level (15 dBA Leq or more).

The study area contains all of the noise activity categories listed in **Table 6**. Potential sensitive noise receivers within the study area include existing residences, two elementary schools, one high school, large undeveloped parcels of land owned by the BLM and ASLD, and the Powers Butte and Arlington Wildlife Areas. During subsequent environmental documentation activities for the study area, ambient noise levels may need to be monitored at specific locations. Future noise quality assessments for the study area may need to be evaluated against existing noise data to determine conformity to the MCDOT Noise Abatement Policy. In addition, local noise ordinances may need to be considered during future project development.

3.14 Hazardous Materials

Hazardous materials are regulated by the Federal Resources Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as the Superfund. ADEQ implements CERCLA and its amendments, the Superfund Amendments and Reauthorization Act (SARA) of 1986. To investigate the environmental concerns associated with hazardous materials and solid waste landfills, a Preliminary Initial Site Assessment (PISA) of permitted and non-regulated hazardous material sites and solid waste facilities located within the study area was performed.

The PISA did not include site reconnaissance; however, a review of the various state and federal databases for hazardous materials was completed for the study area. Environmental Data Resources, Inc, (EDR) conducted a third party database search of regulated facilities within and in the immediate vicinity of the study area, sources used by EDR include:

- ADEQ Declaration of Environmental Use Restriction;
- ADEQ Hazardous Material Incident Logbook (HMIL);
- Arizona Hazardous Waste Treatment, Storage, and Disposal Facilities;
- Arizona Water Quality Assurance Revolving Fund;
- Department of Defense Sites;
- Solid Waste Landfills;
- National Priority List (NPL) Sites (Federal Superfund); and
- Voluntary Environmental Mitigation Use Restriction.

Upon review of the EDR report, eight environmental concerns were identified regarding Underground Storage Tanks (USTs), Leaking Underground Storage Tanks (LUSTs), and hazardous material incidents (SPILLS). In addition to the eight environmental concerns, the past and current agricultural land use and potential contamination from pesticides and herbicides is an environmental concern for the study area. The eight facilities/concerns are described below:

1. US Air Force Luke AFB – Incident # 99-117-d
I-10/339th Avenue, 1 mile north
Glendale, AZ
(Within the study area)



This facility was listed as SPILLS in the EDR database. There was a chemical release on 03/26/99. An unknown amount of Hydrazine, JP-8 was released from an aircraft. The spill was referred to SLD. Because the quantity of Hydrazine, JP-8 released during this incident and the extent of soil impacts/remediation are unknown, this incident is considered an environmental concern for the study area.

2. Tonopah Travel Center – Facility ID: 0-006518
1010 North 339th Avenue
Tonopah, AZ 85354
(Within the study area)

This facility has three LUST cases, two of which have no reported closure type or date. Additionally, this facility has seven UST cases with no reported closure type or date. Because this facility has LUST and UST cases with no removal dates or closure types, there are potential impacts to soil and groundwater. This facility is considered an environmental concern as it relates to LUSTs and USTs.

3. Deon Layton Ranch Inc – Facility ID: 0-001747
Woods Road & Old Highway 80
Buckeye, AZ
(Within the study area)

This facility has one open LUST case. No closure type or date was reported. Because of the potential impacts to soil and groundwater associated with open LUSTs, this facility is considered an environmental concern for the study area as it relates to LUSTs.

4. Walled Lake Door Co – Facility ID: 0-005563
Star Rt Box 500 Hwy 80
Gila Bend, AZ
(Within the study area)

This facility has one UST case reported. No closure type or date was reported. Because of the potential impacts to soil and groundwater associated with open USTs, this facility is considered an environmental concern for the study area as it relates to USTs.

5. Minute Mart #20 – Facility ID: 0-000936
P.O. Box 500 Old Highway 80
Gila Bend, AZ 85337
(Within the study area)

This facility has three UST cases reported. No closure type or date was reported on any of these cases. Because of the potential impacts to soil and groundwater associated with open USTs, this facility is considered an environmental concern for the study area as it relates to USTs.

6. Miccia Petroleum – Facility ID: 0-008066
121 West Pima Street
Gila Bend, AZ 85337
(1/2 mile south-southwest of study area)



This facility has four LUST cases, two of which do not have a reported closure type or date. However, the leak priority was reported as “known or probable affect on GW.” Because of the potential impacts to soil and groundwater associated with open LUSTs, this facility is considered an environmental concern for the study area as it relates to LUSTs.

7. Hassayampa Landfill – NPL 1000377789/azd980735666
Old Wickenburg Road
Hassayampa, AZ 85343
(1/2 to 3/4 mile east of the study area)

This facility covers 77 acres and is located in Hassayampa, Maricopa County. On-site monitoring wells are contaminated with chlorinated organic solvents, including 1, 1, 1-trichloroethane and trichloroethylene, according to tests conducted by Arizona Department of Health Services (ADHS). To date, contamination has not been detected in off-site wells (within three miles of the landfill); the Hassayampa Landfill is approximately 3/4 miles east of the study area. A remedial investigation/feasibility study to determine the type and extent of contamination at the facility and identify alternatives for remedial action will be undertaken by the potential responsible parties or by ADHS under a cooperative agreement with EPA. Due to the known groundwater contamination at this facility, it is an environmental concern for the study area.

8. Gila Bend
3.4 miles N of State Route 85 on west side
Maricopa (County), AZ
(1/4 to 1/2 mile south-southwest of the study area)

This facility is listed as a Solid Waste Facility/Landfill Site. No additional information was provided by EDR for this facility. These facilities typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Because of the lack of information currently available, this facility is considered an environmental concern for the study area.

Due to the customary and legal application of herbicides, pesticides, and fertilizers in conjunction with the past and current agricultural land use may have contributed to the degradation of the soil quality within the study area. Because cut and fill requirements have not been determined for a proposed project, and there is a potential for off-site disposal of soil originating from the study area, the past agricultural land use of the study area is an environmental concern.

A hazardous building materials evaluation or field reconnaissance was not performed as part of the PISA. The purpose of the PISA is to provide information for alternative site selection during project development. It is anticipated that in the future, R/W acquisition will be required once the project limits are established. Due to the information previously stated and the potential for future R/W acquisition associated with the proposed project, it is recommended performing a Phase I Environmental Site Assessment (ESA) upon identification of a preferred project alignment and prior to R/W acquisition to further evaluate the identified environmental concerns.

Assessments made as part of the PISA represent a reasonable attempt to identify environmental concerns for the study area. There is always the possibility that environmental concerns have escaped detection due to the limitations of the PISA, the incompleteness or inaccuracy of governmental records, or presence of undetected and unreported environmental incidents. If suspected hazardous materials are encountered during construction, work will cease at that



location and the MCDOT Hazardous Materials Coordinator will be contacted to arrange for proper examination of those materials.

4. CULTURAL RESOURCES

4.1 Regulatory Setting

In Arizona, the responsibility for identification, evaluation, protection, and treatment of cultural resources is codified under a matrix of federal, state, and local laws and regulations. The National Historic Preservation Act of 1966 (NHPA) as amended (16 USC §470 et seq.), requires that all federal agencies take into account the effects of their undertakings on places listed in or eligible for the National Register of Historic Places. Section 106 of the NHPA and its regulations (36 CFR 800) outlines a consultation process by which federal agencies can comply with their statutory responsibilities. The National Environmental Policy Act (NEPA) of 1969, as amended (42 USC §4321 et seq.) and the Council on Environmental Quality regulations for the implementation of NEPA (40 CFR 1500) requires the federal government to “preserve important historic, cultural and natural aspects of our national heritage.”

Other pertinent federal legislation that guides the proper treatment of cultural resources on federal lands or that may be impacted by projects funded or permitted by the federal government include: the Antiquities Act of 1906, as amended (16 USC §431-433), American Religious Freedom Act of 1978, as amended (42 USC §1996 and 1996a), Archaeological Resources Protection Act of 1979, as amended (16 USC §469-469c-2) and the Native American Graves Protection and Repatriation Act of 1990, as amended (25 USC §3001 et seq.) and Section 4(f) of the Department of Transportation Act of 1966 (23 USC §138).

The Arizona State Historic Preservation Act of 1982 established a consultation process for state agencies that mirrors the federal process established under the NHPA (ARS §41-861 et seq.). In addition, the Arizona Antiquities Act (ARS §41-841 et seq.) authorizes the Arizona State Museum to issue permits for archaeological projects within the state and assist in the enforcement of cultural resource legislation and the protection and repatriation of human remains and their associated funerary objects. Both these pieces of legislation include local government provisions and outline county/municipality responsibilities concerning the discovery and treatment of historical sites/objects, human remains and funerary objects.

4.2 Cultural Resource Inventory

A review of records for cultural resources was performed for the Hidden Waters Parkway Corridor Feasibility study area in May through July, 2009. Site files and information maintained at the Arizona State Historic Preservation Office and in the AZSITE cultural resources database, as well as cadastral survey maps/General Land Office Plats available from the BLM were analyzed for the records review. Additional information from the MCDOT’s Environmental Program, the Town of Gila Bend, and the Center for Desert Archaeology was also gathered and reviewed. With the concurrence of MCDOT’s Cultural Resource Manager Hugh Davidson, a decision was made to limit the records review. Most cultural resource inventories include a one-mile buffer around the study area. Because the purpose of this study is to identify and protect future R/W requirements and because the study area is already very large, a one-mile buffer was not included.

Due to the likelihood of future federal agency involvement in this project, the National Register of Historic Places (NRHP) criteria for evaluation are perhaps the best and most appropriate criteria which cultural resources within the study area should be evaluated.

The National Register criteria for evaluation are: *The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings,*

structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that,

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

Generally speaking, cemeteries, properties owned by religious institutions, structures that have been moved from their original locations or cultural resources less than 50 years old are not considered eligible for the NRHP. The National Park Service has identified guidelines for applying the criteria and exceptions to the restrictions listed above and others.

Two additional classes of cultural resources are known to be and/or are suspected to be found within the study area. These are a National Historic Landmark (NHL) and Traditional Cultural Properties (TCP). These are also sometimes called Traditional Cultural Places. In addition to Section 106, properties having NHL status warrant special consideration under Section 110 of the NHPA. TCPs are resources that may be eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in the community’s history, and (b) are important in maintaining the continuing cultural identity of the community (National Register Bulletin No. 38). A more detailed discussion regarding the nature of and potential for the existence of TCPs within the study area follows the cultural resource inventory records review information.

The records review indicated that there were 82 previous cultural resource survey investigations conducted within the study area (see **Table 7**).

Table 7 – Previous Cultural Resource Survey Investigations within the Hidden Waters Parkway Corridor Feasibility Study Area

Agency No.	Project Name	References
1955-3.ASM	Southern Pacific Pipeline Survey	AZSITE Project No. 4975
1964-4.ASM	Summary of Maricopa Co., AZSITES	Ayres (1965)
1976-6.ASM	EPNG West Coast/Mid-Continent Pipeline Project	AZSITE Project No. 4984
1977-20.ASM	Arizona Nuclear Power Project	Stein et al. (1977)
1979-42.ASM	Painted Rock Reservoir Project	Bergin and Bruder(1979)
1981-81.ASM	State Land Survey	AZSITE Project No. 11755
1982-199.ASM	ADOT Materials Pit 8644	AZSITE Project No. 11753
1982-51.ASM	Baldwin/ Arlington	AZSITE Project No. 11751
1983-102.ASM	ADOT Pit 1511	AZSITE Project No. 13126
1985-226.ASM	All American Pipeline Right-of-way	Batcho (1985)



Agency No.	Project Name	References
1986-192.ASM	Gillespie All-American Pipeline Valve	AZSITE Project No. 11735
1987-185.ASM	Pat Wagner Purchase	AZSITE Project No. 11730
1988-228.ASM	APS Gila Bend to Mobile 69 KV Transmission Line	AZSITE Project No. 9935
1988-57.ASM	Wintersburg Truck stop	Macnider (1988)
1989-22.ASM	Hassayampa - Gila Bend Tel. Cable	Macnider (1989)
1991-121.ASM	Gillespie Dam Pipeline Reroute	AZSITE Project No. 11724
1991-243.ASM	Business Route 8 ROW	AZSITE Project No. 287
1994-141.ASM	339th Avenue and Van Buren Street	Crownover (1994)
1994-157.ASM	EPNG Pacificorp Turbine Pipeline Project	Rogge (1994)
1994-273.ASM	Seven projects on 246.7 acres NE of Palo Verde Nuclear Generating Station	Davis (1994)
1994-312.ASM	Arlington Pesticide Site	Punzmann (1995)
1994-330.ASM	SR 85 between Gila Bend and Buckeye	Harmon and Beyer et al. (1995)
1994-440.ASM	Old US 80 Highway Survey	Owens (1994)
1996-115.ASM	339th Avenue and Salome Highway	Crownover (1996)
1996-118.ASM	Gust Rosenfeld	Hackbarth and Henderson (1996)
1998-245.ASM	ADOT - Yuma	AZSITE Project No. 8491
1998-288.ASM	SW Ventures 1.8 Acres	AZSITE Project No. 7998
1999-462.ASM	Cultural Resource Survey for the Proposed Panda Gila River Project	AZSITE Project No. 10300
1999-587.ASM	PBNS Level 3 Fiber Optic Line	Doak (1999)
2000-382.ASM	Cultural Resources Survey of Agua Caliente Road (Old U.S. Highway 80 to 1 Mile West)	AZSITE Project No. 10624
2000-385.ASM	Panda Gila River Pipeline	AZSITE Project No. 10716
2000-481.ASM	Gila River Transmission Project	AZSITE Project No. 10792
2000-497.ASM	Hassayampa Survey	AZSITE Project No. 11131
2000-543.ASM	Wylie Survey	AZSITE Project No. 11137
2000-567.ASM	Falk--SR 85	AZSITE Project No. 10852
2000-574.ASM	Materials Source #3573	AZSITE Project No. 10847



Agency No.	Project Name	References
2000-631.ASM	Palo Verde Transportation Route, Cotton Center to Palo Verde NGS	Garcia and Folb (2001)
2001-110.ASM	Gila Bend Power Partners Transmission Line Project	AZSITE Project No. 12020
2001-306.ASM	SRP SW Valley 500 kV	AZSITE Project No. 13859
2001-472.ASM	Gila Bend Power Partners Transmission Line-- Addendum	AZSITE Project No. 14166
2001-595.ASM	Gillespie Dam Gravel Pit	Hammack (2002)
2001-725.ASM	Gila Bend Partners Pipeline Project	AZSITE Project No. 14656
2001-736.ASM	State Route 85 Landfill Survey	AZSITE Project No. 14685
2001-767.ASM	Redhawk Power Plant Access Road	AZSITE Project No. 14697
2002-279.ASM	I-8 Gila Bend	Davis and Ogren (2002)
2002-280.ASM	I-8 Adobe Flats-Junction SR 85/Tonopah	Walsh and Ogren (2002)
2003-200.ASM	Proposed Redhawk Power Plant Access Road	Wilcox and Darrington (2002)
2003-674.ASM	SR 85 Landfill Supplemental Survey	Morton and Rogge (2003)
2003-951.ASM	Hassayampa to Jojoba 500kV Transmission Line	Chapin-Pyritz and Hill (2002)
2004-168.ASM	Arlington Elementary School 47 Documentation	AZSITE Project No. 15845
2004-1784.ASM	Gila Bend-Fann	Goldstein (2005)
2005-1106.ASM	Rinker - Arlington	Christenson (2006)
2005-200.ASM	355 th Avenue and Buckeye Road Survey	Gage (2005)
2005-381.ASM	Davis, Erin	Turner and Davis (2005)
2005-68.ASM	EPNG PIP 2004 Casa Grande to Wenden	North and Schmidt (2004)
2007-88.ASM	Rinker Gila Bend	AZSITE Project No. 18055
2008-327.ASM	SR 85 Gila Bend Additional Survey	AZSITE Project No. 18753
7.1005.SHPO	Unknown	AZSITE Project No. 6199
7.1006.SHPO	Unknown	AZSITE Project No. 6183
7.1012.SHPO	Unknown	AZSITE Project No. 6178
7.1017.SHPO	Unknown	AZSITE Project No. 6207
7.1018.SHPO	Unknown	AZSITE Project No. 6198
7.1019.SHPO	Unknown	AZSITE Project No. 6186
7.1020.SHPO	Unknown	AZSITE Project No. 6205



Agency No.	Project Name	References
7.1021.SHPO	Unknown	AZSITE Project No. 6192
7.1031.SHPO	Unknown	AZSITE Project No. 6206
7.1032.SHPO	Unknown	AZSITE Project No. 6191
7.1033.SHPO	Unknown	AZSITE Project No. 6184
7.3019.SHPO	Archaeological Assessment for the Paving of Lower Buckeye Road Near Wintersburg	AZSITE Project No. 3949
7.3336.SHPO	Archaeological Assessment of a Parcel of State Land	AZSITE Project No. 3092
7.3342.SHPO	Archaeological Survey for the Proposed Arlington	AZSITE Project No. 3139
7.942.SHPO	Unknown	AZSITE Project No. 6131
7.951.SHPO	Unknown	AZSITE Project No. 6179
BLM-020-11-061	Unknown	AZSITE Project No. 6608
BLM-020-11-087	Unknown	AZSITE Project No. 6604
BLM-020-11-13	Unknown	AZSITE Project No. 4649
BLM-020-11-34	Unknown	AZSITE Project No. 4666
BLM-020-12-22	Unknown	AZSITE Project No. 4877
MCDOT	Gillespie Dam Bridge – HAER Documentation	Fraserdesign (2006)
MCDOT TT 188	Cultural Resource Survey and Historical Context of the Gillespie Dam Bridge Potential Impact Area, MCDOT, Maricopa County, Arizona	Jones et al. (2007)
SHPO-2001-2978	American Tower Corporation Site #41900 Proposed 250 foot Telecommunications Tower	Breternitz (2001)
TR18.BLM	Unknown	AZSITE Project No. 5760

The surveys were conducted for a wide range of projects, including linear transportation studies, utility pipeline and transmission line R/W studies, and parcel specific projects for material pits and other development projects. It should be noted that many of these survey projects were completed prior to the year 2000. The Arizona State Historic Preservation Office (SHPO) has issued guidance on the use of older survey data for planning purposes and encourages the evaluation of older survey information for its continued validity or to determine if new survey investigations to current standards are warranted (SHPO Guidance Point 5, 2004).

The records review also indicated that a total of 121 cultural resource sites have previously been recorded within the study area (see **Table 8**). Of these sites two are listed on the NRHP, 16 sites have been determined eligible for inclusion on the NRHP by the SHPO, 50 were considered eligible for inclusion on the NRHP by their recorder, two were considered not eligible by their recorder, 37 sites have not been evaluated, and 14 had no evaluation information available. It should be noted that the Gatlin Site, which is one of the two sites listed on the NRHP, is also a National Historic Landmark.

Table 8 – Previously Recorded Cultural Resource Sites within the Hidden Waters Parkway Corridor Feasibility Study Area

Site Number(s)	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ CC:2:43 (BLM)	Enterprise Canal	Considered Eligible (A,D)	Chapin-Pyritz and Hill (2002)
AZ FF:9:17(ASM)	Historic US 80 road segment	Not Evaluated	Davis and Ogren (2002)
AZ T:9:1(ASU)	Sherd and lithic scatter	Not Evaluated	AZSITE No. 634073
AZ T:9:3(ASM)	Lithic scatter	Not Evaluated	AZSITE No. 34077
AZ T:9:4(ASM)/ 7.1033.SHPO	Historic homestead with features and associated trash scatter	Not Evaluated	Stein et al. (1977)
AZ T:9:32(ASM)	Historic homestead with features and associated trash scatter	Not Evaluated	Macnider (1985)
AZ T:9:40(ASM)/ 7.1021.SHPO	Historic building foundation, multiple rock alignments and well	Considered Eligible	Davis (1994)
AZ T:9:41(ASM)	Possible sleeping circle	Considered Eligible	Davis (1994)
AZ T:9:42(ASM)	Rock alignment and isolated, unrelated lithic	Considered Eligible	Davis (1994)
AZ T:9:43(ASM)	Rock feature no associated artifacts	Considered Eligible	Davis (1994)
AZ T:9:44(ASM)	Possible collapsed well with rock alignment feature	Considered Eligible	Davis (1994)
AZ T:9:46(ASM)	Segments of Wickenburg - Hassayampa Road with recent artifact scatter	Considered Not Eligible	AZSITE No. 62722
AZ T:9:47(ASM)	Remains of modern house destroyed by fire in 1977	Considered Not Eligible	AZSITE No. 62723
AZ T:9:75(ASM)	Historic mining test pits and associated artifact scatter	Considered Eligible (D)	AZSITE No. 88214
AZ T:9:76(ASM)	Low density artifact scatter with rock feature	Considered Eligible (D)	AZSITE No. 88215
AZ T:9:88(ASM)	Arlington Elementary School No. 47	Considered Eligible	AZSITE No. 94250
AZ T:10:80(ASM)	Arlington Irrigation Canal	Determined Eligible (A)	Harmon and Beyer et al. (1995)
AZ T:10:84(ASM)	Single track segment of the Wellton - Phoenix Sothern Pacific RR Line	Determined Eligible (A)	Harmon and Beyer et al. (1995)



Site Number(s)	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ T:13:1(ASU)	Prehistoric artifact scatter and roasting features	Not Evaluated	AZSITE No. 69610
AZ T:13:14(ASM)	Prehistoric Hohokam sherd scatter	Not Evaluated	AZSITE No. 59211/69620
AZ T:13:17(ASM)	Petroglyph site	Not Evaluated	AZSITE No. 59225/69623
AZ T:13:18(ASM)	Gillespie Dam and prehistoric Hohokam site with subsurface features	Determined Eligible (A,B,D)	Chavin-Pyritz and Hill (2002)
AZ T:13:20(ASM)	Prehistoric sherd and lithic scatters	Not Evaluated	AZSITE No. 59214/59323
AZ T:13:21(ASM)	Prehistoric Hohokam sherd scatter	Not Evaluated	Chavin-Pyritz and Hill (2002)
AZ T:13:32(ASM)	Petroglyph site	Not Evaluated	ASITE No. 59344/82119
AZ T:13:119(ASM)	Historic trash scatter	Not Evaluated	AZSITE No. 15370/59216
AZ T:13:120(ASM)	Petroglyph panels	Not Evaluated	AZSITE No. 15369/59215
AZ T:13:121(ASM)	Petroglyph panels	Determined Eligible (D)	Chavin-Pyritz and Hill (2002)
AZ T:13:127(ASM)	Gillespie Dam and Construction Camp Gillespie Dam and Construction Camp [portions of site previously recorded as AZ T:13:18(ASM)]	Considered Eligible (A,B,C,D)	Jones et al. (2006)
AZ T:13:128(ASM)	No information available	No information available	No information available
AZ T:13:129(ASM)	No information available	No information available	No information available
AZ T:13:130(ASM)	No information available	No information available	No information available
AZ T:13:131(ASM)	No information available	No information available	No information available
AZ T:13:132(ASM)	No information available	No information available	No information available
AZ T:14:2(ASM)	Prehistoric sherd and lithic scatters	Not Evaluated	AZSITE No. 82122
AZ T:14:3(ASM)	Prehistoric sherd scatter with subsurface features	Not Evaluated	AZSITE No. 82123
AZ T:14:4(ASM)	Prehistoric lithic scatter with subsurface features	Not Evaluated	AZSITE No. 82124
AZ T:14:14(ASM)	Large prehistoric Hohokam village with numerous features	Not Evaluated	AZSITE No. 82120



Site Number(s)	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ T:14:28(ASM)	Prehistoric sherd scatter with trail segments	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:58(ASM)	Dense prehistoric artifact scatter	Not Evaluated	AZSITE No. 82135
AZ T:14:60(ASM)	Clustered rock pile features	Determined Eligible (D)	Rogge (1994)
AZ T:14:61(ASM)	Portion of the Butterfield Stage Route	Determined Eligible (A)	Harmon and Beyer et al. (1995)
AZ T:14:62(ASM)	Prehistoric sherd and lithic scatter with multiple trail segments and rock feature	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:63(ASM)	Trail segments	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:64(ASM)	Trail segments with associated artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:66(ASM)	Trail segments	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:67(ASM)	Trail segments	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:68(ASM)	Multiple trails segments, a rock feature and lithic scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:69(ASM)	Multiple trails segments, rock rings, lithic and artifact scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:70(ASM)	Multiple trails segments, rock rings, rock alignment and artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:71(ASM)	Multiple trail segments, rock features, artifact scatter and petroglyph	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:72(ASM)	Multiple trail segments	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:73(ASM)	Multiple trails segments and lithic scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:74(ASM)	Multiple trails segments, sherd and lithic scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:75(ASM)	Multiple trail segments	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:76(ASM)	Multiple trails segments and lithic scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:77(ASM)	Insect Transformer Site - Petroglyph with assorted rock features	Determined Eligible (D)	Rogge and White (2003)



Site Number(s)	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ T:14:78(ASM)	Trail segment, rock features and associated artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:79(ASM)	Multiple trails segments and lithic scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:80(ASM)	Multiple trails segments, sherd and lithic scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:81(ASM)	Multiple trails segments, sherd and lithic scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:82(ASM)	Multiple trails segments, a rock feature and lithic scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:83(ASM)	Multiple trails segments, a rock feature and lithic scatter	Determined Eligible (D)	Harmon and Beyer et al. (1995)
AZ T:14:84(ASM)	Multiple trails segments and possible rock feature	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:85(ASM)	Multiple trails segments and rock features	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:86(ASM)	Trail segment, rock features and petroglyph	Determined Eligible (D)	Harmon and Beyer et al. (1995)
AZ T:14:87(ASM)	Multiple trails segments and rock features	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:88(ASM)	Trail segment, rock features, petroglyph and lithic scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:89(ASM)	Trail segment, rock features and sherd scatter	Determined Eligible (D)	Harmon and Beyer et al. (1995)
AZ T:14:90(ASM)	Trail segment, rock features and associated artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:91(ASM)	Multiple trails segments and sherd scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ T:14:92(ASM)	Trail segment, rock features and associated artifact scatter	Determined Eligible (D)	Harmon and Beyer et al. (1995)
AZ T:14:125(ASM)	Large prehistoric sherd scatter	Determined Eligible (D)	Bruder et al. (2001)
AZ T:14:126(ASM)	Petroglyph site with rock cobble feature	Determined Eligible (D)	AZSITE No. 78000
AZ T:14:127(ASM)	Site with rock cobble feature	Determined Eligible (D)	AZSITE No. 78001



Site Number(s)	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ T:14:128(ASM)	Site with rock cobble feature	Considered Eligible	AZSITE No. 78002
AZ T:14:129(ASM)	Historic trash scatter	Considered Eligible	AZSITE No. 78003
AZ T:14:134(ASM)	Prehistoric sherd and lithic scatter with rock cobble feature	Considered Eligible (D)	Garcia and Folb (2001)
AZ T:14:138(ASM)	Prehistoric artifact scatter with possible subsurface features	Not Evaluated	Goldstein (2005)
AZ T:14:139(ASM)	No information available	No information available	No information available
AZ T:14:140(ASM)	No information available	No information available	No information available
AZ T:14:141(ASM)	No information available	No information available	No information available
AZ T:14:142(ASM)	No information available	No information available	No information available
AZ T:14:143(ASM)	No information available	No information available	No information available
AZ T:14:161(ASM)	No information available	No information available	No information available
AZ T:15:32(ASM)	Portion of the Butterfield Stage Route [previously recorded as AZ T:14:61 (ASM)]	Determined Eligible (A)	Geiger and Dobschuetz (2002)
AZ Z:2:1(ASM)	Gatlin Site National Historic Landmark - large Hohokam habitation site	National Register Listed (D)	Weaver (1984)
AZ Z:2:44(ASM)	Multiple trails segments, rock ring and artifact scatters	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:45(ASM)	Multiple trail segments, sherd and lithic scatter and roasting features	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:46(ASM)	Possible trail segments, rock alignment and roasting features	Determined Eligible (D)	Harmon and Beyer et al. (1995)
AZ Z:2:47(ASM)	Multiple trail segments, rock features and artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:48(ASM)	Multiple trail segments, rock features and artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:49(ASM)	Multiple trail segments, rock clearings and artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)



Site Number(s)	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ Z:2:50(ASM)	Multiple trails segments, rock ring and lithic scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:51(ASM)	Multiple trail segments, rock features and artifact scatter	Considered Eligible	AZSITE No. 14633
AZ Z:2:52(ASM)	Multiple trails segments and a single lithic flake	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:53(ASM)	Multiple trail segments and artifact scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:54(ASM)	Multiple trails segments and lithic scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:55(ASM)	Multiple trails segments and sherd scatter	Considered Eligible	Harmon and Beyer et al. (1995)
AZ Z:2:6(ASM)	No information available	Not Evaluated	AZSITE No. 59390
AZ Z:2:66(ASM)	Gila Bend Canal	Determined Eligible (A)	Chapin-Pyritz and Hill (2002)
AZ Z:2:75(ASM)	No information available	No information available	No information available
AZ Z:2:76(ASM)	No information available	No information available	No information available
AZ Z:2:9(ASM)	No information available	No information available	AZSITE No. 59394
MPAEXP-17221	Gillespie Dam Highway Bridge	National Register Listed (A,B,C)	AZSITE No. 56509
NA12544	Historic basalt rock building and associated trash scatter	Not Evaluated	AZSITE No. 88282
NA12545	Historic cement foundation and associated trash scatter	Not Evaluated	AZSITE No. 88333
NA12546	Sherd and lithic scatter	Not Evaluated	AZSITE No. 88311
NA12548	Historic cement foundation and associated trash scatter	Not Evaluated	AZSITE No. 88309
NA12551	Cement	Not Evaluated	AZSITE No. 88310
NA12770	Rock features, sherd and lithic scatter	Not Evaluated	AZSITE No. 89027
NA12771	Multicomponent site - prehistoric habitation and historic trash scatter	Not Evaluated	AZSITE No. 89029
NA13604	Multiple trail segments and sherd scatter	Not Evaluated	AZSITE No. 88990
NA14625	Historic cement foundation and well	Not Evaluated	AZSITE No. 88307
NA14626	Old Buckeye-Salome wagon trail	Not Evaluated	AZSITE No. 88334



Site Number(s)	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
NA14925	Historic bridge footings and dirt roadway	Not Evaluated	AZSITE No. 88308
NA14926	Possible historic campsite	Not Evaluated	AZSITE No. 88306
NA15143	Historic homestead with features and associated trash scatter	Not Evaluated	AZSITE No. 88679
NA15682	Multicomponent site - prehistoric sherd scatter and historic trash scatter	Not Evaluated	AZSITE No. 87728
NA15683	Sherd and lithic scatter	Not Evaluated	AZSITE No. 89028
N/A	Gila Bend Stage Stop	Not Evaluated	SHPO Inventory Files

* NRHP Criterion listed in () if known. Considered Eligible – by site recorder. Determined Eligible – by SHPO.

4.3 Traditional Cultural Places

TCPs are cultural resources that may be eligible for inclusion in the NRHP because of their association with cultural practices or beliefs of a living community that (a) are rooted in the community’s history, and (b) are important in maintaining the continuing cultural identity of the community (National Register Bulletin No. 38). Though the records review for this report did not identify any documented TCPs in the study area, there is a high likelihood that such resources are present. The presence of large prehistoric habitation sites (such as the Gatlin Site), numerous and profoundly complex petroglyph panels, and the dramatic natural landscape including the juxtaposition of the mountain ranges with the Gila River, all suggest the long-term use and significance of the area by native peoples.

There may be other, non-native American communities present in the area that may also have TCPs located within the study area. As documented in Section 2.3 of this report, there are Hispanic and other minority population groups in the vicinity. These groups should be contacted in regards to locations within the study area that hold special meaning for them.

Information regarding the existence and location of TCPs can be challenging to obtain from communities who consider such places as sacred and/or significant and sensitive to their culture. Knowledgeable parties should be consulted regarding the presence, nature, and location of TCPs within the study area. It is also important to understand the role that the information being requested plays in the cultures of those involved and may require assistance from ethnohistorians, ethnographers, other cultural specialists and native language speakers.

Once information regarding TCPs is obtained, the NRHP evaluation of these resources for their potential eligibility must be conducted to determine what, if any, consideration these resources will require under Section 106 of the NHPA or other pertinent legislation.

4.4 Cultural Resource Recommendations

The entire study area has not been completely surveyed for cultural resources. As alternatives are selected, additional analysis will be required to determine the level and adequacy of previous cultural resource survey coverage. Once an Area of Potential Effect (APE) has been established for the project, areas within the APE that have not been previously surveyed will need to have a



Class III pedestrian survey completed that meets the Federal (Secretary of the Interior), SHPO and Arizona State Museum standards prior to any construction activity. Furthermore, if areas were surveyed prior to 2000 (or over 10 years old), the survey report should be re-evaluated to determine if it meets the current standards. If the older survey's methodology, staff qualifications, and documentation (site type identification, recordation, temporal threshold, and tribal/agency consultation) do not meet current standards, the survey should be updated and/or the project area should be surveyed again.

All cultural resources identified within the project's APE should be evaluated for their NRHP eligibility. If resources, particularly NRHP listed or eligible resources cannot be avoided by project activities, they should be treated in accordance with the Secretary of the Interior's Guidelines for the Treatment of Historic Properties and applicable state laws.

Considering the large number of archaeological sites, dramatic geographical features, proximity of Native American communities and their historic/expressed interest in the area, there is a high likelihood that TCPs are present in the study area. Tribal consultation should be initiated early in the planning process to seek information regarding areas of cultural importance to native people. In addition to Tribal consultation, consideration should also be given to other living communities (e.g. nearby Hispanic communities) that may attach cultural significance to places within the study area. As with other cultural resources, the significance and potential NRHP eligibility of all identified TCPs located within or in the proximity of the project's APE will need to be evaluated.

Consultation and compliance with the Arizona State Historic Preservation Act, Arizona Antiquities Act and Section 106 of the NHPA (if considered a federal undertaking) will be necessary as this project progresses.

5. CANDIDATE AND POTENTIAL SECTION 4(F) AND 6(F) RESOURCES

5.1 4(f) Resources

Section 4(f) of the Department of Transportation Act applies only to agencies of the Department of Transportation (USDOT, e.g. FHWA). Generally speaking, the law requires that if there is a feasible and prudent alternative that avoids the use of a 4(f) resource, then that alternative (the alternative that avoids use of the 4(f) resource) must be selected. This is a powerful regulation and may have important implications to the selection of alternatives for the Hidden Waters Parkway project.

Section 4(f) refers to the original section in the Department of Transportation Act of 1996. The 4(f) requirement, originally set forth in *Title 49 United States Code (U.S.C.), Section 1653(f)*, considers publicly-owned park and recreational lands, publicly-owned wildlife and waterfowl refuges, and historic sites in transportation project development. Section 4(f) states that the FHWA "...may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if...there is no prudent planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use." (*49 U.S.C. 303[c]*). Section 4(f) also establishes criteria by which public parks and recreation lands, wildlife, and waterfowl refuges and historic sites can be evaluated for consideration as 4(f) resources.

A "use" of a Section 4(f) resource, as defined in *Title 23, CFR, Part 771.135(p)*, "occurs: (1) when land is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes; or (3) when there is a constructive use of land. A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from a Section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired."

The LGRWMAC (which includes the Powers Butte and Arlington Wildlife Management Areas along the eastern edge of the study area) are considered 4(f) properties (see **Table 9**). These wildlife management areas consist of riparian and wetland habitats that are critical elements to wildlife nesting and feeding resources. Wildlife also utilizes agricultural land for foraging. Schools can also qualify as Section 4(f) if they are publicly owned, open to the public, have a major recreational purpose, and are considered to be significant resources by the community. Arlington Elementary and Winters' Well Elementary are the only schools within the study area. Gila Bend Elementary and Gila Bend High School are schools located just south of the study area. The Gila Bend Elementary School and High School occupy the same property. The recreational facilities at the Gila Bend Elementary and High School are funded by the Arizona Heritage Fund. This means that the facilities are open to the public, are a significant recreational resource in the community and may qualify as a 4(f) resource (see **Table 9**).

For purposes of Section 4(f), an historic site is significant only if it is listed on or eligible for the NRHP under criteria A, B and/or C. Of the currently recorded cultural resources within the study area, several are either listed or have been officially determined eligible by the SHPO for the NRHP (under criterion A, B, and/or C) and therefore may be considered candidate 4(f) resources (see **Table 9**). An additional two sites were considered eligible for the NRHP under these

criteria by their recorders and may also be potential 4(f) resources. Though the Gatlin Site [AZ Z:2:1 (ASM)] is listed on the NRHP under criterion D, its status as a National Historic Landmark and a public park owned by the Town of Gila Bend place it under consideration as a potential 4(f) resource as well.

Table 9 – Candidate and Potential 4(f) Resources

Wildlife Management Areas		
Arlington Wildlife Management Area		AGFD Administered
Powers Butte Wildlife Management Area		AGFD Administered
Schools		
Arlington Elementary School		Town of Arlington
Winters' Well Elementary School		Town of Wintersburg
Gila Bend Elementary and High School		Town of Gila Bend
Cultural Resource Sites		
Site No.	Site Description	NRHP* Eligibility (Criterion)
AZ CC:2:43 (BLM)	Enterprise Canal	Considered Eligible (A,D)
AZ T:10:80(ASM)	Arlington Irrigation Canal	Determined Eligible (A)
AZ T:10:84(ASM)	Single track segment of the Wellton - Phoenix Sothern Pacific RR Line	Determined Eligible (A)
AZ T:13:18(ASM)	Gillespie Dam and prehistoric Hohokam site with subsurface features	Determined Eligible (A,B,D)
AZ T:13:127(ASM)	Gillespie Dam and Construction Camp [portions of site previously recorded as AZ T:13:18(ASM)]	Considered Eligible (A,B,C,D)
AZ T:14:61(ASM)	Portion of the Butterfield Stage Route	Determined Eligible (A)
AZ T:15:32(ASM)	Portion of the Butterfield Stage Route [previously recorded as AZ T:14:61 (ASM)]	Determined Eligible (A)
AZ Z:2:66(ASM)	Gila Bend Canal	Determined Eligible (A)
AZ Z:2:1(ASM)	Gatlin Site National Historic Landmark - large Hohokam habitation site	National Register Listed (D)
MPAEXP-17221	Gillespie Dam Highway Bridge	National Register Listed (A,B,C)

* NRHP Criterion listed in (). Considered Eligible – by site recorder.
Determined Eligible – by SHPO.

The FHWA has published a policy paper (FHWA Section 4(f) Policy Paper, 2005) that serves as a guide for the applicability of Section 4(f) and outlines an evaluation process and alternative analysis procedures. As this project progresses, early identification and evaluation of potential 4(f) resources and analysis of the project's potential impact on them will be important to the effective and efficient planning of the project should FHWA involvement be anticipated.

The high probability that there are Section 4(f) resources located in the study area and the evaluation of resources identified in future cultural resource survey investigations for their potential as 4(f) resources must be taken into consideration should there be USDOT agency funding/involvement in the project.

5.2 6(f) Resources

The Land and Water Conservation Fund Act (LWCF) was signed into law on September 3, 1964. The purpose of the LWCF is to provide matching grants to state and local governments to acquire and develop public outdoor recreation areas and facilities. The LWCF strives to protect and maintain these areas and facilities for long term, high quality outdoor recreation experiences. The provisions under Section 6(f)(3) mandate that these investments be protected, but recognize that changes in land use, especially in growing urban areas, can impact these protected areas. The LWCF Act contains provisions to protect these areas from conversions. Property that is acquired or developed cannot be converted to uses other than public outdoor recreation uses unless it is approved by the Secretary of the Interior. The Secretary can approve such a land use change if the conversion is consistent with the then existing comprehensive statewide outdoor recreation plan. When necessary, the Secretary can also require that other properties be identified as a substitute for the loss of a converted outdoor recreation area. The other properties should be at least of equal fair market value and be similar in usefulness and location as the converted outdoor recreation area (National Park Service, 2004).

Research of the LWCF funded projects in Arizona was performed on August 17, 2009, using information from Arizona State Park's webpage (<http://www.azparks.gov/grants/library.html>). This research determined that no properties were funded with LWCF funds within the study area. The Town of Gila Bend accepted LWCF funds in 1977 and 1978 for general park improvements and development of tennis courts. Although a specific site was not identified in the available information, it is assumed that these funds were utilized for facilities at the Town-managed Burleson Park. Burleson Park is located in Gila Bend approximately 1.25 miles southwest of the study area boundary and along local roads not associated with this study. Therefore, there are no anticipated impacts to 6(f) resources.

6. ENVIRONMENTAL OVERVIEW CONCLUSIONS

The evaluation of the existing environment, socioeconomic considerations, physical and natural environment, cultural resources, and potential Section 4(f) and 6(f) resources conducted for the Hidden Waters Parkway study indicates that the following additional research, analysis, coordination, and/or permitting will be required (dependent upon funding source) prior to proposed roadway improvements within the study area. This Environmental Overview is not intended to meet the requirements of the NEPA.

6.1 Land Jurisdiction

The study area contains land managed by the BLM and ASLD. Both agencies are part of the Hidden Waters TAC and are active members of this planning study. As additional planning and design studies occur for the Hidden Waters Parkway and a final alignment is determined, various agency specific studies may be needed. If the Hidden Waters Parkway alignment includes BLM land, then the BLM will require a NEPA document be prepared to the Department of Interior standards in addition to the Federal Highway Administration (FHWA) standards. The BLM NEPA study will require a visual resource analysis as part of the environmental clearance process.

If the Hidden Waters Parkway alignment includes ASLD land, the ASLD will require a R/W easement permit to be processed. As part of this permit process various site specific environmental studies will be required. These studies include: threatened and endangered species surveys, native plant surveys including a stumpage fee calculation for plant salvage operations, a Phase I Environmental Site Assessment, and a cultural resource survey.

6.2 Socioeconomic Considerations and Title VI/Environmental Justice Populations

There are total minority, Hispanic or Latino of Any Race, native American and low-income populations within the study area that exceed the thresholds for disproportionate adverse impacts. Because a project within the study area will enhance overall mobility for the surrounding areas, those living in and around the study area will benefit from these improvements. Because this is a feasibility study and a specific roadway alignment, actual R/W needs, and project schedules are unknown at this time, exact impacts cannot be determined yet. Some general types of impacts such as new R/W, increases in ambient noise levels, socioeconomic impacts and community disruptions can be assumed with any major roadway project. Further consideration for these populations may be warranted for future environmental clearance documents.

6.3 Threatened and Endangered Species

The USFWS lists 15 species that are protected under the Endangered Species Act. If the Hidden Waters Parkway alignment includes a major bridged-crossing over the Gila River, it will likely impact riparian habitat and open water resources (Gila River) that may provide habitat for federally-listed species. Should this occur, the preparation of a Biological Evaluation to document compliance with federal regulations will likely be required per the Endangered Species Act of 1973 and the Migratory Bird Treaty Act of 1918.

6.4 Wildlife of Special Concern in Arizona

The AGFD lists 11 wildlife species of concern within three miles of the study area. Because the Hidden Waters Parkway will likely include conversion of native desert into roadway R/W and a major bridged-crossing over the Gila River, KHA recommends that MCDOT determine the

presence or absence of these species, analyze potential project-related impacts, and develop appropriate mitigation measures to minimize impacts to these species.

6.5 Wildlife Crossing and Movement Corridors

There are two PLZs and one fine scale PLZ linkage design that are partially within the study area. There are also two wildlife management areas within the LGRWMAC along the Gila River that include riparian vegetation that supports a variety of birds, fish, reptiles, amphibian, and mammal species. PLZs, wildlife management areas, and natural drainage channels are critical for the movement and genetic diversity of the various wildlife species found in the study area vicinity.

Wildlife movement between habitat blocks and the wildlife linkage zones should be considered during final design to determine the best way to construct the roadway while maintaining uninhibited wildlife movement and connectivity within the project study area and vicinity. Major drainages and upland areas that have been identified as wildlife PLZs should incorporate wildlife-friendly roadway design considerations such as wildlife friendly fencing and oversized select drainage culverts/bridges for maximum large mammal passage to adequately address maintaining or improving wildlife movement capabilities within and through roadway R/W, especially along regional drainages.

6.6 Invasive/Noxious Weeds

An invasive/noxious weed survey should be conducted prior to future project-specific actions to determine whether noxious weeds exist within the study area and to establish whether decontamination procedures should be put in place prior to any construction activities per Executive Order 13112 and the Arizona Native Plant Law.

6.7 Protected Native Plants

A native plant survey should be conducted to determine the presence of protected native plants within the study area that may be impacted by proposed improvements. Coordination with the Arizona Department of Agriculture should be conducted if any protected native plants are identified within the study area. In addition, impacts to native plants may require a Notice of Intent and/or specific permitting per Article 11: Arizona Native Plants.

6.8 Floodplains

Coordination with the Flood Control District of Maricopa County (FCDMC) and FEMA will be required if impacts are proposed within floodways. Project components associated with this study are anticipated to impact FEMA mapped floodplains and floodways. A CLOMR should be prepared during final design per the National Flood Insurance Act, Maricopa County Floodplain Regulations, and CLOMR requirements.

6.9 Section 404/401 of the CWA

A Jurisdictional Delineation may be required during future project design to determine the regulatory boundaries of waters of the U.S. and whether Section 404 Nationwide Permit (NWP), pre-construction notification, or an Individual Permit (IP) is required for project-specific actions (bridge and roadway features and/or dredging and fill activities) per CWA and Army Corps of Engineers requirements.

A Section 404 permit (NWP or IP) and a Section 401 Water Quality Certification will likely be required to construct a new bridge across the Gila River and other drainages. Under the NWP



Program in the State of Arizona, the Section 401 Water Quality Certification process is typically granted a conditionally certified status; however, because a portion of the Gila River within the study area is listed as impaired waters, a separate application for Section 401 Water Quality Certification will likely be required per CWA, EPA, and ADEQ requirements.

6.10 Arizona Pollutant Discharge Elimination System

An AZPDES permit and a SWPPP will be required for improvements that disturb more than one acre of land. Any future improvements located within one-quarter-mile of a designated impaired water (e.g., the Gila River) will require that the contractor provide visual and analytical monitoring in conformance with the requirements of the Arizona Statewide Stormwater Discharge Permit and the AZPDES General Permit per ADEQ requirements and Arizona Administrative Code Title 18, Arizona Revised Statutes, Title 49.

6.11 Air Quality

The study area is located within air quality non-attainment areas for eight-hour ozone. Proposed improvements associated with the Hidden Waters Parkway need to be included in the MAG Transportation Improvement Plan for at least one year and no more than three years, prior to construction. During construction of proposed improvements, any construction activity located within Maricopa County must adhere to applicable local air quality rules, ordinances, and permitting per CAA, ADEQ, Arizona Revised Statutes Title 49, and Maricopa County Air Pollution Control Regulations.

6.12 Noise

An evaluation of the future noise quality compared against the existing noise data for the study area will be needed. Noise receivers were identified within the study area and include existing and planned residential areas, and recreational open space. In addition, local noise ordinances need to be evaluated for future project development per FHWA, 23CFR772, and MCDOT Noise Abatement Policy requirements.

6.13 Hazardous Materials

Additional investigation is recommended for the study area due to the potential for currently unknown impacts to soil and/or groundwater stemming from the current and historic land uses. Due to the anticipated need for R/W acquisition, a Phase I ESA should be conducted prior to acquisition of new R/W to allow the purchaser the opportunity to qualify for Landowner Liability Protections under CERCLA. A hazardous building materials evaluation is recommended once R/W limits have been finalized and if existing buildings will be impacted by the project.

6.14 Cultural Resources

Once an APE has been established for the project, areas within the APE that have not been previously surveyed will likely need to have a Class III pedestrian survey completed that meets the Federal (Secretary of the Interior), SHPO, and Arizona State Museum standards prior to any construction activity. Furthermore, if areas were surveyed prior to the year 2000 (or over 10 years old), the survey report should be re-evaluated to determine if it meets the current standards. If the older survey's methodology, staff qualifications, and documentation (site type identification, recordation, temporal threshold, and tribal/agency consultation) do not meet current standards, the survey should be updated and/or the project area should be surveyed again.



All cultural resources identified within the project's APE should be evaluated for their NRHP eligibility. If resources, particularly NRHP listed or eligible resources, cannot be avoided by project activities, they should be treated in accordance with the Secretary of the Interior's Guidelines for the Treatment of Historic Properties and applicable state laws.

Considering the large number of archaeological sites, dramatic geographical features, proximity of Native American communities and their historic/expressed interest in the area, there is a high likelihood that TCPs are present in the study area. Tribal consultation should be initiated early in the planning process to seek information regarding areas of cultural importance to native people. In addition to Tribal consultation, consideration should also be given to other living communities (e.g. nearby Hispanic communities) that may attach cultural significance to places within the study area. As with other cultural resources, the significance and potential NRHP eligibility of all identified TCPs located within or in the proximity of the project's APE will need to be evaluated.

Consultation and compliance with the Arizona State Historic Preservation Act, Arizona Antiquities Act and Section 106 of the NHPA (if considered a federal undertaking) will likely be necessary as this project progresses per the National Historic Preservation Act and Arizona State Historic Preservation Act requirements.

6.15 Section 4(f) Resources

The high probability of Section 4(f) resources being located in the study area and the evaluation of resources identified in future cultural resource survey investigations for their potential as 4(f) resources must be taken into consideration should there be USDOT funding or USDOT agency involvement in the project.

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