



APPENDIX 1

TECHNICAL MEMORANDUM NO. 1 – EXISTING AND FUTURE CORRIDOR FEATURES



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

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

FINAL Technical Memorandum No. 1 **Existing and Future Corridor Features**

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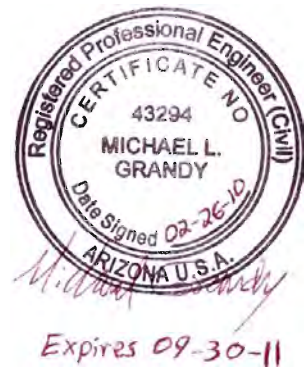




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1. INTRODUCTION

Technical Memorandum No. 1 (TM 1), entitled *Existing and Future Corridor Features*, documents existing and future corridor features for the Hidden Waters Parkway Corridor Feasibility Study. The purpose of TM 1 is to provide an overview of land uses, roadway conditions, drainage, access management, socioeconomic conditions, and environmental assessments in sufficient detail to provide a foundation for the identification of issues and constraints and preparation of base maps showing feasible corridor alignments within the study area. Additional detailed information is included in the following companion documents: *Environmental Overview* (TM 2), *Conceptual Drainage Report* (TM 3), *Development and Evaluation of Candidate Alternative Alignments* (TM 4), and *Detailed Preferred Alignment* (TM 5).

1.1 Study Background

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

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

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

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

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

1.2 Study Purpose and Goals

The primary purposes of the Hidden Waters Parkway Corridor Feasibility Study are to:



- Define and assess the project study area for potential opportunities and constraints;
- Develop and evaluate conceptual alternative roadway alignments within the corridor study area;
- Recommend a preferred roadway alignment; and
- Define the characteristics of the preferred alignment, including right-of-way, in greater detail.

The study goals for the Hidden Waters Parkway Corridor Feasibility Study are subsequently listed and relate specifically to the proposed Hidden Waters Parkway in the context of the existing and future transportation network in the study area. Specific objectives are listed below for each study goal.

- Goal #1: Achieve roadway network continuity and connectivity
 - Determine preferred corridor alignment from a regional transportation corridor perspective;
 - Provide future connectivity with primary and regional roadway facilities; and
 - Provide crossings across alluvial fans, drainage washes, rivers, canals and the Union Pacific Railroad.
- Goal #2: Enhance traffic flow (capacity) and safety
 - Preserve functional integrity of the Arizona Parkway by recommending unique segment-specific solutions where needed to address identified opportunities or constraints;
 - Identify areas that may require additional right-of-way or easements, especially at crossings with other Parkways, alluvial fans and utility corridors; and
 - Implement consistent design standards for enhanced traffic operation and reduced crash potential while maintaining reasonable access for developments.
- Goal #3: Preserve the environment
 - Comply with governing environmental regulations for new roadway development;
 - Minimize adverse transportation action impacts to the study area environment, including wildlife corridors, state wildlife areas, and archeological sites; and
 - Use transportation actions to enhance important environmental features (e.g., habitat areas, parks, overlooks).
- Goal #4: Develop consensus-driven improvement alternatives;
 - Work with key stakeholders in developing feasible alternatives;
 - Develop cost-effective roadway improvement alternatives;
 - Conduct public outreach to obtain input on alternatives and build consensus ; and
 - Ensure consistency between the study's transportation actions and regional and local Plans.

This study is the first step in the roadway development process and is meant to aid the governing bodies in defining and protecting a continuous future roadway corridor that can accommodate projected future traffic demands.

1.3 Project Schedule

The project schedule spans 14 months, from May 2009 through June 2010. Throughout the duration of the project, up to five meetings will be conducted with a Technical Advisory



Committee consisting of representatives of state, county, and local jurisdictions along the Hidden Waters Parkway corridor along with key project stakeholders. Three public meetings will be conducted at three different times during the project: during project initiation and scoping, following the assessment of existing conditions and development of conceptual alternatives, and following the evaluation of alternatives and identification of the preferred alternative. The project schedule is displayed in **Table 1**.

Table 1 – Project Schedule

Milestone	Anticipated Completion Date
Existing and Future Corridor Features Environmental Overview Drainage Overview	October 2009
Alternatives Development and Evaluation	January 2010
Preferred Alignment Drawings	March 2010
Final Report	May 2010

1.4 Project Study Area

The project study area for the proposed Hidden Waters Parkway is approximately 38 miles in length between Watermelon Road and I-10 and is roughly two miles wide, centered on the north-south segment of Old US 80. North of the Cactus Rose Road/Old US 80 intersection, where Old US 80 diverges to the east, the study area broadens to a four-mile wide corridor, centered on the 347th Avenue section-line alignment, extending north to the Salome Highway. North of the Salome Highway, the study area width narrows back to two miles, following the 339th Avenue alignment north to I-10. The study area covers approximately 93.9 square miles. The project study area is shown in **Figure 1**.

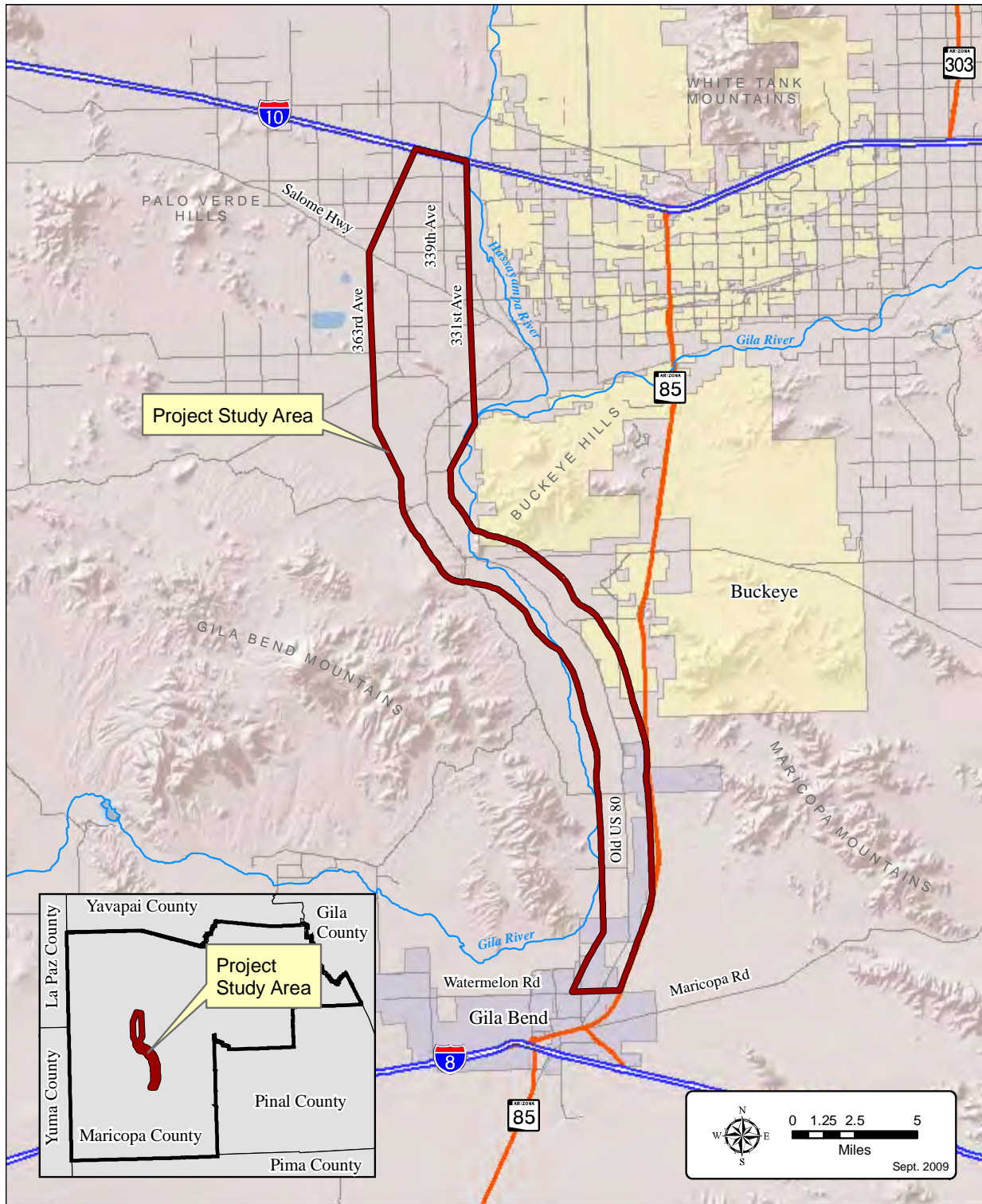


Figure 1 – Project Study Area



2. PLANS AND STUDIES

2.1 Inventory of Plans, Studies, Reports, and Documentation

Relevant information on existing and future corridor features was obtained from available studies, reports, and other documents. The reports and studies that were obtained and reviewed as part of the Hidden Waters Parkway Corridor Feasibility Study are listed in **Appendix TM1-1**. TM 2 contains a list of additional documents cited in the assessment of environmental conditions.

2.2 Summary of Findings and Recommendations from Review of Plans and Studies

This section documents the findings and recommendations from existing studies and reports that are pertinent to the general existing and future corridor features of the Hidden Waters study area. Detailed documents discussing environmental and drainage issues and features are addressed in TM 2 and TM 3, respectively.

2.2.1 *Maricopa County Old US Highway 80 Area Plan (May 2007)*

- The area plan for 2020 was adopted in 2007 and supersedes portions of the State Route 85 and Tonopah/Arlington Area Plans;
- The plan includes information on land use, transportation, environmental issues, economic development, open space, water resources, and cost of development;
- Old US 80 south of Salome Highway has a future classification of Minor Arterial (four lanes in width with bike lanes). The plan later states that Old US 80's future classification is Principal Arterial (per Table 13 in plan);
- Old US 80 has an Emergency Management Overlay within a 10-mile radius of the Palo Verde Nuclear Generating Station (PVNGS);
- The entire length of Old US 80 is designated as a scenic/recreational overlay;
- Old US 80 has a school safety overlay adjacent to Palo Verde Elementary School;
- Old US 80 has been identified as a component of the regional bicycle network;
- Stakeholder comments received during public meetings included:
 - Maintain current character of Old US 80 (bends and/or grades should not be eliminated);
 - Closing Old US 80 access to State Route (SR) 85 would cause traffic problems; and
 - No Bureau of Land Management (BLM) or State Land trades or sales should occur;
- Agricultural exemptions have been issued for livestock grazing, dairy cattle, crops, and an egg ranch within the area;
- Arlington Elementary School is located within the plan area. There is one proposed elementary school within the study area near the intersection of 335th Avenue and Buckeye Road. (Location is based on information provided by Arizona School Facilities Board and local school districts.);
- There is an existing US Post Office east of the study area at 33039 W. Old US Highway 80 in Arlington; and



- The SR 85 landfill is proposed for the southeast corner of Old US 80 and Patterson Road.

2.2.2 *Maricopa County Tonopah/Arlington Area Plan (September 2000)*

- The area plan for 2020 was adopted in 2000;
- The plan includes information on land use, transportation, environmental issues, and economic development between I-10 and Old US 80 around the Arlington Wildlife Area;
- 339th Avenue is shown as a Core Arterial between I-10 and Salome Highway;
- BLM, State Trust, and State Wildlife land are in the plan area; and
- Average Daily Traffic (ADT) count data is provided for the following locations:
 - Four locations along 339th Ave within plan area; and
 - Four locations along Old US 80 within plan area.
- Both Old US 80 and 339th Avenue have a future functional classification of Rural Collector.

2.2.3 *MAG Interstate 8 and Interstate 10 Hidden Valley Transportation Framework Study (October 2009)*

- The proposed alignment of Hidden Waters Parkway is as follows:
 - Northern portion runs generally east of and parallel to the proposed Hassayampa Freeway; and
 - Southern portion runs along the Old US 80 alignment and continues through Gila Bend.
- Watermelon Road is recommended as an Arizona Parkway;
- Potential freight rail line parallels the west side of SR 85;
- Potential implementation timeframe for Hidden Waters Parkway includes the corridor/preliminary alignment study to occur from 2010 to 2015 and right-of-way preservation from 2010 to 2020;
- The facility level of development for Hidden Waters Parkway in the interim (2030) is a two-lane arterial and in the buildout is a six-lane parkway;
- The Hidden Waters Parkway is designated as a low priority improvement project;
- Arizona wildlife fracture and linkage zones are within the study area;
- Cross-sections of the Arizona Parkway with sample wildlife crossings are shown for use in linkage and fracture zones;
- A large prehistoric site cluster is located within the study area between Gila Bend and Buckeye along the Gila River;
- The Upper Gila River is designated as a Nature Conservancy Conservation Area;
- The MAG Desert Spaces Plan designates a portion of the study area as a Secured Open Space;
- The Maricopa County Trails Plan designates a trail along the length of the Gila River. There are several Priority 4 trails within the study area. Priority 4 trails are conceptual corridors and the lowest priority for implementation with regards to the Maricopa County trail system plan;



- Gas pipeline and 500kV power transmission lines cross the study area south of the Old US 80 Bridge near Gillespie Dam; and
- Exhibits showing the conceptual transportation framework, the projected roadway geometry and intersection/interchange locations, and the unofficial daily traffic volume projections at buildout are provided in **Appendix TM1-2**.

2.2.4 *MAG Interstate 10/Hassayampa Valley Transportation Framework Study (July 2008)*

- The study identifies a parkway traffic interchange at the existing I-10/339th Avenue interchange;
- Hidden Waters Parkway is proposed to originate at the Lake Pleasant Freeway extension and run south to the proposed SR 801. Within the study area, Hidden Waters Parkway runs along 339th Avenue to Yuma Road, and then heads south along 331st Avenue through to the proposed SR 801;
- Old US 80 south of the Hassayampa Parkway is designated as arterial;
- The Hidden Waters Parkway is shown as having medium priority for implementation;
- The Long-Range High Capacity Transit Scenario shows both bus rapid transit and commuter rail lines crossing Hidden Waters Parkway near its intersection with SR 801; and
- Exhibits showing the conceptual transportation framework, the projected roadway geometry and intersection/interchange locations, and the unofficial daily traffic volume projections at buildout are provided in **Appendix TM1-2**.

2.2.5 *ADOT SR 85 in Gila Bend Draft Final Design Concept Report (June 2009)*

- The Design Concept Report (DCR) provides a long-range plan for a system interchange between SR 85 and I-8 to meet the anticipated capacity and operational needs through 2030;
- The northern study limit is SR 85 Milepost (MP) 123.00 (the Watermelon Road alignment);
- Phase 3 of the project includes a median crossing and a short section of Watermelon Road on the east side of SR 85;
- The Watermelon Road traffic interchange (TI) along SR 85 is proposed as a future improvement; and
- Mainline Alternative 1, the Recommended Option, includes a grade-separated interchange along SR 85 at Watermelon Road. This future Watermelon Road interchange is significantly north of the current Watermelon Road alignment. The proposed realigned Watermelon Road right-of-way is shown connecting into Old US 80 right-of-way approximately 3,000 feet north of the existing Watermelon Road/Old US 80 intersection.



2.2.6 *ADOT SR 85 at Gila Bend Draft Environmental Assessment and Section 4(f) Evaluation (August 2009)*

- The Draft Environmental Assessment (EA) discusses the anticipated environmental impacts of the preferred alternative from the aforementioned *SR 85 in Gila Bend Draft Final DCR*;
- The preferred alternative includes a future Watermelon Road traffic interchange that is proposed to be designed and constructed by others. This future Watermelon Road interchange is significantly north of the current Watermelon Road alignment. The proposed realigned Watermelon Road right-of-way is shown connecting into Old US 80 right-of-way approximately 3,000 feet north of the existing Watermelon Road/Old US 80 intersection;
- An elevated signalized intersection is proposed for the Business 8/Pima Street intersection, which is just east of where Old US 80 connects to Pima Street; and
- An exhibit of the preferred alternative from the EA showing the proposed SR 85/Watermelon Road interchange and Business 8/Pima Street elevated intersection is provided in **Appendix TM1-3**.

2.2.7 *MCDOT Design Guideline Recommendations for the Arizona Parkway (August 2008)*

- Guidelines prepared in August 2008 for the indirect left-turn parkway design concept;
- 200-foot minimum right-of-way corridor recommended for both four- and six-lane sections. Additional right-of-way and/or easements may be needed for turn lanes, bus bays, drainage structures, drainage facilities, side slopes, utilities, and landscaping;
- Twelve-foot wide lanes are recommended, with four-foot wide inside paved shoulders and six-foot outside paved shoulders;
- An additional eight-foot minimum width public utility easement is recommended on each side of the parkway;
- Median width varies based on the number of lanes needed;
- Minimum design speeds for rolling terrain are 60 miles per hour (mph) in rural areas and 50 mph in urban areas;
- WB-50 is the recommended design vehicle;
- U-turn directional crossovers are recommended to be restricted to a maximum of eight per mile;
- Left turns in any direction are prohibited at all intersections;
- Left turns from a side-street or driveway onto the parkway are prohibited;
- Left turns from the parkway to a side-street or driveway are discouraged due to conflicts between u-turns and right turns;
- Intersections (full median breaks) will preferably be restricted to one-mile spacing, with a minimum spacing of one-half mile, and are only recommended where intersecting with arterial or major collector streets;
- Recommended minimum driveway spacing is– 165’ for low–volume segments and 330’ for high-volume segments. The typical driveway will be limited to right-in/right-out maneuvers; and
- Parkway typical cross-sections are provided in **Appendix TM1-4**.



2.2.8 *MCDOT Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study (August 2009)*

- 200-foot right-of-way preservation is adequate to meet the needs of at-grade parkway-to-parkway intersections of up to eight lanes on each approach;
- Additional right-of-way will need to be preserved at parkway-to-parkway intersections requiring grade separations;
- Parkway Grade-Separated Interchanges (PGSIs) will require approximately fifteen acres of additional right-of-way to accommodate the intersection of two eight-lane parkways. An exhibit from the study depicting a typical PGSI, including the access treatment for the legs of the PGSI, is provided in **Appendix TM1-4**. The fifteen-acre right-of-way requirement assumes a generally flat intersection location and typical layout conditions. Right-of-way needs may increase given the presence of special conditions;
- Based on level of service thresholds for the buildout condition, Hidden Waters Parkway is anticipated to ultimately need six-lane and eight-lane segments within the project study area;
- There are three parkway-to-parkway intersections within the project study area:
 - Hidden Waters Parkway (339th Avenue)/Yuma Parkway;
 - Hidden Waters Parkway (331st Avenue)/Southern Avenue; and
 - Hidden Waters Parkway (Old US 80)/ Watermelon Road.
- Intersection entering volumes for each of the three project area intersections are discussed in the study. The threshold-volume base intersection lane configuration for all three intersections is eight-lane to eight-lane;
- The Hidden Waters Parkway/Yuma Parkway intersection is recommended to be an at-grade intersection;
- The Hidden Waters Parkway/Southern Avenue intersection is recommended to be a PGSI, with Hidden Waters Parkway being the higher-volume mainline facility to remain at-grade; and
- The Hidden Waters Parkway/Watermelon Road intersection is recommended to be a PGSI in the interim (through 2030) and a PGSI with an eastbound-northbound flyover ramp and a southbound-westbound direct connector ramp in the ultimate timeframe (beyond 2030). The ultimate PGSI concept design layout from the study is provided in **Appendix TM1-4**.

2.2.9 *MAG Updated Buildout Traffic Projections(June 2009)*

- Updated projected daily traffic volumes for Hidden Waters Parkway range from approximately 29,000 to 85,000 vehicles per day. The buildout traffic projections are unofficial and have not been adopted by the MAG Regional Council;
- The recommended lane and intersection configurations for Hidden Waters Parkway are four-, six-, and eight-lane configurations at various points in the study area; and
- All proposed intersections with Hidden Waters Parkway are anticipated to be at-grade with the exception of the intersections with Watermelon Road, Salome Highway, and the Hassayampa Freeway.



2.2.10 *Hickman's Egg Ranch Major Comprehensive Plan Amendment (June 2009)*

- Hickman's Egg Ranch is located along the east side of 331st Avenue and is bounded by Salome Highway and the Union Pacific railroad tracks;
- Hickman's Egg Ranch applied for an amendment to the Old US Hwy 80 Area Plan to change the land use to Industrial from the current Rural Residential designation; and
- Hickman's Egg Ranch was requested at its pre-application to leave a 100-foot setback from the centerline of 331st Ave when planning future onsite structures and development to preserve right-of-way for the future Hidden Waters Parkway.

2.2.11 *Hidden Waters Ranch Development Master Plan [Major Amendment #1] (October 2008)*

- Hidden Waters Ranch is a planned 1,314-acre master planned community, bounded generally by I-10 to the north, 339th Avenue to the east, Buckeye Road to the south, and 347th Avenue to the west;
- Site includes several parcels of State Land along 339th Avenue;
- 64 percent of the site will serve as Commercial, Industrial and Employment land use;
- 339th Avenue is planned to serve as the major north-south regional transportation corridor for the area with a 200-foot parkway cross-section.
- Van Buren Street is proposed to be a Principal Arterial while Harrison Street is proposed to be a Collector; and
- The Master Plan Development is planned to occur in several phases, starting in 2013 and ending in 2022.

2.2.12 *Insignia Major Comprehensive Plan Amendment (September 2006)*

- Insignia is a proposed 543-acre development along the east side of Old US 80, south of the Riggs Road alignment and directly north of Hunt Highway; and
- Application has been submitted and approved for amending the SR 85 Area Plan from Rural Residential land use to Small Lot, Medium and High Density Residential, and Neighborhood Commercial land uses.

2.2.13 *Belmont Site Plan (2007)*

- Belmont is a proposed Mixed-Use development north of I-10, generally contained within the bounds of 331st Avenue, the Cactus Road alignment, 371st Avenue, and I-10.

2.2.14 *Hassayampa Village Comprehensive Plan Amendment (July 2006)*

- Hassayampa Village is a proposed 160-acre development located north of the northwest corner of I-10 and 331st Avenue;
- Application has been submitted for amending the existing land use designation from the Tonopah/Arlington Area Plan from Rural Residential land use to Mixed Use, including High Density Residential, Commercial, and Business Park land uses; and
- A change in zoning designation has been proposed from Rural-43 to Mixed Use.



2.2.15 *Sonoran Trails (August 2009)*

- Sonoran Trails is a proposed 2,400-acre master planned community containing Mixed-Use development, including Low- to High-Density Residential neighborhoods with several areas of Commercial uses, Community Parks, and trails commemorating the historic Butterfield Stage trailhead;
- At buildout, Sonoran Trails is proposed to have 8,109 dwelling units; and
- Sonoran Trails is generally bounded by Old US 80, Fornes Road, SR 85, and Woods Road.

2.2.16 *Town of Gila Bend General Plan (November 2006)*

- Old US 80 is classified as a Local Street at and north of its intersection with Watermelon Road;
- Watermelon Road is classified as a Planned Minor Arterial at its intersection with Old US 80; and
- Land use within the project study area consists of Very Low Density Residential (0-1 dwelling units/acre [du/ac]), Low Density Residential (1-5 du/ac), Medium Density Residential (5-10 du/ac), Heavy Industrial, Rural, and Parks and Open Space.

2.2.17 *Town of Buckeye General Plan (2008)*

- Land use within the project study area consists of Very Low Density Residential (0-1 du/ac), Low Density Residential (1.01-3 du/ac), Medium Density Residential (3.01-6 du/ac), Medium High Density Residential (6.01-10 du/ac), Community Commercial, Mixed Use, Business Park, Industrial, and Open Space.

2.2.18 *Old U.S. Highway 80 Bridge (Gillespie Dam Bridge) Final Design Concept Report – Volume I (September 2007)*

- This study evaluated the location of a new bridge to supplement the existing bridge when traffic demands or other factors require a new bridge over the Gila River;
- The future recommended alternative is Alternative #4, which includes a new bridge approximately 1,000 feet downstream from the existing bridge;
- The proposed bridge location is south of the existing gas lines and directly north of the existing 500kV electrical lines;
- The proposed bridge would be 14-span and 1,800 feet long and would utilize, AASHTO Type 6 Prestressed Concrete I-girders with a cast-in-place concrete deck slab supported on drilled shaft foundations;
- The proposed right-of-way for the new bridge is a minimum of 130', with even greater right-of-way needed at the curved approaches to the new bridge; and
- The proposed six-lane bridge is assumed to be 87 feet wide, with a design speed of 55 mph.

2.2.19 *Old U.S. Highway 80 Bridge (Gillespie Dam Bridge) Final Value Engineering Report (May 2008)*

- This document is a summary of the value engineering workshop held in May 2008;



- The value engineering recommendation proposes to construct a new interim low-flow crossing of the Gila River along the same alignment as the ultimate bridge recommendation (Alternative #4) from the DCR;
- The low-flow crossing is expected to have a capacity of 10,000 vehicles per day (projected demand for 2025 is 8,500 vehicles per day);
- Acquisition of new right-of-way, 404 permitting, and environmental clearance will be required to implement the low-flow crossing; and
- The low-flow crossing does not meet ultimate traffic demands and will have to be replaced by the bridge recommended in the DCR.

2.2.20 *Draft of the Initial Location/Design Concept Report for SR 85, Gila Bend to I-10 (November 1999)*

- The recommended improvements to the SR 85 roadway are described, which are based on the findings of an alternatives evaluation, available accident information, and current and forecast traffic volumes.

2.2.21 *Maricopa County Transportation System Plan (February 2007)*

- Old US 80 is functionally classified as a Major Collector;
- 339th Avenue, Salome Highway, and Baseline Road are classified as Minor Arterials;
- 331st Avenue and Arlington School Road are classified as Minor Collector roads; and
- Enterprise Road is classified as a Local Road.

2.2.22 *Maricopa County Major Streets and Route Plan: Street Classification Atlas (revised September 2004)*

- Old US 80 is shown as having a scenic/recreational overlay over its entire length;
- The design guidelines of a scenic/recreational overlay call for the road to follow the contours of the natural terrain and to have a 50-foot scenic easement added on each side of the right-of-way to provide for a wider corridor of natural habitat preservation; and
- The 50-foot scenic easement does not currently exist anywhere along Old US 80.

2.3 Summary of Programmed Roadway Improvements

There are currently no programmed roadway improvements contained in the Capital Improvement Programs, Transportation Improvement Programs, and Regional Transportation Plans that pertain to the project study area.

3. EXISTING AND FUTURE CORRIDOR FEATURES

This section summarizes the information gathered from the documents cited in the previous section into existing and future corridor feature categories. Exhibits are provided, where appropriate, to graphically display the existing and future corridor features that should be considered in determining if there are feasible alignments for the Hidden Waters Parkway.

3.1 Jurisdictional Responsibilities

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

Jurisdictional boundaries are illustrated in **Figure 2**, as per the Geographic Information Systems (GIS) data provided by Public Works of Maricopa County in May 2009.

3.2 Land Ownership

The project study area contains a mix of both public and private lands. The majority of the land in the project study area is privately owned. Public land owners in the study area are the Arizona State Land Department (ASLD) and BLM. Land ownership in the project study area is shown in **Figure 3**, as per the GIS data provided by Public Works of Maricopa County in May 2009.

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

3.3 Zoning and Land Use

3.3.1 Existing Zoning and Land Use

Figures 4a, 4b, 4c, 4d, 4e, and 4f show the existing zoning and parcel boundaries in the project study area as of June 2009. Zoning data for the unincorporated portions of the project study area was obtained from the Maricopa County Assessor's Office website (<http://www.maricopa.gov/Assessor/GIS/map.html>) while the zoning data for the portions of the project study area in Buckeye and Gila Bend was obtained from the towns' respective General Plans.

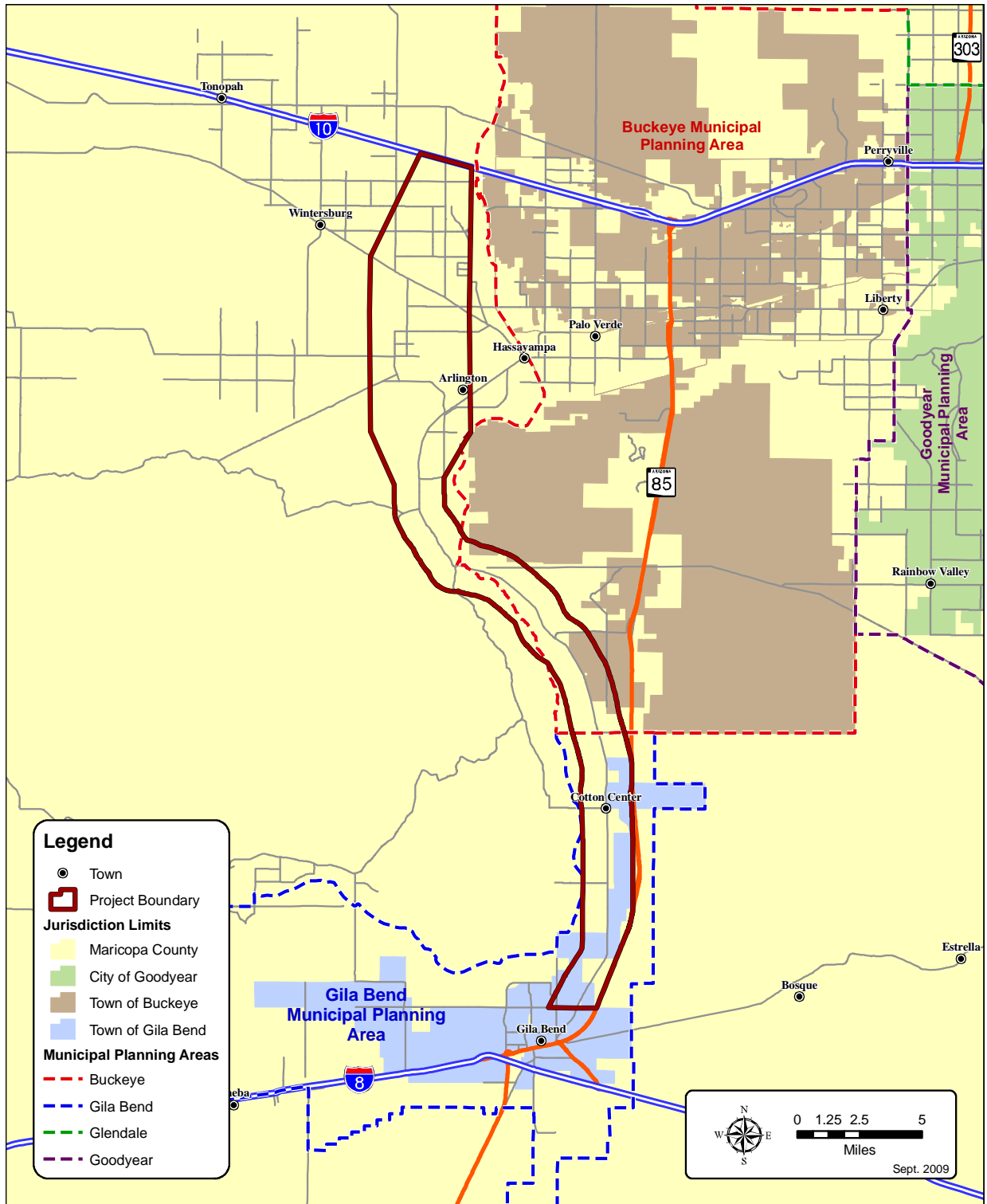


Figure 2 – Jurisdictions

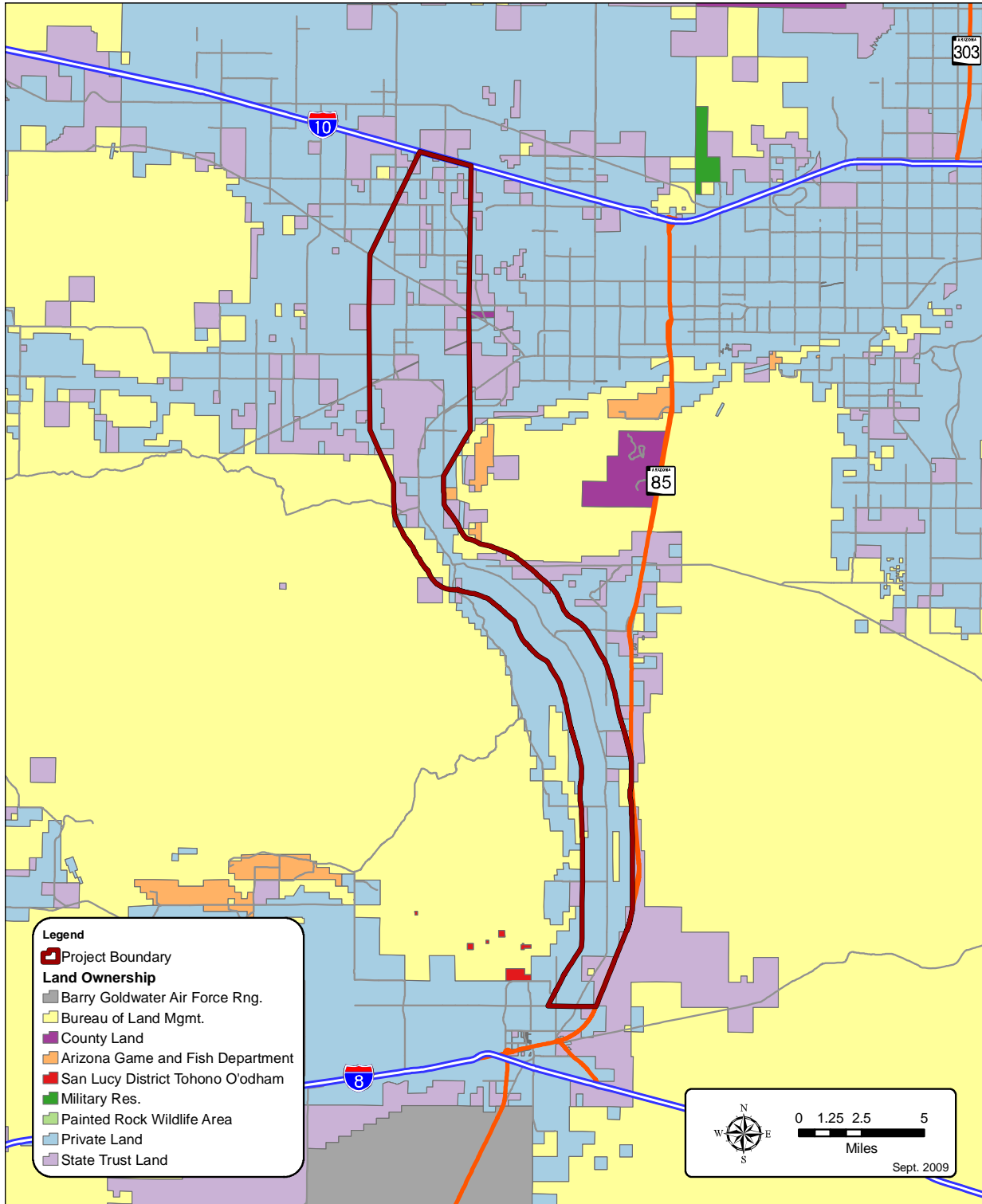


Figure 3 – Land Ownership

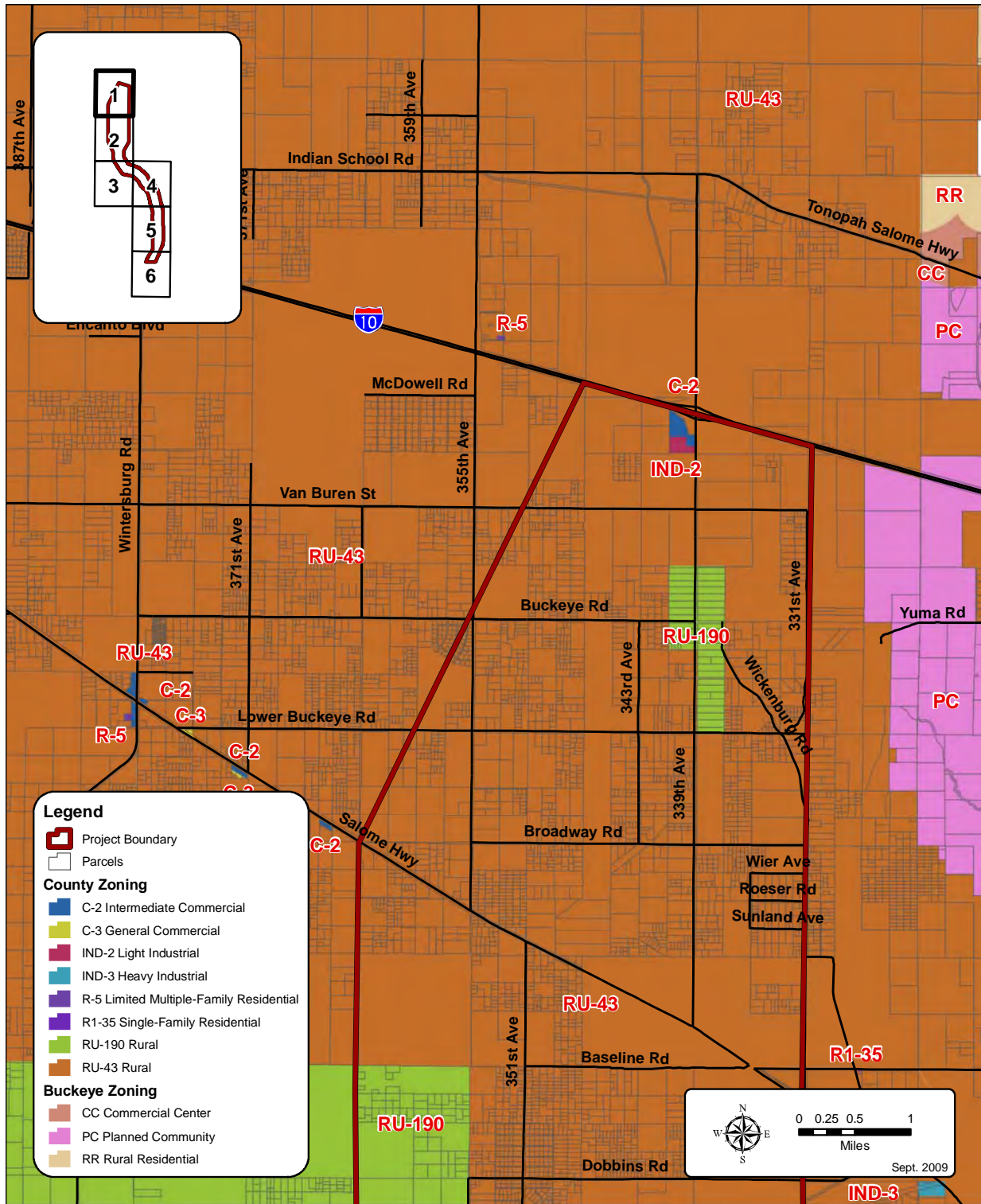


Figure 4a – Zoning

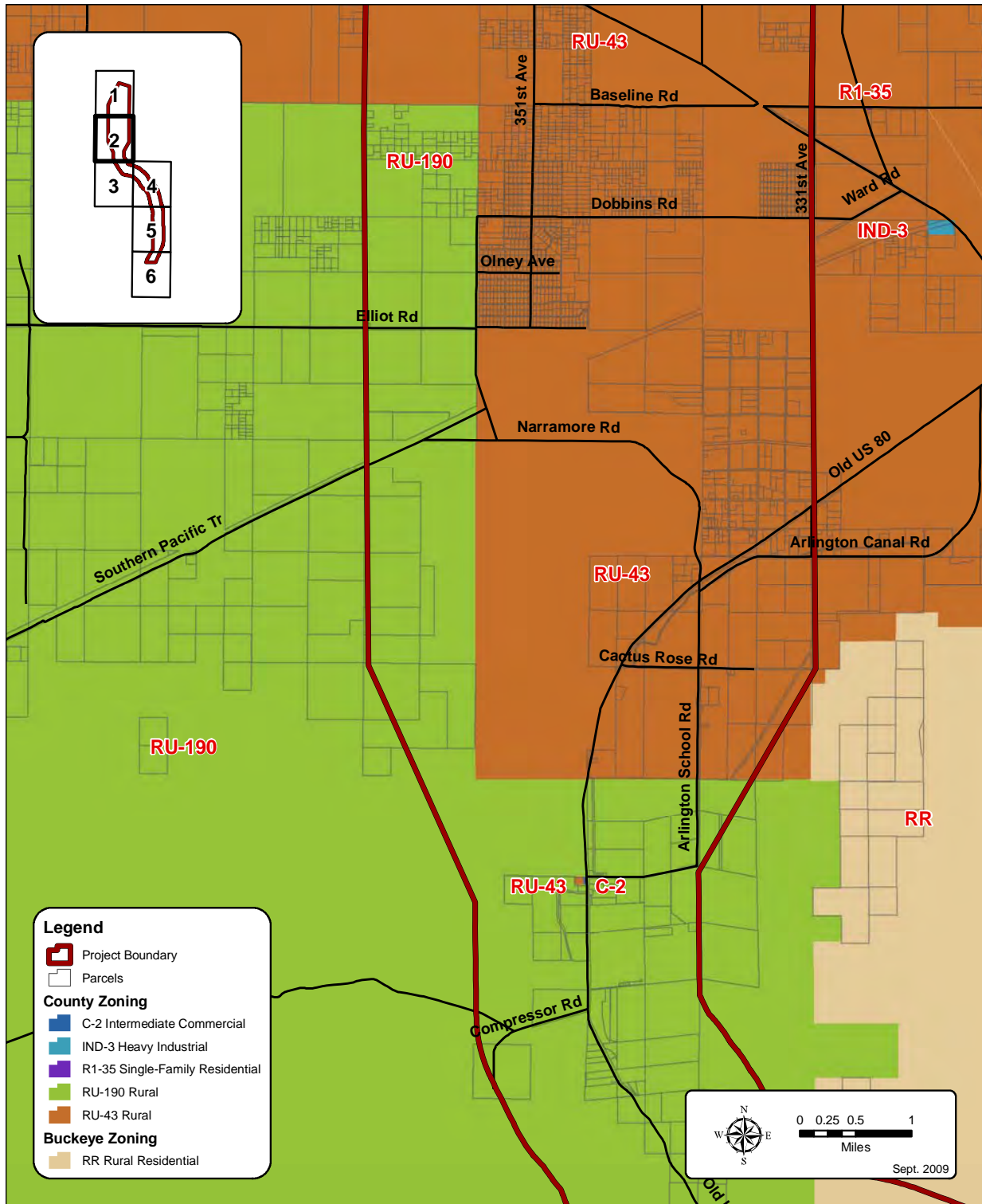


Figure 4b – Zoning

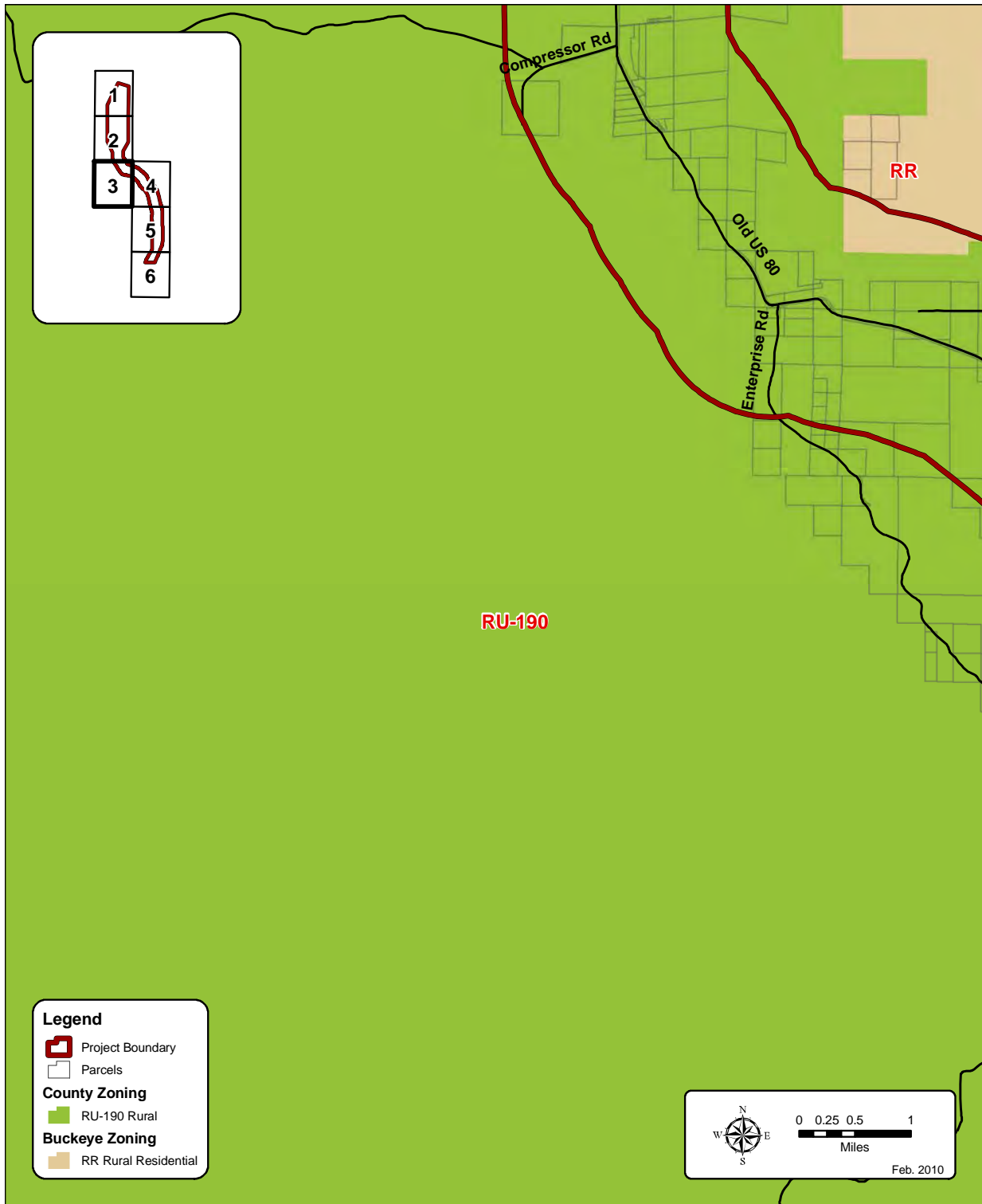


Figure 4c – Zoning

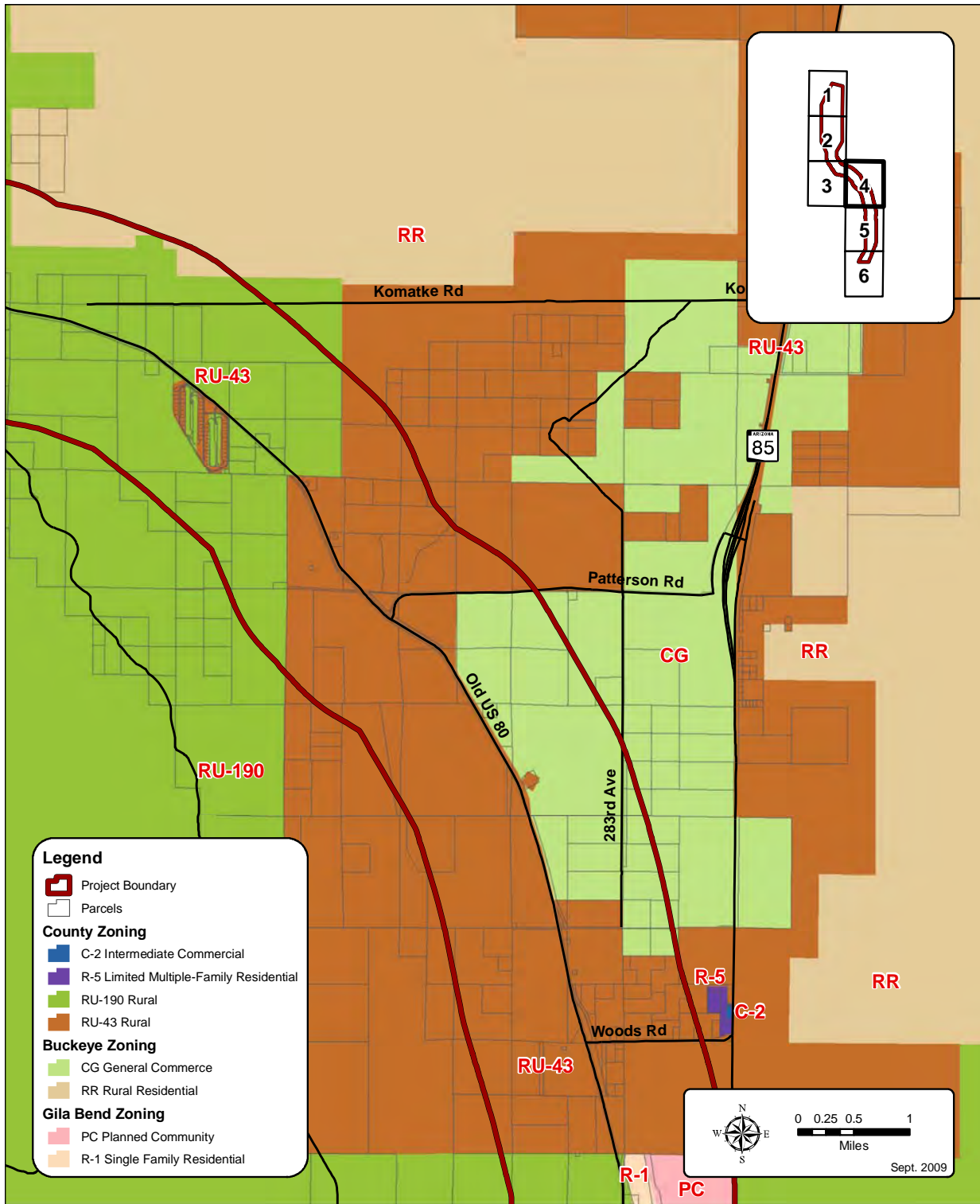


Figure 4d – Zoning

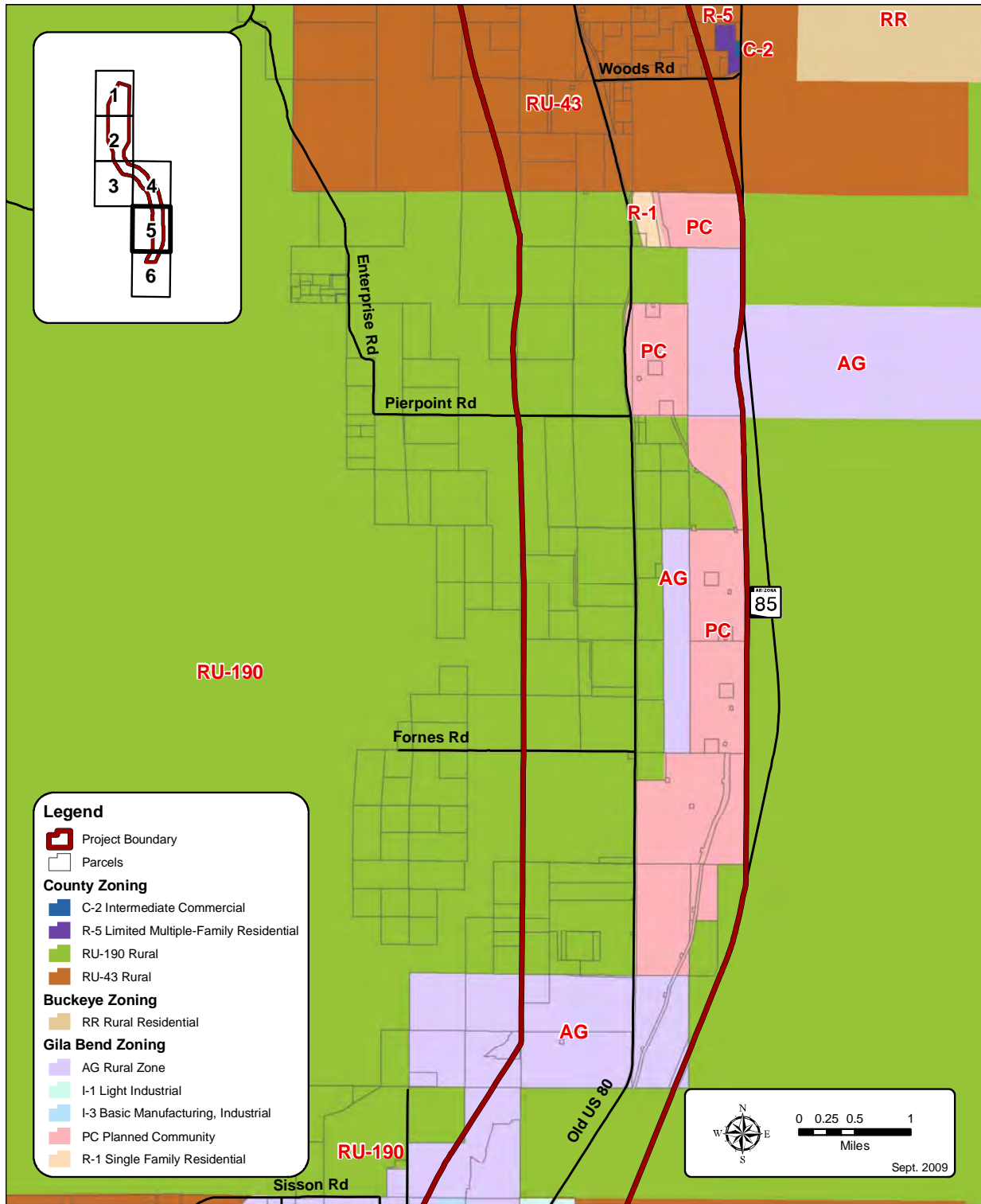


Figure 4e – Zoning

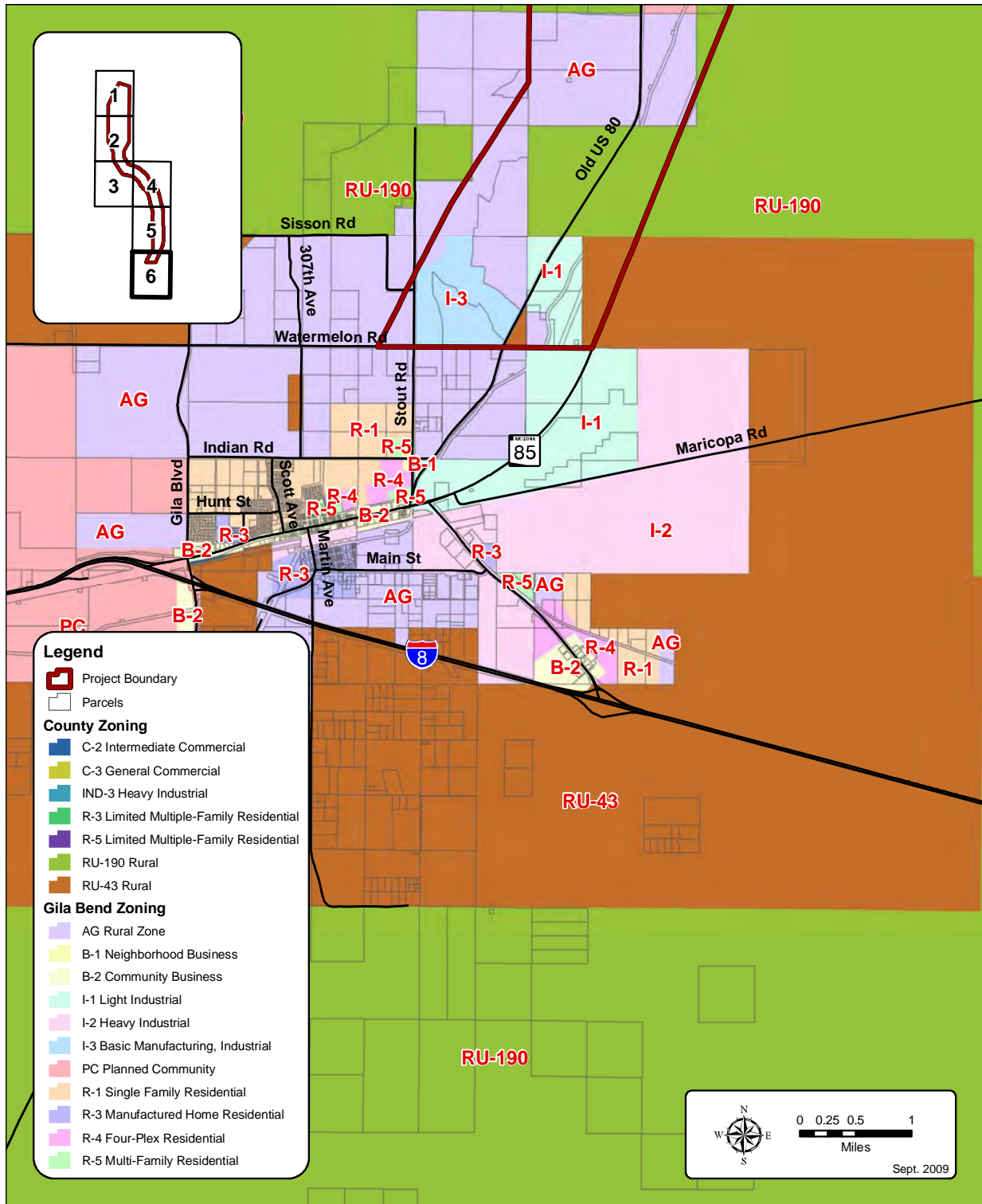


Figure 4f – Zoning

The project study area is primarily zoned for rural agricultural activity and low-density residential uses, with some commercial and higher-density residential zoning near Gila Bend, Buckeye, and I-10. Both 339th Avenue and 331st Avenue have several segments of 80-foot full-street dedicated right-of-way within the project study area. There are also large sections of these roadway alignments that either have 40-foot or 55-foot half-street dedicated right-of-way or no existing dedicated right-of-way. Old US 80 generally has a 100-foot dedicated right-of-way throughout the project study area.

Figure 5 shows the existing land uses in the study area per the GIS data provided by Public Works of Maricopa County in May 2009. The existing land uses within the project study area are primarily agriculture, open space, and vacant land, with a few clusters of residential uses. Arlington Elementary, located near 355th Avenue and Dobbins Road, and Winters' Well Elementary, located near 355th Avenue and Buckeye Road, are the only existing public school facilities located within the project study area.

3.3.2 *Future Land Use*

Figure 6 shows the anticipated future buildout land uses within the project study area per the MAG general plan GIS data provided by Public Works of Maricopa County in May 2009. This exhibit indicates that the existing agriculture and vacant land uses are anticipated to be converted to primarily low-density and medium-density land uses.

3.4 Existing and Planned Developments

Figure 7 shows the existing and active planned developments around and within the project study area. At the time the aforementioned MAG framework studies were conducted, the Phoenix metropolitan area was experiencing significant population growth over a period of several years. In the past two years, however, the rate of growth has slowed due to the economic downturn, as evidenced by the fact there are few development or rezoning requests currently being processed by Maricopa County for land within the project study area. The rate of growth within the project study area is expected to increase following a significant economic recovery, but the development timeframes for when buildout will be reached will likely be extended.

3.5 Transportation Network

3.5.1 *Existing Transportation Network*

Old US 80 is currently a paved two-lane Major Collector roadway that traverses the majority of the study area, running south-north from Watermelon Road in Gila Bend to the Arlington area, where Old US 80 diverges to the east. The posted speed limit along Old US 80 is primarily 50 mph. Higher-speed roads in the project study area include I-8 and I-10, along with SR 85, which is just outside of the eastern edge of the study area. Other roads of interest in the project study area include 339th Avenue and Watermelon Road, both of which are Minor Arterial roadways. There is also an existing Union Pacific railroad line that runs northeast-to-southwest through the project study area just north of Arlington.

At the northern end of the project study area, there is an existing traffic interchange along I-10 at 339th Avenue. At the southern end of the project study area, the Old US 80/Watermelon Road intersection is currently a "T" intersection, with a stop sign located on the Watermelon Road leg.

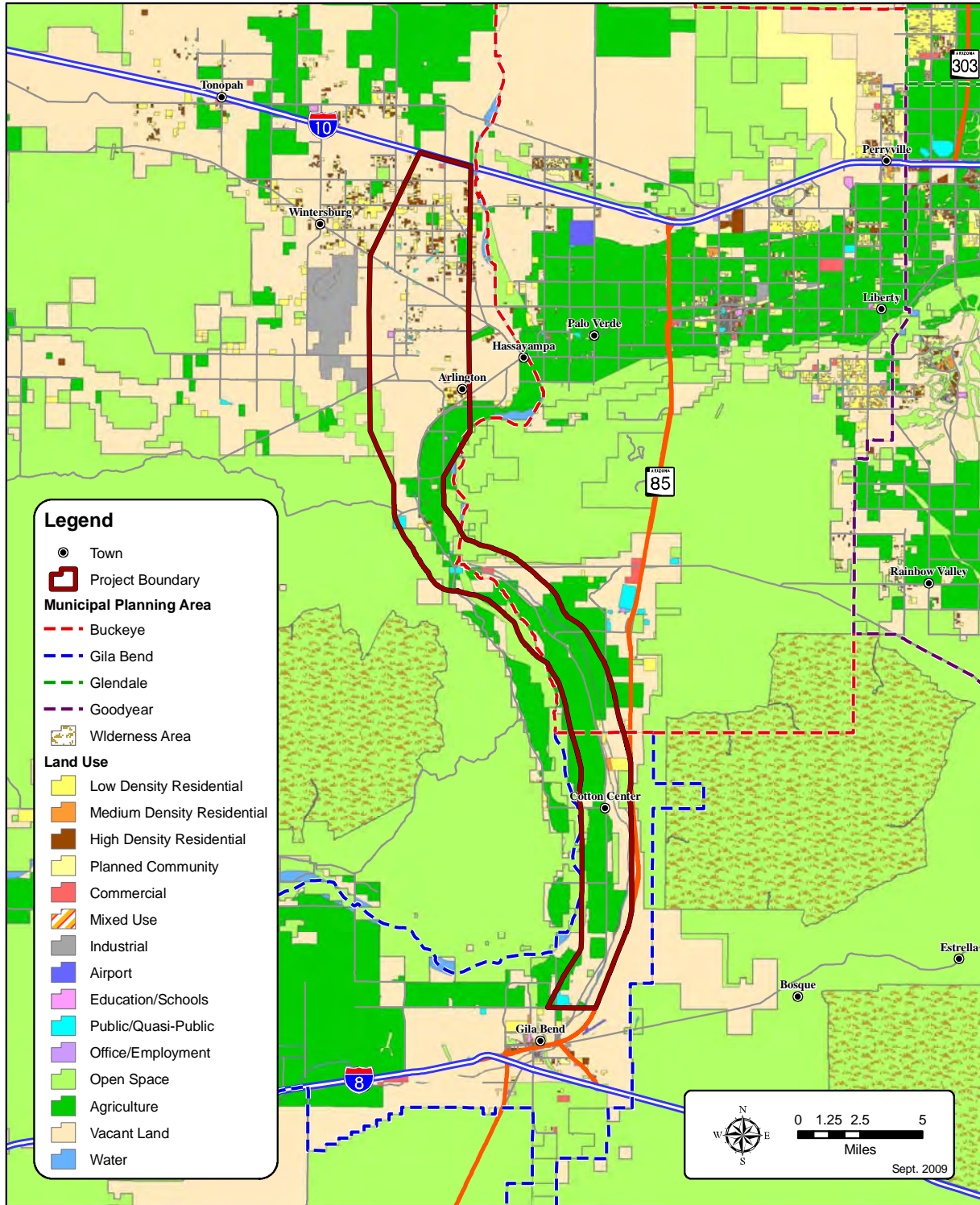


Figure 5 – Existing Land Use

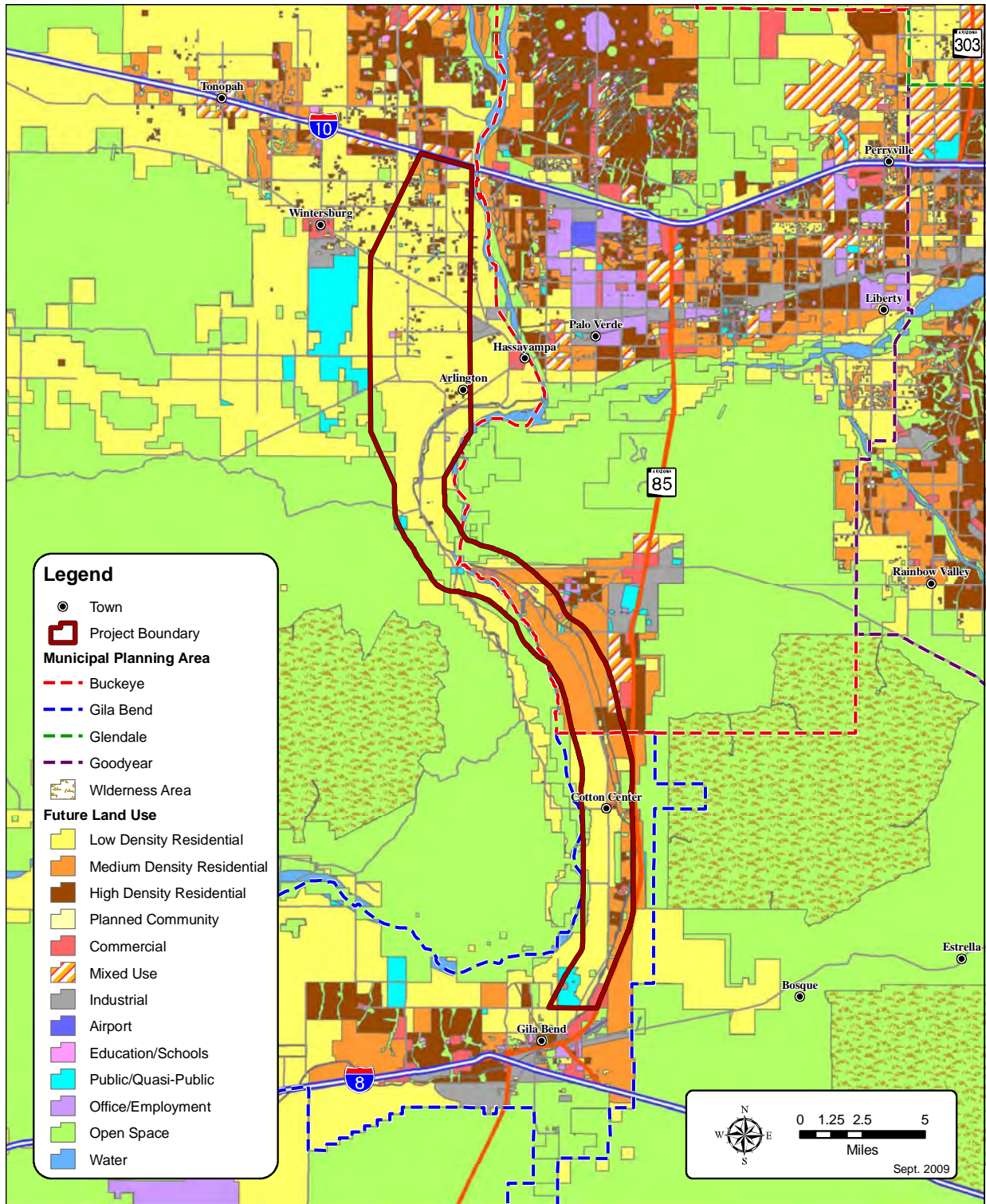


Figure 6 – Future Land Use

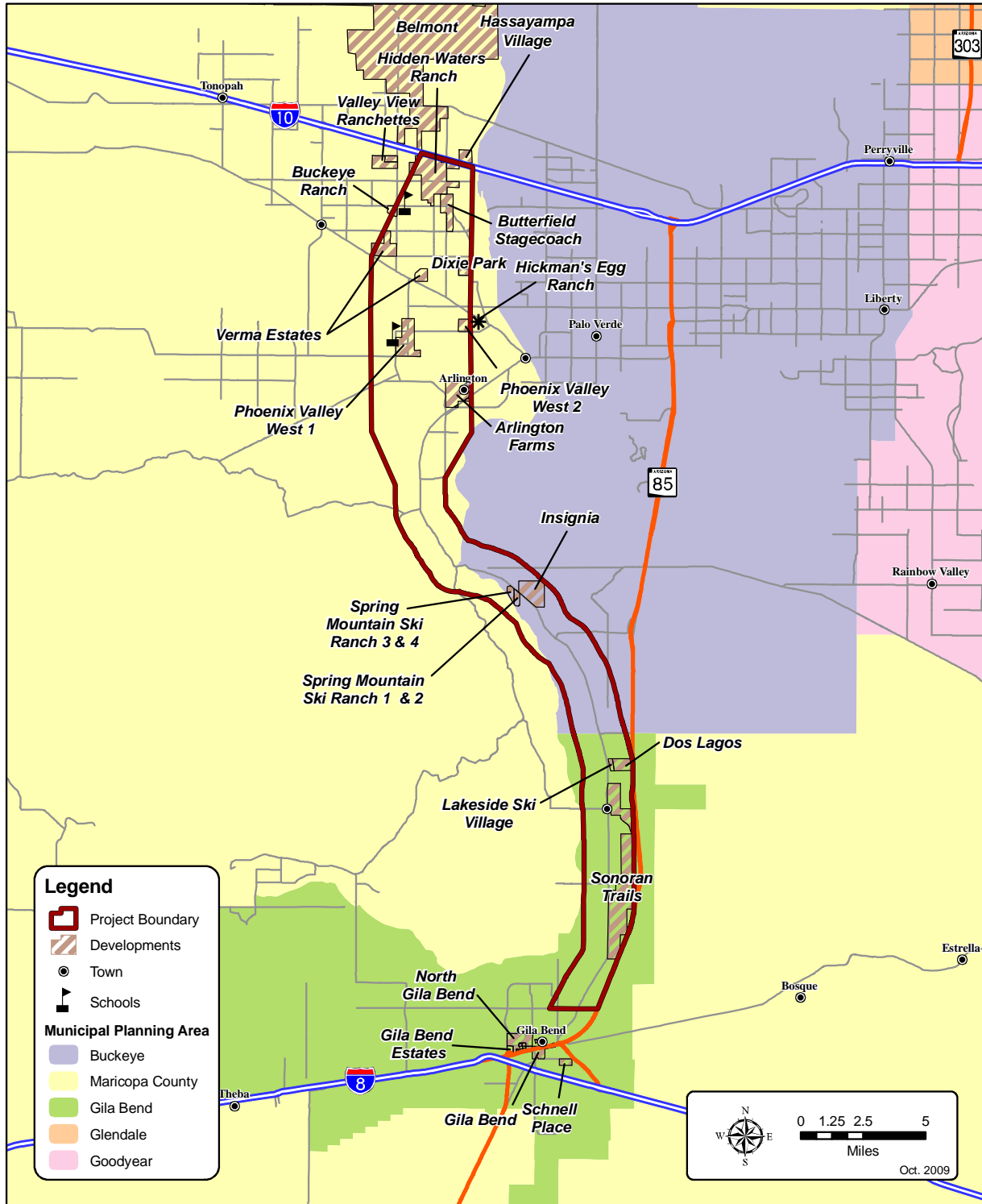


Figure 7 – Existing and Planned Developments

MCDOT utilizes the Road Management System (RMS) tool to analyze the physical attributes of roadways as well as the condition of roadway pavement and ride quality. One of the data items included in the RMS is the pavement conditions rating. The *2008 MCDOT State of the System* report shows the pavement condition ratings for portions of several of the major roads within the project study area. Old US 80 is predominately rated to be in ‘excellent’ condition, with some patches rated ‘very good’. 339th Avenue and 331st Avenue both have sections of pavement rated ‘excellent’, ‘very good’, and ‘good’.

Existing 2008 daily traffic count volumes for the existing transportation network in the project study area were taken from the Traffic Counts web pages of MCDOT and ADOT.

Figure 8a and **Figure 8b** depict many of the features of the existing transportation network within the project study area.

3.5.2 *Future Transportation Network*

The existing transportation network in the project study area is anticipated to change dramatically in the future buildout condition. Most of the existing roadways are expected to change to a higher functional classification. For example, the *Hidden Valley Framework Study* proposes that the north-south portion of Old US 80 become the Hidden Waters Parkway and that Watermelon Road become a parkway also. According to the MAG framework studies, several new parkways, freeways, and arterial roadways are planned in the project study area as well.

As has previously been mentioned, the parkway is distinguished from other roadway types by the use of an intersection treatment known as the indirect left-turn. This intersection treatment eliminates left-turns at all cross-street intersections and utilizes a wide median to facilitate u-turns downstream from the intersections. The minimum required right-of-way for the parkway is typically 200’.

At the northern end of the project study area, the existing traffic interchange along I-10 at 339th Avenue is proposed to be reconstructed as a parkway-to-freeway interchange. At the southern end of the project study area, the Old US 80/Watermelon Road intersection is proposed to become a PGSI for the Hidden Waters and Watermelon Road parkways. Just east of this proposed PGSI is a planned Watermelon Road/SR 85 grade-separated interchange. The currently proposed design concept for this interchange on SR 85 shows Watermelon Road being realigned to the north of its existing alignment west of SR 85. It is not currently known how this shift in alignment would impact the location of the Hidden Waters/Watermelon Road PGSI.

The *Hidden Valley Framework Study* also proposes a new railroad line be constructed to connect the existing railroad line that runs north of Arlington to the one that runs south of Gila Bend. This new railroad line runs generally north-south parallel to SR 85 along the eastern edge of the project study area.

Future unofficial buildout daily traffic volumes for the future transportation network in the project study area were obtained from MAG framework study travel demand model outputs produced in July 2009 by MAG. The projected buildout volumes for the Hidden Waters Parkway exceed the capacity of a typical arterial roadway, indicating a long-term need for a parkway facility in the corridor. **Figure 9a** and **Figure 9b** depict many of the proposed features of the future transportation network within the project study area.



Figure 8a – Existing Transportation Network

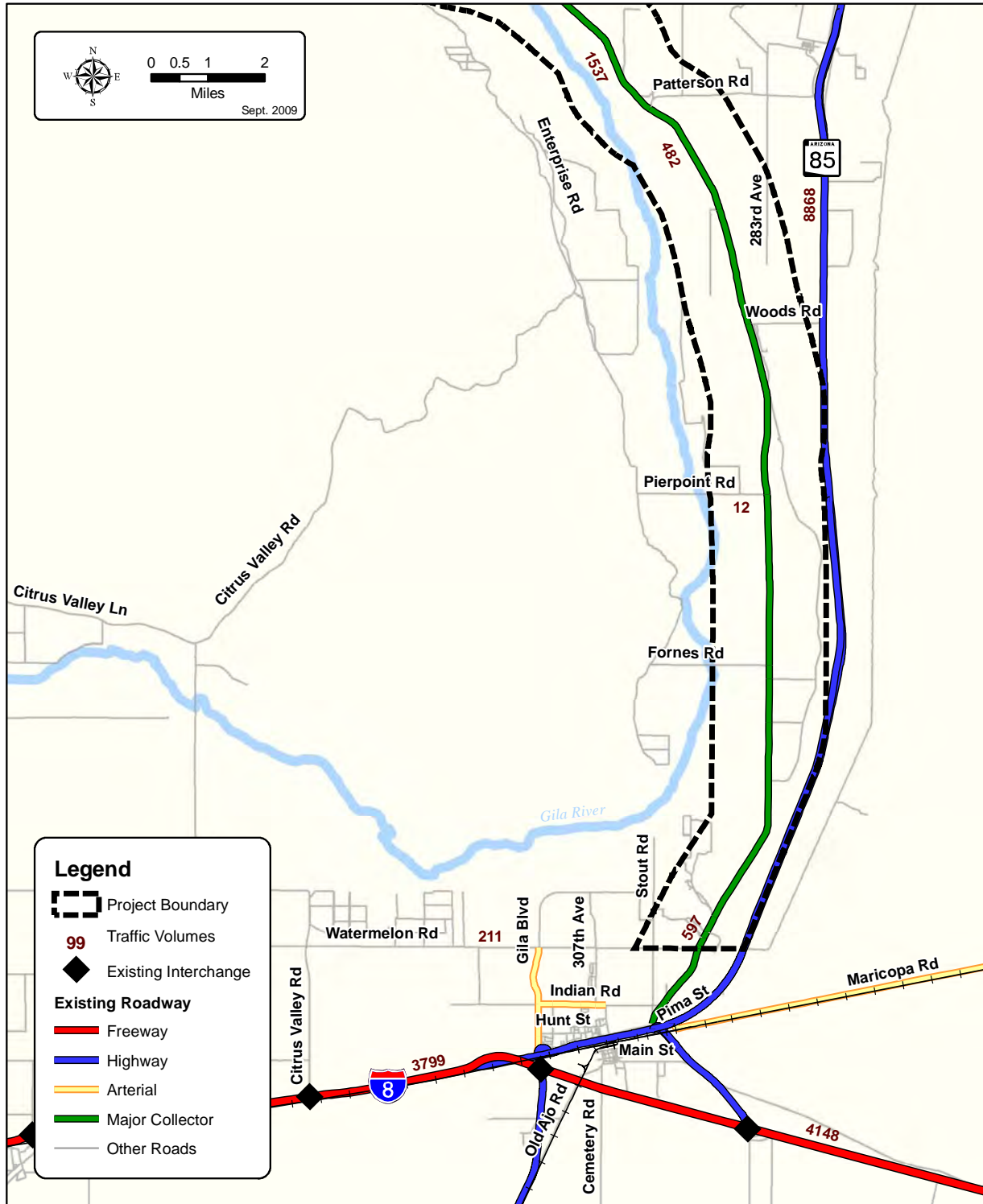


Figure 8b – Existing Transportation Network

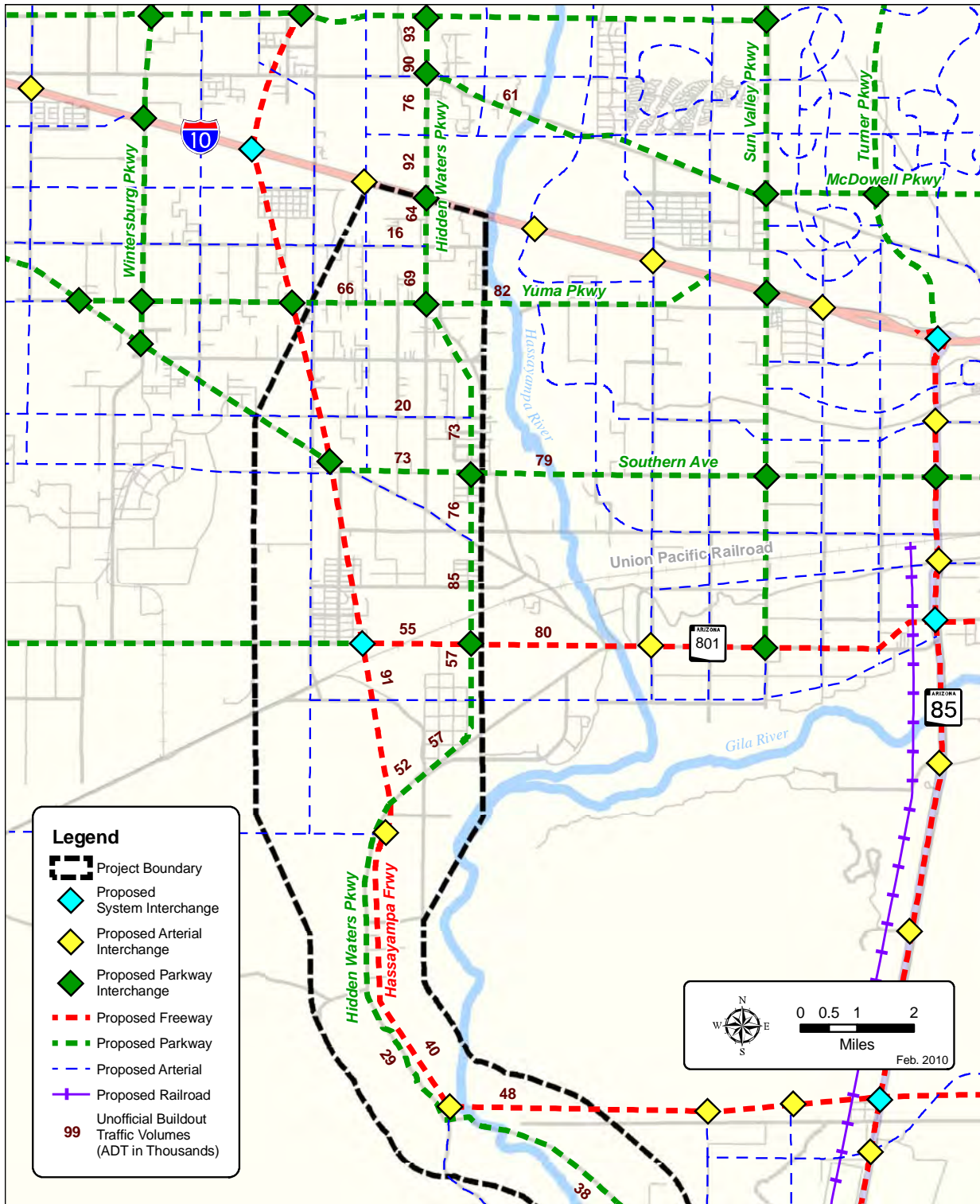


Figure 9a – Proposed Buildout Transportation Network

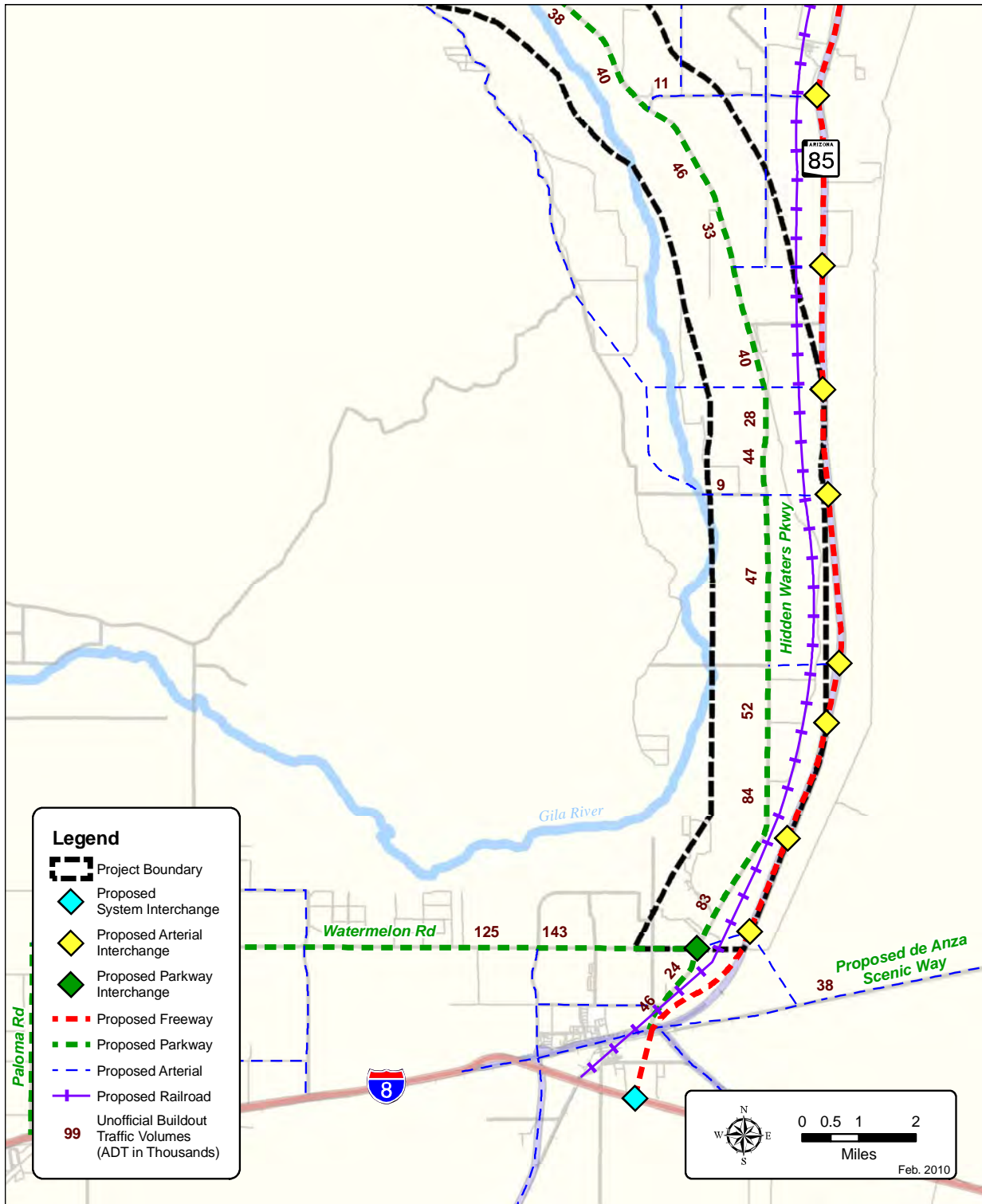


Figure 9b – Proposed Buildout Transportation Network

3.6 Utilities

Figure 10a and **Figure 10b** depict the existing and planned major utilities within the project study area.

Per the *Old US Highway 80 Area Plan* and maps provided by Arizona Public Service (APS), 69 kV lines currently run along Old US 80 within the existing road right-of-way. An *Interconnection Facilities Study* published by APS in August 2009 says that APS has plans to construct a new 69kV line along the same general route as the existing 69kV line along Old US 80; however the new line will be moved into new right-of-way outside of existing Old US 80 right-of-way up to the existing APS Cotton Center substation.

There are several major power transmission corridors that run through the project study area. Three 500kV lines originate from the Palo Verde Nuclear Generating Station (PVNGS) and run diagonally through the northern end of the project study area, eventually crossing I-10. Two other 500kV lines run south from PVNGS and along the western edge of the project study area, crossing the study area about 1,100' south of the Old US 80 bridge over the Gila River near Gillespie Dam.

Ongoing studies by APS indicate that the plans for the Solana Generating Station project include an interconnection with the existing APS Panda Substation, located at the northwest corner of Watermelon Road and Old US 80. The preferred transmission line route between the Solana Generating Station and the Panda Substation includes transmission facilities that would follow the existing 230 kV and 69 kV lines along Watermelon Road and into the Panda Substation.

There are several existing gas and petroleum pipelines that cross through the project study area. A 20-inch Kinder Morgan Energy petroleum pipeline crosses through the project study area within the Union Pacific railroad right-of-way between Baseline Road and Old US 80. El Paso Natural Gas has four major gas pipelines that cross east-west through the project study area just south of Gillespie Dam. Transwestern has a major gas pipeline that parallels the 500kV lines that run diagonally through the northern end of the project study area. The Transwestern gas pipeline also crosses east-west through the project study area just south of where the El Paso Natural Gas pipelines cross the project study area. Entegra Power Group owns a gas pipeline that laterals off of one of the aforementioned El Paso Natural Gas pipelines and runs south along the east side of Old US 80 to the Gila River Power Station north of Gila Bend.

3.7 Facilities

Figure 10a and **Figure 10b** show the locations of existing facilities within the project study area.

The City of Phoenix owns and operates the SR 85 Landfill located at the southeast corner of Old US 80 and Patterson Road on 2,652 acres of land. This landfill has accepted City of Phoenix municipal solid wastes since January 2, 2006. The landfill is currently accessed via SR 85 and Patterson Road and it is the only operational landfill in the project study area. The City of Phoenix is planning on constructing a solar power plant on a portion of the landfill property. The solar power plant would remain operational until the City needs that space for landfill operations.

From 1961 to 1997, Maricopa County operated the Hassayampa Landfill located at Baseline Road and Salome Highway (just outside the project study area) for municipal waste disposal. Hazardous wastes were also disposed in the northeast section of the landfill from April 1979 to October 1980. The site was added to the Superfund National Priorities List in 1987.

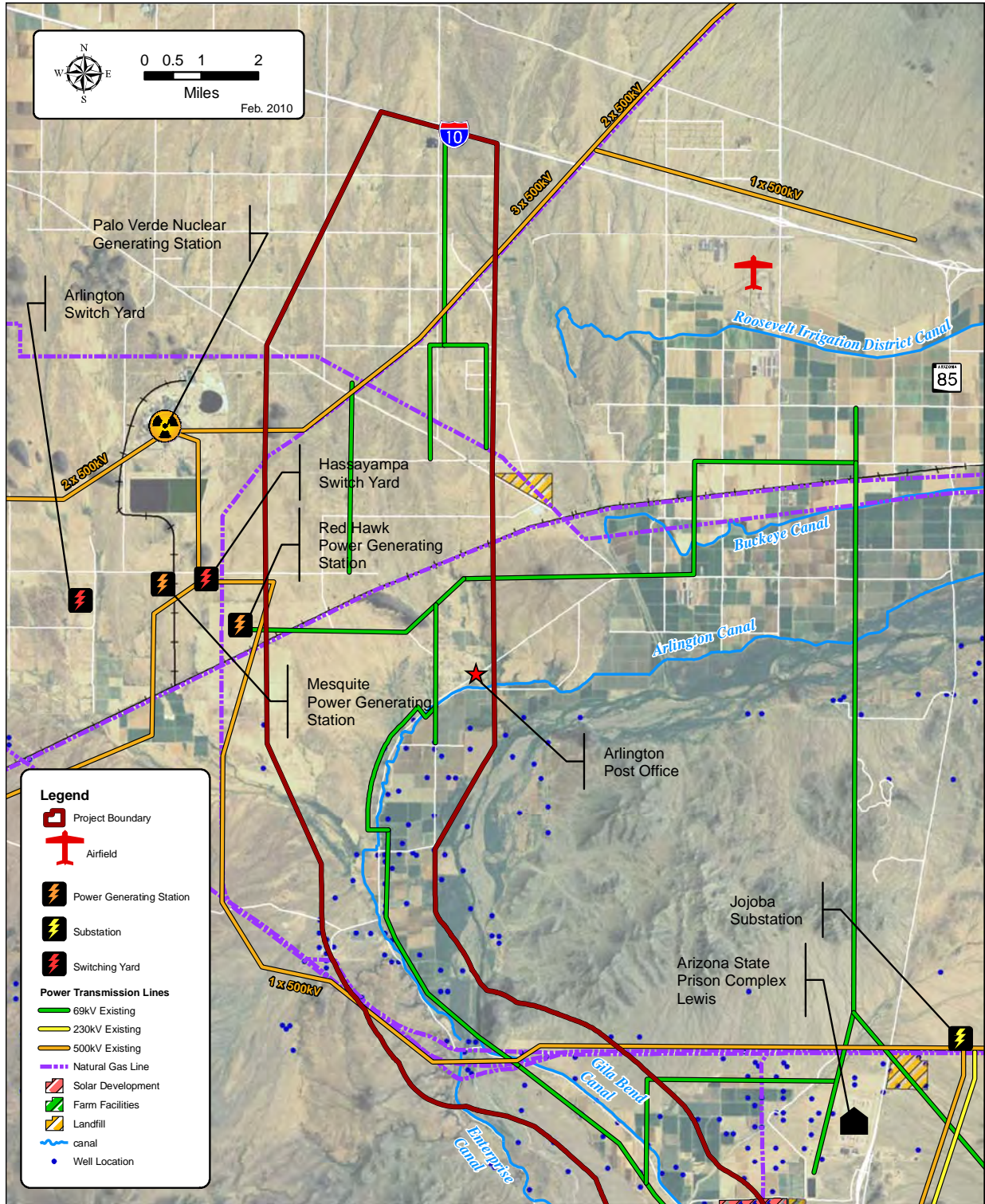


Figure 10a – Utilities and Facilities

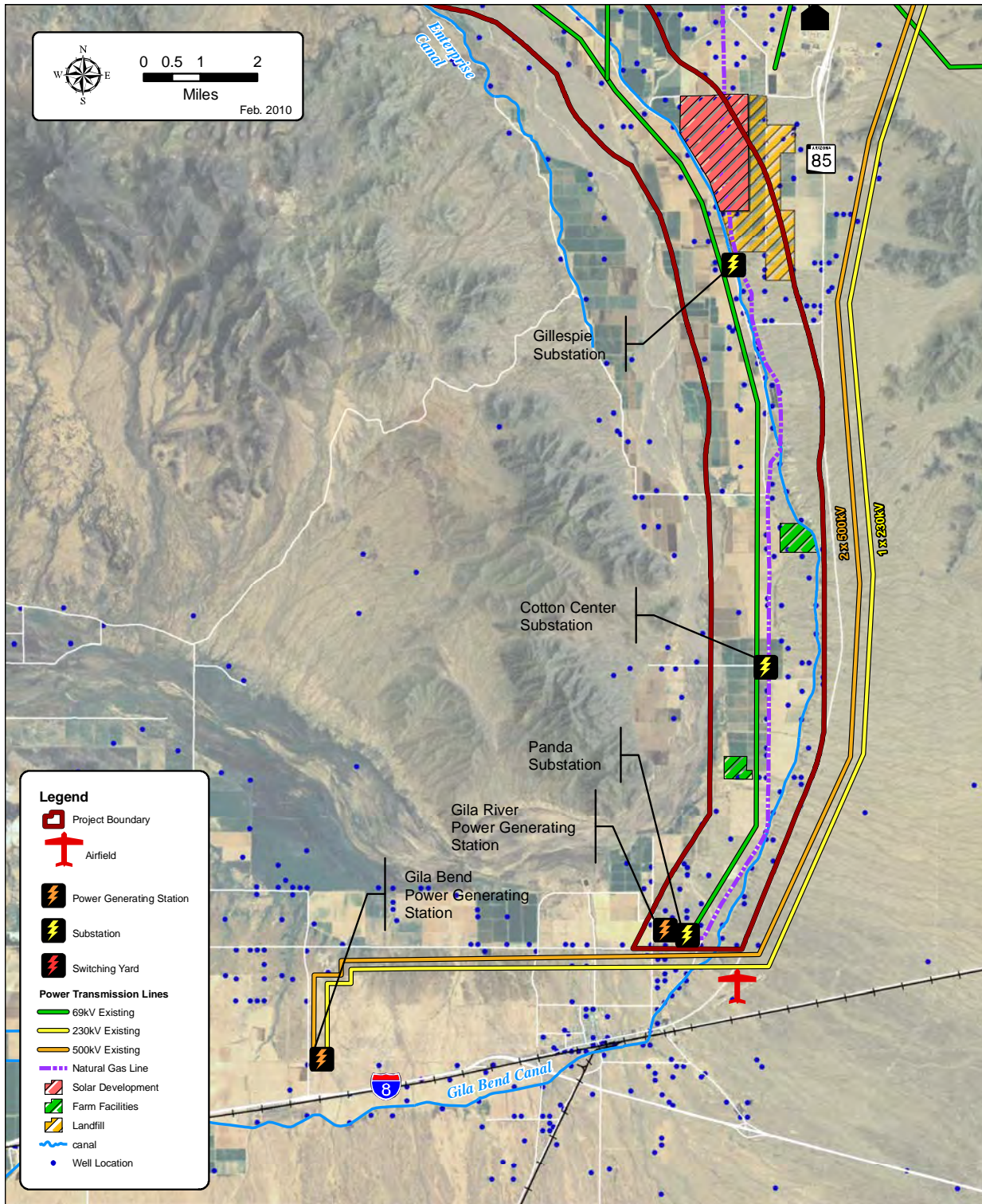


Figure 10b – Utilities and Facilities

There are three large canals in the project study area: the Gila Bend Canal, the Arlington Canal, and the Enterprise Canal. The Gila Bend Canal generally runs along the east side of Old US 80 between Gila Bend and Gillespie Dam. The Paloma Irrigation District has irrigation facilities along the Gila Bend Canal. The Arlington Canal generally runs along the east side of Old US 80 north of Gillespie Dam. The Enterprise Canal runs south from Gillespie Dam to the west of the project study area. Smaller irrigation canals exist throughout the project study area to provide water to the agriculture lands.

The Arlington Post Office is located along Old US 80 near Arlington.

The Gila Bend Municipal Airport is located just east of the project study area along SR 85 near Gila Bend.

There are literally hundreds of private wells located in the project study area. These wells provide water to properties because there are no municipal water lines in most of the study area.

The PVNGS is located two miles west of the project study area. A portion of Old US 80 is a planned evacuation route for PVNGS. **Figure 11** shows the PVNGS planned evacuation routes, as well as the ten-mile radius Emergency Planning Zone, and the fifty-mile radius Ingestion Pathway Zone for PVNGS.

3.8 Topography

Figure 12 illustrates the topography of the region through slope analysis around and within the project study area. Most of the project study area itself is fairly flat, but there are significant topographical changes (slopes greater than five percent) just outside much of the project study area. The southern two-thirds of the project study area are flanked by the Gila Bend Mountains on the west and the Maricopa Mountains and Buckeye Hills on the east. The northern third of the project study area contains a few hills that form the eastern edge of the Palo Verde Hills.

There are three locations in the project study area where topographical constraints exist. The first and most critical topographic constraint is the narrow pass between the Gila Bend Mountains and Buckeye Hills where Gillespie Dam, the Gila River, and the Old US 80 Bridge are all located. The second topographical constraint is the large hill located approximately at the 347th Avenue alignment between Dobbins Road and Narramore Road. The third topographical constraint is the small hill located approximately at the 363rd Avenue alignment just south of Salome Highway (on the western edge of the project study area).

3.9 Recreational and Wildlife Areas

Several recreational and wildlife areas exist within or adjacent to the project study area. **Figure 13** shows the various Wilderness Areas, Potential Wildlife Linkage Zones, State Wildlife Areas, and regional parks within or near the project study area.

There are several planned trails in the project study area according to the *Maricopa County Trails Plan*. These proposed trails are low-priority conceptual corridors that traverse the project study area along the Gila River, along a portion of Old US 80, and along the historic Butterfield Overland Stage Route near Gila Bend.

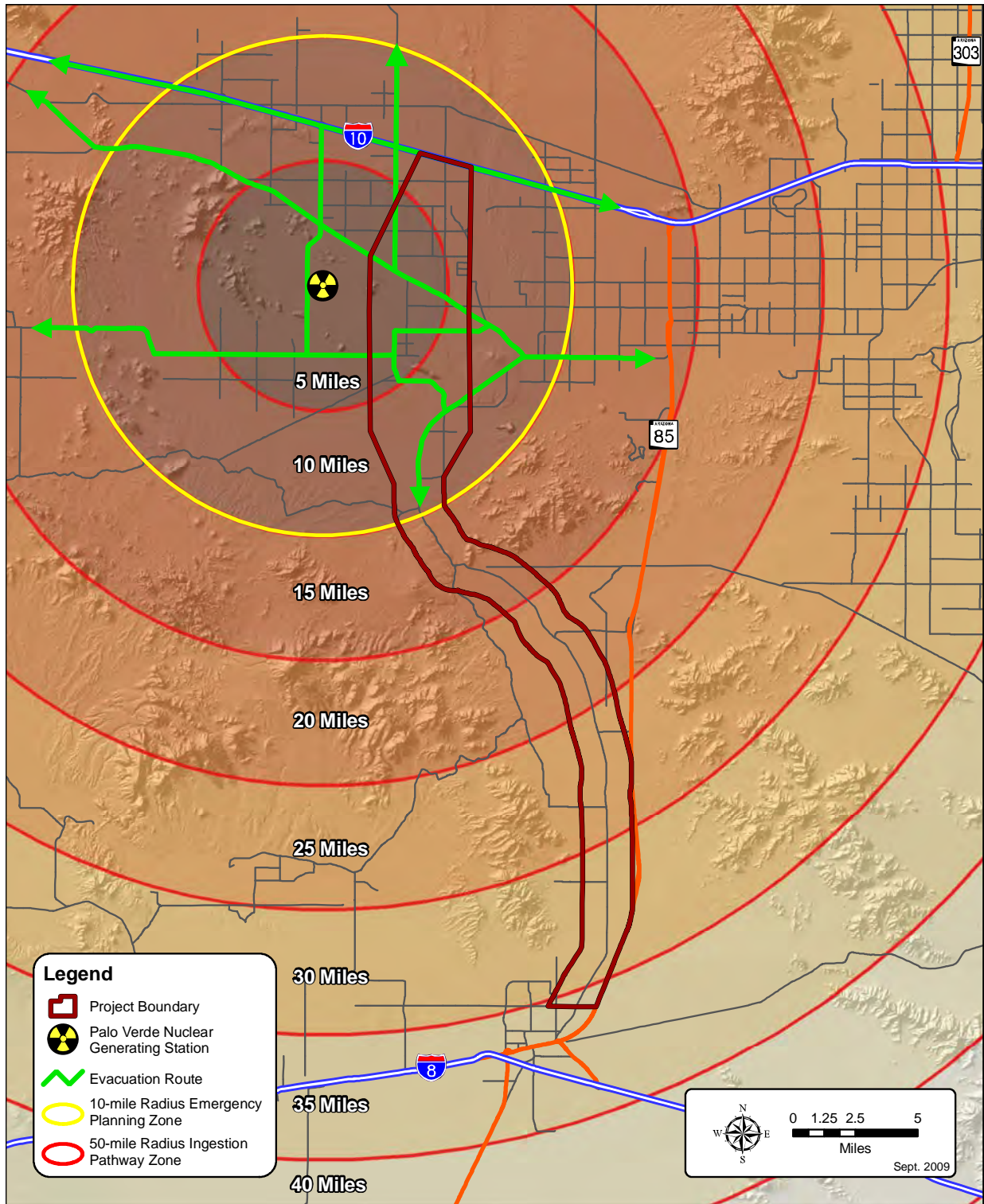


Figure 11 – Palo Verde Nuclear Generating Station Emergency Planning

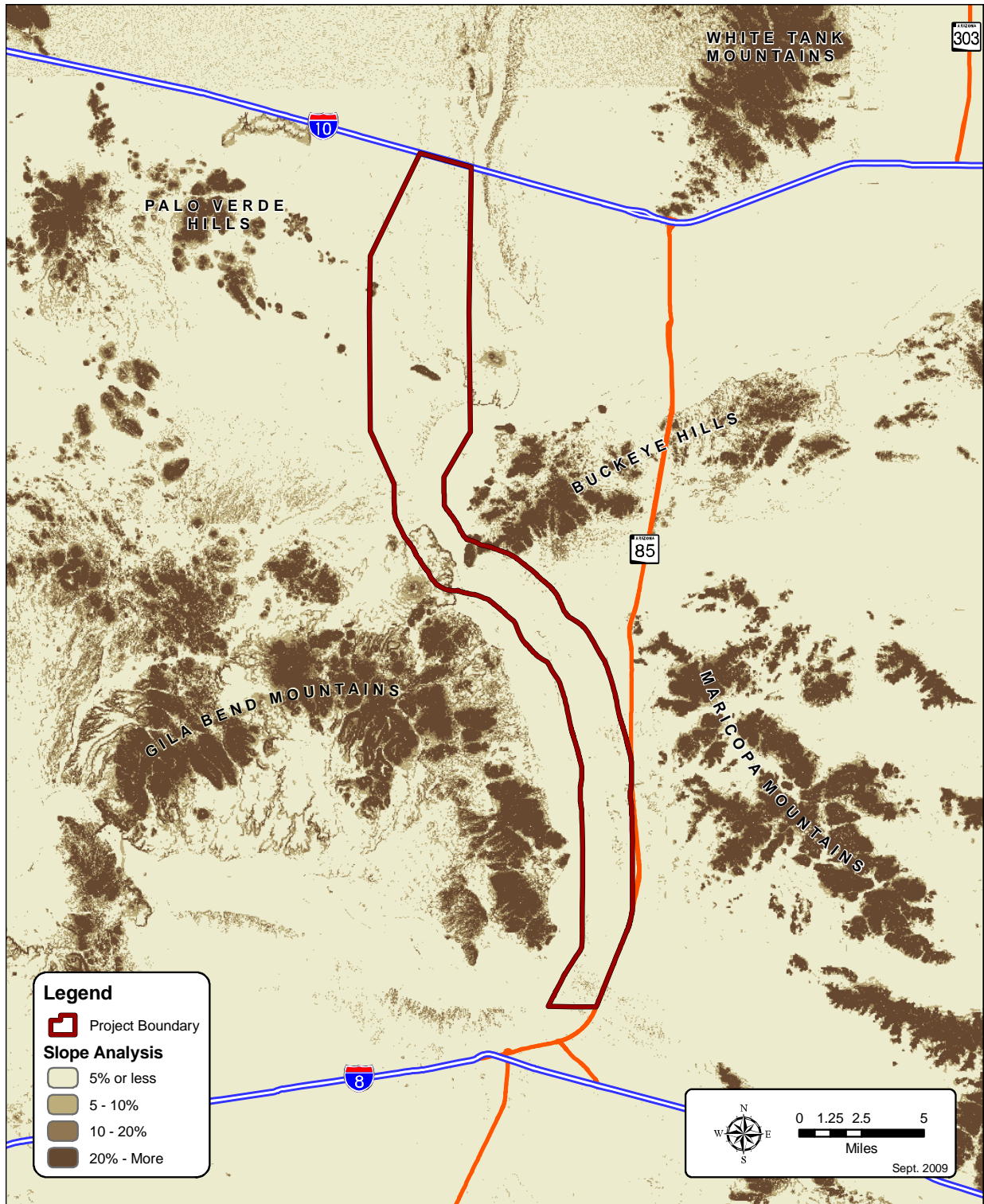


Figure 12 – Slope Analysis

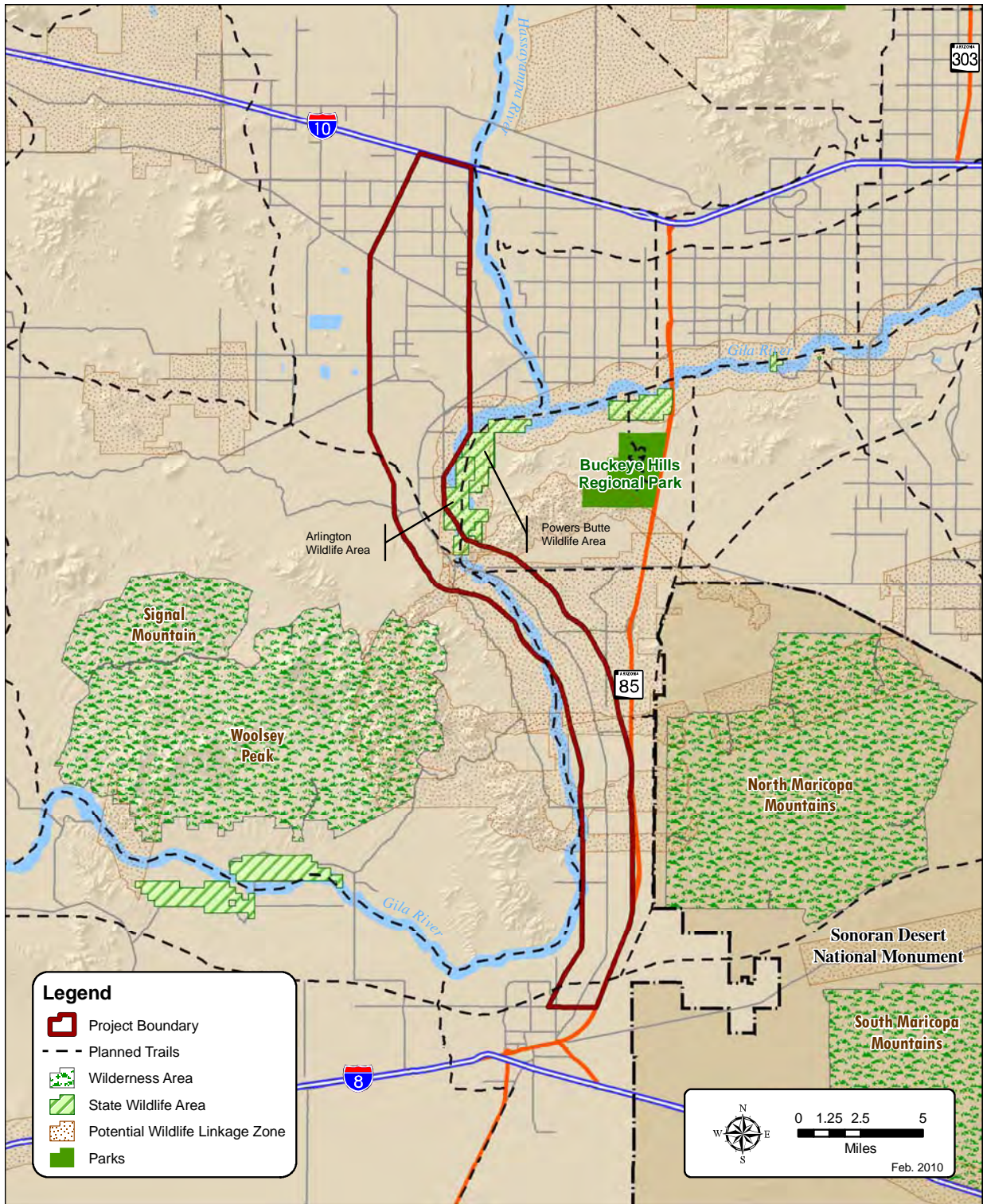


Figure 13 – Recreational and Wildlife Areas



4. SUMMARY OF IDENTIFIED OPPORTUNITIES AND CONSTRAINTS

Based on the existing and future corridor features discussed previously, the following potential opportunities/constraints have been identified (generally listed in order from south to north and east to west in the project study area) that should be considered in determining if there are feasible alignments for the Hidden Waters Parkway:

- Potential Watermelon Road alignment shift near the proposed interchange with Hidden Waters Parkway;
- Gila River Power Generating Station;
- Panda electrical substation;
- 69 kV power poles along Old US 80;
- Gila Bend Canal along east side of Old US 80;
- Gas pipeline along east side of Old US 80;
- Cotton Center electrical substation;
- Existing and proposed developments of Sonoran Trails, Dos Lagos, Lakeside Ski Village, Spring Mountain Ski Ranch, and Insignia;
- SR 85 Landfill;
- Potential wildlife linkage zones;
- Gas pipelines south of Old US 80 Bridge;
- 500 kV transmission towers south of Old US 80 Bridge;
- BLM land near Gillespie Dam and Old US 80 Bridge;
- Narrow pass between Gila Bend Mountains and Buckeye Hills at Gillespie Dam and Old US 80 Bridge;
- LGRWMA, including the Arlington and Powers Butte Wildlife Areas;
- Arlington Canal along east side of Old US 80;
- Arlington Post Office;
- Existing and proposed developments of Arlington Farms, Phoenix Valley West, Verma Estates, and Dixie Park;
- Large hill near 347th Avenue/Dobbins Road;
- Union Pacific railroad track;
- Arlington Elementary School;
- Small hill near 363rd Avenue/Salome Highway;
- 500 kV transmission towers between PVNGS and I-10;
- Winters' Well Elementary School;
- Existing and proposed developments of Butterfield Stagecoach and Hidden Waters Ranch; and
- Proposed reconstruction of existing I-10/339th Avenue interchange.



APPENDIX TM1-1
SUMMARY TABLE OF DOCUMENTS REVIEWED

Summary Table of Documents Reviewed - Kimley-Horn and Associates

ADOT = Arizona Department of Transportation
 USACE = U.S. Army Corps of Engineers
 FEMA = Federal Emergency Management Agency
 KHA = Kimley-Horn and Associates
 NRCS = Natural Resource Conservation Service
 USGS = United States Geological Survey
 MCDOT - Maricopa County Department of Transportation
 AZGS = Arizona Geological Survey

Hidden Waters Parkway Corridor Feasibility Study Data Collection Summary

LIBRARY	ITEM				TRACKING			
KHA No.	Title	Description	Author	Date	Source	Format/ File Type	Date Collected	Collected By
E1	Proposed Project Limits and Programmed Priorities State Route 85	map of SR85 mileposts and projected projects	ADOT	unknown	ADOT	pdf	06/11/09	BML
E2	Gillespie Mapping Block Delivery Schedule	shows extent and delivery date of mapping for Gillespie ADMS	unknown	May 2009	FCDMC	pdf	06/02/09	RAE
E3	Luke Wash Watershed FDS	map of Floodplain Delineation Study boundary	FCDMC	unknown	FCDMC	jpg	06/11/09	BML
E4	Gila Bend Area Drainage Master Plan Floodplain Delineation Study	Hydraulics Technical Data Notebook and supporting appendices; comprised of 3 volumes	eec	Aug 2003	KHA	pdf	06/11/09	BML
E5	Gila Bend Area Drainage Master Plan Recommended Design Report	Presents alternatives for drainage design in Gila Bend area, includes supporting calculations in separate Appendix volume	eec	Apr 2002	KHA	pdf	06/11/09	BML
E6	Hydrologic Study Report for Luke Wash Zone AE Floodplain Delineation Study	Contains only the hydrology documentation (Section 4) of a larger study	Wood, Patel & Associates	Sep 2008	KHA	pdf	06/11/09	BML
E7	Tonopah/Arlington Area Plan	area plan for 2020 - land use, transportation, environmental, economic development (adopted in 2000)	Maricopa County	Sep 2000	unknown	pdf	01/22/09	RAE
E8	Old U.S. Highway 80 Area Plan	area plan for 2020 - land use, transportation, environmental, economic development, open space, water resources, cost of development (adopted in 2007)	Maricopa County	May 2007	unknown	pdf	01/22/09	RAE
E9	Design Guideline Recommendations for the Arizona Parkway	guidelines and typical drawings for use of Arizona Parkway	DMJM Harris; AECOM	Aug 2008	unknown	pdf	01/30/09	RAE
E10	Interstate 8 and Interstate 10 Hidden Valley Transportation Framework Study Final Report and Executive Summary	overview, existing and future conditions, evaluation framework, travel demand forecasting, alternatives, implementation, funding; GIS shapefiles	DMJM Harris; AECOM	Aug 2009 and Oct 2009	bqaz.org/MAG	pdf/GIS on CD	06/26/2009 and 02/12/2010	MLG
E11	Interstate 10/Hassayampa Valley Transportation Framework Study Final Report and Executive Summary	overview, existing and future conditions, evaluation framework, travel demand forecasting, alternatives, implementation, funding; GIS shapefiles	DMJM Harris; AECOM	Jul 2008	bqaz.org/MAG	pdf/GIS on CD	06/26/2009 and 02/12/2010	MLG
E12	Baseline 355th Fissure	screenshot of earth fissure	Arizona Geological Survey	Mar 2009	AZGS	pdf	03/05/09	RAE
E13	SR 85 Gila Bend to Lewis Prison Draft Drainage Technical Memorandum	short text, HEC-1 output, HY-8 output, and drainage plans for general plan (30%)	KHA	May 2002	KHA	pdf	06/22/09	ARS
E14	SR 85, MP 122.58 - MP 126.08 Final Drainage Report	text, calculation appendices, and drainage plans for widening project 8	KHA	Feb 2004	KHA	pdf	06/22/09	ARS
E15	SR 85, MP 126.08 - MP 130.71 Final Drainage Report	text only for widening project 3	KHA	Sep 2003	KHA	pdf	06/16/09	ARS

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Hidden Waters Parkway Corridor Feasibility Study Data Collection Summary

LIBRARY	ITEM				TRACKING			
KHA No.	Title	Description	Author	Date	Source	Format/ File Type	Date Collected	Collected By
E16	Draft Initial Location/Design Concept Report SR 85 Gila Bend to I-10	traffic and accident data, alternatives considered, major design features, cost estimate, other considerations, appendices	BRW	Nov 1999	KHA	pdf	06/22/09	ARS
E17	SR 85 at Gila Bend Draft Environmental Assessment and Section 4(f) Evaluation	environmental impacts of alternatives, including preferred alternative	Logan Simpson Design Inc.	Aug 2009	ADOT	pdf	10/05/09	MLG
E18	access.jpg	SR 85 access management map -- shows land ownership	ADOT	unknown	ADOT	jpg	06/16/09	BML
E19	Regional Transportation Plan Freeway Program Major Project Status Report January 31, 2009	shows start/completion dates and costs for ADOT projects. SR 85 on page 14 or report.	ADOT	Jan 2009	ADOT	pdf	06/16/09	BML
E20	DGM-37	Geologic Map of the Buckeye NW 7.5' Quadrangle, Maricopa County, Arizona	AGS	Nov 2004	AZGS	CD	07/06/09	BML
E21	Gila Bend Area Floodplain Delineation Study Technical Data Notebook Hydraulics (Book 1 and 2)	summary of hydrologic and hydraulic results, proposed FIS tables and profiles	Burgess & Niple, Inc.	Mar 1992	KHA	pdf	07/07/09	RAE
E22	Gila Bend Area Floodplain Delineation Study Technical Data Notebook Hydrology (Book 1 and 2)	general documentation and correspondence, hydrologic mapping and analysis	Burgess & Niple, Inc.	Mar 1992	KHA	pdf	07/14/09	BML
E23	Hydrologic Analysis of Bender and Sand Tank Washes	general documentation and correspondence, hydrologic analysis and model results	FCDMC	Apr 1991	KHA	pdf	07/14/09	BML
E24	EI Rio Watercourse Master Plan Overview Final Report	river mechanics, environmental resources, flood control alternatives, and implementation strategies	Stantec	Mar 2006	KHA	pdf	07/07/09	RAE
E25	EI Rio Watercourse Master Plan Alternative Evaluation Report	data collection, existing conditions, flood control alternatives, recommended alternative, design guidelines, implementation planning	Stantec	Apr 2006	KHA	pdf	07/07/09	RAE
E26	EI Rio Watercourse Master Plan Environmental Resources Report	physical and wetland resources, biological resources, anthropogenic issues, recommendations	Stantec	Jul 2003	KHA	pdf	07/07/09	RAE
E27	Old US 80 Bridge (Gillespie Dam Bridge) Final Design Concept Report -- Volume 1	Existing bridge evaluation, alternatives, recommended alternative, design features, and social, economic, and environmental considerations	TranSystems	Sep 2007	MCDOT	CD	07/08/09	GK
E28	Arizona Parkway Projected Travel Volumes and Laneage/Interchange Needs	Projected build-out traffic volumes for Hassayampa and Hidden Valley Framework areas with laneage and interchange needs on parkways; GIS shapefiles	Wilson & Company	Jun 2009	MAG	pdf/GIS on CD	06/26/09	MLG

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Hidden Waters Parkway Corridor Feasibility Study Data Collection Summary

LIBRARY	ITEM				TRACKING			
KHA No.	Title	Description	Author	Date	Source	Format/ File Type	Date Collected	Collected By
E29	Proposed Development: Belmont Comprehensive Plan Amendment	proposed site map showing development boundaries and primary features, vicinity map showing other developments in area	United Civil Group	2007?	MC	pdf	06/23/09	MLG
E30	Proposed Development: Hassayampa Village Comprehensive Plan Amendment	application, citizen participation plan, proposed site plan, narrative	Beus Gilbert	Jun 2006	MC	pdf	06/23/09	MLG
E31	Proposed Development: Hickman's Egg Ranch Comprehensive Plan Amendment	application, citizen participation plan, proposed site plan, narrative	Francis Slavin	Jun 2009	MC	pdf	07/06/09	MLG
E32	Proposed Development: Hidden Waters Ranch Development Master Plan Major Amendment #1	regional context, site analysis, master plans, development suitability	LVA	Oct 2008	MC	pdf	07/01/09	MLG
E33	Proposed Development: Insignia Comprehensive Plan Amendment	application, proposed site plan, narrative	Rose Law Group	Sep 2006	MC	pdf	06/23/09	MLG
E34	GIS shapefiles from FCDMC	drainage, floodplain, railroad, wilderness, jurisdictions, community features, subdivisions, road features, 10-ft contours, aerials	FCDMC	May 2009	FCDMC	GIS on CD	05/22/09	ES
E35	Town of Gila Bend General Plan	land use, circulation, public facilities, housing	HDR	Nov 2006	Gila Bend	pdf	07/08/09	MLG
E36	Town of Buckeye General Plan Figures	land use, circulation, environmental conditions, growth area land use, floodway transitional areas, master planned communities	Partners for Strategic Action	May 2008	Buckeye	pdf	07/08/09	MLG
E37	Town of Buckeye Zoning and Annexation History Figures	zoning and annexation history	Town of Buckeye	May 2009	Buckeye	pdf	07/08/09	MLG
E38	DGM-47	Geologic Map of the Wintersburg 7.5' Quadrangle, Maricopa County, Arizona	AZGS	Mar 2006	AZGS	CD	07/10/09	BML
E39	Bridge Scour Investigation and Design of Corrective Measures For Old U.S. 80 Highway Bridge over Hassayampa River	hydrology and hydraulics recommendations, 3 alternative countermeasures and details	INCA Engineers	Oct 1997	FCDMC	pdf	07/14/09	BML
E40	Plan and Profile of Proposed SR85 Gila River Bridge #1274	12 11x17 sheets	ADOT	May 1993	FCDMC	pdf	07/14/09	BML
E41	SR 85 Corridor Study Initial Alternatives Development Report	existing and future conditions, alternative concepts, evaluation of alternatives and recommendations for further study	BRW, Inc.	Apr 1994	FCDMC	pdf	07/14/09	BML
E42	SR 85 Gila Bend to I-10 Initial Drainage Report Vol I	report with offsite hydrology, hydraulics, subbasin, soils, and landuse maps, and proposed drainage plans	BRW, Inc.	Nov 1999	ADOT	pdf	07/21/09	ARS
E43	SR 85 Gila Bend to I-10 Initial Drainage Report Vol II	appendices: excerpts from floodplain studies, correspondence, model input/output	BRW, Inc.	Nov 1999	ADOT	pdf	07/21/09	ARS

Summary Table of Documents Reviewed - Kimley-Horn and Associates

ADOT = Arizona Department of Transportation
 USACE = U.S. Army Corps of Engineers
 FEMA = Federal Emergency Management Agency
 KHA = Kimley-Horn and Associates
 NRCS = Natural Resource Conservation Service
 USGS = United States Geological Survey
 MCDOT = Maricopa County Department of Transportation
 AZGS = Arizona Geological Survey

Hidden Waters Parkway Corridor Feasibility Study Data Collection Summary

LIBRARY	ITEM				TRACKING			
KHA No.	Title	Description	Author	Date	Source	Format/ File Type	Date Collected	Collected By
E44	1981 Report on Salt-Gila River Clearing Gillespie Dam Analysis	existing conditions, Gila River hydrology, dam modification concepts, cost/benefit data	John Carollo Engineers	May 1981	FCDMC	pdf	07/14/09	BML
E45	Gila Bend - Buckeye Highway (SR 85) Gila River Bridges Hydraulic Report	summary of hydrology, hydraulics (including HEC-2 models) for proposed replacement bridge	ADOT	Jan 1991	FCDMC	pdf	07/14/09	BML
E46	Lower Centennial Wash Watershed Zone A Floodplain Delineation Study Phase I TDN	FEMA forms, hydrology, hydraulics, and supporting documentation	RBF Consulting	Jul 2005	FCDMC	pdf	07/14/09	BML
E47	Final Report, Lower Centennial Wash Watershed Zone A Delineation Study - Low Level Geomorphic Assessment	methodology, landform delineation (and maps), appendices contain many AZGS geologic maps	Earth Consultants International	May 2005	FCDMC	pdf	07/14/09	BML
E48	Lower Centennial Wash Watershed Zone A Floodplain Delineation Study Structure Survey	Location, drawings, and photos of 18 structures along railroad south of I-10	A Team Professional Associates	Jul 2005	FCDMC	pdf	07/14/09	BML
E49	Hydrology Report Gila Bend Canal Floodplain Delineation Study Gillespie Dam to Gila Bend	HEC-1 hydrologic analysis and supporting documentation	Donohue & Associates	Sep 1991	FCDMC	pdf	07/14/09	BML
E50	Hydraulic Analysis and Floodplain Delineation Report Gila Bend Canal Floodplain Delineation Study Gillespie Dam to Gila Bend	HEC-2 hydraulic analysis and supporting documentation (including hydraulic structure methodology)	Donohue & Associates	Sep 1991	FCDMC	pdf	07/14/09	BML
E51	Rainbow Wash Floodplain/Floodway Delineation Study TDN Hydraulics (Vol 1 and 2)	hydrology, hydraulics, mapping, and supporting documentation	Simons, Li & Associates	May 1994	FCDMC	pdf	07/14/09	BML
E52	Archived Projects: Gila Bend FIS, Jackrabbit Wash FIS	archive of hydrologic and hydraulic model files; does not include reports or explanations	FCDMC	Mar 1992	FCDMC	pdf	07/14/09	BML
E53	DI-05: Geologic Data for the Phoenix South 30' x 60' Quadrangle	1:100,000 digital map of OFR93-18, in jpg and shp formats	AZGS	Mar 2006	AZGS	CD	07/16/09	BML
E54	Old US 80 Bridge Rehabilitation (Gillespie Dam Bridge) Value Engineering Final Report	value engineering alternatives	RH & Associates, Inc.	May 2008	MCDOT	pdf	04/20/09	MLG
E55	Maricopa County Zoning Ordinance	zoning ordinance descriptions and codes	Maricopa County	Jul 2009	MC	pdf	07/24/09	MLG
E56	SW Maricopa County Linkage Designs and Conservation Priorities	comment letter from AGFD, wildlife linkage designs, conservation priorities, environmental features and constraints	Arizona Game and Fish Department	Jul 2009	KHA	pdf/GIS in e-mail	08/04/09	MLG
E57	ADWR GIS Data CD-ROM	Shapefiles: recharge points, industry points, depth to water and water level elev (Phoenix AMA only), irrigation polygons, hardrock	ADWR	Mar 2009	ADWR	CD	08/05/09	BML
E58	GWSI Database CD-ROM	Access database of Groundwater Site Inventory: well ownership, historic water levels, construction data, etc.	ADWR	Jul 2009	ADWR	CD	08/05/09	BML

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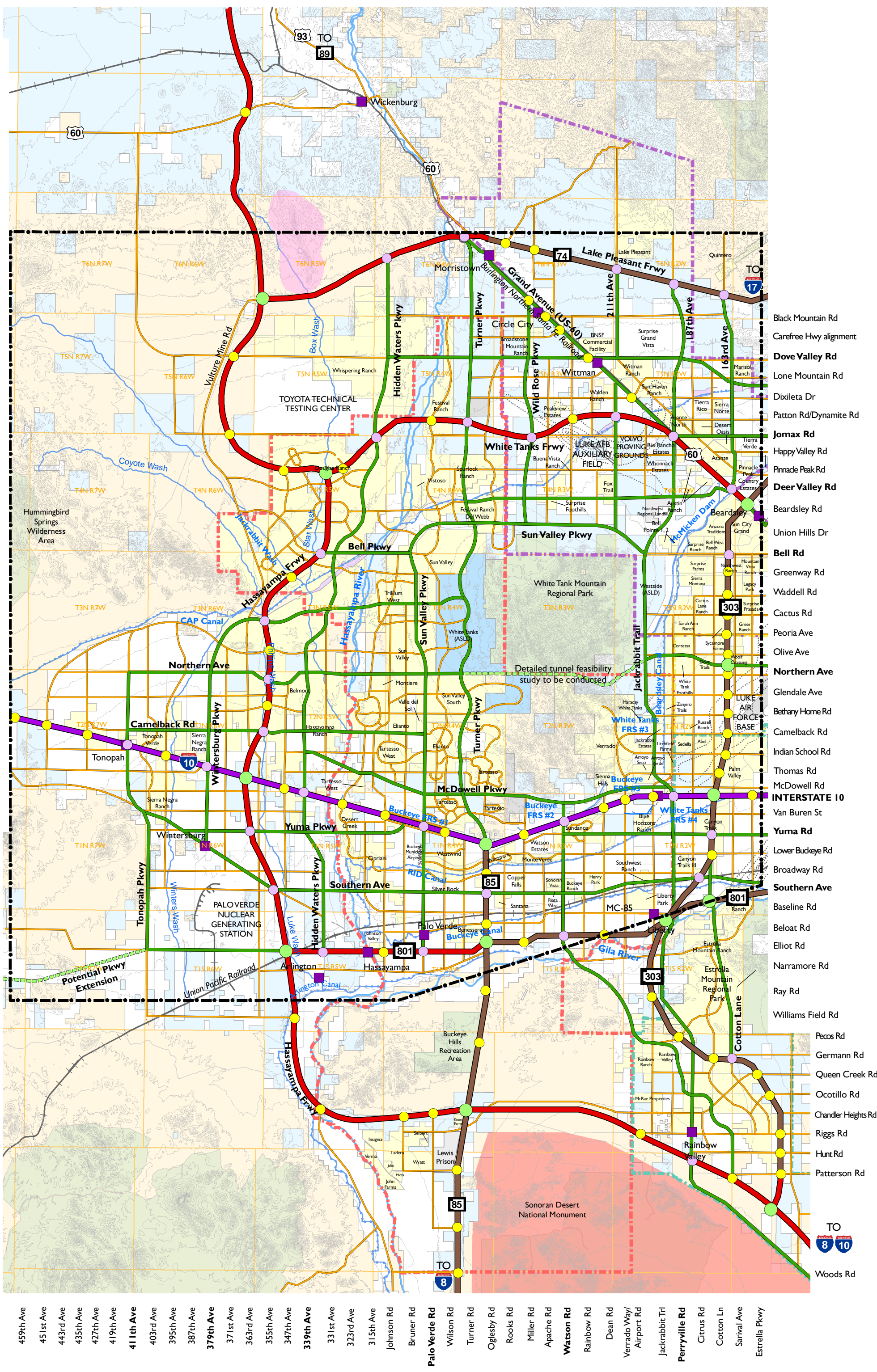
Hidden Waters Parkway Corridor Feasibility Study Data Collection Summary

LIBRARY	ITEM				TRACKING			
KHA No.	Title	Description	Author	Date	Source	Format/ File Type	Date Collected	Collected By
E59	SR85 in Gila Bend Draft Final DCR	corridor location analysis, design concept alternatives and analysis, major design features	AMEC	Jun 2009	ADOT	pdf	08/18/09	MLG
E60	Gila River Bridge U.S. Route 80	as-built plans for the bridge	Arizona Highway Department	Nov 1925	FCDMC	pdf	08/20/09	BML
E61	Old US-80 Highway Bridge Over Gila River Scour Repair	plan, pier elevations, and boring logs for scour repair	MCDOT	Apr 1994	FCDMC	pdf	08/20/09	BML
E62	Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study	report with R/W requirements, traffic volumes, intersection layouts	Wilson & Company	Aug 2009	MCDOT	pdf	08/24/09	MLG
E63	GIS and Volume Data	GIS Data, buildout traffic volumes	Wilson & Company	Jun 2009	MAG	CD	08/20/09	BP
E64	Sonoran Trails Information	maps, project description	Jokake	Aug 2009	Jokake	pdf	09/01/09	BCP
E65	Old US 80 Bridge (Gillespie Dam Bridge) Historic Bridge Rehabilitation -- Technical Reports Volume 2a	Conditional Evaluation Report, Load Rating Report, Traffic Impact Analysis, Drainage Report, Geotech Report	TranSystems	Aug 2007	MCDOT	pdf	09/17/09	BML
E66	Old US 80 Bridge (Gillespie Dam Bridge) Historic Bridge Rehabilitation -- Technical Reports Volume 2b	Nondestructive Testing Pile Investigation, Coating Assessment, Cultural Resources Survey, HAER Documentation, Biological Evaluation, Section 404 JD, Preliminary Structural Calculations	TranSystems	Aug 2007	MCDOT	pdf	09/17/09	BML



APPENDIX TM1-2

MAG FRAMEWORK STUDY DATA



TRANSPORTATION FRAMEWORK RECOMMENDATION

Legend

- | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> --- Study Area Boundary --- Railroads --- Roads --- Rivers/Washes --- Canals ■ Unincorporated Communities ○ Township/Range Noise Contours | <ul style="list-style-type: none"> --- Topography (100' contours) ● Proposed Service Traffic Interchanges ● Proposed Parkway Traffic Interchanges ● Proposed System Interchanges ● Planned Developments ● BLM Raptor Protection Zone | <ul style="list-style-type: none"> ● State Land Development Master Plan ● National Monument ● Wilderness Area ● Land Ownership ● BLM ● State Land ● Regional Parks ● Military ● Bureau of Reclamation | <ul style="list-style-type: none"> ● State Land Development Planning Areas ● Buckeye ● Glendale ● Goodyear ● Surprise | <ul style="list-style-type: none"> --- Proposed Roadway Network --- Improvements to Existing Freeways --- Future Regional Transportation Plan (RTP) Freeways (Prop 400) --- New Freeway Proposals --- New Parkway Proposals --- New Parkway Alternatives --- Future Major Arterial Network |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Notes

While every effort has been made to ensure the accuracy of this information, the Maricopa Association of Governments makes no warranty, expressed or implied, as to its accuracy and expressly disclaims liability for the accuracy thereof.

General alignments for new freeway, highway, arterial, and bridge facilities will be determined following the completion of appropriate design and environmental studies.

Locations of proposed roadway interchanges and the use of parallel roads connecting to freeways are preliminary and subject to review and approval of the FHWA and ADOT.

Arterial river crossings are conceptual to demonstrate the number of crossing needed to support development. Final locations and number will be determined in engineering and water resource studies.

Locations of proposed roadway facilities south of the study area are subject to refinement in the I-8 and I-10/Hidden Valley Roadway Framework Study to be completed in 2008, and roadways north to be planned in the New River Roadway Framework Study, schedule to be determined.

Olive Avenue traffic interchange on SR-303L to be a half-diamond.

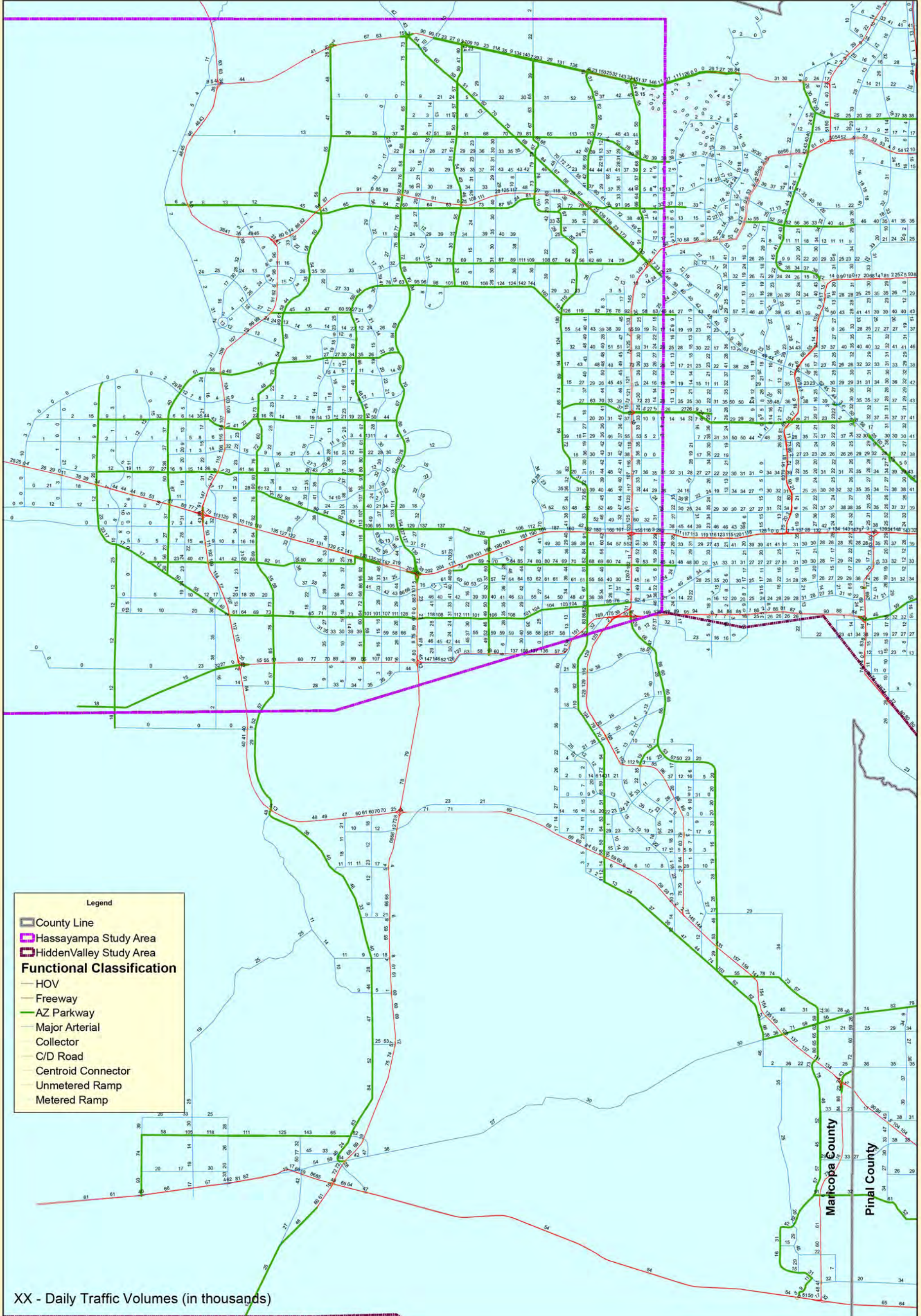


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Interstate 10/Hassayampa Valley Transportation Framework Study



February 22, 2008



Legend

- County Line
- Hassayampa Study Area
- Hidden Valley Study Area
- Functional Classification**
- HOV
- Freeway
- AZ Parkway
- Major Arterial
- Collector
- C/D Road
- Centroid Connector
- Unmetered Ramp
- Metered Ramp

XX - Daily Traffic Volumes (in thousands)

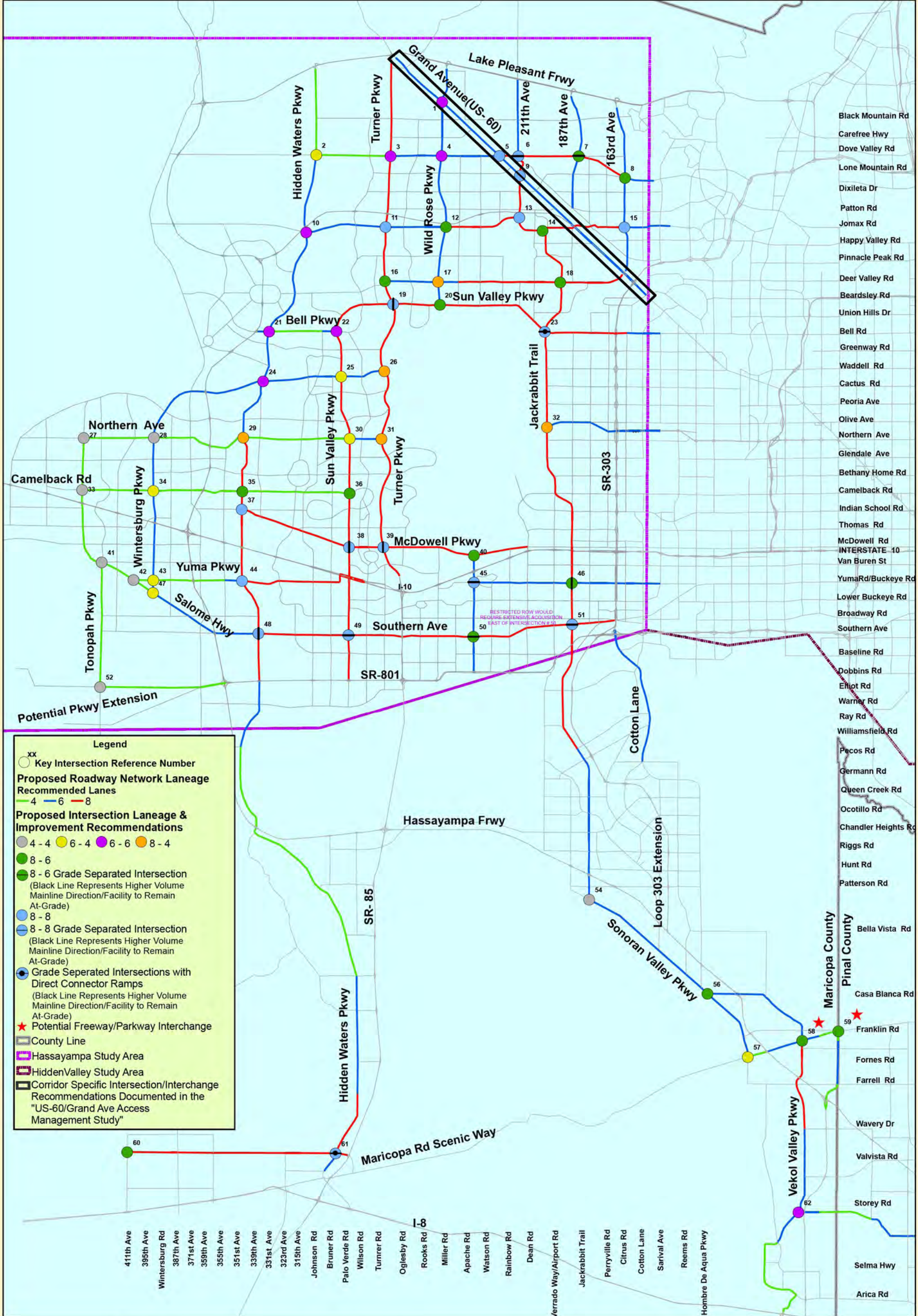
Data Source:
 Maricopa Association of Governments,
 Hidden Valley Buildout 24-Hour Volume
 Forecasts, and Hassayampa Valley Buildout
 24-Hour Volume Forecasts,
 Dated: September 30, 2008.
 Prepared by: Wilson & Company,
 Dated: 06/02/2009

MAG Buildout Traffic Projections

I-10/Hassayampa Valley Framework Study

I-10/Hidden Valley Framework Study





Legend

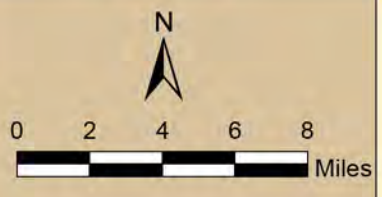
- xx Key Intersection Reference Number
- Proposed Roadway Network Laneage**
- Recommended Lanes
— 4 — 6 — 8
- Proposed Intersection Laneage & Improvement Recommendations**
- 4 - 4 ● 6 - 4 ● 6 - 6 ● 8 - 4
- 8 - 6
- 8 - 6 Grade Separated Intersection
(Black Line Represents Higher Volume Mainline Direction/Facility to Remain At-Grade)
- 8 - 8
- 8 - 8 Grade Separated Intersection
(Black Line Represents Higher Volume Mainline Direction/Facility to Remain At-Grade)
- Grade Separated Intersections with Direct Connector Ramps
(Black Line Represents Higher Volume Mainline Direction/Facility to Remain At-Grade)
- ★ Potential Freeway/Parkway Interchange
- ▭ County Line
- ▭ Hassayampa Study Area
- ▭ HiddenValley Study Area
- ▭ Corridor Specific Intersection/Interchange Recommendations Documented in the "US-60/Grand Ave Access Management Study"

- Black Mountain Rd
- Carefree Hwy
- Dove Valley Rd
- Lone Mountain Rd
- Dixileta Dr
- Patton Rd
- Jomax Rd
- Happy Valley Rd
- Pinnacle Peak Rd
- Deer Valley Rd
- Beardsley Rd
- Union Hills Dr
- Bell Rd
- Greenway Rd
- Waddell Rd
- Cactus Rd
- Peoria Ave
- Olive Ave
- Northern Ave
- Glendale Ave
- Bethany Home Rd
- Camelback Rd
- Indian School Rd
- Thomas Rd
- McDowell Rd
- INTERSTATE 10
- Van Buren St
- YumaRd/Buckeye Rd
- Lower Buckeye Rd
- Broadway Rd
- Southern Ave
- Baseline Rd
- Dobbins Rd
- Eliot Rd
- Warner Rd
- Ray Rd
- Williamsfield Rd
- Pecos Rd
- Germann Rd
- Queen Creek Rd
- Ocotillo Rd
- Chandler Heights Rd
- Riggs Rd
- Hunt Rd
- Patterson Rd
- Bella Vista Rd
- Casa Blanca Rd
- Franklin Rd
- Fornes Rd
- Farrell Rd
- Wavery Dr
- Valvista Rd
- Storey Rd
- Selma Hwy
- Arica Rd

- 411th Ave
- 395th Ave
- Wintersburg Rd
- 387th Ave
- 371st Ave
- 359th Ave
- 355th Ave
- 351st Ave
- 339th Ave
- 331st Ave
- 323rd Ave
- 315th Ave
- Johnson Rd
- Bruner Rd
- Palo Verde Rd
- Wilson Rd
- Turner Rd
- Oglesby Rd
- Rooks Rd
- Miller Rd
- Apache Rd
- Watson Rd
- Rainbow Rd
- Dean Rd
- Verrado Way/Airport Rd
- Jackrabbit Trail
- Perryville Rd
- Citrus Rd
- Cotton Lane
- Sarival Ave
- Reems Rd
- Hombre De Aqua Pkwy

Prepared by:
Wilson & Company,
Dated: 06/02/2009

Proposed Laneage for Arizona Parkway Segments & Intersection/Interchange Improvement Recommendations





APPENDIX TM1-3
SR 85 AT GILA BEND PREFERRED ALTERNATIVE EXHIBIT

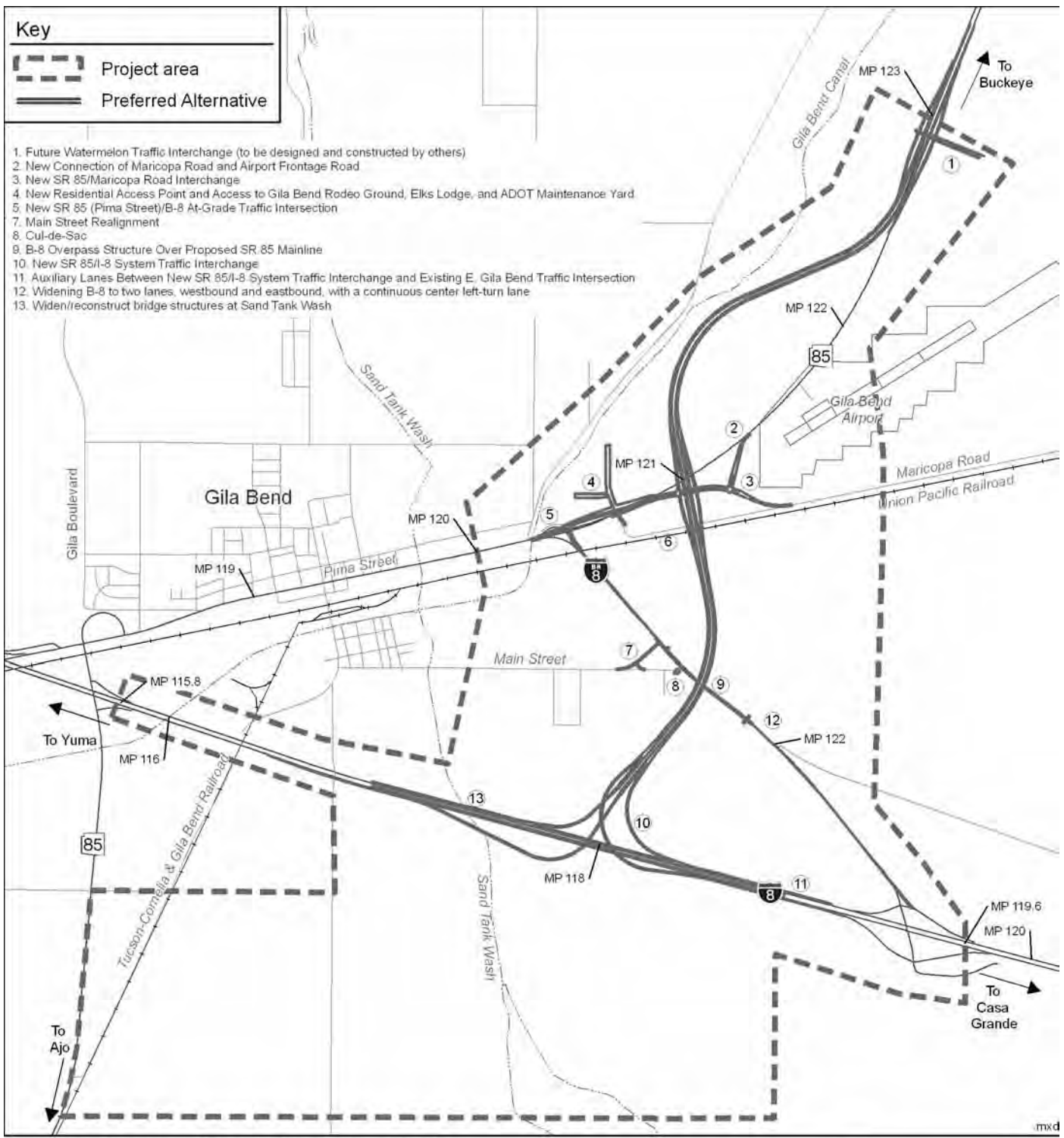
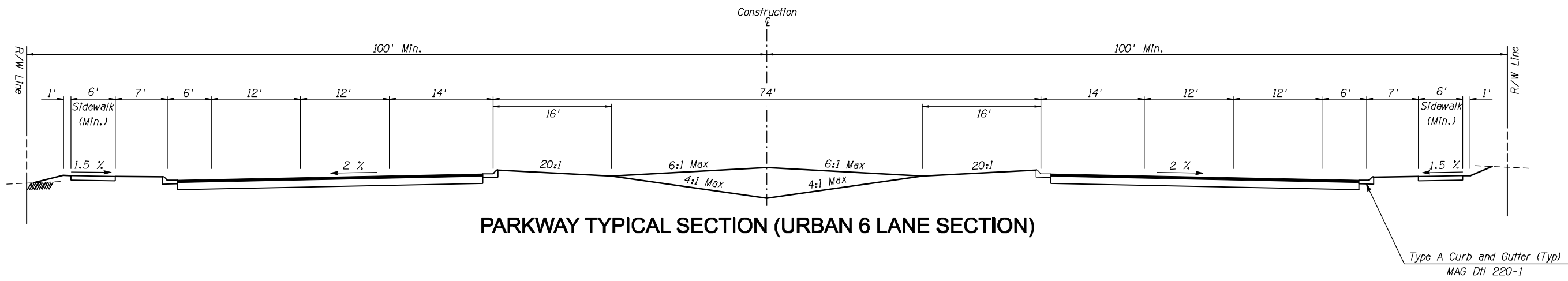


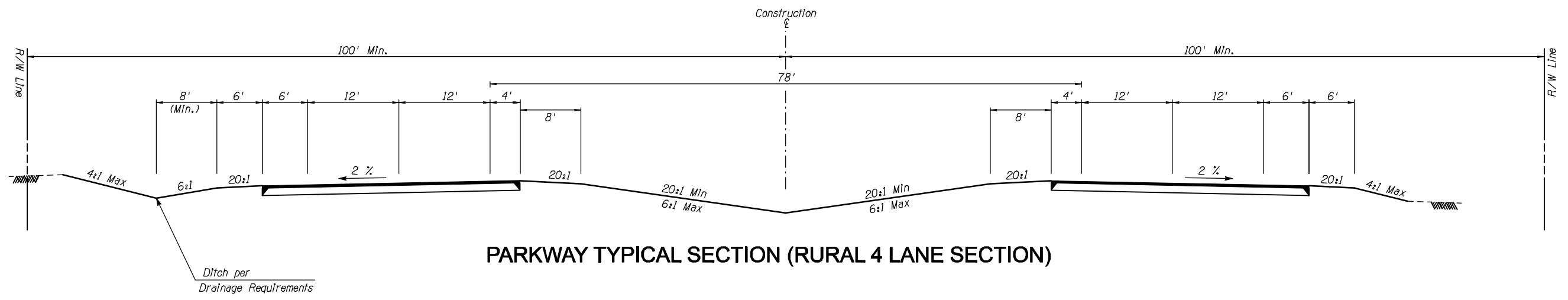
Figure 11. Preferred Alternative



APPENDIX TM1-4
ARIZONA PARKWAY DETAILED INFORMATION



PARKWAY TYPICAL SECTION (URBAN 6 LANE SECTION)



PARKWAY TYPICAL SECTION (RURAL 4 LANE SECTION)

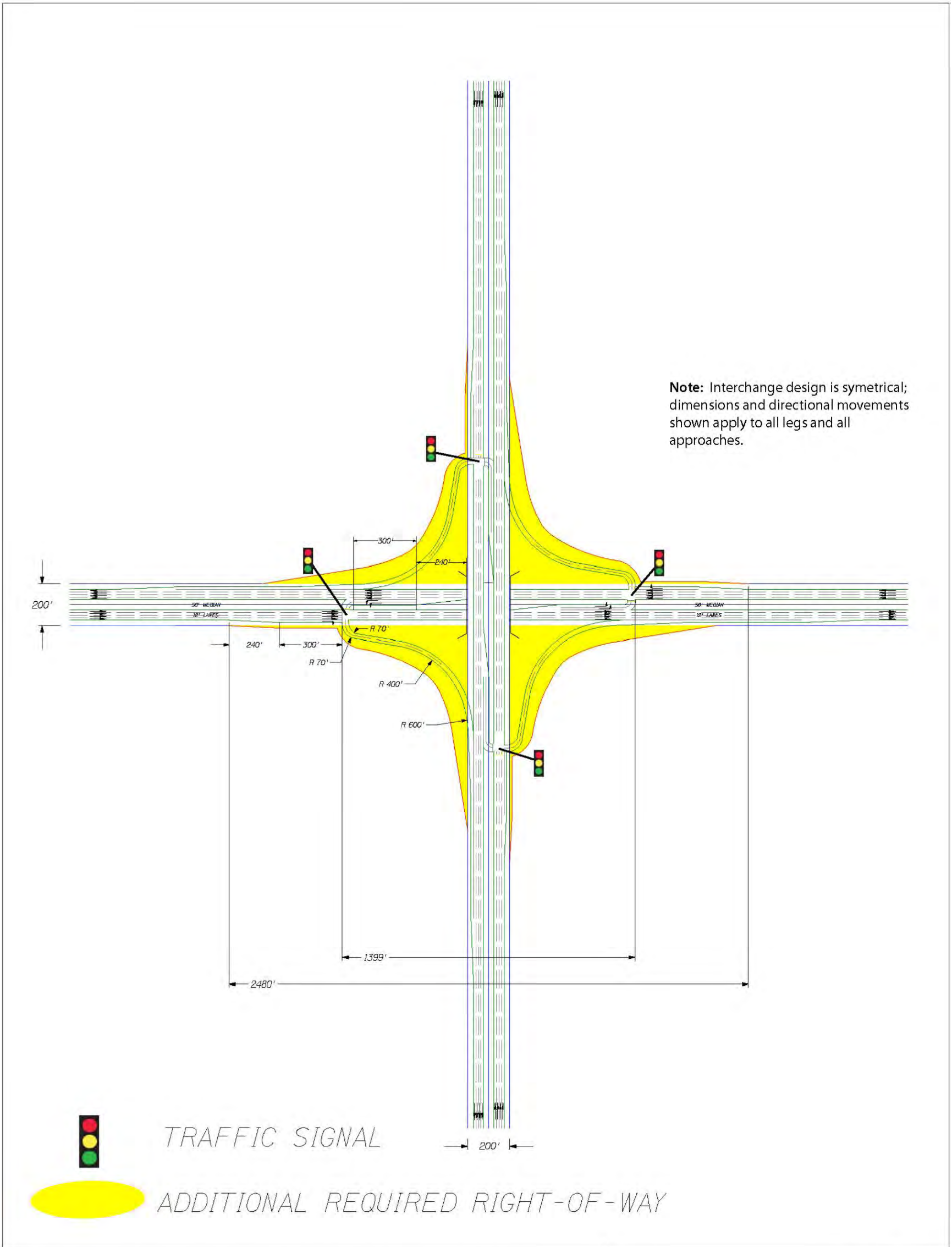
Note:
When curb is present, dimensions are to face of curb

Not to Scale

FIGURE 2 - PARKWAY TYPICAL SECTIONS

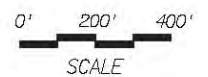
DATE: LOCATION: REVISIONS: SHEET NO. FINISHED PLANS: DATE: LOCATION: REVISIONS: SHEET NO. FINISHED PLANS: DATE: LOCATION: REVISIONS: SHEET NO. FINISHED PLANS:

Figure 4.1
Parkway Grade-Separated Interchange Concept Design



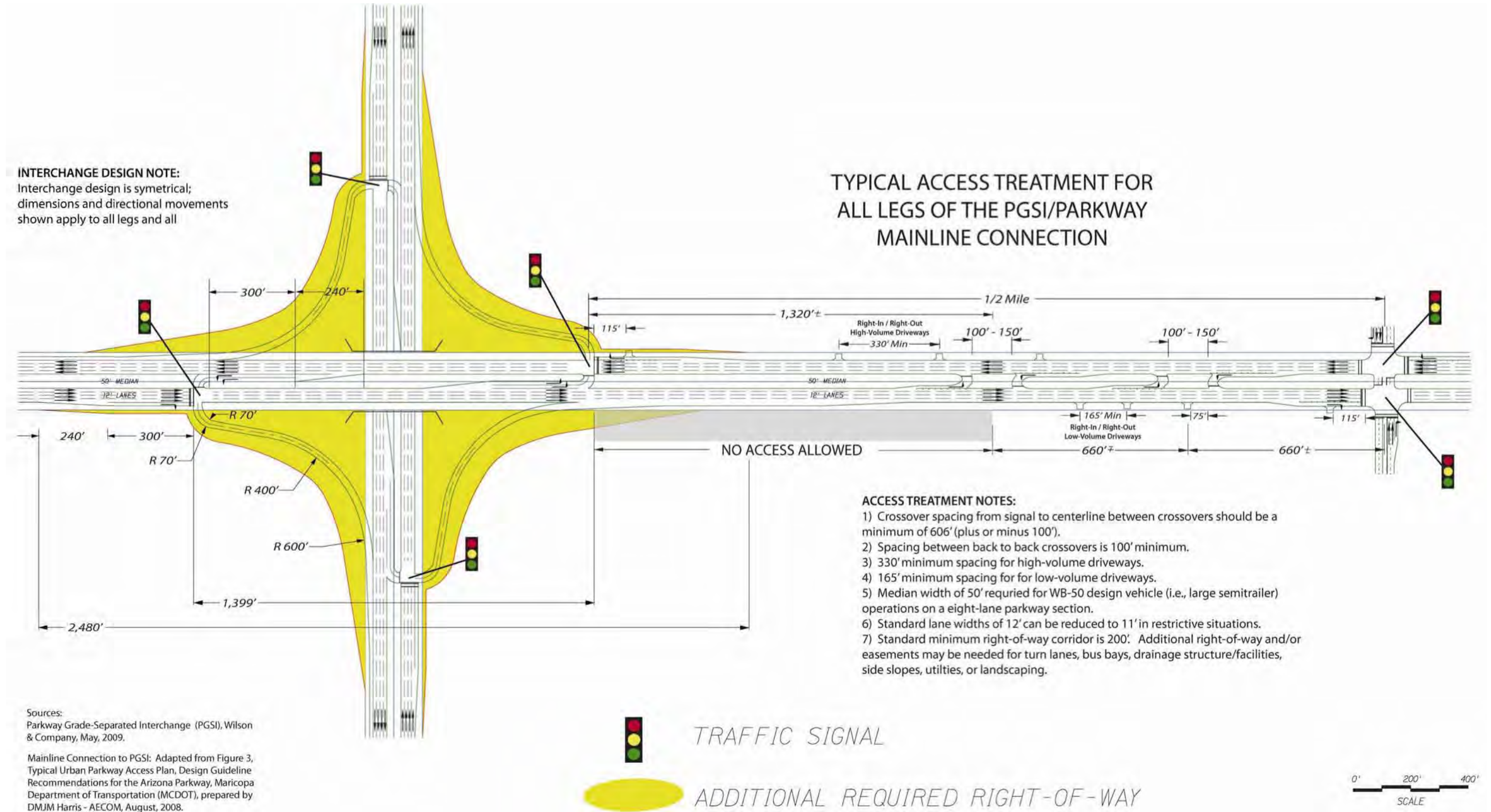
PARKWAY GRADE SEPARATED INTERCHANGE
 CONCEPT DESIGN LAYOUT

ADDITIONAL ACREAGE: 14.76 ACRES



PREPARED FOR: MARICOPA COUNTY
 DEPARTMENT OF TRANSPORTATION
 PREPARED BY: WILSON & COMPANY, INC.
 DATE: 05/20/09

Figure 4.6
Access Management Concept for PGSI and Arizona Parkway (6-Lane to 8-Lane)



Sources:
 Parkway Grade-Separated Interchange (PGSI), Wilson & Company, May, 2009.

Mainline Connection to PGSI: Adapted from Figure 3, Typical Urban Parkway Access Plan, Design Guideline Recommendations for the Arizona Parkway, Maricopa Department of Transportation (MCDOT), prepared by DMJM Harris - AECOM, August, 2008.

Figure 4.4
Parkway Grade-Separated Interchange Concept Design with High Volume Direct Connector/Flyover Ramp:
Intersection #61 – Hidden Waters Parkway at Watermelon Parkway

