

FINAL REPORT AND EXECUTIVE SUMMARY

Hidden Waters PARKWAY



CORRIDOR FEASIBILITY STUDY
Watermelon Road to Interstate 10

JUNE 2010



Kimley-Horn
and Associates, Inc.

PREPARED FOR MCDOT
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Hidden Waters Parkway Corridor Feasibility Study Watermelon Road to Interstate 10

Contract No.: 2008-046
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Final Report and Executive Summary

Prepared by:



Kimley-Horn
and Associates, Inc.

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- Appendix 4: Technical Memorandum No. 4 – Development and Evaluation of Candidate Alternative Alignments
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EXECUTIVE SUMMARY

The *Hidden Waters Parkway Corridor Feasibility Study – Watermelon Road to Interstate 10* is one in a series of long-range transportation planning studies being conducted by the Maricopa County Department of Transportation (MCDOT) to evaluate future parkways identified in the recently completed Maricopa Association of Governments (MAG) framework studies.

The project study area for the proposed Hidden Waters Parkway goes from Watermelon Road in Gila Bend to the Interstate 10/339th Avenue interchange. It is approximately 39 miles in length and covers approximately 93.9 square miles. The project study area is generally two miles wide, centered on the north-south segment of Old U.S. Highway 80 (Old US 80) and on 339th Avenue. South of I-10, the project study area is four miles wide between 331st Avenue and 363rd Avenue. The project study area boundaries are shown in **Figure ES-1**.

Background and Study Need

In July 2008, 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 *Interstate 8 and Interstate 10 Hidden Valley Transportation Framework Study* (known as the *Hidden Valley Framework Study*), completed by MAG in October 2009, indicated the need for a network 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).

Both the *Hassayampa Framework Study* and the *Hidden Valley Framework Study* demonstrated the need for the Hidden Waters Parkway in their respective study areas. The *Hidden Waters Parkway Corridor Feasibility Study* covers all of the *Hidden Valley Framework Study* section of the Hidden Waters Parkway and the southern portion of the *Hassayampa Framework Study* section of the Hidden Waters Parkway.

Although today’s land development and travel demands in the Hidden Waters Parkway corridor do not warrant a major new north-south high capacity roadway in the near-term future, the buildout forecast for future land development and travel demands does warrant a major new north-south high capacity roadway in the long-term future. Plans are already underway to convert some of the agricultural and low density residential lands within the corridor to more intense land uses that will generate future traffic.

To preserve sufficient public right-of-way for the future Hidden Waters Parkway, the planning process needs to identify right-of-way requirements for buildout conditions. 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 buildout traffic demands for the future Hidden Waters Parkway.

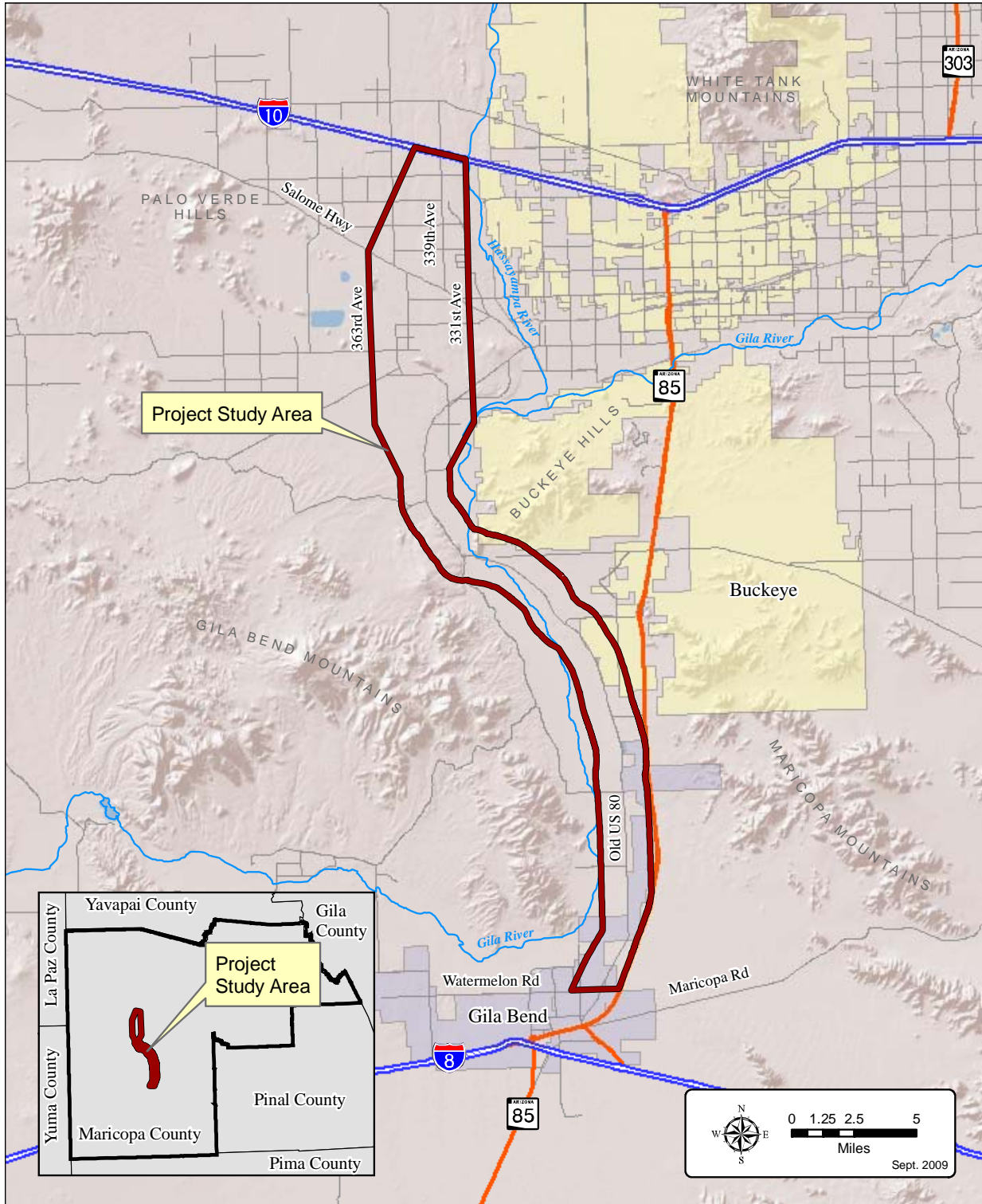


Figure ES-1 – Project Study Area



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 for alternative corridor alignments;
- Develop and evaluate conceptual alternative corridor alignments within the study area;
- Recommend a preferred corridor alignment; and
- Define the characteristics of the preferred alignment, including right-of-way.

The study goals for the *Hidden Waters Parkway Corridor Feasibility Study* 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;
 - Protect and preserve right-of-way for the preferred corridor alignment to maintain its long-term viability;
 - 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 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
 - Enhance traffic operations while maintaining reasonable access for developments.
- *Goal #3: Preserve the environment*
 - Comply with governing environmental regulations for new roadway development;
 - Minimize adverse impacts to the study area environment, including wildlife corridors, state wildlife areas, and archeological sites; and
 - Enhance important environmental features (e.g., habitat areas, parks, overlooks).
- *Goal #4: Develop consensus-driven improvement alternatives*
 - Work with the Technical Advisory Committee (TAC) and 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.

Alternatives Development and Evaluation

For alternatives development and evaluation purposes, the study area was divided into two separate segments: one south of the Old US 80 Bridge over the Gila River and one north of the Old US 80 Bridge over the Gila River.

Conceptual alternatives were developed for the Hidden Waters Parkway that avoided as many corridor constraints as possible yet provided a range of options within the study area limits. A subjective, qualitative assessment was performed on all conceptual alternatives, resulting in three candidate alternatives for the southern segment and four candidate alternatives for the northern segment.

The southern segment candidate alternatives are described as follows:

- *Alternative A*: Generally follows the eastern edge of the Gila River floodplain west of the Old US 80 alignment;
- *Alternative B*: Generally bisects the land in between Old US 80 and the Gila River floodplain; and
- *Alternative C*: Generally follows the existing Old US 80 alignment.

The northern segment candidate alternatives are described as follows:

- *Alternative A*: Generally follows the 351st Avenue alignment;
- *Alternative B*: Generally follows the 339th Avenue alignment;
- *Alternative C*: Generally follows the Old US 80 and 331st Avenue alignments; and
- *Alternative D*: A combination of Alternatives A and B that follows the 351st Avenue alignment on the south and transitions to the 339th Avenue alignment on the north.

Drawings showing the candidate alternatives for the southern segment and northern segment are respectively shown in **Figure ES-2** and **Figure ES-3**.

The three southern segment and four northern segment candidate alternatives, along with a “no-build” alternative, were evaluated for their relative advantages and disadvantages on ten criteria. The results of this evaluation are graphically displayed in **Table ES-1**.

A visual inspection of **Table ES-1** without applying any weighting factors to the criteria indicates that for the southern segment, the No-Build Alternative and Alternative C have the most positive ratings (i.e., more strong advantage and advantage ratings and/or fewer strong disadvantage and disadvantage ratings). For the northern segment, the No-Build Alternative and Alternative D have the most positive ratings.

The alternatives development and evaluation process, criteria, and results were presented and discussed at four TAC/stakeholder meetings, ten one-on-one stakeholder meetings, and three public open house meetings. The meetings were well-attended and there were many favorable comments on the thoroughness of the development and evaluation of alternatives.

Input from TAC members, stakeholders, and the public was incorporated into the development and evaluation of alternatives. There was general consensus among TAC members, stakeholders, and open house participants that the evaluation results are reasonable and valid.

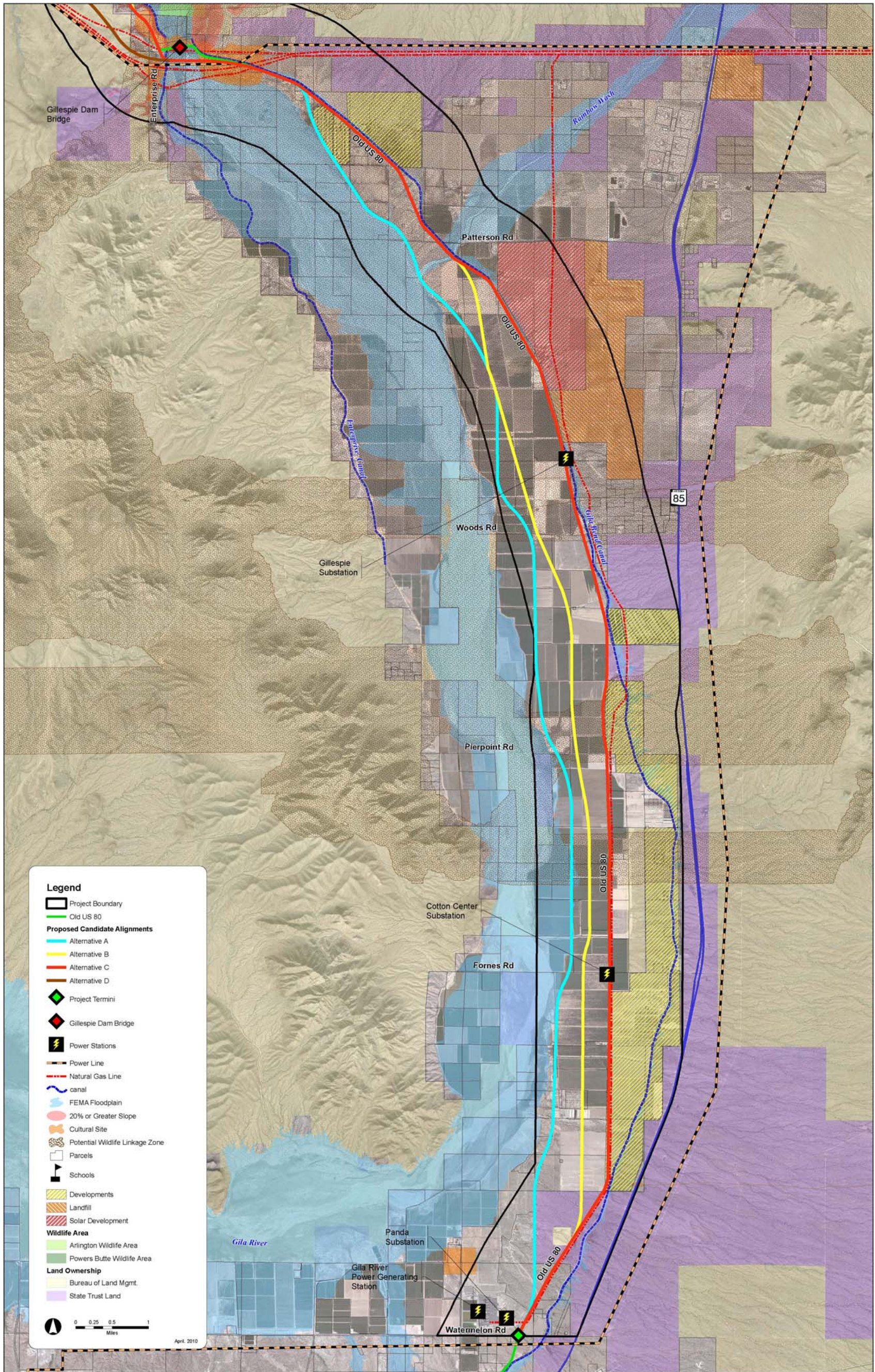


Figure ES-2 – Candidate Alternatives (South)

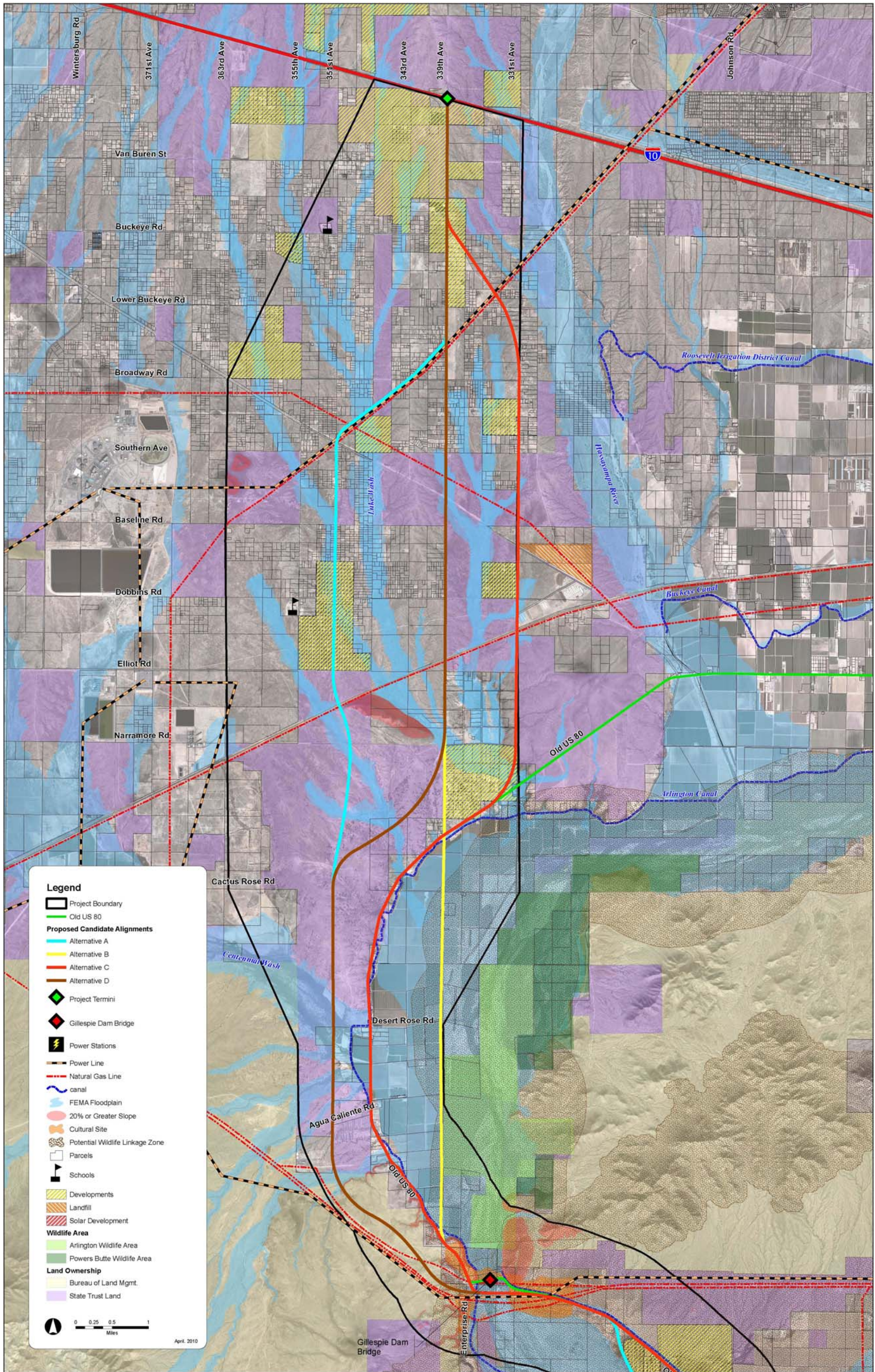


Figure ES-3 – Candidate Alternatives (North)



Table ES-1 – Candidate Alternatives Evaluation Matrix Summary

Evaluation Criteria	Southern Segment Candidate Alternatives				Northern Segment Candidate Alternatives				
	No-Build	Alt. A	Alt. B	Alt. C	No-Build	Alt. A	Alt. B	Alt. C	Alt. D
Future Development Compatibility	○	○	○	●	○	○	○	●	●
System Continuity and Capacity	●	●	●	●	●	●	●	○	●
Irrigation Impacts	○	●	●	●	○	○	●	○	○
Drainage Impacts	○	●	●	●	○	●	●	●	●
Building/Property Impacts	○	●	●	●	○	●	●	●	●
Wildlife Impacts	●	●	●	○	●	○	●	●	○
Cultural/Archaeological Impacts	○	●	●	●	○	●	●	●	●
Utility Impacts	○	●	●	●	○	●	●	●	●
Public Acceptability	●	●	●	○	●	●	●	●	○
Cost	○	●	●	●	○	●	●	●	●

LEGEND: Strong advantage ● Advantage ● Neutral ○ Disadvantage ○ Strong disadvantage ●



Preferred Alternatives

Based on the alternatives evaluation results, Alternative C for the southern segment and Alternative D for the northern segment were recommended as the preferred alternatives. The ratings for the preferred alternatives are highlighted in **Table ES-1**. For both the southern and northern segments, it was determined that the No-Build Alternative does not address the demonstrated long-term need for a high-capacity parkway facility in the study area (see strong disadvantage indication for System Continuity and Capacity in **Table ES-1**).

The preferred alternatives for the southern and northern segments of the Hidden Waters Parkway are respectively shown in **Figure ES-4** and **Figure ES-5**. Also included in these figures are the proposed locations where other major roadways (i.e., freeways, parkways, and arterials) are expected (per the *Hassayampa Framework Study* and the *Hidden Valley Framework Study* and input from the TAC) to intersect the Hidden Waters Parkway. These intersection/interchange locations are preliminary and subject to change.

Detailed Preferred Alignment Drawings

Detailed preferred alignment drawings were created that show the parkway center line and right-of-way limits at a scale of 1 inch = 200 feet. At major roadway and drainage wash crossings along the parkway, additional right-of-way will likely be required that will expand the right-of-way limits beyond the basic 200-foot parkway footprint. The preferred alignment centerline and right-of-way limits are subject to more detailed design work that may necessitate some adjustments as roadway profiles, drainage requirements, and land development plans are further defined.

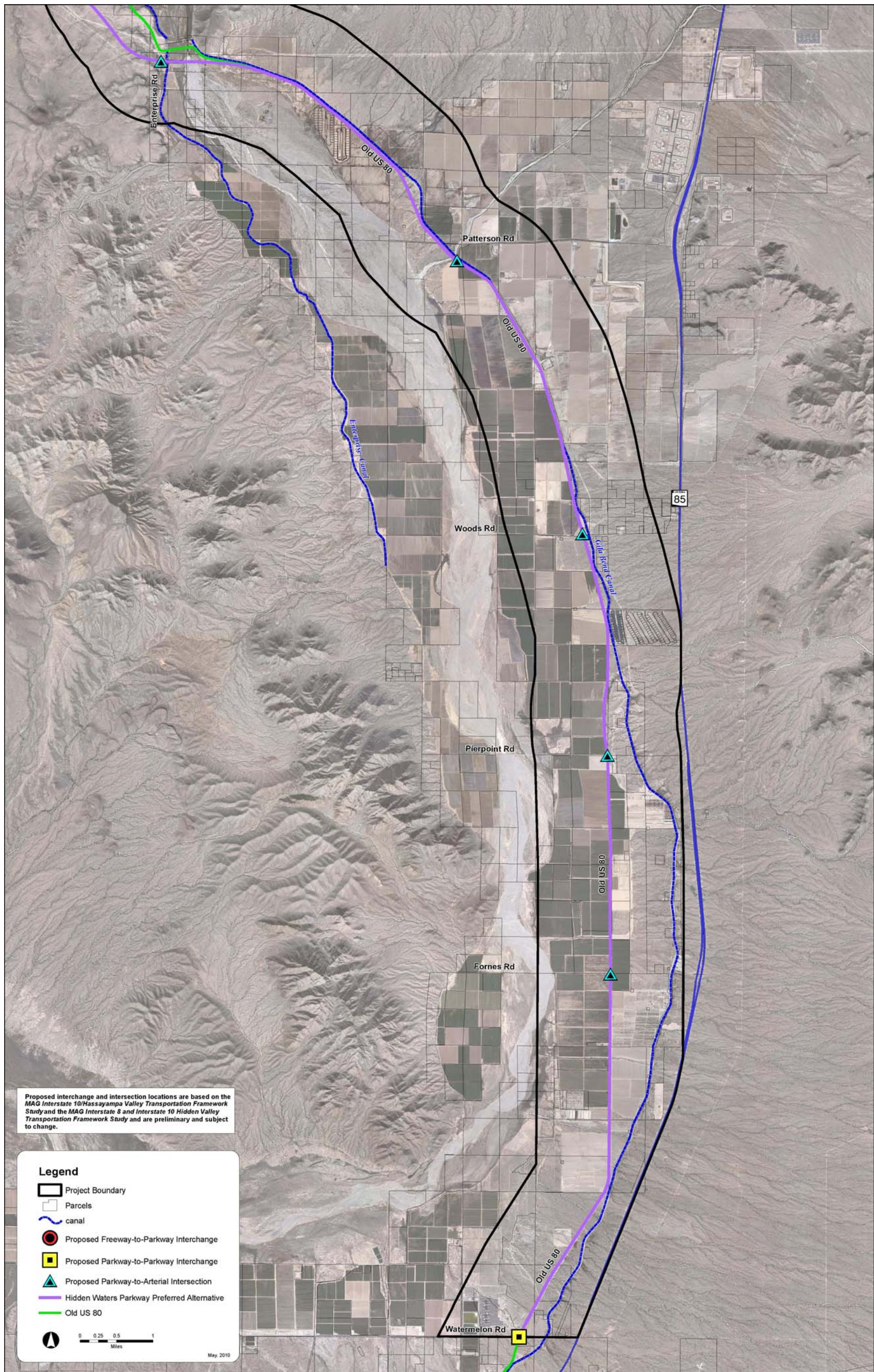


Figure ES-4 – Preferred Alternative (South)

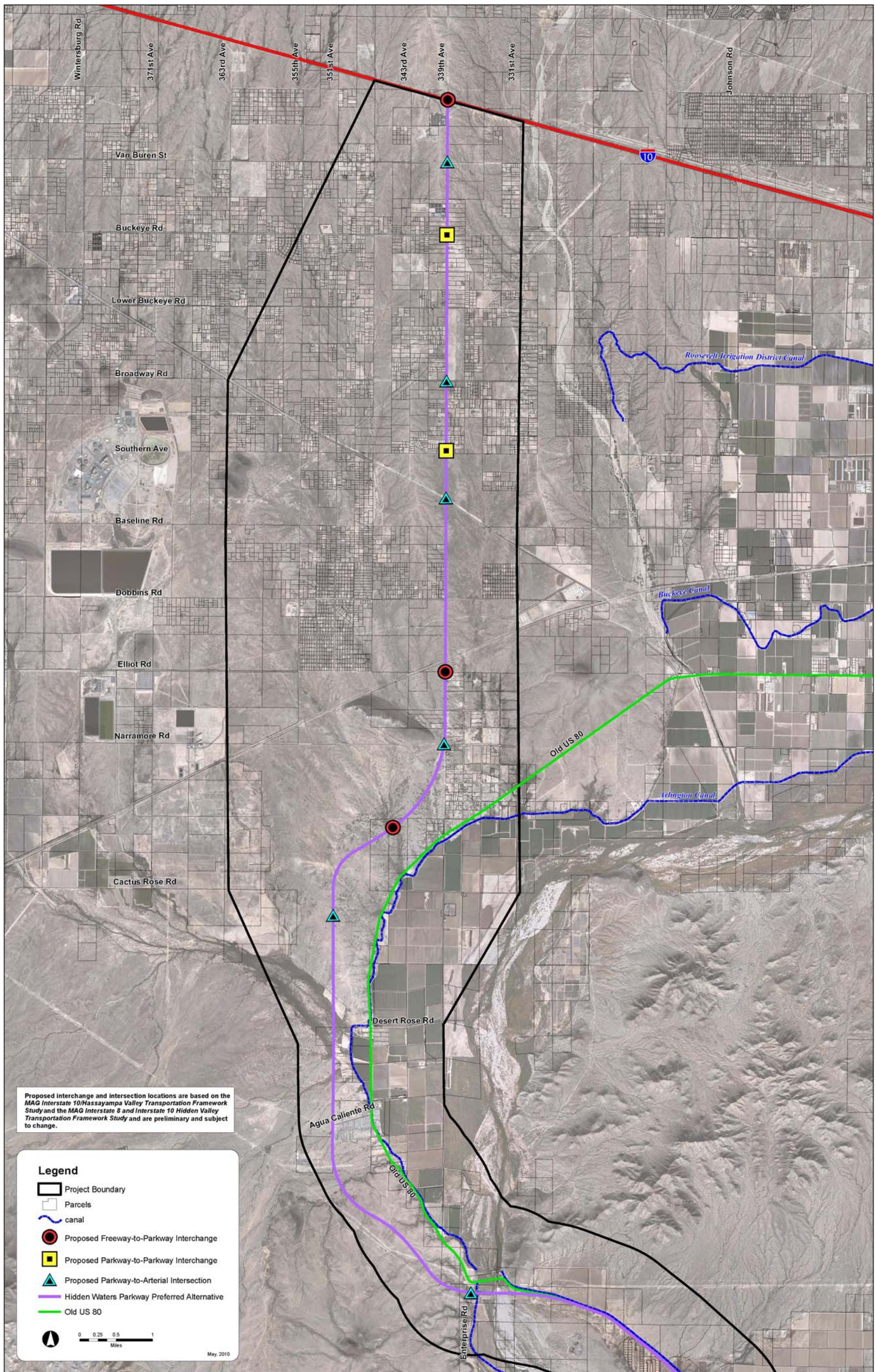


Figure ES-5 – Preferred Alternative (North)



Planning-Level Cost Estimates

Planning-level cost estimates were developed for the preferred Hidden Waters Parkway alignment. Because this study does not include preparation of an “engineered” roadway alignment and does not address detailed design issues for various features, the cost estimate was based on generalized unit costs. The planning-level unit cost estimates were applied to the Hidden Waters Parkway preferred alignment characteristics and are summarized in **Table ES-2**.

The estimated cost for the Hidden Waters Parkway totals \$605 million, excluding any required residential or business relocation costs and the construction costs of freeway-to-parkway interchanges at I-10, the planned State Route (SR) 801 Freeway, and the planned Hassayampa Freeway, which are subject to further study and design.

Table ES-2 – Planning-Level Cost Estimates

Facility Characteristic	South Segment	North Segment	Total
Segment Length (miles)	20.17	19.07	39.24
Number of Drainage Crossings			
Small	14	1	15
Medium	2	2	4
<u>Large</u>	<u>1</u>	<u>5</u>	<u>6</u>
Total	17	8	25
Right-of-Way Required (acres)	346	523	869
Estimated Total Project Cost (Millions of 2010 \$)			
Roadway Construction Cost	\$195	\$185	\$380
Right-of-Way	\$50	\$75	\$125
Major Structural Elements			
PGSI	\$25	\$20	\$45
Gila River Bridge	-	\$30	\$30
UPRR Overpass	-	\$25	\$25
Total Estimated Project Cost	\$270	\$335	\$605
<i>Notes:</i>			
1) Due to wide fluctuations in construction bids in 2008 and 2009, no inflation factors were applied to convert unit costs for those years to 2010 construction costs.			
2) Estimated project costs are rounded to the nearest \$5 million and do not include required residential or business relocation costs.			
3) Major structural elements do not include parkway-to-freeway interchanges at I-10, the planned SR 801 Freeway, and the planned Hassayampa Freeway. These interchanges are subject to further study and design.			

Considerations for Future Development

The *Hidden Waters Corridor Feasibility Study* is a long-range transportation planning study and the earliest phase of project development. This study is intended to identify the “feasibility” of constructing a parkway facility at some future date to accommodate traffic demands that will be associated with future land development within and in close proximity to the Hidden Waters study area. To ensure the long-term viability of the Hidden Waters Parkway facility, preservation and protection of right-of-way that will be required for the parkway need to commence immediately.

No public funding is currently allocated for design, right-of-way acquisition, or construction of any elements of the Hidden Waters Parkway. The recommended center lines and right-of-way limits will be used to guide future planning efforts and ensure that subsequent land development proposals and transportation system plans are compatible with future construction of the Hidden Waters Parkway. Some refinement and negotiation of the parkway centerline and right-of-way requirements may occur as properties are developed and as transportation improvements are implemented.

The following are key issues captured during this study’s stakeholder and public involvement process that should be taken into consideration as the recommendations of this study are carried forward into design and construction:

- *Developer Participation* – It is anticipated that land developers will participate in dedicating right-of-way and participating in project design and construction costs;
- *Funding Strategies* – Long-term funding strategies need to be developed to position the Hidden Waters Parkway corridor to take advantage of available funding. When and how much funding is needed will be dependent on when and where development occurs, how much developer participation happens, and what the detailed designs call for;
- *Access Management Strategies* – Access management strategies should be developed and implemented that are consistent with the Arizona Parkway design guidelines to ensure the Hidden Waters Parkway provides efficient traffic flow, safe operations, and reasonable local land access;
- *Environmental Impacts* – Specific impacts on environmental features, such as natural resources, wildlife habitats, cultural and archaeological resources, noise mitigation, and air quality will require further evaluation during future project development. Wildlife crossing facilities should be incorporated into the final project design where feasible;
- *New Right-of-Way Requirements* – Final roadway configurations will need to be developed through a more detailed design process to determine exactly how much property will need to be acquired to accommodate the future parkway, which has a minimum right-of-way footprint of 200 feet. Properties that cannot be acquired through the land development process will need to be acquired at fair market value along with compensation for relocation expenses if warranted;
- *Landscaping Plans* – Final project design should specify the type of landscaping to be used;
- *Drainage Structures* – Bridges and culverts along the new roadway should be designed during subsequent design efforts to ensure that the roadway provides all-weather crossings during major storm events. Where feasible, drainage structures should be designed to also accommodate wildlife movements across the parkway;



- *Bicycle, Pedestrian, Transit, and Trail Access* – Future parkway projects should be designed to accommodate alternative modes of travel and provide access to trails and neighborhoods in the area;
- *Coordination with Other Planned Transportation Facilities* – Implementation of the Hidden Waters Parkway should be coordinated with the implementation of other planned transportation facilities that intersect or impact the Hidden Waters Parkway (e.g., intersecting freeways, parkways, and arterials);
- *Corridor Traffic Management* – ITS (Intelligent Transportation Systems) should be implemented in conjunction with roadway construction to promote efficient traffic operations and management through the parkway corridor; and
- *Jurisdictional Coordination* – Implementation of corridor improvement, traffic management, and access management concepts should be coordinated among the responsible jurisdictions to ensure a safe, seamless, and efficient transportation facility.

Next Steps

Agencies with primary responsibility for implementing the recommendations of this study are Maricopa County (MCDOT, Planning and Development, and Flood Control), Town of Buckeye, Town of Gila Bend, and the Arizona Department of Transportation (ADOT). Among the critical long-range planning actions that need to commence are:

- Acceptance of the Arizona Parkway designation and general preferred alignment for the Hidden Waters Parkway;
- Right-of-way preservation in developing areas as needed to protect the long-term viability of the parkway facility;
- Preparation of Design Concept Reports for consideration in project programming;
- Appropriation of funding for design, right-of-way acquisition, and construction as needed for joint participation with land developers; and
- Coordination among the jurisdictions and key stakeholders on planning, design, and operational issues.

While implementation timing of the Hidden Waters Parkway will be driven by land development, it is up to the public sector agencies to establish the transportation system planning framework now to be responsive to future land development interests while also protecting the broader long-term public interests.

1. EXISTING AND FUTURE CORRIDOR FEATURES

This section summarizes the information gathered and documented in *Technical Memorandum No. 1 – Existing and Future Corridor Features* (see **Appendix 1**). Key exhibits are provided to graphically display the existing and future corridor features that were considered in identifying and evaluating feasible alignments for the Hidden Waters Parkway.

1.1 Corridor Characteristics

The project study area for the proposed Hidden Waters Parkway is approximately 39 miles in length between Watermelon Road and Interstate 10 (I-10) and is roughly two miles wide, centered on the north-south segment of Old U.S. Highway 80 (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 boundaries are shown in **Figure 1**.

The study area consists of a combination of low-density residential developments, agricultural properties, and open space. There are currently a few master planned developments located within the corridor and it is anticipated that there will be a continued long-term transition to higher density land uses.

Most of the project study area is fairly flat, but there are three locations 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 at approximately the 347th Avenue alignment between Dobbins Road and Narramore Road. The third topographical constraint is a small hill located at approximately the 363rd Avenue alignment just south of Salome Highway (on the western edge of the project study area).

1.2 Existing Transportation Network

The most significant existing north/south roadways in the corridor are Old US 80 and 339th Avenue. Old US 80 is 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. 339th Avenue is a two-lane minor arterial connecting Salome Highway with I-10.

Other higher-speed roads in the project study area include Interstate 8 (I-8) and I-10, along with State Route (SR) 85, which is just outside of the eastern edge of the study area. 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. At the northern end of the project study area, there is an existing traffic interchange on I-10 at 339th Avenue.

There is also an existing Union Pacific railroad line that runs northeast-to-southwest through the project study area just north of Arlington.

The existing transportation network is depicted in **Figure 2** and **Figure 3**.

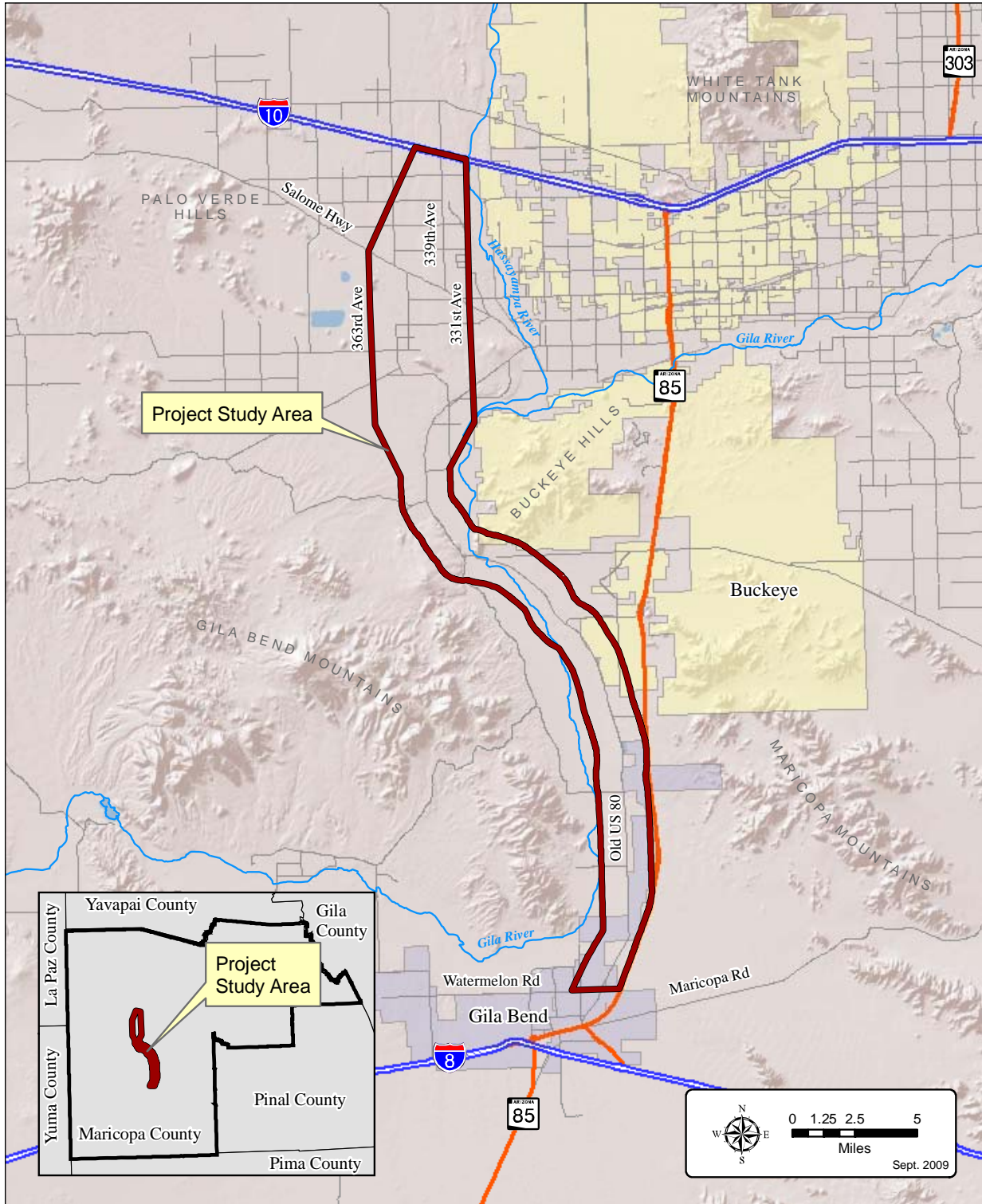


Figure 1 – Project Study Area

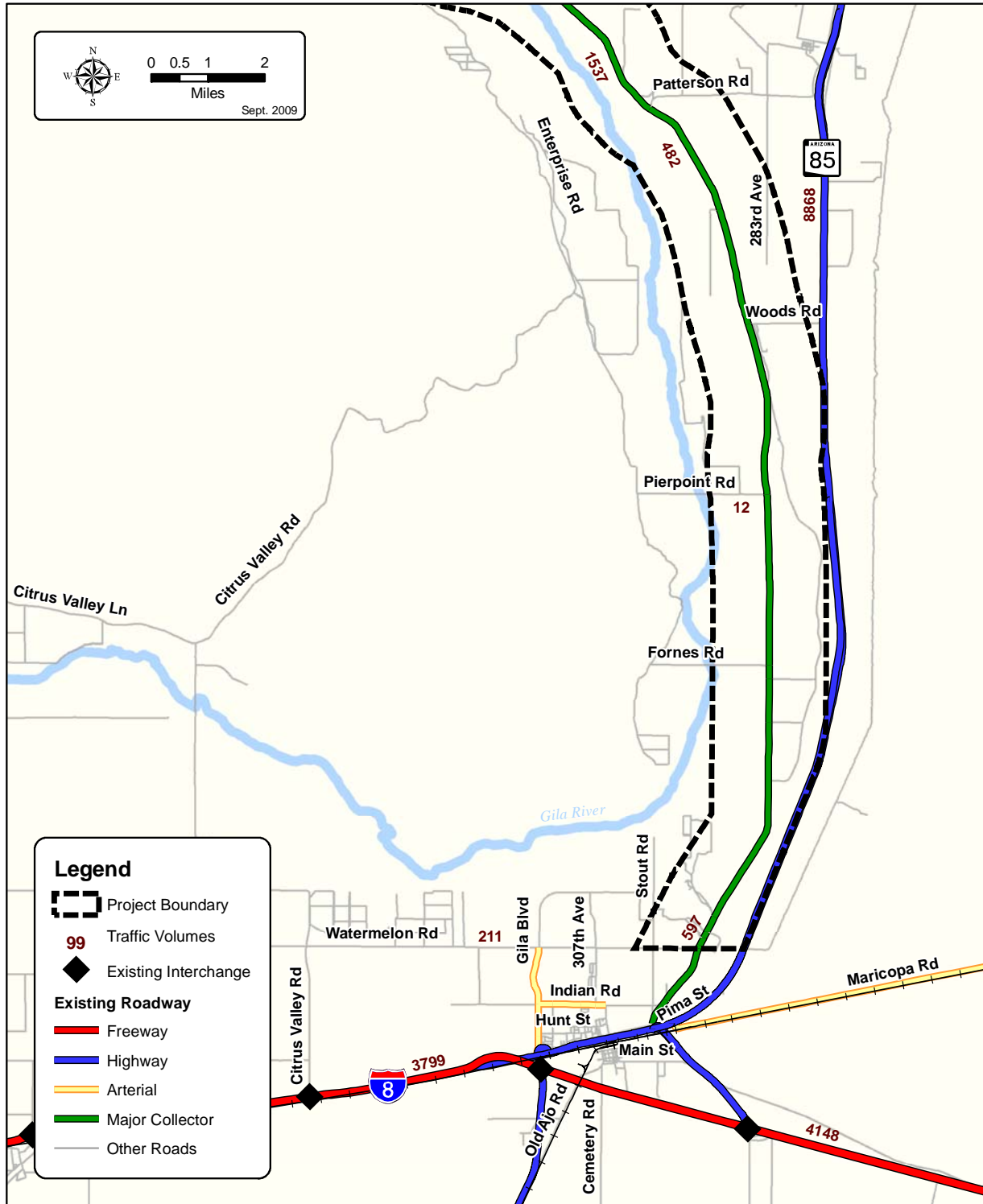


Figure 2 – Existing Transportation Network (South)



Figure 3 – Existing Transportation Network (North)

1.3 Future Transportation Network and Travel Demand

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 higher functional classifications. The *Hidden Valley Framework Study* has proposed that the north-south portion of Old US 80 become the Hidden Waters Parkway and that Watermelon Road become a parkway also. According to MAG framework studies, several additional new parkways, freeways, and arterial roadways are planned in the project study area as well.

A 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'.

Future unofficial buildout daily traffic volumes for the transportation network in the project study area were obtained from MAG framework study travel demand model outputs produced in July 2009. 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 4 and Figure 5** depict many of the proposed features of the future transportation network within the project study area.

1.4 Utilities and Facilities

There are numerous utilities and other facilities within the corridor that need to be considered when developing new roadway concepts. **Figure 6 and Figure 7** show the locations of existing utilities and facilities within the project study area.

Arizona Public Service (APS) 69 kV lines currently run along Old US 80 within the existing road right-of-way. 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.

Several major power transmission corridors 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. 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 feet 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.

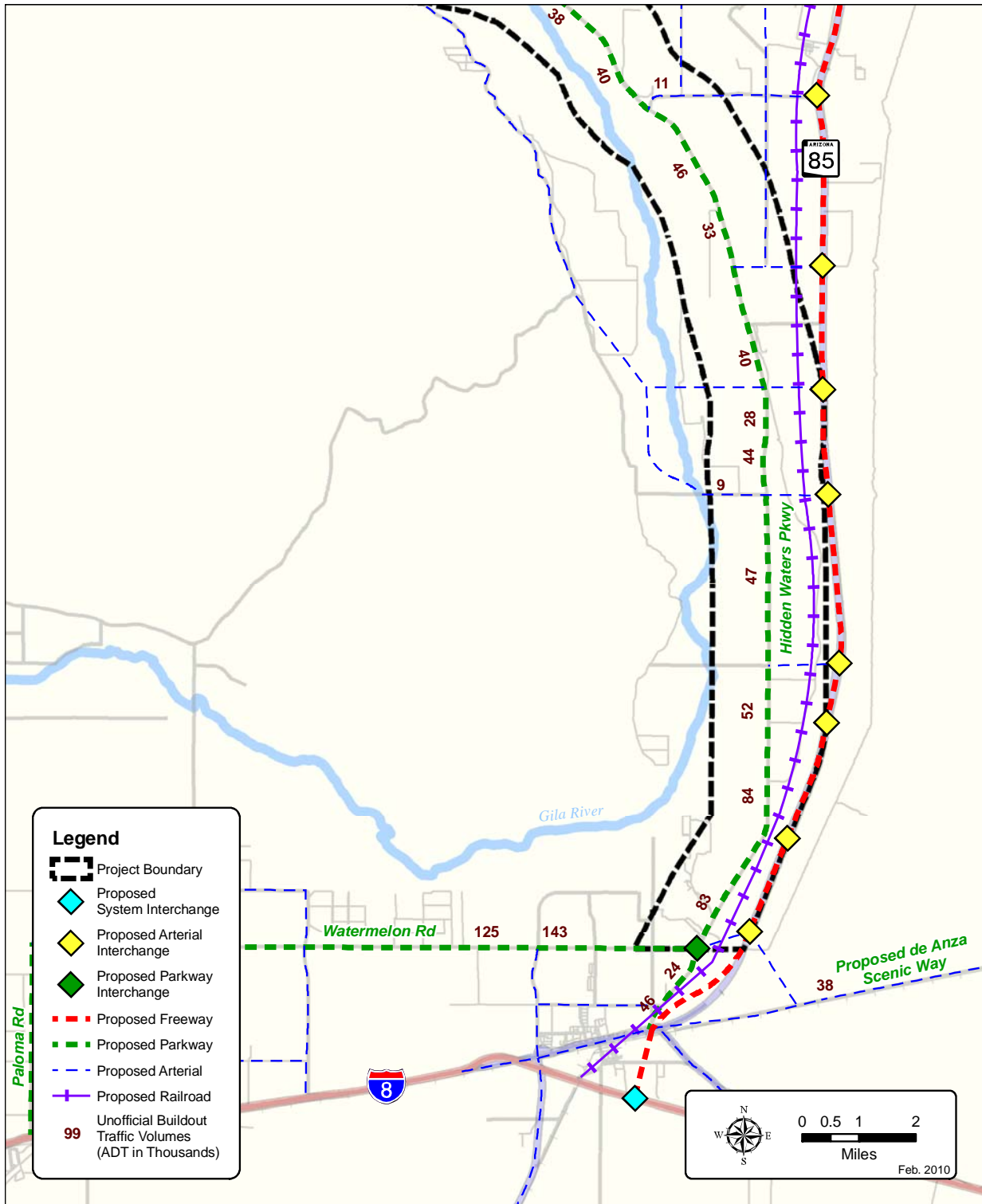


Figure 4 – Proposed Buildout Transportation (South)

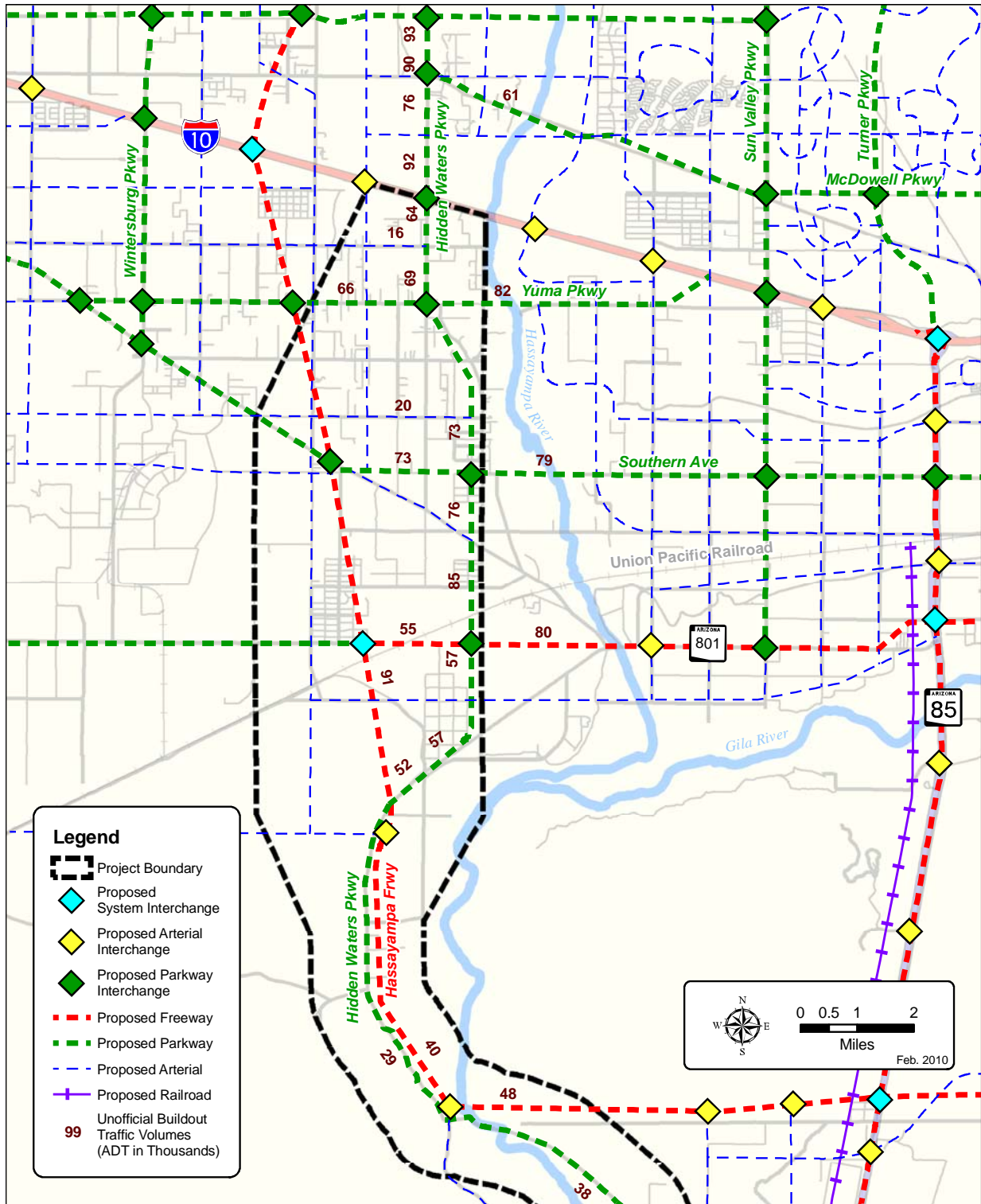


Figure 5 – Proposed Buildout Transportation (North)

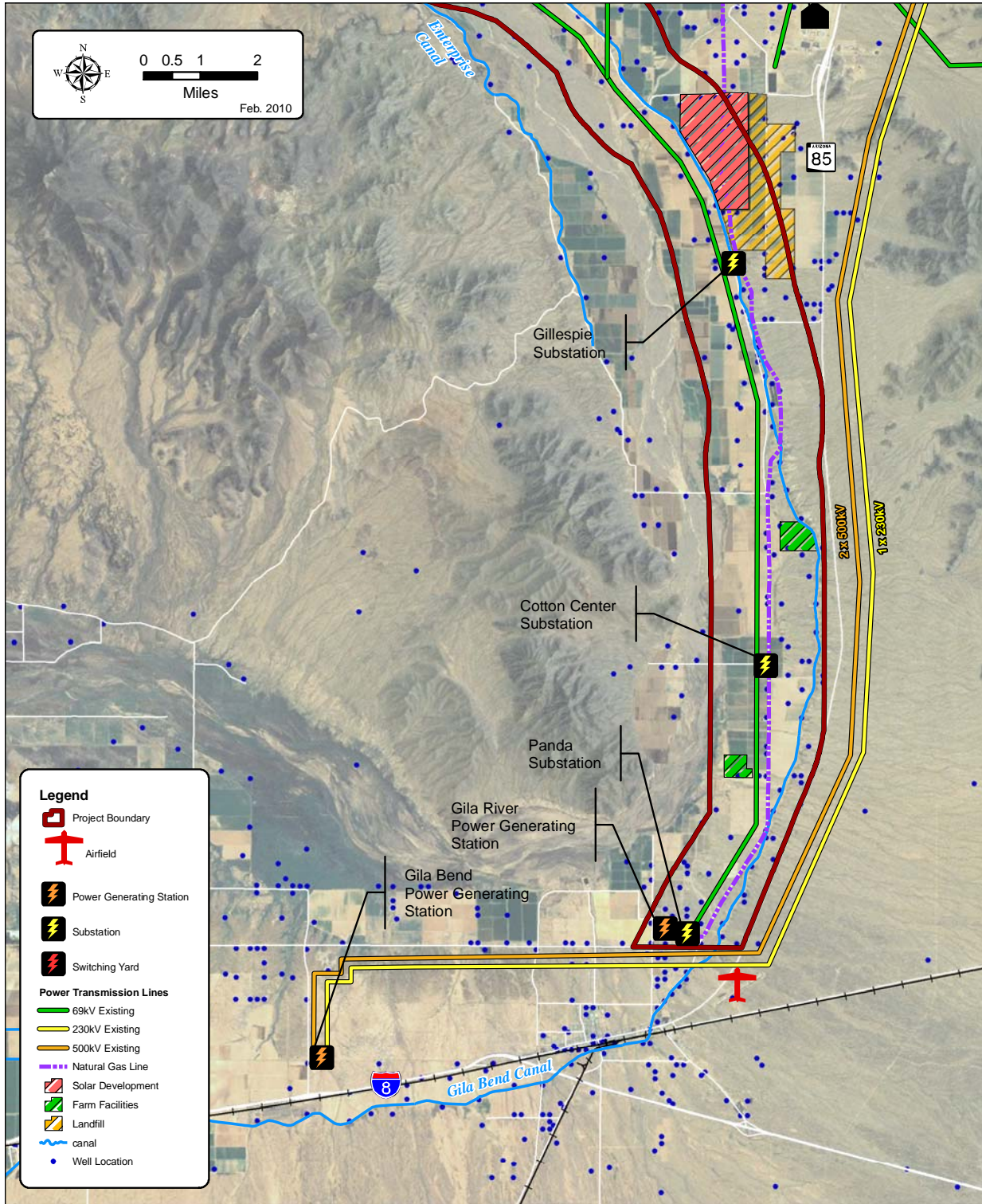


Figure 6 – Utilities and Facilities (South)

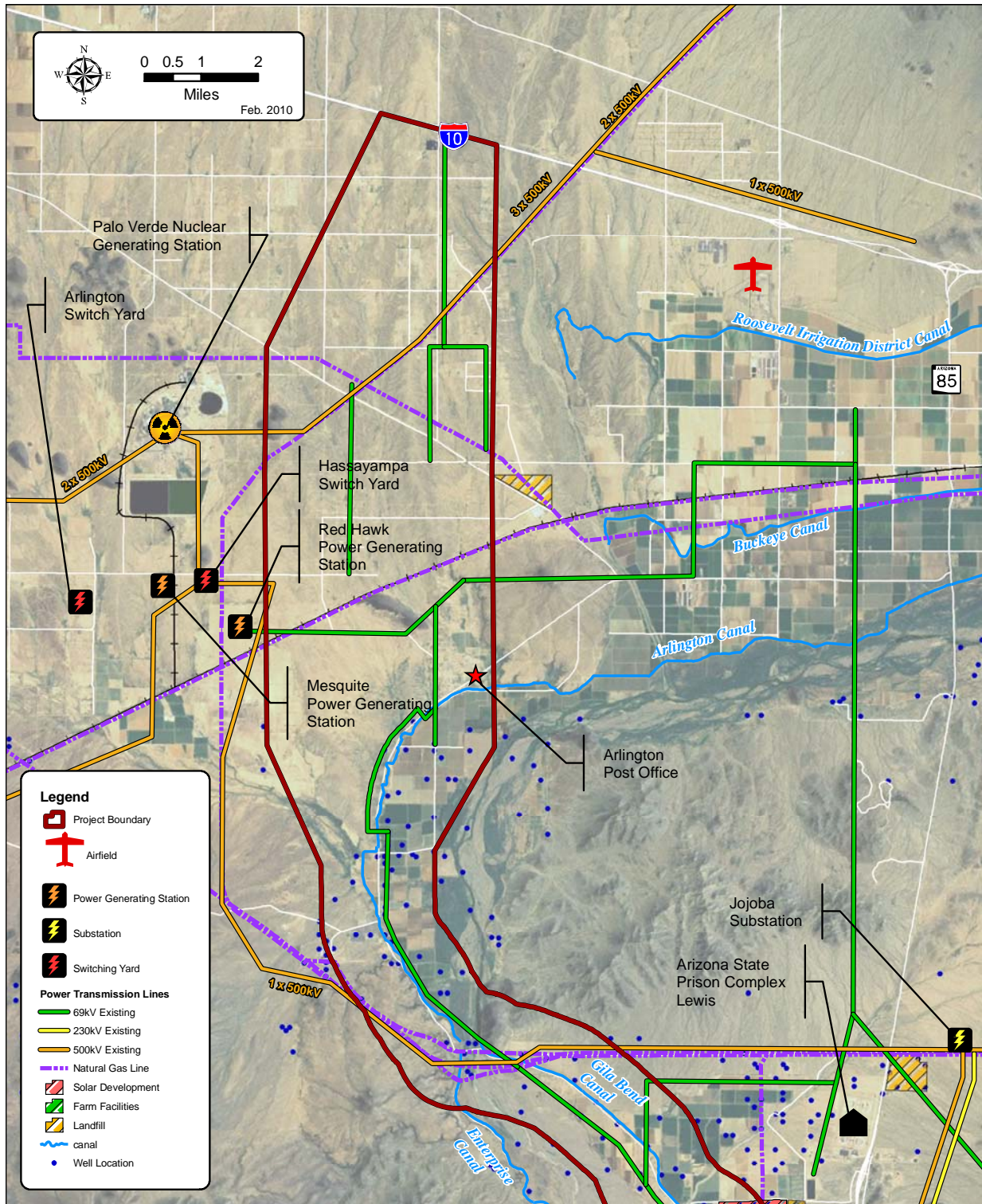


Figure 7 – Utilities and Facilities (North)

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.

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 agricultural lands.

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 to construct a solar power plant on a portion of the landfill property. The solar power plant will remain operational until the City needs that space for landfill operations.

Other notable facilities within the study area include the Arlington Post Office located along Old US 80 near Arlington and the Gila Bend Municipal Airport located just east of the project study area along SR 85 near Gila Bend. In addition, there are literally hundreds of private wells located in the project study area.

1.5 Land Use and Ownership

The entire Hidden Waters corridor study area is located within Maricopa County. Maricopa County has jurisdiction over the majority of the land and roadways within the project study area. The Town of Buckeye and the Town of Gila Bend have jurisdiction over the land within their respective town limits adjacent to and within the study area. Portions of the project study area currently under Maricopa County jurisdiction are also within the Gila Bend Municipal Planning Area and the Buckeye Municipal Planning Area. Jurisdictional boundaries are illustrated in **Figure 8**.

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 landowners in the study area are the Arizona State Land Department (ASLD) and the Bureau of Land Management (BLM). Land ownership in the project study area is shown in **Figure 9**.

Several recreational and wildlife areas exist within or adjacent to the project study area. **Figure 10** shows the various Wilderness Areas, Potential Wildlife Linkage Zones, State Wildlife Areas, and regional parks within or near the project study area.

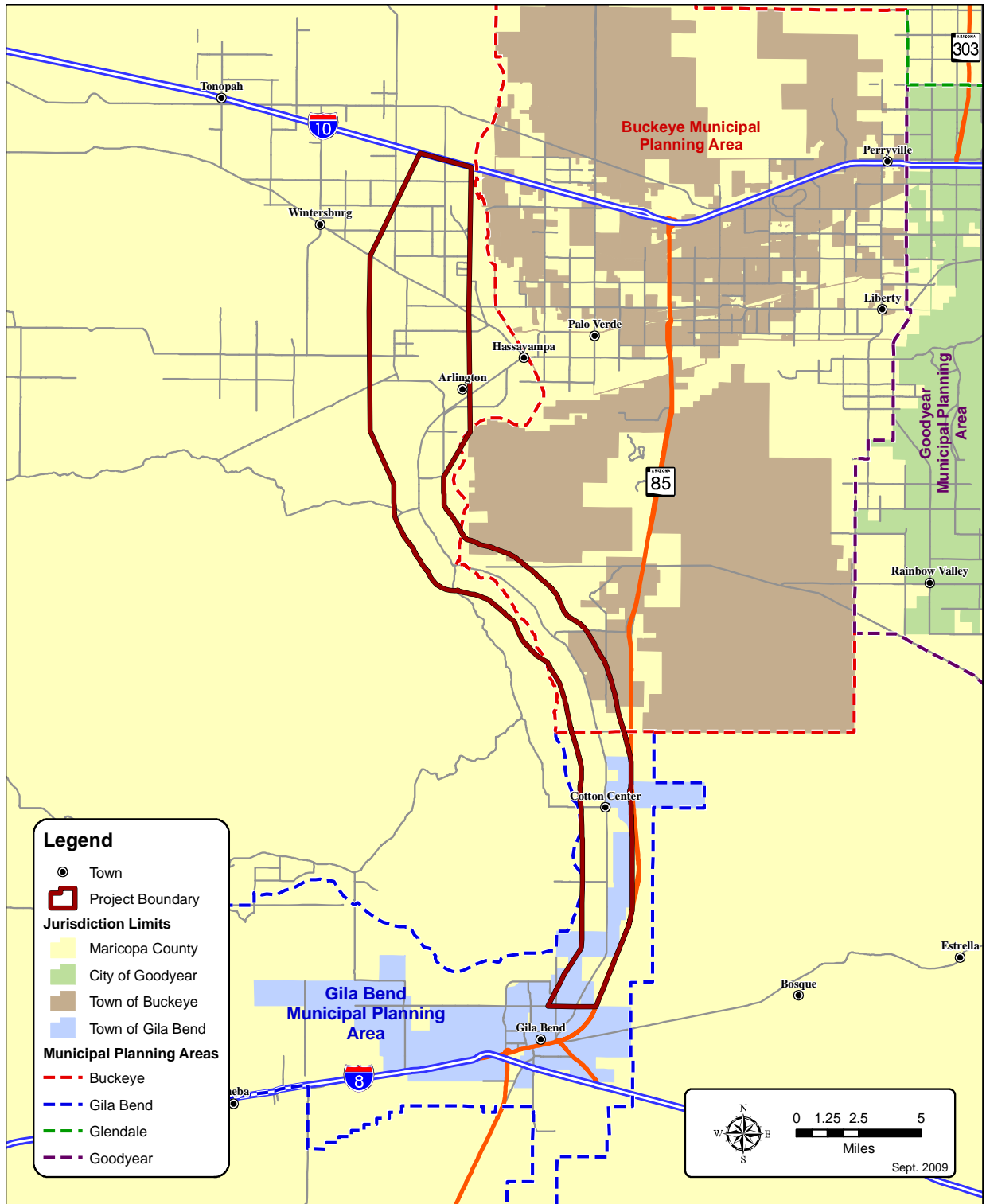


Figure 8 – Jurisdictions

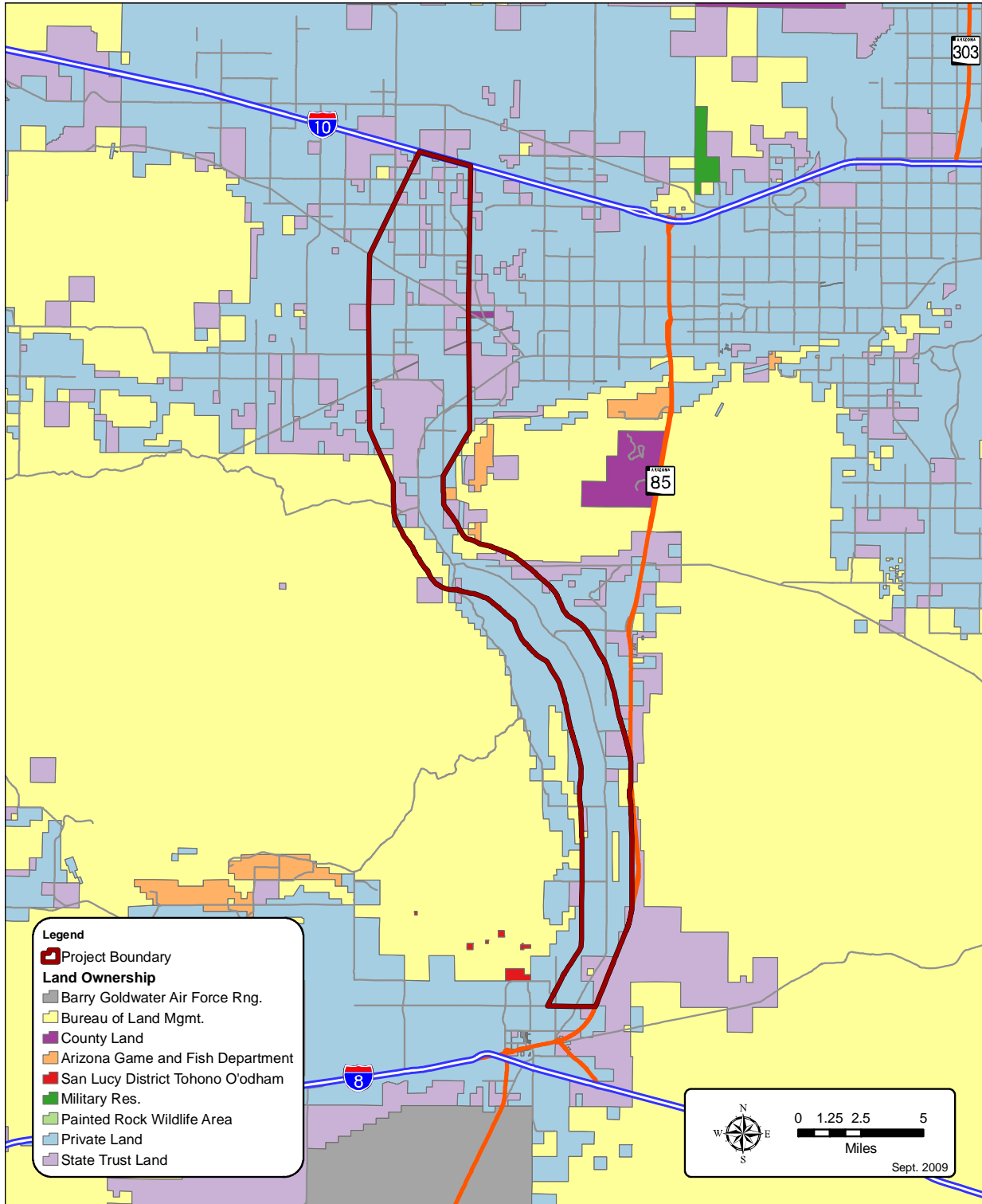


Figure 9 – Land Ownership

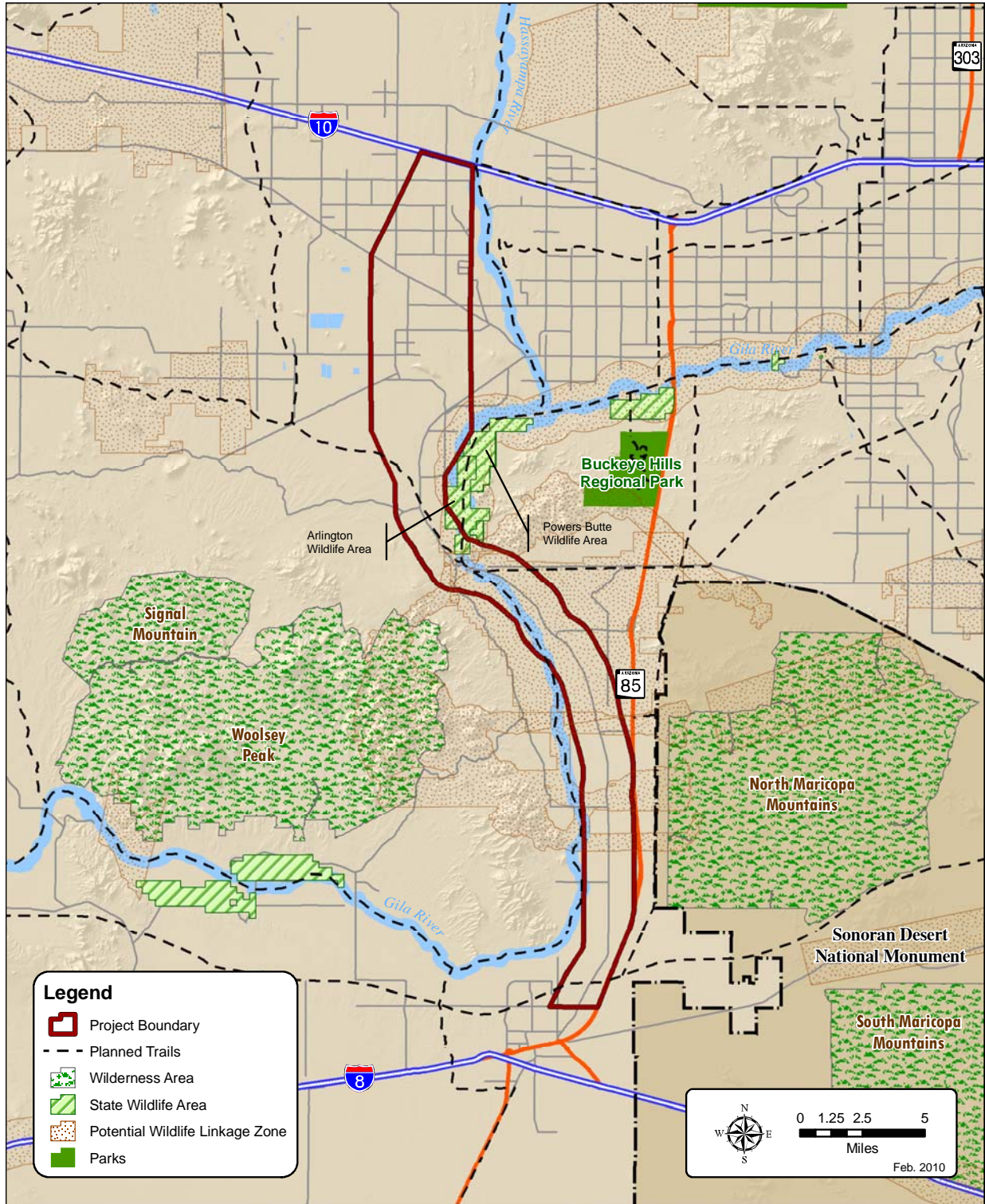


Figure 10 – Recreational and Wildlife Areas

Just outside the eastern edge of the project study boundary in the central portion of the study area, the Arizona Game and Fish Department (AZGFD) owns land that is part of the Powers Butte and Arlington Wildlife Areas. AZGFD 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 AZGFD for wildlife management.

Figure 11 shows existing land uses in the study area. Existing land uses 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.

Figure 12 shows anticipated future buildout land uses within the project study area. 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.

Figure 13 shows the existing and active planned developments near and within the project study area. Due to current economic conditions, the rate of growth has slowed as evidenced by the fact that 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 in the future, but the timeframe for when buildout will be reached will likely be extended.

1.6 Environmental Summary

Environmental considerations are documented in *Technical Memorandum No. 2 – Environmental Overview* (see **Appendix 2**). The most significant environmental issues affecting the study area are schools, churches, wildlife habitats and linkage zones, and cultural/archaeological resources.

There are four schools (Arlington Elementary School, Winters' Well Elementary, Gila Bend Elementary School and Gila Bend High School), four observed places of worship (Arlington Baptist Church, First Baptist Church, Church of Jesus Christ of Latter-Day Saints, and Faith Assembly of God), and limited commercial enterprises within or adjacent to the study area.

With respect to wildlife habitats and linkages, portions of the AZGFD-managed LGRWMAC are within or adjacent to the study area, most notably the Powers Butte and Arlington Wildlife Areas. Wildlife linkage zones are critical for wildlife movement between habitat areas. Two wildlife linkage zones (PLZ) are partially within the study area: PLZ No.73 – Gila Bend-North Maricopa Mountains and PLZ No.151 – Gila/Salt River Corridor Granite Reef Dam-Gillespie Dam (see **Figure 14**). PLZ 151 is a zone that crosses multiple habitat blocks and therefore is a significant resource for habitat connectivity and wildlife movement. Movement between these habitat blocks and the wildlife linkage zones should be considered during final design to determine the best way to construct the roadway while maintaining uninhibited wildlife movement and connectivity within the project study area.

To identify potential cultural resources, site files and information maintained at the Arizona State Historic Preservation Office, the AZSITE cultural resources database, and cadastral survey maps/General Land Office Plats available from the BLM were analyzed.

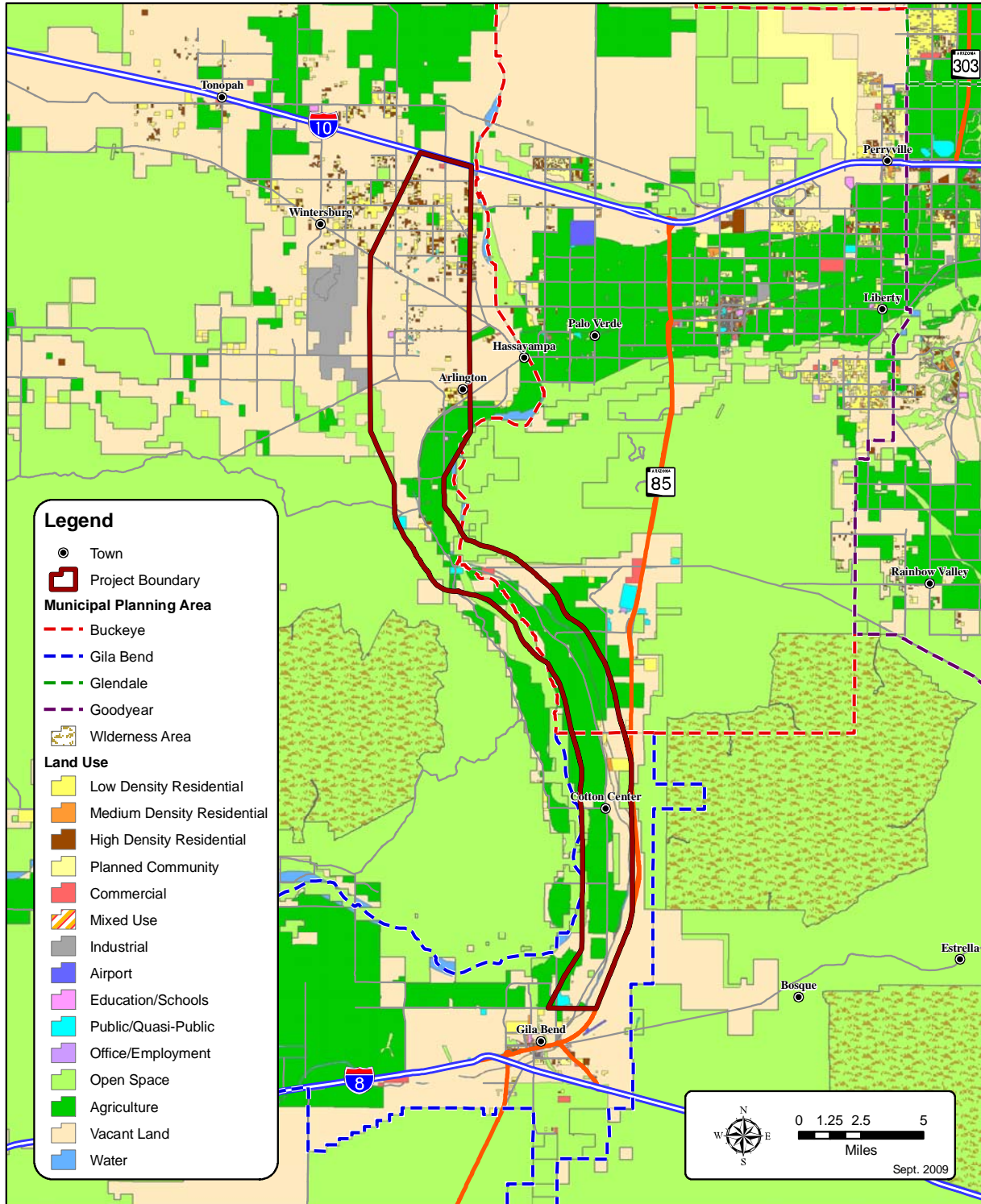


Figure 11 – Existing Land Uses

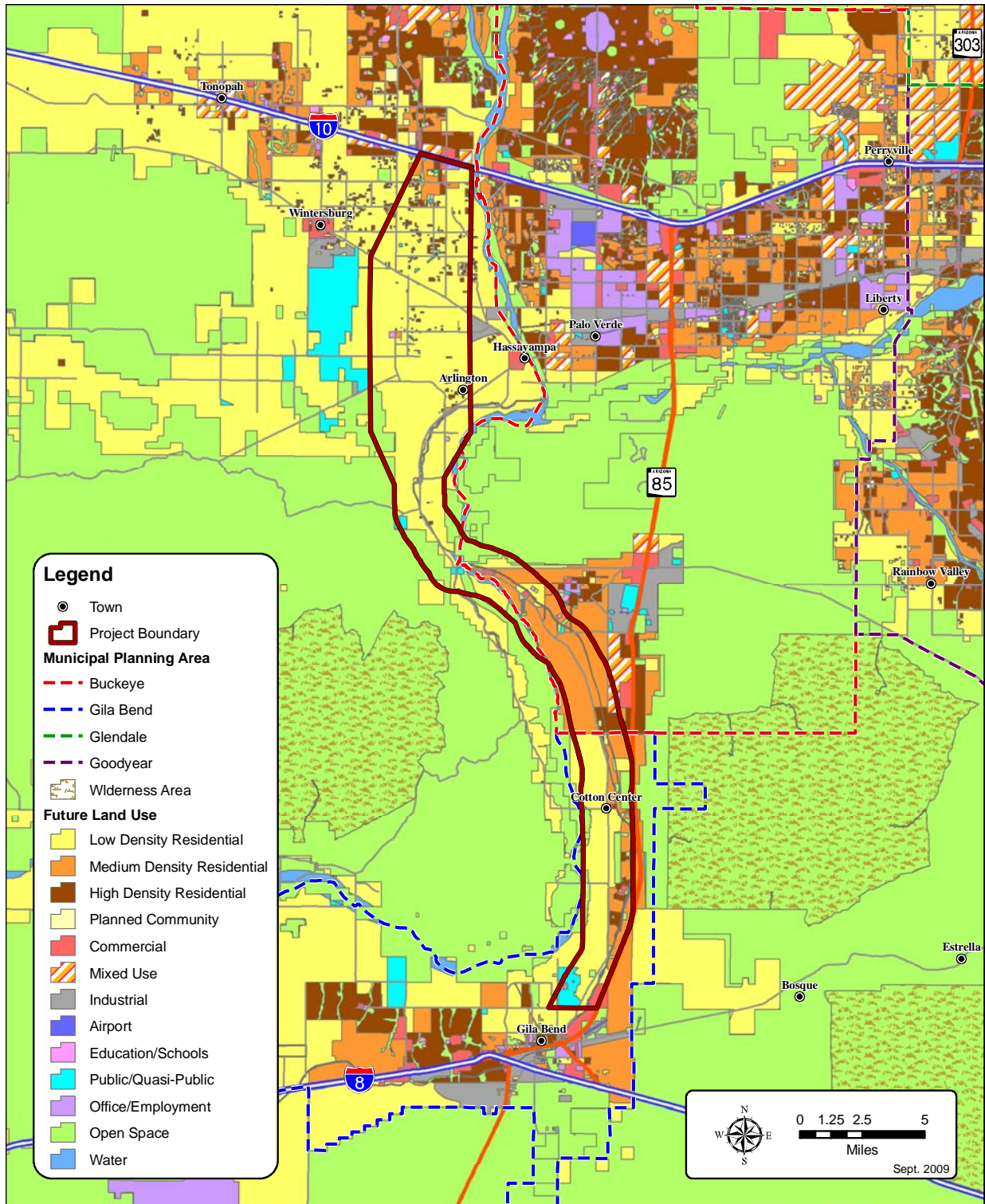


Figure 12 – Future Land Uses

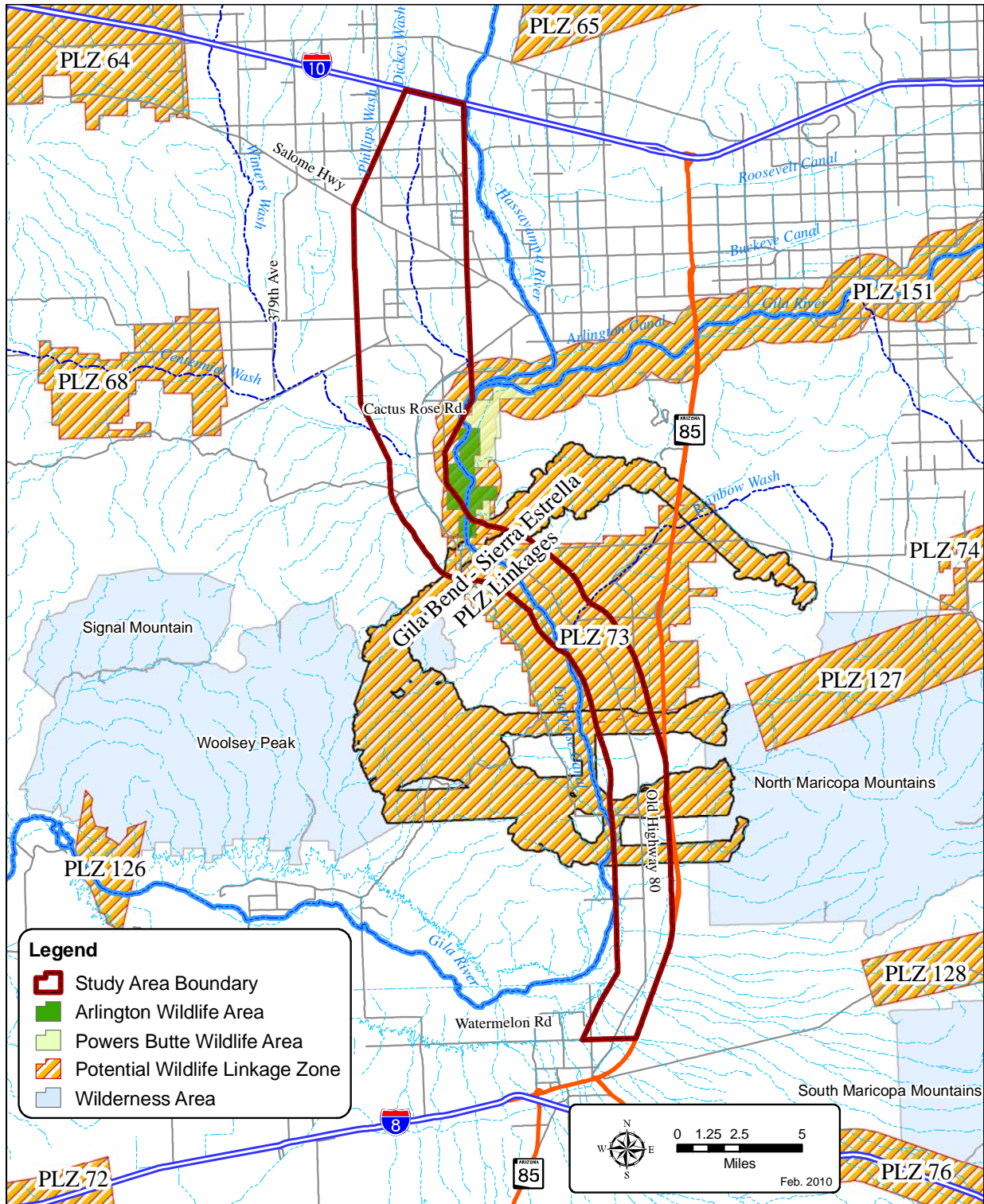


Figure 14 – Wildlife Linkage Zones



Additional information from MCDOT's Environmental Program, the Town of Gila Bend, and the Center for Desert Archaeology was also gathered and reviewed. The entire study area has not been completely surveyed for cultural resources and additional analysis will be required to determine the level and adequacy of previous cultural resource survey coverage.

The records review revealed that 82 previous cultural resource survey investigations have been conducted within the study area and a total of 121 cultural resource sites have been recorded. Most of these cultural resource sites are in the vicinity of the Gillespie Dam, the Gila River, and the canals in the study area. Of these sites, two – the Old US 80 Bridge over the Gila River and the Gatlin Site – are listed on the National Register of Historic Places (NRHP), 16 sites have been determined eligible for inclusion on the NRHP by the State Historic Preservation Office (SHPO), 50 were considered eligible for inclusion on the NRHP, two were considered not eligible, 37 sites have not been evaluated, and 14 had no evaluation information available. It should be noted that the Gatlin Site is also a National Historic Landmark.

1.7 Drainage Summary

Technical Memorandum No. 3 – Conceptual Drainage Report identifies and summarizes the existing drainage conditions, features, and hydrologic characteristics within the project study area (see **Appendix 3**). Several drainage studies have been prepared for the area surrounding the Hidden Waters Parkway project study area by various agencies such as the Flood Control District of Maricopa County (FCDMC) and the Arizona Department of Transportation (ADOT).

The watersheds contributing offsite flows to Hidden Waters Parkway were addressed by dividing the drainage patterns into three drainage regions within the project study area. These regions are:

- **Southern Region: Drainage south of the Gila River** – The study area in this region is generally oriented parallel to the Gila River, but perpendicular to the offsite drainage patterns. Offsite flows come from watersheds to the east of the study area and flow west to the river. The Rainbow Wash floodplain is included in this region. Drainage impacting the Hidden Waters Parkway will be alluvial fan and distributary in nature, subject to flash flooding and high sediment loading.
- **Central Region: Gila River Crossing** – The Gila River provides a separate and distinct challenge for a bridged Hidden Waters Parkway crossing. A bridged crossing will need to consider high flood flows, a fairly wide floodplain, FEMA floodplain impacts, and long-term river bed elevation changes and local scour countermeasures. The central drainage region also includes the Lower Centennial Wash, a tributary of the Gila River. The Lower Centennial Wash watershed originates in the Gila Bend Mountains and flows east towards the Gila River.
- **Northern Region: Drainage north of the Gila River** – The study area in this region is generally oriented parallel to the Luke Wash drainage. Luke Wash is a large regional drainage tributary system to the Gila River. The study area crosses Luke Wash and its finger tributaries many times. Drainage facilities for the Hidden Waters Parkway will need to accommodate sediment-laden flood flows. The Parkway embankment and earthen diversions may serve to direct and control flows.

Several FEMA floodplains are included in the watersheds that drain through the study area. These floodplains ultimately discharge to the Gila River. **Figure 15** provides a graphic of the 100-year floodplain areas and also displays the Flood Insurance Rate Map (FIRM) panels

containing the effective floodplain mapping. Both FEMA effective and FCDMC (typically pending FEMA approval) floodplain limits are shown on this exhibit. Floodplain encroachment will be a limiting factor on the parkway alignment. Detailed floodway analysis and coordination with FCDMC and FEMA may be necessary where floodplain encroachments occur.

1.8 Corridor Opportunities and Constraints

Based on the existing and future corridor features described previously, potential opportunities/constraints have been identified that should be considered in determining the alignment for the Hidden Waters Parkway. These are graphically depicted in **Figure 16** and **Figure 17** and are listed below (generally in order from south to north and east to west in the project study area):

- 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;
- Rainbow Wash;
- 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;
- LGRWMAC, including the Arlington and Powers Butte Wildlife Areas;
- Centennial Wash;
- 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;
- Luke Wash;
- 500 kV transmission towers between PVNGS and I-10;
- Existing and proposed developments of Butterfield Stagecoach and Hidden Waters Ranch;
- Winters' Well Elementary School; and
- Proposed reconstruction of the existing I-10/339th Avenue interchange.

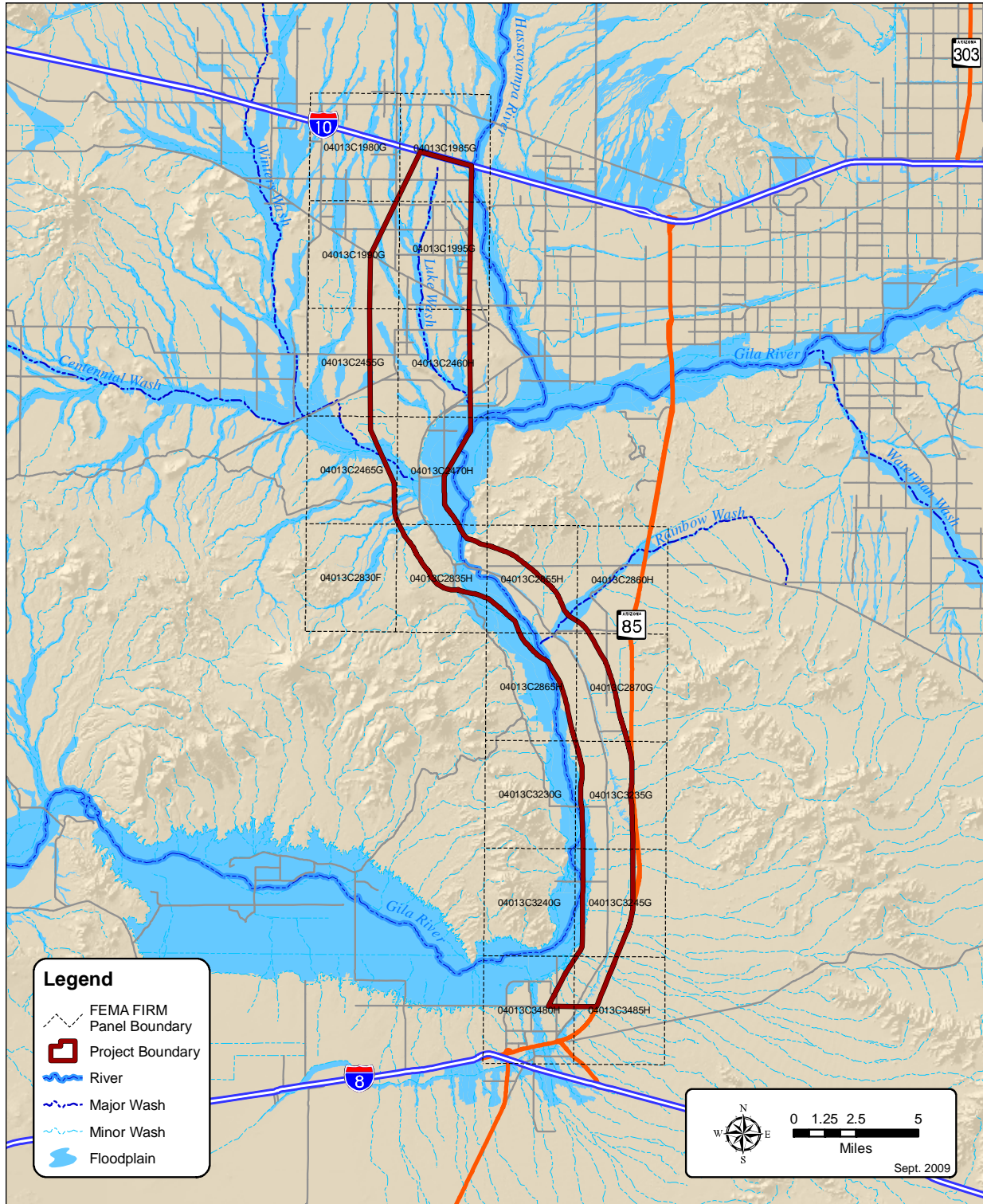


Figure 15 – Floodplains

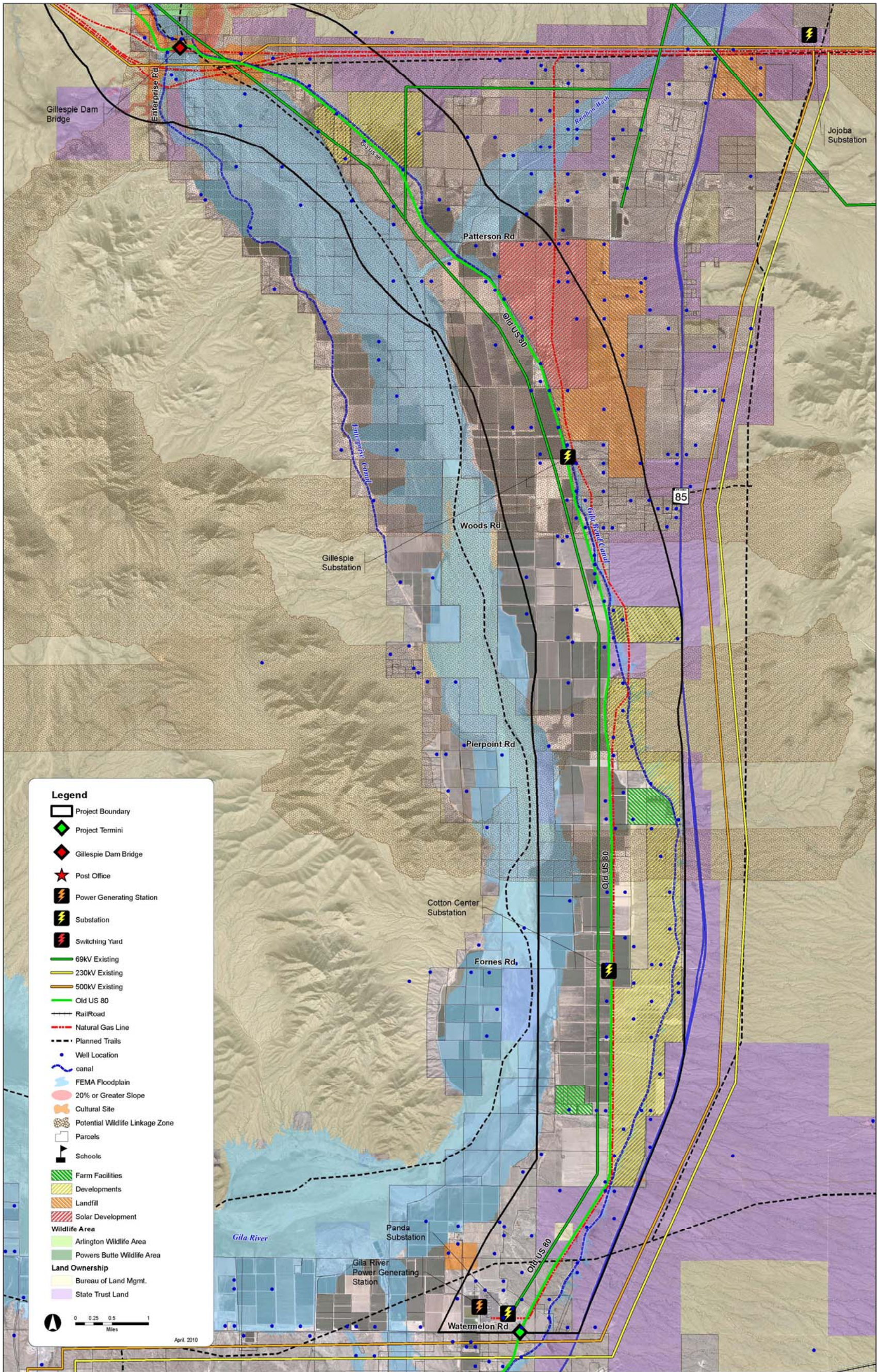


Figure 16 – Potential Corridor Constraints (South)

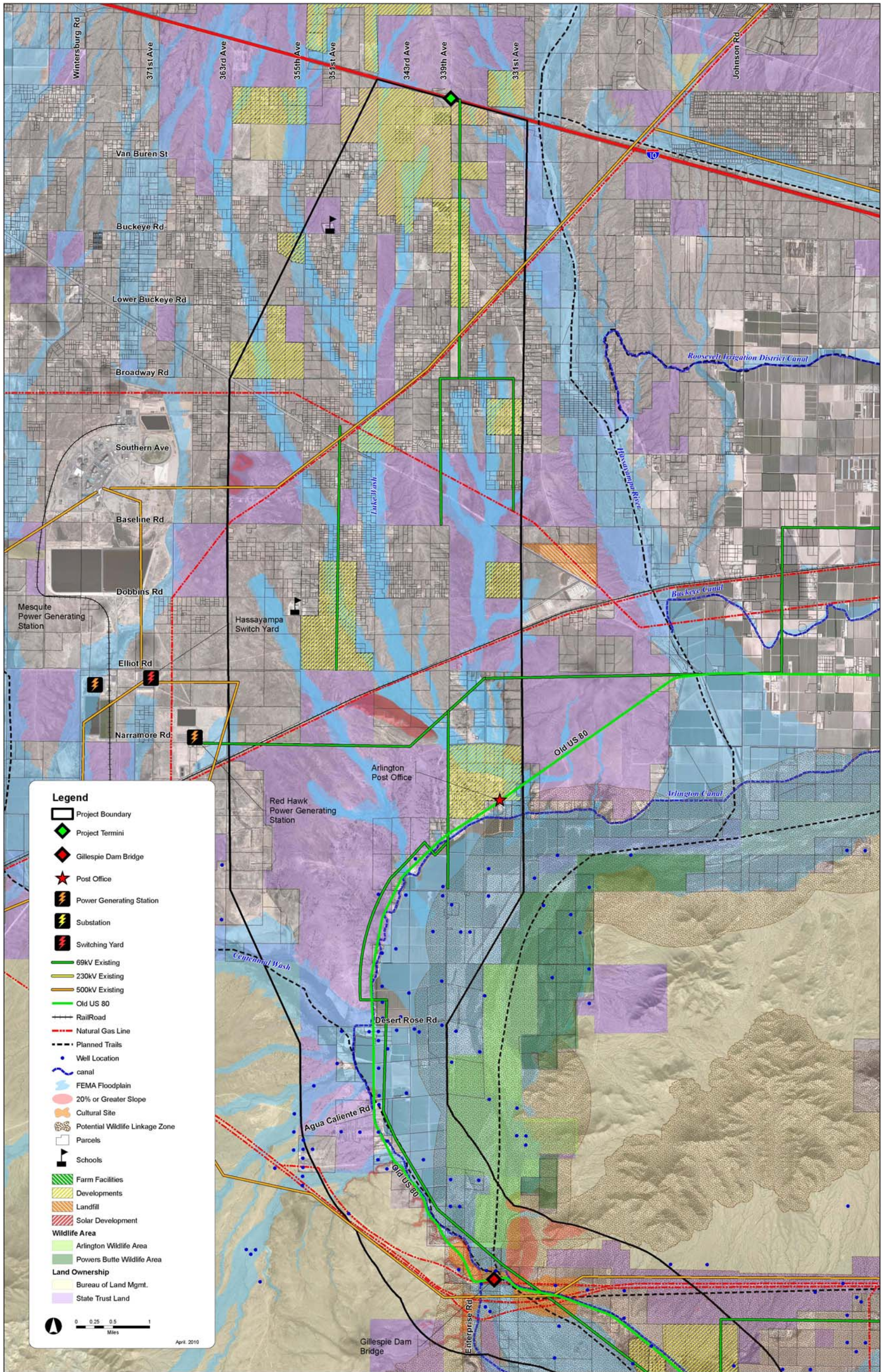


Figure 17 – Potential Corridor Constraints (North)

1.9 Relevant Plans, Reports, and Guidelines

A wide range of existing plans, reports and guidelines were compiled, reviewed, and summarized for this project. Relevant findings, conclusions, and recommendations from these documents are summarized in *Technical Memorandum No. 1 – Existing and Future Corridor Features*. In addition, *Technical Memorandum No. 2 – Environmental Overview* and *Technical Memorandum No. 3 – Drainage Overview* include extensive lists of additional resource documents used to identify specific environmental and drainage issues. The following is a listing of the primary documents that were used for the existing and future features component of this study:

- *Maricopa County Old US Highway 80 Area Plan* (May 2007);
- *Maricopa County Tonopah/Arlington Area Plan* (September 2000);
- *MAG Interstate 8 and Interstate 10 Hidden Valley Transportation Framework Study* (October 2009);
- *MAG Interstate 10/Hassayampa Valley Transportation Framework Study* (July 2008);
- *ADOT SR 85 at Gila Bend Draft Final Design Concept Report* (June 2009);
- *ADOT SR 85 at Gila Bend Draft Environmental Assessment and Section 4(f) Evaluation* (August 2009);
- *MCDOT Design Guideline Recommendations for the Arizona Parkway* (August 2008);
- *MCDOT Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study* (August 2009);
- *MAG Updated Buildout Traffic Projections* (June 2009);
- *Hickman’s Egg Ranch Major Comprehensive Plan Amendment* (June 2009);
- *Hidden Waters Ranch Development Master Plan [Major Amendment #1]* (October 2008);
- *Insignia Major Comprehensive Plan Amendment* (September 2006);
- *Belmont Site Plan* (2007);
- *Hassayampa Village Comprehensive Plan Amendment* (July 2006);
- *Sonoran Trails* (August 2009);
- *Town of Gila Bend General Plan* (November 2006);
- *Town of Buckeye General Plan* (2008);
- *Old U.S. Highway 80 Bridge (Gillespie Dam Bridge) Final Design Concept Report – Volume I* (September 2007);
- *Old U.S. Highway 80 Bridge (Gillespie Dam Bridge) Final Value Engineering Report* (May 2008);
- *Draft of the Initial Location/Design Concept Report for SR 85, Gila Bend to I-10* (November 1999);
- *Maricopa County Transportation System Plan* (February 2007); and
- *Maricopa County Major Streets and Route Plan: Street Classification Atlas* (revised September 2004).

2. DEVELOPMENT AND EVALUATION OF ALTERNATIVE ALIGNMENTS

Technical Memorandum No. 4 – Candidate Alternative Alignments and Evaluation documents the alternatives development and evaluation process used for this project (see **Appendix 4**). The alternatives development process involved two steps:

The first step was to identify a series of conceptual alternatives that would be subjected to a “fatal flaw” analysis. The conceptual alternatives were developed only to the extent necessary to conduct a meaningful comparative analysis that would produce up to three candidate alternatives that could be defined and evaluated in greater detail.

The second step was to perform a more in-depth evaluation of the candidate alternatives and identify preferred alternatives. The conceptual alternatives, candidate alternatives, and evaluation criteria were all developed in consultation with the Technical Advisory Committee (TAC) and stakeholders and were presented for general public input at public open house meetings.

2.1 Conceptual Alternatives

For alternatives development and evaluation purposes, the study area was divided into two separate segments: one south of the Old US 80 Bridge over the Gila River and one north of the Old US 80 Bridge over the Gila River.

For the southern segment, endpoints common to all of the alternatives were designated as the Old US 80/Watermelon Road intersection for the southern terminus and as the eastern edge of the proposed new Gila River Bridge location recommended in the *MCDOT Old U.S. Highway 80 Bridge (Gillespie Dam Bridge) Final Design Concept Report* for the northern terminus.

For the northern segment, the common endpoints were designated as the eastern edge of the proposed new Gila River Bridge location for the southern terminus and as the existing I-10/339th Avenue interchange for the northern terminus.

Conceptual alternatives were developed to avoid as many corridor constraints as possible, yet provide a wide range of options within the study area limits. Potential corridor constraints consist of features that may have some bearing on the location and configuration of conceptual alternatives. Many of the potential constraints are not truly “fatal flaws” but may result in higher project costs if they cannot be avoided and mitigation measures are required.

The potential constraints that are considered to be more significant, and should be avoided if possible, include: schools, landfills, cultural and historic resources, wildlife areas, floodplains, steep slope areas, approved planned developments, and large utility facilities.

Potential constraints that were considered in developing the conceptual alternatives are summarized as follows:

- *Land ownership:*
 - BLM land near Gillespie Dam;
 - Arizona State Trust land; and
 - Wildlife areas.



- *Land use:*
 - Arlington and Winters' Well Elementary Schools;
 - Arlington and Powers Butte Wildlife Areas;
 - Wildlife linkage zones; and
 - Existing and planned developments.
- *Transportation:*
 - Old US 80/Watermelon Road intersection;
 - Old US 80 Bridge location; and
 - I-10/339th Avenue interchange.
- *Utilities/Facilities:*
 - Power stations – Gila River, Panda, and Cotton Center;
 - Irrigation canals – Gila Bend, Enterprise, and Arlington;
 - Gas pipelines and electrical power lines near the Old US 80 Bridge; and
 - SR 85 landfill/solar plant.
- *Topography:*
 - Narrow pass at Gillespie Dam;
 - Large hill near 347th Avenue/Dobbins Road; and
 - Small hill near 363rd Avenue/Salome Highway.
- *Others:*
 - Known cultural resource areas near the Old US 80 Bridge; and
 - Floodplains.

As a starting point in the development of conceptual alternatives, a brainstorming session was conducted with project task leaders to generate a wide range of options that span the full width and length of the study area. The conceptual alignment alternatives for the southern and northern corridor segments are respectively shown in **Figure 18** and **Figure 19**. As these figures show, there are opportunities to assemble multiple combinations of alternatives at common intersecting points to produce numerous options for consideration.

In developing conceptual alternatives, constraints considered to be potential “fatal flaws” were avoided to the extent possible to produce a set of realistic alternatives. The conceptual alternatives were presented to the TAC and stakeholders for review and input.

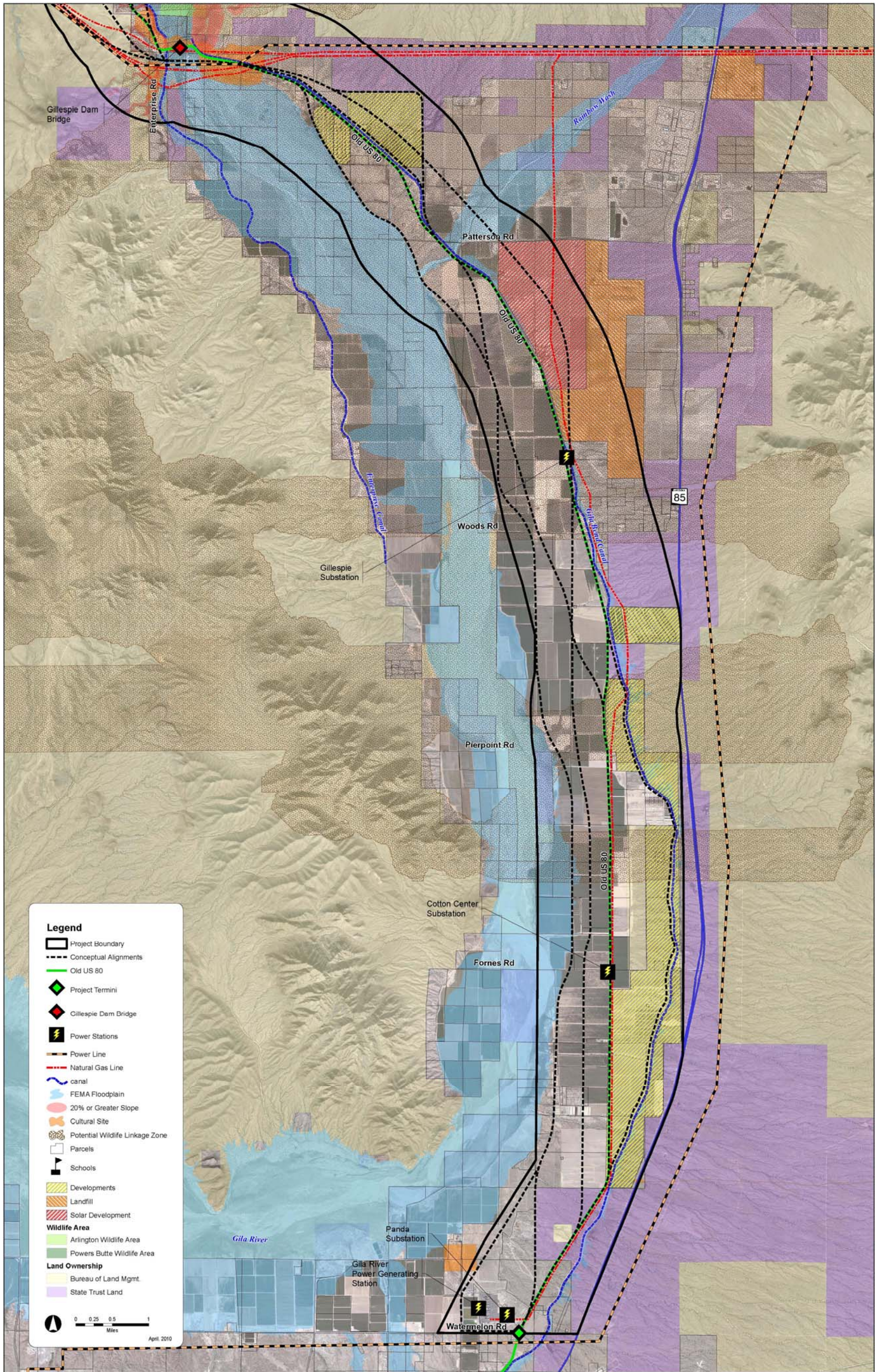


Figure 18 – Conceptual Alternatives (South)

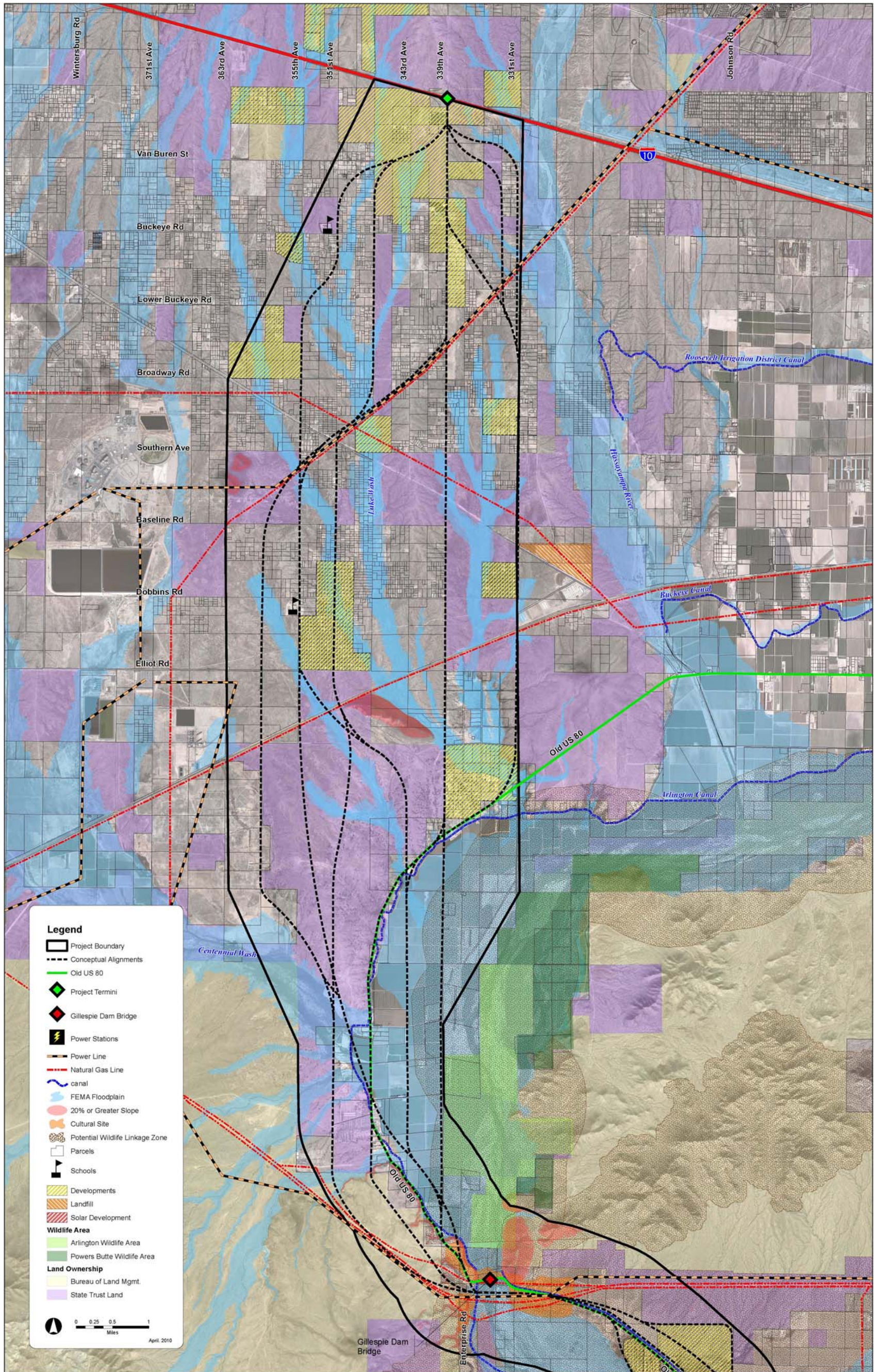


Figure 19 – Conceptual Alternatives (North)

2.2 Candidate Alternatives

To narrow the range of alternatives to be evaluated in greater detail, a subjective, qualitative assessment was performed on all conceptual alternatives, resulting in three recommended candidate alternatives for the southern segment and three recommended candidate alternatives for the northern segment. The candidate alternatives were selected from the conceptual alignments that avoided or had minimal impacts on the more significant constraints identified previously.

A field review of the study area was conducted to obtain visual, on-the-ground confirmation that the recommended candidate alternative alignments appear to be feasible locations for a future parkway facility.

The candidate alternatives were presented to the TAC and stakeholders for review and input. Through a break-out group process, aerial photographs showing the study area, conceptual alternatives, and recommended candidate alternatives were discussed and comments from the TAC and stakeholders were placed directly on the aerial photographs.

As a result of this process, it was determined that it would be desirable to develop a fourth alternative for the northern segment that combined some of the more favorable aspects of the three initially recommended alternatives, making optimum use of existing roadways, but avoiding cultural resource and topography constraints near the Old US 80 Bridge. After additional field review was conducted to verify the feasibility/desirability of the fourth alternative, it was determined that the fourth alternative for the northern segment should be included in the candidate alternatives evaluation.

Drawings showing all of the candidate alternatives for the southern and northern corridor segments are respectively shown in **Figure 20** and **Figure 21**. Drawings showing each candidate alternative separately are shown in **Figure 22**, **Figure 23**, and **Figure 24** for the southern segment and in **Figure 25**, **Figure 26**, **Figure 27**, and **Figure 28** for the northern segment. Schematic drawings showing the candidate alternatives at a scale of 1 inch = 1,000 feet are included in *Technical Memorandum No. 4 – Candidate Alternative Alignments and Evaluation* in **Appendix 4**.

2.2.1 Southern Segment Candidate Alternatives

The southern segment candidate alternatives are briefly described as follows:

- *Alternative A* – Generally follows the eastern edge of the Gila River floodplain west of the Old US 80 alignment. This is the most westerly southern alternative and is almost entirely new alignment through agricultural properties;
- *Alternative B* – Generally bisects the land in between Old US 80 and the Gila River floodplain. This alternative is slightly east of Alternative A and the Gila River floodplain. It is predominately on a new alignment through agricultural properties but does make use of portions of Old US 80; and
- *Alternative C* – Generally follows the existing Old US 80 alignment for its entirety.



2.2.2 Northern Segment Candidate Alternatives

The northern segment candidate alternatives are briefly described as follows:

- *Alternative A* – Generally follows the 351st Avenue alignment. This is the most westerly northern alternative and passes through a combination of low density residential developments, State Trust lands, and open desert;
- *Alternative B* – Generally follows the 339th Avenue alignment, providing the most direct connection from I-10 to the Old US 80 Bridge. It passes through a combination of low density residential development, State Trust lands, agricultural lands, and the Gila River floodplain;
- *Alternative C* – Generally follows the Old US 80 and 331st Avenue alignments. It passes through a combination of low density residential development, State Trust lands, and open desert; and
- *Alternative D* – A combination of Alternatives A and B that follows the 351st Avenue alignment on the south and transitions to the 339th Avenue alignment on the north. This alternative passes through a combination of low density residential development, State Trust lands, and open desert.

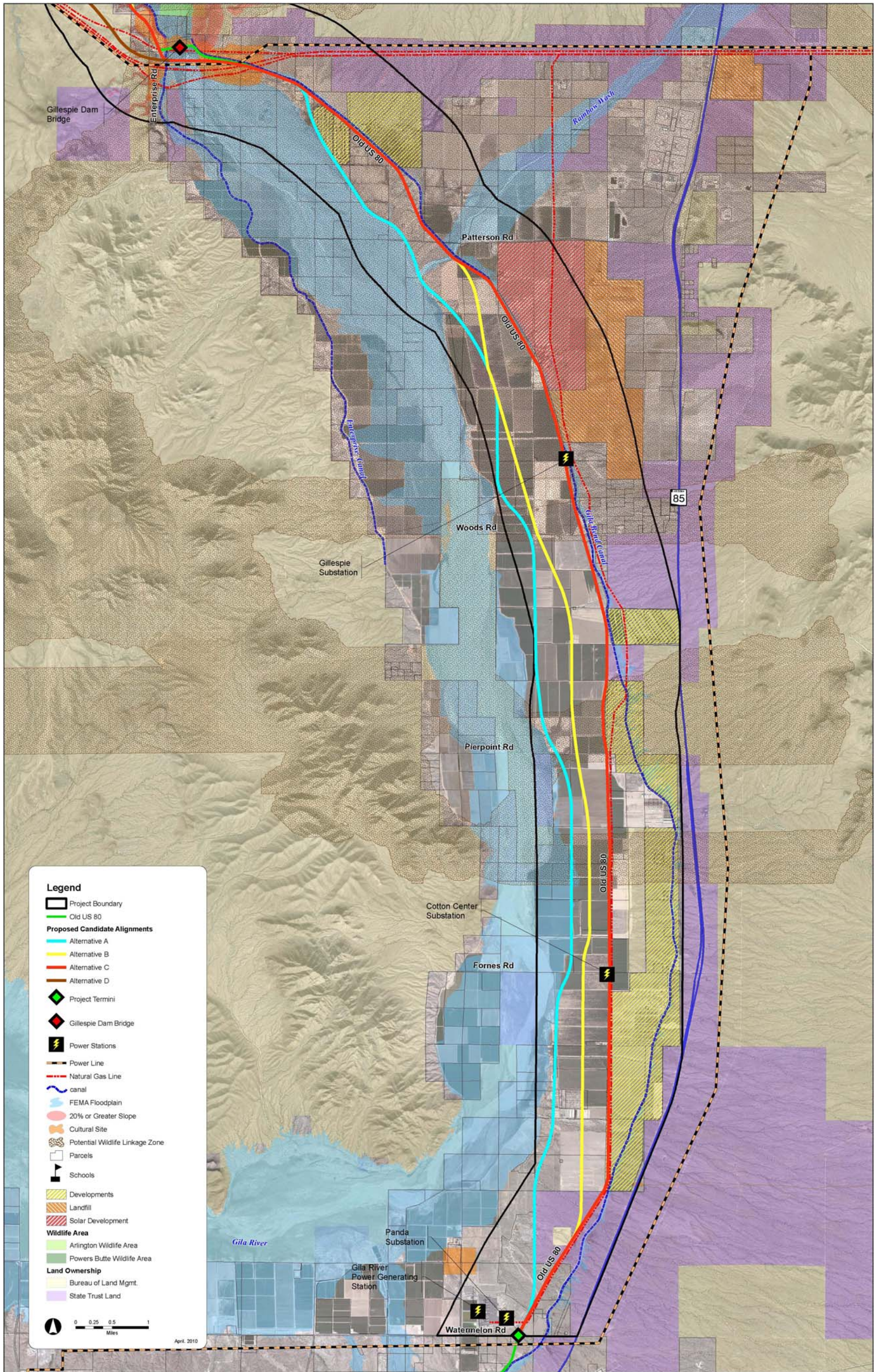


Figure 20 – Candidate Alternatives (South)

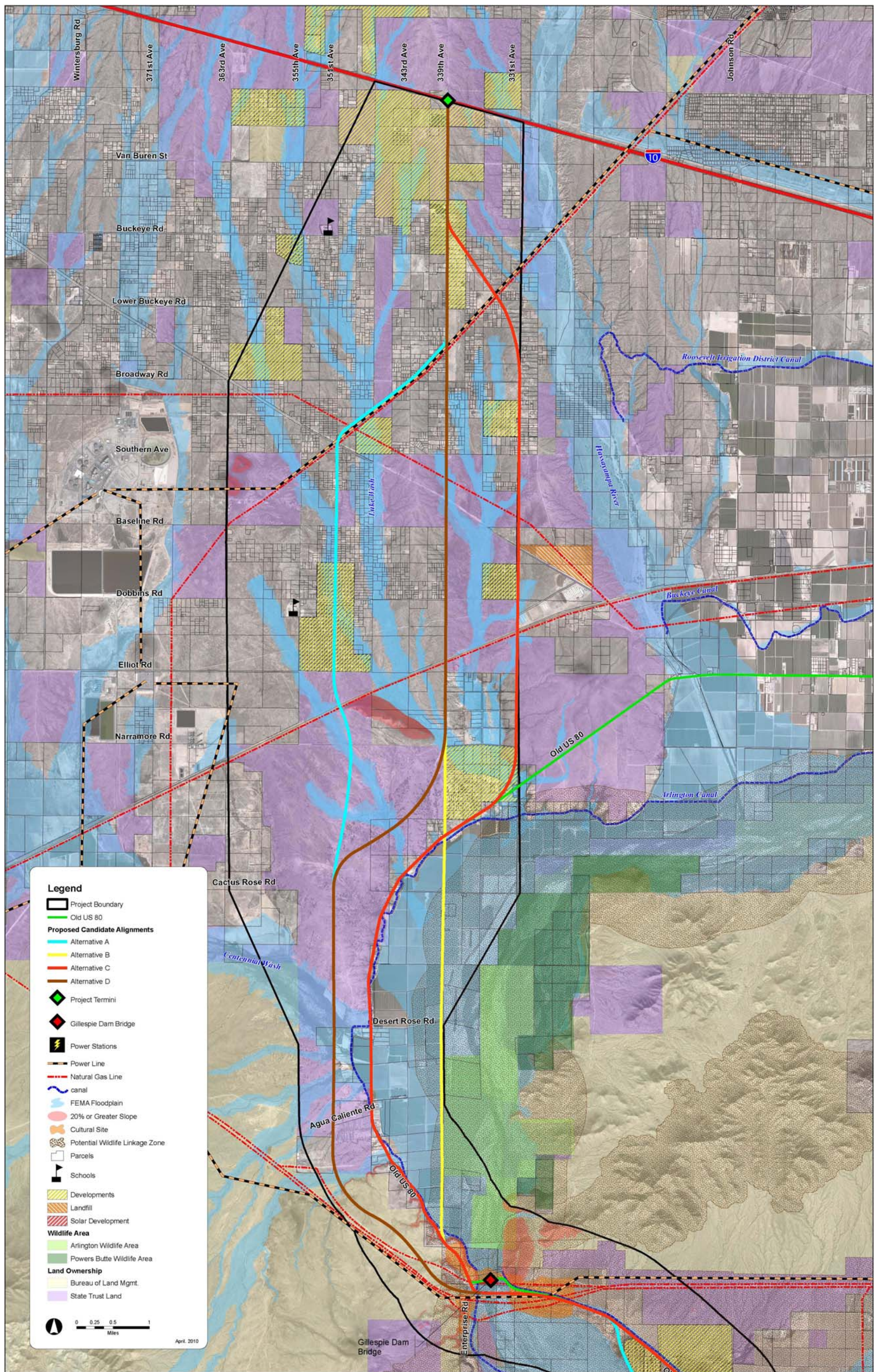


Figure 21 – Candidate Alternatives (North)

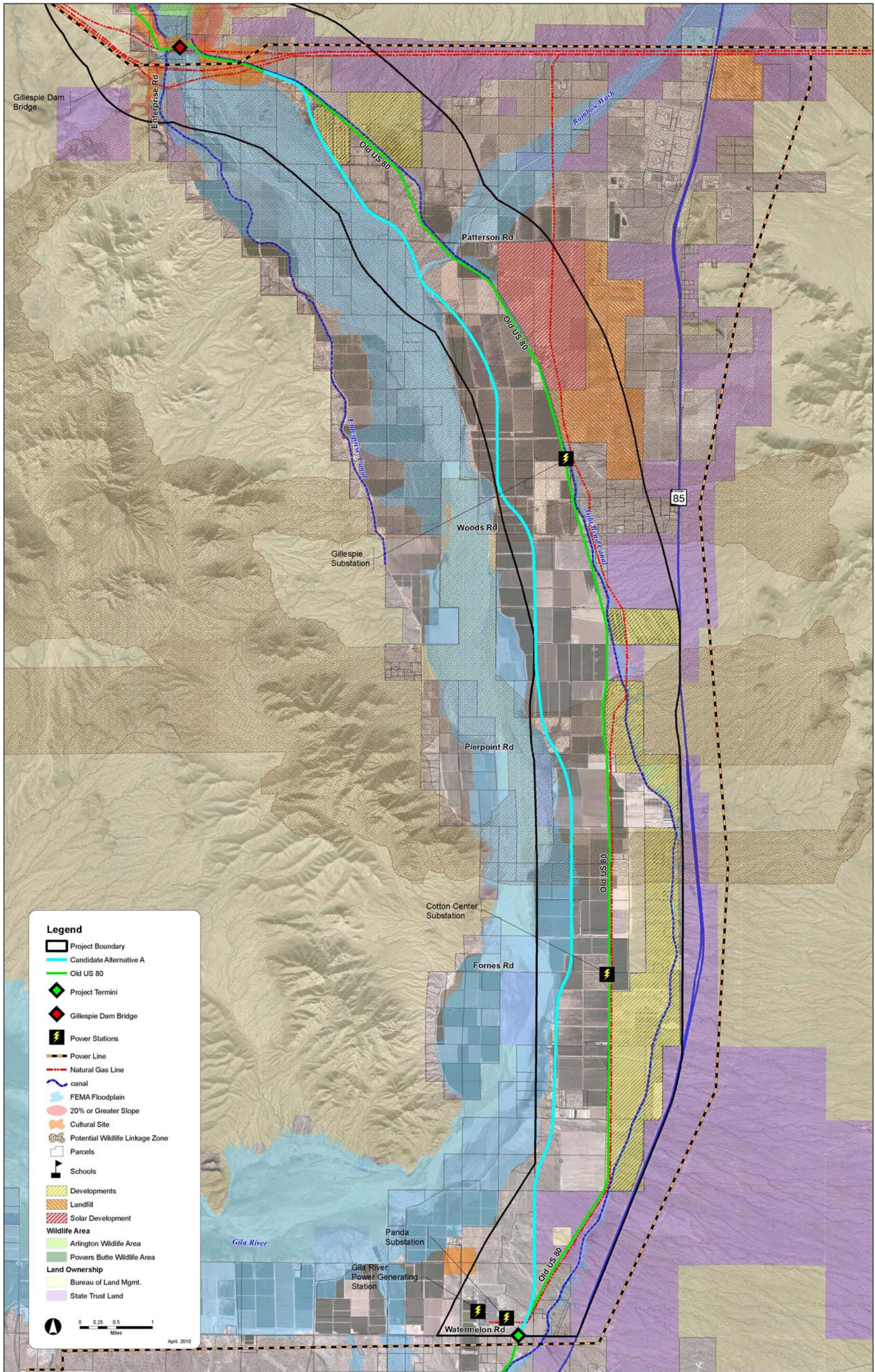


Figure 22 – Candidate Alternative A (South)

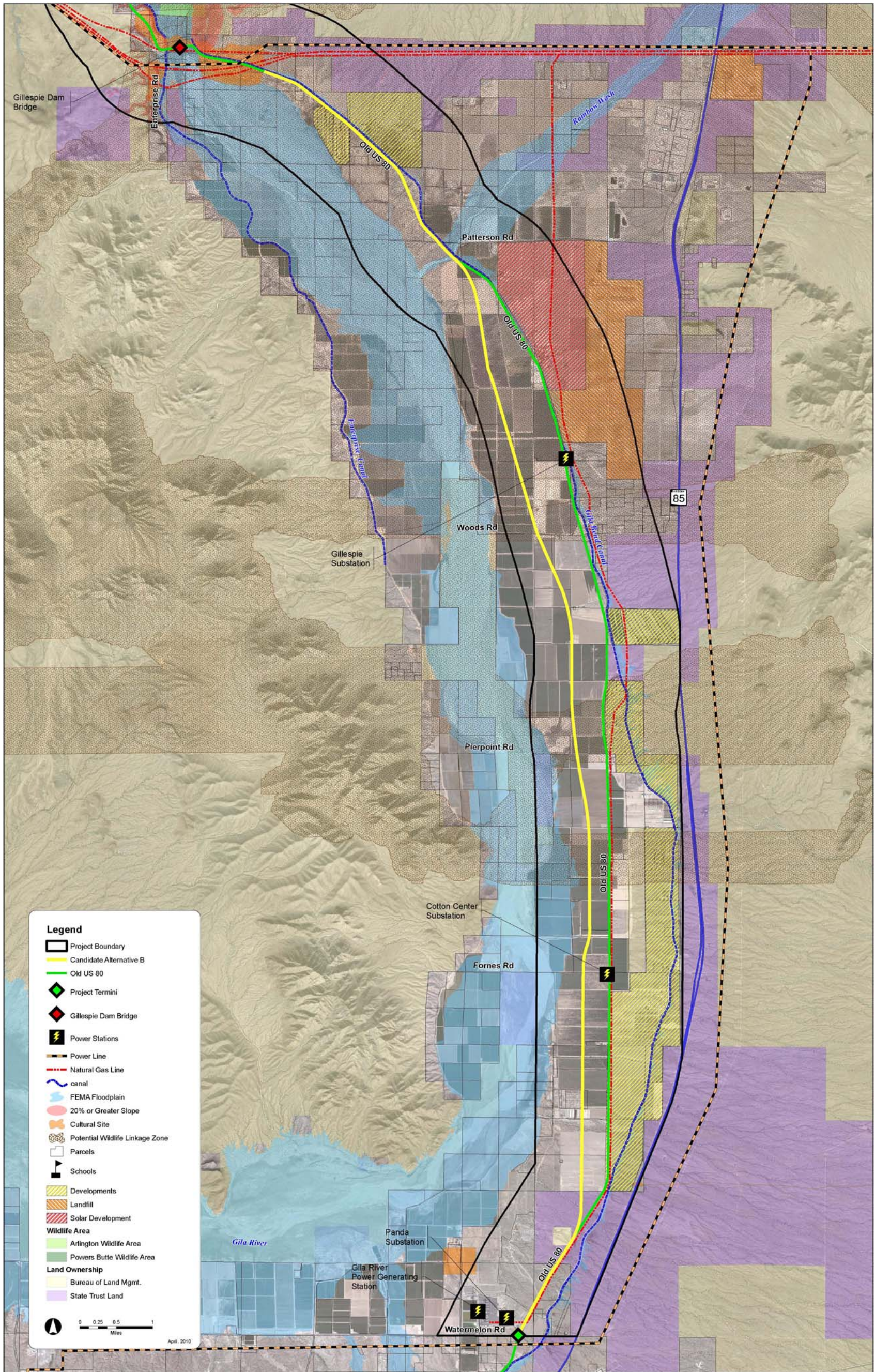


Figure 23 – Candidate Alternative B (South)

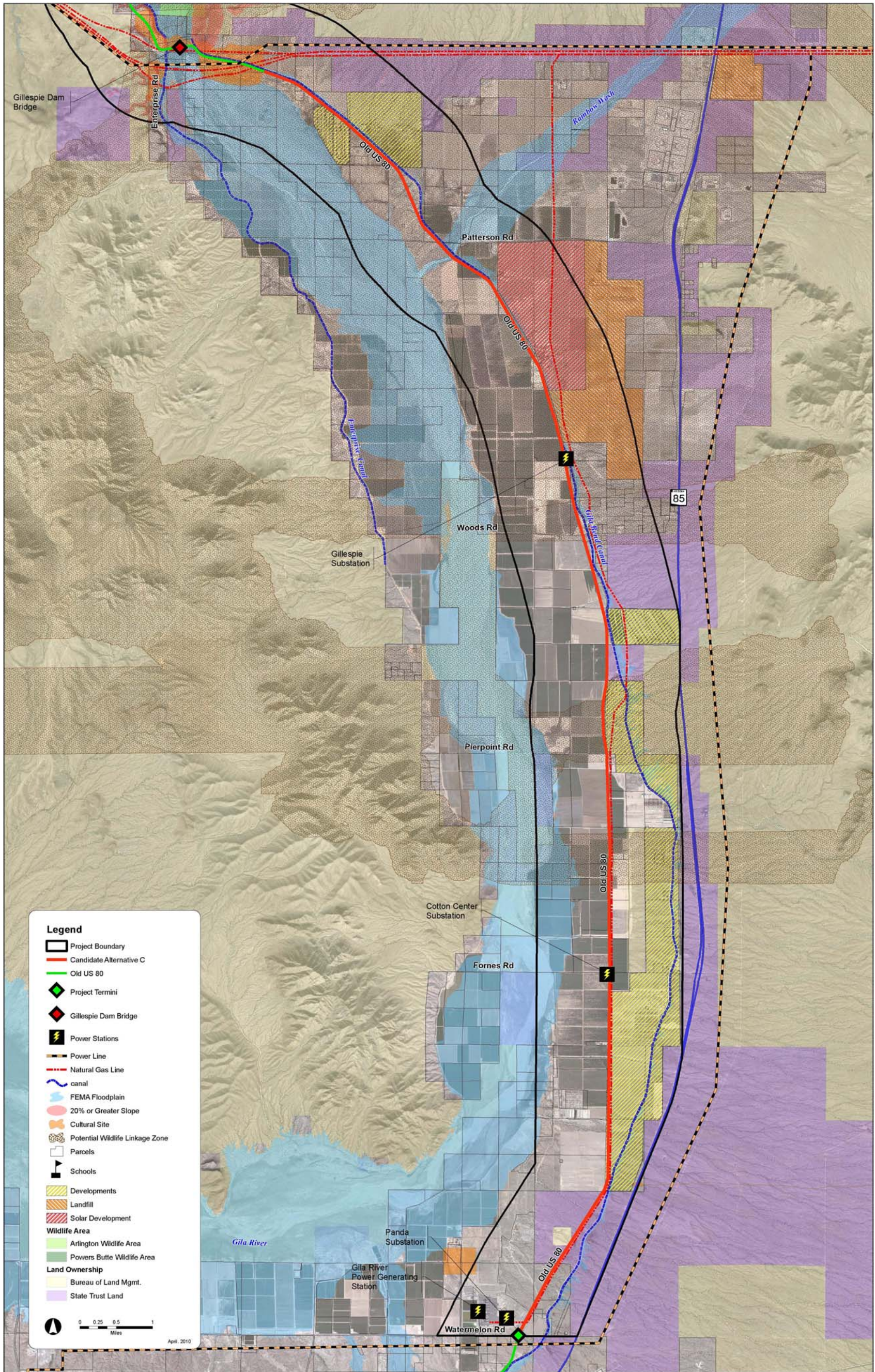


Figure 24 – Candidate Alternative C (South)

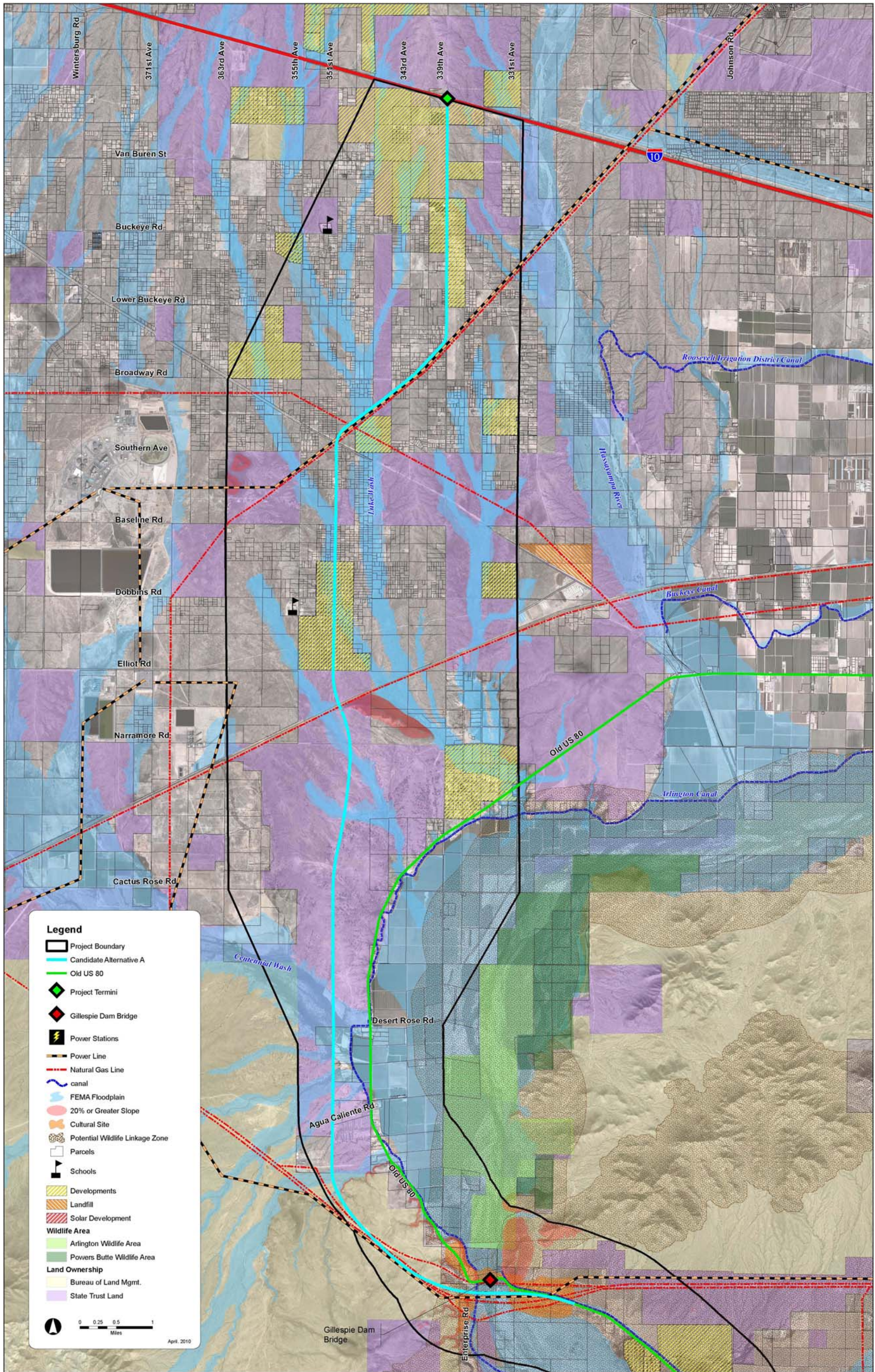


Figure 25 – Candidate Alternative A (North)

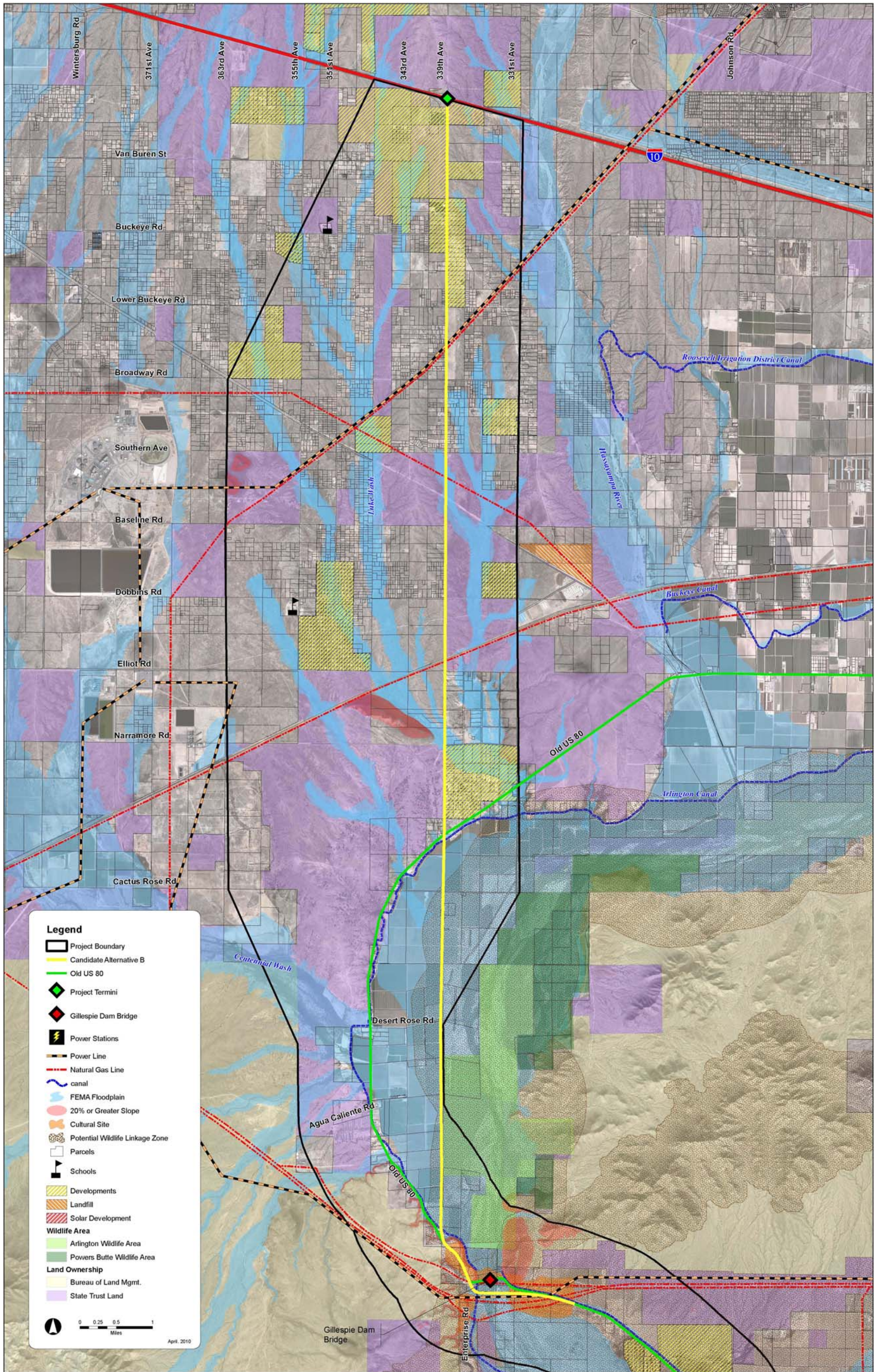


Figure 26 – Candidate Alternative B (North)

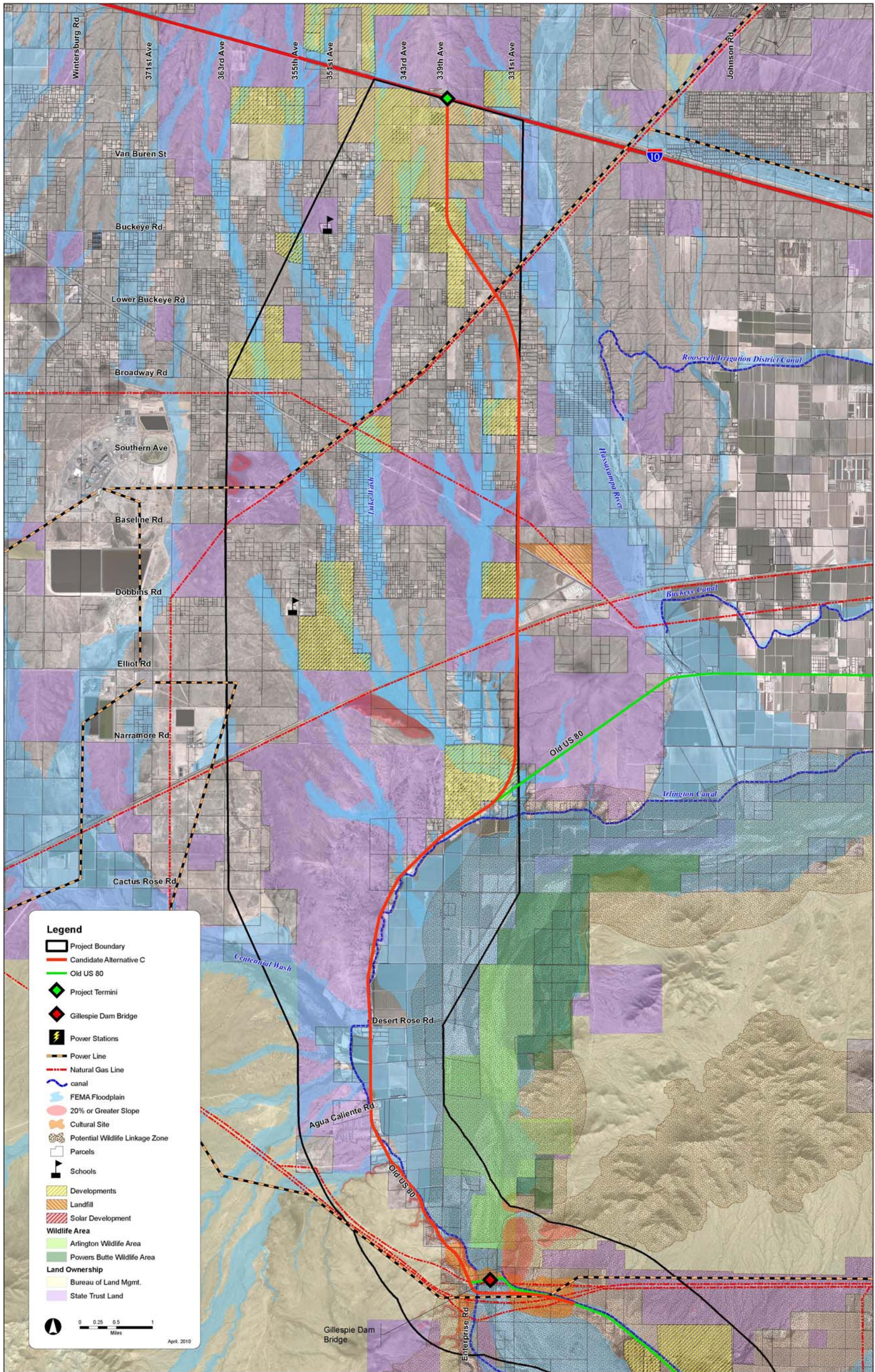


Figure 27 – Candidate Alternative C (North)

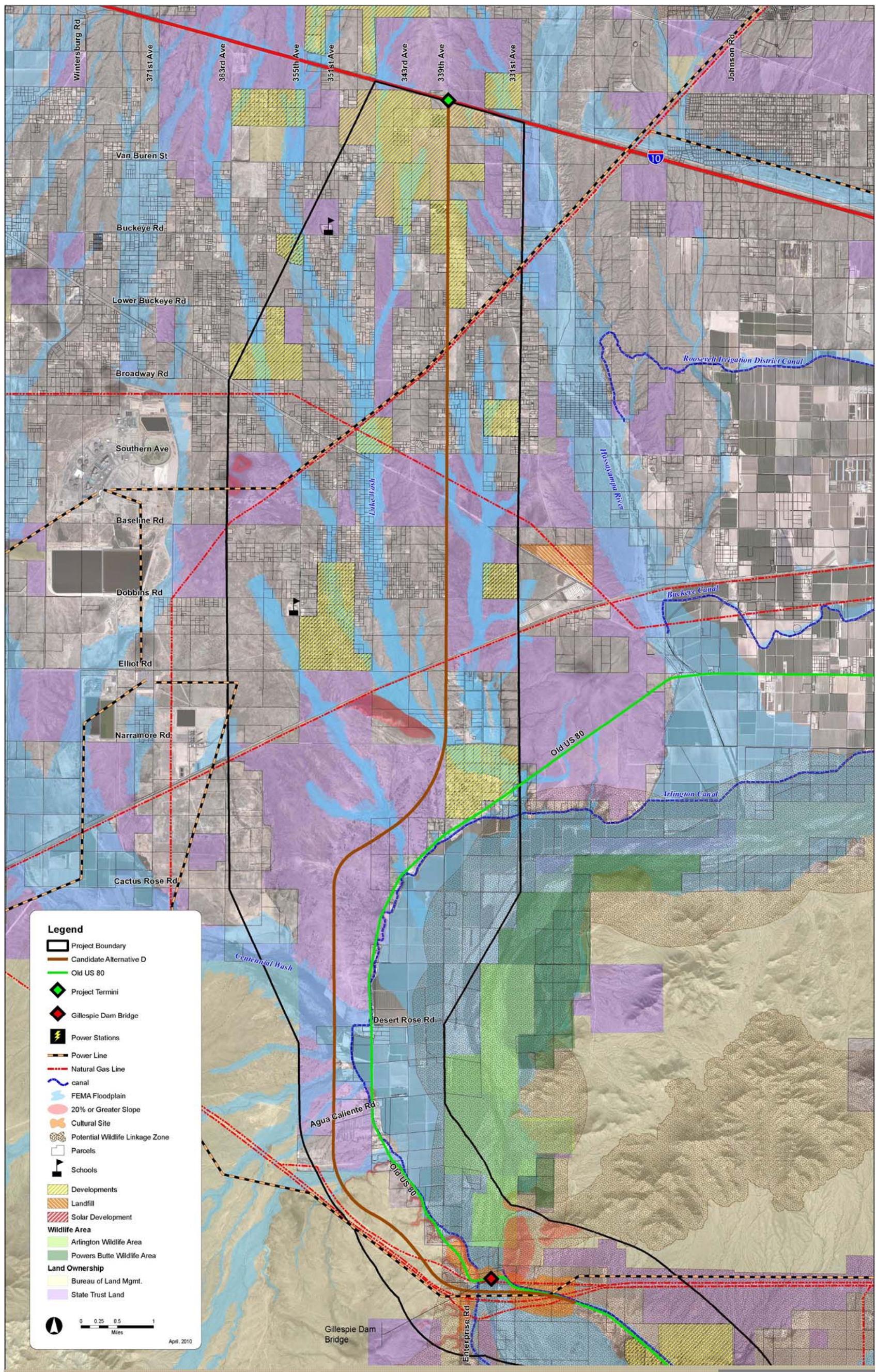


Figure 28 – Candidate Alternative D (North)

2.3 Alternatives Evaluation Criteria

After performing the fatal flaw assessment of the conceptual alternatives and then narrowing the conceptual alternatives to three candidate alternative alignments for the southern segment and four candidate alternatives for the northern segment, the candidate alternatives, along with a “no-build” alternative, were evaluated against a number of criteria. The evaluation criteria included the following:

- *Future Development Compatibility* – This criterion addresses the impacts that each alternative has with respect to planned future development and whether or not the alternative is compatible with the planned development. For example, some planned developments in the corridor already show a 200’-wide footprint for the Hidden Waters Parkway along portions of 339th Avenue while other planned developments are based on a no-build scenario. This criterion does not address the potential benefits of the parkway to future development, only whether or not the future development plan can accommodate the Hidden Waters Parkway;
- *System Continuity and Capacity* – This criterion is a measure of how each alternative contributes to providing a continuous transportation link throughout the length of the corridor with sufficient capacity to serve projected build-out traffic volumes. It also includes consideration of the ability to connect with other existing and planned freeways, parkways, and arterial streets;
- *Irrigation Impacts* – With the large amount of irrigated farm land in the corridor, most alternatives will have some impact on irrigation facilities. In some cases, existing irrigation systems will need to be replaced with new (and more modern) facilities and would derive a benefit from the parkway project. In other cases, irrigation patterns may be negatively impacted, making it more difficult to continue irrigation service;
- *Drainage Impacts* – The Gila River and numerous washes are located in the study area. In most cases, implementing a parkway facility will require new drainage structures, which will typically improve existing drainage patterns;
- *Building/Property Impacts* – There are numerous low density residential properties and agricultural properties that may be adversely impacted by the parkway project. Some buildings may have to be vacated and demolished, and some agricultural properties may be divided into smaller parcels that are less efficient for farming operations. Properties that cannot be acquired through the land development process will need to be acquired at fair market value along with compensation for relocation expenses if warranted;
- *Wildlife Impacts* – There are wildlife habitats and linkage zones within the study area that will experience differing impacts depending on the alternative alignment. Some existing barriers to wildlife movement may be mitigated while other new barriers would be created by a new or widened roadway facility;
- *Cultural/Archaeological Impacts* – Throughout the corridor, there are known cultural and archaeological sites. Some alternatives would have more adverse impacts than others on these resources. This criterion is limited to known cultural and archaeological sites. Further alignment-specific cultural and archaeological analyses will be needed to identify and mitigate unknown resources;
- *Utility Impacts* – Most existing utilities are located adjacent to existing transportation facilities and may need to be relocated in those cases where the parkway will require additional right-of-way;

- *Public Acceptability* – Residents and landowners in the corridor have differing opinions regarding the need and desirability of constructing a new major north-south roadway through the study area. Public input received through the TAC, stakeholder, and open house meetings provides an indication of the general level of support for each alternative; and
- *Cost* – Some alternatives will clearly have greater right-of-way, utility, and drainage costs than others and can be evaluated on a comparative planning-level cost assessment.

2.4 Alternatives Evaluation Conclusions and Recommendations

Most of the evaluation criteria listed in the previous section do not lend themselves to numerical quantification, so the evaluation was performed on a “qualitative” basis using the following descriptors to describe the relative impacts of each alternative:

- Strong advantage;
- Advantage;
- Neutral;
- Disadvantage; and
- Strong disadvantage.

Table 1 provides a narrative description of the issues that pertain to each of the evaluation criteria for each of the southern candidate alternatives and evaluation ratings according to the above descriptors. **Table 2** provides a similar narrative description for each of the northern candidate alternatives. **Table 3** graphically summarizes the overall evaluation of the candidate alternatives.

A visual inspection of **Table 3** without applying any weighting factors to the criteria indicates that for the southern segment, the No-Build Alternative and Alternative C have the most positive ratings (i.e., more Strong advantage and Advantage ratings and/or fewer Strong disadvantage and Disadvantage ratings). For the northern segment, the No-Build Alternative and Alternative D have the most positive ratings.

The evaluation results were discussed with the TAC members and stakeholders and were presented for public input at the third open house. There was general consensus that the evaluation results are reasonable and valid.

For both the southern and northern segments, it was determined that the No-Build Alternative does not address the demonstrated long-term need for a high-capacity parkway facility in the study area (see strong disadvantage indication for System Continuity and Capacity in **Table 1**, **Table 2**, and **Table 3**). As a result, Alternative C for the southern segment and Alternative D for the northern segment were recommended as the preferred alternatives.

Table 1 – Southern Segment Candidate Alternatives Evaluation Matrix

Evaluation Criteria	Alternatives Evaluated			
	No-Build Alternative	Alternative A	Alternative B	Alternative C
Future Development Compatibility	<p>Old US 80 has existed for many years and several developments have been planned for compatibility with Old US 80 as it exists today. Active developments include Sonoran Trails, Lakeside Ski Village, Dos Lagos, Spring Mountain Ski Ranch, Insignia, and the City of Phoenix landfill/solar development site. The No-Build Alternative was assumed during the planning process for these developments.</p> <p><i>Net Effect: Advantage</i></p>	<p>Alternative A is almost entirely on new alignment near the Gila River flood plain and is in close proximity to only one existing development, the Spring Mountain Ski Ranch. This alternative provides an opportunity to more clearly delineate the flood plain and be incorporated into future land development plans as agricultural lands are converted to more intensive uses. Due to the close proximity of Alternative A to the Gila River flood plain, development opportunities adjacent to the parkway would likely be restricted to the east side of the roadway.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative B is on new alignment south of Rainbow Wash and follows the existing Old US 80 alignment north of Rainbow Wash. No developments are currently being planned south of Rainbow Wash and west of Old US 80, so Alternative B could be incorporated into future land development plans in this area. Two developments north of Rainbow Wash, Spring Mountain Ski Ranch and Insignia, do not reflect a parkway facility adjacent to their boundaries and may require additional land dedications or acquisitions.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative C follows the Old US 80 alignment and will require acquisition or dedication of additional right-of-way to accommodate the parkway footprint. It may be possible to shift the centerline to avoid impacts on the Sonoran Trails, Lakeside Ski Village, Dos Lagos, and City of Phoenix landfill/solar developments, but it will likely require additional right-of-way acquisition or dedication from the Spring Mountain Ski Ranch and Insignia developments.</p> <p><i>Net Effect: Disadvantage</i></p>
System Continuity and Capacity	<p>Build-out traffic projections developed by the Maricopa Association of Governments show traffic volumes ranging from 28,000 to 46,000 vehicles per day near the Gillespie Dam Bridge and 44,000 to 84,000 vehicles per day near Gila Bend. These traffic projections exceed the current capacity of Old US 80 and the projections near Gila Bend exceed the capacity of a six-lane major arterial street. In addition, Watermelon Road is envisioned to be an east-west parkway facility carrying build-out traffic volumes in the range of 125,000 to 143,000 vehicles per day, necessitating a parkway-to-parkway interchange in the vicinity of Old US 80. The No-Build Alternative will not adequately serve long-term traffic needs.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative A is the most westerly alternative and offers the advantage of a new parkway facility to serve longer distance travel while maintaining Old US 80 for localized traffic service. The separation from Old US 80 will facilitate good intersection spacing along east/west connecting collector and arterial streets. Alternative A provides continuity with the Watermelon Parkway via a parkway-to-parkway interchange.</p> <p><i>Net Effect: Strong advantage</i></p>	<p>Alternative B offers many of the same advantages as alternative A with the exception of separation from Old US 80. Alternative B is generally ¼ mile to ½ mile closer to Old US 80 south of Rainbow Wash and is coincident with Old US 80 north of Rainbow Wash. Alternative B provides continuity with the Watermelon Parkway via a parkway-to-parkway interchange.</p> <p><i>Net Effect: Advantage</i></p>	<p>Alternative C follows the Old US 80 alignment. Upgrading Old US 80 to a Parkway will accommodate the build-out traffic projections and provide continuity with the Watermelon parkway via a parkway-to-parkway interchange.</p> <p><i>Net Effect: Advantage</i></p>
Irrigation Impacts	<p>The No-Build Alternative will not cause any improvement or degradation to existing irrigation systems or operations.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A is almost entirely on new alignment, passing through irrigated farm land for most of its length. Numerous parcels will be bisected, some of them diagonally, resulting in the need to rebuild and reconfigure irrigation systems and re-grade some farm fields. It may be possible to shift the centerline to the west, parallel to the floodplain, to reduce irrigation impacts.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>South of Rainbow Wash, Alternative B is entirely on new alignment, passing through irrigated farm land for most of its length. Numerous parcels will be bisected, some of them diagonally, resulting in the need to rebuild and reconfigure irrigation systems and re-grade some farm fields. North of Rainbow Wash, Alternative B follows the Old US 80 alignment, but there are limited irrigation facilities in this area.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative C follows the Old US 80 alignment. The wider parkway footprint along Old US 80 will require relocating, rebuilding and upgrading some of the irrigation pumping systems near the roadway, but it should not significantly alter irrigation patterns. With upgraded irrigation and drainage facilities, Alternative C will result in positive long-term irrigation impacts.</p> <p><i>Net Effect: Advantage</i></p>
Drainage Impacts	<p>The No-Build Alternative will not cause any improvement or degradation to existing drainage patterns or facilities.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A follows much of the Gila River flood plain and as such offers significant opportunities to more clearly delineate the floodplain boundaries and improve overall drainage capabilities in the area. This alternative would likely require a significant drainage structure where it crosses the Rainbow Wash, offering improved all-weather access at this crossing.</p> <p><i>Net Effect: Strong advantage</i></p>	<p>Alternative B is located further away from the Gila River floodplain and would have limited benefit in terms of better delineation of the floodplain. This alternative would likely require a significant drainage structure where it crosses the Rainbow Wash, offering improved all-weather access at this crossing.</p> <p><i>Net Effect: Advantage</i></p>	<p>The Old US 80 alignment has numerous dip crossings and substandard culverts that are subject to flooding, erosion, and sedimentation. Alternative C would provide upgraded drainage structures to meet current drainage design requirements, improving both all-weather vehicular access and land development potential.</p> <p><i>Net Effect: Strong advantage</i></p>

Table 1 – Southern Segment Candidate Alternatives Evaluation Matrix (continued)

Evaluation Criteria	Alternatives Evaluated			
	No-Build Alternative	Alternative A	Alternative B	Alternative C
Building/Property Impacts	<p>The No-Build Alternative will not have any positive or negative impacts on buildings or properties.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A is almost entirely on new alignment. It will be possible to avoid most buildings along this alignment, but numerous parcels will be bisected, some of them diagonally, creating some odd-shaped parcels that may be difficult to farm or develop. There may be some impacts to existing residential properties in the Spring Mountain Ski Ranch development.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>South of Rainbow Wash, Alternative B is on new alignment, and it will be possible to avoid most existing buildings. As with Alternative A, numerous parcels will be bisected, some of them diagonally, creating some odd-shaped parcels that may be difficult to farm or develop. North of Rainbow Wash, there may be some impacts to existing buildings or property improvements, particularly in the vicinity of the Spring Mountain Ski Ranch.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>There are some existing farm houses and agricultural buildings along Old US 80 and some improvements in the Spring Mountain Ski Ranch that may be impacted by Alternative C, depending on the final roadway centerline. The Old US 80 right-of-way already establishes property boundaries for parcels that are generally fairly large, and the wider parkway footprint will not significantly impact the shape or function of these properties.</p> <p><i>Net Effect: Disadvantage</i></p>
Wildlife Impacts	<p>Much of Old US 80 lies within the PLZ 73 and Gila Bend-Sierra Estrella wildlife linkage zones. Wildlife-vehicle conflicts are currently common occurrences. Old US 80 does not currently provide wildlife crossing treatments.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Much of Alternative A lies within the PLZ 73 and Gila Bend-Sierra Estrella wildlife linkage zones. Alternative A would create an additional barrier besides Old US 80 to wildlife crossings, but this could be mitigated to some degree by incorporating wildlife crossing structures into the new roadway design at locations such as Rainbow Wash.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Much of Alternative B lies within the PLZ 73 and Gila Bend-Sierra Estrella wildlife linkage zones. Alternative B would create an additional barrier besides Old US 80 to wildlife crossings, but this could be mitigated to some degree by incorporating wildlife crossing structures into the new roadway design. At Rainbow Wash, the existing Old US 80 culvert would be replaced with a major new drainage structure that would better accommodate wildlife movement.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative C will result in a wider parkway footprint along the existing Old US 80 alignment but would not create an additional barrier. The crossing distance for wildlife would get larger, but this could be mitigated to some degree by incorporating wildlife crossing structures into the new roadway design. At Rainbow Wash, the existing Old US 80 culvert would be replaced with a major new drainage structure that would better accommodate wildlife movement.</p> <p><i>Net Effect: Neutral</i></p>
Cultural/Archaeological Impacts	<p>The No-Build Alternative will not have any positive or negative impacts on cultural or archaeological resources.</p> <p><i>Net Effect: Neutral</i></p>	<p>The only anticipated area of cultural or archaeological impacts is just south and east of the Old US 80 Bridge, where Alternative A follows the Old US 80 alignment to a planned new Gila River crossing south of the Old US 80 Bridge. It is likely that any roadway improvements outside the existing Old US 80 right-of-way limits would have a negative impact on these cultural and archaeological resources.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>The only anticipated area of cultural or archaeological impacts is just south and east of the Old US 80 Bridge, where Alternative B follows the Old US 80 alignment to a planned new Gila River crossing south of the Old US 80 Bridge. It is likely that any roadway improvements outside the existing Old US 80 right-of-way limits would have a negative impact on these cultural and archaeological resources.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>The only anticipated area of cultural or archaeological impacts is just south and east of the Old US 80 Bridge, where Alternative C follows the Old US 80 alignment to a planned new Gila River crossing south of the Old US 80 Bridge. It is likely that any roadway improvements outside the existing Old US 80 right-of-way limits would have a negative impact on these cultural and archaeological resources.</p> <p><i>Net Effect: Disadvantage</i></p>
Utility Impacts	<p>The No-Build Alternative will have no impact on existing or planned utilities.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A is on an entirely new alignment and will require some relocation of existing electrical facilities and wells.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative B is a combination of new alignment and replacement of Old US 80 with a parkway facility. South of Rainbow Wash, Alternative B will have impacts on existing electrical facilities and wells that are similar to Alternative A. North of Rainbow Wash, there are 69 kV power lines and wells adjacent to Old US 80 that may require relocation, depending on the final centerline location.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative C follows the existing Old US 80 alignment for its entire length, except for the area immediately south of Gillespie Dam Bridge. There are 69kV power lines, agricultural wells, and the Gila Bend Canal in close proximity to Old US 80 that may require relocation, depending on the final centerline location.</p> <p><i>Net Effect: Strong disadvantage</i></p>

Table 1 – Southern Segment Candidate Alternatives Evaluation Matrix (continued)

Evaluation Criteria	Alternatives Evaluated			
	<i>No-Build Alternative</i>	<i>Alternative A</i>	<i>Alternative B</i>	<i>Alternative C</i>
Public Acceptability	<p>Based on the input received from three TAC/stakeholder meetings and three public open houses, there is significant support for the No-Build Alternative. Many of the agricultural stakeholders do not want to have their farming practices disrupted with modified parcel shapes and sizes, revised irrigation systems, and access restrictions that would interfere with moving farm equipment throughout the corridor. There is, however, recognition of the need to start the process now to identify centerlines and footprints for future roadways and plan future land developments in accordance with the long-range roadway needs.</p> <p><i>Net Effect: Advantage</i></p>	<p>Some agricultural stakeholders support Alternative A due to its close proximity to the Gila River flood plain and the prospect of a clearer delineation of the flood plain limits. Most other stakeholders, however, did not support Alternative A. This alternative will require the most acquisition of new right-of-way.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Very little support has been provided by stakeholders for Alternative B. Alternative B would bisect a significant number of agricultural parcels without the Alternative A benefits associated with more clearly delineating the Gila River flood plain.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Next to the No-Build Alternative, Alternative C has received the most stakeholder and public support because this alternative is an upgrade to an existing roadway. Alternative C will not have a significant impact on existing parcel shapes and sizes or on current farming operations, and will provide a long-term north-south alternative to SR 85.</p> <p><i>Net Effect: Neutral</i></p>
Cost	<p>The No-Build Alternative will only require continued on-going maintenance costs.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A will require the most acquisition of new right-of-way and the highest construction cost for flood protection due to its close proximity to the Gila River.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative B will require nearly as much new right-of-way acquisition as Alternative A. Construction costs for flood protection will be somewhat lower than Alternative A due to its distance from the Gila River.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative C will have the lowest right-of way acquisition cost because nearly half of the required right-of-way is already owned by Maricopa County. Alternative C will likely have the highest utility relocation cost due to the extent of power lines, irrigation facilities, and wells that are in close proximity to Old US 80.</p> <p><i>Net Effect: Disadvantage</i></p>

Table 2 – Northern Segment Candidate Alternatives Evaluation Matrix

Evaluation Criteria	Alternatives Evaluated				
	<i>No-Build Alternative</i>	<i>Alternative A</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>Alternative D</i>
Future Development Compatibility	<p>There are numerous low-density residential properties along 339th Avenue between I-10 and Dobbins Road and in the Arlington area with limited new development potential. The most recent planned development along 339th Avenue south of I-10, Hidden Waters Ranch, has designated 339th Avenue as a parkway showing a planned dedication of 200' of right-of-way. Other planned developments have not incorporated the parkway concept.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A would bisect the Phoenix Valley West 1 development and would be in close proximity to the western corner of the Verma Estates Development. It would also bisect a large State Lands parcel, but this could benefit long-term development potential for this parcel.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative B follows the 339th Avenue alignment from I-10 to just north of Gillespie Dam. 339th Avenue is a one-mile section line rural minor arterial road that has an existing interchange with I-10. The rural minor arterial designation indicates that 339th Avenue could ultimately be widened to rural minor arterial standards. There are numerous low-density residential properties along 339th Avenue between I-10 and Dobbins Road and in the Arlington area with limited new development potential. The Hidden Waters Ranch master plan designates 339th Avenue as a parkway. The Arlington Farms development does not include the parkway concept.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative C shifts to the east to follow the 331st Avenue. It would diagonally bisect the Butterfield Stage Coach development and would have some impact on Dixie Park, Hickman's Egg Ranch, Phoenix Valley West 2, and the Arlington Farms development. 331st Avenue is a one-mile section line rural minor arterial road that has no existing or planned interchange with I-10. The rural minor arterial designation indicates that 331st Avenue could ultimately be widened to rural minor arterial standards. South of Old US 80, Alternative C passes through the Gila River flood plain where there are currently no planned developments.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Similar to Alternative B, Alternative D follows the 339th Avenue alignment between I-10 and Arlington and would have the same impacts as Alternative B north of Arlington. At Arlington, this alternative shifts to the west, passing through a large State Lands parcel. The westerly shift reduces impacts on Arlington and may improve long-term development potential for the State Lands parcel.</p> <p><i>Net Effect: Advantage</i></p>
System Continuity and Capacity	<p>There is currently no continuous north-south connection in the study area between I-10 and the Old US 80 Bridge. Build-out traffic projections developed by the Maricopa Association of Governments show traffic volumes ranging from 29,000 to 57,000 vehicles per day between the Gillespie Dam Bridge and Elliot Road and from 57,000 to 85,000 vehicles per day between Elliot Road and I-10. These traffic projections exceed the capacity of a six-lane major arterial street. Also, there are a number of planned freeways and parkways that would connect with the Hidden Waters Parkway, including the Hassayampa Freeway, Yuma Parkway, Southern Avenue Parkway, and the SR 801 Parkway. As a result, the No-Build Alternative will not adequately serve long-term traffic needs.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative A is predominately on new alignment, providing the highest level of additional roadway capacity and flexibility for connecting with the planned future freeway and parkway facilities. Alternative A also provides the best roadway geometry for connecting with a new Gila River crossing south of the Old US 80 Bridge.</p> <p><i>Net Effect: Strong advantage</i></p>	<p>By following the 339th Avenue Alignment, Alternative B provides the most direct north-south connection from I-10 to the Gillespie Dam. However, the roadway geometry for connecting to the new Gila River crossing south of the Old US 80 Bridge will likely require a reduced design speed and a reduced cross-section through the plateau/ridge line area north of the dam due to the close proximity of the slopes and ridges on the eastern edge of the plateau area.</p> <p><i>Net Effect: Advantage</i></p>	<p>Alternative C shifts to the east to follow the 331st Avenue Alignment between I-10 and Old US 80, and then follows Old US 80 to the Old US 80 Bridge. This alternative is less direct than Alternative B and will have the same roadway geometry challenges in connecting to the new Gila River crossing south of the Old US 80 Bridge along with the challenges associated with close proximity to the Arlington Canal.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative D provides the most direct north-south continuity between I-10 and the Arlington area. At Arlington, Alternative D transitions to the west to provide a new roadway that generally parallels Old US 80. As with Alternative A, this Alternative provides the best roadway geometry for connecting with a new Gila River crossing south of the Old US 80 Bridge.</p> <p><i>Net Effect: Strong advantage</i></p>
Irrigation Impacts	<p>The No-Build Alternative will not cause any improvement or degradation to existing irrigation systems or operations.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A does not impact any irrigated agricultural lands.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative B would bisect a number of irrigated agricultural properties in the Gila River flood plain, resulting in the need to rebuild and reconfigure irrigation systems and re-grade some farm fields.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>South of Arlington, Alternative C follows the Old US 80 alignment. The wider parkway footprint on the Old US 80 alignment will require relocating, rebuilding and upgrading some of the irrigation systems near the roadway, but it should not significantly alter irrigation patterns.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative D does not impact any irrigated agricultural lands.</p> <p><i>Net Effect: Neutral</i></p>

Table 2 – Northern Segment Candidate Alternatives Evaluation Matrix (continued)

Evaluation Criteria	Alternatives Evaluated				
	No-Build Alternative	Alternative A	Alternative B	Alternative C	Alternative D
Drainage Impacts	<p>The No-Build Alternative will not cause any improvement or degradation to existing drainage patterns or facilities.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A would provide a number of new all-weather drainage structures to cross Luke Wash, Centennial Wash, and several other drainage ways. These new structures will provide an alternative to existing roadways that now occasionally experience flooding, erosion, and sedimentation. Significant channelization may be required for the Centennial Wash crossing(s).</p> <p><i>Net Effect: Advantage</i></p>	<p>339th Avenue has several dip crossings that are subject to flooding, erosion, and sedimentation. Alternative B would provide a number of upgraded and new all-weather drainage structures to cross Luke Wash, Centennial Wash, and several other drainage ways along 339th Avenue. Significant channelization may be required for the Centennial Wash crossing(s). South of Old US 80, Alternative B is located in the Gila River flood plain, requiring significant flood protection measures, channelization, and bridge structures.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>331st Avenue and Old US 80 now occasionally experience flooding, erosion, and sedimentation. Alternative C would provide a number of upgraded and new all-weather drainage structures to cross Luke Wash, Centennial Wash, and several other drainage ways along 331st Avenue and Old US 80. Significant channelization may be required for the Centennial Wash crossing(s). Alternative C also benefits from the flood protection provided by the Arlington Canal on the east side of Old US 80.</p> <p><i>Net Effect: Advantage</i></p>	<p>Alternative D would provide a number of upgraded and new all-weather drainage structures to cross Luke Wash, Centennial Wash, and several other drainage ways along 339th Avenue south of I-10 to Arlington. These new structures will provide an alternative to existing roadways that now experience flooding, erosion, and sedimentation. Significant channelization may be required for the Centennial Wash crossing(s).</p> <p><i>Net Effect: Advantage</i></p>
Building/Property Impacts	<p>The No-Build Alternative will not have any positive or negative impacts on buildings or properties.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A would impact a fairly large number of low density residential properties between I-10 and Elliot Road. South of Elliot Road, Alternative A bisects a large State Lands parcel.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative B would impact some low density residential properties between I-10 and Old US 80 and would bisect some agricultural properties south of Old US 80.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative C would impact some low density residential properties between I-10 and Old US 80 at Arlington. South of Arlington, the Old US 80 right-of way already establishes property boundaries for parcels that are generally fairly large. The wider parkway foot print will not significantly impact the shape or function of these properties, but it will impact some existing structures.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative D would impact some low density residential properties along 339th Avenue between I-10 and Arlington and would bisect a large State Lands parcel.</p> <p><i>Net Effect: Disadvantage</i></p>
Wildlife Impacts	<p>A portion of Old US 80 near the Old US 80 Bridge passes through wildlife linkage zone PLZ 73. Wildlife-vehicle conflicts are currently common occurrences. Old US 80 does not currently provide wildlife crossing treatments. As part of the Old US 80 Bridge rehabilitation project, a new low-flow crossing is planned to be built south of the existing bridge. This new low-flow crossing will create an additional barrier to wildlife crossings, making it more difficult for wildlife to safely cross Old US 80.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>A small portion of Alternative A near the Old US 80 Bridge passes through wildlife linkage zone PLZ 73. The new segments of Alternative A within the wildlife linkage zone would create an additional barrier to wildlife crossings, but this could be mitigated by incorporating wildlife crossing structures into the new roadway design. Alternative A would replace the currently planned new low-flow crossing with a new bridge structure that would better accommodate wildlife movement.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative B passes through portions of wildlife linkage zones PLZ 73 and PLZ 151. In addition, Alternative B is in close proximity to the Arlington and Powers Butte Wildlife Areas. The new segments of Alternative B within the wildlife linkage zones would create an additional barrier to wildlife crossings – particularly between the Wildlife Areas and the adjacent agricultural fields where wildlife often forages – but this could be partially mitigated by incorporating wildlife crossing structures into the new roadway design. Alternative B would replace the currently planned new low-flow crossing with a new bridge structure that would better accommodate wildlife movement.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>A small portion of Alternative C near the Old US 80 Bridge passes through wildlife linkage zone PLZ 73. The widened cross-section of Old US 80 within the wildlife linkage zone would create a larger barrier to wildlife crossings, but this could be mitigated by incorporating wildlife crossing structures into the new roadway design. Alternative C would replace the currently planned new low-flow crossing with a new bridge structure that would better accommodate wildlife movement.</p> <p><i>Net Effect: Advantage</i></p>	<p>A small portion of Alternative D near the Old US 80 Bridge passes through wildlife linkage zone PLZ 73. The new segments of Alternative D within the wildlife linkage zone would create an additional barrier to wildlife crossings, but this could be mitigated by incorporating wildlife crossing structures into the new roadway design. Alternative D would replace the currently planned new low-flow crossing with a new bridge structure that would better accommodate wildlife movement.</p> <p><i>Net Effect: Neutral</i></p>

Table 2 – Northern Segment Candidate Alternatives Evaluation Matrix (continued)

Evaluation Criteria	Alternatives Evaluated				
	No-Build Alternative	Alternative A	Alternative B	Alternative C	Alternative D
Cultural/Archaeological Impacts	<p>The No-Build Alternative will not have any positive or negative impacts on cultural or archaeological resources.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A would have fewer impacts on known cultural and archaeological resources near the Old US 80 Bridge than Alternative B or Alternative C because it follows a previously disturbed utility corridor west of Old US 80.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative B follows the Old US 80 alignment through known cultural and archaeological sites near the Old US 80 Bridge. The wider parkway footprint for Old US 80 is expected to have a significant impact on known cultural and archaeological resources in this area.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative C follows the Old US 80 alignment through known cultural and archaeological sites near the Old US 80 Bridge. The wider parkway footprint for Old US 80 is expected to have a significant impact on known cultural and archaeological resources in this area.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative D would have fewer impacts on known cultural and archaeological resources near the Old US 80 Bridge than Alternative B or Alternative C because it follows a previously disturbed utility corridor west of Old US 80.</p> <p><i>Net Effect: Disadvantage</i></p>
Utility Impacts	<p>The No-Build Alternative will have no impact on existing or planned utilities.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A is intended to be compatible with existing power and gas utility corridors on the north and south ends of the northern segment. It is anticipated that some minor utility and well relocations will be required through the existing low density residential areas between I-10 and Elliot Road.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative B will likely require significant relocation of existing power lines along 339th Avenue and well relocations in the Gila River flood plain.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>It is anticipated that Alternative C will require significant relocation of existing power lines along 339th Avenue, 331st Avenue, and Old US 80.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>It is anticipated that Alternative D will require significant relocation of power lines along 339th Avenue, but there should not be any significant utility impacts south of Arlington.</p> <p><i>Net Effect: Disadvantage</i></p>
Public Acceptability	<p>Based on the input received from three TAC/stakeholder meetings and three public open houses, there is significant support for the No-Build Alternative. Many of the low-density residential and agricultural stakeholders do not want any changes to their current environment. There is, however, recognition of the need to start the process now to identify centerlines and footprints for future roadways and plan future land developments in accordance with the long-range roadway needs.</p> <p><i>Net Effect: Advantage</i></p>	<p>Due to the number of low-density residential properties between I-10 and Elliot Road that would be impacted by the parkway, some residents and landowners have opposed Alternative A. Wildlife, cultural and archaeological stakeholders have supported the southern portion of Alternative A because it minimizes adverse impacts on wildlife, cultural, and archaeological resources near the Old US 80 Bridge.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Due to the number of low-density residential properties along 339th Avenue between I-10 and Arlington along with the large number of irrigated farm lands in the Gila River floodplain that would be bisected by the parkway, some residents and landowners have opposed Alternative B. Wildlife, cultural, and archaeological stakeholders have opposed Alternative B because of its adverse impacts on wildlife, cultural, and archaeological resources near the Old US 80 Bridge.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Due to the number of low-density residential properties along 339th Avenue and 331st Avenue between I-10 and Arlington that would be impacted by the parkway, some residents and landowners have opposed Alternative C. Wildlife, cultural, and archaeological stakeholders have opposed Alternative C because of its adverse impacts on wildlife, cultural, and archaeological resources near the Old US 80 Bridge.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Due to the number of low-density residential properties along 339th Avenue between I-10 and Arlington that would be impacted by the parkway, some residents and landowners have opposed Alternative D. This opposition is offset to some degree by the fact that wildlife, cultural and archaeological stakeholders have supported Alternative D because it minimizes adverse impacts on wildlife, cultural, and archaeological resources near the Old US 80 Bridge.</p> <p><i>Net Effect: Neutral</i></p>
Cost	<p>The No-Build Alternative will only require continued on-going maintenance costs.</p> <p><i>Net Effect: Neutral</i></p>	<p>Alternative A will have a substantial right-of-way cost since it is predominately a new alignment and it passes through numerous developed residential areas. This alternative also has multiple new wash crossings that will be expensive to construct.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative B has the advantage of using substantial existing right-of-way along the 339th Avenue alignment. It is expected that the cost of constructing a new parkway through the Gila River flood plain and the potential need for archaeological recovery near the Old US 80 Bridge would add significantly to the project construction cost. This alternative also has multiple new wash crossings that will be expensive to construct.</p> <p><i>Net Effect: Strong disadvantage</i></p>	<p>Alternative C passes through fairly large areas of undeveloped State Lands and would make substantial use of the existing Old US 80 right-of-way south of Arlington. This alternative would likely require the lowest cost for drainage improvements, but it could require archaeological recovery near the Old US 80 Bridge. This alternative also has multiple upgrades to existing wash crossings that will be expensive to construct.</p> <p><i>Net Effect: Disadvantage</i></p>	<p>Alternative D passes through fairly large areas of undeveloped State Lands and would make substantial use of existing right-of-way along the 339th Avenue alignment. This alternative also has multiple new wash crossings that will be expensive to construct.</p> <p><i>Net Effect: Disadvantage</i></p>

Table 3 – Candidate Alternatives Evaluation Matrix Summary

Evaluation Criteria	Southern Segment Candidate Alternatives				Northern Segment Candidate Alternatives				
	No-Build	Alt. A	Alt. B	Alt. C	No-Build	Alt. A	Alt. B	Alt. C	Alt. D
Future Development Compatibility	○	○	○	●	○	○	○	●	●
System Continuity and Capacity	●	●	●	●	●	●	●	○	●
Irrigation Impacts	○	●	●	●	○	○	●	○	○
Drainage Impacts	○	●	●	●	○	●	●	●	●
Building/Property Impacts	○	●	●	●	○	●	●	●	●
Wildlife Impacts	●	●	●	○	●	○	●	●	○
Cultural/Archaeological Impacts	○	●	●	●	○	●	●	●	●
Utility Impacts	○	●	●	●	○	●	●	●	●
Public Acceptability	●	●	●	○	●	●	●	●	○
Cost	○	●	●	●	○	●	●	●	●

LEGEND: Strong advantage ● Advantage ● Neutral ○ Disadvantage ○ Strong disadvantage ●



Factors that support the selection of the recommended preferred alternatives include the following:

Southern Segment

- The No-Build Alternative will not adequately serve projected traffic volumes associated with anticipated build-out land uses. Even though it may be many years before land uses and traffic volumes justify construction of a parkway facility, the transition from agricultural land uses and open desert to higher-intensity land uses is already occurring. Steps need to be taken now to preserve the long-term viability of constructing a parkway in the future by delineating the footprint and preferred location for the Hidden Waters Parkway;
- Alternative C makes maximum use of existing roadway right-of-way along the Old US 80 alignment and will require the least acquisition of new roadway right-of-way;
- Because Old US 80 already provides a continuous link from Watermelon Road to the Gila River, Alternative C provides the opportunity to upgrade Old US 80 in phases as needed to serve traffic demands. Alternatives A and B are predominately on new alignment, and it could be many years before a continuous, useable roadway could be constructed in these locations;
- Alternative C will have the least impact on existing irrigation patterns and farming operations. Irrigation facilities in close proximity to Old US 80 would likely require some relocation and reconstruction that would improve irrigation and farming operations due to the upgrades to facilities that would occur as part of the relocation and reconstruction processes;
- Alternative C will result in upgrades to virtually all of the existing drainage structures and dip crossings along Old US 80, improving both all-weather vehicular access and land development potential;
- Alternative C will have the least negative impacts on wildlife linkages. It may be possible to construct a drainage structure at Rainbow Wash that can safely accommodate wildlife movement across the parkway; and
- Next to the No-Build Alternative, Alternative C has received the most stakeholder and public support because: it is an upgrade to Old US 80; it will not result in an additional major north-south roadway through the study area; it will not significantly impact existing parcel shapes and sizes or farming operations; and it will provide a long-term high-capacity transportation alternative to SR 85.

Northern Segment

- The No-Build Alternative will not adequately serve projected traffic volumes associated with anticipated build-out land uses. Even though it may be many years before land uses and traffic volumes justify construction of a parkway facility, the transition from agricultural land uses and open desert to higher-intensity land uses is already occurring. Steps need to be taken now to preserve the long-term viability of constructing a parkway in the future by delineating the footprint and preferred location for the Hidden Waters Parkway;
- Alternative D follows the 339th Avenue alignment from I-10 to Arlington, making maximum use of existing roadway right-of-way and providing the most direct north-south connection between I-10 and the Arlington area. The planned Hidden Waters Ranch development south of I-10 already anticipates dedicating a 200'-wide right-of-way footprint along the 339th Avenue alignment for the future Hidden Waters Parkway;



- The westerly shift of Alternative D near the Arlington Area reduces impacts on Arlington, improves long-term development potential for Arizona State Land properties, and provides the best roadway geometry for connecting to the planned new Gila River crossing south of the existing Old US 80 Bridge;
- Alternative D will not impact any irrigated agricultural lands;
- Alternative D will provide a number of upgraded and new all-weather drainage structures to cross Luke Wash, Centennial Wash, and several other drainage ways along 339th Avenue between I-10 and Arlington. These new structures will reduce flooding, erosion, and sedimentation in this area, improving all-weather vehicular access and land development potential;
- Alternative D will offer the most opportunities to better accommodate wildlife linkage zones through facilities such as the drainage structures required to cross the numerous washes between Arlington and the Gila River;
- Alternative D will have fewer impacts on known cultural and archaeological resources near the existing Old US 80 Bridge because it follows a previously disturbed utility corridor west of Old US 80.
- Next to the No-Build Alternative, Alternative D has received the most stakeholder and public support because: it makes efficient use of existing segments of 339th Avenue; it results in reduced potential for adverse impacts on archaeological and cultural resources near the existing Old US 80 Bridge; it will not significantly impact existing parcel shapes and sizes; and it will provide a long-term high-capacity transportation alternative to SR 85.

For the reasons enumerated above, Alternative C for the southern segment and Alternative D for the northern segment were advanced as the preferred alignments for the Hidden Waters Parkway.

3. DETAILED PREFERRED ALIGNMENT

Technical Memorandum No. 5 – Detailed Preferred Alignment provides detailed information on the proposed location and characteristics of the preferred alignment for the Hidden Waters Parkway between Watermelon Road and Interstate 10 (see **Appendix 5**). For the southern segment, Alternative C is the preferred alternative. Alternative C generally follows the existing Old US 80 alignment for its entirety. For the northern segment, Alternative D is the preferred alternative. Alternative D generally follows the 351st Avenue alignment in the bottom portion of the northern segment and then transitions to the existing 339th Avenue alignment in the top portion of the northern segment.

The preferred alternatives for the southern and northern segments of the Hidden Waters Parkway are respectively shown in **Figure 29** and **Figure 30**. Also included in these figures are the proposed locations where other major roadways (i.e., freeways, parkways, and arterials) are expected (per the *Hassayampa Framework Study* and the *Hidden Valley Framework Study* and input from the TAC) to intersect the Hidden Waters Parkway. These intersection/interchange locations are preliminary and subject to change.

3.1 Parkway Design Guidelines and Typical Cross-Sections

Guidelines to be followed for implementation of a parkway such as Hidden Waters Parkway are documented in the MCDOT publications *Enhanced Parkway Study (August 2007)*, *Design Guideline Recommendations for the Arizona Parkway (August 2008)* and *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study (August 2009)*.

Design guidelines for the Arizona Parkway are intended to provide a higher level of service than an arterial street but less than a freeway facility. Basic cross-section elements and design guidelines are summarized as follows:

- A 200-foot minimum right-of-way is recommended. 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 wide 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;
- Minimum design speeds for rolling terrain are 60 miles per hour (mph) in rural areas and 50 mph in urban areas; and
- WB-50 is the recommended design vehicle.

Parkway typical cross-sections from the *Design Guideline Recommendations for the Arizona Parkway* are shown in **Figure 31**. The basic Hidden Waters Parkway design configuration will be a combination of four-, six-, and eight-lane parkways, depending on projected traffic volumes.

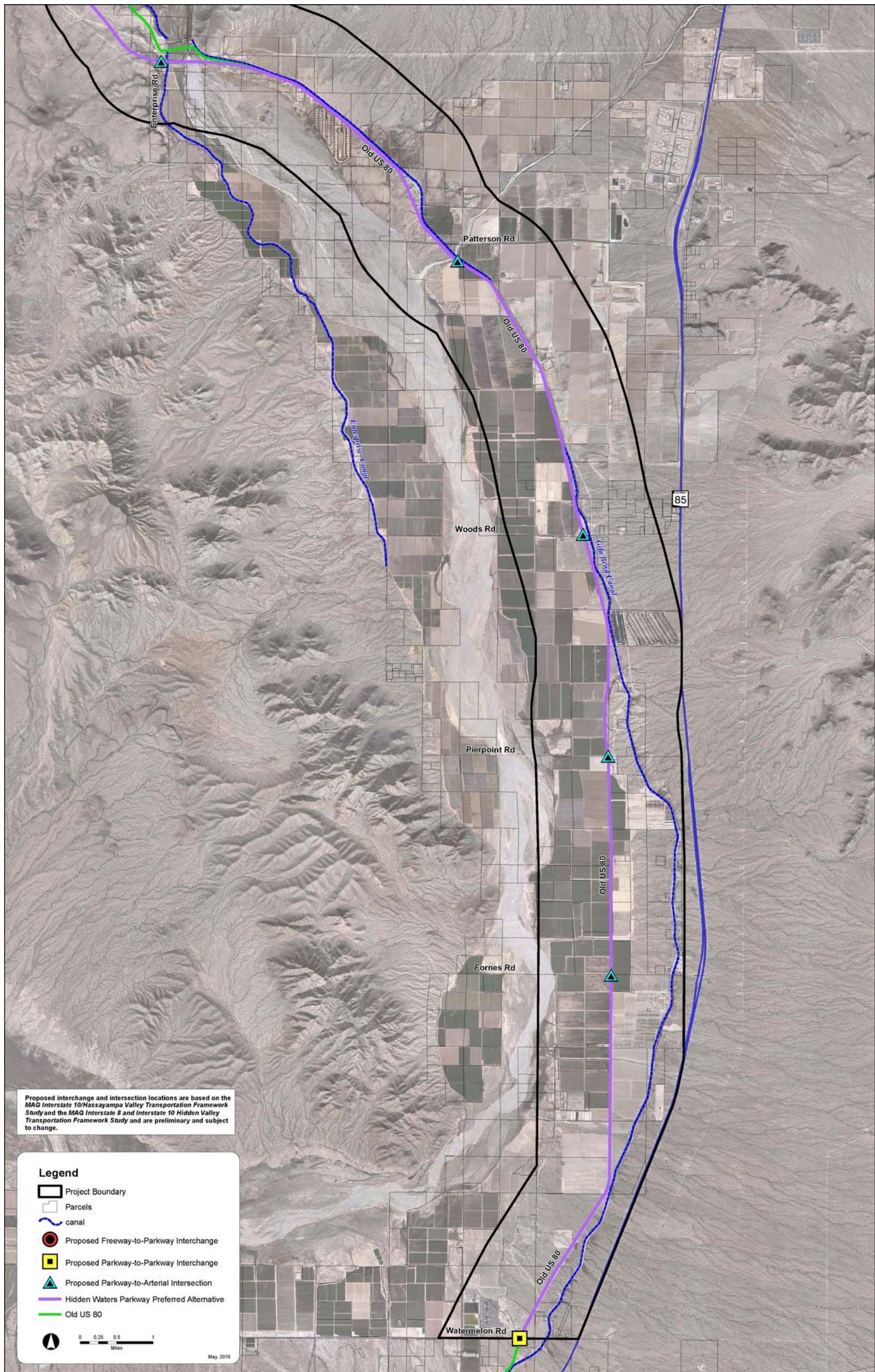


Figure 29 – Preferred Alternative (South)

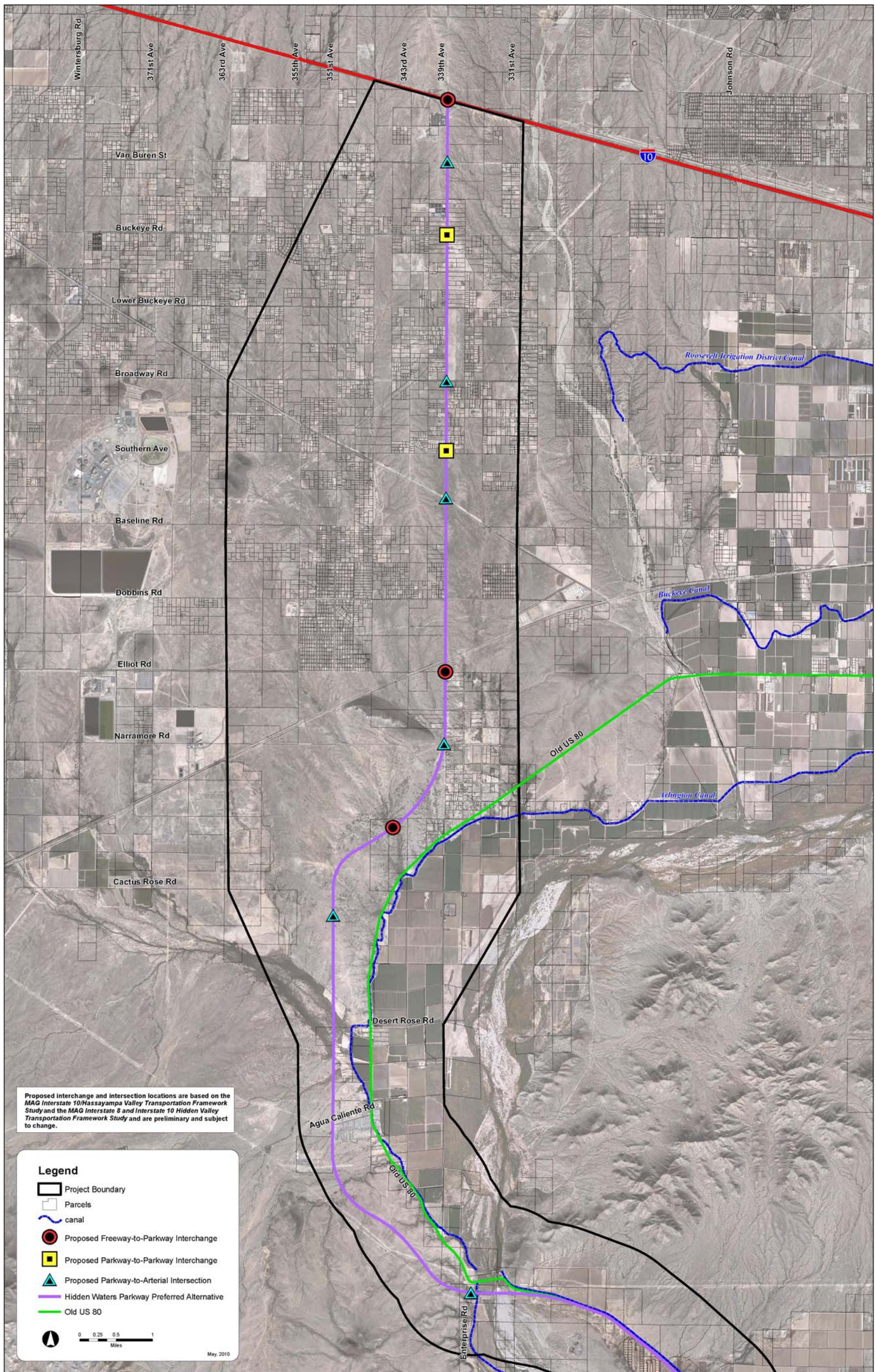
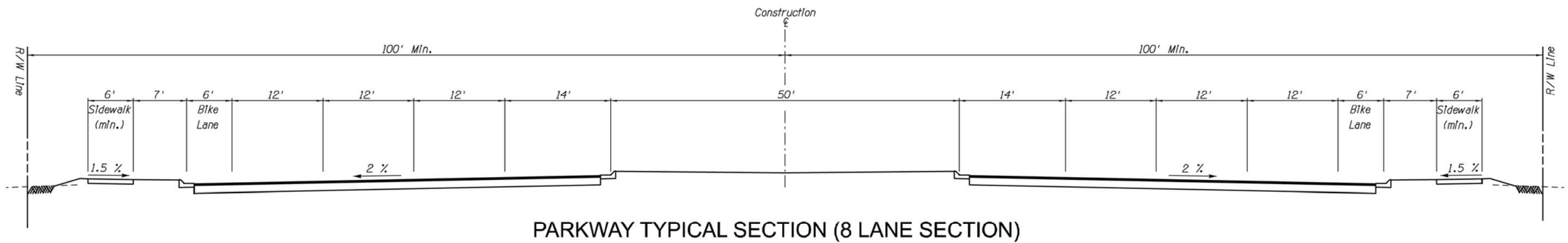
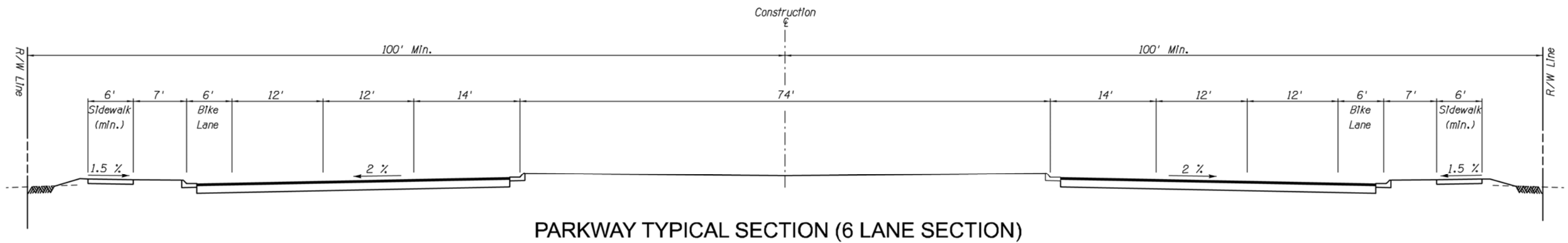
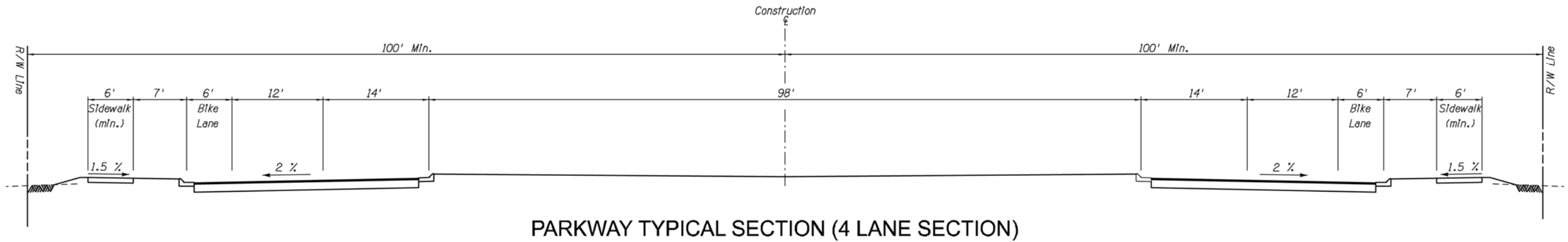


Figure 30 – Preferred Alternative (North)



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

Figure 31 – Parkway Typical Cross-Sections

3.2 Crossing Features

There are a number of locations where major roadways, utilities, drainage washes, and other features will cross the Hidden Waters Parkway that will require more detailed analyses during design of the parkway. The following design considerations relate to these crossing features:

- Minimum right-of-way width for at-grade parkway-to-parkway intersections of up to eight lanes is 225 feet on each approach, assuming 60-foot medians and dual right-turn lanes on both parkways;
- Additional right-of-way will need to be preserved at parkway-to-parkway intersections requiring grade separations (approximately fifteen acres of additional right-of-way for a typical grade-separated interchange and approximately 30 acres of additional right-of-way for a grade-separated interchange with fly-over ramps per the *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study*);
- There are three anticipated parkway-to-parkway intersections within the project study area:
 - Hidden Waters Parkway/Watermelon Road Parkway (grade-separated interchange with possible fly-over ramps);
 - Hidden Waters Parkway/Southern Avenue Parkway (grade-separated interchange); and
 - Hidden Waters Parkway/Yuma Parkway (at-grade intersection).
- ADOT recently initiated a study that will result in guidelines and design templates for parkway-to-freeway interchanges. The findings and recommendations of this ADOT study will ultimately need to be incorporated into the three anticipated parkway-to-freeway interchanges within the project study area:
 - Hidden Waters Parkway/ Hassayampa Freeway (planned freeway);
 - Hidden Waters Parkway/SR 801 (planned freeway); and
 - Hidden Waters Parkway/ I-10 (existing freeway).
- A railroad grade separation will be required where the Hidden Waters Parkway crosses the Union Pacific Railroad (UPRR) tracks;
- There are numerous washes throughout the study area that will require culverts, pipes, or bridges, which may result in the need for additional right-of-way;
- MCDOT has determined through previous studies that the existing Old US 80 Bridge across the Gila River needs to be replaced with a new all-weather bridge crossing the Gila River approximately 1,000 feet downstream from the existing bridge. It is assumed that the Hidden Waters Parkway will cross the Gila River along the same alignment as this future all-weather bridge crossing; and
- AZGFD has recommended that all grade separation structures along the parkway – particularly those located within wildlife linkage zones – be designed to enhance wildlife movement through the area where feasible.

3.3 Access Management Guidelines

To preserve the operating efficiency of the parkway facility, a higher level of access management than what is applied to arterial streets is recommended. Because MCDOT will not have operational control over all parkway facilities, it will be up to those agencies with jurisdiction over the roadway to apply and enforce access management policies. The following are recommended as minimum access management guidelines (per the *Design Guideline*



Recommendations for the Arizona Parkway) that may be supplemented by the responsible agency with jurisdiction over the roadway:

- 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;
- 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 cross-street or driveway are discouraged due to conflicts between u-turns and right turns;
- U-turn directional crossovers are recommended to be restricted to a maximum of eight per mile; and
- Recommended minimum driveway spacing is 165 feet for low-volume segments and 330 feet for high-volume segments. The typical driveway will be limited to right-in/right-out maneuvers.

3.4 Detailed Preferred Alignment Drawings

Detailed preferred alignment drawings were created that show the parkway center line and right-of-way limits at a scale of 1 inch = 200 feet. The detailed preferred alignment drawings are provided in **Appendix 5**. The preferred alignment centerline and right-of-way limits are subject to more detailed design work that may necessitate some adjustments as roadway profiles, drainage requirements, and land development plans are further defined.

In developing the detailed preferred alignment drawings, existing roadway centerlines, section lines, right-of-way lines, and property lines were reviewed to determine the feasibility of following some or all of these lines to the greatest extent possible. In some cases, existing roadway centerlines, section lines, right-of-way lines, and property lines do not provide optimum roadway geometrics for the Hidden Waters Parkway because they contain numerous angle points and discontinuities or are not parallel to each other. To preserve the high-capacity functionality of the parkway, it was determined that the preferred alignment should remain as straight as possible.

At major roadway and drainage wash crossings along the parkway, additional right-of-way will likely be required that will expand the right-of-way limits beyond the basic 200-foot parkway footprint. Areas that may potentially require additional right-of-way are noted in the detailed preferred alignment drawings as being subject to further study as land development and roadway improvement plans are further defined.

3.5 Planning-Level Cost Estimates

Planning-level cost estimates were developed for the preferred Hidden Waters Parkway alignment. Because this study does not include preparation of an “engineered” roadway alignment and does not address detailed design issues for various features, the cost estimate was based on generalized unit costs. The planning-level unit cost estimates were applied to the Hidden Waters Parkway preferred alignment characteristics and are summarized in **Table 4**.

Table 4 – Planning-Level Cost Estimates

Facility Characteristic	South Segment	North Segment	Total
Segment Length (miles)	20.17	19.07	39.24
Number of Drainage Crossings			
Small	14	1	15
Medium	2	2	4
<u>Large</u>	<u>1</u>	<u>5</u>	<u>6</u>
Total	17	8	25
Right-of-Way Required (acres)	346	523	869
Estimated Total Project Cost (Millions of 2010 \$)			
Roadway Construction Cost	\$195	\$185	\$380
Right-of-Way	\$50	\$75	\$125
Major Structural Elements			
PGSI	\$25	\$20	\$45
Gila River Bridge	-	\$30	\$30
UPRR Overpass	-	\$25	\$25
Total Estimated Project Cost	\$270	\$335	\$605
<i>Notes:</i>			
1) <i>Due to wide fluctuations in construction bids in 2008 and 2009, no inflation factors were applied to convert unit costs for those years to 2010 construction costs.</i>			
2) <i>Estimated project costs are rounded to the nearest \$5 million and do not include required residential or business relocation costs.</i>			
3) <i>Major structural elements do not include parkway-to-freeway interchanges at I-10, the planned SR 801 Freeway, and the planned Hassayampa Freeway. These interchanges are subject to further study and design.</i>			

The estimated cost for the Hidden Waters Parkway totals \$605 million, excluding any required residential or business relocation costs and the construction costs of freeway-to-parkway interchanges at I-10, the planned SR 801 Freeway, and the planned Hassayampa Freeway, which are subject to further study and design.

A roadway construction unit cost estimate of \$9.6 million per mile was used for a typical six-lane parkway. This unit cost was developed for the *Turner Parkway Corridor Feasibility Study* by averaging estimated roadway construction costs reported in recently completed MCDOT planning studies conducted for similar parkway facilities in 2007 and 2008. It excludes major structural elements for crossing features but does include 20% contingencies for addressing drainage requirements. To give a sense of the amount of required drainage facilities anticipated in the study area, the number of anticipated drainage crossings in the study area, and their relative size, were estimated based on aerial photography.

For right-of-way, a generalized estimate of \$143,000 per acre was provided by MCDOT. The anticipated required right-of-way was estimated by taking the area of the proposed new right-of-

way limits for the parkway and subtracting out the area of the existing public right-of-way that occurs within the proposed new right-of-way envelope.

The major structural elements along Hidden Waters Parkway are anticipated to include a parkway-to-parkway grade-separated interchange (PGSI) with a fly-over at the Watermelon Parkway, a PGSI without a fly-over at the Southern Avenue Parkway, a new all-weather bridge over the Gila River, and a UPRR overpass. The PGSI unit cost estimates were developed as part of the *Arizona Parkway Intersection/Interchange Operational and Analysis and Design Concepts Study*. The Gila River Bridge estimate is derived from the *Old U.S. Highway 80 Bridge (Gillespie Dam Bridge) Final Design Concept Report*. The UPRR overpass estimate is based on the *Town of Wellton Railroad Crossing Alternatives Design Parameters Report* prepared by KHA in June 2008.

3.6 Implementation Strategies

The *Hidden Waters Corridor Feasibility Study* is a long-range transportation planning study and the earliest phase of project development. This study is intended to identify the “feasibility” of constructing a parkway facility at some future date to accommodate traffic demands that will be associated with future land development within and in close proximity to the Hidden Waters study area. To ensure the long-term viability of the Hidden Waters Parkway facility, preservation and protection of right-of-way that will be required for the parkway need to commence immediately.

No public funding is currently allocated for design, right-of-way acquisition, or construction of any elements of the Hidden Waters Parkway. The recommended center lines and right-of-way limits will be used to guide future planning efforts and ensure that subsequent land development proposals and transportation system plans are compatible with future construction of the Hidden Waters Parkway. Some refinement and negotiation of the parkway centerline and right-of-way requirements may occur as properties are developed and as transportation improvements are implemented.

The following are key issues captured during this study’s stakeholder and public involvement process that should be taken into consideration as the recommendations of this study are carried forward into design and construction:

- *Developer Participation* – It is anticipated that land developers will participate in dedicating right-of-way and participating in project design and construction costs;
- *Funding Strategies* – Long-term funding strategies need to be developed to position the Hidden Waters Parkway corridor to take advantage of available funding. When and how much funding is needed will be dependent on when and where development occurs, how much developer participation happens, and what the detailed designs call for;
- *Access Management Strategies* – Access management strategies should be developed and implemented that are consistent with the Arizona Parkway design guidelines to ensure the Hidden Waters Parkway provides efficient traffic flow, safe operations, and reasonable local land access;
- *Environmental Impacts* – Specific impacts on environmental features, such as natural resources, wildlife habitats, cultural and archaeological resources, noise mitigation, and air quality will require further evaluation during future project development. Wildlife crossing facilities should be incorporated into the final project design where feasible;

- *New Right-of-Way Requirements* – Final roadway configurations will need to be developed through a more detailed design process to determine exactly how much property will need to be acquired to accommodate the future parkway, which has a minimum right-of-way footprint of 200 feet. Properties that cannot be acquired through the land development process will need to be acquired at fair market value along with compensation for relocation expenses if warranted;
- *Landscaping Plans* – Final project design should specify the type of landscaping to be used;
- *Drainage Structures* – Bridges and culverts along the new roadway should be designed during subsequent design efforts to ensure that the roadway provides all-weather crossings during major storm events. Where feasible, drainage structures should be designed to also accommodate wildlife movements across the parkway;
- *Bicycle, Pedestrian, Transit, and Trail Access* – Future parkway projects should be designed to accommodate alternative modes of travel and provide access to trails and neighborhoods in the area;
- *Coordination with Other Planned Transportation Facilities* – Implementation of the Hidden Waters Parkway should be coordinated with the implementation of other planned transportation facilities that intersect or impact the Hidden Waters Parkway (e.g., intersecting freeways, parkways, and arterials);
- *Corridor Traffic Management* – ITS (Intelligent Transportation Systems) should be implemented in conjunction with roadway construction to promote efficient traffic operations and management through the parkway corridor; and
- *Jurisdictional Coordination* – Implementation of corridor improvement, traffic management, and access management concepts should be coordinated among the responsible jurisdictions to ensure a safe, seamless, and efficient transportation facility.

3.7 Next Steps

Agencies with primary responsibility for implementing the recommendations of this study are Maricopa County (MCDOT, Planning and Development, and Flood Control), Town of Buckeye, Town of Gila Bend, and ADOT. Among the critical long-range planning actions that need to commence are:

- Acceptance of the Arizona Parkway designation and general preferred alignment for the Hidden Waters Parkway;
- Right-of-way preservation in developing areas as needed to protect the long-term viability of the parkway facility;
- Preparation of Design Concept Reports for consideration in project programming;
- Appropriation of funding for design, right-of-way acquisition, and construction as needed for joint participation with land developers; and
- Coordination among the jurisdictions and key stakeholders on planning, design, and operational issues.

While implementation timing of the Hidden Waters Parkway will be driven by land development, it is up to the public sector agencies to establish the transportation system planning framework now to be responsive to future land development interests while also protecting the broader long-term public interests.

4. PUBLIC INVOLVEMENT OVERVIEW

Technical Memorandum No. 6 – Public and Stakeholder Participation documents the results of the interaction with partnering agencies, stakeholders, and the general public throughout the course of the *Hidden Waters Parkway Corridor Feasibility Study* (see **Appendix 6**). Engaging partnering agencies, stakeholders, and the public in building consensus has been and will continue to be critical to the success of this study, as well as any future implementation of its recommendations.

4.1 Technical Advisory Committee

The TAC was established by MCDOT to provide technical oversight and guidance throughout the study duration. The TAC was comprised of representatives from the following public agencies:

- Arizona Department of Transportation;
- Arizona Game and Fish Department;
- Federal Highway Administration;
- Flood Control District of Maricopa County;
- MAG;
- Maricopa County Planning and Development;
- MCDOT;
- Town of Buckeye; and
- Town of Gila Bend.

The role and responsibility of the TAC was to meet at key decision and milestone points during the study to receive information on study progress, offer advice and guidance on study issues, and to inform the management of their respective agencies and organizations of the project study progress. The TAC was also requested to review and comment on all draft technical memoranda and the draft final report.

4.2 Stakeholders

Early in the study process, a concerted effort was made to identify potential project stakeholders. A database of over 120 individuals was compiled and maintained throughout the study. Several of the stakeholders were already part of the TAC. Additional stakeholders included representatives from the following agencies and organizations:

- Arizona State Land Department;
- Businesses;
- Center for Desert Archaeology;
- City of Phoenix;
- Community Organizations;
- Developers;
- Homeowners Associations;
- Irrigation and Utility Companies;
- Maricopa County Farm Bureau;
- Property Owners;

- Residents;
- School Districts;
- Sonoran Institute;
- Tribal Governments;
- Union Pacific Railroad;
- U.S. Bureau of Land Management; and
- U.S. Fish and Wildlife Services.

The role and responsibility of the stakeholders was to represent their interests, offer advice and guidance on study issues, and build consensus.

4.3 TAC/Stakeholder Meetings

All individuals in the stakeholder database were invited to participate in four combined TAC/stakeholder meetings that were scheduled at key milestones throughout the study process as follows:

- *July 22, 2009* – Study Purpose, Data Collection, and Issues Identification;
- *September 17, 2009* – Review Existing and Future Corridor Features, Environmental Overview, Conceptual Drainage Report, Constraints, and Evaluation Criteria;
- *November 3, 2009* – Review Conceptual Alternatives and Develop Candidate Alternatives; and
- *February 3, 2010* – Review Alternatives Evaluation, Discuss Preferred Alignment, and Develop Consensus on Study Recommendations.

Additional one-on-one meetings with stakeholders were conducted where necessary to obtain stakeholder input.

All meetings were well attended with a valuable exchange of questions, answers, and input to the study findings and recommendations.

4.4 Public Open Houses

The MCDOT RightRoads Program, with assistance from the project team, conducted three public open house meetings at critical milestones in the study process as follows:

- *September 22, 2009* – “Project Scoping Phase” public meeting to provide area residents and other impacted stakeholders with an opportunity to inform project team members about the study area issues and local transportation needs. This meeting also provided the study team members with an opportunity to discuss and elicit feedback regarding the study purpose, goals and objectives;
- *December 1, 2009* – “Alternatives Analysis Phase” public meeting to provide the community an opportunity to comment on the roadway alignment alternatives being evaluated for the corridor; and
- *March 3, 2010* – “Study Findings and Recommendations Phase” public meeting to present the findings and recommendations of the study, including the preferred parkway alignment, the right-of-way footprint, and preliminary engineering details for the future Hidden Waters Parkway.



The public meetings were conducted in an “open house” format to provide a free, open, and accurate exchange of information between the project team and the public regarding specific issues and questions. Graphics, handouts, aerials, and display board exhibits presented study information. Comment sheets were distributed to all those in attendance so they could provide written comments. Meeting summaries were prepared that summarize the input received from the public.