



Kimley-Horn
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APPENDIX 2

TECHNICAL MEMORANDUM 2 – ENVIRONMENTAL OVERVIEW



Yuma Parkway Corridor Feasibility Study – Salome Highway to Palo Verde Road

Contract No.: 2010-055
Project No.: TT005

FINAL Technical Memorandum 2 Environmental Overview

Prepared by:



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TABLE OF CONTENTS

ENVIRONMENTAL OVERVIEW

1. INTRODUCTION.....	1
1.1 Background and Study Need.....	1
1.2 Study Area	1
2. GENERAL INFORMATION	5
2.1 Land Jurisdiction	5
2.2 Land Ownership and Use	5
2.3 Socioeconomic Considerations and Title VI/Environmental Justice Populations.....	9
3. NATURAL RESOURCES	15
3.1 Threatened and Endangered Species	15
3.2 Wildlife of Special Concern in Arizona.....	17
3.3 Wildlife Crossing and Movement Corridors	18
3.4 Invasive/Noxious Weeds	20
3.5 Protected Native Plants.....	21
3.6 Floodplains.....	21
3.7 Water Quality	23
3.8 Section 404/401 of the Clean Water Act (CWA).....	23
3.9 Prime and Unique Farmland	24
3.10 Arizona Pollutant Discharge Elimination System.....	24
3.11 Soils.....	26
3.12 Visual Resources.....	26
3.13 Air Quality	28
3.14 Noise Impacts.....	29
3.15 Hazardous Materials.....	30
4. CULTURAL RESOURCES	31
4.1 Regulatory Setting.....	31
4.2 Cultural Resource Inventory.....	31
4.3 Traditional Cultural Places	36
4.4 Cultural Resource Recommendations	37
5. SECTION 4(f) AND 6(f) RESOURCES	38
5.1 Potential 4(f) Resources	38
5.2 6(f) Resources.....	39
6. ENVIRONMENTAL OVERVIEW CONCLUSIONS.....	40
6.1 Land Jurisdiction	40
6.2 Land Ownership and Use	40
6.3 Socioeconomic Considerations and Title VI/Environmental Justice Populations.....	40
6.4 Threatened and Endangered Species	41
6.5 Wildlife of Special Concern in Arizona.....	41
6.6 Wildlife Crossing and Movement Corridors	41
6.7 Invasive/Noxious Weeds	42
6.8 Protected Native Plants.....	42
6.9 Floodplains.....	42



TABLE OF CONTENTS

ENVIRONMENTAL OVERVIEW

6.10	Water Quality	42
6.11	Section 404/401 of the CWA	42
6.12	Prime and Unique Farmland	42
6.13	Arizona Pollutant Discharge Elimination System	43
6.14	Soils.....	43
6.15	Visual Resources.....	43
6.16	Air Quality	43
6.17	Noise Impacts.....	43
6.18	Hazardous Materials.....	43
6.19	Cultural Resources.....	44
6.20	Potential 4(f) Resources	44
6.21	6(f) Resources.....	45
6.22	Summary of Future Environmental Studies.....	45
7.	LITERATURE CITED.....	46

TABLE OF CONTENTS

ENVIRONMENTAL OVERVIEW

LIST OF FIGURES

Figure 1 – Statewide Map	3
Figure 2 – Study Area	4
Figure 3 – Jurisdictional Boundaries	6
Figure 4 – Land Ownership	7
Figure 5 – Existing Land Use	8
Figure 6 – Potential Wildlife Linkage Zones	19
Figure 7 – FEMA Floodplains	22
Figure 8 – Prime and Unique Farmland	25
Figure 9 – Soils	27

LIST OF TABLES

Table 1 – Racial and Ethnic Demographics for the Study Area – Decennial 2000 Census.....	11
Table 2 – Elderly, Low-Income, Disabled, and Female Head of Household Demographics for the Study Area – Decennial 2000 Census.....	12
Table 3 – Limited English Proficiency (LEP) Population Demographics for the Study Area – Decennial 2000 Census.....	13
Table 4 – USFWS List of Threatened, Endangered, Proposed and Candidate Species for Maricopa County, Arizona	16
Table 5 – Soil Type Characteristics	26
Table 6 – Noise Abatement Criteria	29
Table 7 – Previous Cultural Resource Survey Investigations within the Study Area.....	33
Table 8 – Previously Recorded Cultural Resource Sites within the Study Area	35

1. INTRODUCTION

Technical Memorandum 2 (TM 2), entitled *Environmental Overview* (EO), focuses on environmental resources within and adjacent to the study area for the *Yuma Parkway Corridor Feasibility Study – Salome Highway to Palo Verde Road* (hereafter referred to as “the study”). The purpose of an EO is to identify known environmental issues, constraints, and potential opportunities early in the project development stages. An EO is not intended to meet the needs of a National Environmental Policy Act (NEPA) environmental clearance document. Additional detailed information about the study 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 Background and Study Need

In July 2008, the Maricopa Association of Governments (MAG) completed the *Interstate 10/Hassayampa Valley Transportation Framework Study* (known as the Hassayampa Framework Study), that 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 buildout travel demand). This long-range regional transportation network includes the “Arizona Parkway” as a new facility type to supplement more traditional roadway classifications in meeting projected travel demand.

The Arizona Parkway utilizes a distinct intersection treatment that prohibits left turns at major cross-street intersections and controls intersection traffic movements with two-phased traffic signal control. Left-turn movements are made indirectly using directional left-turn crossovers in the median immediately downstream of cross-street intersections. The typical right-of-way width for an Arizona Parkway is 200 feet.

The Hassayampa Framework Study recommended Yuma Parkway as an Arizona Parkway to meet buildout travel demands and provide a continuous parkway network. Although today’s land development and travel demands in the study area do not warrant a major new high capacity roadway in the short-term, the buildout forecast for future land development and travel demands does warrant a major new high capacity roadway in the long-term future. Plans are already underway to convert some of the vacant lands within the study area to land uses that will generate future traffic.

The scope of work for this study includes the preparation of a corridor feasibility report that will provide Maricopa County, the Town of Buckeye, area property owners, developers, and other stakeholders with guidelines to preserve a 200-foot-wide right-of-way corridor to accommodate the typical Arizona Parkway design. This will require significant coordination with various governing bodies, other public agencies, development interests, and the general public.

1.2 Study Area

The Yuma Parkway study area is approximately 13 miles long and two miles wide and is generally centered on the Buckeye Road/Yuma Road section line, from one-half mile west of Salome Highway to one-half mile east of Palo Verde Road.



Figure 1 shows the study location in the context of the State of Arizona. The study area boundary is shown in **Figure 2**. The Township (T), Range (R), and Section information associated with the study area includes:

- T1N R4W Sections 8-17;
- T1N R5W Sections 7-18; and
- T1N R6W Sections 7-9 and 17-18.

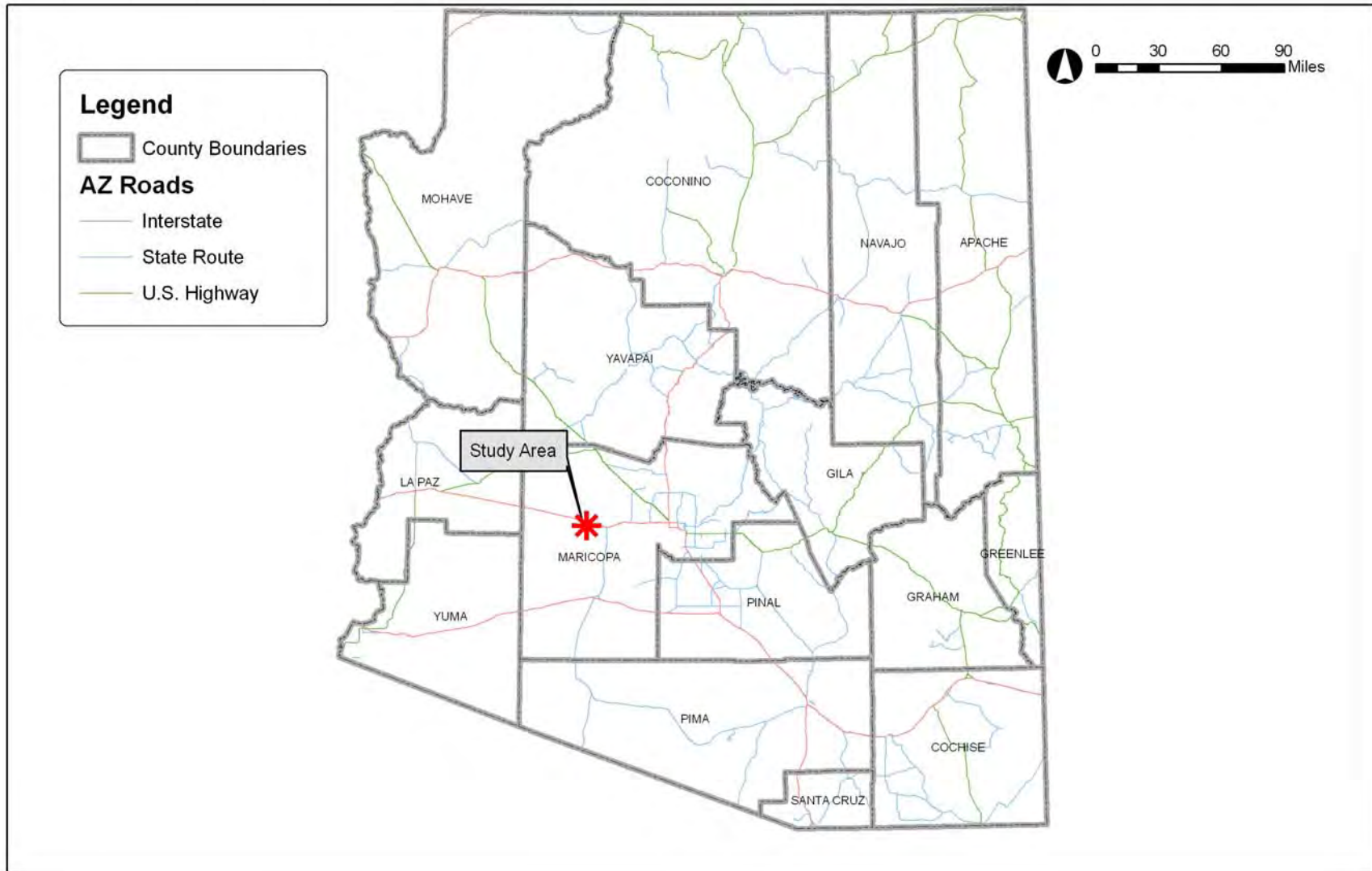


Figure 1 – Statewide Map

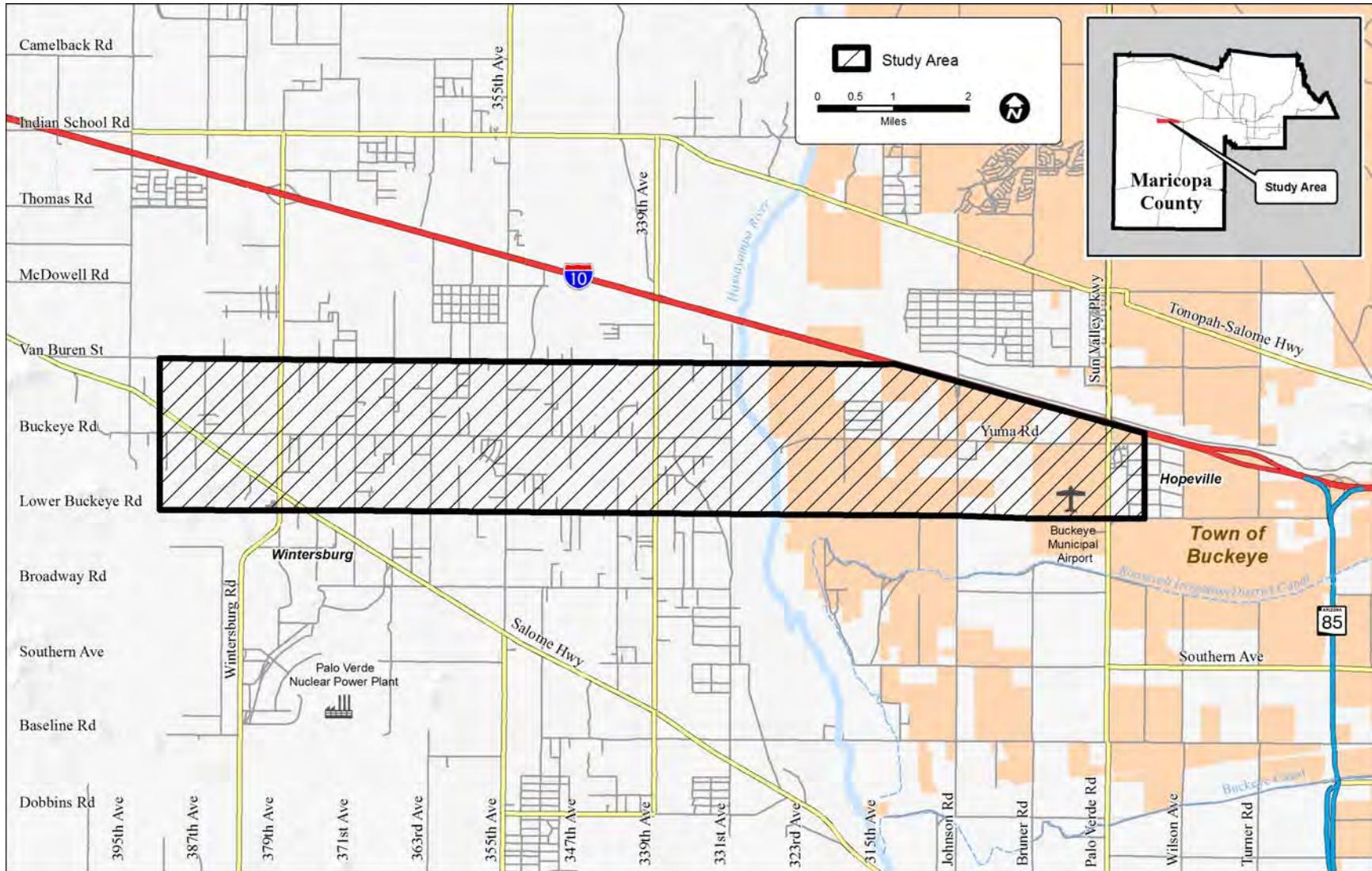


Figure 2 – Study Area

2. GENERAL INFORMATION

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

2.1 Land Jurisdiction

The entire study area is located within Maricopa County. Maricopa County has jurisdiction over the majority of the land and roadways within the study area. The Town of Buckeye has jurisdiction over the land within its town limits adjacent to and within the study area. Portions of the study area currently under Maricopa County jurisdiction are also within the Buckeye Municipal Planning Area.

Jurisdictional boundaries are illustrated in **Figure 3**, as per the Geographic Information Systems (GIS) data provided by the Public Works Department of Maricopa County in May 2009.

2.2 Land Ownership and Use

The study area contains a mix of both public and private lands. Approximately 84 percent of the land in the study area is privately owned. Public land owners in the study area include the Arizona State Land Department (ASLD), which owns 15 percent of the study area, and the Bureau of Land Management (BLM), which owns one percent of the study area. Land ownership in the study area is shown in **Figure 4**, as per the GIS data provided by Public Works of Maricopa County.



Undeveloped Arizona State Trust Land

Existing land use is documented in **Figure 5**. The predominant existing land use within the

study area is natural desert open space. There are large clusters of single family residential land uses west of the Hassayampa River within the study area. There are clusters of slightly higher density single family residential land uses between 373rd Avenue and 350th Avenue and on the west side of 331st Avenue between Buckeye Road and Van Buren Street. Agricultural land uses are



Natural desert open space

located on the southeast corner of the 331st Avenue/Buckeye Road intersection, on the south side of Yuma Road east of Johnson Road, and on the south side of Yuma Road east of Palo Verde Road. There are a few areas zoned as low retail (commercial) along 339th Avenue within or near the study area.

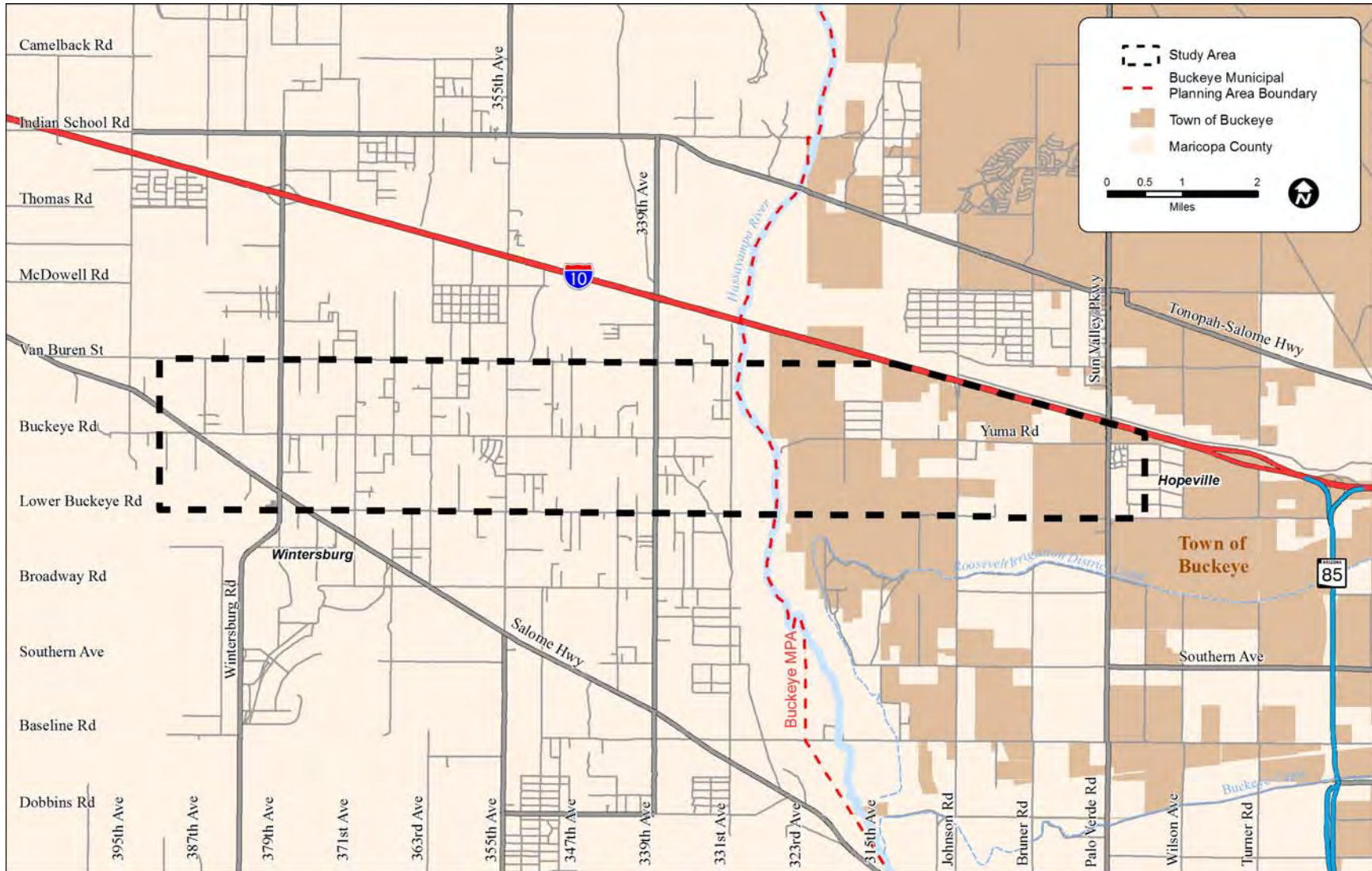


Figure 3 – Jurisdictional Boundaries

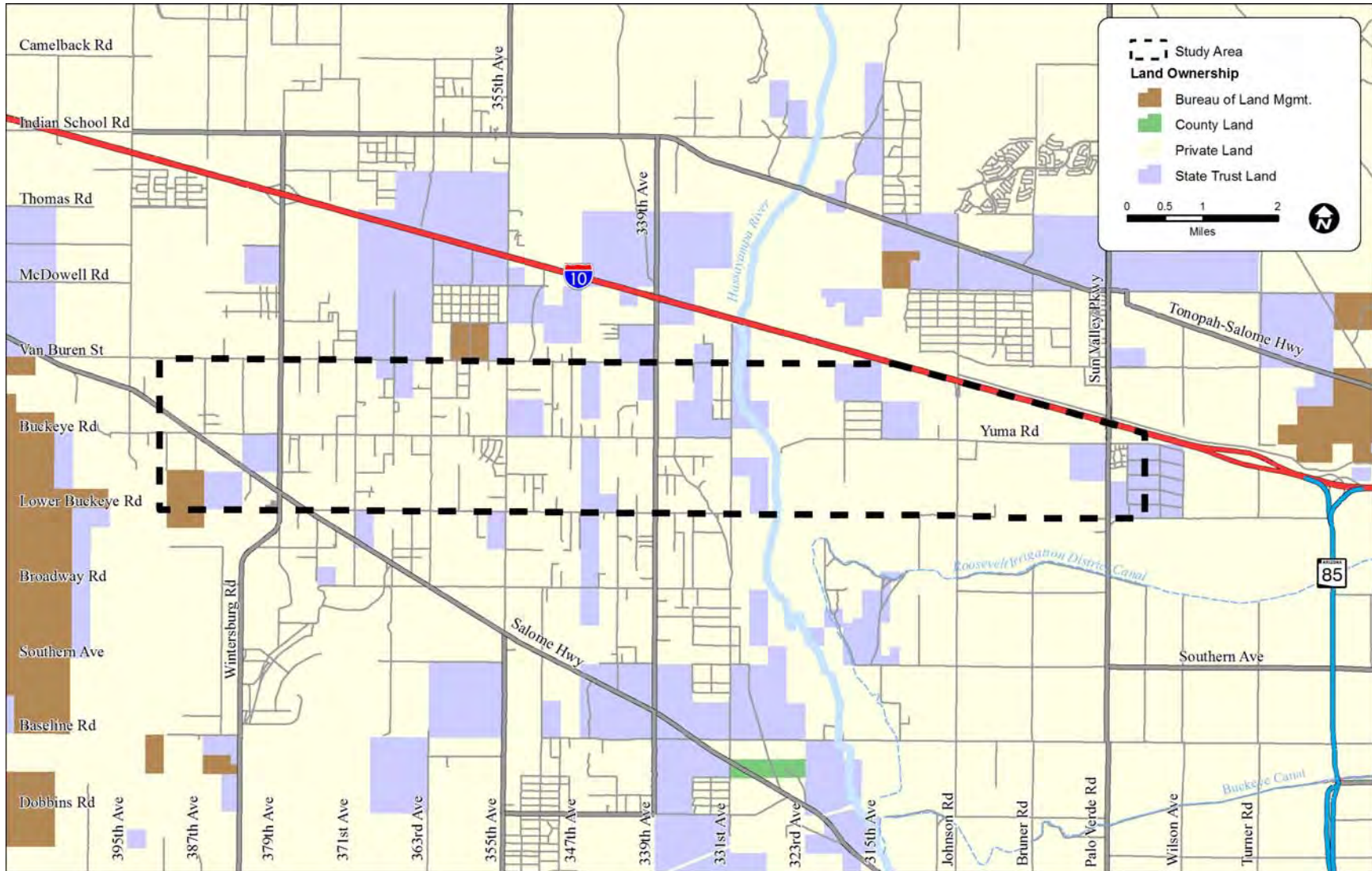


Figure 4 – Land Ownership

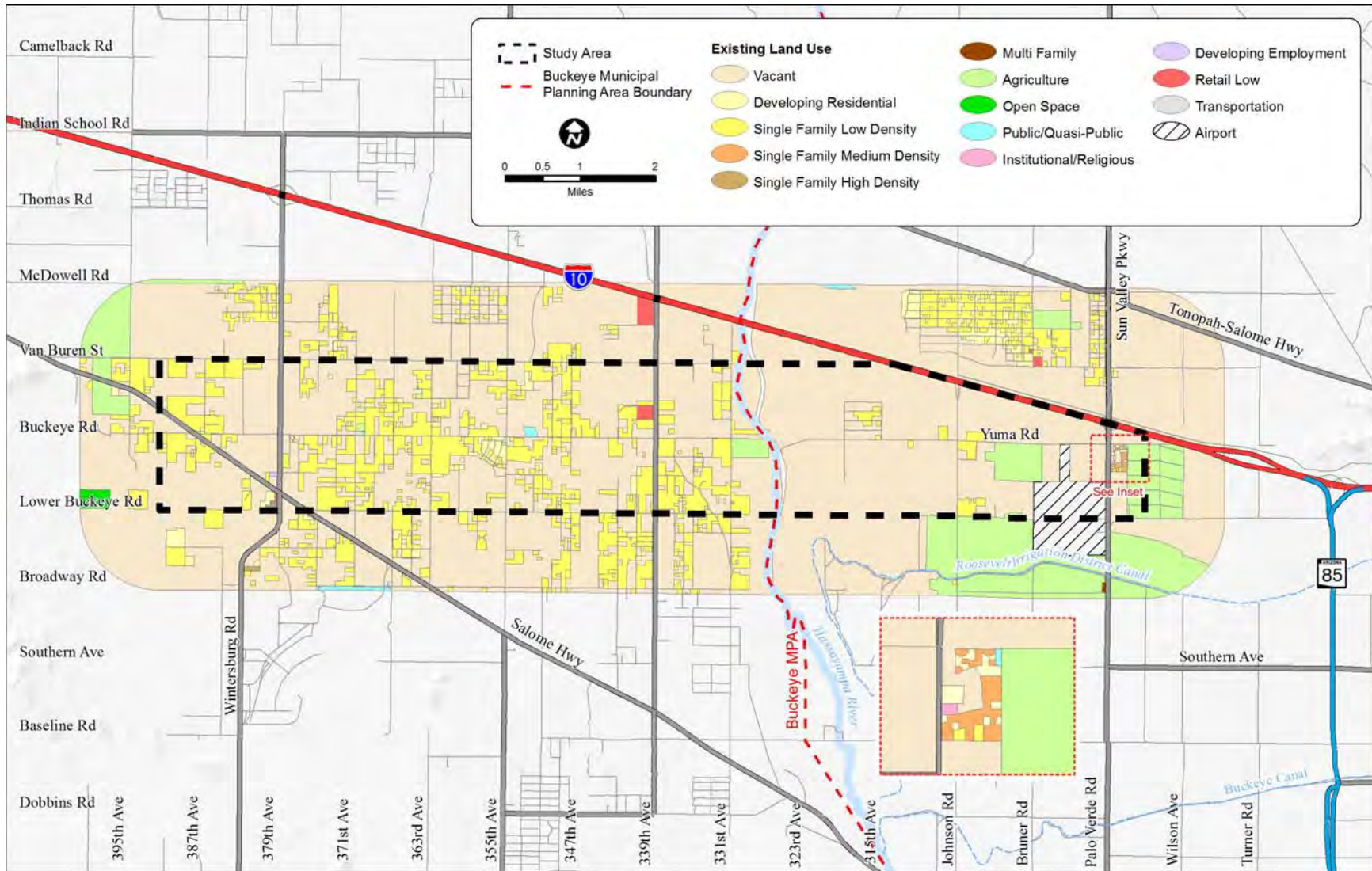


Figure 5 – Existing Land Use

The Buckeye Municipal Airport is located near the southeast corner of the study area. There is one school (Winters' Well Elementary School) within the study area, located at 35220 West Buckeye Road. There is one place of worship (Mt. Zion Holy Spiritual) within the study area, located at 1421 South Palo Verde Road.

According to the MAG general plan GIS data provided by Public Works of Maricopa County, the existing vacant land within the study area is anticipated to be converted to primarily low density single family residential uses west of the Hassayampa River with scattered areas converted to high density single family residential, high density retail, and multi-family land use.



Buckeye Municipal Airport



Existing vacant land

The existing vacant land east of the Hassayampa is anticipated to be converted into low, medium and high density single family, multi-family, business park, industrial, active open space, and high density retail.

The areas designated as future business park and industrial uses are located adjacent to the Buckeye Municipal Airport. The active open space and passive/restricted open space is located throughout the medium density single family residential uses and adjacent to the Hassayampa River. Low density single family residential land use is described by the Draft MAG Land Use Classification as less than or

equal to one dwelling unit per acre. High density single family residential land use is classified as more than four dwelling units per acre. These future land use patterns incorporate the land use plans for the large master planned communities in the study area vicinity.

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). Protected populations that are 50 percent or greater than the total population for the block group, or more than double the percentage of the population within the comparative county, are represented by shaded cells in **Table 1**, **Table 2**, and **Table 3**.

As complete 2010 census data is not yet available for the study area, the United States (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 Town of Buckeye and Maricopa County. 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.

On August 11, 2000, the President signed Executive Order 13166, “Improving Access to Services for Persons with Limited English Proficiency”. The Executive Order requires Federal agencies to examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them. It is expected that agency plans will provide for such meaningful access consistent with, and without unduly burdening, the fundamental mission of the agency. The Executive Order also requires that the Federal agencies work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries. **Table 3** illustrates the LEP populations for the study area.

As depicted in **Table 1**, the total minority population (48.9 percent) in the study area is slightly higher than the minority populations in Maricopa County and the Town of Buckeye (33.8 percent, and 41.7 percent, respectively) and slightly lower than the minority populations in Arizona (49.8%). Census Tract (CT) 506.02, Block Group (BG) 1 has a higher “Other” and “Population of Two or More Races/Not Hispanic or Latino” population than the State of Arizona, and significantly higher than Maricopa County, and the Town of Buckeye.

As depicted in **Table 2**, CT 506.02, BG 1 and CT 506.03, BG 2 has a higher percentage of elderly (13.0 and 14.2 percent), low-income (27.7 and 21.0 percent), and disabled (22.6 and 20.9 percent) than the Town of Buckeye. Both of the census tracts within the study area have a lower percentage of female households than Maricopa County and the Town of Buckeye.

As depicted in **Table 3**, CT 506.02, BG 1 and CT 506.03, BG 2 have a higher population of LEP (13.2 and 13.9 percent) than Maricopa County and the Town of Buckeye.

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			
Arizona	5,130,632	3,871,715	154,316	253,542	91,223	6,166	597,173	156,497	1,295,317	2,554,234
		75.5%	3.0%	4.9%	1.8%	0.1%	11.6%	3.1%	25.2%	49.8%
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
		66.2%	3.5%	1.5%	2.1%	0.1%	0.1%	1.7%	24.8%	33.8%
Town of Buckeye	6,417	3,741	233	47	40	0	0	68	2,288	2,676
		58.3%	3.6%	0.7%	0.6%	0.0%	0.0%	1.1%	35.7%	41.7%
CT 506.03, BG 2	1,663	1,026	24	25	0	0	0	8	580	637
		61.7%	1.4%	1.5%	0.0%	0.0%	0.0%	0.5%	34.9%	38.3%
CT 506.02, BG 1	2,112	1,615	15	49	10	0	336	87	712	1,209
		76.5%	0.7%	2.3%	0.5%	0.0%	15.9%	4.1%	33.7%	57.2%
Total Study Area	3,775	2,641	39	74	10	0	336	95	1,292	1,846
		70.0%	1.0%	2.0%	0.3%	0.0%	8.9%	2.5%	34.2%	48.9%

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.
Shaded cells indicate populations that meet the criteria for social impact analysis as defined in Section 2.3.

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	%
Maricopa County	3,072,149	465,849	15.2%	3,027,299	355,668	11.7%	2,802,278	504,992	18.0%	1,133,048	303,905	26.8%
Town of Buckeye	6,417	697	10.9%	6,393	1,200	18.8%	5,801	1,242	21.4%	2,140	569	26.6%
CT 506.03, BG 2	1,663	216	13.0%	1,643	455	27.7%	1,511	342	22.6%	522	68	13.0%
CT 506.02, BG 1	2,112	299	14.2%	2,103	442	21.0%	1,951	408	20.9%	706	61	8.6%
Total Study Area	3,775	515	13.6%	3,746	897	23.9%	3,462	750	21.0%	1,228	129	10.5%

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.

Shaded cells indicate populations that meet the criteria for social impact analysis as defined in Section 2.3.

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 (%)
Maricopa County	2,832,694	191,744	6.8%
Town of Buckeye	5,824	384	6.6%
CT 506.03, BG 2	1,522	212	13.9%
CT 506.02, BG 1	1,955	258	13.2%
Total Study Area	1,522	212	13.9%

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

Shaded cells indicate populations that meet the criteria for social impact analysis as defined in Section 2.3.

Most of the Title VI/Environmental Justice and LEP population percentages are comparable to both the State and County population percentages and do not exceed either of the two thresholds described above. However, the “Other”, and “Population of Two or More Races/Not Hispanic or Latino” populations in CT 506.02, BG 1 are at least double the respective population percentages of the County. Additionally, the low-income and LEP populations CT 506.03, BG 2 are double the respective population percentage of the county.

Because this is a corridor feasibility study and the detailed roadway alignment, right-of-way requirements, and project schedules are unknown, exact impacts cannot be determined at this time. General impacts such as additional right-of-way acquisitions, increases in ambient noise levels, socioeconomic impacts, community disruptions, and residential displacements can be assumed with a major roadway project. There is a very high percentage of private land ownership west of the Hassayampa River and displacements would likely be high in this area. In addition, it can be assumed that a new roadway within the study area will enhance overall mobility, benefiting those living in and around the study area.

It should be noted that the Title VI/Environmental Justice and LEP population numbers and percentages cover an area that is larger than the anticipated roadway footprint, and that the impacts to disadvantaged populations could change depending on the location of the proposed roadway alignment within the study area. Therefore, further consideration for these disadvantaged populations may be warranted for future environmental clearance documents.

Though not reflected in the census data due to the size of the census tracts, the small unincorporated community of Hopeville warrants discussion as a socioeconomic consideration. Historically the unincorporated community of Allenville, located in southern Buckeye, was repeatedly flooded by the Gila River. Most, if not all, of the Allenville residents were Black/African American and may have met the low income criteria. Serious flooding in the late 1970’s decimated the community and the U.S. Army Corps of Engineers (Corps) and ASLD relocated the residents to a new 105-acre community adjacent to Palo Verde Road in 1981 (see Figure 2) . The new community (Hopeville) had 15 single-family homes, 18 mobile homes, community center with day-care facilities, lodge, park and church constructed for the 100 (approximate) relocated residents.



Hopeville

3. NATURAL RESOURCES

The study area is located within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub Biotic Community (Brown, 1994). Within the Lower Colorado River Valley Subdivision, the study area is located within the Creosote-White Bursage and Mixed Scrub Series. Species that were observed during field reconnaissance by the study team include:

- Honey mesquite (*Prosopis glandulosa*);
- White bursage (*Ambrosia dumosa*);
- Creosote (*Larrea tridentata*);
- Blue paloverde (*Parkinsonia floridum*);
- Brittlebush (*Encelia farinosa*);
- Four-wing saltbush (*Atriplex canescens*) and;
- Desert broom (*Baccharis sarothroides*).



Paloverde and mixed scrub

The vegetation community within the study area lacks vegetation diversity and primarily consists of creosote and white bursage in the open plains/flat areas. The areas with ephemeral washes contain mesquite and blue paloverde trees in addition to larger creosote and white bursage. The Hassayampa River is located near the central portion of the study area and contains higher quality, density, and diversity of xeroriparian habitat. However, no roads were accessible to reach the Hassayampa River within the study area.

In addition to these plant species, the following wildlife species were observed: red tailed hawk (*Buteo jamaicensis*), round-tailed ground squirrel (*Spermophilus tereticaudus*), and coyote (*Canis latrans*) sign (scat).

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 May 9, 2011, 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 currently identifies 17 threatened, endangered, candidate, and proposed species in Maricopa County that are protected by the 1973 Endangered Species Act (U.S.C. § 136, 16 U.S.C. § 1531 et seq). **Table 4** summarizes the list and discusses the known presence or absence of, and potential effects on, each species and its habitat. During future planning and design studies, the USFWS list of threatened, endangered, proposed and candidate species and Arizona Game and Fish Department (AGFD) Heritage Database Management System should be reviewed to determine if new species have been identified or any changes in listing status have occurred.

The Sonoran desert tortoise (*Gopherus agassizii*) is found scattered throughout central and southwestern Arizona. According to AGFD distribution maps, the closest documented population to the study area is located approximately 20-30 miles to the west (AGFD 2010). The Sprague's pipit (*Anthus spragueii*) is rare in Arizona and is primarily found in southeastern Arizona although a few individuals have been found in alfalfa fields in Phoenix (AGFD, 2010). The Tucson shovel-nosed snake is currently listed as a candidate species by the USFWS and will likely be listed as threatened in the future (USFWS, 2010).

**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
California least tern	<i>Sterna antillarum browni</i>	E	No	No	No	No	No
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 yerbabuena</i>	E	No	No	No	No	No
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	No	No	No	No	No
Mountain plover	<i>Charadrius montanus</i>	PT	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	No	No	No	No	No
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	No	No	No	No	No
Woundfin	<i>Plagopterus argentissimus</i>	E	No	No	No	No	No
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	E	No	No	No	No	No
Desert tortoise Sonoran population	<i>Gopherus agassizii</i>	C	Yes	Unknown	No	Unknown	No Critical habitat, unknown suitable habitat
Roundtail Chub	<i>Gila robusta</i>	C	No	No	No	No	No
Sprague's pipit	<i>Anthus spragueii</i>	C	Yes	Unknown	No	Unknown	No Critical habitat, unknown suitable habitat
Tucson shovel-nosed snake	<i>Chionactis occipitalis klauberi</i>	C	Yes	Unknown	No	Unknown	No Critical habitat, unknown suitable habitat
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C	No	No	No	No	No

C= Candidate, E= Endangered, T= Threatened, PT= Proposed Threatened

Shading indicates species and/or habitat possibly affected.

The Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*) 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).

Although it is unlikely that the Sonoran desert tortoise, Sprague's pipit, or Tucson shovel-nosed snake are present within the study area, they should be noted because suitable habitat is present. No other suitable habitat for threatened or endangered species was observed within the study area.

On May 6, 2011, a windshield-level survey was performed by the study team to document vegetation communities, and to identify areas of significant natural resource value and suitable habitat for federally-protected species within the study area. The roadways within the study area were driven to inspect as much of the 24 square 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.

Impacts to natural resources can be assumed with the construction of new roadways and include: new right-of-way, removal of native vegetation, and new bridged crossings over ephemeral drainages and the Hassayampa River. Before construction-related activities occur within the study area, the presence or absence of these species (Sonoran desert tortoise, Sprague's pipit, Tucson shovel-nosed snake and/or other species that may be included in the USFWS threatened and endangered list at that time) 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. If these species are located within the study area, a qualified biologist will need to remove and/or relocate these species prior to construction. Specific mitigation measures provided by the AGFD for the Sonoran desert tortoise may be necessary to minimize impacts to these federal and state-listed sensitive species.

Currently no survey protocols exist for the Tucson shovel-nosed snake or Sprague's pipit. Coordination with the USFWS and AGFD should be completed prior to construction activities to ensure that no surveys methods have been developed that would require implementation.

3.2 Wildlife of Special Concern in Arizona

The AGFD Heritage Database Management System online review tool was accessed on May 3, 2011 through 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 online review tool did not list any species of concern occurring within three miles of the study area. However, the western burrowing owl has the potential to occur and has suitable habitat within the study area. Additionally, AGFD staff has indicated that AGFD considers the kit fox (*Vulpes macrotis*) and LeConte's thrasher (*Toxostoma lecontei*) to be potential species of concern because of rapidly declining habitat for these species.

3.2.1 Western Burrowing Owl (Athene cunicularia)

Western burrowing owl is a special status species not listed by AGFD. The western burrowing owl is protected under the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712) (AGFD 2001b). Potential impacts to this species should be evaluated prior to construction activities.

Impacts to natural resources can be assumed with the construction of new roadways that includes new right-of-way, removal of native vegetation, and new bridge crossings over ephemeral drainages and the Hassayampa River. Specific surveys to determine the presence or absence of the western burrowing owl (AGFD, 2009), should be performed prior to construction. If these species are located within the study area, a qualified biologist will need to remove and/or relocate these species prior to construction. Specific mitigation measures provided by AGFD for the western burrowing owl may be necessary to minimize impacts to this federally protected species.

3.2.2 *Kit Fox (Vulpes macrotis)*

The kit fox is a species that is not listed by AGFD but is experiencing habitat loss that could lead to listing in the future. Throughout their range, kit foxes are primarily associated with desert shrub or shrub-grass habitats. They appear not to need free-standing water, meeting their water requirement through metabolic processes instead. Dens are vitally important to kit foxes, providing more moderate habitat temperatures in both summer and winter, a factor that greatly reduces the animal's water needs (AGFD, 2011). Suitable habitat for the kit fox does exist within the study area. Surveys should be conducted prior to construction to determine the presence/absence of the kit fox. Appropriate mitigation measures commensurate with the listing status of the kit fox at the time of the surveys should be implemented if kit foxes are found within the study area.

3.2.3 *LeConte's Thrasher (Toxostoma lecontei)*

LeConte's thrasher is an additional species that is not listed by AGFD but is experiencing habitat loss that could lead to listing in the future. LeConte's thrasher is associated with desert scrub, mesquite, tall riparian brush, and chaparral. They are usually difficult to detect because of their foraging habits (beneath brush/trees) but can be detected by vocalization. Their diet includes insects, spiders, some seeds, and berries (Sibley, 2000). There is suitable habitat for LeConte's thrasher within the study area. Surveys should be conducted prior to construction to determine the presence/absence of LeConte's thrasher. Appropriate mitigation measures commensurate with the listing status of LeConte's thrasher at the time of the surveys should be implemented if LeConte's thrashers are found within the study area.

3.3 Wildlife Crossing and Movement Corridors

The *Arizona Wildlife Linkage Assessment* did not identify any potential linkage zones (PLZ) within or adjacent to the study area. PLZs 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 be expected to remain wild for at least 50 years. Although no PLZs are located in the study area, two PLZs are located within two miles of the study area. Additionally, the Hassayampa River transects the study area and should be considered a "linkage" zone even though no official linkage designation exists. The two PLZs are PLZ No.64 – Bighorn Belmont-Saddle Mountain and PLZ No.65 – White Tanks-Hassayampa River (see **Figure 6**). It should be noted that while PLZ No. 65 stops short of the actual Hassayampa River per the PLZ data provided by AGFD, it is assumed that PLZ No. 65 has connectivity to the Hassayampa River.

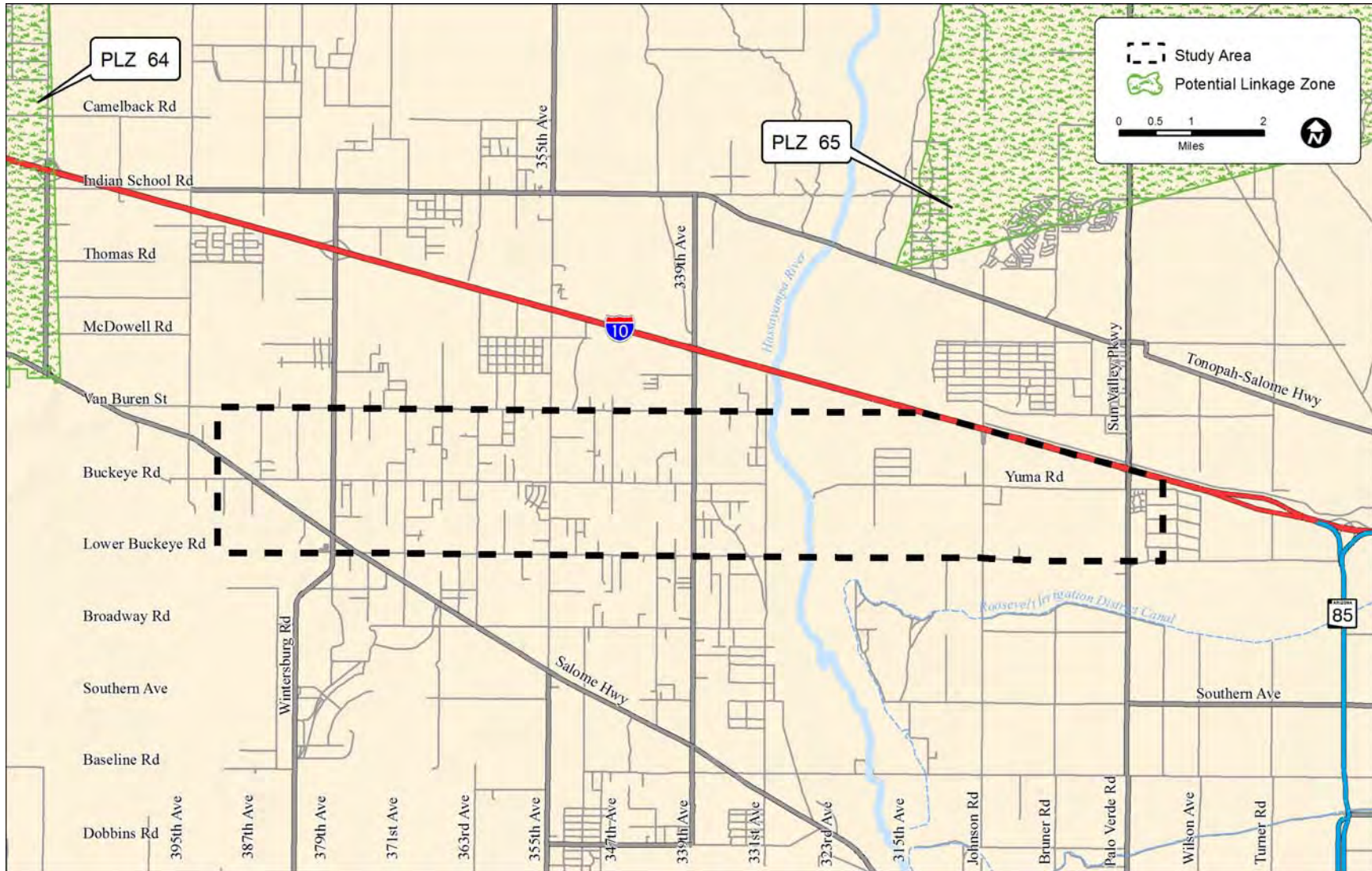


Figure 6 – Potential Wildlife Linkage Zones

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, javelina, coyotes, multiple bird species, and mountain lions utilize the washes and undeveloped uplands within the study area to move between wildland habitats. The majority of the study area is relatively flat, although there are mountainous areas (Palo Verde Hills and Saddle Mountains) west of the study area. Multiple species utilize the agricultural lands and areas immediately surrounding the agricultural land for foraging and/or shelter. 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 wildlife linkage zones should be considered during design to determine the best way to construct the roadway while maintaining uninhibited wildlife movement and connectivity within the 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 right-of-way, especially along regional drainages such as the Hassayampa River. Coordination with the AGFD and other interested partners should take place to develop regional strategies for moving wildlife through the study area and regional vicinity. These regional strategies would serve to help guide where and in what manner it would be appropriate to incorporate wildlife-friendly roadway crossings into the roadway design.

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. These open spaces provide wildlife habitat and also allow for the movement of wildlife. Within the study area there are 9,743 acres of passive restricted open space and 1,162 acres of active open space. The majority of these areas are located near the Hassayampa River. A small portion is located near the western boundary of the study area along 395th Avenue. Consideration to these areas 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.”

No invasive/noxious weed species were seen during the windshield reconnaissance completed for this overview. An invasive/noxious weed survey was not conducted during field reconnaissance. However, because the study area is 24 square miles, and the project is years away from design and construction, it is likely that invasive/noxious weeds are or will be present within the study area. 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 (Arizona Revised Statutes 3-905) 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 (ADA).

A limited native plant survey was conducted for easily accessible portions of the study area on May 6, 2011 by qualified biologists. The limited survey determined that native plants are present within the study area. Protected native plants that were noted include mesquite species and paloverde species. Areas within and adjacent to the Hassayampa River were not surveyed but it can be assumed that other protected native species are present such as ironwood, saguaro, catclaw acacia, and other cacti species. Coordination with the ADA 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 ADA prior to construction.

Impacts to native plants can be assumed with the construction of new roadways as new right-of-way 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 of proposed roadway improvements.

3.6 Floodplains

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for the study area indicated that the study area has mapped floodplains and floodways. The major floodplains within the study area are shown on **Figure 7**.

Impacts to floodplains occur when the floodplain is substantially modified either by the placement of structures or the removal of materials within the floodplain. The proposed roadways will cross several large drainages with floodplains and will require the construction of drainage structures such as bridges and box culverts. The proposed roadways are 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 (FCDMC) – if floodplains are modified. For a more detailed drainage and floodplain analysis, see TM 3 associated with this study.

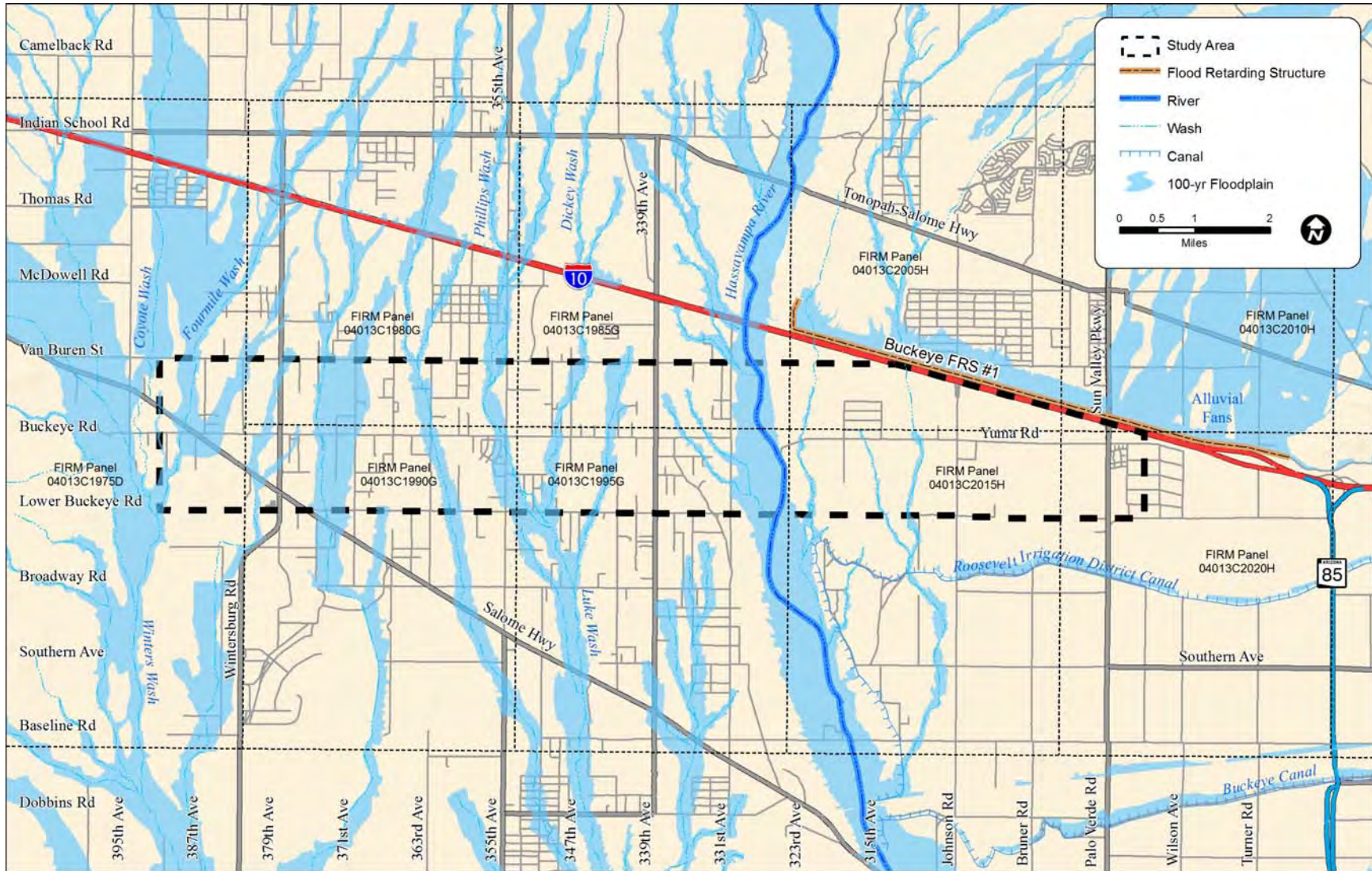


Figure 7 – FEMA Floodplains

The following is a list of the FEMA FIRM panels for the study area:

- 04013C1975D;
- 04013C1980G;
- 04013C1990G;
- 04013C1985G;
- 04013C1995G;
- 04013C2005H;
- 04013C2015H;
- 04013C2010H; and
- 04013C2020H.

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>). Currently no impaired waters are present within the study area. This list should be reviewed again during the design phase.

3.8 Section 404/401 of the Clean Water Act (CWA)

The Corps regulates the discharge of dredge and/or fill material into waters of the U.S. (WUS) under Section 404 of the CWA (33 U.S.C. §1251 et seq. (1972)). Any activity that will discharge dredge or fill material into jurisdictional waters, including wetlands, will require a CWA Section 404 Permit [either a Nationwide Permit (NWP) or an Individual Permit (IP)]. 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 five named drainages and several unnamed drainages.

The drainages within the study area are ephemeral, which means they only have flows in response to stormwater runoff from contributing watersheds.

The following is a list of major ephemeral washes/rivers within the study area:

- Fourmile Wash;
- Phillips Wash;
- Dickey Wash;
- Luke Wash; and
- The Hassayampa River.



Phillips Wash

A preliminary evaluation to determine the presence or absence of potentially jurisdictional WUS within the study area was not conducted. No documents were received from stakeholders showing any proposed or approved jurisdictional delineations.

However, portions of the Hassayampa River within the study area vicinity have been previously determined as WUS by the Corps. Therefore, drainages that flow into these washes may be subsequently determined to be WUS. An evaluation by the Corps to determine boundaries of WUS

will be required during design. A Preliminary Jurisdictional Determination or an Approved Jurisdictional Determination can be submitted to the Corps for review. A Preliminary Jurisdictional Determination is a non-binding delineation/determination that is typically pursued in the planning stages of a project. An Approved Jurisdictional Determination is a delineation/determination that is binding for five years that requires more data and processing time through the Corps.

3.9 Prime and Unique Farmland

The *Farmland Protection Policy Act* (FPPA) of 1994 [7 USC 4201] authorizes the Department of Agriculture to develop criteria for identifying the effects of federal programs on the conversion of farmland to nonagricultural uses. Farmland protected by the FPPA is classified as either unique farmland, prime farmland (which is not already committed to urban development or water storage), or farmland which is of state or local importance (as determined by the appropriate government agency and the Secretary of Agriculture).



Active farmland

According to the United States Department of Agricultural (USDA) Natural Resource Conservation Service's soils website (<http://websoilsurvey.nrcs.usda.gov>) there are prime farmland soils and farmland of unique importance located throughout the study area.

The prime and unique farmlands in the study area are shown in **Figure 8**. The soils were classified as prime farmland "if irrigated" or "if irrigated and either protected from flooding or not frequently flooded during the growing season". The majority of farmland of unique importance occurs in the western portion of the study area, although there is a large area near the central portion of the study area. The majority of prime farmland if irrigated is located in the eastern portion of the study area.

While the Hassayampa Framework Study assumed there will be no actively farmed and irrigated land within the study area in the buildout condition, consideration should be given to potential impacts to the prime farmland that may still exist when planned roadways are ultimately implemented within the study area.

3.10 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 WUS, 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. EPA 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 disturb one or more acres of land as well as for construction activities that disturb WUS (Section 401 Certification). 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 the construction of new roadways would impact more than one acre of land and/or WUS, so an AZPDES, 401 Certification and SWPPP will be required during future project development.

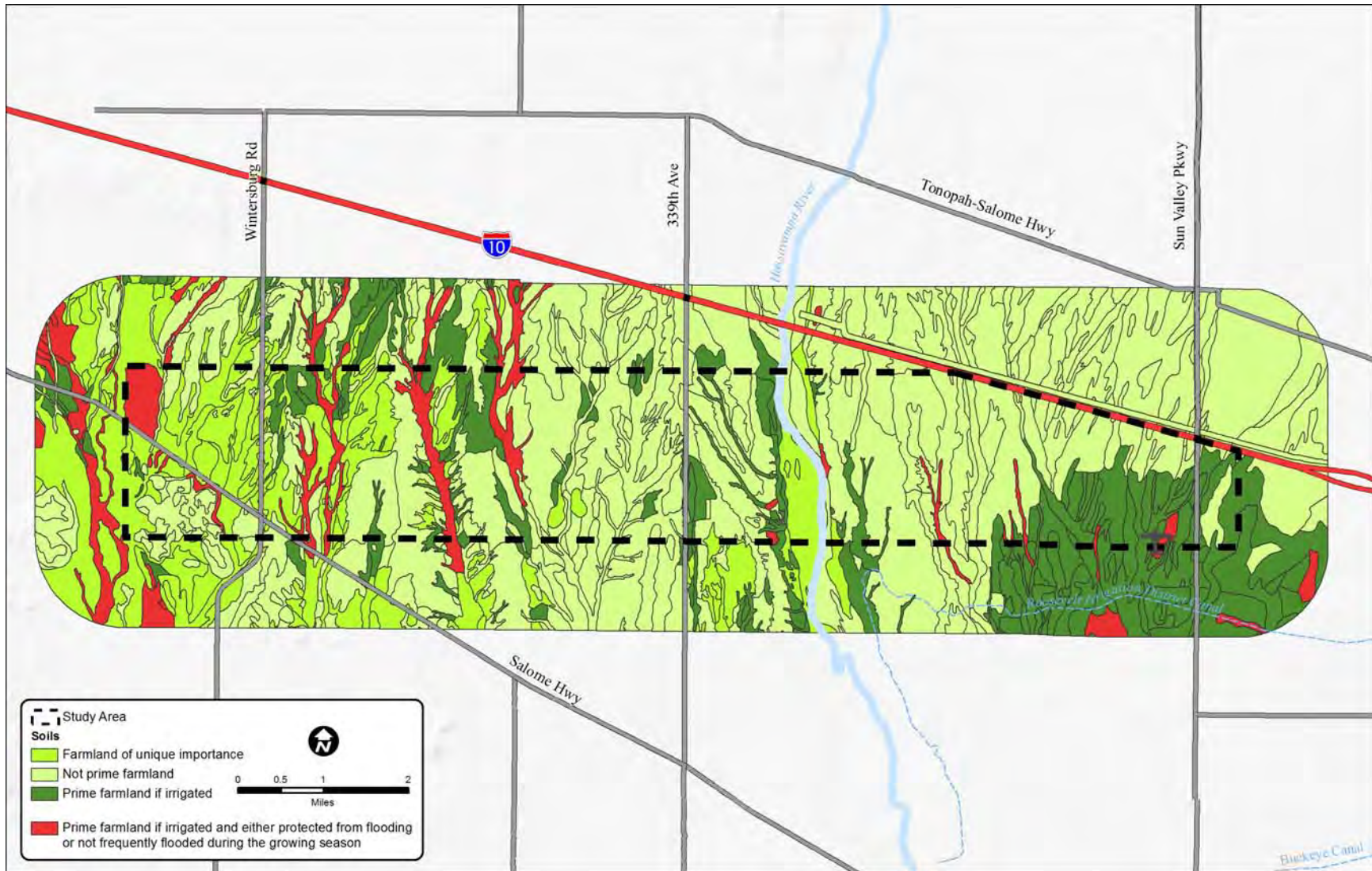


Figure 8 – Prime and Unique Farmland

3.11 Soils

Per the United States Department of Agriculture (USDA) Natural Resource Conservation Service's soils website (<http://websoilsurvey.nrcs.usda.gov>), the soil types within the study area are shown in **Figure 9**. **Table 5** lists the characteristics of the most common soil types.

Table 5 – Soil Type Characteristics

Soil Type	Typical Location	Depth to Restrictive Layer	Drainage Comments
Gunsight complex	Gunsight soils are on fan terraces or stream terraces, and have slopes of 0 to 60 percent.	3 to 20 inches	The Gunsight series consists of very deep, somewhat excessively drained, strongly calcareous soils that formed in alluvium from mixed sources.
Gilman	Gilman soils are on valley plains and low stream terraces. Slopes are 0 to 1 percent.	3 to 64 inches	The Gilman series consists of deep, well drained soils that formed in recent alluvium from a mixture of rocks.
Rillito	Rillito soils are on fan terraces or stream terraces. Slopes are dominantly 0 to 5 percent, but range to 40 percent.	3 to 40 inches	The Rillito series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium.

3.12 Visual Resources

Impact to the visual quality of the study area is determined by the impairment or obstruction of views. In general, the visual character of the study area is comprised of relatively flat lands throughout the study area. With the exception of a small mountain range (remnants of the Paloverde Hills) near the southwest boundary, several large ephemeral washes and the Hassayampa River there is very little topographic relief throughout the study area. The Palo Verde Hills are located west of the study area and the White Tank Mountains are located to the northeast. Interstate-10 and developed rural areas are located to the north, agricultural and developed rural areas are located to the east and south, and natural open space and pockets of developed rural areas are located to the west. The Palo Verde Nuclear Generating Station is also located south of the study area. A new roadway facility will have some visual impacts within the study area.

The BLM has some land management responsibilities within the southwest corner of the study area and in the surrounding study vicinity. 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. The 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 the construction of new roadways that includes new right-of-way, 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.

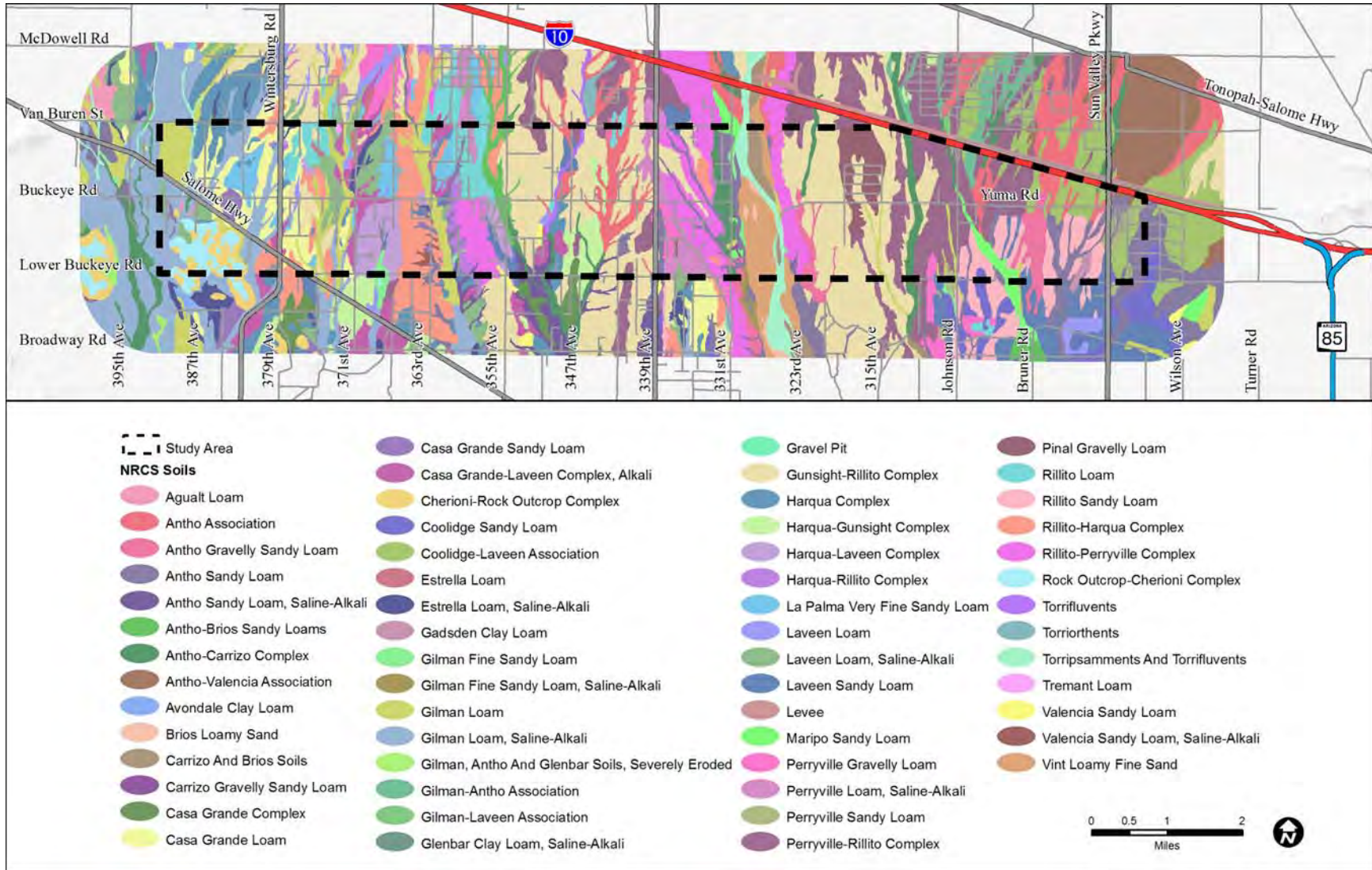


Figure 9 – Soils

Viewsheds from various public access lands (BLM and ASLD) may include a new roadway or improved roadway features that were not previously within or as dominant in the viewshed. Visual impacts associated with Yuma Parkway will also include a new crossing over the Hassayampa River.

The BLM land parcel is located near the southwest corner of the study area. The BLM will often trade land with other public agencies to maintain large contiguous parcels of BLM owned land. Should BLM still own the parcel near the southwest corner, 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 Yuma Parkway located near BLM-managed land.

3.13 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.

If a pollutant in a region meets or exceeds the NAAQS set by the EPA, it is defined as an attainment area. If a pollutant does not meet the minimum NAAQS, it is defined as a non-attainment area. Maintenance areas are areas previously defined as nonattainment areas that are in transition to becoming attainment areas after monitoring data demonstrates air quality standards are being met. The study is in attainment areas for the following pollutants: CO, Pb, NO₂, PM₁₀, and 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 population in the Town of Buckeye is 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, particularly due to increased O₃ levels.

Yuma Parkway will provide a major roadway transportation corridor south of I-10. 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 Yuma Parkway, in an otherwise rural

area, will require further analysis. However, because the final alignment has not yet been identified, specific air quality impacts cannot yet be determined. Furthermore, construction could result in negative temporary 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 and design efforts progress.

While the study area is within attainment areas for the other pollutants, it can be assumed that with an increase in VMT there would be an increase in CO, Pb, NO₂, PM₁₀ and SO₂.

3.14 Noise Impacts

The Maricopa County Department of Transportation (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 decibel A (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).

Currently, 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, schools, churches, and large undeveloped parcels of land owned by the BLM and the ASLD. 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.

3.15 Hazardous Materials

Hazardous materials are regulated by the Federal Resources Conservation and Recovery Act (RCRA) (42 U.S.C. s/s 321 et seq. (P.L. 94-580) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [(42 U.S.C. §9601 et seq. (1980)], commonly known as the Superfund. ADEQ implements CERCLA and its amendments, the Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499 (Oct. 17, 1986; 100 Stat. 1613). To investigate the environmental concerns associated with hazardous materials and solid waste landfills, a Preliminary Initial Site Assessment (PISA) of regulated hazardous material sites and solid waste facilities located within or in the vicinity of the study area was performed.

The PISA included a site reconnaissance, and a review of the various state and federal databases for hazardous materials for the study area. Environmental Data Resources, Inc., (EDR) conducted a third-party database search of regulated facilities within, and in the immediate vicinity (0.25 miles), of the study area. The database results included 11 regulated facilities. These facilities are not considered to be an environmental concern based on the regulatory status. However, further assessment may be warranted based on the past and present land use within the study area. If land acquisition or easements are required for the facilities other lands within the study area; MCDOT may want to perform a Phase I Environmental Site Assessment (ESA) to qualify for the Limited Liability Protection (LLP) afforded under CERCLA.

A hazardous building materials survey (HBMS) was beyond the scope of this overview. Due to the culverts and other concrete structures in the study area and the potential for asbestos containing materials (ACMs), an asbestos survey prior to construction activities is recommended. Because the paved portions of Buckeye Road/Yuma Road contain paint striping that could contain lead based paint (LBP), sampling for LBP prior to construction activities is also recommended.

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 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 Indian 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), 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 to assist in the enforcement of cultural resource legislation and the protection and repatriation of human remains and their associated funerary objects. Both of 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 study area in May 2011. Site files and information maintained at the Arizona State Historic Preservation Office (SHPO) and in the AZSITE cultural resources database, as well as information from the Flood Control District of Maricopa County and cadastral survey maps/General Land Office Plats available from the BLM were analyzed for the records review.

Due to the potential for future federal agency involvement in the future design and construction of Yuma Parkway, the National Register of Historic Places (NRHP) criteria for evaluation are perhaps the best and most appropriate criteria by 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.

An additional class of cultural resources may be found within the study area, Traditional Cultural Properties (TCP), also sometimes called Traditional Cultural Places. TCPs are 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). 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 31 previous cultural resource survey investigations conducted within the study area (see **Table 7**).

In terms of survey coverage, approximately 50 percent of the study area has been surveyed for cultural resources. The surveys were conducted for a wide range of projects, including linear transportation studies, utility pipeline and transmission line right-of-way studies, and parcel-specific projects for other development projects. It should be noted that a number of these survey projects were completed prior to the year 2000. In fact, approximately 25 percent of the study area was surveyed and reported on over 10 years ago. Several of these were large survey investigations for electrical transmission lines for the Palo Verde Nuclear Generating Station (1977-20.ASM and 1994-273.ASM) that covered approximately 10 square miles within the study area. 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 19 cultural resource sites have previously been recorded within the study area (see **Table 8**). Of these recorded sites, none are listed on the NRHP, none have been determined eligible for inclusion on the NRHP by the SHPO, six were considered eligible for inclusion on the NRHP by their recorder, four were considered not eligible by their recorder, and nine have not been evaluated.

Table 7 – Previous Cultural Resource Survey Investigations within the Study Area

Agency No.	Project Name	References
A-75-199.MNA	Palo Verde Nuclear Generating Station Westwing	Brook (1975)
7.1021.SHPO	Unknown	Unknown
7.3463.SHPO	Unknown	Unknown
7.992.SHPO	Unknown	Unknown
12-100-9.BLM	Unknown	Unknown
1977-20.ASM	Arizona Nuclear Power Project	Stein et al. (1977)
1980-84.ASM	Allenville Relocation	Madsen (1980)*
1983-184.ASM	Gilbert/Commonwealth Western States Microwave Tower System	Unknown
1986-52.ASM	State Land Survey	Howard and Hamby(1986)
1986-194.ASM	White Tank Mountain Regional Parkway	Effland (1986)*
1987-185.ASM	Pat Wagner Purchase	Madsen 1987 - PI
1988-23.ASM	Additional Bartlett Lake Rd. Survey	Brew (1988)*
1988-123.ASM	Mountain States Telephone and Telegraph	Fish (1988)*
1991-49.ASM	Unknown	Unknown
1993-33.ASM	Buckeye Municipal Airport Expansion	Adams (1993)
1994-141.ASM	339TH Avenue and Van Buren Street	Crownover (1994)
1994-273.ASM	7 Projects on 246.7 Acres NE OF Palo Verde Nuclear Generating Station	Davis (1994)
1996-118.ASM	Gust Rosenfeld	Hackbarth and Henderson (1996)



Agency No.	Project Name	References
1996-302.ASM	Buckeye: Palo Verde Road	Macnider (1996)*
1998-530.ASM	Tartesso Survey	Marshall (1998)*
2000-497.ASM	Hassayampa Survey	Mitchell (2000)
2001-306.ASM	SRP SW Valley 500 kV	Hackbarth (2001)*
2002-263.ASM	Buckeye Watershed Section Survey	Brodbeck (2002)*
2002-280.ASM	I-8 Adobe Flats-Jucton SR 85/Tonopah	Walsh and Ogren (2002)
2002-394.ASM	West Wind Environmental Services	Mitchell (2002)*
2004-102.ASM	Copper Eagle Gas Storage	Luhnow et al. (2003)
2004-511.ASM	Festival Ranch/Tartesso Approach Natural Gas Pipeline	Darrington, et al. (2004)
2004-823.ASM	West Buckeye Survey	Whitney (2004)
2005-200.ASM	355th Avenue and Buckeye Road Survey	Gage (2005)
2005-381.ASM	Davis, Erin	Turner and Davis (2005)
2006-78.ASM	Desert Creek 2230 Acres	North et al. (2006)

*Indicates that the reference was the Principal Investigator for the project as referenced in AZSITE. Report authors were undocumented

Table 8 – Previously Recorded Cultural Resource Sites within the Study Area

Site Number(s)/Name	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ T:9:40(ASM)	Historic foundation, well and associated features	Considered eligible	Davis (1994)
AZ T:9:41(ASM)	Prehistoric sleeping circle	Considered eligible	Davis (1994)
AZ T:9:42(ASM)	Prehistoric rock alignment	Considered eligible	Davis (1994)
AZ T:9:46(ASM)	Portion of Wickenburg – Hassayampa Road	Considered not eligible	Hackbarth, M**
AZ T:9:47(ASM)	Historic outbuilding, well, canal and associated features	Considered not eligible	Hackbarth , M.**
AZ T:9:74(ASM)	Historic ditch	Considered eligible (D)	Hackbarth, M. **
AZ T:10:46(ASU)	No Information	Not evaluated	L. Corbo, Allen**
AZ T:10:83(ASM) Roosevelt Canal	Historic irrigation canal	Considered eligible (A)	Harmon and Beyer et al. (1995)
AZ T:10:141(ASM) Johnson Road	Road	Considered eligible	Kearns et al. (2001)
AZ T:10:153(ASM)	Historic trash scatter	Considered not eligible	Touchin, J. and E. Palmer **
AZ T:10:154(ASM)	Historic trash scatter	Considered not eligible	Touchin, J. and E. Palmer **
AZ T:10:192(ASM)	Historic trash scatter	Considered not eligible	Whitney (2004)
AZ T:10:195(ASM)	Historic Road	Considered eligible	Whitney (2004)
AZ T:10:196(ASM)	Prehistoric artifact scatter	Considered eligible	Whitney (2004)
AZ T:10:197(ASM)	Prehistoric site with rock features	Considered eligible	Whitney (2004)
AZ T:10:308(ASM)	Historic trash scatter	Considered not eligible	North et al. (2006)

Site Number(s)/Name	Site Description	NRHP* Eligibility (Criterion)	Reference(s)
AZ T:10:309(ASM)	Historic trash scatter	Considered not eligible	North et al. (2006)
NA12497	Historic buildings and artifact scatter associated with a school	Not evaluated	Trott (1974)
NA12554	Historic house foundation and rock alignments, prehistoric sherd scatter	Not evaluated	Brook (1975)

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

** Indicates that the reference was the recorder for the site as referenced in AZSITE. Report authors were undocumented.

In addition to the sites listed above, the BLM cadastral survey maps, dated 1883 and 1919 were reviewed and indicated that a number of roads traversed the study area in the following sections:

- T1N R5W Sections 9, 11, 12, 14, 15 and 16.

Field verification of the presence/absence of these roads was outside the scope of this overview, but remnants of these historic routes may still be present as suggested by the comparison of the historic survey maps with contemporary USGS topographic maps. Indeed, the current alignment of AZ T:10:141(ASM)/Johnson Road can clearly be seen on the 1919 BLM survey map.

The majority of the recorded sites within the study area date to the historic period and little is known regarding prehistoric occupation, or use of the area for procurement and processing of natural resources. The sites dating to the historic period suggest homesteading and ranching use of the land. Though the recordation of cultural resources within the study area is minimal, historic contexts can be used to help understand and evaluate the significance of the resources. Specifically, the contexts of *Historic Homesteading in Arizona 1870-1942* (Stein 1990) and perhaps the *Prehistoric to Historic Transition Period in Arizona, Circa A.D. 1519 to 1692* (Gilpin and Phillips 1998), which were developed as components of the *Arizona Historic Preservation Plan*. These contexts may help in understanding the significance of the previously recorded historic sites, roads contained in the BLM survey maps, and the prehistoric archaeological resources, respectively.

4.3 Traditional Cultural Places

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 the possibility that such resources are present. The presence of the Hassayampa River may have provided resources that would have supported the long-term use of the area by native peoples. Specific locales that, over time, have been repeatedly used for resources procurement and utilization may have cultural significance for contemporary Native American communities.

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. In fact, the majority of what has been investigated was surveyed before 2001. As alternatives are selected and project design moves forward, 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 2001 (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 study area should be surveyed again.

All cultural resources identified within the project's APE should be evaluated for their NRHP eligibility. Historic context studies, specifically *Historic Homesteading in Arizona 1870-1942* (Stein 1990), *Historic Trails in Arizona from Coronado to 1940* (Stein 1994) and *Prehistoric to Historic Transition Period in Arizona, Circa A.D. 1519 to 1692* (Gilpin and Phillips 1998), should be used to assist in the evaluation process. 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.

Tribal consultation should be initiated early in the planning process to seek information regarding areas of cultural importance to native people. 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. SECTION 4(f) AND 6(f) RESOURCES

5.1 Potential 4(f) Resources

Section 4(f) of the Department of Transportation Act (49 U.S.C. § 303 and 23 U.S.C. § 138), as amended, applies only to agencies of the Department of Transportation (USDOT, e.g., FHWA) and includes projects with Federal-Aid Highway Funding. 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 that may have important implications to the selection of alternatives for this study.

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."

A historic site, property or resource means any prehistoric or historic district, site, building, structure or object included in or eligible for inclusion on the NRHP. Section 4(f) does not apply if archaeological resources are important chiefly because of what can be learned by data recovery (NRHP criterion D). Consequently Section 4(f) applies to historic properties listed on or eligible for the NRHP under criteria A, B and/or C. None of the currently recorded cultural resources within the study area are either listed or have been officially determined eligible by the SHPO for the NRHP (under criterion A, B, and/or C).

Several sites however, have been considered eligible for the NRHP by their recorder. One of these, AZ T:10:83 (ASM)/Roosevelt Canal, was considered eligible under Criterion A and may therefore be a potential 4(f) resource. Two other sites, AZ T:10:141/Johnson Road and AZ T:10:195 (ASM)/a Historic Road were considered eligible by their recorder though the recorder did not specify under which NRHP criterion they based their evaluation on. Historic roads are often considered eligible under criteria A in which case these two sites may also be potential 4(f) resources. Other cultural resources within the study area have also been recommended as eligible but these are archaeological sites and though no criteria for evaluation was given by their recorders, it is assumed that they would be considered eligible under criterion D and not considered potential

4(f) resources. The remainder of the sites have either not been evaluated or are considered not eligible. More research will be required to determine if any of these may be potential 4(f) resources.

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 study 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 study should FHWA involvement be anticipated.

No Section 4(f) resources, including publicly-owned park and recreational lands, publicly-owned wildlife and waterfowl refuges, and historic sites have been identified in the study area at this time. However, the evaluation of sites 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. In addition, there is the potential for publicly-owned park and recreational lands, publicly-owned wildlife and waterfowl refuges to be developed within the study area prior to the future design and construction of the project roadways. A re-evaluation as to the presence of Section 4(f) resources should be made at that time.

5.2 6(f) Resources

The Land and Water Conservation Fund Act (LWCF) of 1965 (16 U.S.C. §§4601-4, et seq.) 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 in June 2011, using information from the 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. Therefore, there are no anticipated impacts to 6(f) resources at this time. However, there is the potential for public outdoor recreation areas and facilities to be acquired and/or developed within the study area that utilize LWCF funding prior to the future design and construction of the project roadways. A re-evaluation as to the presence of Section 6(f) resources should be made at that time.

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 Yuma Parkway CFS 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 EO is not intended to meet the requirements of NEPA.

6.1 Land Jurisdiction

Maricopa County has jurisdiction over the majority of the land and roadways within the study area. The Town of Buckeye has jurisdiction over the land within its town limits adjacent to and within the study area. Portions of the study area currently under Maricopa County jurisdiction are also within the Buckeye Municipal Planning Area. Additional planning and design studies regarding Yuma Parkway will need to follow the procedures and guidelines related to environmental matters of the corresponding jurisdictional authority.

6.2 Land Ownership and Use

Approximately 84 percent of the land within the study area is privately owned. The study area contains land owned or managed by the BLM and ASLD. Both agencies are members of the study's Technical Advisory Committee. As additional planning and design studies occur for Yuma Parkway and final alignments are determined, various agency-specific studies may be needed. If the Yuma Parkway alignments include BLM land, then BLM will require a NEPA document to be prepared to Department of Interior standards. The NEPA document will also be required to meet FHWA standards if Federal Transportation Funds are used for the project. The BLM NEPA study will require a visual resource analysis as part of the environmental clearance process.

If the Yuma Parkway alignments include ASLD land, ASLD will require a right-of-way 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.

6.3 Socioeconomic Considerations and Title VI/Environmental Justice Populations

The "Other" and "Population of Two or More Races/Not Hispanic or Latino" populations in CT 506.02, BG 1 are at least double the respective population percentages of the County. Additionally, the low-income and LEP populations CT 506.03, BG 2 are double the respective population percentage of the county and the town of Buckeye.

Because this is a corridor feasibility study and the detailed roadway alignment, right-of-way requirements, and project schedules are unknown, exact impacts cannot be determined at this time. General impacts such as additional right-of-way acquisitions, increases in ambient noise levels, socioeconomic impacts, community disruptions, and residential displacements can be assumed with a major roadway project. In addition, it can be assumed that a new roadway within the study area will enhance overall mobility, benefiting those living in and around the study area.

It should be noted that the Title VI/Environmental Justice and LEP population numbers and percentages cover an area that is larger than the anticipated roadway footprint, and that the impacts to disadvantaged populations could change depending on the location of the proposed roadway

alignment within the study area. Therefore, further consideration for these disadvantaged populations may be warranted for future environmental clearance documents. When considering alignments for the proposed roadways in the study area, the areas that have disproportionate Title VI/Environmental Justice and LEP populations should be avoided where feasible.

6.4 Threatened and Endangered Species

A Biological Evaluation will likely be required as additional planning and design studies occur for Yuma Parkway and final alignments are determined. The USFWS currently lists 17 species that are protected under the Endangered Species Act. No suitable habitat for any threatened or endangered species or their habitat was observed during field reconnaissance. Suitable habitat does exist for the Sonoran desert tortoise, Tucson shovel-nosed snake, and Sprague's pipit, which are currently listed as candidate species. It is recommended that future environmental documentation associated with future project design efforts verifies that no species or their habitat protected under the Endangered Species Act will be impacted. During future planning and design studies, the USFWS list of threatened, endangered, proposed and candidate species and AGFD Heritage Database Management System should be reviewed to determine if new species have been identified or any changes in listing status have occurred.

6.5 Wildlife of Special Concern in Arizona

The AGFD did not list any species of concern within three miles of the study area. However, suitable habitat exists for the western burrowing owl, a species protected under the Migratory Bird Treaty Act of 1918, as well as for the kit fox and LeConte's thrasher. Neither the kit fox nor LeConte's thrasher are federally protected species, but AGFD considers them potential species of concern because of rapidly declining habitat. Because the construction of Yuma Parkway will include conversion of native desert into roadway right-of-way, it is recommended that MCDOT determine the presence or absence of this species, analyze potential project-related impacts, and develop appropriate mitigation measures to minimize impacts to these species.

6.6 Wildlife Crossing and Movement Corridors

Two PLZs are located within two miles of the study area. Additionally the Hassayampa River transects the study area and should be considered a "linkage" zone even though no official linkage designation exists. The two PLZs are PLZ No.64 – Bighorn Belmont-Saddle Mountain and PLZ No.65 – White Tanks-Hassayampa River. It should be noted that while PLZ No. 65 stops short of the actual Hassayampa River per the PLZ data provided by AGFD, it is assumed that PLZ No. 65 has connectivity to the Hassayampa River.

Wildlife movement between habitat blocks and the PLZs should be considered during final design to determine the best way to construct the roadway while maintaining uninhibited wildlife movement and connectivity within the study area and vicinity. Major drainages and upland areas 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 right-of-way, especially along regional drainages. Coordination with the AGFD should be continued to ensure that wildlife-friendly roadway crossings are incorporated where appropriate into the roadway design.

6.7 Invasive/Noxious Weeds

An invasive/noxious weed survey should be conducted prior to construction of the roadway to determine whether noxious weeds exist within the alignment 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 and develop appropriate mitigation measures.

6.8 Protected Native Plants

Native plants are present within the study area. Once the roadway alignment is finalized, a native plant survey should be conducted to determine the presence of protected native plants within the proposed alignment. Coordination with ADA should be conducted if any protected native plants are identified within the proposed alignment. In addition, impacts to native plants may require a Notice of Intent and/or specific permitting per Article 11: Arizona Native Plants.

6.9 Floodplains

Coordination with 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 if floodplains are altered.

6.10 Water Quality

There are no impaired waters present within the study area. During the alignment selection process, this information should be re-verified to ensure that no impaired waters have been listed after completion of this document.

6.11 Section 404/401 of the CWA

A Jurisdictional Delineation and Determination may be required during future project design to determine the regulatory boundaries of WUS and whether a Section 404 NWP or IP is required for construction (bridge and roadway features and/or dredging and fill activities) per CWA and Corps 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 Hassayampa 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. Section 404 IP will require Section 401 Water Quality Certifications issued by ADEQ. Specific requirements of Section 404/401 will be further defined in subsequent phases of the parkway development process.

6.12 Prime and Unique Farmland

There are soils that are currently considered prime farmland soils scattered throughout the study area and where there are active existing agricultural land uses. While the Hassayampa Framework Study assumed there will be no actively farmed and irrigated land within the study area in the buildout condition, consideration should be given to potential impacts to the prime farmland that may still exist when planned roadways are ultimately implemented within the study area.

6.13 Arizona Pollutant Discharge Elimination System

An AZPDES permit and a SWPPP will be required for improvements that disturb more than one acre of land or that disturb WUS.

6.14 Soils

There are numerous soil types (**Figure 8**) within the study area. The most common soil types are Gunsight complex, Gillman, and Rillito (**Table 5**). The suitability of the study area soil types for roadway construction should be considered during preliminary and final design.

6.15 Visual Resources

A new roadway facility will have some visual impacts within the study area. A visual resource analysis should be conducted as part of any future environmental document process. VRM staff from the BLM need to be included for those portions of the project located near BLM-managed land.

6.16 Air Quality

The study area is located within the air quality non-attainment areas for eight-hour O₃. Proposed improvements associated with Yuma 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. Although the study area is currently within attainment areas for other pollutants, future environmental documentation shall verify the status for all pollutants when the project alignment is finalized.

6.17 Noise Impacts

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, 23 CFR 772, and MCDOT Noise Abatement Policy requirements.

6.18 Hazardous Materials

A PISA of regulated hazardous material sites and solid waste facilities located within or in the vicinity of the study area was performed.

The PISA included a site reconnaissance, and a review of the various state and federal databases for hazardous materials for the study area. EDR conducted a third-party database search of regulated facilities within, and in the immediate vicinity (0.25 miles), of the study area. The database results included 11 regulated facilities. These facilities are not considered to be an environmental concern based on the regulatory status and their distance from the planned Yuma Parkway alignment. However, further assessment may be warranted based on the past and present land use within the study area. If land acquisition or easements are required for the facilities or other lands within the study area; MCDOT may want to perform a Phase I ESA to qualify for the LLP afforded under CERCLA.

A HBMS was beyond the scope of this overview. Due to the culverts and other concrete structures in the study area and the potential for ACMs, we recommend performing asbestos surveys prior to construction activities. Since the paved portions of Buckeye Road/Yuma Road contain paint striping that could contain LBP, we recommend sampling for LBP prior to construction activities.

6.19 Cultural Resources

The entire study area has not been completely surveyed for cultural resources. In fact, approximately 50 percent of the study area has been previously surveyed and approximately 25 percent study area) was surveyed before 2000. As alternatives are selected, additional analysis will be required to determine the level and adequacy of previous cultural resource survey coverage. Once an 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 study area should be surveyed again.

All cultural resources identified within the project's APE should be evaluated for their NRHP eligibility. Historic context studies, specifically *Historic Homesteading in Arizona 1870-1942* (Stein 1990), *Historic Trails in Arizona from Coronado to 1940* (Stein 1994) and *Prehistoric to Historic Transition Period in Arizona, Circa A.D. 1519 to 1692* (Gilpin and Phillips 1998), should be used to assist in the evaluation process. 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.

Tribal consultation should be initiated early in the planning process to seek information regarding areas of cultural importance to native people. 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.

6.20 Potential 4(f) Resources

No Section 4(f) resources, including publicly-owned park and recreational lands, publicly-owned wildlife and waterfowl refuges, and historic sites have been identified in the study area at this time. However, the evaluation of sites 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. In addition, there is the potential for publicly-owned park and recreational lands, publicly-owned wildlife and waterfowl refuges to be developed within the study area prior to the future design and construction of project roadways. A re-evaluation as to the presence of Section 4(f) resources should be made at that time.

6.21 6(f) Resources

There are no identified 6(f) resources in the study area. However, there is the potential for public outdoor recreation areas and facilities to be acquired and/or developed within the study area that utilize LWCF funding prior to the future design and construction of the project roadways. A re-evaluation as to the presence of Section 6(f) resources should be made at that time.

6.22 Summary of Future Environmental Studies

The following environmental studies and surveys should be performed prior to construction of new roadways in the study area. The surveys for western burrowing owl, Sonoran desert tortoise, and Sprague's pipit assume that they will still be species of concern prior to construction.

- Biological Evaluation;
- Surveys for the western burrowing owl;
- Surveys for the Sonoran desert tortoise;
- Surveys for the Tucson shovel-nosed snake, and Sprague's pipit (if survey protocol has been developed by time of construction; otherwise, coordinate with USFWS if still listed);
- Surveys for the kit fox and/or LeConte's thrasher if either species is listed as a species of concern at the time of construction;
- Invasive/noxious weed surveys;
- Protected native plant surveys;
- Jurisdictional Delineation and Determination and applicable permit application (NWP or IP);
- Visual resource analysis and coordination with the VRM staff of the BLM;
- Noise study;
- Phase I Environmental Site Assessment, asbestos and lead based paint surveys;
- Class III Cultural Pedestrian Survey; and
- Section 4(f) and 6(f) resource survey and evaluation.

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