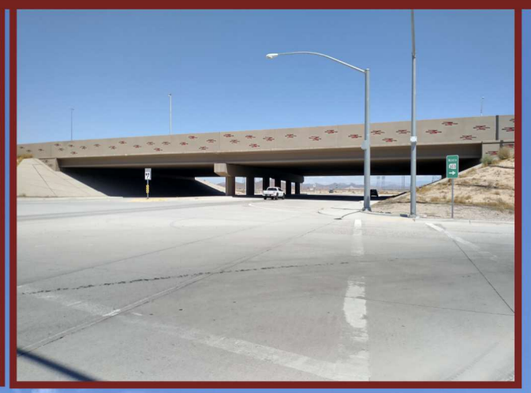
PEORIA AZ
EL MIRAGE ROAD
EXTENSION

From Loop 303 To Jomax Rd



ARIZONA DEPARTMENT OF TRANSPORTATION

MARICOPA ASSOCIATION of GOVERNMENTS

MARICOPA COUNTY

Initial Design Concept Report

September 2025

ADOT Contract No.: 2024-001
ADOT Project No.: T0428
City of Peoria No.: EN00537
Federal No.: PE0-0(231)T
Prepared for the Arizona Department of Transportation

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El Mirage Road; 303L – Jomax Road

Design Concept Report

Revised Initial Report

PEORIA AZ
EL MIRAGE ROAD
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From Loop 303 To Jomax Rd

Prepared for the Arizona Department of Transportation, Central District

ADOT Contract No.: 2024-001

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Federal No.: PE0-0(231)T

Prepared by:

BURGESS & NIPLE

In association with:

avenue CONSULTANTS

AZTEC TYPSA

ethos ENGINEERING, LLC.

Jacobs

September 2025

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Executive Summary

This Initial Design Concept Report (DCR) for the El Mirage Road extension from State Route Loop 303 (SR 303L) to Jomax Road is prepared for the City of Peoria by Burgess and Niple, Inc.(B&N). The preparation of the DCR is administrated by the Arizona Department of Transportation (ADOT) in association with the Maricopa Association of Governments (MAG) and Maricopa County Department of Transportation (MCDOT). The ADOT Project Number is T0428, and the Federal Project Number is PE0-0(231)T).

The purpose of this project is to develop and evaluate alternatives to recommend a preferred alternative to accommodate current and projected traffic needs. The proposed improvements include the two-mile extension of El Mirage Road from SR 303L to Jomax Road, constructing crossings over McMicken Wash and the Beardsley Canal, and adding a signalized intersection at Happy Valley Road. El Mirage Road is one of several ongoing projects to build out the roadway network in the area. Other projects under consideration include the City of Peoria reconfiguration of the Happy Valley Road and Vistancia Boulevard intersection, a possible City of Peoria and City of Surprise joint extension of Jomax Road to Dysart Road, and the development-driven extension of Jomax Road to Vistancia Boulevard.

The study area begins at SR 303L on the south and ends at Jomax Road on the north. The existing El Mirage Road from the SR 303L Traffic Interchange (TI) to north of Desert Sun Lane is located within unincorporated Maricopa County. El Mirage Road north of Desert Sun Lane to Jomax Road is within the City of Peoria. The land use within the study area primarily consists of residential and undeveloped land. Residential developments within the study area include: Coldwater Ranch located east of El Mirage Road, north of Happy Valley Road, and accessed by Coldwater Ranch Drive; Coldwater Retreat located east of El Mirage Road, north of Coldwater Ranch Drive, and accessed by Tether Trail; and the Vistancia neighborhoods located northwest of the intersection of El Mirage Road and Jomax Road. Much of the undeveloped land is managed by the Arizona State Land Department (ASLD). Planned developments adjacent to the corridor include North Peoria Gateway and WestWing Business Park, which are in various stages of development.

The El Mirage Road: SR 303L to Jomax Road Feasibility Study Report (MAG Study) was completed by MAG in June 2022. The report evaluated alternatives for a continuous extension of El Mirage Road from SR 303L to Jomax Road. Three alignment alternatives were developed for El Mirage Road from SR 303L to Happy Valley Road based on constraints related to utilities including existing powerlines, floodplains, and section lines. One alternative, with variations, was developed for El Mirage Road between Happy Valley Road and Jomax Road, aiming to maximize the use of existing right-of-way (ROW) and reduce impacts to the existing roadway. The results of the study identified Alternative 1 for further study in the segment between SR 303L and Happy Valley Road, and Alternative 1 with a hybrid of variations 1 and 3 for further study in the segment between Happy Valley Road and Jomax Road. These alternatives are being carried forward as the basis for the T0428 Design Concept Alternatives with refinements to comply with City of Peoria design standards. Alternatives evaluated as part of the MAG Study are presented in **Appendix DCR-A**.

T0428 evaluated three Design Concept Alternatives; the no-build, the MAG Study Recommended Alternative, and a refined version of the MAG Study Recommended Alternative (henceforth referred to as the Ultimate 6-Lane Alternative). It is recommended that the Ultimate 6-Lane Alternative be advanced as the preferred alternative. The configuration includes three vehicular travel lanes, 6-foot bicycle lanes, 6-foot buffer, and 8-foot sidewalk in each direction with a 16-foot raised median centered along the centerline. The alternative includes modifications to improve traffic operations including signalized intersections at El Mirage Road and Happy Valley Road and El Mirage Road and Jomax Road and turn lanes at Coldwater Ranch Drive and Desert Sun Lane.

The construction of T0428 is currently programmed to receive funding through Propositions 400 and 479. Currently there is $25.4 million programmed for T0428 through Proposition 400, with $5.5 million of that total coming from unused funds in the Happy Valley Road Project. An additional $21 million is programmed for T0428 through Proposition 479. An additional $24.5 million in Proposition 479 funding has been requested for this project through a project change request to move funding from two other City of Peoria projects. As of the writing of this report, this request has been approved in the Streets Committee and is moving through the MAG approval process. Once finalized, the project changes will be included in the Fiscal Year 2026 Proposition 479 Arterial Life Cycle Program. An additional $3.5 million is anticipated for this project to be obtained from private development. The remaining funding for the project will be the local agency match.

The corridor improvements are presently programmed to be constructed in two phases. The initial phase will be constructed to accommodate four travel lanes, two in each direction, bicycle lanes, and buffered sidewalk. The initial phase will construct the outside curb in its ultimate location to accommodate future widening to the inside. The intersections along El Mirage Road will be improved. The Happy Valley Road intersection will be signalized; various intersection and access control treatments are under consideration for the remaining intersections including potential roundabouts at the intersections of El Mirage Road with Jomax Road and Tether Trail.

Intergovernmental Agreements (IGAs) are anticipated between the City of Peoria and ADOT and the City of Peoria and Maricopa County. The IGA with MCDOT will be related to annexation and the maintenance responsibilities of El Mirage Road.

It is anticipated that the final design of T0428 will be completed by a consultant and administered by ADOT with oversight from the City of Peoria.

The total estimated cost for the Ultimate 6-Lane Alternative is $ 87,302,214, including $ 65,900,114 for construction, $ 15,518,500 for ROW acquisitions, and $ 2,706,000 for utility relocations.

The study team has conducted public outreach, including an in-person public meeting on February 26, 2025. A project website was developed to share project information with the public and solicit public input. A virtual public hearing will be conducted on October 9, 2025. Public involvement materials are presented in **Appendix DCR-D**.

Available reports prepared in coordination with this DCR include a Final Initial Drainage Report (**Appendix DCR-B**), Final Initial Traffic Report (**Appendix DCR-E**), the Final Initial Americans with Disabilities Act (ADA) Compliance and Feasibility Report (**Appendix DCR-G**), Final Initial Bridge Study for the McMicken Wash (**Appendix DCR-J**), Final Initial Bridge Study for the Beardsley Canal (**Appendix DCR-K**), the Preliminary Geotechnical Exploration Report (**Appendix DCR-L**), and a Draft Environmental Analysis (EA) (**Appendix DCR-M**).

1.0 Introduction

1.1. Foreword

This initial Design Concept Report (DCR) describes the development, evaluation, and recommendations of the extension and widening of El Mirage Road from the State Route Loop 303 (SR 303L) Traffic Interchange (TI) to Jomax Road. This project is within the Arizona Department of Transportation (ADOT) Central Engineering and Maintenance District. El Mirage Road is a north-south facility located within unincorporated Maricopa County and the City of Peoria. It is near the City of Surprise. ***Figure 1*** and ***Figure 2*** display the vicinity and study area maps, respectively.

The existing El Mirage Road is discontinuous within the study area with no existing road between the SR 303L TI and Happy Valley Road and between Desert Sun Lane and Jomax Road. El Mirage Road is functionally classified as a MCDOT principal arterial south of SR 303L, a MCDOT minor collector between Happy Valley Road and Desert Sun Lane, and a City of Peoria arterial north of Jomax Road. South of SR 303L the posted speed for El Mirage Road is 45 miles per hour (mph). Between Happy Valley Road and Desert Sun Lane, the posted speed of El Mirage Road is 35 mph. North of Jomax Road the posted speed of El Mirage Road is 40 mph.

Major traffic generators surrounding the study area consist of the SR 303L TI, residential communities, the Trilogy Golf Club at Vistancia, multiple trailheads, parks, and churches.

An Environmental Assessment (EA) and related documentation has been developed in concert with the DCR.

1.2. Need for the Project

The growth of the area northwest of SR 303L is outpacing roadway network improvements. Multiple developments are being constructed in the cities of Peoria and Surprise and in unincorporated Maricopa County, primarily along the Happy Valley Road corridor. Two access points, seven miles apart, connect this area to the greater region: the SR 303L/Happy Valley Parkway TI and the US 60 (Grand Avenue)/163rd Avenue intersection. The project will connect El Mirage Road from SR 303L to Jomax Road to provide additional regional connectivity, relieve burdened infrastructure, and create opportunity for continued economic development.

As surrounding areas grow, the existing roadway network needs to expand to accommodate expected traffic demand. In anticipation of this increased demand, the Maricopa Association of Governments (MAG) regional traffic demand model identifies a continuous extension of El Mirage Road from SR 303L to Jomax Road by 2030.

The El Mirage Road: SR 303L to Jomax Road Feasibility Study (MAG Study) was completed by MAG in June 2022 and is included in **Appendix DCR-A**. The MAG Study evaluated alternatives for a continuous extension of El Mirage Road from SR 303L to Jomax Road. Three alignment alternatives were developed for El Mirage Road from SR 303L to Happy Valley Road based on constraints from utilities including existing power lines, floodplains, and section lines. One alternative, with variations, was developed for El Mirage Road between Happy Valley Road and Jomax Road, to maximize the use of existing right-of-way (ROW) and roadway infrastructure. The MAG Study identified Alternative 1 for further study in the segment between SR 303L and Happy Valley Road, and Alternative 1 with a hybrid of variations 1 and 3 for further study in the segment between Happy Valley Road and Jomax Road. A further analysis of Design Concept Alternatives is detailed in **Section 3.0**.

Figure 1 – Vicinity Map

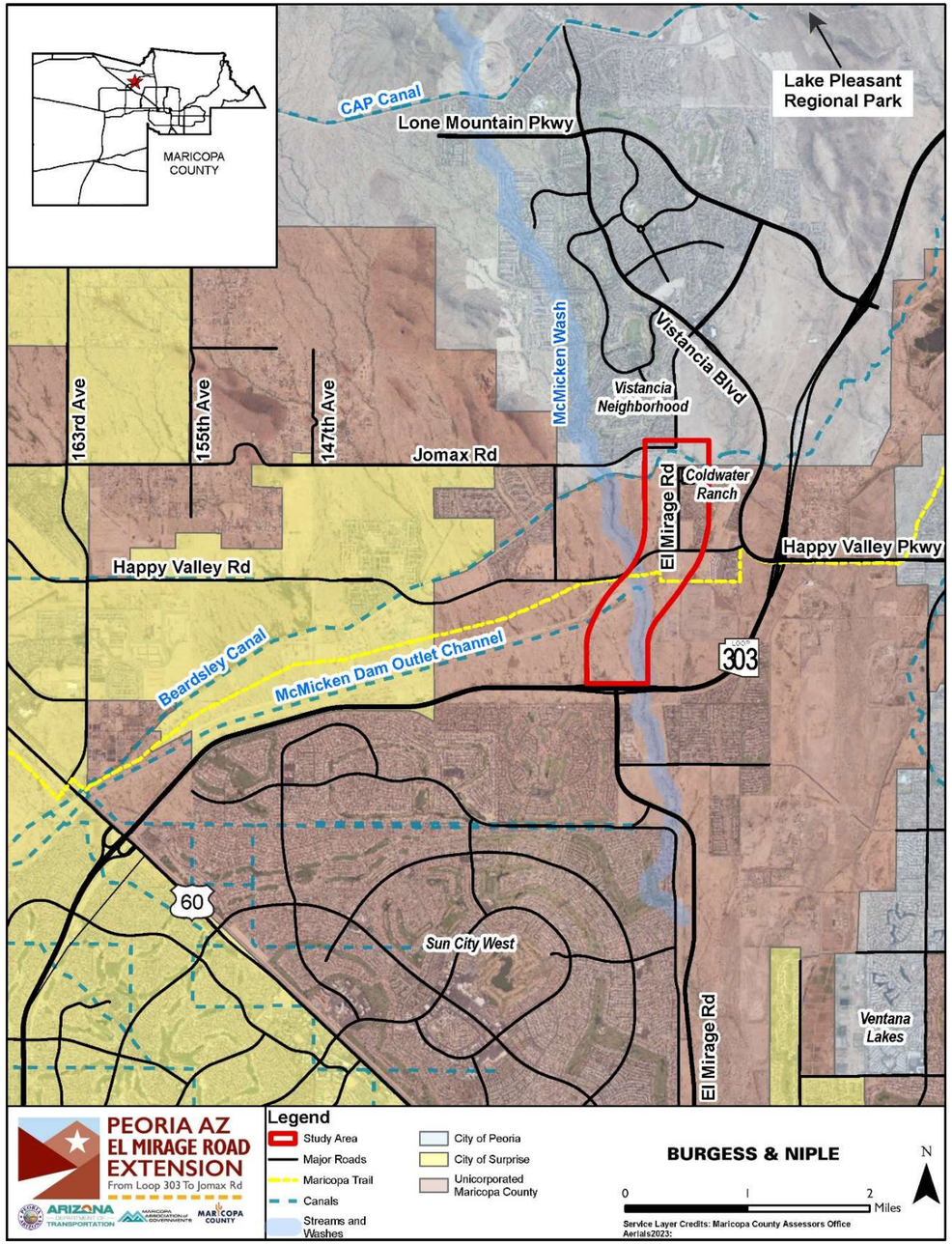
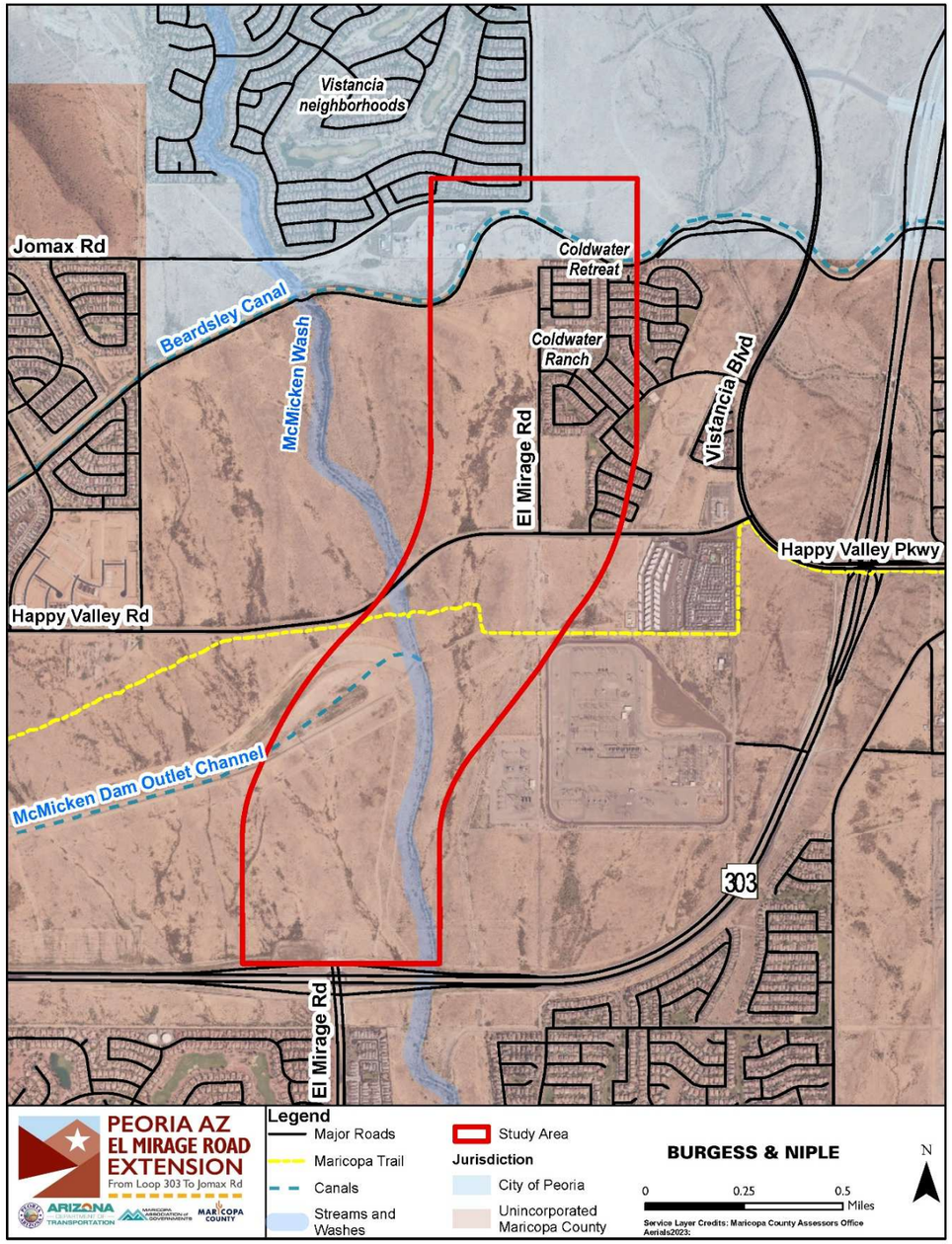


Figure 2 – Study Area



1.3. Description of the Project

The study area includes El Mirage Road starting at SR 303L TI and ending at the intersection of El Mirage Road and Jomax Road. The southern portion of the study area at the SR 303L TI begins at SR 303L milepost (MP) 125. The existing El Mirage Road is not owned and maintained by ADOT and does not include MP information.

This project is an engineering study that includes preparation of this DCR (including 15 percent plans), an Environmental Assessment (EA), and supporting studies and reports to assist in developing a recommended alternative.

The construction of T0428 is currently programmed to receive funding through Propositions 400 and 479. Currently there is $25.4 million programmed for T0428 through Proposition 400, with $5.5 million of that total coming from unused funds in the Happy Valley Road Project. An additional $21 million is programmed for T0428 through Proposition 479. An additional $24.5 million in Proposition 479 funding has been requested for this project through a project change request to move funding from two other City of Peoria projects. As of the writing of this report this request has been approved in the Streets Committee and is moving through the MAG approval process. Once finalized, the project changes will be included in the Fiscal Year 2026 Proposition 479 Arterial Life Cycle Program. An additional $3.5 million is anticipated for this project to be obtained from private development. The remaining funding for the project will be the local agency match.

The primary objectives of this project are to address the safety, capacity, and functionality of El Mirage Road to meet the existing and future demands resulting from expected growth in the region.

There are existing site constraints that influence the design alternatives. Identified constraints include:

- Maintaining developability of Arizona State Land Department (ASLD) parcels;
- Minimizing ROW impacts to developed land;
- Avoiding impacts to overhead powerlines maintained by Western Area Power Administration (WAPA), Arizona Public Service (APS), and Salt River Project (SRP);
- Providing access to existing utility facilities owned by the City of Peoria and EPCOR;
- Identifying an interagency access management strategy for existing and future facilities along El Mirage Road;
- Accommodating the Maricopa Trail;
- Designing a McMicken Wash crossing that is compliant with Flood Control District of Maricopa County (FCDMC) needs;
- Designing a Beardsley Canal crossing that is compliant with Maricopa Water District (MWD) needs; and
- Accommodating downstream drainage constraints including the SR303L related cross-culverts and other drainage infrastructure.

1.4. Characteristics of the Corridor

Existing El Mirage Road ends just north of SR 303L TI and is discontinuous with segments from Happy Valley Road to Desert Sun Lane and from Jomax Road to Vistancia Boulevard. The segment directly north of the TI at SR 303L marks the beginning of the improvements section. This terminus has an unpaved 25-foot open median with southbound and northbound widths of 75-feet and 45-feet, respectively. El Mirage Road from Happy Valley Road to Desert Sun Lane is undivided with pavement widths ranging from 27 feet to 52 feet. El Mirage Road at Jomax Road marks the end of the improvements section and has an existing pavement width of 67 feet.

Curb and gutter are present throughout the TI at SR 303L and up to the existing terminus. The existing section has 12-foot-wide lanes accompanied by 6-foot-wide shoulders. At the intersection with Happy Valley Road, curb and gutter is present in the northeast corner. North of Happy Valley Road, curb and gutter is present along both sides of El Mirage Road from approximately 1,250 feet north of Happy Valley Road north to the terminus at Desert Sun Lane. Existing lanes are 12 feet wide with variable width shoulders extending to a maximum width of five feet. Curb and gutter exist along both sides of El Mirage Road from Jomax Road to Vistancia Boulevard. At Jomax Road, lanes are approximately 23 feet wide with approximately 5-foot shoulders. Existing El Mirage Road from Happy Valley Road to Desert Sun Lane pavement type is 4-inch asphalt concrete (AC) on a 10-inch base.

Existing El Mirage Road from Happy Valley Road to Desert Sun Lane is classified as a MCDOT minor collector and has a posted speed of 35 mph. Record drawings could not be located for this segment of El Mirage Road. Based off the MCDOT Roadway Design Manual Table 5.3, it is anticipated that the existing design speed is 40 mph.

The existing El Mirage Road was constructed in segments when necessitated by residential developments within the study area. ***Table 1*** provides a summary of constructed projects within the study area.

Table 1 – Previously Constructed Projects

ADOT Project Number	Project Name	Completion Date
No. 303 MA 123 H8576 01C	El Mirage Road TI	September 30, 2016
Not Applicable: Construction completed by developer and segment maintained by MCDOT	El Mirage Road: Happy Valley Road to 500’ north of Coldwater Ranch Drive	2008-2009*
Not Applicable: Construction completed by developer and segment maintained by MCDOT	El Mirage Road: 500’ north of Coldwater Ranch Drive to Desert Sun Lane	Late 2017*
Not Applicable: Construction completed by developer and segment maintained by City of Peoria	El Mirage Road and Jomax Road intersection	2005*
*Determined from historical aerial imagery as record drawings were not located.		

Existing El Mirage Road from Happy Valley Road to Desert Sun Lane includes a relatively linear horizontal alignment. Terrain is relatively flat with maximum longitudinal grades of approximately 1.3 percent. North of Happy Valley Road, the proposed El Mirage Road extension overlaps with the existing half-street constructed adjacent to the Coldwater Ranch subdivision. At the north end of the study area, the proposed roadway alignment will cross the Beardsley Canal. North of the Beardsley Canal, the proposed El Mirage Road alignment will tie into Jomax Road at the Vistancia residential subdivision located along the western frontage of El Mirage Road.

Existing ROW widths along El Mirage Road between Happy Valley Road and Desert Sun Lane extend 65-feet east from the section line. Existing ROW widths along Happy Valley Road at El Mirage Road are 130-feet minimum. Existing ROW widths along Jomax Road at El Mirage Road are 135-feet. Existing ROW widths at El Mirage Road directly north of the SR 303L TI are 230-feet minimum.

Jurisdictions within the study area include Maricopa County and City of Peoria. Land ownership within the study area is primarily public, private, and state land. Public land dedicated for roadway use is owned by ADOT, Maricopa County, and City of Peoria. FCDMC and City of Peoria ROW.

Existing drainage flows in the study area generally travel from north to south and travel toward the McMicken Dam Outlet Channel. Where curb and gutter is present, roadway drainage north of Happy Valley Road is directed to retention basins on the east side of El Mirage Road via scuppers. South of the termination of curb and gutter, drainage is directed to the roadside via sheet flow.

The study area includes effective Federal Emergency Management Agency (FEMA) flood hazard designations A and AE, defined as Special Flood Hazard Areas (SFHAs) subject to inundation by the flood event having a 1 percent chance of being equaled or exceeded in any given year. Zone AE is further defined as having specified Base Flood Elevations (BFEs) determined through detailed modeling. The McMicken Dam Outlet Channel and Outlet Wash downstream of the Dam are classified as Zone AE with a regulatory floodway. Wash 16 East, located upstream of the dam outfall, is classified as Zone A. The remainder of the study area is Zone X (shaded). Refer to **Appendix DCR-B** for a copy of the Effective FIRM Panel and Letter of Map Revision (LOMR) information.

The McMicken Dam Outlet Channel extends west of the study area approximately 5 miles toward Grand Avenue; McMicken Wash extends north of the study area. The McMicken Dam Outlet Channel and McMicken Dam Outlet Wash are managed by FCDMC.

The Beardsley Canal extends east-west and is located south of Jomax Road. Beardsley Canal is managed by the MWD.

There are no existing bridge structures within the study area.

Two substation facilities owned by the United States Department of Energy (USDOE) and APS are located east of the study area and south of Happy Valley Road, respectively.

The study area is relatively flat with elevations ranging from 1,300 feet to 1,360 feet above mean sea level. Soils in the study area are Hyperthermic Arid soils of the Monhall-Veccont-Pimant association, consisting of well-drained soils. Vegetation within and near the study area consists of tree species including ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), and foothill palo verde (*Parkinsonia microphylla*). Shrubs and cacti scattered throughout the study area include creosote (*Larrea tridentata*), triangle leaf bursage (*Ambrosia deltoidea*), lotebush (*Ziziphus obtusifolia*), desert broom (*Baccharis sarothroides*), saguaro (*Carnegiea gigantea*), teddy bear cholla (*Cylindropuntia bigelovii*), buckhorn cholla (*Cylindropuntia acanthocarpa*), and barrel cactus (Ferocactus spp.). Ground cover is characterized by grasses and forbs such as mediterranean grass (*Schismus arabicus*), and scorpion weed (*Phacelia distans*) interspersed with bare ground surfaces. During the site visit, noxious and/or invasive plant species were observed and include Sahara mustard (*Brassica tournefortii*), stinknet (*Oncosiphon piluliferum*), and Russian thistle (*Kali tragus*).

As of March 2025, there are two major planned developments occurring within the study area: the WestWing Business Park and the North Peoria Gateway. The WestWing Business Park proposed development is located north of SR 303L and east of El Mirage Road and is anticipated to generate traffic in the area. The project is being developed in two phases. Phase one is complete, and phase two is anticipated to be completed by 2029. The WestWing Business Park recently constructed Mariposa Grande Lane east of El Mirage Road. The Mariposa Grande Lane sealed plans are available in **Appendix DCR-C**. The proposed North Peoria Gateway

development is approximately 1,600 acres located along SR 303L between El Mirage Road and 109th Street. The property is planned to be developed as a mix of employment and commercial uses. The North Peoria Gateway development will require coordination with ASLD and subdividing parcels. The future land use surrounding and within the study area is anticipated to be developed as primarily residential and commercial.

1.5. Agency and Public Scoping

A Public Involvement Plan (PIP) was prepared for T0428 to guide how the City of Peoria and ADOT interact with the public and key stakeholders throughout development of the EA and the DCR. The PIP and all public information/involvement activities were developed in alignment with Title VI of the 1964 Civil Rights Act, the Americans with Disabilities Act, Executive Order (EO) 13166 on Limited English Proficiency, EO 12898 on Environmental Justice, and the ADOT agency PIP. The project-specific PIP aligns with the International Association of Public Participation (IAP2) best practices and, in accordance with the IAP2 Spectrum for Public Participation, aims to inform and consult all members of the public and key stakeholders equitably throughout the EA and DCR development processes as follows:

1.5.1. Inform

- Use proactive outreach tools to keep the public and key stakeholders informed.
- Listen to and acknowledge questions, comments, and concerns from the public and key stakeholders and maintain a record of all interactions.
- Provide multiple methods for the public to learn about the study, ask questions, and provide their input.
- Respond to inquiries in a timely manner.
- Share the study purpose and need, potential improvements, and anticipated study timeline.
- Provide advance notice of all online, virtual, and in-person public involvement activities, and how to participate and provide input.
- Share all public involvement materials and information.

1.5.2. Consult

- Welcome public input throughout the study phase.
- Solicit input during scoping and identify issues that ADOT, the City of Peoria, and their partners should consider throughout the study phase and during development of the DCR.
- Identify and share with the team specific issues and concerns from community members affected by the project.
- Determine the community's preferences for roadway widening and bridge crossing alternatives, while openly and transparently communicating that the number of proposed build alternatives might be limited because of pre-existing underground and overhead utilities; the canal system; terrain; and other factors in the study area.
- If an ADOT Noise Study is warranted, provide information about how the study is done; the ADOT and Federal Highway Administration (FHWA) noise abatement criteria; and the location of new noise abatement measures (such as walls or berms) to determine if there is substantial community opposition. Provide feedback on how public and stakeholder input influenced the project.
- Host public meetings to share comprehensive information about the EA, the DCR, and potential next steps in project development/implementation, allowing the public to ask questions and voice their concerns and aspirations.

1.5.3. Public Meetings

An in-person public open house to share design concepts and gather public input occurred from 5:30 to 7:00 p.m. on Wednesday, February 26, 2025, at Lake Pleasant Elementary School in Peoria, Arizona. 93 people signed-in and 24 people completed a hard copy version of the alternatives survey. The survey was also available on the project website. The comment period continued to March 28, 2025. The project team provided information including but not limited to the proposed improvements to El Mirage Road between SR 303L and Jomax Road and their purpose and goals; the EA and DCR processes and timeline; and the various ways to provide input and ask questions. Roll plots and informational boards were available to illustrate the conceptual roadway corridor alignment, initial and ultimate roadway corridor configurations, the conceptual structural crossings over the Beardsley Canal and McMicken Wash, other projects and developments near the study area, and the affected environments being analyzed by the EA. Participants could also watch a 10-minute project presentation, which ran continuously throughout the open house. All meeting materials were posted to the project website to accommodate those who could not attend in person. The Public Meeting Summary Report is included in **Appendix DCR-D**.

A total of 482 public comments were received, 458 of which were provided through the survey. Public comments primarily voiced questions or concerns regarding the following topics:

- Traffic: 19 percent (93 comments)
- Safety: 5 percent (23 comments)
- Other Topics (including intersection treatments and access to neighborhoods): 7 percent (32 comments)

Less than 10 comments voiced questions or concerns regarding each of the following topics: active transportation, construction schedule, proposed design, environmental factors, noise, and roadway classification. No survey responses included questions or concerns regarding the following topics: air quality, budget, maintenance, and right-of-way.

A virtual public hearing for the draft EA is scheduled for October 9, 2025, from 5:30-7:00 pm. Registration for the public meeting can be found at https://tinyurl.com/mysaksar. The public comment period for the draft EA continues through October 24, 2025.

1.5.4. Project Website, Email Address, and Mailing Address

A project website was created, https://www.elmirageroadextension.com/, to provide up-to-date information and resources; it also invites the public to subscribe to receive project-update email alerts. As of the writing of this DCR, 903 people had subscribed to receive such alerts.

The public is also encouraged to contact the project team with questions and provide input at any time in the following ways:

- Email: Info@ElMirageRoadExtension.com
- Mail: Avenue Consultants/El Mirage Road Extension, 5353 N. 16th Street, Suite 380, Phoenix, AZ 85016.

Public involvement materials and the PIP are included in **Appendix DCR-D**.

2.0 Traffic and Crash Data

2.1. Crash Analysis

Crash data was obtained from the ADOT database for the most recent five-year period; January 1, 2019 to December 31, 2023. Crashes were included if they occurred within the study area on the existing segments of El Mirage Road or within 500-feet of the intersection on an intersecting roadway. Crashes at the SR 303L and El Mirage Road TI were excluded from the analysis.

A total of 13 crashes occurred within the study area during the five-year analysis period. Of the 13 crashes, 11 occurred within an intersection area; 7 at the Jomax Road intersection and 4 at the Happy Valley Road intersection. ***Table 2*** provides a summary of crashes per year along with injury severity. Comparisons for crash data leverage ADOT's 2023 Motor Vehicle Crash Facts for the State of Arizona (Crash Facts). Bold, red text indicates percentages that exceed the statewide average. ***Figure 3*** displays the crashes within the study area.

Table 2 – Injury Severity by Year

Year	Injury Severity					Total Crashes
	No Injury	Possible Injury	Suspected Minor	Suspected Serious	Fatal	
2019	0	0	1	0	0	1
2020	0	0	1	1	0	2
2021	3	1	0	0	0	4
2022	1	0	1	1	0	3
2023	2	1	0	0	0	3
Total	6	2	3	2	0	13
Percent	46.2%	15.4%	**23.1%**	**15.4%**	0.0%	100%
Statewide Urban Average	69.1%	15.7%	12.6%	1.7%	0.8%	100%

Of the 13 collisions within the study area, 8 were fixed object collisions, 4 were multi-vehicle collisions, and 1 was an overturning crash. The overturning crash occurred at the intersection of Jomax Road and El Mirage Road. ***Table 3*** includes a comparison of first harmful event by injury severity. Bold, red text indicates percentages that exceed the statewide average. There is a relatively small sample size, which can skew representation.

Figure 3 – Study Area Crash Location and Severity

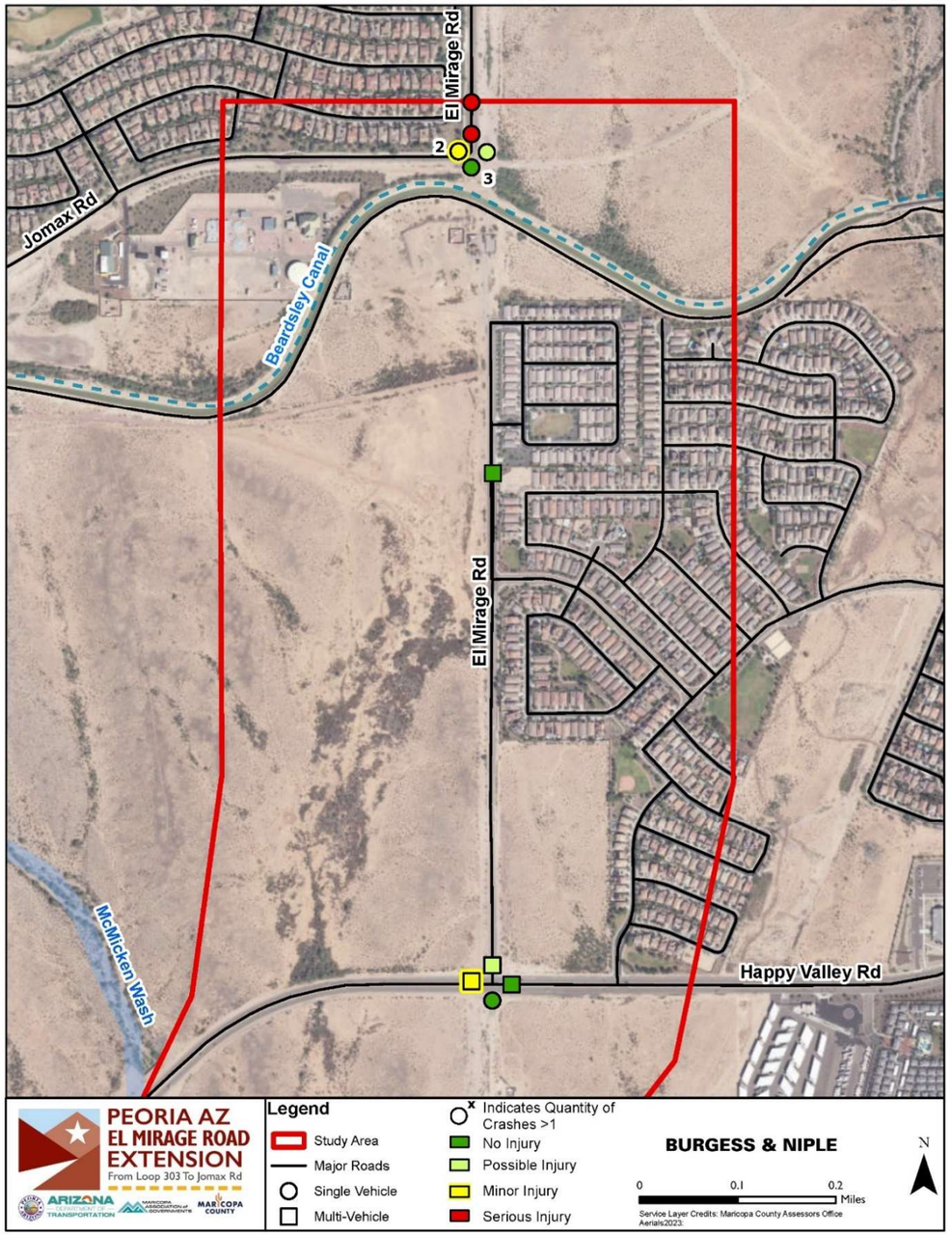


Table 3 – First Harmful Event by Injury Severity								
First Harmful Event	Injury Severity					Total Crashes	% Total	2023 Statewide Urban Average
	No Injury	Possible Injury	Suspected Minor	Suspected Serious	Fatal			
Motor Vehicle in Transport	2	1	1	0	0	4	30.8%	81.6%
Overturning	0	0	1	0	0	1	**7.7%**	0.7%
Pedestrian	0	0	0	0	0	0	0.0%	1.6%
Bicyclist	0	0	0	0	0	0	0.0%	1.0%
Animal	0	0	0	0	0	0	0.0%	0.4%
Fixed Object	4	1	1	2	0	8	**61.5%**	9.0%
Non-Fixed Object	0	0	0	0	0	0	0.0%	5.5%
Vehicle Fire or Explosion	0	0	0	0	0	0	0.0%	0.1%
Other Non-collision	0	0	0	0	0	0	0.0%	0.0%
Unknown	0	0	0	0	0	0	0.0%	0.0%

There were four multi-vehicle crashes within the study area, two of which were angle crashes and two were left turns. ***Table 4*** displays the manner of collision for multi-vehicle crashes. Bold, red text indicates percentages that exceed the statewide average. There is a relatively small sample size, which can skew representation.

Table 4 – Multi-Vehicle Crash Manner of Collision			
Collision Manner	Crashes	Percentage	Statewide Average*
Angle	2	**50.0%**	16.1%
Left Turn	2	**50.0%**	17.4%
Rear End	0	0.0%	38.1%
Head On	0	0.0%	2.0%
Sideswipe (Same Direction)	0	0.0%	18.1%
Sideswipe (Opposite Direction)	0	0.0%	1.7%
U-Turn	0	0.0%	1.0%
Other	0	0.0%	5.1%
Unknown	0	0.0%	0.5%
Total Multi-Vehicle Crashes	4	100%	100%
*From 2023 ADOT Crash Facts, Table 3-1			

Of the 13 crashes within the study area 8 did not occur during daylight conditions. ***Table 5*** provides a breakdown of the lighting condition for collisions within the study area. Bold, red text indicates percentages that exceed the statewide average. There is a relatively small sample size, which can skew representation.

Table 5 – Lighting Condition			
Lighting Condition	Count	Percentage	Statewide Average*
Daylight	4	30.8%	67.4%
Dawn	1	7.7%	1.8%
Dusk	0	0.0%	2.7%
Dark lighted	4	**30.8%**	19.0%
Dark not lighted	3	**23.1%**	5.7%
Dark unknown lighting	0	0.0%	2.9%
Unknown	1	**7.7%**	0.5%
Total	13	100%	100%
*From 2023 ADOT Crash Facts, Table 3-2			

2.2. Traffic Analysis

This section provides a summary of the traffic analysis completed for the study area. The prepared Final Initial Traffic Report is available in **Appendix DCR-E**.

2.2.1. Source of Data

Traffic Counts

24-hour average daily traffic (ADT) directional segment counts were collected on April 17, 2024, at the 12 locations outlined in ***Table 6***.

Table 6 – Segment 24-Hour Count by Location			
Roadway Name	Segment	Direction	Volume
El Mirage Road	South of SR 303L	NB	8,121
El Mirage Road	South of SR 303L	SB	7,865
El Mirage Road	Southwest of Vistancia Boulevard	NEB	1,673
Happy Valley Road	West of El Mirage Road	WB	11,980
Happy Valley Road	West of Vistancia Boulevard	EB	9,572
Happy Valley Road	West of Vistancia Boulevard	WB	11,067
Vistancia Boulevard	North of El Mirage Road	SB	7,723
Vistancia Boulevard	North of Happy Valley Road	NB	8,278
Vistancia Boulevard	North of Happy Valley Road	SB	9,706
Vistancia Boulevard	South of El Mirage Road	SB	10,390
Vistancia Boulevard	South of Happy Valley Road	NB	17,254
Vistancia Boulevard	South of Happy Valley Road	SB	22,275

Turning movement counts (TMC) were collected during the AM and PM peak hours at the following intersections and as shown on ***Figure 4***:

1. El Mirage Road and Vistancia Boulevard
2. El Mirage Road and Blue Sky Drive

3. El Mirage Road and Jomax Road
4. El Mirage Road and Happy Valley Road
5A. El Mirage Road and SR 303L Westbound Ramp
5B. El Mirage Road and SR 303L Eastbound Ramp

The TMC and ADT count data is provided in **Appendix DCR-E**.

Figure 4 – 2024 Turning Movement Counts

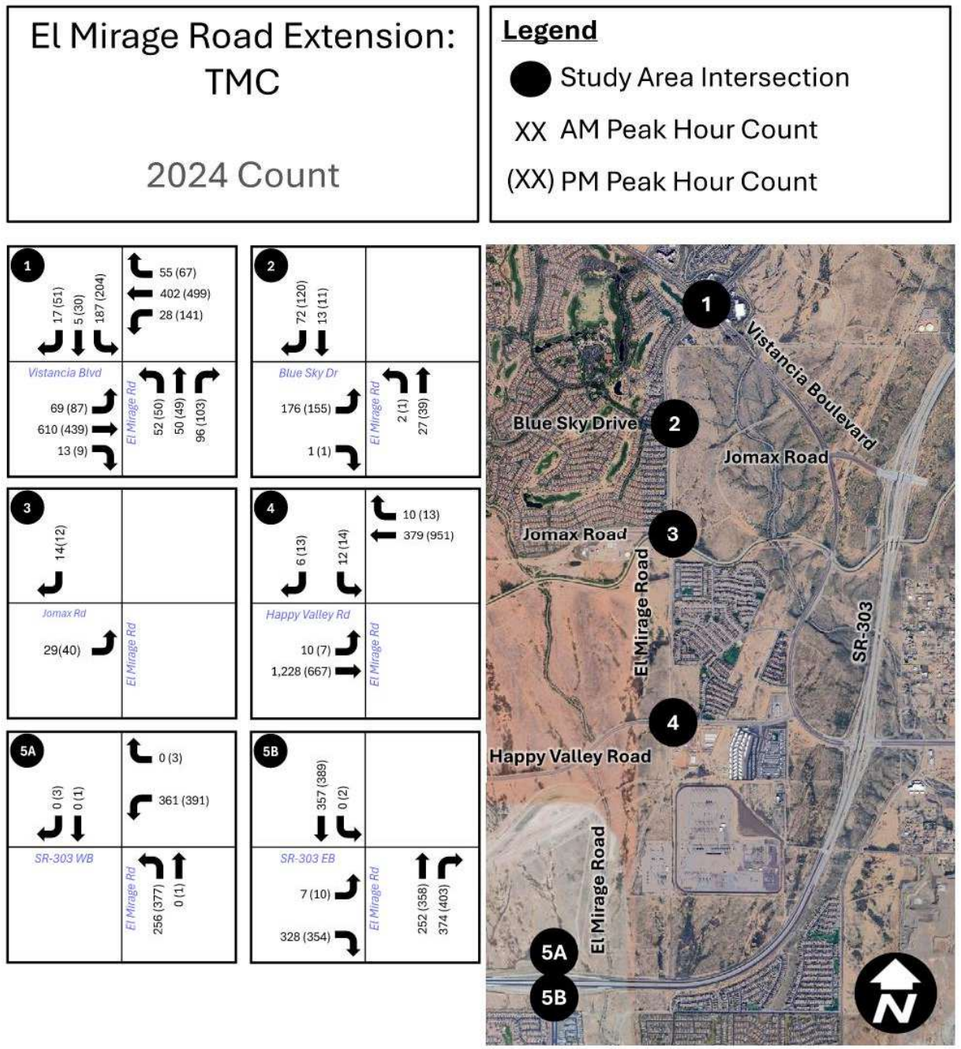
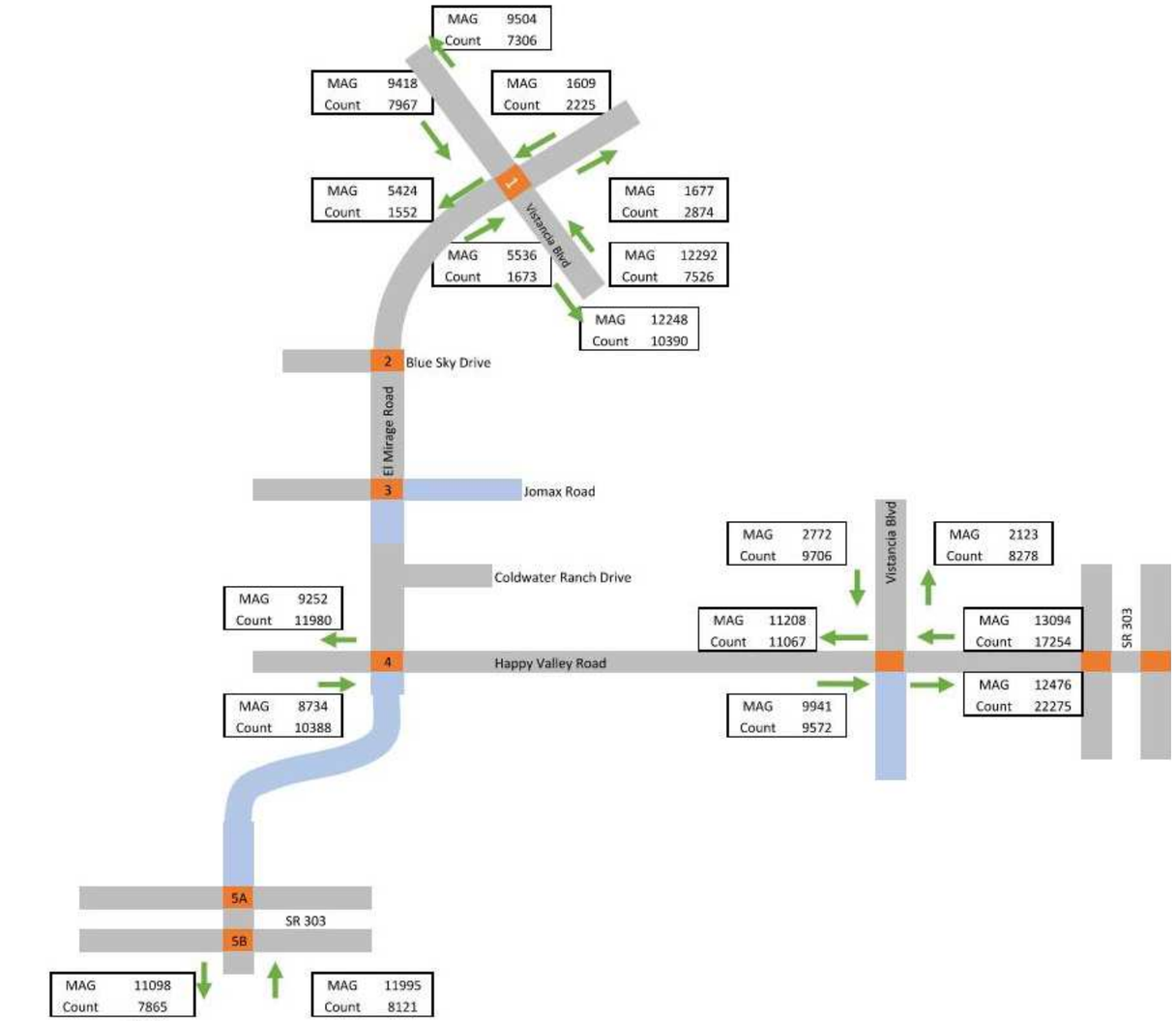


Figure 5 compares the 2024 collected segment count data to the 2024 MAG Conformity model. The accuracy of the model estimates varies within the study area. Along Happy Valley Road, the model had the closest fit to the observed traffic volume. Along Vistancia Boulevard, the model over-estimated volumes near the intersection with El Mirage Road and under-estimated volumes at the intersection with Happy Valley Road.

Figure 5 – 2024 Collected Traffic Counts Compared to MAG Model



Traffic Analysis Factors

Traffic analysis factors are provided in ***Table 7***.

Table 7 – Traffic Analysis Factors

Analysis Factor	Abbreviation	Value
Design Hour Traffic Factor	K	9%
Directional Distribution Factor	D	58%
Truck Factor	T	3.5% (North of Happy Valley Road) 5% (South of Happy Valley Road)

2.2.2. Traffic Operational Analysis

Technical Process and Assumptions

Traffic forecasts were developed using the MAG Travel Demand Model (TDM). The MAG TDM is a regional Activity Based Model (ABM) maintained by MAG and developed using the travel demand modeling software TransCAD. The project team applied NCHRP Report 765 forecasting methodology using the MAG projected 24-hour volumes and existing counts as inputs. **Appendix DCR-E** provides more details into the land use assumptions, network updates, and post processing required to create the project specific forecasts.

A TDM is often referred to as a "regional" model because the roadway network it represents typically spans multiple jurisdictions. TDMs are calibrated and rooted in survey-informed population, employment, and socioeconomic data, all of which influence trip generation and mode choice. The MAG model has a land use component that includes socioeconomic information in the region disaggregated by traffic analysis zones (TAZ). Each TAZ in the region includes information about housing, population, and employment. Land use estimates for the future are generally derived from United States Census data and estimated trips generated from planned future development. To develop the future-year land use data, MAG utilizes the land use elements of adopted general/comprehensive plans for cities and towns in the region. Future year MAG models also include all programmed and funded roadway improvements in the region. Therefore, model traffic projections consider planned improvements, new developments, and land use changes expected by a specified horizon year.

Related Studies

North Peoria Gateway 303 Planned Community Development

The proposed North Peoria Gateway development is a 1,618-acre mixed use development located between the El Mirage Road alignment on the west and the 109th Avenue alignment to the east. The planned community will convert vacant ASLD property into a mixed-use development with a focus on employment, commerce, and diverse housing options. This development will induce significant demand and increase traffic volumes in the surrounding network. The intersections of El Mirage Road and Jomax Road are included in the development footprint. In addition, the SR 303L TI at El Mirage Road, Happy Valley Road, and Jomax Road will be impacted by the traffic generated by this development. The North Peoria Gateway 303 Standards and Guidelines Report developed by ASLD is detailed in **Appendix DCR-F**.

Jomax Road DCR

This DCR considers an extension of Jomax Road from El Mirage across the SR 303L to Tierra Del Rio Boulevard. The DCR assesses existing capacity along the corridor and addresses anticipated future facility improvements needed to keep up with population growth. This extension would provide alternative access for the residential developments west of the SR 303L and reduce existing congestion at the Happy Valley Road/SR 303L TI. The extension would also provide direct access from the west to the Tierra Del Rio community.

El Mirage Road: SR303L to Jomax Road Feasibility Study

This feasibility study evaluates alternatives for a continuous extension of El Mirage Road from SR 303L to Jomax Road to accommodate anticipated growth in the area. Regional travel demand models identify a continuous extension of El Mirage Road from SR 303L to Jomax by year 2030. The operational traffic analysis conducted in this study found that the El Mirage Road intersections at Jomax Road and at Happy Valley Road would require signalization when the El Mirage Road connection was complete.

Socioeconomic Projections

Figure 6 identifies the study area project limits using a cyan boundary line, and a project influence area using a green boundary line. The influence area was assumed to include all existing and future development that may impact the traffic volumes along El Mirage Road. The project team worked with the MAG socioeconomic projects teams to confirm that all planned future developments were incorporated into the MAG socioeconomic data within the green boundary.

The current population within the project influence area is approximately 79,000 people. MAG projects that the population of the influence area will exceed 250,000 people by year 2050**.** ***Figure 7*** plots the total population projections across the analysis horizon years.

MAG estimates there are around 9,500 jobs within the project influence area, and projects that there will be over 56,000 jobs in the project influence area by year 2050. ***Figure 8*** plots the total estimated employment within the study influence area across the analysis horizon years.

Figure 6 – Project Influence Area

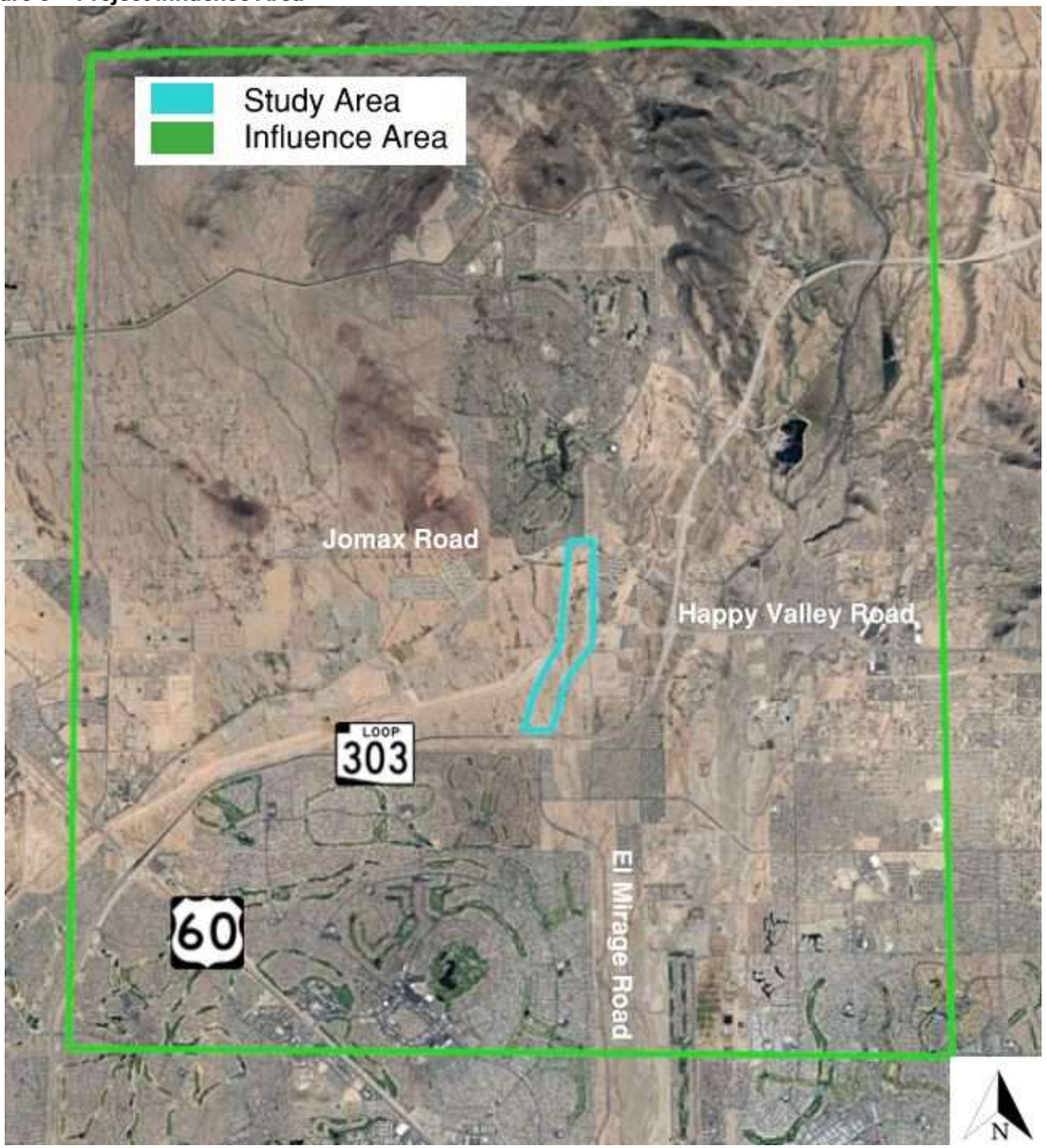


Figure 7 – Population Projections

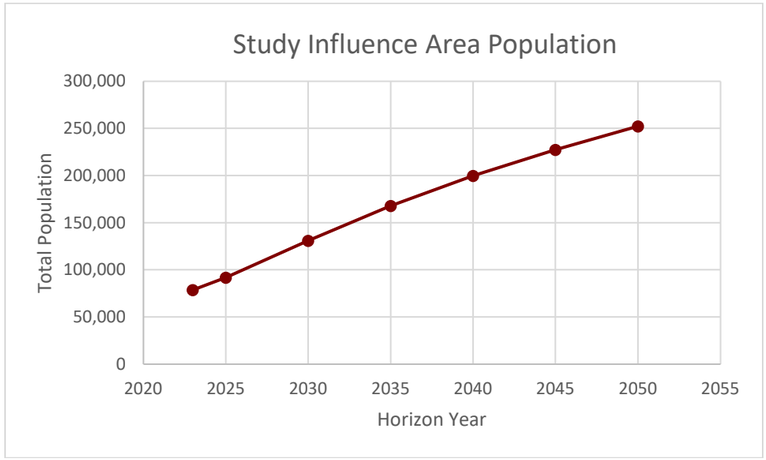
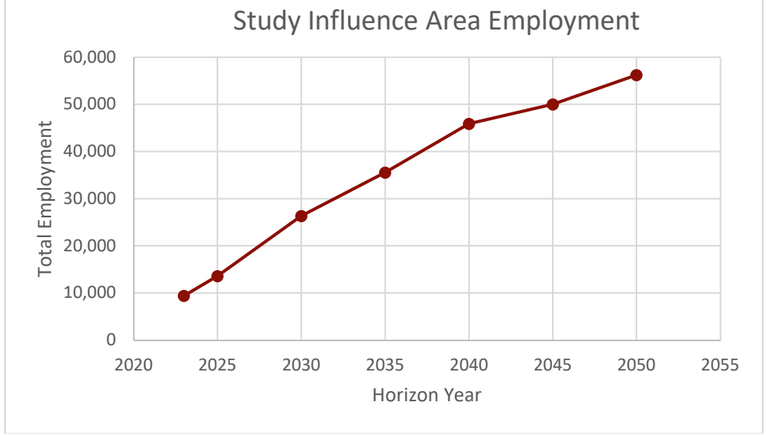


Figure 8 – Employment Projections



Travel Demand Model Network Assumptions

The MAG conformity models were used as the expected build condition for each of the horizon years. The TDM networks for each of the analysis years are depicted in **Appendix DCR-E**. The following provides a brief overview of the horizon year base conditions:

2030

El Mirage Road includes four travel lanes and will extend continuously from SR 303L to Jomax Road. Jomax Road will extend about 3,500-feet westward and connect with the existing Jomax Road alignment beginning at Dysart Road and extending west to 175th Avenue. The forecasted turning movement volumes are depicted in ***Figure 9***.

2035

The 2035 TDM network is identical to 2030. The socioeconomic inputs surrounding the study area assume more development than 2030. The 2035 forecasted turning movement volumes are shown in ***Figure 10***.

2040

El Mirage Road includes six travel lanes between SR 303L and Vistancia Boulevard. A new TI will be built along SR 303L between Grand Avenue and El Mirage Road. This new TI will pull travel demand away from the El Mirage Road and Happy Valley Road TIs and will relieve demand at the El Mirage Road and Happy Valley Road intersections. Jomax Road will extend east from El Mirage Road and connect to SR 303L. The 2040 forecasted turning movement volumes are shown in ***Figure 11***.

2045

The 2045 TDM network is identical to 2040. The socioeconomic inputs surrounding the study area include more development than 2040. The 2045 forecasted turning movement volumes are shown in ***Figure 12.***

2050

Jomax Road extends east of SR 303L across the Agua Fria River connecting to Tierra Del Rio Boulevard, which increases travel demand along Jomax Road. The 2050 forecasted turning movement volumes are shown in ***Figure 13***.

2050 No-Build

The 2050 No-Build condition assumes the network as it is today within the study area. All improvements within the 2050 MAG conformity model and all 2050 population and employment assumptions are included outside the study area. The 2050 No-Build turning movement volumes are shown in ***Figure 14***.

Figure 9 – 2030 Turning Movement Volumes

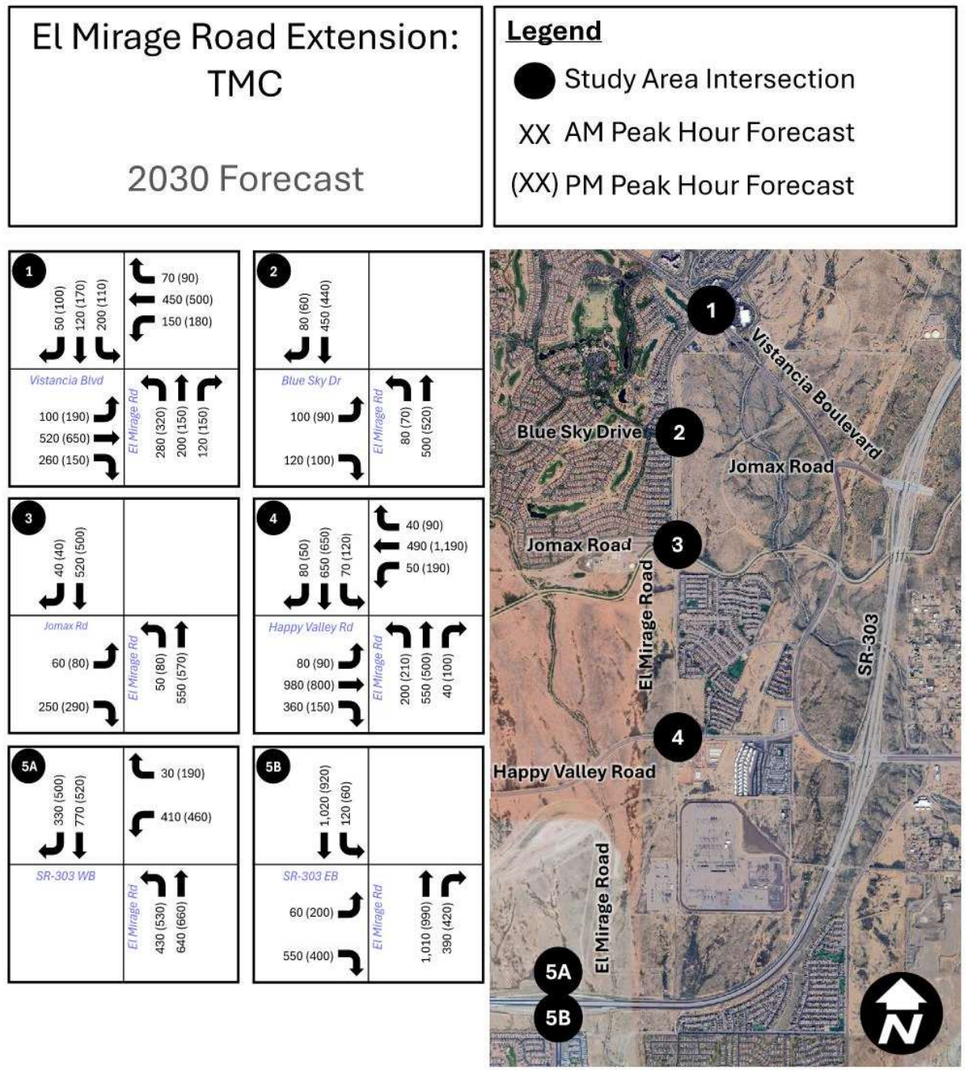


Figure 10 – 2035 Turning Movement Volumes

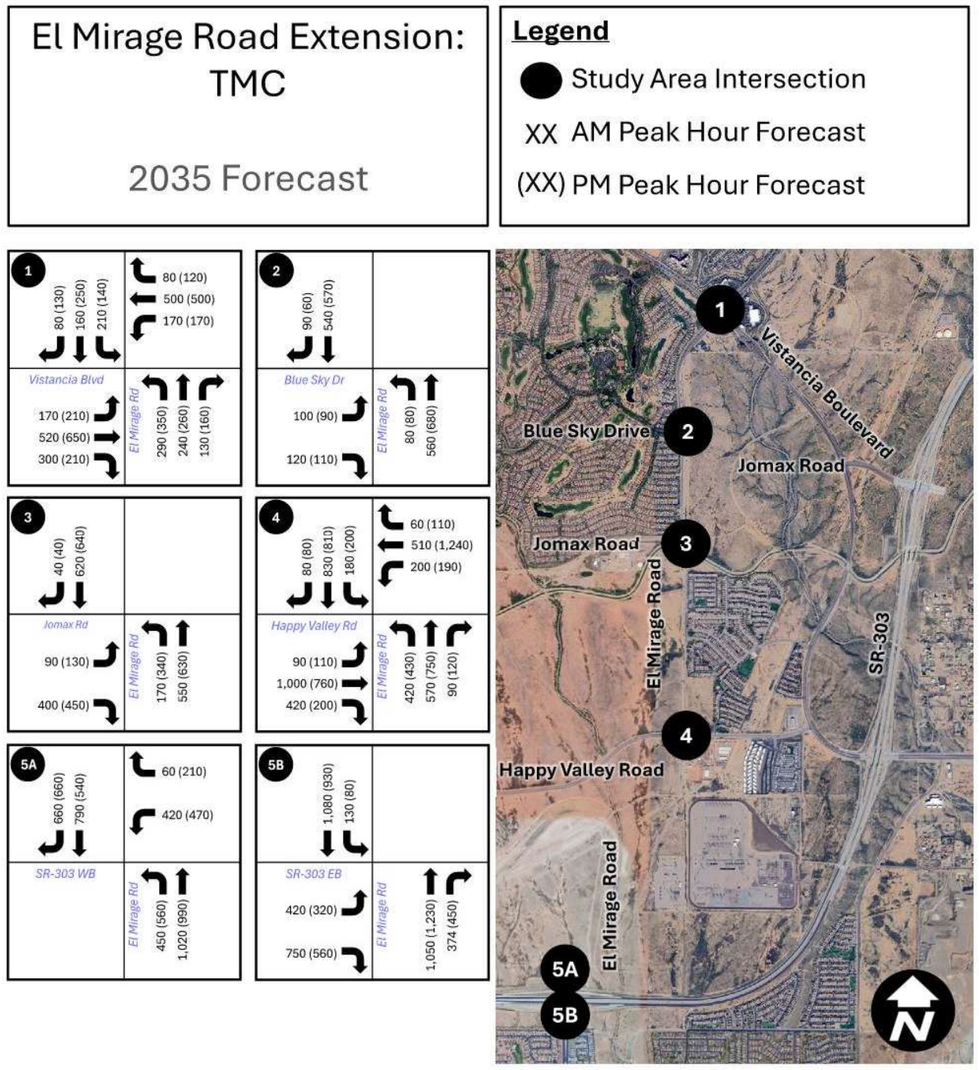


Figure 11 – 2040 Turning Movement Volumes

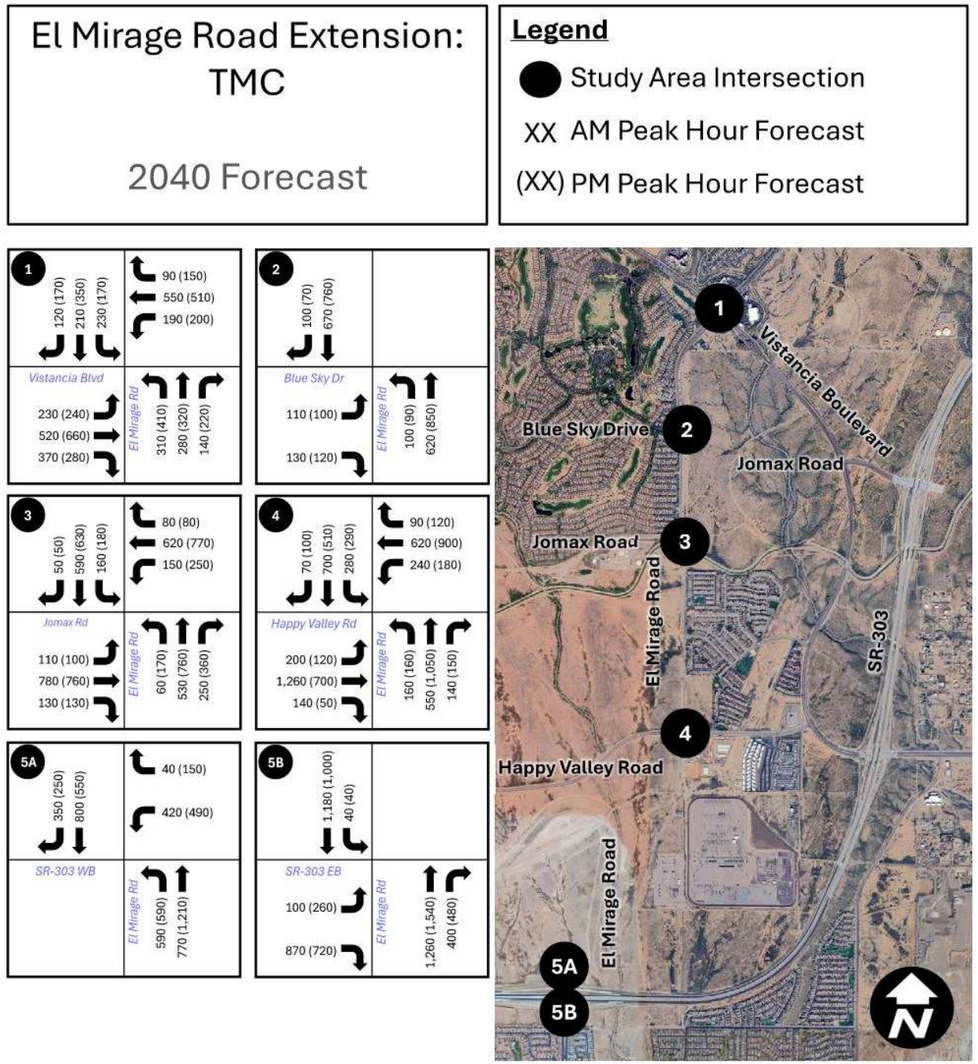


Figure 12 – 2045 Turning Movement Volumes

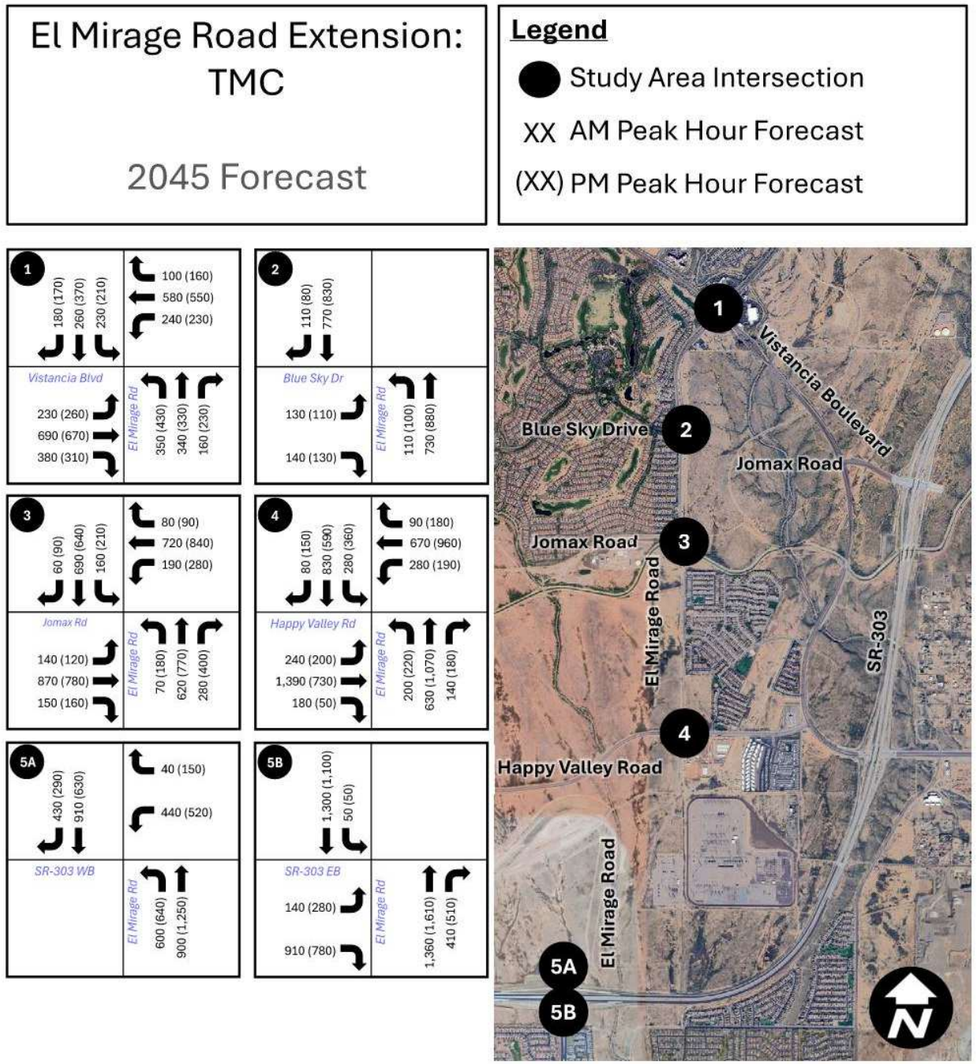


Figure 13 – 2050 Turning Movement Volumes

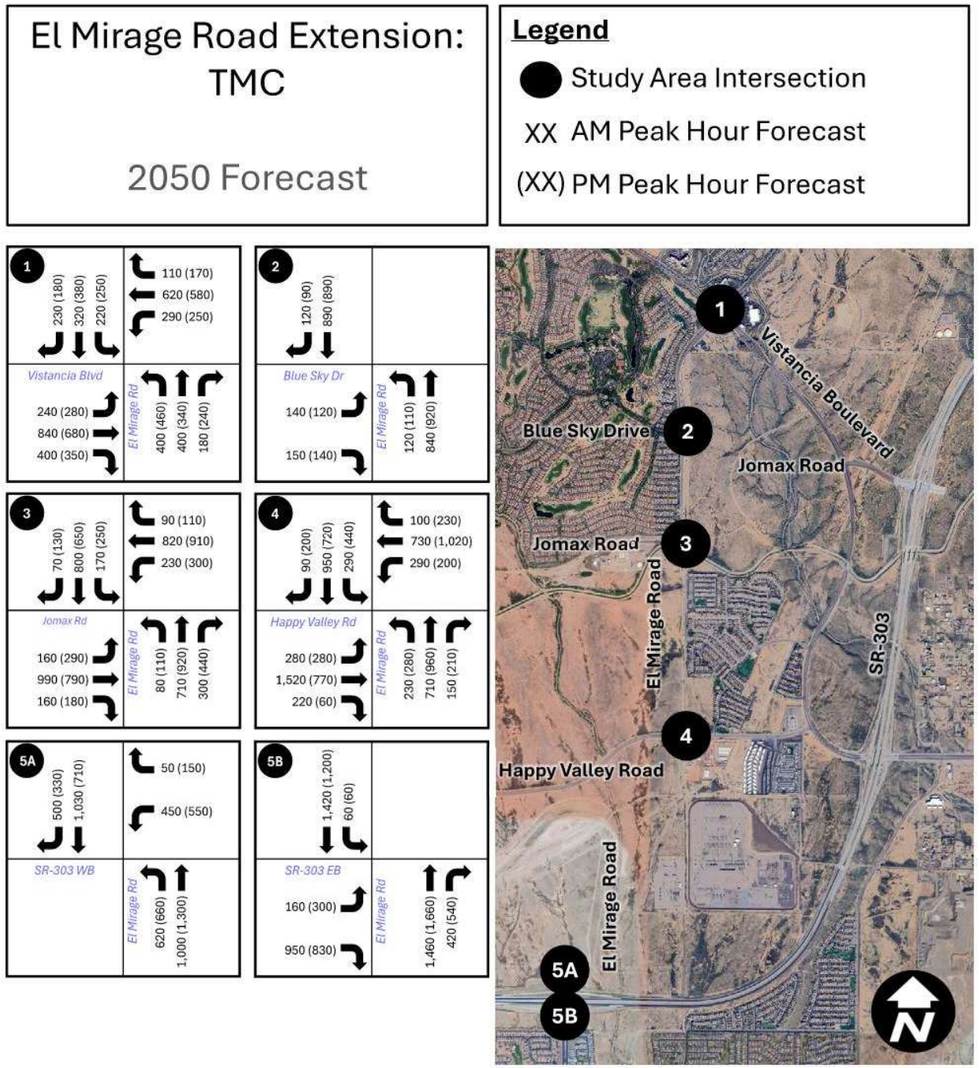
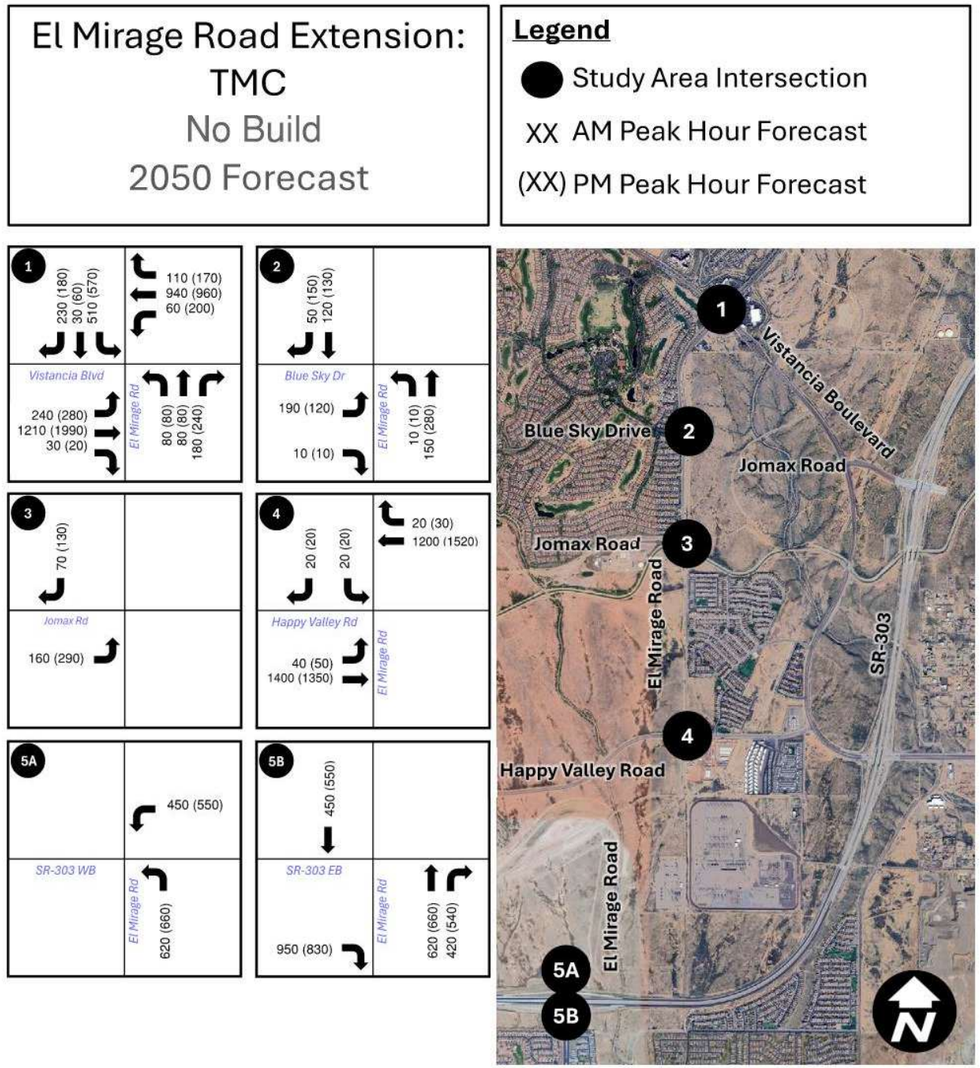


Figure 14 – 2050 No-Build Turning Movement Volumes



Operational Sensitivity Analysis

Traffic signal warrants were evaluated for the existing El Mirage Road intersections at Jomax Road and Happy Valley Road. The analysis found signals are not warranted in the present condition. Volume projections and network assumptions from the 2030 forecasts were applied to these intersections. The analysis found that signals were warranted under Warrant 1 and Warrant 2. Details of the signal warrant analysis are included in the following section.

Two initial design alternatives were established through an iterative process of modeling intersections while applying the smallest footprint possible. The alternatives were then stress tested by applying increasingly higher volumes across the horizon years. When the first initial alternative failed, its capacity was expanded to make a second initial alternative. After both initial designs began to operate poorly, the ultimate condition was developed to operate with 2050 travel demand. The analysis found that the ultimate condition will become necessary by 2045.

Traffic Signal Warrants

The existing intersection of Jomax Road and El Mirage Road is a free flow elbow bend. West of El Mirage Road, Jomax Road is a half-street. This intersection was not analyzed for signal warrant in the existing condition as it is a free movement. The 2030 forecast was then applied to the Jomax Road intersection, and the warrant analysis found a signal would be warranted under Warrant 2. ***Figure 15*** shows the 2030 warrant analysis for the Jomax Road and El Mirage Road intersection.

The El Mirage Road and Happy Valley Road intersection is currently a three-leg unsignalized intersection, with stop control present on the north leg of the intersection. The northern leg of the intersection is used almost entirely by the Coldwater Ranch and Coldwater Retreat communities. Peak hour traffic volume counts found less than 30 vehicles approaching the intersection from the north.

Figure 16 shows the traffic warrant analysis of the El Mirage Road and Happy Valley Road intersection for the existing 2024 condition, which found that a traffic signal is not warranted. Note that Warrant 2 (70 Percent Factor) has a threshold of 80 vehicles per hour on the minor road for at least 4 hours given the 1,000+ vehicles on Happy Valley Road. Until new development is built along El Mirage Road between Happy Valley Road and Jomax Road, a signal will likely remain unwarranted at this intersection. Once El Mirage Road is extended from SR 303L to Jomax Road, a signal will likely be warranted on opening day.

Using forecasted 2030 traffic volumes, another Warrant Analysis was conducted at Happy Valley Road and El Mirage Road assuming El Mirage Road would have a 4-lane cross section. The warrant analysis, shown in ***Figure 17***, found the forecasted 2030 traffic volumes would warrant signalization under Warrant 1 and Warrant 2.

Figure 15 – 2030 Signal Warrant of Jomax Road Intersection and El Mirage Road

Intersection: El Mirage Road and Jomax Road 2030

2030		ADJUSTED HOURLY VOLUMES			Condition A				Condition B			
COND-ITION	NO. LANE	MAJOR ST 2-WAY	MINOR ST 1-WAY (EBNB)	MINOR ST 1-WAY (WBSB)	100%		80%		100%		80%	
- NORM	1	X	X	X	600	150	480	120	750	75	600	60
	2+				800	200	480	160	900	100	720	80
- 70%	1				350	105	280	84	525	53	420	42
	2+				420	140	336	112	630	70	504	56
Mid-1AM		85	19									
1AM-2AM		32	7									
2AM-3AM		20	5									
3AM-4AM		28	6									
4AM-5AM		33	8									
5AM-6AM		116	26									
6AM-7AM		312	71		x		x				x	x
7AM-8AM		707	160		x	x	x	x			x	x
8AM-9AM		736	167		x	x	x	x	x	x	x	x
9AM-10AM		874	198		x	x	x	x	x	x	x	x
10AM-11AM		1053	239		x	x	x	x	x	x	x	x
11AM-NOON		956	217		x	x	x	x	x	x	x	x
NOON-1PM		1057	240		x	x	x	x	x	x	x	x
1PM-2PM		1034	235		x	x	x	x	x	x	x	x
2PM-3PM		980	222		x	x	x	x	x	x	x	x
3PM-4PM		1190	270		x	x	x	x	x	x	x	x
4PM-5PM		1098	249		x	x	x	x	x	x	x	x
5PM-6PM		1052	239		x	x	x	x	x	x	x	x
6PM-7PM		950	215		x	x	x	x	x	x	x	x
7PM-8PM		860	195		x	x	x	x		x	x	x
8PM-9PM		681	155			x	x	x		x		x
9PM-10PM		472	107							x		x
10PM-11PM		300	68		###		###		###		###	x
11PM-MID		169	38									
HOURS MET					13		14		11		14	
CRITERIA MET					Yes		Yes		Yes		Yes	

* CONDITION IS DETERMINED BY ENVIRONMENT: USE 70% VALUES IF 85 PERCENTILE SPEED EXCEEDS 40 MPH ON THE MAJOR APPROACH OR IF LOCATION IS IN THE BUILT-UP AREA OF AN ISOLATED COMMUNITY WITH A POPULATION OF LESS THAN 10,000.

Major Street: El Mirage Road
Minor Street: Jomax Road

WARRANT #1 (8-HOUR VEHICULAR VOLUME)
Conditions A OR B are met at the 100% level — Yes
OR
Conditions A AND B are each met at the 80% level — Yes
WARRANT SATISFIED? — Yes

WARRANT #2 (4-HOUR VEHICULAR VOLUME)
Population < 10,000 or Speed above 40 mph on Major street? — Yes
If yes, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-2 for at least four hours? — Yes
If no, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-1 for at least four hours? — No
WARRANT SATISFIED? — Yes

WARRANT #3 (PEAK HOUR)
Is this a special case: office complex, manufacturing plants, industrial complex, high-occupancy vehicle facility? — No
If no, warrant not applied
Total stopped-delay on minor streets 4 veh-hrs for one lane or 5 veh-hrs for two lanes? — N/A
AND
Volume on same minor street approachs 100 veh/h for one lane or 150 veh/h for two lanes? — N/A
AND
Total entering volume serviced 650 veh/h for intersection with three approaches or 800 veh/h for four approaches? — N/A
Population < 10,000 or Speed above 40 mph on Major street? — N/A
If yes, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-4 for one hour? — N/A
If no, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-3 for one hour? — N/A
WARRANT SATISFIED? — No

WARRANT #4 (PEDESTRIANS)
Population < 10,000 or Speed above35 mph on Major street? — Yes
If Yes, for each of any 4 hours, do plotted points fall above curve on Fig. 4C-5? — No
If No, for each of any 4 hours, do plotted points fall above curve on Fig. 4C-6? — N/A
OR
If Yes, for any 1 hour, do plotted points fall above curve on Fig. 4C-5? — No
If No, for any 1 hour, do plotted points fall above curve on Fig. 4C-7? — N/A
Distance to nearest traffic control signal < 300 feet? — No
WARRANT SATISFIED? — No

WARRANT #5 (SCHOOL CROSSING)
Number of children crossing during highest crossing hour at least 20? — No
Number of gaps for crossing at least one per minute during which children are crossing? — N/A
Distance to nearest traffic control signal < 300 feet? — No
WARRANT SATISFIED? — No

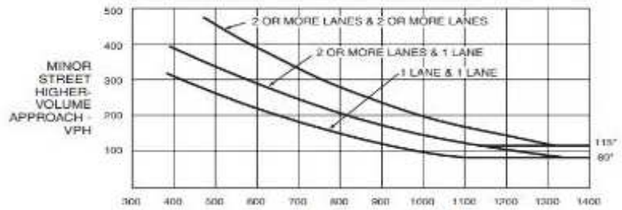
WARRANT #6 (COORDINATED SIGNAL SYSTEM)
One-way street, or street with traffic predominantly in one direction has adjacent traffic signals too far apart to provide necessary platooning? — N/A
OR
Two-way street does not provide necessary platooning and proposed signal will provide progressive operation? — N/A
WARRANT SATISFIED? — No

WARRANT # 7 (CRASH EXPERIENCE)
Adequate trial of alternative has failed to reduce crash frequency? — No
AND
Five or more crashes in 12-month period involving injury or property damage have occurred, that are susceptible to correction by traffic control signal? — N/A
AND
80% of Warrant 1 Condition A or B satisfied — Yes
WARRANT SATISFIED? — No

WARRANT #8 (ROADWAY NETWORK)
Both roads Major routes? — No
Intersection has total existing or projected entering volume of at least 1,000 veh/h during peak hour on average weekday? — No
Intersection has five-year projected volume that meets one or more of Warrants 1, 2, and 3, during an average weekday? — Yes
At least 1000 VPH for any 5 hours on a Saturday or Sunday? — N/A
Major route is part of system that serves as principal roadway network? — Yes
OR
Includes rural or suburban highways outside, entering, or traversing a city? — Yes
OR
Appears as major route on official plan in major transportation study? — Yes
WARRANT SATISFIED? — No

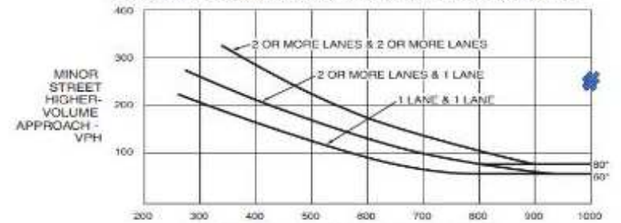
WARRANT #9 (INTERSECTION NEAR A GRADE CROSSING)
Is crossing on stop or yield controlled approach and within 140 feet of stop or yield line? — No
AND
During highest traffic volume hour during which rail traffic uses crossing, does plotted point fall above curve for appropriate D distance in Fig. 4C-9 (one approach lane) or Fig. 4C-10 (two or more approach lanes) when applicable adjustment factors in tables 4C-2, 4C-3, and 4C-4 are applied? — N/A
WARRANT SATISFIED? — No

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



VEHICLES PER HOUR (VPH)

*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 16 – 2024 Signal Warrant of Happy Valley Road and El Mirage Road Intersection

Intersection: Happy Valley Road and El Mirage Road 2024

2024		ADJUSTED HOURLY VOLUMES			Condition A			Condition B		
COND-ITION	NO. LANE	MAJOR ST 2-WAY	MINOR ST 1-WAY (EB/NB)	MINOR ST 1-WAY (WB/SB)	100%	80%		100%	80%	
NORM	1	X	X	X	500	190	400	120	750	75	600	60
	2+				900	260	480	160	900	192	720	60
70%	1				350	105	280	84	525	53	420	42
	2+				420	140	336	112	630	70	504	56
MID-1AM		127	1									
1AM-2AM		69	1									
2AM-3AM		29	1									
3AM-4AM		29	1									
4AM-5AM		102	5									
5AM-6AM		258	11		x		x					
6AM-7AM		522	19		x		x		x		x	
7AM-8AM		844	27		x		x		x		x	
8AM-9AM		1137	24		x		x		x		x	
9AM-10AM		1031	18		x		x		x		x	
10AM-11AM		1048	17		x		x		x		x	
11AM-NOON		1079	15		x		x		x		x	
NOON-1PM		1187	14		x		x		x		x	
1PM-2PM		1171	15		x		x		x		x	
2PM-3PM		1308	16		x		x		x		x	
3PM-4PM		1924	18		x		x		x		x	
4PM-5PM		2312	18		x		x		x		x	
5PM-6PM		2387	17		x		x		x		x	
6PM-7PM		2159	13		x		x		x		x	
7PM-8PM		1452	8		x		x		x		x	
8PM-9PM		1308	6		x		x		x		x	
9PM-10PM		903	4				x					
10PM-11PM		443	2		###		###		###		###	
11PM-MID		250	1									
HOURS MET					0		0		0		0	
CRITERIA MET					No		No		No		No	

* CONDITION IS DETERMINED BY ENVIRONMENT: USE 70% VALUES IF 85 PERCENTILE SPEED EXCEEDS 40 MPH ON THE MAJOR APPROACH OR IF LOCATION IS IN THE BUILT-UP AREA OF AN ISOLATED COMMUNITY WITH A POPULATION OF LESS THAN 10,000.

Major Street: Happy Valley Road
Minor Street: El Mirage Road

WARRANT #1 (8-HOUR VEHICULAR VOLUME)

Conditions A OR B are met at the 100% level	No
OR	
Conditions A AND B are each met at the 80% level	No
WARRANT SATISFIED?	No

WARRANT #2 (4-HOUR VEHICULAR VOLUME)

Population < 10,000 or Speed above 40 mph on Major street?	Yes
If yes, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-2 for at least four hours?	No
If no, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-1 for at least four hours?	No
WARRANT SATISFIED?	No

WARRANT #3 (PEAK HOUR)

Is this a special case: office complex, manufacturing plants, industrial complex, high-occupancy-vehicle facility?	No
If no, warrant not applied	
Total stopped-delay on minor street ≥ 4 veh-hrs for one lane or 5 veh-hrs for two lanes?	N/A
AND	
Volume on same minor street approach ≥ 100 veh/h for one lane or 150 veh/h for two lanes?	N/A
AND	
Total entering volume serviced ≥ 650 veh/h for intersection with three approaches or 800 veh/h for four approaches?	N/A
Population < 10,000 or Speed above 40 mph on Major street?	N/A
If yes, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-4 for one hour?	N/A
WARRANT SATISFIED?	No

WARRANT #4 (PEDESTRIANS)

Population < 10,000 or Speed above 35 mph on Major street?	Yes
If Yes, for each of any 4 hours, do plotted points fall above curve on Fig. 4C-6?	No
If No, for each of any 4 hours, do plotted points fall above curve on Fig. 4C-5?	N/A
OR	
If Yes, for any 1 hour, do plotted points fall above curve on Fig. 4C-8?	No
If No, for any 1 hour, do plotted points fall above curve on Fig. 4C-7?	N/A
Distance to nearest traffic control signal < 300 feet?	No
WARRANT SATISFIED?	No

WARRANT #5 (SCHOOL CROSSING)

Number of children crossing during highest crossing hour at least 20?	No
Number of gaps for crossing at least one per minute during which children are crossing?	N/A
Distance to nearest traffic control signal < 300 feet?	No
WARRANT SATISFIED?	No

WARRANT #6 (COORDINATED SIGNAL SYSTEM)

One-way street, or street with traffic predominantly in one direction has adjacent traffic signals too far apart to provide necessary platooning?	N/A
OR	
Two-way street does not provide necessary platooning and proposed signal will provide progressive operation?	N/A
WARRANT SATISFIED?	No

WARRANT # 7 (CRASH EXPERIENCE)

Adequate trial of alternative has failed to reduce crash frequency?	No
AND	
Five or more crashes in 12-month period involving injury or property damage have occurred, that are susceptible to correction by traffic control signal?	N/A
AND	
80% of Warrant 1 Condition A or B satisfied	No
WARRANT SATISFIED?	No

WARRANT #8 (ROADWAY NETWORK)

Both roads Major routes?	No
Intersection has total existing or projected entering volume of at least 1,000 veh/h during peak hour on average weekday?	No
Intersection has five-year projected volume that meets one or more of Warrants 1, 2, and 3, during an average weekday?	Yes
At least 1000 VPH for any 5 hours on a Saturday or Sunday?	N/A
Major route is part of system that serves as principal roadway network?	Yes
OR	
Includes rural or suburban highways outside, entering, or traversing a city?	Yes
OR	
Appears as major route on official plan in major transportation study?	Yes
WARRANT SATISFIED?	No

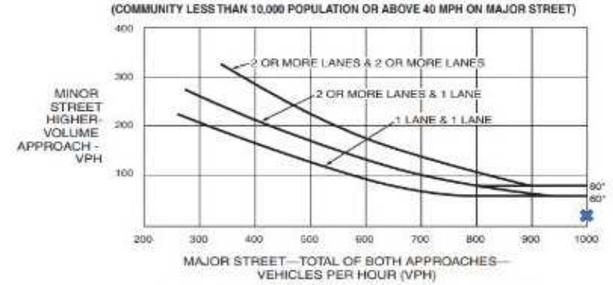
WARRANT #9 (INTERSECTION NEAR A GRADE CROSSING)

Is crossing on stop or yield controlled approach and within 140 feet of stop or yield line?	No
AND	
During highest traffic volume hour during which rail traffic uses crossing, does plotted point fall above curve for appropriate D distance in Fig. 4C-9 (one approach lane) or Fig. 4C-10 (two or more approach lanes) when applicable adjustment factors in tables 4C-2, 4C-3, and 4C-4 are applied?	N/A
WARRANT SATISFIED?	No

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

85th percentile speed SB Williamson Valley Rd is 58 mph
85th percentile speed NB Williamson Valley Rd is 57 mph

Figure 17 – 2030 Signal Warrant of Happy Valley Road and El Mirage Road Intersection

Intersection: Happy Valley Road and El Mirage Road 2030

2030		ADJUSTED HOURLY VOLUMES			Condition A				Condition B			
COND-ITION	NO. LANE	MAJOR ST 2-WAY	MINOR ST 1-WAY (EB/NB)	MINOR ST 1-WAY (WB/SB)	100%		80%		100%		80%	
NORM	1	X	X	X	500	150	400	120	750	75	600	60
	2+				600	200	480	160	900	100	720	80
70%	1				350	105	280	84	525	53	422	42
	2+				420	140	336	112	630	70	504	56
MM-1AM		134	44									
1AM-2AM		73	24									
2AM-3AM		30	10									
3AM-4AM		30	10									
4AM-5AM		107	35									
5AM-6AM		271	89		x		x			x		x
6AM-7AM		549	179		x	x	x	x	x	x	x	x
7AM-8AM		887	290		x	x	x	x	x	x	x	x
8AM-9AM		1195	391		x	x	x	x	x	x	x	x
9AM-10AM		1084	354		x	x	x	x	x	x	x	x
10AM-11AM		1102	360		x	x	x	x	x	x	x	x
11AM-NOON		1134	371		x	x	x	x	x	x	x	x
NOON-1PM		1248	408		x	x	x	x	x	x	x	x
1PM-2PM		1232	402		x	x	x	x	x	x	x	x
2PM-3PM		1374	449		x	x	x	x	x	x	x	x
3PM-4PM		2024	661		x	x	x	x	x	x	x	x
4PM-5PM		2431	794		x	x	x	x	x	x	x	x
5PM-6PM		2510	820		x	x	x	x	x	x	x	x
6PM-7PM		2271	742		x	x	x	x	x	x	x	x
7PM-8PM		1528	499		x	x	x	x	x	x	x	x
8PM-9PM		1376	449		x	x	x	x	x	x	x	x
9PM-10PM		950	310			x	x	x		x		x
10PM-11PM		466	152		###	x	###	x	###	x	###	x
11PM-MD		263	86							x		x
HOURS MET					15		16		15		15	
CRITERIA MET					Yes		Yes		Yes		Yes	

* CONDITION IS DETERMINED BY ENVIRONMENT: USE 70% VALUES IF 85 PERCENTILE SPEED EXCEEDS 40 MPH ON THE MAJOR APPROACH OR IF LOCATION IS IN THE BUILT-UP AREA OF AN ISOLATED COMMUNITY WITH A POPULATION OF LESS THAN 10,000.

Major Street: Happy Valley Road
Minor Street: El Mirage Road

WARRANT #1 (8-HOUR VEHICULAR VOLUME)
Conditions A OR B are met at the 100% level ..... Yes
OR
Conditions A AND B are each met at the 80% level ..... Yes
WARRANT SATISFIED? ..... Yes

WARRANT #2 (4-HOUR VEHICULAR VOLUME)
Population < 10,000 or Speed above 40 mph on Major street? ..... Yes
If yes, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-2 for at least four hours? ..... Yes
If no, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-1 for at least four hours? ..... No
WARRANT SATISFIED? ..... Yes

WARRANT #3 (PEAK HOUR)
Is this a special case: office complex, manufacturing plants, industrial complex, high-occupancy vehicle facility? ..... No
If no, warrant not applied
Total stopped-delay on minor street≥ 4 veh-hrs for one lane or 5 veh-hrs for two lanes? ..... N/A
AND
Volume on same minor street approache 100 veh/h for one lane or 150 veh/h for two lanes? ..... N/A
AND
Total entering volume serviced≥ 850 veh/h for intersection with three approaches or 800 veh/h for four approaches? ..... N/A
Population < 10,000 or Speed above 40 mph on Major street? ..... N/A
If yes, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-4 for one hour? ..... N/A
If no, does plot of 2-way Major street volume against highest one-way Minor street volume for each hour plot above lane curve on Fig. 4C-3 for one hour? ..... N/A
WARRANT SATISFIED? ..... No

WARRANT #4 (PEDESTRIANS)
Population < 10,000 or Speed above35 mph on Major street? ..... Yes
If Yes, for each of any 4 hours, do plotted points fall above curve on Fig. 4C-5? ..... No
If No, for each of any 4 hours, do plotted points fall above curve on Fig. 4C-5? ..... N/A
OR
If Yes, for any 1 hour, do plotted points fall above curve on Fig. 4C-6? ..... No
If No, for any 1 hour, do plotted points fall above curve on Fig. 4C-7? ..... N/A
Distance to nearest traffic control signal < 300 feet? ..... No
WARRANT SATISFIED? ..... No

WARRANT #5 (SCHOOL CROSSING)
Number of children crossing during highest crossing hour at least 20? ..... No
Number of gaps for crossing at least one per minute during which children are crossing? ..... N/A
Distance to nearest traffic control signal < 300 feet? ..... No
WARRANT SATISFIED? ..... No

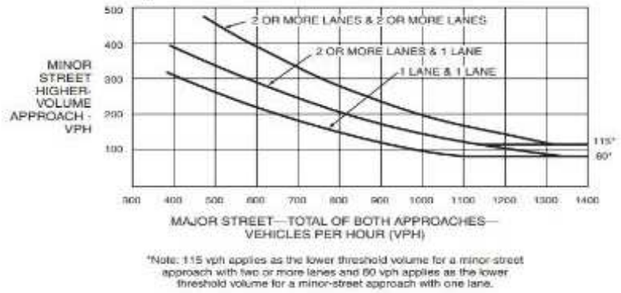
WARRANT #6 (COORDINATED SIGNAL SYSTEM)
One-way street, or street with traffic predominantly in one direction has adjacent traffic signals too far apart to provide necessary platooning? ..... N/A
OR
Two-way street does not provide necessary platooning and proposed signal will provide progressive operation? ..... N/A
WARRANT SATISFIED? ..... No

WARRANT # 7 (CRASH EXPERIENCE)
Adequate trial of alternative has failed to reduce crash frequency? ..... No
AND
Five or more crashes in 12-month period involving injury or property damage have occurred, that are susceptible to correction by traffic control signal? ..... N/A
AND
80% of Warrant 1 Condition A or B satisfied ..... Yes
WARRANT SATISFIED? ..... No

WARRANT #8 (ROADWAY NETWORK)
Both roads Major routes? ..... No
Intersection has total existing or projected entering volume of at least 1,000 veh/h during peak hour on average weekday? ..... No
Intersection has five-year projected volume that meets one or more of Warrants 1, 2, and 3, during an average weekday? ..... Yes
At least 1000 VPH for any 5 hours on a Saturday or Sunday? ..... N/A
Major route is part of system that serves as principal roadway network? ..... Yes
OR
Includes rural or suburban highways outside, entering, or traversing a city? ..... Yes
OR
Appears as major route on official plan in major transportation study? ..... Yes
WARRANT SATISFIED? ..... No

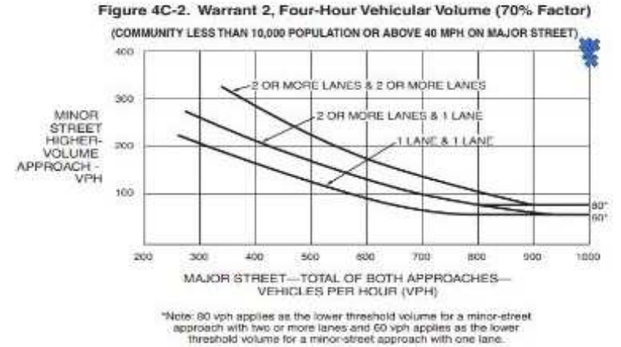
WARRANT #9 (INTERSECTION NEAR A GRADE CROSSING)
Is crossing on stop or yield-controlled approach and within 140 feet of stop or yield line? ..... No
AND
During highest traffic volume hour during which rail traffic uses crossing, does plotted point fall above curve for appropriate D distance in Fig. 4C-9 (one approach lane) or Fig. 4C-10 (two or more approach lanes) when applicable adjustment factors in table 4C-2, 4C-3, and 4C-4 are applied? ..... N/A
WARRANT SATISFIED? ..... No

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

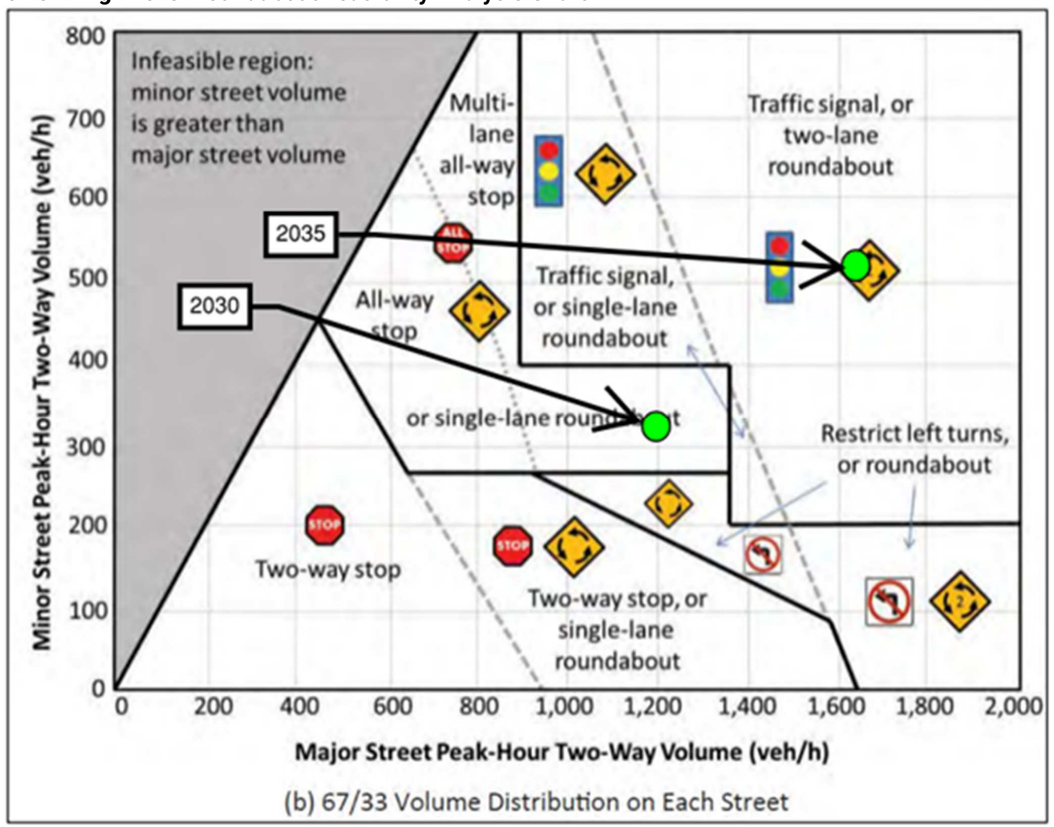
85th percentile speed SB Williamson Valley Rd is 58 mph
85th percentile speed NB Williamson Valley Rd is 57 mph

Initial Roundabout Feasibility at Jomax Road

During the initial phase of the El Mirage Road construction, the intersection traffic volumes at El Mirage Road and Jomax Road are expected to be highly compatible with a roundabout placement. A high-level analysis was conducted to determine the number of lanes required for such a roundabout and for how long a roundabout solution would be effective at this intersection. ***Figure 18***, from NCHRP Report 825 Exhibit 17, plots major and minor peak hour traffic volumes over thresholds for various intersection treatments. This analysis found that a single lane roundabout will operate well at the El Mirage Road and Jomax Road intersection through 2030, but by 2035 a dual lane roundabout would be required. The ultimate condition of El Mirage Road is three lanes in each direction which is not recommended for roundabouts, so by the ultimate condition a signalized intersection will be required. Additionally, traffic volumes by 2040 will exceed the capacity of a 2-lane roundabout solution.

An additional roundabout at El Mirage Road and Tether Trail is also under consideration for the initial phase. The combination of the two roundabouts provides greater access management flexibility along El Mirage Road.

Figure 18 – High Level Roundabout Feasibility Analysis Chart



(b) 67/33 Volume Distribution on Each Street

Operational Analysis Methodology

The developed traffic forecasts were used as peak hour inputs in Synchro models. The analysis was conducted using delay-based level of service (LOS) thresholds established in the Highway Capacity Manual (HCM) for evaluating signalized and unsignalized intersections, presented in ***Table 8*** and ***Table 9***, respectively. For the purposes of this study, a LOS of D or above is considered an acceptable LOS.

Table 8 – Signalized Intersection Capacity Analysis LOS Thresholds

Level of Service	Control Delay (s)
A	≤10
B	10 to 20
C	20 to 35
D	35 to 55
E	55 to 80
F	> 80

Table 9 – Unsignalized Intersection Capacity Analysis LOS Thresholds

Level of Service	Control Delay (s)
A	≤10
B	10 to 15
C	15 to 25
D	25 to 35
E	35 to 50
F	> 50

Analysis Alternatives

There are two phases under consideration in the alternatives analysis: initial condition and the ultimate condition. The distinction between these phases is that the initial condition assumes El Mirage Road has a 4-lane cross section within the study area. The ultimate condition assumes El Mirage Road has a 6-lane cross section within the study area.

Two initial alternatives were evaluated for the El Mirage Road intersections at Jomax Road and Happy Valley Road. Synchro models evaluated each intersection between 2030 and 2050 at 5-year intervals. Once an initial alternative failed, the next initial condition expanded the intersection footprint to add capacity. Once the second initial alternative failed the ultimate condition was implemented for the remaining analysis. When an alternative failed, the analysis assumed the alternative would fail in all subsequent analysis years.

Synchro analysis provides 95th percentile queue calculations which were then used to determine recommended storage lengths for turn bays. The highest 95th percentile queue length observed in the 2050 ultimate condition rounded to the nearest increment of 25 was used as the recommended storage length. If the 95th percentile queue were shorter than the minimum storage length required by City of Peoria guidelines, then the minimum length required by City of Peoria was used.

Results

The 2050 6-lane alternative was compared to the 2050 No-Build Alternative. This analysis took into consideration the intersections along El Mirage Road outside the study area to monitor the benefits of the ultimate condition. Without El Mirage Road, much of the traffic produced by incoming developments all around the study area will utilize Vistancia Boulevard and Happy Valley Road more heavily. The peak hour LOS by movement for the 6-lane alternative and the No-Build are depicted in ***Figure 19*** and ***Figure 20***, respectively.

Figure 19 – 2050 6-Lane Alternative LOS by Movement

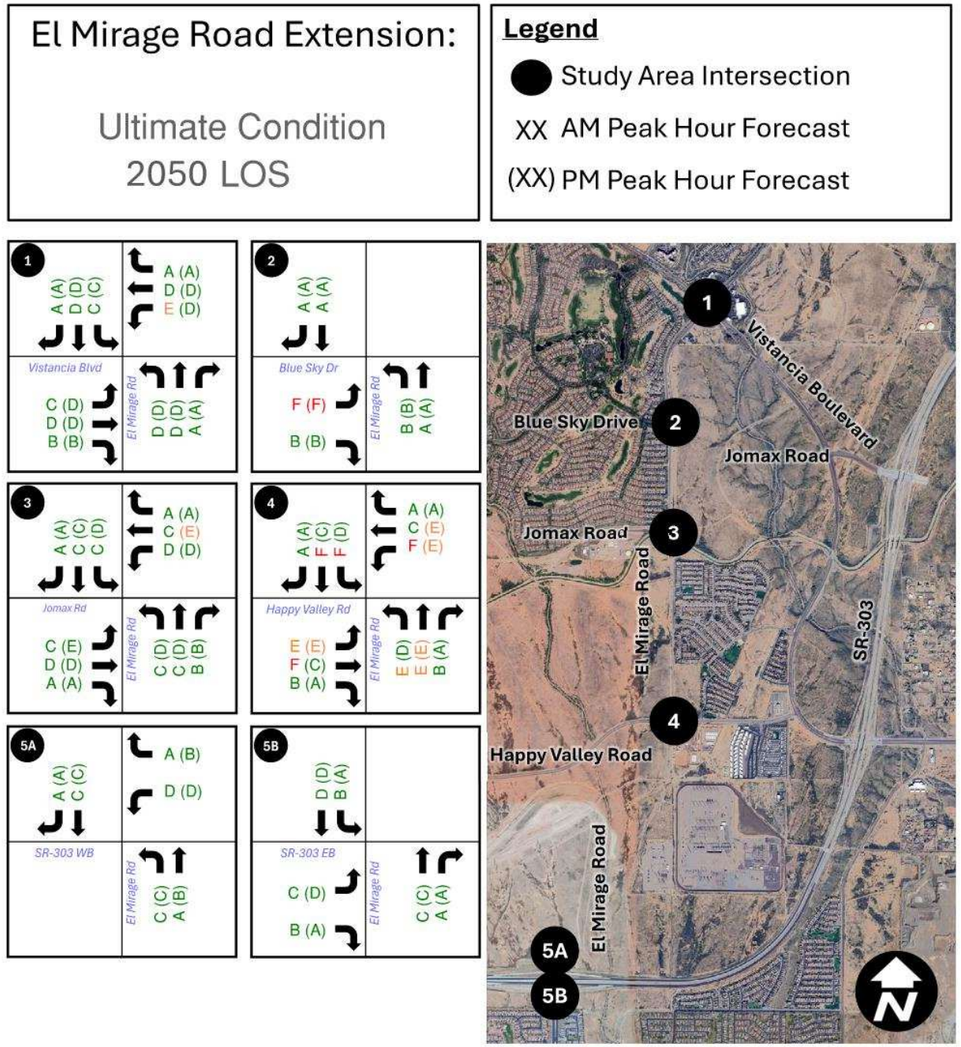
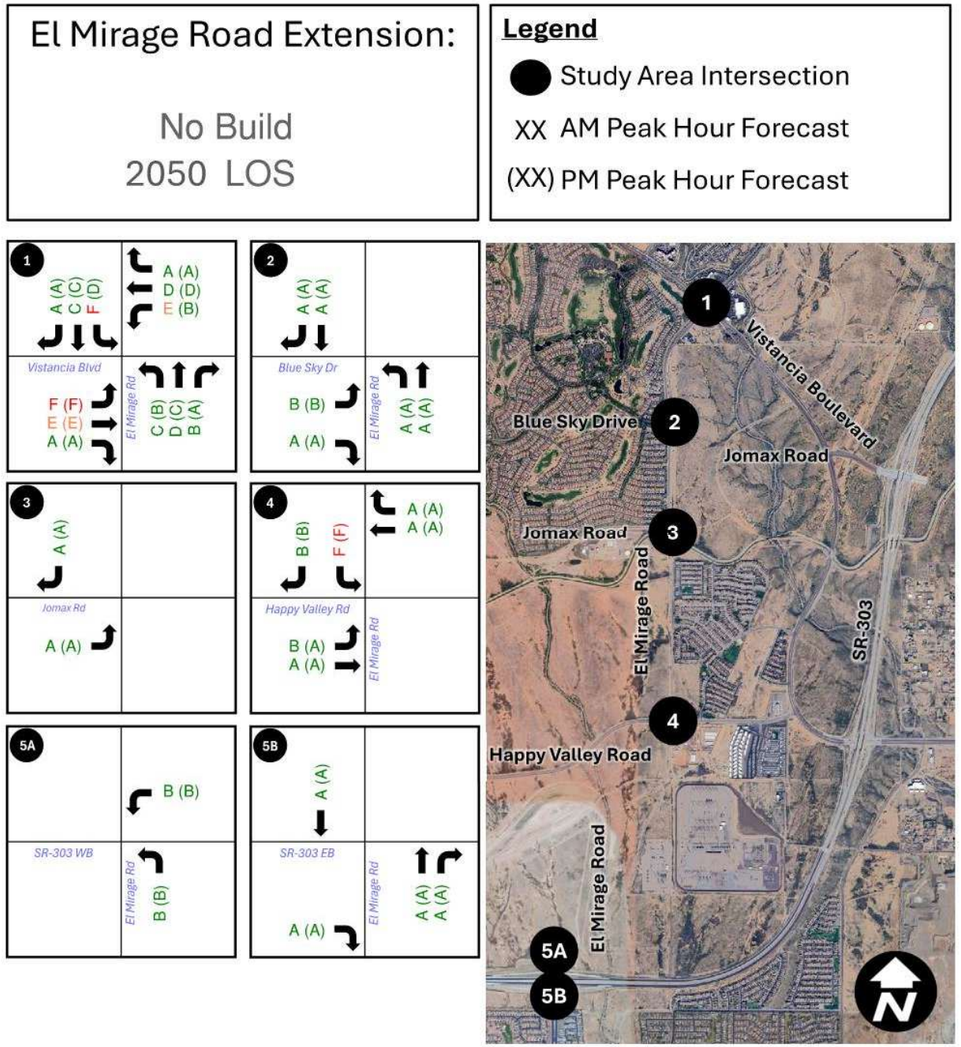


Figure 20 – 2050 No-Build LOS by Movement



Alternatives Analysis Results

Table 10 documents the overall operational performance by alternative for the Jomax Road intersection. ***Table 11*** documents the overall operation performance by alternative for the Happy Valley Road intersection. The Synchro analysis reports are documented in **Appendix DCR-E**.

Figure 21 depicts Jomax Road across the various alternative configurations over the horizon years. The 2035 Initial 2 design includes the preparation of the intersection for the future east leg. The east leg is not yet active, so it is depicted in grey. ***Figure 22*** depicts Happy Valley Road across the various alternative configurations over the horizon years.

Table 10 – Jomax Road Intersection Performance Overview

Jomax Road			
Year	Initial 1	Initial 2	Ultimate
2030	Acceptable	Acceptable	Acceptable
2035	Fails	Acceptable	Acceptable
2040	Fails	Acceptable	Acceptable
2045	Fails	Acceptable	Acceptable
2050	Fails	Fails	Acceptable

Table 11 – Happy Valley Road Intersection Performance Overview

Happy Valley Road			
Year	Initial 1	Initial 2	Ultimate
2030	Acceptable	Acceptable	Acceptable
2035	Fails	Acceptable	Acceptable
2040	Fails	Acceptable	Acceptable
2045	Fails	Fails	Acceptable
2050	Fails	Fails	Fails

The performance of the Jomax Road alternatives are shown in ***Table 12*** through ***Table 17.*** The performance of the Happy Valley Road alternatives are shown in ***Table 18*** through ***Table 23***.

Figure 21 – Jomax Road Intersection Alternative Development

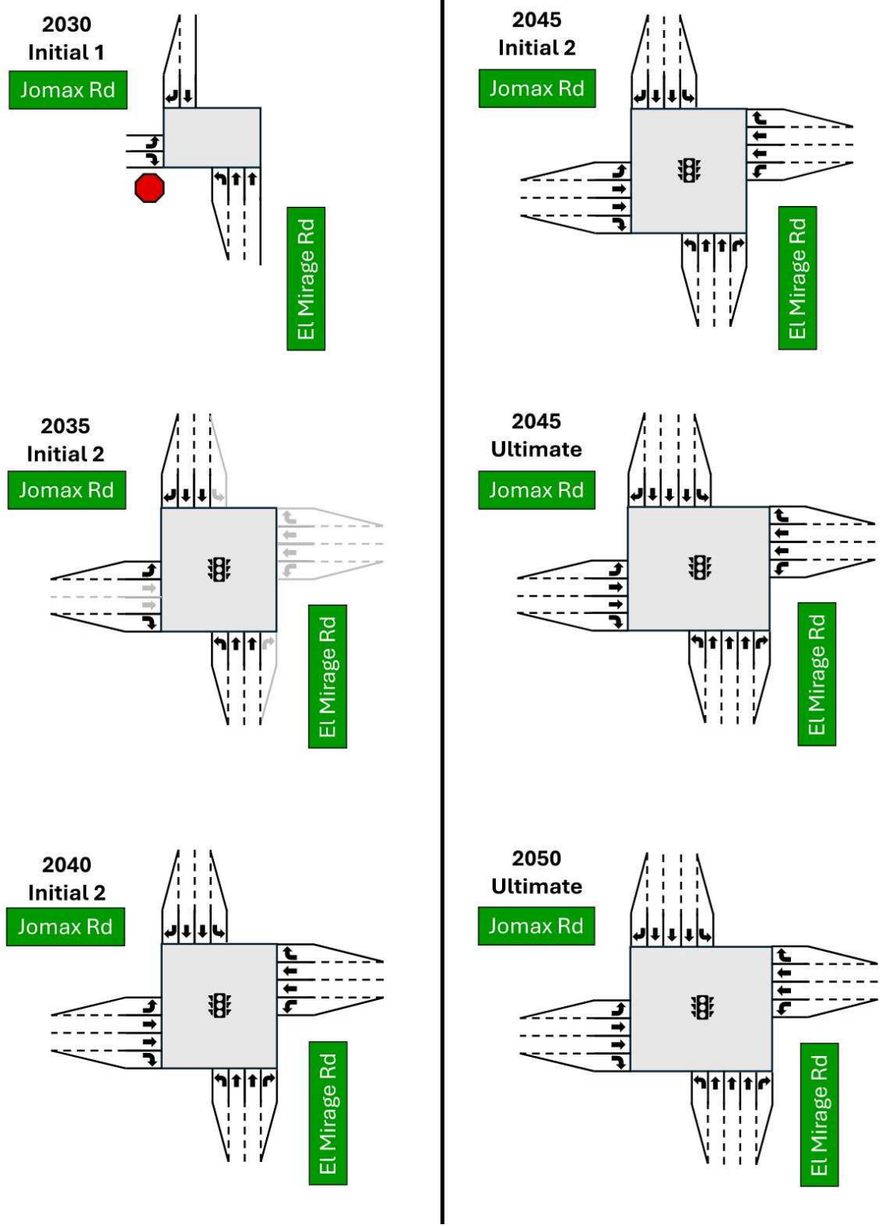


Figure 22 – Happy Valley Road Intersection Alternative Development

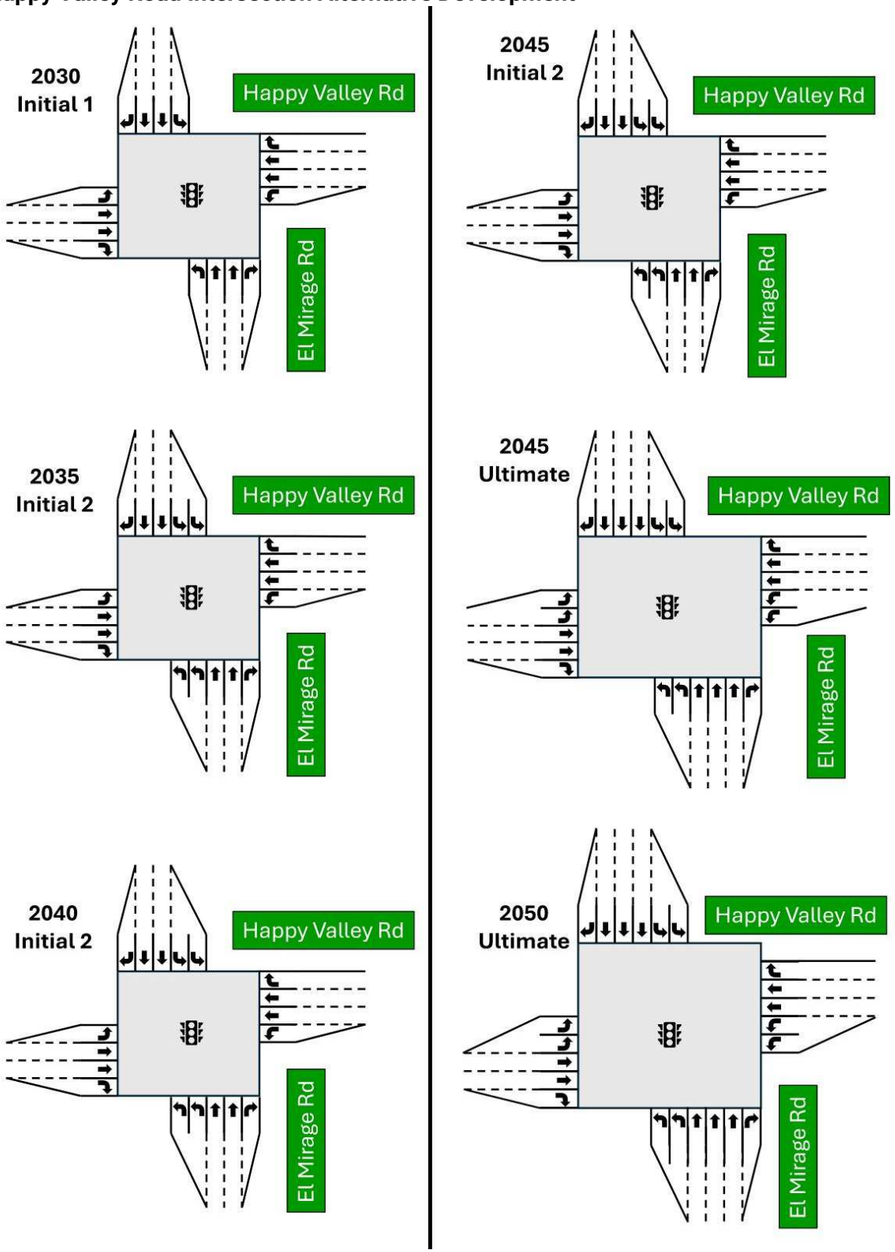


Table 12 – 2030 Initial 1 Jomax Road (Stop Controlled)							
El Mirage Road & Jomax Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	-	24.5	C	25	20.7	C	42.5
Eastbound Right	-	19.1	C	75	31.1	D	92.5
Eastbound Approach	-	20.1	C	-	23.0	C	-
Northbound Left	250	8.9	A	5	9	A	7.5
Northbound Through	-	-	-	-	-	-	-
Northbound Approach	-	.75	A	-	1.1	A	-
Southbound Through	-	-	-	-	-	-	-
Southbound Right	250	0	A	0	0	A	0
Southbound Approach	-	-	-	-	-	-	-
Entire Intersection	-	4.5	A	-	5.9	A	-

* 95th Percentile Queue Exceed Storage

Table 13 – 2035 Initial 1 Jomax Road (Stop Controlled)							
El Mirage Road & Jomax Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	-	131.2	F	135	1317.2	F	397.5
Eastbound Right	-	21.9	C	132.5	28	D	185
Eastbound Approach	-	41.9	E	-	317.0	F	-
Northbound Left	250	10.2	B	20	12.3	B	55
Northbound Through	-	-	-	-	-	-	-
Northbound Approach	-	2.4	A	-	4.3-	A-	-
Southbound Through	-	-	-	-	-	-	-
Southbound Right	250	0	A	0	0	A	0
Southbound Approach	-	-	-	-	-	-	-
Entire Intersection	-	11.9	B	-	84.3	F	-

* 95th Percentile Queue Exceeds Storage

Table 14 – 2040 Initial 2 Jomax Road (Signalized)							
El Mirage Road & Jomax Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	375	23.9	C	82	19.8	B	68
Eastbound Through	-	43.3	D	363	42.2	D	318
Eastbound Right	250	4.6	A	38	3.6	A	28
Eastbound Approach	-	36.3	D	-	34.9	C	-
Westbound Left	300	31.9	C	118	49.9	D	256*
Westbound Through	-	37.0	D	273	33.2	C	321
Westbound Right	250	0.6	A	2	0.4	A	0
Westbound Approach	-	32.7	C	-	34.7	C	-
Northbound Left	250	21.9	D	61	28.4	C	116
Northbound Through	-	37.5	C	290	47.7	D	421
Northbound Right	250	6.3	A	72	6.9	A	80
Northbound Approach	-	27.1	C	-	33.8	C	-
Southbound Left	300	20.5	C	124	27.2	C	128
Southbound Through	-	26.4	C	236	31.7	C	251
Southbound Right	250	1.9	A	8	0.3	A	0
Southbound Approach	-	23.7	C	-	29.0	C	-
Entire Intersection	-	30.4	C	-	33.3	C	-

* 95th Percentile Queue Exceeds Storage

Table 15 – 2045 Initial 2 Jomax Road (Signalized)							
El Mirage Road & Jomax Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	375	25.4	C	101	24.3	C	84
Eastbound Through	-	43.3	D	417	44.3	D	388
Eastbound Right	250	6.4	A	53	6.8	A	55
Eastbound Approach	-	36.4	D	-	36.4	D	-
Westbound Left	300	46.1	D	198*	53.7	D	301
Westbound Through	-	36.7	D	334	37.8	D	412
Westbound Right	250	0.5	A	2	1.3	A	9
Westbound Approach	-	35.7	D	-	38.8	D	-
Northbound Left	250	25.3	C	69	34.3	C	146
Northbound Through	-	43.5	D	380	54.4	D	417
Northbound Right	250	7.7	A	87	9.4	A	115
Northbound Approach	-	31.9	C	-	38.4	D	-
Southbound Left	300	28.7	C	142	41.2	D	202
Southbound Through	-	28.1	C	270	36.1	D	280
Southbound Right	250	2.5	A	12	5.8	A	35
Southbound Approach	-	26.6	C	-	39.6	C	-
Entire Intersection	-	32.9	C	-	37.2	D	-

* 95th Percentile Queue Exceeds Storage

Table 16 – 2045 Ultimate Jomax Road							
El Mirage Road & Jomax Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	375	25.4	C	101	25.2	C	85
Eastbound Through	-	43.3	D	417	49.4	D	389
Eastbound Right	250	6.4	A	53	8.4	A	64
Eastbound Approach	-	36.4	D	-	40.5	D	-
Westbound Left	300	46.1	D	198	49.3	D	289*
Westbound Through	-	36.7	D	334	38.1	D	397*
Westbound Right	250	0.5	A	2	4.1	A	29
Westbound Approach	-	35.7	D	-	38.2	D	-
Northbound Left	250	24.3	C	69*	27.4	C	149
Northbound Through	-	38.3	D	220	40.3	D	260
Northbound Right	250	6.7	A	76	11.9	B	152
Northbound Approach	-	28.2	C	-	30.2	C	-
Southbound Left	300	23.4	C	128	35.5	D	175
Southbound Through	-	24.9	C	176	25.2	C	153
Southbound Right	250	2.5	A	12	4.5	A	22
Southbound Approach	-	23.2	C	-	25.6	C	-
Entire Intersection	-	31.3	C	-	33.8	C	-

Table 17 – 2050 Ultimate Jomax Road							
El Mirage Road & Jomax Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	375	28.3	C	104	69.2	E	352*
Eastbound Through	-	51.4	D	373	54.0	D	402
Eastbound Right	250	1.3	A	7	6.8	A	56
Eastbound Approach	-	42.5	D	-	50.8	D	-
Westbound Left	300	46.5	D	180	51.5	D	289*
Westbound Through	-	30.2	C	265	65.2	E	473
Westbound Right	250	0.4	A	0	2.1	A	14
Westbound Approach	-	31.2	C	-	56.9	E	-
Northbound Left	250	27.3	C	63	37.5	D	114
Northbound Through	-	27.0	C	148	47.2	D	303
Northbound Right	250	11.4	B	99	12.4	B	145
Northbound Approach	-	22.8	C	-	36.1	D	-
Southbound Left	300	30.7	C	132	52.0	D	280*
Southbound Through	-	26.7	C	170	32.2	C	184
Southbound Right	250	0.5	A	0	4.4	A	34
Southbound Approach	-	25.7	C	-	33.6	C	-
Entire Intersection	-	31.2	C	-	44.6	D	-

*95th Percentile Queue Exceeds Storage

Table 18 – 2030 Initial 1 Happy Valley Road							
El Mirage Road & Happy Valley Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	250	12.0	B	45	20.9	C	55
Eastbound Through	-	27.7	C	381	30.3	C	298
Eastbound Right	250	4.2	A	57	4.7	A	41
Eastbound Approach	-	20.9	C	-	25.8	C	-
Westbound Left	250	13.1	B	31	28.9	C	140
Westbound Through	-	21.1	C	152	44.2	D	547
Westbound Right	Drop Lane	0.2	A	0	2.2	A	18
Westbound Approach	-	19.0	B	-	37.0	D	-
Northbound Left	250	38.7	D	168	41.4	D	192
Northbound Through	-	29.1	C	201	33.9	C	203
Northbound Right	250	0.2	A	0	4.7	A	29
Northbound Approach	-	30.1	C	-	32.2	C	-
Southbound Left	250	17.4	B	50	21.1	C	84
Southbound Through	-	42.7	D	278	45.9	D	297
Southbound Right	250	1.8	A	8	0.5	A	0
Southbound Approach	-	36.5	D	-	39.6	D	-
Entire Intersection	-	26.1	C	-	33.8	C	-

*95th Percentile Queue Exceeds Storage

Table 19 – 2035 Initial 2 Happy Valley Road							
El Mirage Road & Happy Valley Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	250	18.8	B	60	53.2	D	97
Eastbound Through	-	66.1	E	475*	40.3	D	320
Eastbound Right	250	14.4	B	178	5.3	A	51
Eastbound Approach	-	49.0	D	-	35.1	D	-
Westbound Left	250	72.1	E	206*	39.9	D	136
Westbound Through	-	26.7	C	187	74.2	E	633
Westbound Right	Drop Lane	0.3	A	0	4.8	A	36
Westbound Approach	-	36.5	D	-	65.0	E	-
Northbound Left	250	64.4	E	223	78.8	E	255
Northbound Through	-	36.5	D	220	40.1	D	315
Northbound Right	250	3.1	A	20	5.8	A	41
Northbound Approach	-	44.6	D	-	49.8	D	-
Southbound Left	250	38.3	D	89	51.8	D	129
Southbound Through	-	76.7	E	415*	67.5	E	431
Southbound Right	250	2.6	A	15	3.4	A	20
Southbound Approach	-	64.9	E	-	60.0	E	-
Entire Intersection	-	49.7	D	-	53.6	D	-

*95th Percentile Queue Exceeds Storage

Table 20 – 2040 Initial 2 Happy Valley Road							
El Mirage Road & Happy Valley Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	250	21.3	C	100	26.4	C	84
Eastbound Through	-	70.5	E	585*	41.8	D	308
Eastbound Right	250	1.8	A	17	0.4	A	0
Eastbound Approach	-	58.4	E	-	37.4	D	-
Westbound Left	250	70.2	E	239	43.9	D	166
Westbound Through	-	26.0	C	216	78.8	E	453
Westbound Right	Drop Lane	0.4	A	0	6.2	A	41
Westbound Approach	-	34.8	C	-	66.4	E	-
Northbound Left	250	53.5	D	90	46.2	D	81
Northbound Through	-	49.4	D	260	50.1	D	473
Northbound Right	250	7.3	A	46	6.1	A	49
Northbound Approach	-	43.3	D	-	44.9	D	-
Southbound Left	250	61.1	E	163	73.4	E	171
Southbound Through	-	58.6	E	345*	24.7	C	177
Southbound Right	250	1.7	A	8	3.3	A	25
Southbound Approach	-	55.5	E	-	38.1	D	-
Entire Intersection	-	49.7	D	-	47.9	D	-

*95th Percentile Queue Exceeds Storage

Table 21 – 2045 Initial 2 Happy Valley Road							
El Mirage Road & Happy Valley Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	250	24.9	C	124	46.6	D	172
Eastbound Through	-	74.5	E	701	32.5	C	257
Eastbound Right	250	4.5	A	47	0.3	A	0
Eastbound Approach	-	61.0	E	-	33.8	D	-
Westbound Left	250	310.7	F	441*	224.4	F	266
Westbound Through	-	28.9	C	258	64.8	E	417
Westbound Right	Drop Lane	0.4	A	0	5.2	A	46
Westbound Approach	-	102.3	F	-	79.7	E	-
Northbound Left	250	66.7	E	129	40.7	D	94
Northbound Through	-	80.6	F	360	202.6	F	536
Northbound Right	250	8.4	A	53	8.5	A	61
Northbound Approach	-	67.4	E	-	154.7	D	-
Southbound Left	250	72.3	E	176	51.7	D	170
Southbound Through	-	143.7	F	495	31.5	C	213
Southbound Right	250	13.9	A	21	6.0	A	45
Southbound Approach	-	117.5	F	-	34.7	D	-
Entire Intersection	-	84.2	F	-	82.9	F	-

*95th Percentile Queue Exceeds Storage

Table 22 – 2045 6-Lane Alternative Happy Valley Road							
El Mirage Road & Happy Valley Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	250	47.3	D	123	51.1	D	104
Eastbound Through	-	70.8	E	701	30.3	C	252
Eastbound Right	250	4.4	A	47	0.3	A	0
Eastbound Approach	-	61.1	E	-	33.1	D	-
Westbound Left	250	62.8	E	164	49.4	D	97
Westbound Through	-	25.7	C	245	52.8	D	404
Westbound Right	Drop Lane	0.3	A	0	5.0	A	45
Westbound Approach	-	33.6	C	-	45.9	D	-
Northbound Left	250	66.7	E	129	43.2	D	96
Northbound Through	-	45.7	D	197	49.9	D	302
Northbound Right	250	8.9	A	53	6.3	A	49
Northbound Approach	-	44.8	D	-	43.6	D	-
Southbound Left	250	58.6	E	164	62.6	E	181
Southbound Through	-	47.0	D	257	27.0	C	135
Southbound Right	250	3.9	A	21	6.1	A	45
Southbound Approach	-	46.9	D	-	35.8	D	-
Entire Intersection	-	48.8	D	-	40.4	D	-

*95th Percentile Queue Exceeds Storage

Table 23 – 2050 6-Lane Alternative Happy Valley Road							
El Mirage Road & Happy Valley Road	**Storage Length (ft)**	**AM Peak Hour**			**PM Peak Hour**		
		Delay (s/vehicle)	**LOS**	**95th Queue Length (ft)**	**Delay (s/vehicle)**	**LOS**	**95th Queue Length (ft)**
Eastbound Left	250	69.2	E	123	68.3	E	163
Eastbound Through	-	80.1	F	701	31.4	C	290
Eastbound Right	250	10.5	B	47	0.3	A	0
Eastbound Approach	-	71.1	E	-	39.1	D	-
Westbound Left	250	88.0	F	164	55.0	E	111
Westbound Through	-	34.9	C	245	61.0	E	477
Westbound Right	Drop Lane	1.4	A	0	4.9	A	52
Westbound Approach	-	45.7	D	-	51.4	D	-
Northbound Left	250	75.4	E	129	51.4	D	140
Northbound Through	-	68.4	E	197	65.2	E	320
Northbound Right	250	12.1	B	53	9.3	A	69
Northbound Approach	-	62.2	E	-	54.5	D	-
Southbound Left	250	83.7	F	164	53.5	D	214
Southbound Through	-	111.9	F	257	32.5	C	188
Southbound Right	250	2.0	A	21	7.8	A	63
Southbound Approach	-	98.4	F	-	35.7	D	-
Entire Intersection	-	70.8	E	-	45.7	D	-

*95th Percentile Queue Exceeds Storage

Turn Bay Storage Lengths

City of Peoria's General Plan 2040 classifies El Mirage Road as an arterial road. City of Peoria Engineering Standards Manual (PESM) standards were applied to determine storage lengths. The minimum storage length of any intersection turning bay for an arterial roadway is 250 feet with a 12.5:1 taper distance (typically 150-feet). The 95th percentile queue length was used as a guide to lengthen storage beyond the minimum distance. The 2050 ultimate condition and the 2035 Initial 2 conditions were used to determine the maximum experienced 95th percentile queue length. These lengths were then rounded up to the nearest increment of 25 feet. Initial 2 and ultimate conditions recommended storage lengths are detailed in ***Table 24*** and ***Table 25.***

Table 24 – Initial 2 Recommended Storage Lengths

Intersection with El Mirage Road	Direction	Number of Lanes	Storage Length (ft)
Jomax Road	EBL	1	375
	EBR	1	250
	WBL	1	300
	WBR	1	250
	NBL	1	250
	NBR	1	250
	SBL	1	300
	SBR	1	250
Happy Valley Road	EBL	1	250
	EBR	1	250
	WBL	1	250
	WBR	Drop Lane	Drop Lane
	NBL	2	250
	NBR	1	250
	SBL	2	250
	SBR	1	250

Table 25 – Ultimate Condition Recommended Storage Lengths

Intersection with El Mirage Road	Direction	Number of Lanes	Storage Length (ft)
Jomax Road	EBL	1	375
	EBR	1	250
	WBL	1	300
	WBR	1	250
	NBL	1	250
	NBR	1	250
	SBL	1	300
	SBR	1	250
Happy Valley Road	EBL	2	250
	EBR	1	250
	WBL	2	250
	WBR	Drop Lane	Drop Lane
	NBL	2	250
	NBR	1	250
	SBL	2	250
	SBR	1	250

There are currently access points along El Mirage Road at Tether Trail and Desert Sun Lane. In the existing condition neither of these access points have right turn lanes. In the ultimate condition, Peoria access management guidelines will require 100-foot right turn lanes at Tether Trail. Desert Sun Lane will not need a storage bay as this is a secondary access for emergency services only.

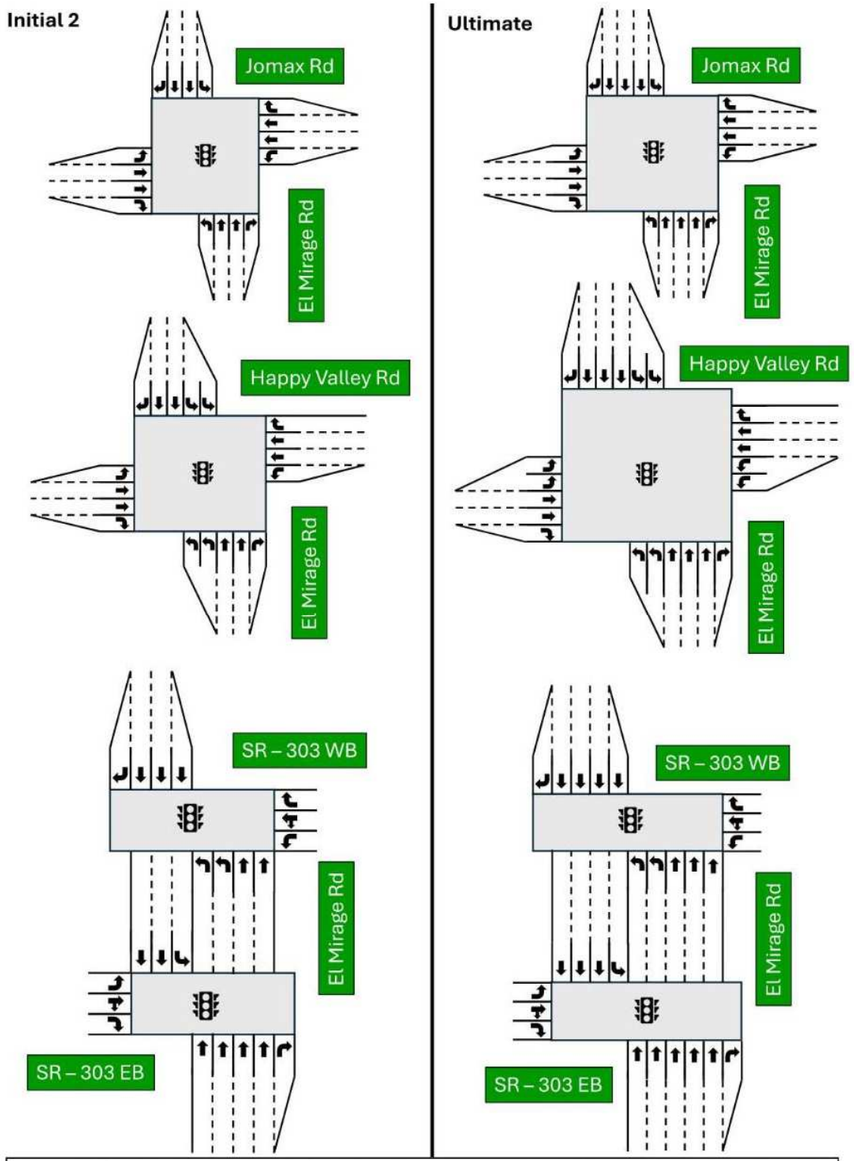
Conclusions and Recommendations

Figure 23 provides the preferred initial and ultimate configurations for the Jomax Road and Happy Valley Road intersections. The preferred initial configuration for El Mirage Road between SR 303L and Jomax Road will consist of four lanes and a median; the preferred ultimate configuration will consist of six lanes and a median. Evaluating the SR 303L interchange is not within the scope of this study; however, the TI was included in ***Figure 23*** to help demonstrate how the El Mirage Road alternatives could connect to the SR 303L TI. Any changes to the freeway on and off ramps would have to be determined through a different study.

Initial Condition

The Initial 2 Configuration is the preferred initial configuration for both study intersections as it provides greater capacity and has a longer operational lifespan than Initial 1. The new TI along SR 303L between US 60 and El Mirage Road is expected to open in 2040. However, since the actual opening day of the new TI is unknown, the Initial 2 option will best manage the traffic conditions before the new interchange redirects traffic away from El Mirage Road.

Figure 23 – Recommended Initial 2 and Ultimate Condition Configurations



Please Note: ADOT Regional Traffic Engineering recommends dual lane left turn options (for NB, SB as well as EB & WB ramps) be further evaluated for the State Route 303 traffic interchange due to flexibility and experience at other traffic interchanges in the valley.

The Jomax Road intersection layout should prepare for the extension of Jomax Road eastward towards its SR 303L interchange. It is anticipated that Jomax Road will be extended west to Dysart Road by the City of Surprise and will be completed by 2026. Until Jomax Road is extended westward to Dysart Road, the west leg of the El Mirage Road and Jomax Road intersection can be managed by stop control. However, since the westward extension of Jomax Road is expected to necessitate a traffic signal, as was found in the warrant analysis, the El Mirage Road intersection with Jomax Road should be designed considering the future four-way signalized intersection configuration.

The extension of El Mirage Road will provide new access opportunities in the area. Happy Valley Road traffic will be able to access the SR 303L at El Mirage Road and Sun City residents will be able to access the proposed North Peoria Gateway 303 Planned Community Development. The major regional transportation access combined with access to major retail and employment centers is expected to create traffic patterns heavy in left turns at the El Mirage Road intersection with Happy Valley Road. However, east-west traffic along Happy Valley Road is expected to remain the most dominant movement at the intersection. Balancing the needs of the heavy left turns with the needs of through traffic along Happy Valley Road will challenge operations at this intersection. Dual northbound lefts will be essential in maintaining acceptable traffic operations up through 2040.

Ultimate Condition

The ultimate condition of the Jomax Road and El Mirage Road intersection is expected to operate well through the 2050 horizon year.

The ultimate condition of the El Mirage Road and Happy Valley Road intersection fails in 2050. The configuration adds as much capacity to the intersection as possible through the limits of the El Mirage Road DCR. Happy Valley Road is expected to remain a 4-lane road by 2050, and no jurisdiction currently has plans to widen Happy Valley Road to a 6-lane section. The El Mirage Road and Happy Valley Road intersection is expected to have heavier demand from the east-west directions than the north-south directions. With only two lanes, the east and west movements demand more green time than the signal can afford to give. The excessive queueing of the through movements will block storage bays and further contribute to delays. Project stakeholders have expressed an interest in Happy Valley Road ultimately having a 6-lane cross section, but no long-range plans currently call for a widening of Happy Valley Road.

3.0 Design Concept Alternatives

3.1. Introduction

This project builds upon the MAG Study which identified three alignment alternatives for analysis from SR 303L to Happy Valley Road and three alignment alternatives from Happy Valley Road to Jomax Road. In the MAG Study the MCDOT Urban principal arterial typical section was used across the alternatives. The study included alternatives evaluation and the selection of a recommended alternative.

For the segment from SR 303L to Happy Valley Road, Alternative 1 was recommended, and for the segment from Happy Valley Road to Jomax Road a combination of Alternative 1 and Alternative 3 were recommended. The complete 2022 MAG feasibility study is available in **Appendix DCR-A**.

These alternatives are being carried forward as the basis for the T0428 Design Concept Alternatives with refinements to comply with City of Peoria design standards.

3.2. Design Concept Alternatives Considered and Discontinued

There was consideration for directly advancing the Recommended Alternative from the MAG Study. This alternative was designed using MCDOT standards, including the usage of a MCDOT standard typical section and the usage of horizontal curves requiring superelevation. This alternative was not advanced directly as project T0428 is being designed to City of Peoria design standards and the MAG Study recommended alternative did not meet City standards.

Although a variation of the MAG Study Recommended Alternative was being evaluated for implementation, the MAG Study Alternative 2 was not recommended due to the following reasons:

- Impacts to existing utilities such as powerlines;
- Northern future access road being designed on a curve, impacting more ASLD parcels compared to the Alternative 1 and 3; and
- Crossing the McMicken Outlet Channel at a location where it is deeper and wider than Alternatives 1 and 3.

3.3. Design Concept Alternatives Studied in Detail

Three alternatives were studied in detail: the No-Build Alternative, the MAG Study Recommended Alternative, and a refined version of the MAG Study Recommended Alternative (henceforth referred to as the Ultimate 6-Lane Alternative). The two build alternatives include similar horizontal alignments with curvature modifications based on the design standards followed. These alternatives utilize the same standard ROW width and have similar intersection footprints.

3.3.1. No-Build Alternative

The No-Build Alternative was advanced to establish a baseline condition for comparison. The No-Build Alternative would maintain the El Mirage Road corridor in its existing condition. The connection between SR 303L and Happy Valley Road would not be implemented, preventing any travel connection between El Mirage Road north of the TI and SR 303L. The connection between Happy Valley Road and Jomax Road would not be implemented. The alternative would not implement the structures crossing McMicken Wash and Beardsley Canal. The No-Build Alternative would not include the transportation improvements assessed in this DCR, but adjacent proposed development and transportation network improvements would likely advance, resulting in increased regional delays. The No-Build Alternative would not address the anticipated traffic demand of future developments.

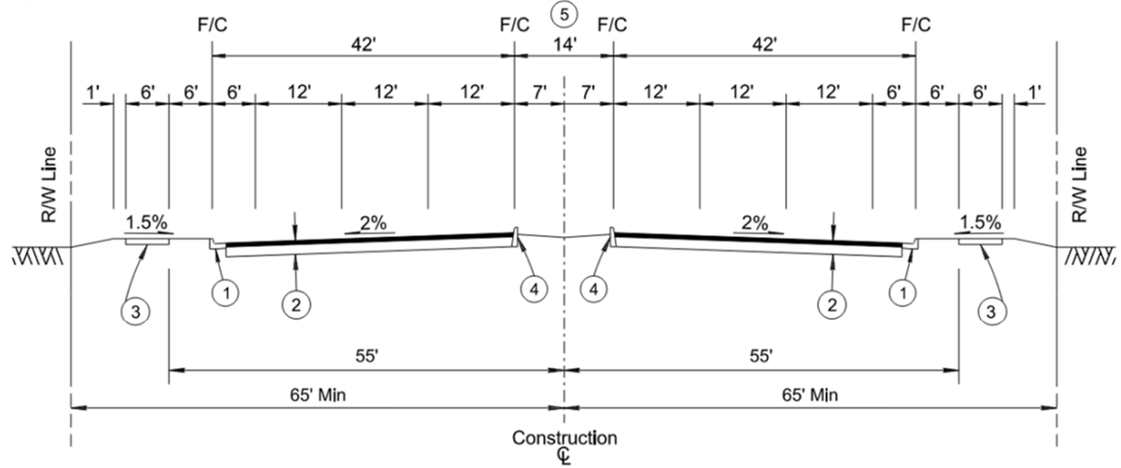
The alternative would not address existing deficient features, including the following:

- Existing pavement section in poor condition;
- Non-compliant ADA features identified in **Appendix DCR-G**;
- Roadway typical section not in accordance with the City of Peoria PESM, January 2024 update;
- Discontinuous curb and gutter throughout corridor;
- Intersection of El Mirage Road and Happy Valley Road remaining unsignalized; and
- Intersection of El Mirage Road and Jomax Road remaining unsignalized.

3.3.2. MAG Study Recommended Alternative

The MAG Study separated the corridor into two segments with each segment considering multiple alternatives and ultimately selecting a recommended alternative. Alternative 1 was selected as the Recommended Alternative for both segments. The design utilizes the MCDOT Urban principal arterial typical section. The typical section consists of a 14-foot raised median, curb, three 12-foot lanes, six-foot bike lane, curb and gutter, a six-foot buffer, and 6-foot sidewalk in each direction. ***Figure 24*** displays the typical section for the MAG Study Recommended Alternative.

Figure 24 – MAG Study Recommended Alternative Typical Section



For the segment from SR 303L to Happy Valley Road, Alternative 1 includes sweeping horizontal curves separated by a tangent over the McMicken Wash. The design is as close to perpendicular as possible to minimize floodplain impacts and provide adequate sight distance. Alternative 1 crosses the middle of the 100-Year Floodplain. Alternative 1 also includes a future access road connection south of the power substations for development in the area. Alternative 1 includes intersection improvements at Happy Valley Road and El Mirage Road.

For the segment from Happy Valley Road to Jomax Road, alignment Alternative 1 with elements of Alternative 3 is recommended. Alternative 1 uses the existing edge of El Mirage Road as the roadway centerline, and Alternative 3 includes a shift to the west when approaching Beardsley canal from the south. This hybrid alignment allows the roadway to be widened from Happy Valley Road to Jomax road while reducing impacts to existing developments.

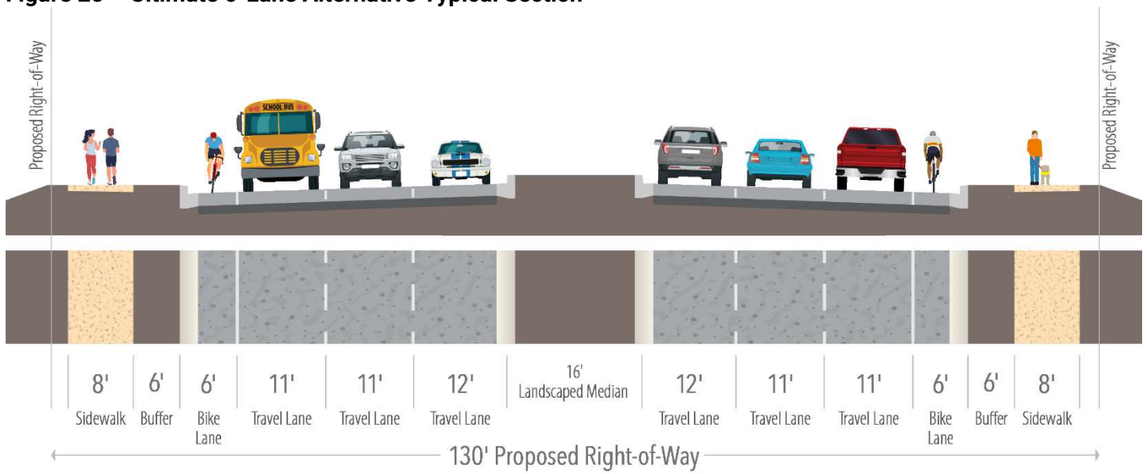
The alternative variations proposed the construction of a box culvert bridge structure over the Beardsley Canal at the recommended extension of El Mirage Road to Jomax Road.

The estimated cost of the MAG Study Recommended Alternative is $49,710,00 in 2022 dollars. A detailed cost estimate of the alternative is detailed in **Section 5.3**.

3.3.3. Ultimate 6-Lane Alternative

The Ultimate 6-lane Alternative utilizes the standard City of Peoria typical section for arterials. The alternative consists of a 16-foot raised median, curb and gutter, a 12-foot inside lane, two 11-foot lanes, 6-foot bike lane, a 6-foot landscaped buffer, and an 8-foot sidewalk in each direction. ***Figure 25*** displays the typical section for the Ultimate 6-Lane Alternative.

Figure 25 – Ultimate 6-Lane Alternative Typical Section



The Ultimate 6-Lane Alternative includes signalization of the El Mirage Road intersections with Happy Valley Road and Jomax Road. Intersection improvements at Coldwater Ranch Drive and Tether Trail include left and/or right turn lanes from El Mirage Road with the intersections remaining unsignalized.

The Ultimate 6-Lane Alternative includes proposed bridge structures for the El Mirage Road crossings of the McMicken Wash and Beardsley Canal that accommodate the Ultimate 6-Lane Alternative typical section.

The estimated cost of the Ultimate 6-Lane Alternative is $87,302,214 in 2025 dollars. A detailed cost estimate of the alternative is included in **Section 5.1**.

3.4. Evaluation of Alternatives

A screening matrix evaluating the No Build and the Ultimate 6-Lane Alternative is included in **Appendix DCR-H**. As the primary differentiators between the two build alternatives are due to the standards followed, the project partners did not conduct a formal alternatives evaluation between the MAG Study Recommended Alternative and the Ultimate 6-Lane Alternative. However, a comprehensive evaluation of alternatives matrix was completed as part of the MAG Study and is available in **Appendix DCR-A**.

The No-Build Alternative is undesirable due to the anticipated growth of the region coupled with the existing traffic delays at the existing SR 303L access points of Vistancia Boulevard/Happy Valley Parkway and Jomax Parkway. Additionally, the No-Build Alternative may hinder future development in the region.

3.5. Recommendations

El Mirage Road from the 303L to Jomax Road is within the City of Peoria planning area. El Mirage Road Operations and Maintenance (O&M) will be transferred to the City of Peoria before the planning area is annexed, therefore El Mirage Road be designed to meet the PESM design standards. It is recommended the Ultimate 6-Lane Alternative be advanced as the preferred alternative.

The sensitivity analysis in **Section 2.2** found that the traffic volumes along El Mirage Road would not require six lanes until 2045, providing the opportunity for the corridor to be completed in phases. It is recommended that an initial phase construct four vehicular lanes, bike lanes, and sidewalk in the same locations proposed as part of the Ultimate 6-Lane Alternative. Once traffic volumes necessitate six lanes, the corridor would be widened to the inside, allowing for most of the initial phase to be salvaged. The initial phase is discussed further in **Section 6.1**.

4.0 Major Design Features (Preferred Alternative)

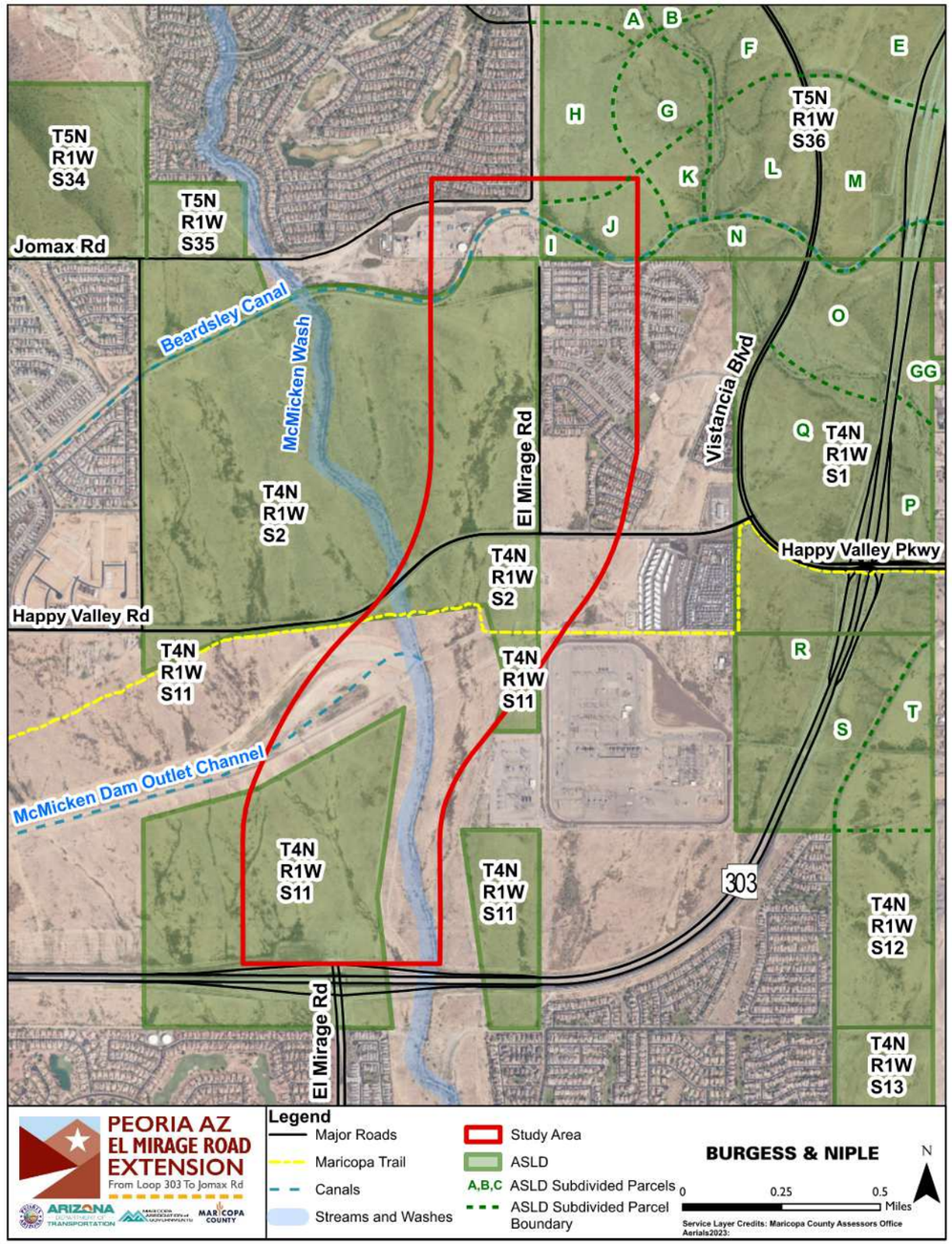
4.1. Introduction

The following sections provide a summary of features for the Ultimate 6-Lane Alternative. Ultimate 6-Lane Alternative 15 percent plans are available in **Appendix DCR-D.**

The land use within the study area primarily consists of residential and vacant.

The study area includes land owned by ALSD. The North Peoria Gateway proposes subdividing ASLD land in multiple sections to accommodate mixed-use development: T5N, R1W, S36; T4N, R1W, S1; and T4N, R1W, S12. The ASLD-owned land in the study area is displayed in ***Figure 26***. The development potential of ASLD land south of Happy Valley Road is anticipated to increase once El Mirage Road is constructed between the SR 303L TI and Happy Valley Road. The proposed horizontal alignment was reviewed by ASLD to obtain their input on alignment impacts for future development in the area.

Figure 26 – ASLD Land Ownership



4.2. Design Controls

The Ultimate 6-Lane Alternative was designed to meet the PESM, January 2024 update. Design controls are detailed in ***Table 26***.

Table 26 – Design Controls

Criteria	El Mirage Road Design Value	Source
Design Year	2050	Project Team
Roadway Classification	Arterial	City of Peoria General Plan 2040
Design Speed	55 mph	Table 6-7*
Posted Speed	40 mph	Section 6.6.2*
Basic Number of Lanes	6	Figure 5-2*
Through Lane Width	11-12 ft	Figure 5-2*
Bike Lane Width	6 ft	Figure 5-2*
Raised Median Width (F/C to F/C)	16 ft	Figure 5-2*
Sidewalk Width	8 ft (detached)	Figure 5-2*
Right-of-Way Width	130 ft	Figure 5-2*
Public Utility Easement Width	16 ft (8 ft per side)	Figure 5-2*
Normal Cross Slope	2% (desirable)	Section 6.6.7*
Superelevation	6% (maximum with approval)	Section 6.6.4*
Curb Ramp Preference	Combination/Directional	Section 6.6.13*
Min Length of Horizontal Curve	N/A	N/A
Maximum Horizontal Deflection Without Curve	5°	Table 6-1*
Maximum Grade	6%	Table 6-1*
Minimum Grade	0.40%	Table 6-1*
Maximum Grade Break Without Curve	1.50%	Table 6-1*
*Within PESM (January 2024 Update)		

4.3. Horizontal and Vertical Alignment

The design team utilized the MAG Study Recommended Alternative alignment as a starting point but revised the alignment to meet the City of Peoria design criteria and to provide the minimum horizontal curve radius without superelevation. Beginning at the southern terminus of the project and heading north, the El Mirage Road horizontal alignment includes two 1,900-foot radius horizontal curves separated by a 270-foot tangent at the structure crossing over the McMicken Wash. The horizontal alignment is tangent from approximately 800 feet south of Happy Valley Road to Tether Trail. The horizontal alignment consists of two 3,700-foot radii horizontal curves separated by a 171-foot tangent as El Mirage Road approaches the structure over the Beardsley Canal. The horizontal alignment ties into the existing bearing of El Mirage Road north of the Beardsley Canal Bridge approaching the Jomax Road intersection. The proposed horizontal alignment is detailed in ***Table 27***.

Table 27 – Preferred Alternative Horizontal Alignment

Element Type	Point Type	Station	Northing	Easting	Radius (feet)	Length (Feet)	Delta/Theta	Rotation Direction
Tangent	START	100+00	979560.81	573175.71				
Tangent	HPI	110+00.004	980560.81	573178.45				
Tangent	HPI	110+00.004	980560.81	573178.45				
Tangent	PC	113+60.273	980921.078	573179.431				
Arc	PC	113+60.273	980921.078	573179.431				
Arc	HPI	118+15.223	981376.027	573180.67	10000	909.274	5.210°	Left
Arc	CC		980948.31	563179.468				
Arc	PT	122+69.547	981829.209	573140.593				
Tangent	PT	122+69.547	981829.209	573140.593				
Tangent	PC	127+57.044	982314.81	573097.65				
Arc	PC	127+57.044	982314.81	573097.65				
Arc	HPI	130+95.05	982651.502	573067.875	10000	675.755	3.872°	Left
Arc	CC		981433.911	563136.525				
Arc	PT	134+32.799	982985.415	573015.433				
Tangent	PT	134+32.799	982985.415	573015.433				
Tangent	PC	136+02.799	983153.357	572989.058				
Arc	PC	136+02.799	983153.357	572989.058				
Arc	HPI	152+04.31	984735.476	572740.583	1900	2661.361	80.255°	Right
Arc	CC		983448.142	574866.05				
Arc	PT	162+64.16	985248.157	574257.816				
Tangent	PT	162+64.16	985248.157	574257.816				
Tangent	PC	165+40.53	985336.629	574519.643				
Arc	PC	165+40.53	985336.629	574519.643				
Arc	HPI	179+11.047	985775.363	575818.037	1900	2374.601	71.608°	Left
Arc	CC		987136.643	573911.408				
Arc	PT	189+15.131	987145.864	575811.386				
Tangent	PT	189+15.131	987145.864	575811.386				
Tangent	HPI	211+01.544	989332.252	575800.775				
Tangent	HPI	211+01.544	989332.252	575800.775				
Tangent	PC	230+43.583	991274.28	575794.03				
Arc	PC	230+43.583	991274.28	575794.03				

Table 27 – Preferred Alternative Horizontal Alignment								
Element Type	**Point Type**	**Station**	**Northing**	**Easting**	**Radius (feet)**	**Length (Feet)**	**Delta/Theta**	**Rotation Direction**
Arc	HPI	231+89.448	991420.143	575793.523	3700	291.578	4.515°	Left
Arc	CC		991261.427	572094.052				
Arc	PT	233+35.162	991565.514	575781.535				
Tangent	PT	233+35.162	991565.514	575781.535				
Tangent	PC	235+07.069	991736.841	575767.406				
Arc	PC	235+07.069	991736.841	575767.406				
Arc	HPI	236+68.615	991897.84	575754.13	3700	322.886	5.000°	Right
Arc	CC		992040.928	579454.889				
Arc	PT	238+29.955	992059.383	575754.936				
Tangent	PT	238+29.955	992059.383	575754.936				
Tangent	HPI	242+10.146	992439.569	575756.832				
Tangent	HPI	242+10.146	992439.569	575756.833				
Tangent	END	263+87.056	994616.479	575755.976				

The proposed vertical alignment was optimized with a focus on meeting required vertical clearances at proposed bridge locations, minimizing cut and fill, and tying into the existing El Mirage Road. The profile primarily consists of grade breaks at vertical points of intersection (VPIs) except for a symmetrical parabola where the roadway is tying into existing El Mirage Road at Jomax Road. The proposed vertical alignment is detailed in ***Table 28***.

Table 28 – Preferred Alternative Vertical Alignment			
Element Type	**Value**	**Station**	**Elevation**
START		127+90.00	1298.39
Tangent Grade:	0.50%		
Tangent Length:	1310.00		
Element: Linear			
VPI		141+00.00	1304.94
Tangent Grade:	0.80%		
Tangent Length:	400.00		
Element: Linear			
VPI		145+00	1308.14
Tangent Grade:	0.50%		
Tangent Length:	1625.00		
Element: Linear			
VPI		161+25.00	1316.27
Tangent Grade:	-0.50%		
Tangent Length:	1094.54		

Table 28 – Preferred Alternative Vertical Alignment			
Element Type	**Value**	**Station**	**Elevation**
Element: Linear			
VPI		172+19.54	1310.79
Tangent Grade:	0.80%		
Tangent Length:	2080.46		
Element: Linear			
VPI		193+00.00	1327.44
Tangent Grade:	-0.50%		
Tangent Length:	425.00		
Element: Linear			
VPI		197+25.00	1325.31
Tangent Grade:	1.10%		
Tangent Length:	56.78		
Element: Linear			
VPI		197+81.78	1325.94
Tangent Grade:	-1.40%		
Tangent Length:	49.73		
Element: Linear			
VPI		198+31.51	1325.26
Tangent Grade:	1.00%		
Tangent Length:	562.49		
Element: Linear			
VPI		203+94	1330.88
Tangent Grade:	0.50%		
Tangent Length:	852.00		
Element: Linear			
VPI		212+46	1335.14
Tangent Grade:	-0.50%		
Tangent Length:	430.97		
Element: Linear			
VPI		216+76.97	1332.99
Tangent Grade:	0.50%		
Tangent Length:	1252.45		
Element: Linear			
VPI		229+29.41	1338.65
Tangent Grade:	0.60%		
Tangent Length:	210.59		
Element: Symmetrical Parabola			
VPC		231+40.00	1339.84
VPI		234+00.00	1341.31
VPT		236+60.00	1349.76

Table 28 – Preferred Alternative Vertical Alignment			
Element Type	**Value**	**Station**	**Elevation**
Length:	520.00		
Entrance Grade:	0.60%		
Exit Grade:	3.20%		
r = 100 * (g2 - g1) / L:	0.52		
K = l / (g2 - g1):	193.59		
Middle Ordinate:	1.75		
Element: Linear			
VPT		236+60.00	1349.76
VPC		236+62.71	1349.85
Tangent Grade:	3.20%		
Tangent Length:	2.71		
Element: Symmetrical Parabola			
VPC		236+62.71	1349.85
VPI		239+22.71	1358.3
VPT		241+82.71	1356.46
VHP		240+90.07	1356.79
Length:	520.00		
Entrance Grade:	3.20%		
Exit Grade:	-0.70%		
r = 100 * (g2 - g1) / L:	-0.76		
K = l / (g2 - g1):	131.50		
Middle Ordinate:	-2.57		
Element: Linear			
VPT		241+82.71	1356.46
END		245+25	1354.05
Tangent Grade:	-0.70%		
Tangent Length:	342.29		

4.4. Access

Dual left turns were considered at the intersection of El Mirage Road and Jomax Road. Dual left turn lanes were not necessitated by the traffic analysis. Through discussions with the study partners, it was determined that while the intersection would include single left-turn lanes on El Mirage Road, the structure over the Beardsley Canal would be designed to accommodate future widening for dual left-turn lanes if necessitated by future growth in the region.

Various conversations have occurred with the City of Peoria, ADOT, MCDOT, and ASLD to establish a framework for access management along the corridor. Maricopa County and the City of Peoria have discussed access to the parcels on the west side of El Mirage Road at both Mariposa Grande Lane to the south and Coldwater Ranch Drive to the north. As development progresses in this area access to these parcels will continue to be evaluated, including possible intersection improvements at these locations.

The City of Peoria is conducting a concurrent study to identify access control strategies for the El Mirage Road corridor between SR 303L and Jomax Road. Coordination is ongoing, and access management strategies will be implemented during final design.

The City of Peoria and Maricopa County are actively collaborating to determine access management protocols for a potential development at the northeast corner of El Mirage Road and Happy Valley Road.

Desert Sun Lane at El Mirage Road is gated and does not provide access into the neighborhood. The private residential road serves as an exit out of the Coldwater Retreat neighborhood.

The current design includes fencing along the outside edges of the proposed corridor within land owned and maintained by FCDMC and MWD. MWD are requesting an automated gate at each of the four entrances to their maintenance access roads that service the Beardsley Canal. Fencing will be provided to the edge of the ROW owned and maintained by MWD.

The proposed access points along El Mirage Road and their associated control treatments are detailed in ***Table 29.***

The type of access management may differ between the Ultimate 6-Lane Alternative and the initial phase. Proposed phasing of various intersections is discussed in **Section 6.2.**

Table 29 – Proposed Access Control		
Access Name	**Access Type**	**Access from El Mirage Road**
Mariposa Grande Lane	Private commercial road east of El Mirage Road and potential public or private road west of El Mirage Road.	Full access. Future signalized intersection.
McMicken Wash FCDMC Maintenance Roads	Driveways connecting maintenance roads on both sides of the wash	Drive aprons and median breaks to allow crossing of El Mirage Road
Happy Valley Road	Minor Arterial Road	Traffic Signal full access
Coldwater Ranch Drive	Minor Collector Road	LILO or traffic signal full access (if signal is warranted in future)
Tether Trail	Private Residential Road	Right in & Right Out (RIRO) or 3/4 Access
Desert Sun Lane	Private Residential Road	Right out Right in for emergency access only
City of Peoria Utilities	Maintenance driveway	RIRO
ASLD Parcel "I"*	Driveway	RIRO
Beardsley Canal MWD Maintenance Roads	Driveways connecting maintenance roads on both sides of the canal	Drive aprons and median breaks to allow crossing of El Mirage Road
Jomax Road	Arterial	Traffic Signal full access
*ASLD proposed subdivided parcel locations detailed in ***Figure 26***.		

As additional development occurs along the corridor, access to adjacent parcels will conform to access management and guidelines for the City of Peoria and Maricopa County.

4.5. Right-of-Way

New ROW will be required/purchased along El Mirage Road to accommodate the Ultimate 6-Lane Alternative. The majority of new ROW is anticipated to be partial acquisitions to accommodate new roadway features. The majority of new ROW will be acquired from ASLD. The City of Peoria and ASLD have been coordinating regarding ROW acquisition type and timeframes. The locations of the anticipated ROW and TCEs are shown in ***Table 30***. **Appendix DCR-I** details additional dimensions of anticipated ROW and TCEs.

Table 30 – Anticipated ROW and TCEs

Assessor's Parcel Number	Ownership	Parcel Total Area (Sq ft)	ROW Acquisition Area (Sq ft)	TCE Acquisition Area (Sq ft)
Section 11 Township 4N Range 1W	Arizona State Land Department	14,334,777	597,018	199,223
503-53-045C	Flood Control District of Maricopa County	11,347,456	216,071	145,396
Section 2 Township 4N Range 1W	Arizona State Land Department	24,629,259	269,205	48,857
503-53-009A	Sun Belt Land Investment General Partnership	435,600	34,929	16,590
503-53-009C	Westwing 2 Land Borrower LLC	391,559	25,988	10,463
503-53-001C	PGWS Happy Valley 1 LP	743,302	17,507	17,237
503-66-586	Coldwater Ranch Community Association	32,198	4,967	11,935
503-66-527	Unkefer Real Estate Enterprises LLC	5,175	0	292
503-66-528	Upendo Wa Mungu Trust	5,746	0	702
503-66-529	Libby Brian/Jennifer	6,909	0	1,620
503-66-530	Krueger Crystal D/William F	8,102	0	337
503-66-755	Coldwater Ranch Community Association	34,239	5,995	0
503-55-540	Coldwater Ranch Parcel 1 Homeowners Association	21,017	2,160	3,644
503-55-545	Coldwater Ranch Parcel 1 Homeowners Association	14,221	0	3,872
503-55-534	Coldwater Ranch Parcel 1 Homeowners Association	2,655	0	235
503-89-998	Vistancia Development LLC	364,743	77,588	4,228
503-89-994	Vistancia Development LLC	1,089	1,089	0
510-06-684	Vistancia Maintenance Corporation	871	871	0
510-06-686	Vistancia Maintenance Corporation	4,099	588	0
510-06-678	Vistancia Maintenance Corporation	73,589	9,535	0
ASLD Parcel "I"	Arizona State Land Department	204,732	0	9,749
ASLD Parcel "J"	Arizona State Land Department	1,241,460	3,771	5,068

The City of Peoria will need to enter into a Bridge Construction and Access Easement with FCDMC to cross McMicken Wash. Beardsley Canal maintenance and ROW coordination is ongoing.

ASLD owns land within the project area as depicted in ***Figure 26***. The proposed roadway alignment subdivides ASLD land. A coordination meeting occurred with ASLD on January 6, 2025, to discuss separating property into developable parcels to accommodate the anticipated ROW required for the roadway extension and to encourage future development.

The ASLD ROW application #16-125327-00-100 Long-Term Public Access/Utilities (KE-16) was submitted to ASLD. The ASLD internal application review team presented the information on December 18, 2024, and was accepted for further processing. The application covers ROW acquisition for a public roadway without the need to go to a public auction. T0428 is authorized to proceed with non-ground disturbing due diligence activities, such as land surveys for legal descriptions, or cultural resource and native plant inventory surveys on ASLD land.

It is anticipated that State Trust Land ROW acquisition will occur through a public land auction. Public auctions can last anywhere from four to five months. Upon successful auction, the roadway easement would be dedicated to the City of Peoria. An IGA is being developed between Maricopa County and the City of Peoria. The land acquisition and transfer process will be further defined within the IGA.

4.6. Drainage

Drainage analysis and design aims to quantify, capture, and retain onsite stormwater runoff generated within the project ROW, as well as quantify and convey offsite stormwater runoff through the study area and maintain existing drainage patterns. The drainage analysis also includes a hydraulic analysis of the proposed reinforced box culvert crossing of the McMicken Dam Outlet Channel. Drainage criteria has been set forth by the City of Peoria in the PESM and by FCDMC in the Drainage Policies and Standards Manual and Volumes I & II of the Drainage Design Manual for Maricopa County.

The Final Initial Drainage Report is included in **Appendix DCR-B.**

4.6.1. Onsite Drainage

Onsite drainage analysis within the project ROW has been evaluated using the rational method with a 10-Year, 5-minute time of concentration and a conservative runoff coefficient of 0.95 to account for future roadway improvements. MAG standard detail 542 curb opening catch basins and detail 206 concrete scuppers have been used to capture pavement drainage at key locations, including low points and curb returns upstream of major intersections, with additional inlets placed as necessary to comply with City of Peoria spread criteria.

Onsite stormwater runoff is to be retained. The proposed drainage system consists of nine onsite retention basins throughout the study area. Basins shall pond no more than 3 feet deep and will provide at least 1-foot of freeboard from the design highwater elevation to the top of basin. Six basins have been designed to retain the full 100-Year, 2-Hour runoff volume. The remaining three basins have been designed to retain the First Flush volume, defined as the first 0.5-inches of runoff from a basin's contributing area. First Flush basins are placed at locations where basin overflow will result in runoff returning to existing flow paths. The implementation of First Flush basins is intended to reduce project-associated earthwork, utilize nearby offsite drainage washes, and reduce future potential need for regrading basins during development of land adjacent to the study area. Basins located in the quadrants of the intersection of Happy Valley Road and El Mirage Road,

and those located along the west side of El Mirage Road north of Happy Valley Road, are intended to be temporary and may be reconfigured at a future date to fit the needs of future development.

The onsite drainage design prioritizes the use of scuppers with adjacent retention basins. If an inlet must be placed at a location that does not allow for an adjacent retention basin, curb opening catch basins are then utilized in conjunction with storm drain and manholes to convey runoff to a suitable basin location.

Basin drain time will be evaluated during final design and will require percolation tests to determine in-situ basin infiltration rates. Basin geometry may be reconfigured to increase basin-bottom area if necessary. Retention basin drain time shall be no greater than 36 hours. It is not recommended that drywells be utilized for basin drain time compliance at temporary basin locations where basins may be reconfigured by future developers. Dumped angular riprap with an average diameter of 3-inches is recommended at onsite storm drain outfalls to dissipate velocities entering retention basins. If basin-bottom infiltration is not feasible during final design, drywells may be utilized to drain all permanent and temporary retention basins within 36 hours, based on a maximum deposal rate of 0.1cfs. When placed in all stormwater storage facilities, a total of 17 drywells would be required throughout the project. This number may be reduced significantly with the inclusion of basin-bottom infiltration as most storage facilities do not require the full disposal rate from one drywell.

Maintenance access will be provided to all permanent stormwater storage facilities in the form of 12' wide 10H:1V vehicular ramps.

At the south end of the proposed roadway, scuppers are utilized to capture onsite runoff before it is allowed to flow into ADOT access control area. These scuppers would convey stormwater to retention basins that are being constructed as part of the WestWing Business Park plans. These basins were not originally designed to provide sufficient freeboard. Accordingly, it is recommended that these basins are excavated to a depth of 2-feet to provide 1-foot of storage volume and 1-foot of freeboard. Two additional curb opening inlets are placed within ADOT access control to collect and convey runoff to an existing ADOT basin located in the northwest quadrant of El Mirage Rd and SR 303L, adjacent to the westbound onramp.

The east curb and gutter section along El Mirage Road, adjacent to the Coldwater Ranch development, includes three inlets that collect runoff from the existing pavement section and route flow to retention areas within the development. Changes to the existing curb and gutter section will require these inlets to be reestablished to continue providing compliance with half-street drainage retention criteria.

4.6.2. Offsite Drainage

Offsite drainage analysis within the project area has been evaluated using HEC-1 to quantify stormwater runoff that impacts the project corridor. Two single-basin models were developed for separate offsite washes located east and west of the McMicken Dam Outlet Channel, using Green and Ampt loss methodology, with soils data obtained from the National Resources Conservation Service, and time-area data provided by FCDMC. 50-Year, 6-Hour, and 24-Hour models were evaluated, with the 24-Hour storm duration controlling.

Offsite culverts were designed and evaluated using the FHWA HY-8 Culvert Analysis software. Ratios for the Design Headwater Depth to the culvert diameter are limited to approximately 1.5. Dumped angular riprap with an average diameter of 9-inches is recommended at offsite culvert outlets to dissipate velocities before flow returns to its existing flow paths.

Existing studies and reports used in the DCR drainage analysis include the *Final Drainage Report, SR303L El Mirage Road Traffic Interchange Final Design,* July 2014 by Kimley-Horn and Associates Inc. (KHA) and the CLOMR Case No. 14-09-224 1R, May 2017, also prepared by KHA.

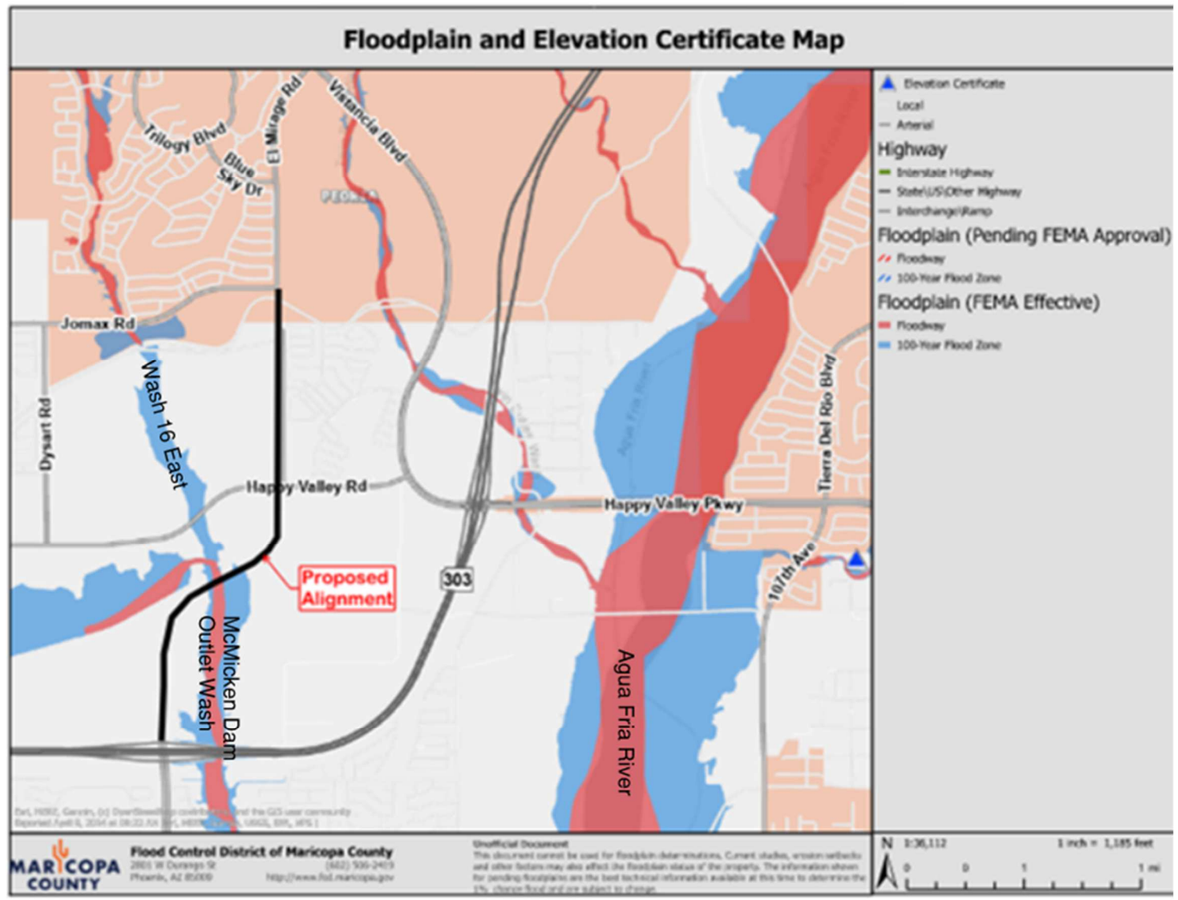
4.6.3. FEMA Floodplain Considerations

The study area intersects FEMA Flood Hazard Designations A and AE, defined as SFHAs subject to inundation by the flood event having a one percent chance of being equaled or exceeded in any given year (Base Flood). Zone AE is further defined as having specified BFEs determined through detailed hydraulic modeling. The McMicken Dam Outlet Channel and Outlet Wash Zone AE floodplains also include a Zone AE Floodway, defined as the portion of a watercourse that must be reserved (free from encroachment or obstruction) to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height, typically 1-foot.

El Mirage Road improvements will obstruct flow within the Zone AE Floodplain and Floodway. During final design, a detailed hydraulic analysis be performed to delineate updated floodplain extents and to evaluate hydraulic impacts to the wash. The FCDMC has recently completed construction of improvements to the McMicken Dam Outlet Channel, including realignment of the channel centerline and changes to the channel cross sections. The Effective FEMA floodplain delineations and hydraulic data, reflected on FEMA Flood Insurance Rate Map 04013C1230L, most recently published October 16, 2013, does not reflect impacts to the floodplain associated with the McMicken Dam Outlet Channel Improvements project.

Final design will require a detailed analysis of the floodplain delineation to account for the McMicken Dam Outlet Channel construction and the El Mirage Road construction. This will require a Conditional Letter of Map Revision (CLOMR) during the design stage and a LOMR after completion of construction activities. ***Figure 27*** illustrates the Special Flood Hazard Areas with respect to the proposed alignment of El Mirage Road. The FCDMC is pursuing a LOMR for the McMicken Dam Outlet Channel Improvements, with an anticipated completion by the end of 2025. It is anticipated that this LOMR will be published before final design.

Figure 27 – FEMA Special Flood Hazard Areas



4.6.4. McMicken Dam Outlet Channel Hydraulic Analysis

The proposed El Mirage Road alignment crosses the McMicken Dam Outlet Channel and will utilize a 12-barrel 10-foot by 10-foot Reinforced Concrete Box Culvert (RCBC). A HEC-RAS analysis was completed to evaluate the hydraulic impacts to the wash due to the introduction of the box culvert. The latest Effective HEC-RAS model does not incorporate updates to the wash associated with the McMicken Dam Outlet Channel Improvements. The most recent model, serving as the model of record, was developed by the FCDMC in December 2018 and represents a 90 percent design effort.

The FCDMC model was updated to create a Corrected Effective pre-project existing conditions model. The Corrected Effective model includes revisions to cross sections around the El Mirage Road crossing location. Due to ongoing construction activities during development of the DCR hydraulic analysis, the Corrected Effective HEC-RAS model geometric updates are based on the McMicken Dam Outlet Channel improvement plans and interpolation from the FCDMC provided model of record. It is recommended that final design utilize topographic data that represents the completed construction activities.

The Corrected Effective model was updated to create a Proposed Conditions model, including the RCBC geometry. Specific model parameters can be found in the Final Initial Drainage Report included in **Appendix DCR-B.** The proposed model illustrates an increase in water surface elevation upstream of the RCBC crossing of approximately 8.2 inches and an increase in downstream velocity of approximately 1.02 feet per second. CLOMR/LOMR considerations for final design are summarized in **Section 4.6.3**.

4.7. Section 401 and 404 of the Clean Water Act

The project will incorporate stormwater pollution prevention practices per Section 104.09 (Prevention of Stormwater Pollution) in ADOT's Standard Specifications for Road and Bridge Construction. The project would result in disturbance of one or more acres of land, a stored specification requiring Stormwater Pollution Prevention Plan (SWPPP) and an Arizona Pollutant Discharge Elimination System (AZPDES) permit will be included in the contract.

The project would be evaluated to determine if jurisdictional waters of the United States as regulated by the US Army Corps of Engineers would be impacted and a Clean Water Act Section 404 permit is required. The project is not within one-mile upstream or 1/2-mile downstream of an impaired, not-attaining or Outstanding Arizona Water (OAW) or on a tributary to an impaired water or OAW and within one mile of the impaired water or OAW.

4.8. Earthwork

The required earthwork for the Ultimate 6-Lane Alternative is detailed in ***Table 31.*** The project is anticipated to be a borrow project.

Table 31 – Earthwork for the Preferred Alternative

Feature	Excavation (Cu Yd)	Embankment (Cu Yd)
El Mirage Road Widening/Extension	30,060	119,990
Drainage Basins	18,486	0
Project Wide	**48,546**	**119,990**

4.9. Construction Phasing and Traffic Control

During final design, traffic control plans will be developed to specify how traffic will be managed, and construction will be sequenced during the different phases of construction. Included in **Appendix DCR-I** is a Construction Phasing and Sequencing chart. The chart includes appropriate construction activities and major milestones toward completion. Traffic control shall conform to the ADOT Temporary Traffic Control Design Guidelines.

The El Mirage Road intersections with Coldwater Ranch Drive and Tether Trail must remain accessible during all phases of construction. The Jomax Water Reclamation Facility (WRF) south of Jomax Road must remain accessible during all phases of construction. The Vistancia landscaping storage yard south of the Beardsley Canal will require relocation. Access should be maintained to the relocated storage yard. MWD requires continuous access along the Beardsley Canal Maintenance Roads during all phases of construction.

The WestWing facilites in the southeast quadrant of El Mirage Road and Happy Valley Road intersection and serviced by Mariposa Grande Lane must remain accessible during all phases of construction.

The project will construct the Initial 4-Lane Alternative before the Ultimate 6-Lane. The Initial 4-Lane Alternative will be constructed and utilized to facilitate traffic volumes until at least 2045 as defined further in **Section 2.2**. The construction of the Initial 4-Lane Alternative can be accelerated since much of the proposed roadway

footprint falls within undeveloped land. Similarly, the majority of the corridor improvements will be constructed outside of existing El Mirage Road, Happy Valley Road, and Jomax Road, decreasing impacts to existing traffic. The construction of the Ultimate 6-Lane Alternative widening will occur inward toward the center of the corridor.

The construction of the Beardsley Canal and McMicken Wash crossings can also be accelerated. The proposed bridges fall within areas of relatively undeveloped land, which will minimize disruptions. The proposed bridges are also new to the study area and will not need to accommodate existing traffic. Although the construction sequence will ultimately be decided by the contractor, it is recommended that the construction of the roadway corridor precede the construction of the structure over McMicken Wash and the bridge over the Beardsley Canal. This sequence can aid in successfully tying the roadway corridor to the abutments and bridge deck. Construction of the Beardsley Canal Bridge can occur throughout the year. However, any work that would block the canal or require dry-up of the canal flow will occur during the planned Beardsley Canal dry-up period. This is expected to be mid-December to mid-February. During design, coordination should occur with MWD to verify the dry-up period.

4.10. Traffic Design

The following sections describe traffic design, including traffic signals, signing and marking, and lighting for the Ultimate 6-Lane Alternative. Traffic design for the Ultimate 6-Lane Alternative was developed using the following design documents:

- City of Peoria Engineering Standards Manual (Revised 2024)
- Manual on Uniform Traffic Control Devices (MUTCD) (11th Edition, December 2023)
- Arizona Supplement to the MUTCD (2009)

The traffic design will continue to be optimized during final design.

The Ultimate 6-Lane Alternative includes intersection improvements throughout the corridor. Signalized intersections will be implemented at Happy Valley Road and Jomax Road.

4.10.1. Traffic Signals

The Ultimate 6-Lane Alternative includes traffic signalization at the existing stop-controlled intersections of El Mirage Road with Happy Valley Road and Jomax Road. The intersection of Happy Valley Road and El Mirage Road will include dual left turn lanes and a single right turn lane on all approaches. Locations with dual left turn lanes will include protected phasing.

The intersection of Jomax Road and El Mirage Road will include single left turn and right turn lanes on all approaches. The project team considered dual northbound left turn lanes at this intersection, but they were not warranted. However, the bridge profile is designed to accommodate widening for a second left turn lane while still achieving meet MWD vertical clearance requirements. Left turn phasing at Jomax Road and El Mirage Road will be protected/permissive. Traffic signals are anticipated to be O&M by the City of Peoria.

4.10.2. Signing and Pavement Marking

The Ultimate 6-Lane Alternative includes installation of new signs and replacement of existing signs along El Mirage Road throughout the study area. It is anticipated that signs will be ground mounted or installed on signals at intersections. The signing concept will be optimized during final design. Overhead guide signs and sign structure(s) will be constructed for southbound El Mirage Road approaching the SR 303L TI.

The Ultimate 6-Lane Alternative includes new pavement markings for El Mirage Road from SR 303L to just north of Jomax Road. The Ultimate 6-Lane Alternative also includes new pavement markings at the El Mirage Road and Happy Valley Road intersection and the El Mirage Road and Jomax Road intersection to match the recommended lane configurations outlined in **Section 2.2.** The existing El Mirage Road pavement structural section between Happy Valley Road and Desert Sun Lane will not be salvaged. The project will implement full-depth pavement replacement in this area which will eliminate the need to obliterate and/or reuse existing pavement markings.

It is anticipated that signing and marking along El Mirage Road within ADOT ROW will be designed to ADOT standards and that ADOT will be responsible for O&M. It is anticipated that from the ADOT ROW to Jomax Road signing and marking along El Mirage Road will be designed to City of Peoria standards and City of Peoria will be responsible for O&M.

4.10.3. Roadway Lighting

The proposed build condition will include street lighting along El Mirage Road, in accordance with City of Peoria standards. Lighting design will be completed during final design. Lighting at the SR 303L TI will require coordination with ADOT, and lighting along Happy Valley Road approaching the El Mirage Road intersection will require coordination with MCDOT.

4.11. Utilities, Railroad and Irrigation Systems

A preliminary utility investigation was completed identifying 17 utility owners with facilities in the study area. The existing facilities have the potential to be affected by the Ultimate 6-Lane Alternative. The investigation included contacting utility owners for Bluestake facility record requests. All utility records received were reviewed and drafted into a utility basemap, displayed in the plans included in **Appendix DCR-I**. Existing dry and wet utilities are detailed in ***Figure 28*** and ***Figure 29***, respectively. No field services were completed during this phase of project development.

Coordination has occurred with utility owners with anticipated impacts to determine cost and schedule considerations for the identified conflicts. The determination of utility prior rights is ongoing.

The various utility owners and utility type(s) including potential conflicts of project improvements are detailed in ***Table 32***. Utility potholing will be completed during final design to determine the depth of existing underground utilities.

Figure 28 – Existing Dry Utilities

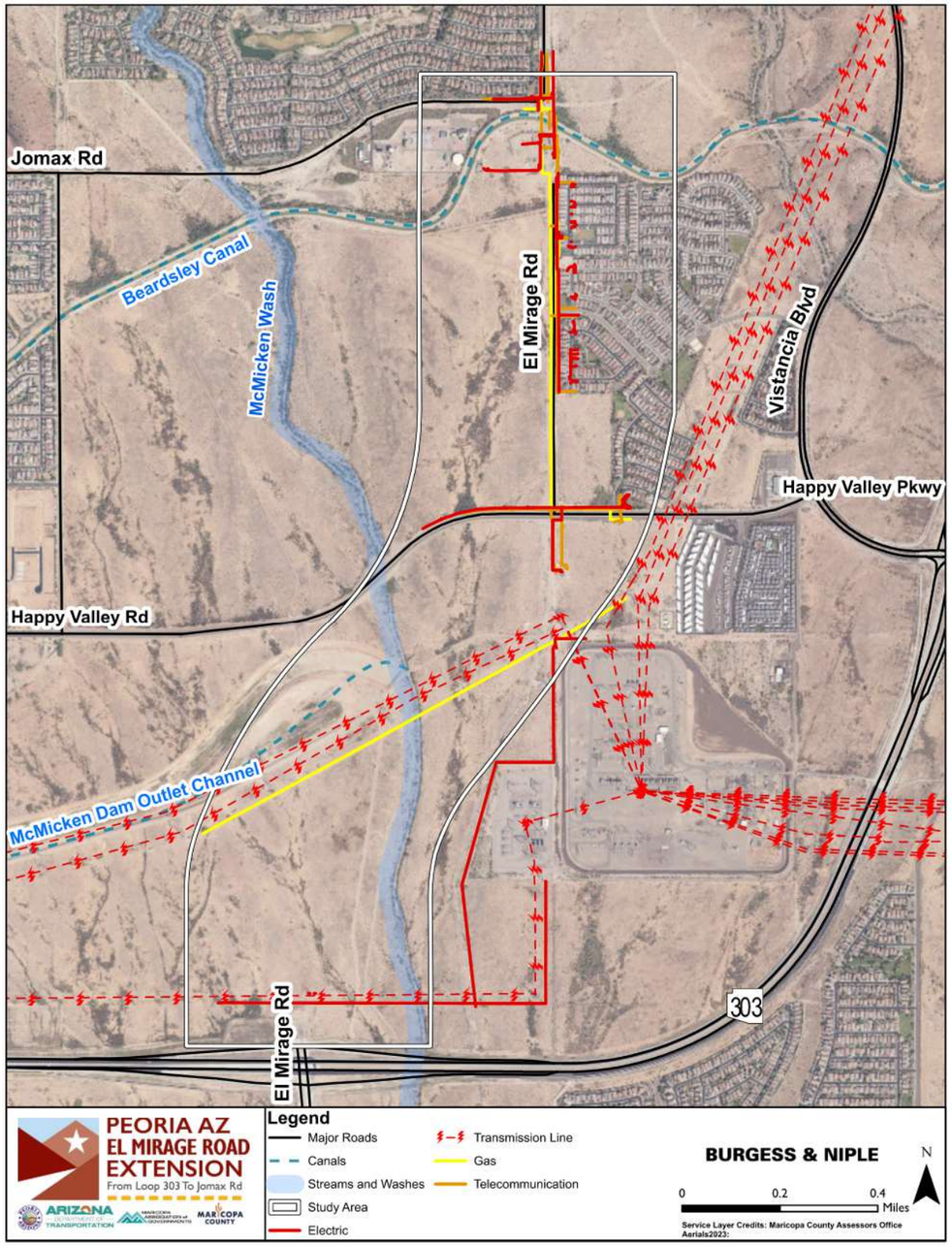


Figure 29 – Existing Wet Utilities

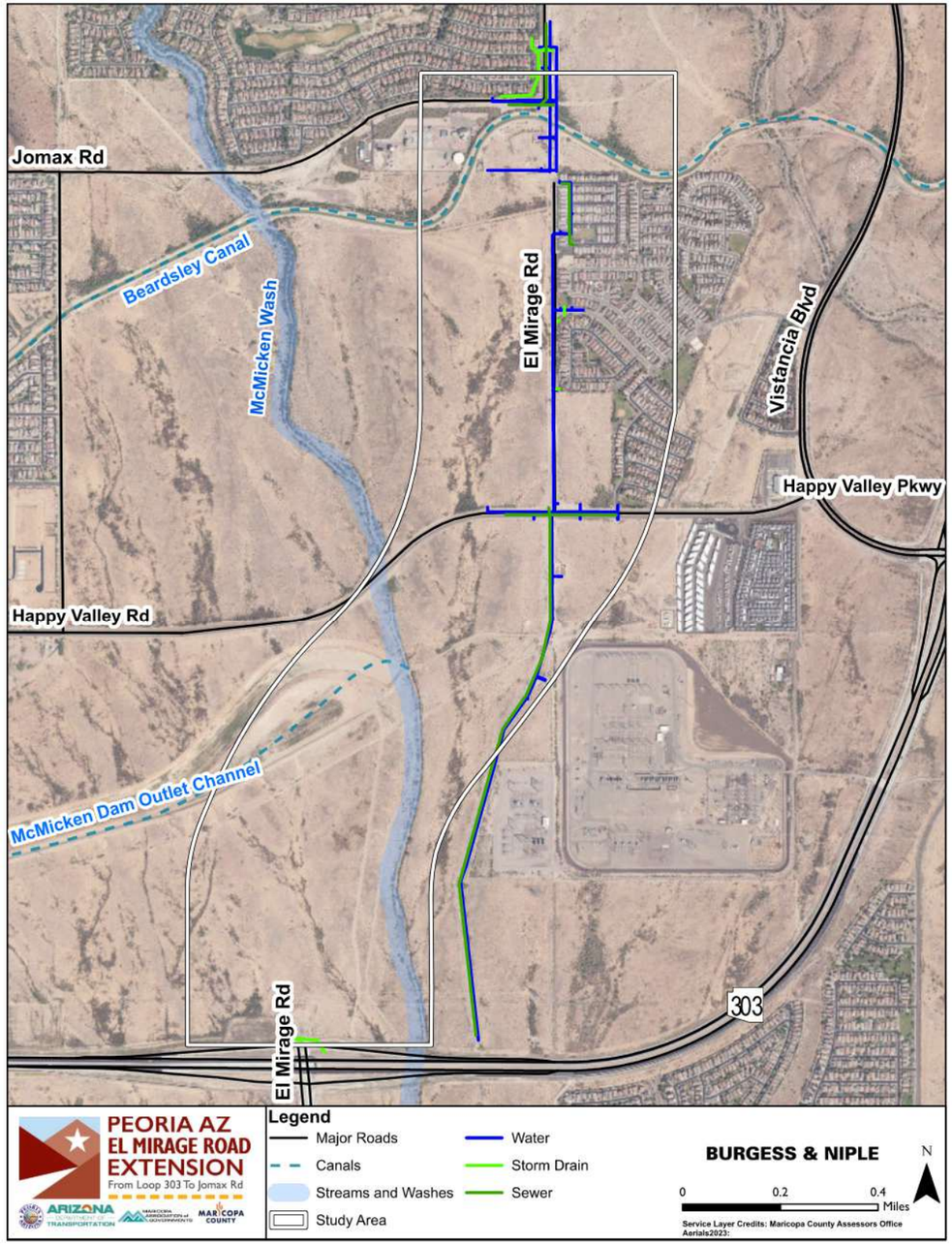


Table 32 – Existing Utilities		
Utility Owner	**Utility Type**	**Anticipated Facility Impact**
ADOT	Culverts, electric, fiber optics, gas, irrigation, sewer, storm drains, telephone, traffic signals, water	No anticipated impacts.
APS	Electric	Potential access impacts to the WestWing electrical substation and expansion project.
WAPA	Electric	Potential Impacts being investigated.
SRP	Electric	Potential Impacts being investigated.
City of Peoria Utilities	Fiber optics, reclaimed water, sewer, storm drains, traffic signals, water	City Well along El Mirage Road is to be protected in place. Accommodate maintenance access for well south of Beardsley Canal. Minor impacts anticipated to underground facilities.
City of Surprise	Irrigation, reclaimed water, sewer, storm drains, water	No anticipated impacts.
Cox Communications	CATV, fiber optics	Minor impacts anticipated to underground facilities.
Century Link	Coaxial, fiber optics	Minor impacts anticipated to underground facilities.
El Paso Natural Gas	Gas	No anticipated impacts.
EPCOR Water	Sewer, water	Underground facilities to be partially realigned south of Happy Valley Road. Access to be maintained to facility.
MCDOT	Fiber optics, traffic signals	No anticipated impacts.
Maricopa Water District	Irrigation	No direct impacts. Maintenance access will be maintained, and gates and fencing will be added to the facility.
MCI- Verizon	Fiber optics	Minor impacts anticipated to underground facilities.
Pauley Construction	Communications, fiber optics	Minor impacts anticipated to underground facilities.
Southwest Gas	Gas, high pressure gas	Avoid impacts to 36" high pressure gas line; potential impacts to underground facilities west of El Mirage Road.
Transwestern Pipeline	Gas	Anticipated impact to underground gas line along Jomax Road.
Wyyerd	Fiber optics, telephone	Minor impacts anticipated to underground facilities.

Existing irrigation systems within the study area may be impacted by the Ultimate 6-Lane Alternative and will require relocation.

There are no railroads within the study area.

4.12. Structures

The implementation of the Ultimate 6-Lane Alternative includes the construction of two vehicular structures along El Mirage Road; the McMicken Wash Crossing and the Beardsley Canal Bridge. Preliminary bridge studies have been prepared. The Final Initial Bridge Study for the McMicken Wash is provided in **Appendix DCR-J**. The Final Initial Bridge Study for the Beardsley Canal Bridge is provided in **Appendix DCR-K**. Structure descriptions are detailed in **Section 4.12.1** and **Section 4.12.2.**

4.12.1. McMicken Wash Crossing

The Reinforced Concrete Box Culvert (RCBC) structure crossing will carry vehicular, bicycle, and pedestrian traffic over the McMicken Wash. The main difference between the City of Peoria typical section and the section is that the sidewalks will be supported on combination pedestrian traffic barrier moment slabs as the roadway crosses the structure. The RCBC is anticipated to be constructed for the Ultimate 6-Lane Alternative during the construction of the Initial 4-Lane Alternative. Refer to **Appendix DCR-J** for preliminary McMicken Wash crossing plans.

The 10-cell RCBC will pass the 100-year design storm and provide approximately 1-foot of freeboard. ADOT Standard ten cell 12 feet by 12 feet RCBC is proposed for this alternative.

The roadway alignment and profile of the existing FCDMC maintenance access road, located adjacent to the McMicken Wash, will be reconfigured and result in an at-grade intersection with proposed El Mirage Road.

4.12.2. Beardsley Canal Bridge

The Beardsley Canal bridge will carry vehicular, bicycle, and pedestrian traffic over the Beardsley Canal. The roadway typical section will match the City of Peoria arterial section. The structure will likely be phased to provide only the number of lanes needed for the Initial 4-Lane Alternative. The structure will be designed to be widened for the number of lanes needed for the Ultimate 6-Lane Alternative. The ultimate bridge typical section will consist of two 11-foot lanes and one 12-foot lane in each direction, a 6-foot southbound bike lane, a 5-foot northbound bike lane, a 16-foot northbound left turn lane (12-foot lane and 4-foot buffer), a 12-foot northbound right turn lane, 8-foot sidewalks on each side, and 1-foot 2-inch wide concrete barriers with railing on each side. Refer to **Appendix DCR-K** for preliminary Beardsley Canal bridge plans.

The only feasible solution that meets MWD requirements and constructability concerns is a single span bridge. Other alternatives such as a superbox culvert, a multi-cell box culvert, or a multi-span bridge were evaluated and determined to be unfeasible due to the MWD requirements. Discussions with MWD on May 30, 2024, revealed that any structure with a bottom slab within the canal or pier columns within the canal will not be permitted. Single span bridges have been used successfully at other nearby Beardsley Canal crossings, such as Vistancia Boulevard, Happy Valley Road, and 147th Avenue.

The following MWD geometric requirements, as outlined by MWD in the Requirements for Bridging the Beardsley Canal report, are met by the proposed bridge.

- The bridge must have a minimum of 9-foot vertical clearance from the bottom of the canal to the bottom of the bridge.
- The bridge must have a minimum of 2-feet vertical clearance from the top of the canal lining to the bottom of the bridge.
- The bridge abutments must be placed at least 2 feet horizontally from the top outside edge of the canal or 10 feet from the toe of the canal; whichever is greater.
- The MWD O&M roads must be at least 20 feet wide and cross El Mirage Road on reinforced concrete slabs. Roadway guardrail must be placed so as not to block the O&M roads.
- The O&M roads may be shifted to line up with the new crossing of El Mirage Road, but they may not be blocked by the guardrail.
- The canal lining will be replaced on each side of the bridge to account for any damage that may be caused during construction. Buried conduits must be installed in front of both abutments to facilitate the installation of future MWD utilities along their canal.
- A Bridge Construction and Access Easement must be obtained from MWD prior to construction. City of Peoria must obtain a permit from MWD prior to construction.

To meet the MWD requirements, the bridge is planned to be a single span, precast prestressed concrete girder bridge. The span length will be 67 feet. The total out-to-out width of the bridge will be 125 feet 4 inches based on the proposed roadway geometry. The structure depth will be approximately 4 feet 8 inches, which includes 3-foot 9-inch-deep girders, an 8-inch-thick deck, and a variable depth concrete buildup on the girder top flanges. The roadway profile will be set high enough to accommodate the structure depth and the required vertical clearances listed above. The bridge typical section will consist of 16 AASHTO Type III girders, spaced at 7 feet 11 inches. This will provide an Inventory Rating of at least 1.0 and an Operating Rating of at least 2.0, which will allow all legal highway loads to safely cross the canal while providing additional structural capacity for overweight permit loads.

The abutments will be cast-in-place concrete stub abutments. Based on the anticipated geotechnical conditions in the area, the abutments are anticipated to be supported on drilled shafts. By supporting the abutments on drilled shafts, construction impacts to the Beardsley Canal will be minimized. The approaches will consist of a 15-foot-long reinforced concrete approach slab and an additional 20-foot-long reinforced concrete slab for the O&M road crossings. Construction of the bridge can take place throughout the year. However, any work that would block the canal or require dry-up of the canal flow should be conducted during the planned Beardsley Canal dry-up period. This is expected to be mid-December to mid-February, subject to change by MWD.

It is not anticipated that there will be streetlights or traffic signals mounted on the bridge. There are no current plans for aesthetic treatments on the bridge. However, aesthetics could be added during final design if desired by the stakeholders.

The bridge configuration will be investigated in more detail during final design to evaluate possible options to construct the bridge in phases. The bridge construction cost estimate shown in this document is based on the bridge being constructed to its ultimate width in a single construction phase. One feasible phased construction sequence is explained in the following paragraphs.

The first phase would construct the bridge to match the interim roadway typical section. The interim bridge typical section would provide two 11-foot lanes in each direction, a 6-foot bike lane in each direction, a 12-foot northbound left turn lane, 8-foot raised sidewalks on each side, and 1-foot 2-inch-wide concrete barriers with steel railing on each side. The clear roadway width would be 68 feet, and the out-to-out bridge width would be 86 feet 4-inches. In the future, the bridge would be widened to the east side to the ultimate roadway typical section. The ultimate bridge typical section would provide two 11-foot lanes and one 12-foot lane in each direction, a 6-foot southbound bike lane, a 5-foot northbound bike lane, a 16-foot northbound left turn lane (12-foot lane and a 4-foot buffer), a 12-foot northbound right turn lane, 8-foot raised sidewalks on each side, and 1-foot 2-inch-wide concrete barriers with steel railing on each side. The clear roadway width would be 107 feet, and the out-to-out bridge width would be 125 feet 4 inches.

Phased bridge construction, if chosen, will require coordination during final design. The entire abutments, or the abutment drilled shafts, could be constructed in Phase 1 to minimize impacts to the canal during Phase 2. Temporary shoring may be required during Phase 1 to support the raised MWD maintenance roads adjacent to the canal. Guardrail and thrie beam connections at the southeast and northeast corners of the bridge could be salvaged and reused during Phase 2. The northbound bike lane and northbound sidewalk would need to be temporarily closed during Phase 2 construction. As an alternative to constructing a raised sidewalk on the east side during Phase 1, temporary concrete barrier could be used to separate pedestrians from the vehicle lanes. This would allow pedestrians to use the concrete deck as opposed to a raised sidewalk. The final cost of the bridge, if constructed in two phases, is likely to be at least 10% more than the cost to construct the ultimate bridge width in a single phase.

4.13. Preliminary Pavement Design

The near-surface soils in the study area are anticipated to provide good support for pavements. The subgrade soils will be confirmed during final design. Based on the existing condition and age of the pavement north of Happy Valley Road and south of the Beardsley Canal, it is expected that the AC surface is nearing its intended design life, typically 20 years. The thickness of the existing section may not meet the current traffic and minimum thickness requirements for a City of Peoria arterial roadway. For preliminary planning, it is recommended the existing pavement section be removed and fully reconstructed considering the pavement age and unknown overall thickness. The new section should have a minimum pavement section consisting of 5-inches of AC over 12-inches of aggregate base to meet the City of Peoria minimum section for an arterial street classification. The minimum City of Peoria pavement section was assumed for cost estimating purposes.

Within ADOT ROW, for approximately 400-feet immediately north of SR 303L, the road is anticipated to be O&M by ADOT. Pavement design will meet ADOT standards and is anticipated to be Portland Cement Concrete Pavement (PCCP). Preliminary Geotechnical Exploration report is provided in **Appendix DCR-L**.

4.14. Habitat Connectivity

A wildlife linkage area was identified from the Maricopa County Wildlife Connectivity Assessment (2012) within the study area. The movement area is utilized for connectivity along the FCDMC lands starting at the McMicken Dam south of the Hassayampa River and Buckeye Flood Retarding Structure (FRS) 1 Dam. The dam was listed as a barrier to the movement area. Due to the study area occurring in a semi-developed, residential environment, enough undeveloped areas remain for wildlife to utilize for connectivity. Further coordination with the Arizona Game and Fish Department (AGFD) to support wildlife movement through the study will be necessary.

4.15. Multimodal Considerations

A continuous on-street bike lane and buffered sidewalk will be constructed along El Mirage Road within the study area. The signalized intersections of El Mirage Road with Happy Valley Road and Jomax Road will include pedestrian accommodations including marked crosswalks, curb ramps, and pedestrian crossing signalization. ADA compliant pedestrian routes will be constructed on both sides of El Mirage Road including sidewalk and curb ramps.

The Final Initial ADA Compliance and Feasibility Report was completed to evaluate existing pedestrian facilities within the study area. Non-compliant facilities will be remediated or reconstructed as part of the build-condition. The report is included in **Appendix DCR-G**.

The study area is currently not within the Valley Metro transit service area. Bus stops are not anticipated within the study area.

4.15.1. The Maricopa Trail

The Maricopa Trail crosses El Mirage Road south of Happy Valley Road. The Maricopa Trail has been identified as a 4(f) resource and coordination is ongoing with Maricopa County Parks and Recreation Department (MCPRD). Multiple alternatives are being considered for the trail crossing configuration. The final decision about trail user accommodation and the proposed Maricopa Trail and El Mirage Road will be documented in the Final DCR.

4.16. Design Decisions

The proposed design elements conform to the City of Peoria standards.

4.17. Intergovernmental Agreements

It is anticipated that during design Intergovernmental Agreements (IGAs) will be established between the project partners. ***Table 33*** provides a summary of anticipated IGAs.

Table 33 – Intergovernmental Agreements

Agency 1	Agency 2	IGA Purpose	Construction	Funding	O&M
City of Peoria	ADOT	303L TI construction and project funding	X	X	
City of Peoria	Maricopa County (MCDOT)	El Mirage Road and Maricopa Trail O&M	X		X

A meeting was conducted on May 5, 2025, with the City of Peoria, ADOT, MCDOT, and Maricopa County Parks Department. During the meeting, County representatives requested an IGA with the City of Peoria and ADOT for the accommodation of the Maricopa Trail. The Maricopa Trail IGA language may be incorporated into a separate ongoing IGA between Maricopa County and the City of Peoria.

4.18. Permits and Applications

Permits that may be necessary for the construction and/or maintenance of the improvements within the corridor detailed below.

- Maricopa Water District and the City of Peoria: For the Beardsley canal crossing
- FCDMC and City of Peoria: For the McMicken Wash crossing (ROW use permit). Coordination is ongoing with FCDMC and is expected to continue during final design.
- Arizona Pollutant Discharge Elimination System (AZPDES) permit
- Section 404 permit (if necessary)

Applications that have been identified for the project are listed below:

- ASLD ROW application: Application has been accepted for processing. Coordination with ASLD is expected to continue during final design.

5.0 Itemized Cost Estimate

5.1. Cost Estimate of the Preferred Alternative

The cost estimate of the Ultimate 6-Lane Alternative is detailed in ***Table 34***.

Table 34 – Preferred Alternative Cost Estimate

ITEM NO.		ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2010011		CLEARING AND GRUBBING	ACRE	33.5	$2,500.00	$83,750.00
2020020		REMOVAL OF CONCRETE CURB	L.FT.	2,100	$8.00	$16,800.00
2020021		REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	700	$9.00	$6,300.00
2020025		REMOVAL OF CONCRETE SIDEWALKS, DRIVEWAYS AND SLABS	SQ.FT.	2,000	$4.00	$8,000.00
2020029		REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	24,000	$12.00	$288,000.00
2030301		ROADWAY EXCAVATION	CU.YD.	31,000	$34.00	$1,054,000.00
2030904		BORROW	CU.YD.	86,100	$50.00	$4,305,000.00
3030022		AGGREGATE BASE, CLASS 2	CU.YD.	37,400	$86.00	$3,216,400.00
4010011		PORTLAND CEMENT CONCRETE PAVEMENT (10")	SQ.YD.	3,470	$110.00	$381,700.00
4090005		ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL)	TON	31,200	$80.00	$2,496,000.00
5030XXX		CLOSED DRAINAGE SYSTEM	L. SUM	1	$1,600,000.00	$1,600,000.00
601XXXX		STRUCTURES	L. SUM	1	$8,100,000.00	$8,100,000.00
606XXXX		OVERHEAD SIGNING	L. SUM	1	$63,000.00	$63,000.00
607XXXX		SIGNING (STREET)	L. SUM	1	$311,000.00	$311,000.00
7010005		MAINTENANCE AND PROTECTION OF TRAFFIC	L. SUM	1	$650,000.00	$650,000.00
704XXXX		PAVEMENT MARKING	L. SUM	1	$163,000.00	$163,000.00
731XXXX		LIGHTING	L. SUM	1	$2,840,000.00	$2,840,000.00
733XXXX		TRAFFIC SIGNAL	L. SUM	1	$720,964.00	$720,964.00
735XXXX		ITS	L. SUM	1	$635,000.00	$635,000.00
802001X		LANDSCAPING	L. SUM	1	$650,000.00	$650,000.00
8101013		EROSION CONTROL	L. SUM	1	$320,000.00	$320,000.00
9010001		MOBILIZATION	L. SUM	1	$3,890,000.00	$3,890,000.00
902XXXX		GATE, AUTOMATED	EACH	4	$25,000.00	$100,000.00
9050002		GUARD RAIL, W-BEAM, SINGLE FACE, SHOP CURVED	L.FT.	150	$120.00	$18,000.00
9050005		GUARD RAIL, W-BEAM, SINGLE FACE (MASH)	L.FT.	300	$60.00	$18,000.00
9050036		GUARD RAIL, ANCHOR ASSEMBLY	EACH	4	$3,500.00	$14,000.00
9050420		GUARD RAIL TRANSITION	EACH	4	$6,000.00	$24,000.00
9080001		CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	600	$55.00	$33,000.00
9080090		CONCRETE CURB AND GUTTER	L.FT.	600	$55.00	$33,000.00

Table 34 – Preferred Alternative Cost Estimate

ITEM NO.		ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
9080101		CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220-1)	L.FT.	43,100	$45.00	$1,939,500.00
9080107		CONCRETE SINGLE CURB (MAG DET. 222)	L.FT.	2,100	$70.00	$147,000.00
9080201		CONCRETE SIDEWALK (C-05.20)	SQ.FT.	7,540	$15.00	$113,100.00
9080241		CONCRETE SIDEWALK (MAG DET. 230)	SQ.FT.	181,000	$15.00	$2,715,000.00
9080295		CONCRETE SIDEWALK RAMP	SQ.FT.	2,000	$40.00	$80,000.00
9080304		CONCRETE DRIVEWAY	SQ.FT.	1,530	$25.00	$38,250.00
9140153		RETAINING WALL	SQ.FT.	1,770	$200.00	$354,000.00
9201006		CONCRETE CHANNEL LINING (6")	SQ.YD.	970	$215.00	$208,550.00
9240170		CONTRACTOR QUALITY CONTROL	L. SUM	1	$810,000.00	$810,000.00
9250001		CONSTRUCTION SURVEYING AND LAYOUT	L. SUM	1	$1,300,000.00	$1,300,000.00
		SUBTOTAL ROADWAY				**$39,744,314.00**
		30% UNIDENTIFIED ITEMS (ROADWAY)	L. SUM	1	$0.00	$11,924,000.00
		TOTAL ROADWAY				**$51,668,314.00**
		CONSTRUCTION ENGINEERING		15%	$7,750,300.00	$7,750,300.00
		CONSTRUCTION POST DESIGN SERVICES		1%	$516,700.00	$516,700.00
		CONSTRUCTION CONTINGENCY (5%)		5%	$2,583,500.00	$2,583,500.00
		PUBLIC INVOLVEMENT		1	$100,000.00	$100,000.00
		ICAP (0.0%)		0.00%	$0.00	$0.00
		LABOR AND MATERIALS INFLATION TO FISCAL YEAR 2026			1.0524	$3,281,300.00
TOTAL ESTIMATED CONSTRUCTION COST (EXCLUDING UTILITY RELOCATION AND R/W)						**$65,900,114.00**

DES	**PREDESIGN AND FINAL DESIGN**			
	PREDESIGN/NEPA/PI SERVICES (0% OF BASE YEAR CONSTRUCTION COST)		0.00%	$0.00
	INDIRECT COST ALLOCATION (0.0% OF ALL PREDESIGN COSTS)		0.00%	$0.00
	PREDESIGN COST INFLATION TO FISCAL YEAR 2024		1.0000	$0.00
	SUBTOTAL PREDESIGN			**$0.00**
	FINAL DESIGN SERVICES (6% OF BASE YEAR CONSTRUCTION COST)		6.0%	$3,100,100.00
	INDIRECT COST ALLOCATION (0.0% OF ALL FINAL DESIGN COSTS)		0.00%	$0.00
	FINAL DESIGN COST INFLATION TO FISCAL YEAR 2026		1.0250	$77,500.00
	SUBTOTAL FINAL DESIGN			**$3,177,600.00**

Table 34 – Preferred Alternative Cost Estimate						
ITEM NO.		**ITEM DESCRIPTION**	**UNIT**	**QUANTITY**	**UNIT PRICE**	**AMOUNT**
		TOTAL ESTIMATED DESIGN COST				**$3,177,600.00**
UTIL		**UTILITY RELOCATION**				
		PRIOR RIGHT UTILITY RELOCATIONS & SERVICE AGREEMENTS				$2,640,000.00
		INDIRECT COST ALLOCATION (0.0% OF ALL UTILITY COSTS)			0.00%	$0.00
		UTILITY RELOCATION COST INFLATION TO FISCAL YEAR 2026			1.0250	$66,000.00
		TOTAL ESTIMATED UTILITY COST				**$2,706,000.00**
R/W		**RIGHT-OF-WAY**				
		RIGHT-OF-WAY				$15,140,000.00
		INDIRECT COST ALLOCATION (0.0% OF ALL RIGHT-OF-WAY COSTS)			0.00%	$0.00
		RIGHT-OF-WAY PRICE ESCALATION TO FISCAL YEAR 2026			1.0250	$378,500.00
		TOTAL ESTIMATED RIGHT-OF-WAY COSTS				**$15,518,500.00**
					TOTAL ESTIMATED PROJECT COST	**$87,302,214.00**

5.2. Estimate of Future Maintenance Costs

Maintenance costs for the Ultimate 6-Lane Alternative were developed utilizing the estimated City of Peoria roadway maintenance costs for 2025. Maintenance of structures is not included in the estimated maintenance cost. It is estimated that the yearly maintenance cost for the Ultimate 6-Lane Alternative will be $342,000 in 2025 dollars as shown in ***Table 35***.

Table 35 – Yearly Maintenance Cost Estimate					
Category	**Item Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
Landscaping	Contracting Landscaping for ROW: Arterials	SF	115402	$0.12	$13,848.24
Street Maintenance (Arterials)	Pavement, Signs, Markings, Street Lights, Sweeping	Lane Mi	9.36	$27,584.30	$258,189.05
Street Maintenance (Arterials)	Sidewalk: Concrete, Sidewalk	Linear Mi	3.13	$3,904.69	$12,221.68
Street Maintenance (Arterials)	Fiber/Conduit Per Linear Mile	Linear Mi	1.57	$1,376.59	$2,161.25
Street Maintenance (Arterials)	Storm Drains Per Linear Mile	Linear Mi	0.81000	$12,886.72	$10,438.24
Street Maintenance (Arterials)	Traffic Signals Per Linear Mile	Linear Mi	1.57	$25,817.99	$40,534.24
Water Production and Distribution	Water Lines	Mi	0.90	$4,644.57	$4,180.11
				Estimated Total Yearly Cost (2025 dollars)	**$342,000**

5.3. Detailed Cost Estimates of Other Alternatives Considered

The cost estimate for the MAG Study Recommended Alternative was prepared in 2022, with a total estimated cost of $49,710,000. The estimate from the 2022 MAG report is detailed in ***Table 36*** and available in **Appendix DCR-A**.

Table 36 – 2022 MAG Study Cost Estimate

ITEM	MAJOR ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
	EARTHWORK				
	CLEARING & REMOVALS	ACRE	33.64	$ 2,500.00	84,100
	ROADWAY EXCAVATION	CU.YD.	4,681	$ 13.00	60,850
	BORROW	CU.YD.	61,482	$ 17.00	1,045,190
	SUBGRADE TREATMENT	SQ.YD.	109,457	$ 17.00	1,860,770
	FURNISH WATER	L.SUM	1	$ 25,000.00	25,000
	TOTAL ITEM 200				3,075,910
	BASE AND SURFACE TREATMENT				
	AGGREGATE BASE	SQ.YD.	109,457	$ 9.00	985,110
	ASPHALT PAVEMENT	SQ.YD.	122,057	$ 36.00	4,394,050
	ARAC SURFACE	SQ.YD.	0	$ 8.00	0
	TOTAL ITEM 300 & 400				5,379,160
	DRAINAGE				
	DRAINAGE SYSTEM (CLOSED)	L.FT.	12,100	$ 250.00	3,025,000
	DRAINAGE SYSTEM (CONVEYANCE CHANNEL)	L.FT.	1,900	$ 477.00	906,300
	PIPE CULVERTS	L.FT.	750	$ 460.00	345,000
	TOTAL ITEM 500				4,276,300
	STRUCTURES				
	BEARDSLEY CANAL BRIDGE	SQ.FT.	16,800	$ 219.00	3,679,200
	BOX CULVERT	L.FT./CELL	750	$ 1,712.00	1,284,000
	TOTAL ITEM 600				4,963,200
	TRAFFIC ENGINEERING				
	SIGNING (STREET)	MILE	2.29	$ 97,000.00	222,130
	PAVEMENT MARKING	LANE-MILE	13.74	$ 4,600.00	63,200
	LIGHTING	MILE	2.29	$ 500,000.00	1,145,000
	TRAFFIC SIGNAL	EACH	3	$ 400,000.00	1,200,000
	INTELLIGENT TRANSPORTATION SYSTEM (ITS)	MILE	2.29	$ 130,000.00	297,700
	HAWK SIGNAL	L.SUM	1	$ 150,000.00	150,000
	TOTAL ITEM 700				3,078,030
	ROADSIDE DEVELOPMENT				
	LANDSCAPING AND TOPSOIL	SQ.YD.	37,211	$ 17.00	632,590
	UTILITY RELOCATION	L.SUM	1	$ 50,000.00	50,000
	TOTAL ITEM 800				682,590
	INCIDENTALS				
	CURB & GUTTER	L.FT.	48,400	$ 30.00	1,452,000
	SIDEWALK	SQ.YD.	16,133	$ 90.00	1,451,970
	TOTAL ITEM 900				2,903,970
	SUBTOTAL A (ITEM SUBTOTAL)				**$24,359,200**
PW	**PROJECT WIDE**				
	TRAFFIC CONTROL (2% OF SUBTOTAL A)			2.0%	487,200
	QUALITY CONTROL (1% OF SUBTOTAL A)			1.0%	243,600
	CONSTRUCTION SURVEYING (1.5% OF SUBTOTAL A)			1.5%	365,400
	EROSION CONTROL (1% OF SUBTOTAL A)			1.0%	243,600
	MOBILIZATION (8% OF SUBTOTAL A)			8.0%	1,948,700
	UNIDENTIFIED ITEMS (20% OF SUBTOTAL A)			20.0%	4,871,800
	BASE YEAR CONSTRUCTION COST (EXCLUDING BELOW THE LINE ITEMS, UTILITIES & R/W)				**$32,519,500**
INFL	**BELOW THE LINE ITEMS**				
	POST DESIGN SERVICES (1% OF BASE YEAR CONSTRUCTION COST)			1.0%	325,200
	CONSTRUCTION CONTINGENCIES (5% OF BASE YEAR CONSTRUCTION COST)			5.0%	1,626,000
	CONSTRUCTION ENGINEERING (8% OF BASE YEAR CONSTRUCTION COST)			8.0%	2,601,600
	TOTAL ESTIMATED CONSTRUCTION COST (EXCLUDING UTILITIES & R/W)				**$37,072,300**
DES	**PREDESIGN AND FINAL DESIGN**				
	PREDESIGN/NEPA/PI SERVICES (3% OF BASE YEAR CONSTRUCTION COST)			3.0%	975,600
	FINAL DESIGN SERVICES (8% OF BASE YEAR CONSTRUCTION COST)			8.0%	2,601,600
	TOTAL ESTIMATED DESIGN COST				**$3,577,200**
R/W	**RIGHT-OF-WAY**				
	RIGHT-OF-WAY	ACRES	36.24	$ 250,000.00	9,060,000
	TOTAL ESTIMATED RIGHT-OF-WAY COSTS				**$9,060,000**
	TOTAL ESTIMATED PROJECT COST				**$49,710,000**

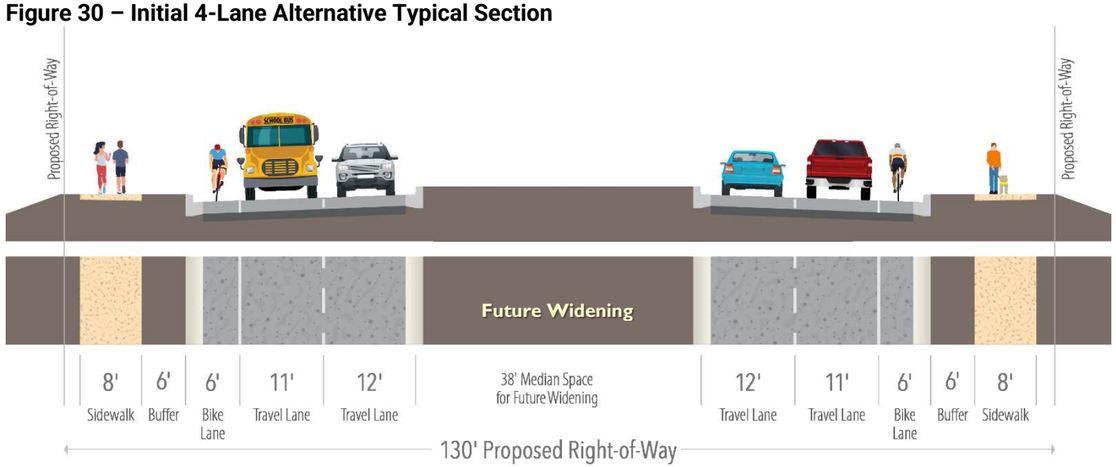
6.0 Implementation Plan

At this phase of the design process, potential implementation strategies are being analyzed. The project may be implemented in two phases. Phase one would initiate the construction of the Initial 4-Lane Alternative. Traffic analysis anticipates a need for additional general purpose lanes by 2045, phase two would initiate the construction of the Ultimate 6-Lane Alternative. The Initial 4-Lane Alternative is detailed below.

6.1. Initial 4-Lane Alternative

A sensitivity analysis was performed for El Mirage Road to determine when traffic volumes would meet the threshold for a 6-lane section. As discussed in **Section 2.2.2**, it is projected that the 6-lane section would be needed by 2045. Prior to 2045, a 4-lane section would operate efficiently. This 4-lane section was identified as a potential initial alternative if the project were to be phased. The Initial 4-Lane Alternative would be constructed to accommodate future inside widening once a third travel lane becomes necessary. The Initial 4-Lane Alternative configuration consists of a raised median, curb and gutter, a 12-foot inside lane, 11-foot outside lane, 6-foot bike lane, curb and gutter, a 6-foot landscaped buffer, and an 8-foot sidewalk in each direction. ***Figure 30*** displays the typical section for the Initial 4-Lane Alternative.

Figure 30 – Initial 4-Lane Alternative Typical Section



The intersection of Happy Valley Road and El Mirage Road would become signalized as part of the Initial 4-Lane Alternative. The intersection would be sized as required for the Initial 4-Lane Alternative and would require reconstruction when the Ultimate 6-Lane Alternative is constructed. This strategy minimizes near term construction costs while providing pedestrians the shortest crossing distance possible. Proposed signal equipment including cabinets, conduits, and poles would be placed in the location necessary for the Ultimate 6-Lane Alternative where feasible in order to reduce signal equipment relocations.

The intersections of Coldwater Ranch Drive and Desert Sun Lane would include intersection improvements including left and/or right turn lanes from El Mirage Road and would remain unsignalized.

Potential intersection alternatives were considered at the intersections of El Mirage Road with Jomax Road and Tether Trail as detailed in ***Table 37.***

Table 37 – Initial 4-Lane Alternative: Intersection Alternatives

Intersection	Alternative A	Alternative B	Alternative C
El Mirage Road and Tether Trail	Stop-Controlled	Roundabout	-
El Mirage Road and Jomax Road	Signalized	Roundabout	Stop-Controlled

Alternative A includes signalization at the intersection of El Mirage Road with Jomax Road and Tether Trail remaining unsignalized.

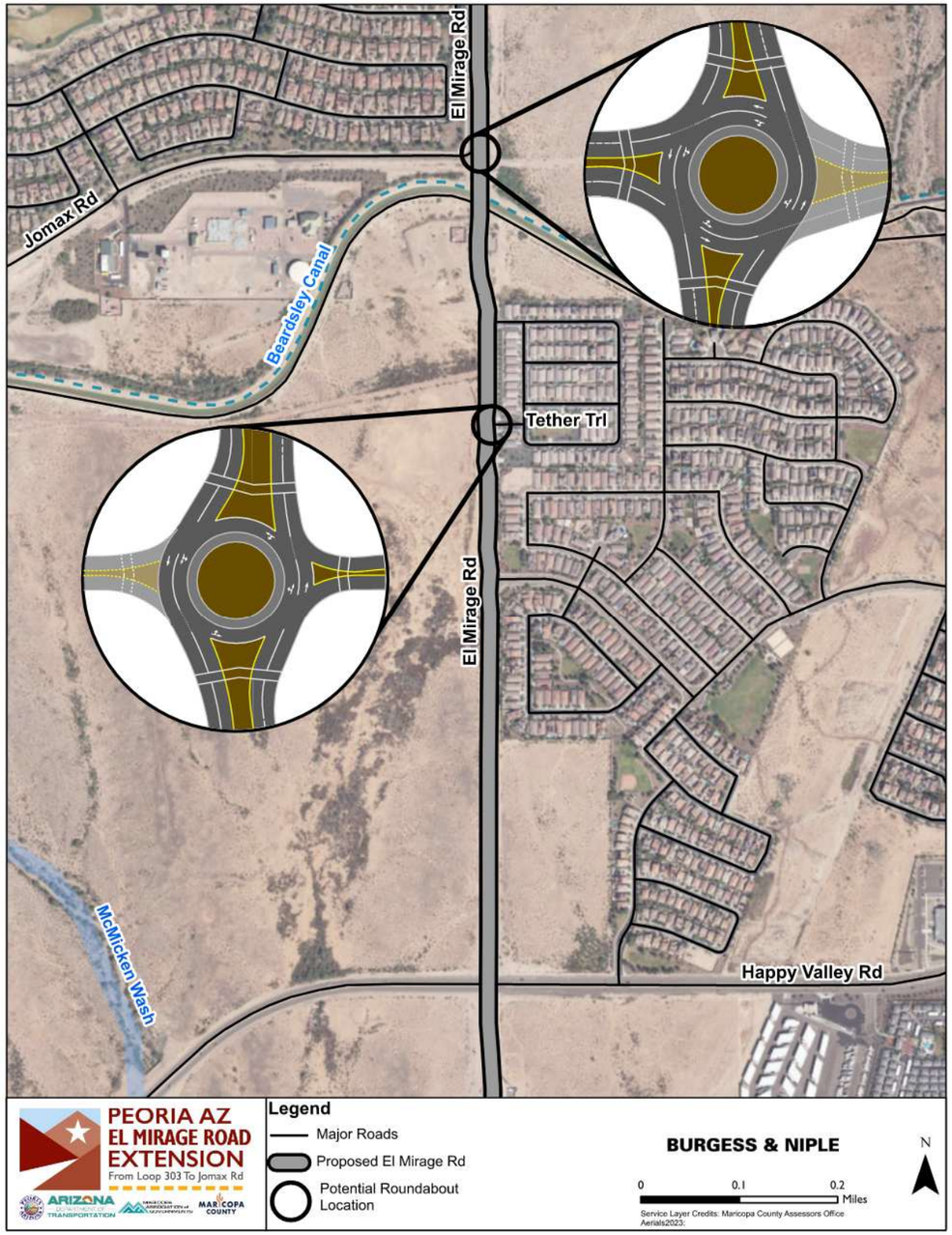
Alternative B includes two-lane roundabouts at the intersections of El Mirage Road with both Jomax Road and Tether Trail. Planning-level traffic analysis was completed which identified that the anticipated traffic volumes at the intersections would meet the threshold for two-lane roundabouts. ***Figure 31*** displays a conceptual illustration of the roundabouts. Additional traffic capacity analysis may need to be completed if roundabouts are advanced as part of the Initial 4-Lane Alternative.

Additional coordination would be required following the submittal of the Initial DCR to determine the preferred intersection treatments for the Initial 4-Lane Alternative. The Initial 4-Lane Alternative plans as presented in **Appendix DCR-I** include the stop-controlled intersection treatment for both Tether Trail and Jomax Road. The proposed pavement width at Jomax Road would accommodate two northbound through lanes and a northbound left turn lane. The proposed striping includes one northbound through lane and a northbound left turn lane. The pavement width would allow for restriping of the intersection to two northbound through lanes once El Mirage Road north of Jomax Road is reconstructed by development.

The Initial 4-Lane Alternative includes street lighting along El Mirage Road, in accordance with the City of Peoria standard. Lighting design will be completed during final design. Proposed lighting would be placed to accommodate both the Initial 4-Lane Alternative and the Ultimate 6-Lane Alternative.

The Initial 4-Lane Alternative includes proposed structures for the El Mirage Road crossings of the McMicken Wash and Beardsley Canal. The McMicken Wash crossing would accommodate six lanes of traffic. The Beardsley Canal structure could be constructed to accommodate the Initial 4-Lane Alternative and in the future be widened to accommodate the Ultimate 6-Lane Alternative if required by traffic volumes. The City of Peoria may wish to construct the Beardsley Canal Bridge in two phases. The first phase would construct the bridge to match the interim roadway typical section. The interim bridge typical section would provide two 11-foot lanes in each direction, a 6-foot bike lane in each direction, a 12-foot northbound left turn lane, 8-foot raised sidewalks on each side, and 1-foot 2-inch-wide concrete barriers with steel railing on each side. The clear roadway width would be 68 feet, and the out-to-out bridge width would be 86 feet 4 inches. In the future, the bridge would be widened to the east side to the ultimate roadway typical section. The ultimate bridge typical section would provide two 11-foot lanes and one 12-foot lane in each direction, a 6-foot southbound bike lane, a 5-foot northbound bike lane, a 16-foot northbound left turn lane (12-foot lane and 4-foot buffer), a 12-foot northbound right turn lane, 8-foot raised sidewalks on each side, and 1-foot 2-inches wide concrete barriers with steel railing on each side. The clear roadway width would be 107 feet, and the out-to-out bridge width would be 125 feet 4 inches.

Figure 31 – Initial 4-Lane Alternative Intersection Alternative B



Phased bridge construction will require coordination during final design. The entire abutments, or the abutment drilled shafts, could be constructed in Phase 1 to minimize impacts to the canal during Phase 2. Temporary shoring may be required during Phase 1 to support the raised MWD maintenance roads adjacent to the canal. Guardrail and thrie beam connections at the southeast and northeast corners of the bridge could be salvaged and reused during Phase 2. The northbound bike lane and northbound sidewalk would need to be temporarily closed during Phase 2 construction. As an alternative to constructing a raised sidewalk on the east side during Phase 1, temporary concrete barrier could be used to separate pedestrians from the vehicle lanes. This would allow pedestrians to use the concrete deck as opposed to a raised sidewalk. The final cost of the bridge, if constructed in two phases, is likely to be at least 10 percent more than the cost to construct the ultimate bridge width in a single phase.

6.2. Access Control Phasing

The Ultimate 6-Lane Alternative and the Initial 4-Lane Alternative include raised median along El Mirage Road. Two access management meetings occurred with the project partners including ADOT, City of Peoria, MCDOT, ASLD, and the consultant team on September 16, 2024, and on February 6, 2025. The focus of these meetings was to determine the level of access and access treatments for driveways and intersections along El Mirage Road. ***Table 38*** presents a summary of the proposed access points along El Mirage Road.

Table 38 – Proposed Access Control

Access Name	Access Type	Access from El Mirage Road
Mariposa Grande Lane	Private commercial road east of El Mirage Road and potential public or private road west of El Mirage Road.	Full access. Future signalized intersection.
McMicken Wash FCDMC Maintenance Roads	Driveways connecting maintenance roads on both sides of the wash	Drive aprons and median breaks to allow crossing of El Mirage Road
Happy Valley Road	Minor Arterial Road	Traffic Signal full access
Coldwater Ranch Drive	Minor Collector Road	LILO or traffic signal full access (if signal is warranted in future)
Tether Trail	Private Residential Road	Right in & Right Out (RIRO) or 3/4 Access
Desert Sun Lane	Private Residential Road	Right out Right in for emergency access only
City of Peoria Utilities	Maintenance driveway	RIRO
ASLD Parcel "I"*	Driveway	RIRO
Beardsley Canal MWD Maintenance Roads	Driveways connecting maintenance roads on both sides of the canal	Drive aprons and median breaks to allow crossing of El Mirage Road
Jomax Road	Arterial	Traffic Signal full access
*ASLD proposed subdivided parcel locations detailed in ***Figure 26***.		

6.3. Adjacent Projects

Within the study area there are numerous ongoing and anticipated projects that may impact implementation of the Initial 4-Lane Alternative and Ultimate 6-Lane Alternative. In addition to the developments detailed below, it is anticipated that other proposed developments will be constructed that may impact the implementation of the Ultimate 6-Lane Alternative.

- The City of Surprise and the City of Peoria plan to construct Jomax Road from Dysart Road to west of El Mirage Road. If constructed prior to T0428, the Jomax Road extension may influence the initial intersection treatments at Jomax Road and El Mirage Road.
- The City of Peoria project EN00797 is planning to construct intersection improvements at the Happy Valley Road and Vistancia Road intersection in order to increase capacity and improve traffic flow.
- The North Peoria Gateway development will include roadway widening along El Mirage Road north of Jomax Road. The Ultimate 6-Lane Alternative ties into the existing El Mirage Road north of Jomax Road. However, if the North Peoria Gateway development is constructed prior to T0428, the Ultimate 6-Lane Alternative will need to be revised to tie-into the widened El Mirage Road, constructed by the North Peoria Gateway development.
- The WestWing Business Park is anticipated within the study area and should be coordinated with during final design.

6.4. Preferred Alternative Recommended Construction Phases and Cost Estimates

A high-level cost estimate for the Initial 4-Lane Alternative is detailed in ***Table 39.*** Expected additional cost associated with a phased approach includes construction mobilization, removals of improvements constructed in the initial phase such as curb and gutter, expansion of the Beardsley Canal Bridge, and pavement resurfacing.

Table 39 – Initial 4-Lane Alternative Cost Estimate

ITEM NO.		ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
2010011		CLEARING AND GRUBBING	ACRE	33.5	$2,500.00	$83,750.00
2020020		REMOVAL OF CONCRETE CURB	L.FT.	2,100	$8.00	$16,800.00
2020021		REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	700	$9.00	$6,300.00
2020025		REMOVAL OF CONCRETE SIDEWALKS, DRIVEWAYS AND SLABS	SQ.FT.	2,000	$4.00	$8,000.00
2020029		REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	24,000	$12.00	$288,000.00
2030301		ROADWAY EXCAVATION	CU.YD.	30,900	$34.00	$1,050,600.00
2030904		BORROW	CU.YD.	82,600	$50.00	$4,130,000.00
3030022		AGGREGATE BASE, CLASS 2	CU.YD.	26,200	$86.00	$2,253,200.00
4010011		PORTLAND CEMENT CONCRETE PAVEMENT (10")	SQ.YD.	3,420	$110.00	$376,200.00
4090005		ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL)	TON	24,100	$80.00	$1,928,000.00
5030XXX		CLOSED DRAINAGE SYSTEM	L. SUM	1	$1,600,000.00	$1,600,000.00
601XXXX		STRUCTURES	L. SUM	1	$7,300,000.00	$7,300,000.00
606XXXX		OVERHEAD SIGNING	L. SUM	1	$63,000.00	$63,000.00
607XXXX		SIGNING (STREET)	L. SUM	1	$311,000.00	$311,000.00
7010005		MAINTENANCE AND PROTECTION OF TRAFFIC	L. SUM	1	$600,000.00	$600,000.00
704XXXX		PAVEMENT MARKING	L. SUM	1	$91,000.00	$91,000.00
731XXXX		LIGHTING	L. SUM	1	$2,840,000.00	$2,840,000.00
733XXXX		TRAFFIC SIGNAL	L. SUM	1	$720,500.00	$720,500.00
735XXXX		ITS	L. SUM	1	$635,000.00	$635,000.00
802001X		LANDSCAPING	L. SUM	1	$600,000.00	$600,000.00
8101013		EROSION CONTROL	L. SUM	1	$300,000.00	$300,000.00
9010001		MOBILIZATION	L. SUM	1	$3,580,000.00	$3,580,000.00
902XXXX		GATE, AUTOMATED	EACH	4	$25,000.00	$100,000.00
9050002		GUARD RAIL, W-BEAM, SINGLE FACE, SHOP CURVED	L.FT.	150	$120.00	$18,000.00
9050005		GUARD RAIL, W-BEAM, SINGLE FACE (MASH)	L.FT.	300	$60.00	$18,000.00
9050036		GUARD RAIL, ANCHOR ASSEMBLY	EACH	4	$3,500.00	$14,000.00
9050420		GUARD RAIL TRANSITION	EACH	4	$6,000.00	$24,000.00
9080001		CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	600	$55.00	$33,000.00

Table 39 – Initial 4-Lane Alternative Cost Estimate

ITEM NO.		ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
9080090		CONCRETE CURB AND GUTTER	L.FT.	600	$55.00	$33,000.00
9080101		CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220-1)	L.FT.	45,000	$45.00	$2,025,000.00
9080107		CONCRETE SINGLE CURB (MAG DET. 222)	L.FT.	830	$70.00	$58,100.00
9080201		CONCRETE SIDEWALK (C-05.20)	SQ.FT.	7,540	$15.00	$113,100.00
9080241		CONCRETE SIDEWALK (MAG DET. 230)	SQ.FT.	184,000	$15.00	$2,760,000.00
9080295		CONCRETE SIDEWALK RAMP	SQ.FT.	2,000	$40.00	$80,000.00
9080304		CONCRETE DRIVEWAY	SQ.FT.	1,530	$25.00	$38,250.00
9140153		RETAINING WALL	SQ.FT.	1,770	$200.00	$354,000.00
9201006		CONCRETE CHANNEL LINING (6")	SQ.YD.	970	$215.00	$208,550.00
9240170		CONTRACTOR QUALITY CONTROL	L. SUM	1	$750,000.00	$750,000.00
9250001		CONSTRUCTION SURVEYING AND LAYOUT	L. SUM	1	$1,190,000.00	$1,190,000.00
		SUBTOTAL ROADWAY				**$36,598,350.00**
		30% UNIDENTIFIED ITEMS (ROADWAY)	L. SUM	1	$0.00	$10,980,000.00
		TOTAL ROADWAY				**$47,578,350.00**
		CONSTRUCTION ENGINEERING		15%	$7,136,800.00	$7,136,800.00
		CONSTRUCTION POST DESIGN SERVICES		1%	$475,800.00	$475,800.00
		CONSTRUCTION CONTINGENCY (5%)		5%	$2,379,000.00	$2,379,000.00
		PUBLIC INVOLVEMENT		1	$100,000.00	$100,000.00
		ICAP (0.0%)		0.00%	$0.00	$0.00
		LABOR AND MATERIALS INFLATION TO FISCAL YEAR 2026			1.0524	$3,022,000.00
TOTAL ESTIMATED CONSTRUCTION COST (EXCLUDING UTILITY RELOCATION AND R/W)						**$60,691,950.00**
DES		**PREDESIGN AND FINAL DESIGN**				
		PREDESIGN/NEPA/PI SERVICES (0% OF BASE YEAR CONSTRUCTION COST)			0.00%	$0.00
		INDIRECT COST ALLOCATION (0.0% OF ALL PREDESIGN COSTS)			0.00%	$0.00
		PREDESIGN COST INFLATION TO FISCAL YEAR 2024			1.0000	$0.00
		SUBTOTAL PREDESIGN				**$0.00**
		FINAL DESIGN SERVICES (6% OF BASE YEAR CONSTRUCTION COST)			6.0%	$2,854,700.00
		INDIRECT COST ALLOCATION (0.0% OF ALL FINAL DESIGN COSTS)			0.00%	$0.00
		FINAL DESIGN COST INFLATION TO FISCAL YEAR 2026			1.0250	$71,400.00

Table 39 – Initial 4-Lane Alternative Cost Estimate

ITEM NO.		ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
		SUBTOTAL FINAL DESIGN				**$2,926,100.00**
		TOTAL ESTIMATED DESIGN COST				**$2,926,100.00**
UTIL		**UTILITY RELOCATION**				
		PRIOR RIGHT UTILITY RELOCATIONS & SERVICE AGREEMENTS				$2,640,000.00
		INDIRECT COST ALLOCATION (0.0% OF ALL UTILITY COSTS)			0.00%	$0.00
		UTILITY RELOCATION COST INFLATION TO FISCAL YEAR 2026			1.0250	$66,000.00
		TOTAL ESTIMATED UTILITY COST				**$2,706,000.00**
R/W		**RIGHT-OF-WAY**				
		RIGHT-OF-WAY				$15,140,000.00
		INDIRECT COST ALLOCATION (0.0% OF ALL RIGHT-OF-WAY COSTS)			0.00%	$0.00
		RIGHT-OF-WAY PRICE ESCALATION TO FISCAL YEAR 2026			1.0250	$378,500.00
		TOTAL ESTIMATED RIGHT-OF-WAY COSTS				**$15,518,500.00**
					TOTAL ESTIMATED PROJECT COST	**$81,842,550.00**

7.0 AASHTO Controlling Design Criteria and Design Decisions

An AASHTO Controlling Design Criteria Report was not prepared for T0428 as the Ultimate 6-Lane Alternative consists of new construction and full reconstruction of El Mirage Road. Additionally, the existing segments of El Mirage Road are not designated as a National Highway System (NHS) route.

7.1. ADOT RDG Non-Conforming Geometric Design Elements

No non-conforming geometric design elements were identified for the Ultimate 6-Lane Alternative.

7.2. ADOT Design Decisions

The Ultimate 6-Lane Alternative is designed to meet the criteria defined in the PESM, as it is anticipated that the City of Peoria will be responsible for the O&M of El Mirage Road.

8.0 Social, Economic, and Environmental Concerns

8.1. Environmental Documentation

An EA and supporting documentation were prepared for the proposed El Mirage Road extension in accordance with the National Environmental Policy Act (NEPA). Field investigations for cultural resources, biological resources, water resources, traffic noise, air quality, and hazardous materials have been completed, and technical reports have been prepared.

The Draft EA was completed in September 2025 and is provided in **Appendix DCR-M**. The anticipated completion of the Final EA is in Fall of 2025.

8.2. Mitigation Measures

This section will be completed as part of the final DCR.