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## **TURNER PARKWAY**

**CORRIDOR FEASIBILITY STUDY**

**Interstate 10  
to  
State Route 74**

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# **FINAL REPORT**

Presented by:



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May 2010



# TURNER PARKWAY CORRIDOR FEASIBILITY STUDY INTERSTATE 10 TO STATE ROUTE 74

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## FINAL REPORT

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Prepared For:



Prepared By:



May 2010

## NOTICE

Technical Memoranda 1 through 6 were prepared to provide technical information required for analyses and assessments of specific topics supporting completion of the *Turner Parkway Corridor Feasibility Study*. Subsequent to preparation, some additional facts or understandings may have come forth resulting in information in the Technical Memoranda being amended before inclusion in the study's Final Report. Therefore, if there are any differences between the two sets of documents, this Final Report serves as the full and complete expression of concepts, findings, and conclusions relative to the Preferred Corridor Alignment as they relate to plans for development of this facility.

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# Table of Contents

---

<b>EXECUTIVE SUMMARY</b> .....	<b>IX</b>
Study Area.....	ix
Purpose.....	ix
Public and Stakeholder Input.....	ix
Corridor Alignment Alternatives .....	xi
<i>South Segment Alternative</i> .....	<i>xi</i>
<i>Middle Segment Alternatives</i> .....	<i>xi</i>
<i>North Alignment Alternatives</i> .....	<i>xiv</i>
Preferred Corridor Alignment.....	xiv
<i>South Segment</i> .....	<i>xvi</i>
<i>Middle Segment</i> .....	<i>xvi</i>
<i>North Segment</i> .....	<i>xvii</i>
Preferred Corridor Alignment Characteristics.....	xvii
<i>Planning-Level Cost Estimate</i> .....	<i>xvii</i>
<b>1 INTRODUCTION</b> .....	<b>1-1</b>
1.1 Project Overview .....	1-1
1.2 Purpose of the Study .....	1-2
1.3 Study Area .....	1-3
1.3.1 <i>Location</i> .....	<i>1-3</i>
1.3.2 <i>Size and Extent</i> .....	<i>1-3</i>
1.3.3 <i>Topography</i> .....	<i>1-5</i>
1.3.4 <i>Visual Character</i> .....	<i>1-5</i>
1.3.5 <i>Development Pattern</i> .....	<i>1-5</i>
1.4 Study Process .....	1-7
1.4.1 <i>Scoping Phase</i> .....	<i>1-7</i>
1.4.2 <i>Planning Phase</i> .....	<i>1-8</i>
1.4.3 <i>Conceptual Engineering Phase</i> .....	<i>1-8</i>
1.5 Public Involvement Overview .....	1-9
1.6 Report Organization.....	1-9
<b>2 EXISTING AND FUTURE STUDY AREA CHARACTERISTICS</b> .....	<b>2-1</b>
2.1 Socioeconomic Characteristics.....	2-1
2.1.1 <i>Travel Demand Model Influence Area</i> .....	<i>2-1</i>
2.1.2 <i>Existing and Future Population</i> .....	<i>2-3</i>
2.1.3 <i>Existing and Future Employment</i> .....	<i>2-5</i>
2.1.4 <i>Title VI, Environmental Justice Assessment</i> .....	<i>2-6</i>
2.2 Land Use .....	2-7
2.2.1 <i>Existing Land Use</i> .....	<i>2-7</i>

2.2.2	Public Land Jurisdiction.....	2-9
2.2.3	Future Land Use .....	2-11
2.3	Existing Roadway System .....	2-17
2.3.1	Existing State Highways .....	2-17
2.3.2	MCDOT Roadways .....	2-19
2.4	Future Roadway Network.....	2-21
2.4.1	Maricopa Association of Governments.....	2-21
2.4.2	Maricopa County .....	2-24
2.4.3	Town of Buckeye .....	2-26
2.4.4	City of Surprise .....	2-26
2.5	Future Travel Demand in the Turner Parkway Corridor.....	2-27
2.5.1	Travel Demand Under Buildout Conditions .....	2-27
2.5.2	Interim-Year 2030 Travel Demand Analysis.....	2-30
2.6	Utilities Overview.....	2-31
2.6.1	Data Collection .....	2-32
2.6.2	Existing Major Utilities .....	2-32
2.6.3	Planned Utility Projects.....	2-35
<b>3</b>	<b>SUMMARY OF ENVIRONMENTAL CONDITIONS .....</b>	<b>3-1</b>
3.1	Physiography .....	3-1
3.2	Prime and Unique Farmlands .....	3-1
3.3	Water Resources .....	3-1
3.3.1	Riparian Features .....	3-3
3.3.2	Wetlands.....	3-3
3.3.3	Unique Waters and Aquifers.....	3-3
3.3.4	Alluvial Fans.....	3-3
3.3.5	100-Year Floodplains.....	3-3
3.4	Vegetation .....	3-4
3.4.1	Biotic Communities .....	3-4
3.4.2	Native Plants .....	3-5
3.5	Wildlife .....	3-5
3.5.1	Common Species .....	3-5
3.5.2	Special Status and Protected Species.....	3-5
3.5.3	Wildlife Linkages.....	3-5
3.6	Air Quality.....	3-5
3.7	Noise .....	3-7
3.8	Hazardous Materials .....	3-7
3.9	Cultural Resources .....	3-8
3.10	Section 4(f) Resources .....	3-9
3.11	Section 6(f) Resources .....	3-9
<b>4</b>	<b>SUMMARY OF DRAINAGE ATTRIBUTES.....</b>	<b>4-1</b>
4.1	Buckeye Flood Retarding Structure No. 1 and Inlet Channel .....	4-1

4.2	White Tank Mountains Alluvial Fans.....	4-1
4.3	Sun Valley Parkway Channel.....	4-3
4.4	Wagner Wash .....	4-4
4.5	CAP Canal and Flood Pool.....	4-4
4.6	Hassayampa River Tributaries .....	4-4
	4.6.1 Unnamed Tributaries to Hassayampa River .....	4-5
	4.6.2 Little San Domingo Wash.....	4-5
	4.6.3 Tributary to Little San Domingo Wash .....	4-5
<b>5</b>	<b>DEVELOPMENT AND EVALUATION OF ALIGNMENT ALTERNATIVES.....</b>	<b>5-1</b>
5.1	Feasibility Study Process.....	5-1
	5.1.1 Define a Baseline Corridor Alignment .....	5-1
	5.1.2 Identify Issues and Challenges for the Baseline Corridor Alignment....	5-3
	5.1.3 Definition and Evaluation of Conceptual Alignment Alternatives .....	5-3
	5.1.4 Special Analysis Areas .....	5-3
	5.1.5 Define Preferred Corridor Alignment.....	5-4
5.2	Definition of Baseline Corridor Alignment .....	5-4
5.3	Feasibility Analysis of the Baseline Corridor Alignment .....	5-6
	5.3.1 South Segment – Urban Core/White Tanks .....	5-6
	5.3.2 Middle Segment – Sun Valley/Festival .....	5-13
	5.3.3 Buckeye Alignment Alternative .....	5-18
	5.3.4 North Segment – State Land/SR-74 Extension .....	5-22
<b>6</b>	<b>PREFERRED CORRIDOR ALIGNMENT.....</b>	<b>6-1</b>
6.1	General Description.....	6-1
6.2	Segments Descriptions .....	6-3
	6.2.1 South Segment – Urban Core/White Tanks .....	6-3
	6.2.2 Middle Segment – Sun Valley/Festival .....	6-5
	6.2.3 North Segment – State Land/SR-74 Extension .....	6-7
	6.2.4 Summary.....	6-9
6.3	Facility Design Concept.....	6-9
	6.3.1 Roadway Design Elements .....	6-10
	6.3.2 Conceptual Design Elements.....	6-10
6.4	Access Management Guidelines .....	6-16
6.5	Planning-Level Cost Estimates .....	6-17
6.6	Project Phasing.....	6-18

## List of Figures

---

Exhibit 1	Study Area and Preferred Corridor Alignment .....	x
Exhibit 2	Corridor Alignment - South Segment.....	xii
Exhibit 3	Corridor Alignment – Middle Segment .....	xiii
Exhibit 4	Corridor Alignment – North Segment.....	xv
Exhibit 5	Summary of Preferred Corridor Alignment.....	xviii
Exhibit 6	Planning-Level Project Total Cost Estimate .....	xviii
Figure 1-1	Study Area Map.....	1-4
Figure 1-2	Study Area Topography.....	1-6
Figure 2-1	Model Influence Area .....	2-2
Figure 2-2	Municipal Planning Areas and Corporate Limits .....	2-4
Figure 2-3	Existing Land Use .....	2-8
Figure 2-4	Land Ownership and Jurisdiction .....	2-10
Figure 2-5	Buckeye MPA Buildout Land Use.....	2-12
Figure 2-6	Surprise MPA Buildout Land Use.....	2-13
Figure 2-7	Approved Master-Planned Communities.....	2-14
Figure 2-8	Existing Roadway Network.....	2-18
Figure 2-9	Study Area Buildout Roadway Network.....	2-23
Figure 2-10	Study Area Buildout Roadway Network Average Daily Traffic Volumes.....	2-28
Figure 2-11	Existing Major Utility Facilities .....	2-33
Figure 2-12	Future Major Utility Facilities.....	2-36
Figure 3-1	Major Waterways and Floodplains .....	3-2
Figure 3-2	Wildlife Habitat Linkages .....	3-6
Figure 4-1	Study Area Drainage Features.....	4-2
Figure 5-1	Study Area Analysis Segments.....	5-2
Figure 5-2	Baseline Corridor Alignment.....	5-5
Figure 5-3	South Segment Baseline Corridor Alignment Constraints .....	5-7
Figure 5-4	South Segment Alignment Alternatives: I-10 to McDowell Parkway .....	5-11
Figure 5-5	PGSI Design Concept.....	5-14
Figure 5-6	Middle Segment Baseline Corridor Alignment Constraints .....	5-15
Figure 5-7	Middle Segment Alignment Alternatives: Greenway Road to Happy Valley Road .....	5-19
Figure 5-8	North Segment Baseline Corridor Alignment Constraints.....	5-23



Figure 5-9	North Segment Conceptual Alignment Alternative: Dixileta Drive to Rockaway Hills Road .....	5-25
Figure 6-1	Preferred Corridor Alignment .....	6-2
Figure 6-2	Preferred Corridor Alignment: South Segment.....	6-4
Figure 6-3	Preferred Corridor Alignment: Middle Segment.....	6-6
Figure 6-4	Preferred Corridor Alignment: North Segment .....	6-8
Figure 6-5	Typical Urban Cross-Sections for the Arizona Parkway.....	6-12

## List of Tables

---

Exhibit 5	Summary of Preferred Corridor Alignment.....	xviii
Exhibit 6	Planning-Level Project Total Cost Estimate .....	xviii
Table 2-1	Model Influence Area Population and Growth Projections .....	2-3
Table 2-2	Study Area Employment Growth Projections .....	2-5
Table 2-3	Environmental Justice Population by Category.....	2-6
Table 2-4	Study Area Land Use Distribution.....	2-7
Table 2-5	Study Area Land Ownership Distribution .....	2-9
Table 2-6	Over-Capacity Roadways in the Study Area Under Buildout Conditions .....	2-29
Table 2-7	Interim Volume Forecasts and Performance Analysis for Turner Parkway....	2-31
Table 3-1	Summary of 100-Year Floodplains.....	3-4
Table 3-2	Special Status Species (SSS) within Three Miles of the Project Study Area .....	3-7
Table 4-1	Alluvial Fan Apex Discharges .....	4-3
Table 5-1	Comparison of Alignments: South Segment.....	5-12
Table 5-2	Comparison of Alignments: North Segment .....	5-26
Table 6-1	Preferred Corridor Alignment Summary.....	6-9
Table 6-2	Urban Roadway Design Elements for Arizona Parkway .....	6-10
Table 6-3	Overhead Electric Transmission Line Clearance Requirement.....	6-16
Table 6-4	Planning-Level Project Cost Estimate .....	6-18

## Technical Appendices

- Appendix A: Technical Memorandum #1 Purpose and Needs
- Appendix B: Technical Memorandum #2 Existing and Future Corridor Features Overview
- Appendix C: Technical Memorandum #3 Environmental Overview
- Appendix D: Technical Memorandum #4 Drainage Overview
- Appendix E: Technical Memorandum #5 Corridor Alternative Alignments and Evaluation  
& Addendum to Technical Memorandum #5
- Appendix F: Technical Memorandum #6 Preferred Alignment
- Appendix G: MCDOT Summary of Public Involvement
- Appendix H: TAC Meetings

## EXECUTIVE SUMMARY

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The Maricopa Association of Governments (MAG) accepted the *Interstate 10 (I-10) /Hassayampa Valley Roadway Framework Study* in February 2008. This study identified a transportation framework of Arterial roadways, Parkways, and Freeways to accommodate Buildout traffic volumes in western Maricopa County. Turner Parkway was identified in this study as an extension of State Route 85 (SR-85) from I-10 to the junction of SR-74/US-60 (Exhibit 1). The Turner Parkway corridor is located 13 miles west of Loop 303 in northwestern Maricopa County. When completed, this parkway will be the first major, high-capacity, north-south facility west of White Tank Mountains. The regional significance of Turner Parkway is highlighted by the fact that it is located between Loop 303 and the future Hassayampa Freeway, which will intersect I-10 in the vicinity of 363rd Avenue. Northwestern Maricopa County is projected to experience significant growth in the future with the addition of approximately 1.2 million new residents at Buildout. Existing and potential future development within and surrounding the corridor amplifies the importance of Turner Parkway as a local and regional facility.

### Study Area

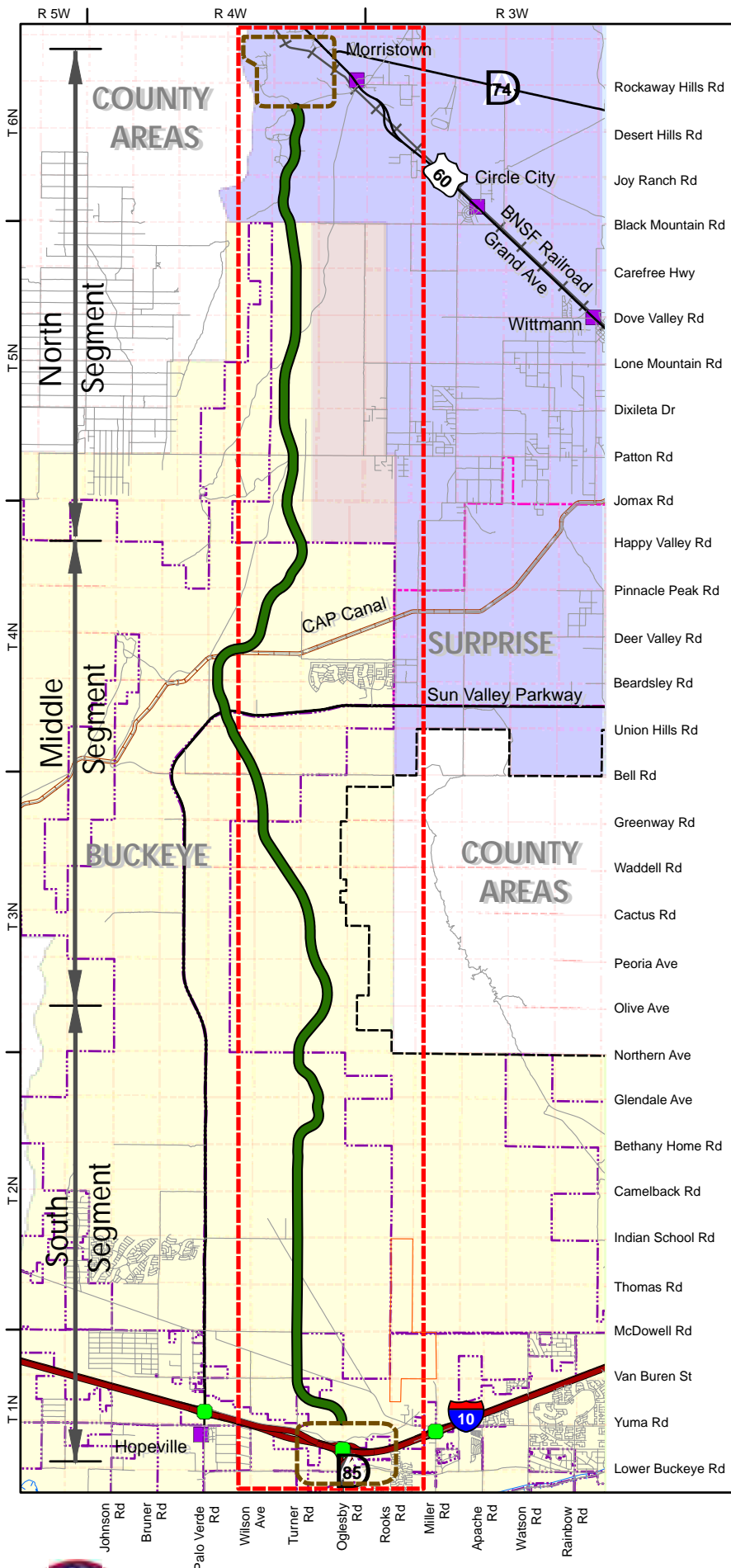
The Study area is approximately 32 miles in length beginning at the existing I-10/SR-85 interchange and stretching north to the US-60/SR-74 junction (**Exhibit 1**). The study area is further defined by a two-mile wide buffer around the alignment as identified in the *I-10/Hassayampa Valley Roadway Framework Study*.

### Purpose

This study examines the feasibility of Turner Parkway and establishes guidance for the preservation of right-of-way to assure the functional integrity of the transportation framework. Additional goals for the study can be found in Technical Memorandum #1.

### Public and Stakeholder Input

A Technical Advisory Committee (TAC) was assembled early in the study process. This committee was formed to provide direction and technical review during the study process. Participants included developers, major landholders, special interest groups, jurisdictions, and technical review personnel. Three (3) public meetings were held, within the community of Sun City Festival Ranch, during the study process. MCDOT hosted Public Open Houses on May 6, 2009, and May 24, 2010. The Town of Buckeye hosted a public educational forum on October 20, 2009. These meetings were advertised and information packets as well as comment forms were handed to every participant of the meeting to assist in obtaining



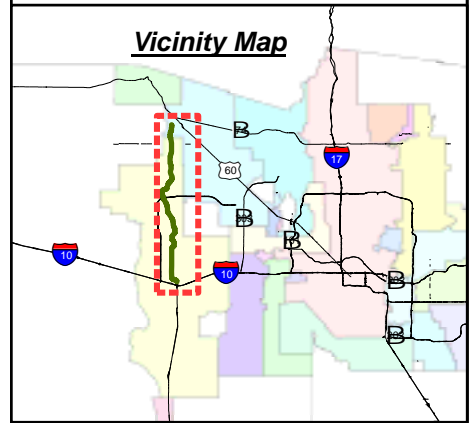
# Exhibit 1 Study Area & Preferred Corridor Alignment

Sources:  
MCDOT, the CK Group, April 2010

## Legend

- Preferred Corridor Alignment
- Study Area
- White Tank Mountain Regional Park
- Arizona Army National Guard Buckeye Training Site
- Central Arizona Project Canal
- Towns
- Traffic Interchange
- Railroad
- Major Roadways
- Minor Roadways
- Buckeye Planning Area
- City of Surprise Planning Area
- County Areas
- Surprise and Buckeye Planning Areas Overlap
- Buckeye
- Surprise
- Turner Parkway Connection to I-10/SR-85 and SR-74 Extension to be determined by future studies

## Vicinity Map



feedback. The chosen alternatives are based upon research, technical review, and input from stakeholders and residents.

## **Corridor Alignment Alternatives**

Analysis and evaluation of the Baseline Corridor Alignment and Conceptual Alternative Alignments were accomplished by examining opportunities and constraints within the study area. The number and character of potential constraints, issues and challenges associated with the Baseline Corridor Alignment varied greatly therefore, the corridor was divided into three (3) segments as explained below and shown in **Exhibit 1**.

- South Segment – from I-10 to the Olive Avenue alignment;
- Middle Segment – from Olive Avenue alignment to Happy Valley Road alignment; and
- North Segment – from Happy Valley Road alignment to SR-74/US-60 Junction

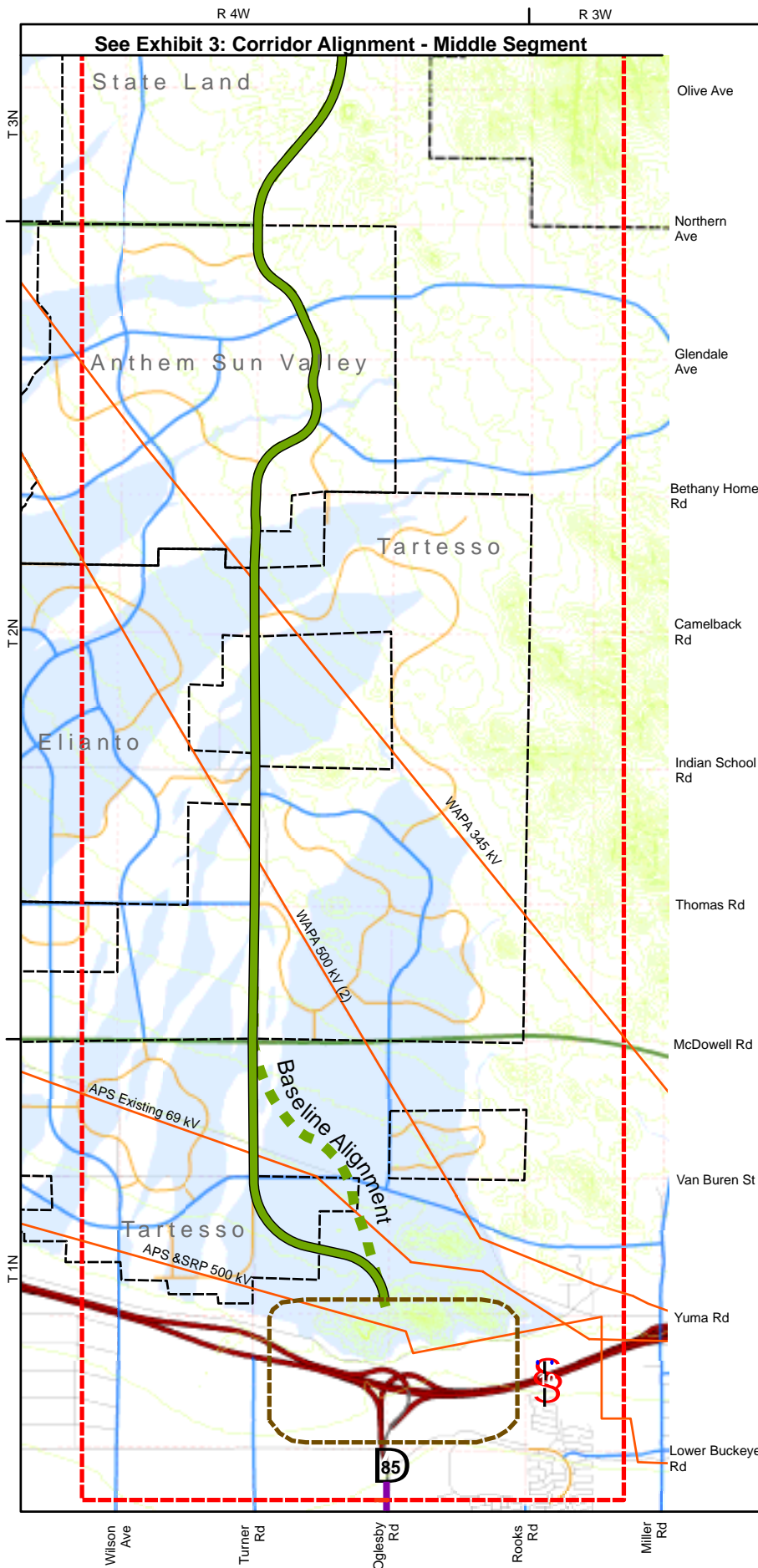
### South Segment Alternative

The South Segment presented one (1) alternative in addition to the Baseline Alignment. Most of the Turner Parkway corridor through the South Segment traverses the master-planned communities of Tartesso, Elianto, and Anthem Sun Valley (**Exhibit 2**). Developers of these communities have included Turner Parkway in their circulation plans; therefore, it was not necessary to identify and evaluate alternative alignments in these locations. However, the extent of the corridor between the I-10/SR85 interchange and the future intersection of Turner Parkway/McDowell Parkway exhibited several constraints warranting investigation of an alternative alignment.

The Alternative Alignment shifts Turner Parkway to the Turner Road section line south of Van Buren Street. It proceeds from Oglesby Road (267<sup>th</sup> Avenue) in a west by northwest direction toward the Turner Road section line (275<sup>th</sup> Avenue) one mile to the west. It intersects the section line south of Van Buren Street, permitting sufficient tangent length to avoid a skewed intersection of Turner Parkway with Van Buren Street. The Turner Parkway alignment continues north along the section line from Van Buren Street to the future McDowell Parkway.

### Middle Segment Alternatives

The middle segment presented two (2) alternatives in addition to the Baseline Alignment, the “Western Alternative” and the “Buckeye Alternative Alignment”. The Middle Segment includes four (4) approved master-planned communities: Sun Valley Villages, Sun City Festival Ranch, Spurlock Ranch, and Festival Ranch (**Exhibit 3**). Sun City Festival Ranch has



## Exhibit 2 Corridor Alignment - South Segment

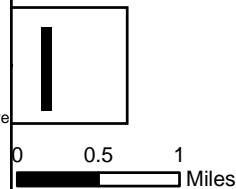
Source:  
the CK Group, April 2010

### Legend

- Study Area
- Preferred Turner Pkwy. Alignment
- Alternate Alignment Studied
- Floodplain, Floodway, Floodprone Areas
- Turner Pkwy. Connection to I-10/SR-85 to be determined by future studies
- 10-Foot Contours
- Master-Planned Community Boundary
- Overhead Electric Lines

### Planned Future Roadway Network

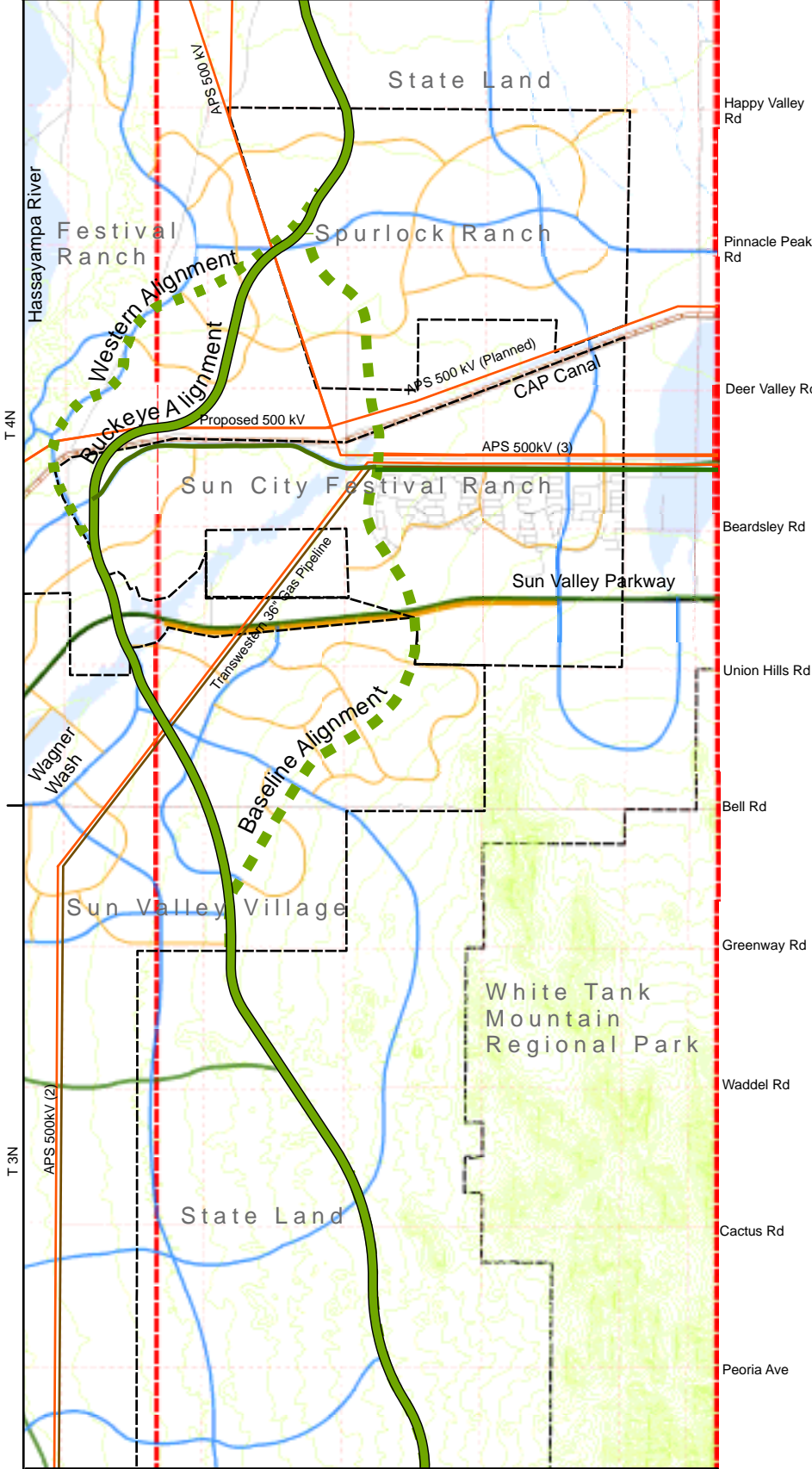
- Future Parkway Proposals
- Future Arterial Proposals
- Future Collector Proposals



R 4W

R 3W

See Exhibit 4: Corridor Alignment - North Segment



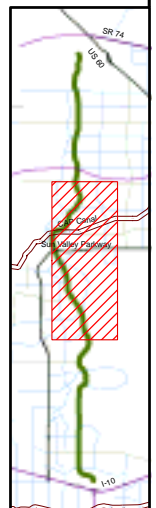
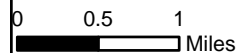
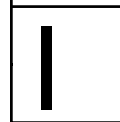
See Exhibit 2: Corridor Alignment - South Segment

### Exhibit 3 Corridor Alignment - Middle Segment

Source:  
the CK Group, April 2010

#### Legend

- Study Area
  - Preferred Turner Pkwy. Alignment
  - Alternate Alignments Studied
  - Floodplain, Floodway, Floodprone Areas
  - 10-Foot Contours
  - Master-Planned Community Boundary
  - Overhead Electric Lines
  - Underground Gas Pipeline
- Planned Future Roadway Network**
- Future Parkway Proposals
  - Future Arterial Proposals
  - Future Collector Proposals
- [ Exact alignment between Beardsley Road and Pinnacle Peak Road to be determined through future coordination/studies



been developed to the east of Desert Oasis Boulevard. The resistance from the developers and residents of the community to the development of Turner Parkway along the alignment of Desert Oasis Boulevard warranted investigation of alternative alignments. “The Western Alignment” diverges to the northwest north of Greenway Road and follows a path through Sun Valley Villages joining the approximate alignment of 289<sup>th</sup> Avenue at Sun Valley Parkway. After crossing the Central Arizona Project (CAP) canal, the alignment shifts back to the northeast reconnecting with the Baseline Corridor Alignment in Spurlock Ranch between Pinnacle Peak Road and Happy Valley Road.

“The Buckeye Alternative Alignment” follows the same path as the Western Alternative Alignment between Greenway Road and Beardsley Road. North of Beardsley Parkway the alignment turns to the east and crosses the CAP canal at an angle, passing through the CAP canal created flood pool area for a distance of approximately three-quarters of a mile. The alignment then turns north into the Festival Ranch master-planned community approximately 1½ mile north of the CAP canal and enters into the Spurlock Ranch master planned community near the Pinnacle Peak Road alignment where it transitions back to the Baseline Corridor Alignment.

### North Alignment Alternatives

The majority of the corridor through the North Segment traverses land controlled by the Arizona State Land Department (ASLD). This area presents the least amount of constraints or challenges among the three (3) corridor segments. Two (2) alternatives, N1-A and N1-B were developed to address multiple drainage crossings in this area (**Exhibit 4**).

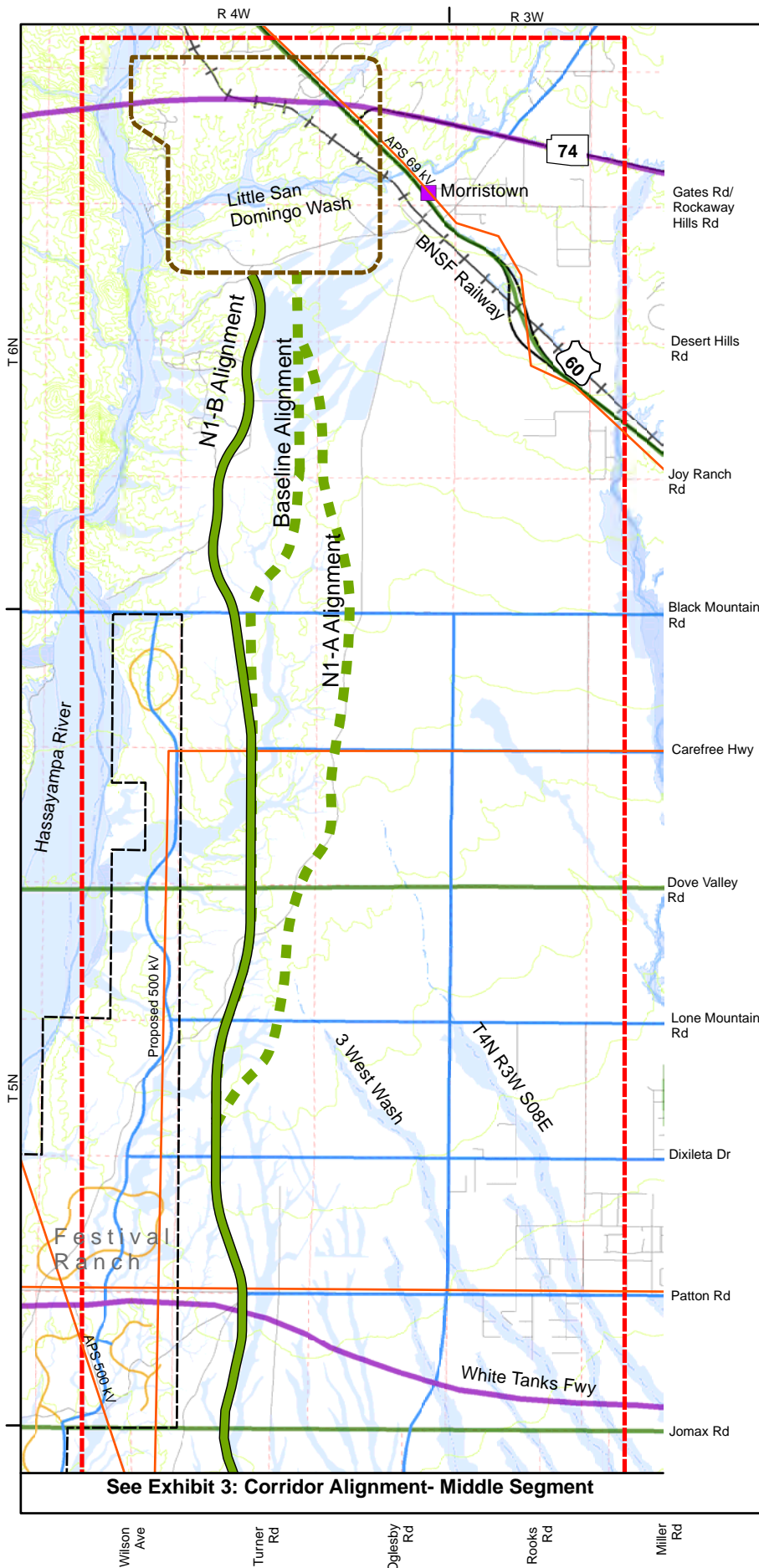
The “N1-A Alignment” shifts Turner Parkway to the east, beginning one-quarter mile north of Dixileta Drive, to follow a ridgeline separating drainage sheds. The alignment will shift as far east as 267<sup>th</sup> Avenue at Black Mountain Road before shifting back to the west, tying into the Baseline Corridor Alignment between Desert Hills Road and Rockaway Hills Road.

Alternative “N1-B Alignment” shifts Turner Parkway to the west away from the Baseline Corridor Alignment, starting one-quarter mile north of the Carefree Highway alignment and follows a ridgeline separating two small drainage sheds. This alignment shifts as far west as 281<sup>st</sup> Avenue north of the Black Mountain Road alignment before shifting back east to the 279<sup>th</sup> avenue alignment north of Joy Ranch Road.

### **Preferred Corridor Alignment**

The Preferred Corridor Alignment was chosen based upon technical review and public input. The final preferred alignment is a hybrid of alternatives in the south, middle, and northern segments of the corridor.





See Exhibit 3: Corridor Alignment- Middle Segment

### Exhibit 4 Corridor Alignment - North Segment

Source:  
the CK Group, April 2010

#### Legend

- Study Area
- Preferred Turner Pkwy. Alignment
- Alternate Alignments Studied
- Floodplain, Floodway, Floodprone Areas
- Turner Pkwy. Connection to I-10/SR-85 to be determined by future studies
- 10-Foot Contours
- Master-Planned Community Boundary
- Overhead Electric Lines

#### Planned Future Roadway Network

- Future Parkway Proposals
- Future Arterial Proposals
- Future Collector Proposals



### South Segment

The Preferred Corridor Alignment for Turner Parkway in the South Segment (**Exhibit 2**) extends from the I-10/SR-85 interchange to the Olive Avenue alignment at the southern end of the White Tank Mountain Regional Park. Resolution of the design of Turner Parkway with I-10/SR-85 traffic interchange connection was beyond the scope of this study. Immediately north of the future Turner Parkway/I-10/SR-85 interchange area, the Preferred Corridor Alignment proceeds in a west by northwest direction toward the Turner Road section line (275<sup>th</sup> Avenue) one mile to the west. It intersects the section line at a point that will permit an adequate tangent length along the section line to avoid a skewed intersection of Turner Parkway with Van Buren Street. The Turner Parkway alignment continues north along the section line from Van Buren Street to the future McDowell Parkway. North of McDowell Parkway, Turner Parkway proceeds north to the Bethany Home Road alignment and continues north in a meandering fashion through the Anthem Sun Valley master-planned community. It shifts east to 271<sup>st</sup> Avenue, approximately one-quarter mile north of Bethany Home Road, and follows 271<sup>st</sup> Avenue for approximately one mile. Between Glendale Avenue and Northern Avenue, it shifts back west to the Turner Road section line. The Preferred Corridor Alignment follows the section line until it passes Northern Avenue. North of Northern Avenue, it shifts east again, intersecting Olive Avenue at the 271<sup>st</sup> Avenue alignment.

### Middle Segment

The Middle Segment of the Preferred Corridor Alignment (**Exhibit 3**) extends from the southern end of the White Tank Mountain Regional Park (in the vicinity of the Olive Avenue alignment) to just north of the future alignment of Happy Valley Road. In the southern portion of this segment, Turner Parkway continues north from Olive Avenue, turning back to the west before reaching Peoria Avenue. It crosses Peoria Avenue west of 271<sup>st</sup> Avenue, then picks up 273<sup>rd</sup> Avenue and follows it to Cactus Road. At Cactus Road, the Preferred Corridor Alignment takes up a north by northwest route, crossing the Turner Road section line at an angle. Approximately one-half mile south of Greenway Road, the Preferred Corridor Alignment picks up the alignment of 281<sup>st</sup> Avenue and goes straight north for one-mile. It enters the Sun Valley Villages master-planned community at the intersection of the Greenway Road and 281<sup>st</sup> Avenue alignments. Approximately one-half mile north of Greenway Road, Turner Parkway returns to the north by northwest route, crossing Wagner Wash before intersecting with Sun Valley Parkway. Turner Parkway continues in a northwesterly direction, turning north along the general alignment of 287<sup>th</sup> Avenue south of Beardsley Parkway. Continuing north, Turner Parkway crosses the CAP canal east of the Palo Verde Road section line approximately at 289<sup>th</sup> Avenue. North of the CAP canal, the alignment immediately turns to the east, passing through the canal-created flood pool area for a distance of approximately three-quarters of a mile. The alignment turns in a north by northeast direction

at the 281<sup>st</sup> Avenue alignment and continues through the Festival Ranch master-planned community. It crosses into the Spurlock Ranch master-planned community near the intersection of Pinnacle Peak Road and 279<sup>th</sup> Avenue approximately 1½ miles north of the CAP canal. North of Pinnacle Peak Road, Turner Parkway transitions back to the Baseline Corridor Alignment, continuing northeast to the Turner Road section line (275<sup>th</sup> Avenue) at Happy Valley Road.

### North Segment

The Preferred Corridor Alignment for Turner Parkway in the North Segment (**Exhibit 4**) continues in a generally northerly direction from Happy Valley Road through predominantly ASLD land to the future westward extension of SR-74. Turner Parkway crosses the potential White Tanks Freeway between Patton Road and the Jomax Road alignment. As it approaches Black Mountain Road, the Preferred Corridor Alignment shifts to the west to minimize impacts on drainage and reduce facility costs. North of Black Mountain Road, Turner Parkway follows a route along the 281<sup>st</sup> Avenue alignment, shifting back to the 279<sup>th</sup> Avenue alignment north of the Joy Ranch Road alignment. The Preferred Corridor Alignment shifts to the west north of the Desert Hills Road alignment and south of Little San Domingo Wash. This shift will permit Turner Parkway to connect with the proposed SR-74 Freeway extension west of US-60 and the BNSF Railway corridor. This alignment adjustment is consistent with preliminary long-range planning for the major street system of the City of Surprise.<sup>1</sup> The exact alignment and connection of Turner Parkway with the proposed SR-74 Freeway will be identified by others subsequent to future, more detailed studies.

### **Preferred Corridor Alignment Characteristics**

**Exhibit 5** provides a summary of principal characteristics of the Preferred Corridor Alignment.

### Planning-Level Cost Estimate

The estimated total cost of developing the Preferred Corridor Alignment Concept is \$478.7 million in 2009 dollars (**Exhibit 6**). This estimate includes: \$310.9 million for construction; \$114.2 million for right-of-way; and \$53.6 million for major structural elements. No cost has been estimated for the parkway-to-freeway interchange at the potential White Tanks Freeway. The exact alignment and connection of Turner Parkway with the potential White Tanks Freeway will be identified through future studies.

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<sup>1</sup> "Overview, Special Planning Area 4 and 5," Long Range Major Street Plan, City of Surprise, December 2008.

<b>Exhibit 5 Summary of Preferred Corridor Alignment</b>				
<b>Facility Characteristic</b>	<b>South Segment</b>	<b>Middle Segment</b>	<b>North Segment</b>	<b>Total</b>
Segment Length (Miles)	10.00	11.35	11.03	<b>32.38</b>
Number of Lane Miles (Assumes a six-lane parkway cross-section)	60	68.10	66.18	<b>194.28</b>
Number of Drainage Crossings				
Small	19	30	16	<b>65</b>
Medium	9	17	2	<b>28</b>
Large	21	4	2	<b>27</b>
<b>Total</b>	<b>49</b>	<b>51</b>	<b>20</b>	<b>120</b>
Right-of-Way Requirement (acres)				
Private	153	174	0	<b>327</b>
State/Federal	97	105	267	<b>469</b>
<b>Total</b>	<b>250</b>	<b>279</b>	<b>267</b>	<b>796</b>

Source: the CK Group February, 2010

<b>Exhibit 6 Planning-Level Project Total Cost Estimate (Millions of 2009 \$\$)</b>				
<b>Breakdown</b>	<b>South Segment</b>	<b>Middle Segment</b>	<b>North Segment</b>	<b>Total</b>
Anticipated Roadway Construction Cost <sup>1</sup>	\$96.0	\$109.0	\$105.9	<b>\$310.9</b>
Roadway Right-of-Way <sup>2</sup>	\$35.7	\$40.0	\$38.5	<b>\$114.2</b>
Major Structural Elements				
PGSI <sup>3</sup>	\$21.3	\$21.3	-	<b>\$42.6</b>
White Tanks Freeway Interchange <sup>4</sup>	-	-	-	<b>-</b>
CAP Canal Crossing	-	\$11.0	-	<b>\$11.0</b>
<b>Total Estimated Project Cost</b>	<b>\$153.0</b>	<b>\$181.3</b>	<b>\$144.4</b>	<b>\$478.7</b>

Notes:

- Unit costs for roadway construction developed by averaging estimated roadway construction costs reported in recently completed MCDOT planning studies conducted for similar parkway facilities in years 2007 and 2008.
- Unit costs for right-of-way were provided by MCDOT, which considered properties sold in 2006 around the study area.
- Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study, MCDOT and Wilson & Company, September 2009.
- Cost for the interchange with potential White Tanks Freeway not included, to be identified through future studies.

Source: the CK Group February, 2010

## Additional/Technical Information

For detailed information on the alignment feasibility, please reference the remainder of this document and/or the Technical Memoranda 1 through 6 included as appendices to this report.

# 1 INTRODUCTION

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In keeping with its commitment to sensible growth, Maricopa County Department of Transportation (MCDOT) undertook the *Turner Parkway Corridor Feasibility Study, Interstate 10 (I-10) to State Route 74 (SR-74)*. This study is the first in a series of studies to be conducted to evaluate the feasibility of constructing future parkways in Maricopa County. These parkways have been identified in the Maricopa Association of Governments (MAG) *Interstate 10 (I-10)/Hassayampa Valley Roadway Framework Study*, accepted by the MAG Regional Council in February 2008.

This Final Report documents the findings and conclusions of the *Turner Parkway Corridor Feasibility Study*. Information presented herein is based on findings and conclusions derived through preparation and review of six (6) technical memoranda, including:

- Project Work Plan (Technical Memorandum #1)
- Existing and Future Study Area Characteristics (Technical Memorandum #2)
- Environmental Overview (Technical Memorandum #3)
- Conceptual Drainage Report (Technical Memorandum #4)
- Corridor Alternatives Development and Evaluation (Technical Memorandum #5) and Addendum; and
- Preferred Corridor Alignment (Technical Memorandum #6).

## 1.1 Project Overview

Based on the Transportation Framework Recommendation of the *I-10/Hassayampa Valley Roadway Framework Study*, a Baseline Corridor Alignment was defined for the purpose of feasibility analysis and evaluation during this study. It is anticipated that Turner Parkway will be integrated with the existing I-10/SR-85 traffic interchange; however, as noted above, the precise manner of this integration was beyond the scope of this study. Turner Parkway will follow the general alignment of the Turner Road section line northward. Variations in the alignment have been noted and identified within the context of committed rights-of-way established through the plan development process of several master-planned communities intersected by the Turner Parkway corridor. Turner Parkway, in effect, will be a northerly extension of State Route 85 (SR-85), originating at the existing I-10/SR-85 traffic interchange and terminating at the interchange of SR-74 /US-60.

This feasibility study was based on Turner Parkway being constructed in accordance with the MCDOT *Design Guideline Recommendations for the Arizona Parkway* (August, 2008). An Arizona Parkway is a high-capacity facility that functions with indirect left-turns, permitting expeditious progress of through movements and minimizing traffic conflict points at

intersections, thereby reducing the potential for crashes. Drivers desiring to turn left must first turn right then make a U-turn at a median crossover downstream from the intersection. The Arizona Parkway concept relies on a 200-foot right-of-way to accommodate the indirect left-turn functionality of the facility. The 200-foot right-of-way also supports inclusion of bicycle and pedestrian facilities to encourage multi-modal travel. The Arizona Parkway concept has been accepted for future high-capacity corridors in the West Valley by MAG, MCDOT, the Town of Buckeye, City of Surprise and the City of Goodyear. Turner Parkway has been identified as a future high-capacity corridor needed to support projected growth in the West Valley. Therefore, Turner Parkway has been designated as an Arizona Parkway facility.

## 1.2 Purpose of the Study

The Turner Parkway corridor is located in Northwestern Maricopa County west of the White Tank Mountains. This area of Maricopa County is projected to experience significant growth in the future with the addition of approximately 1.2 million new residents through the Buildout. The corridor traverses partially built and numerous proposed master-planned communities at various stages in the planning process. The existing and future development potential within and surrounding the corridor amplifies the importance of Turner Parkway as a local and regional facility. This study examines the feasibility of constructing Turner Parkway and establishes guidance for preservation of right-of-way to assure functional integrity of the corridor.

This study was guided by a set of achievable goals set forth by the study team to best meet the regional and local transportation and economic needs of the study area and beyond. The study goals for the *Turner Parkway Corridor Feasibility Study* are listed below:

- ❑ Achieve Roadway Network Continuity and Connectivity;
- ❑ Enhance Traffic Flow (Capacity) and Safety;
- ❑ Preserve the Environment; and
- ❑ Develop Consensus Driven Improvement Alternatives.

In addition, a set of objectives was established to guide study activities and give focus to the planning and engineering analyses. The primary objectives were:

- ❑ Define and evaluate the corridor study area;
- ❑ Establish a Baseline Corridor Alignment consistent with the Transportation Framework Recommendation resulting from the *I-10/Hassayampa Valley Roadway Framework Study*;
- ❑ Develop and evaluate Conceptual Alignment Alternatives, as necessary, within the corridor study area, based on a “fatal flaws” analysis methodology; and

- Recommend a feasible Preferred Corridor Alignment.

It is clearly understood that the participation and support of study area stakeholders and residents is paramount to the achievement of the study goals and objectives.

Forward-looking planning processes need to be initiated for this corridor to provide a basis for the preservation of right-of-way for this major region-serving parkway facility. Thus, the identified corridor is the focus of planning efforts to: (1) preserve right-of-way and assure the functional integrity of the corridor; (2) attain vital regional connectivity; (3) conserve environmental qualities; and (4) protect natural drainage patterns of sensitive alluvial fans. In addition, connections with I-10 and SR-74, which is proposed to be a freeway and extend westward, must be considered. However, this study does not address nor resolve these future connections, which must be the subject of future, more detailed engineering design studies. These and other existing and future corridor conditions, as well as tremendous growth within and around the study area, reinforce the need from a local and regional perspective to complete this *Turner Parkway Corridor Feasibility Study*.

### **1.3 Study Area**

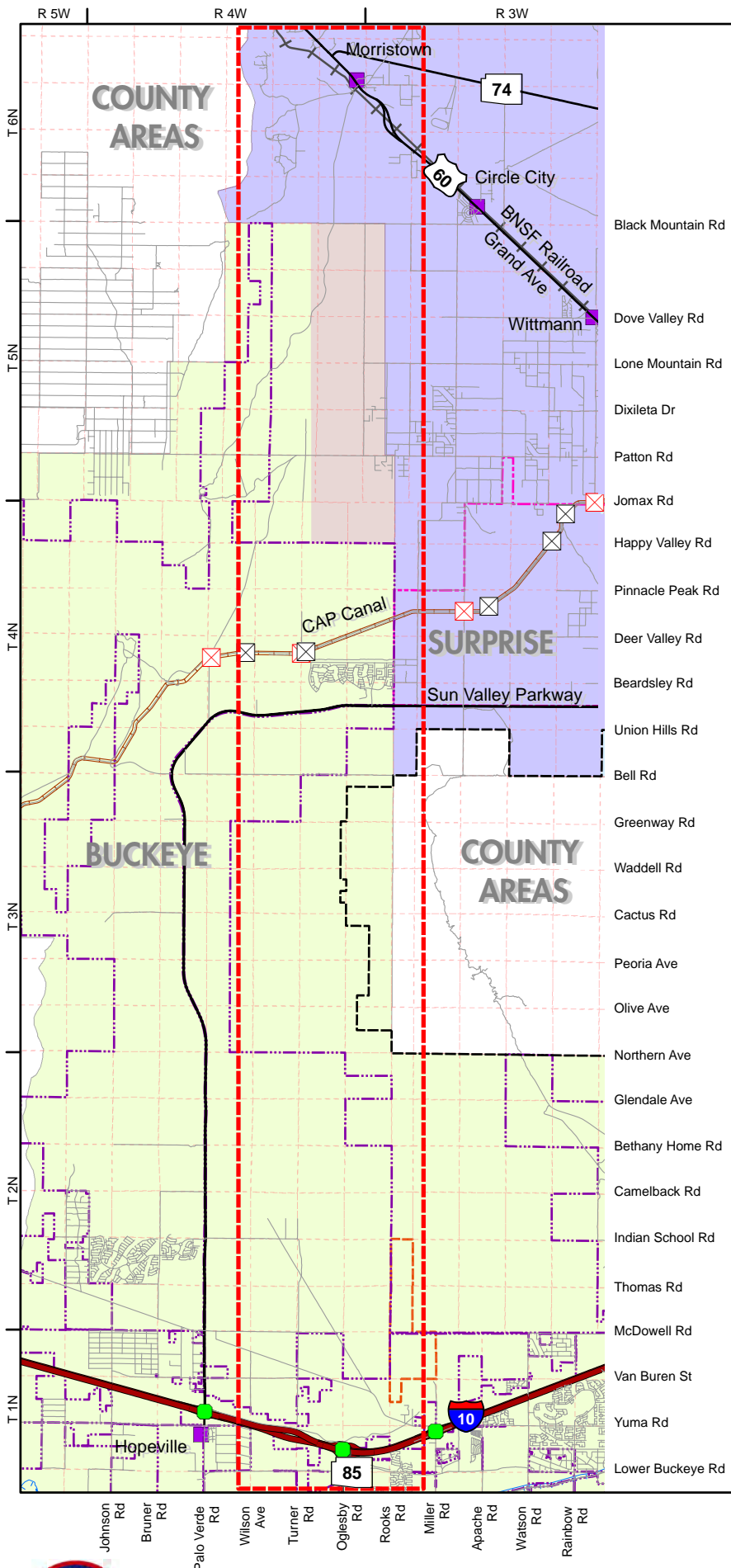
This section provides a brief overview of the principal features and characteristics of the Turner Parkway study area.

#### **1.3.1 Location**

Turner Parkway, in effect, will be a northerly extension of SR-85 and is expected to originate in the region of the current location of the traffic interchange for SR-85 at I-10. The study area stretches from I-10 approximately 32 miles north to SR 74 and is roughly defined by a two-mile wide buffer. The study area for the *Turner Parkway Corridor Feasibility Study* is shown in **Figure 1-1**.

#### **1.3.2 Size and Extent**

The study area encompasses approximately 83,200 acres or 130 square miles. It is situated almost wholly within the watershed of the Hassayampa River. The Central Arizona Project (CAP) canal, a water delivery system that stretches from the Colorado River to Tucson, is a major man-made feature crossing the study area. Construction of the canal has influenced some natural processes in the study area and affected regional mobility. White Tank Mountain Regional Park portions of which falls within the study area, occupies approximately 30,000 acres and is the largest regional park in Maricopa County.

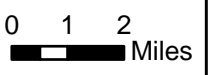


**Figure 1-1  
Study Area Map**

Source:  
MCDOT, September 2008

**Legend**

- Study Area
  - White Tank Mtn Regional Park
  - Arizona Army National Guard Buckeye Training Site
  - CAP Bridge Structure
  - CAP Drainage Structure
  - Central Arizona Project Canal
  - Towns
  - Traffic Interchange
  - Railroad
  - Major Roadways
  - Minor Roadways
- Planning Areas**
- Buckeye Planning Area
  - City of Surprise Planning Area
  - County Areas
  - Surprise and Buckeye Planning Areas Overlap
- Municipal Limits**
- Buckeye
  - Surprise





### **1.3.3 Topography**

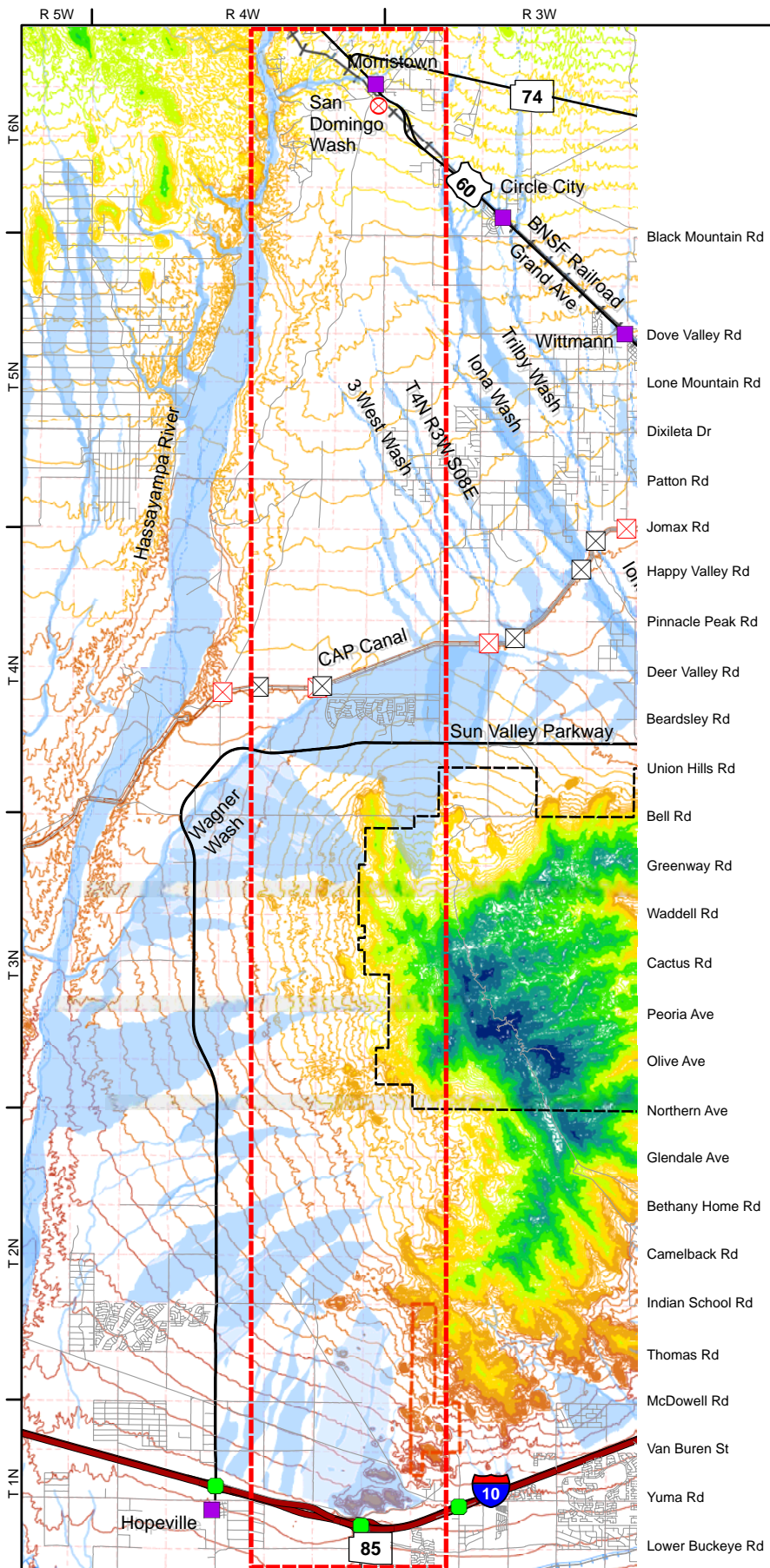
With the exception of a portion of White Tank Mountains and the northern terminus of the study area, the majority of the study area is relatively flat. As shown in **Figure 1-2**, south of the CAP canal, study area slopes are directly related to the presence of the White Tank Mountains. At the south end of the study area, slopes trend towards Buckeye; farther north, slopes trend westward from the mountains to the Hassayampa River; and, at the north end of the mountains, slopes trend toward the canal. The range, deeply serrated with ridges and canyons, rises sharply from its base to peak at over 4,000 feet. Infrequent heavy rains cause flash floodwaters to plunge through the canyons and pour onto the alluvial plains below. North of the CAP Canal, the study area mostly slopes southwards towards the CAP canal; in fact, a detention flood pool has been created where storm water runoff accumulates against the canal, which is above natural grade. The northwestern portion of the study area is an exception. Here there are numerous drainage features with an east-west orientation, merging with the Hassayampa River's floodplains.

### **1.3.4 Visual Character**

The viewshed or viewscape within the study area varies by location, but includes a mixture of residential land use, transportation infrastructure, overhead utility corridors, and areas of undeveloped desert landscape. The majority of the study area is vacant and undisturbed, and in its natural state. Modern disturbances, which create a visual contrast with the natural setting include: I-10/SR-85 Interchange, Buckeye Flood Retarding Structure (FRS) No.1, the Sun Valley Parkway, the CAP canal, an abandoned Luke Air Force Base Auxiliary Field No. 4, scattered residential development, the BNSF Railway corridor, US-60, and SR-74. The natural physical landscape in the immediate vicinity of the study area is more reflective of the Hassayampa River Valley to the west, tributary washes and channels flowing to the river, and associated vegetation. Distant views are visually dominated silhouettes of the White Tank Mountains to the east and more distant mountains to the north and west.

### **1.3.5 Development Pattern**

Several master-planned communities proposed in the study area are currently in various stages of development. A significant amount of the undeveloped parcels of land along the study corridor is owned by State Land. The major of existing development is in the central portion of the study area directly south of the CAP canal. Sun City Festival Ranch, a master-planned community is partially developed between the canal and Sun Valley Parkway. Beyond this, there is the small community of Morristown at the north end of the study area and scattered, rural residential development to the west of this community.



**Figure 1-2**  
**Study Area Topography**

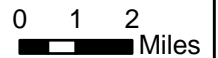
Sources:  
MCDOT, FCDMC, September 2008

**Legend**

- Study Area
- White Tank Mtn Regional Park
- Arizona Army National Guard Buckeye Training Site
- CAP Bridge Structure
- CAP Drainage Structure
- Central Arizona Project Canal
- Communities
- Existing Traffic Interchanges
- Railroad
- Railroad Crossing
- Major Roadways
- Minor Roadways
- Floodplains

**Elevation (ft)**

- |  |             |  |             |
|--|-------------|--|-------------|
|  | 1260 - 1380 |  | 1721 - 1800 |
|  | 1381 - 1470 |  | 1801 - 1880 |
|  | 1471 - 1560 |  | 1881 - 1970 |
|  | 1561 - 1640 |  | 1971 - 2080 |
|  | 1641 - 1720 |  | 2081 - 2240 |



- Johnson Rd
- Bruner Rd
- Palo Verde Rd
- Wilson Ave
- Turner Rd
- Oglesby Rd
- Rooks Rd
- Miller Rd
- Apache Rd
- Watson Rd
- Rainbow Rd



## 1.4 Study Process

This study was accomplished within the framework of a public outreach program developed and implemented to assure adequate opportunity for public input while establishing the Preferred Corridor Alignment. The *Turner Parkway Corridor Feasibility Study* included public open houses, Technical Advisory Committee (TAC) meetings, individual meetings with corridor stakeholders, and numerous project meetings involving County staff. Agencies constituting the TAC, along with MCDOT and Flood Control District of Maricopa County (FCDMC) staff, included: Maricopa Association of Governments (MAG), City of Surprise, Town of Buckeye, Arizona Department of Transportation (ADOT), Arizona State Land Department (ASLD), Luke Air Force Base (LAFB), Arizona Game and Fish Department (AZGFD), the Central Arizona Water Conservation District (CAWCD), Arizona Department of Environmental Quality (ADEQ), Arizona Army National Guard, and major area developers. The TAC members participated in numerous meetings and contributed to the development of the study results.

To satisfy the requirements of this corridor feasibility study, three (3) phases of activity were conducted: Scoping; Planning; and Preliminary Engineering. A series of technical memoranda were prepared to document the results of these separate phases of the study.

### 1.4.1 Scoping Phase

The Scoping Phase, which included development of the Project Work Plan for this study, was completed early in the process. A Technical Advisory Committee (TAC) was assembled composed of key project stakeholders. A day-long Scoping Workshop, facilitated by RH & Associates, was conducted for the TAC at MCDOT on February 13, 2008. Key project stakeholders were provided an opportunity to express their concerns regarding the proposed Turner Parkway and the identified corridor study area. Results of the Scoping Workshop were published in Technical Memorandum #1, Project Work Plan (**Appendix A**). Key outcomes of the Scoping Phase include:

- ❑ Statement of the Problem;
- ❑ Boundary of the Study Area;
- ❑ Identification of Study Goals and Objectives;
- ❑ Establishment of Evaluation Criteria; and
- ❑ Identification of Primary Issues and Challenges.

### **1.4.2 Planning Phase**

The planning phase of this effort included the study of existing and future conditions along the study corridor, including: traffic, environmental resources, major utilities, and drainage. During the Planning Phase, all general background information regarding corridor conditions was gathered, inventoried, and described. Existing and future traffic conditions were established and evaluated. Challenges and constraints to facility development were identified and evaluated. This inventory and analysis process provided the basis for identifying potential fatal flaws and defining a feasible alignment of Turner Parkway that will satisfy future travel needs. A broad consensus of the overall needs and vision of the corridor was formed by working closely with the TAC, stakeholders, and the public. Three (3) technical memoranda were prepared during the course of the Planning Phase:

- Technical Memorandum #2: Existing and Future Study Area Features (**Appendix B**);
- Technical Memorandum #3: Environmental Overview (**Appendix C**); and
- Technical Memorandum #4: Conceptual Drainage Report (**Appendix D**).

### **1.4.3 Conceptual Engineering Phase**

The Conceptual Engineering Phase included definition and evaluation of preliminary alternatives for the corridor, as required to address potential fatal flaws. This phase was initiated with identification of the Baseline Corridor Alignment. The Baseline Corridor Alignment facilitated identification of potential fatal flaws and enabled definition of technically feasible conceptual improvement alternatives. Alternatives were directed towards meeting identified transportation needs within the context of future Buildout conditions in the study area. They were evaluated for technical engineering and environmental feasibility, public acceptability, and economic viability. Detailed analyses, which included identification of mitigation measures for undesirable impacts were conducted as required, to resolve critical constraints.

The alternatives analysis process yielded adequate information to compare the costs and benefits of competing engineering solutions and identify a Preferred Corridor Alignment. The Preferred Corridor Alignment reflects the optimal feasible location for Turner Parkway within the corridor. A preliminary probable estimate of capital costs to complete construction of Turner Parkway was prepared during this phase of the study. Two (2) technical memoranda and an addendum were prepared during the Preliminary Engineering phase:

- Technical Memorandum #5: Corridor Alternative and Evaluation and Evaluation & Addendum to Technical Memorandum #5 (**Appendix E**); and
- Technical Memorandum #6: Preferred Alternative (**Appendix F**).

## 1.5 Public Involvement Overview

Three (3) public input meetings and five (5) Technical Advisory Committee (TAC) meetings were held over the course of the study. Two (2) of the three (3) public input meetings were Public Open House meetings hosted by MCDOT on May 6, 2009 and May 24, 2010. The third and final public input meeting was a Public Education Forum hosted by the Town of Buckeye on October 20, 2009. A combined total of about 1,000 people attended these public meetings, during which the public had the opportunity to ask questions, provide input, as well as share their concerns. A summary of public involvement prepared by MCDOT is included in **Appendix G**. The TAC meetings were held at critical stages of the Project to seek input from various stakeholders and the project study team members. TAC meeting minutes and related material are included in **Appendix H**.

## 1.6 Report Organization

Following this introductory chapter, this Final Report presents information in five (5) additional chapters, as described below:

Chapter 2 – Existing and Future Study Area Characteristics: This chapter presents relevant study area information regarding: socioeconomic characteristics, existing physical features, existing and future roadway characteristics, land ownership and jurisdiction, travel demand modeling and analysis results, and existing and planned utilities. Additional details regarding and discussion of this subject may be referenced in Technical Memorandum No. 2, *Existing and Future Study Area Features*.

Chapter 3 – Summary of Environmental Conditions: This chapter summarizes information regarding existing natural, physical, socioeconomic, environmental, biological and cultural resources within the study area. Environmental information establishes the basis for identifying and evaluating potential impacts associated with the alternative Turner Parkway alignments. Additional details regarding and discussion of this subject may be referenced in Technical Memorandum No. 3, *Environmental Overview*.

Chapter 4 – Summary of Drainage Attributes: This chapter summarizes an overview of existing drainage conditions including drainage features such as natural washes, alluvial fans and floodplains; drainage channels, flood retarding and hydraulic structures; Additional details regarding and discussion of this subject may be referenced in Technical Memorandum No. 4, *Conceptual Drainage Report*.

Chapter 5 – Development and Evaluation of Alignment Alternatives: This chapter documents the results of the feasibility assessment and addresses: facility design criteria and evaluation

methodology; evaluation of the feasibility of the Baseline Corridor Alignment, definition of Conceptual Alignment Alternatives (where appropriate); evaluation of Conceptual Alignment Alternatives and special analysis areas; and formulation of summary of findings. Additional details regarding and discussion of this subject may be referenced in Technical Memorandum No. 5, *Corridor Alternatives Development and Evaluation and Addendum to Technical Memorandum #5*.

Chapter 6 – Preferred Corridor Alignment: This chapter provides a definition of the Preferred Corridor Alignment Concept, establishes basic access management guidelines, and presents planning-level cost estimates for principal elements of the Turner Parkway facility. Additional details regarding and discussion of this subject may be referenced in Technical Memorandum No. 6, *Preferred Corridor Alignment*.

## 2 EXISTING AND FUTURE STUDY AREA CHARACTERISTICS

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This chapter outlines the social, physical, and natural characteristics defining the existing and forecast future conditions in the study area. The information in this chapter provides foundational information regarding existing and future socioeconomic conditions in the study area, existing physical features and qualities, and prominent natural resources. Knowledge of existing characteristics provides a baseline from which to judge potential effects of project development actions. Knowledge of future conditions provides supported identification, definition, and evaluation of alternatives and, ultimately, selection of a Preferred Corridor Alignment.

Specific information is provided pertaining to: demographics and environmental justice; land use; existing roadway system; expectations for future travel demand associated with projected growth; and major utilities. Additional details regarding the physical and natural characteristics of the study area are contained in Technical Memorandum No. 2, *Existing and Future Study Area Features*, which is provided in **Appendix B**.

### 2.1 Socioeconomic Characteristics

This section presents information relating to the existing and future population and employment in the study area. A section also is included that addresses the issues of environmental justice relative to the development of transportation facilities.




#### 2.1.1 Travel Demand Model Influence Area

The Turner Parkway Corridor Feasibility Study utilized available MAG socioeconomic projections and associated travel demand forecasts developed as part of the *I-10/Hassayampa Valley Roadway Framework Study*. The study has been accepted by the MAG Regional Council and participating jurisdictions in the study area. Population and employment projections developed by MAG have been used to determine the estimated growth in the Turner Parkway model influence area (Model Influence Area) shown in **Figure 2-1**. The Model Influence Area encompasses approximately 596 square miles of the 9,223-square-mile MAG planning area. It incorporates 78 Socioeconomic Analysis Zones (SAZs) selected from the MAG regional travel demand model. These zones are used as Transportation Analysis Zones (TAZs) for the purpose of modeling future travel demand associated with population and employment projections. The MAG projections established expected Buildout conditions by estimating population and employment totals for TAZs that reflect the future development vision of each affected jurisdiction. Thus, the updated Buildout database incorporates recommendations of current General Plans and Comprehensive Plans of MAG member agencies having jurisdiction within the study area. Community General

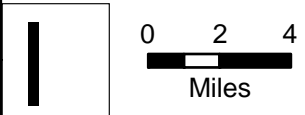
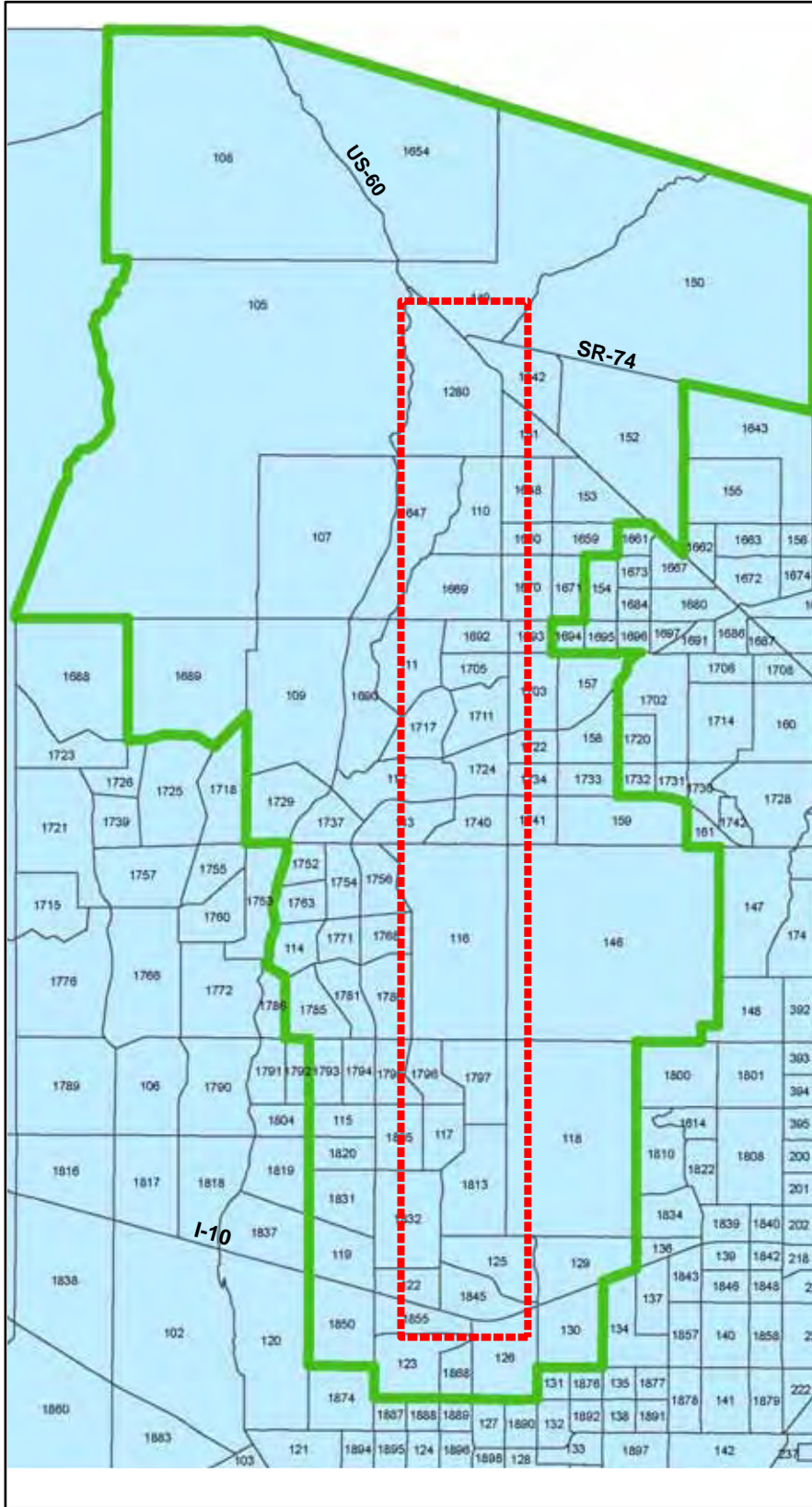
**Figure 2-1  
Model Influence Area**

Source:  
MAG I-10 Hassayampa Valley Roadway  
Framework Study General Plan Buildout  
Socioeconomic Data by TAZI03,  
September, 2010

**Legend**

-  4 Mile Corridor Study Area
-  Model Influence Area
-  Traffic Analysis Zone (TAZ)
- XXX TAZ Number

- Black Mountain Rd
- Dove Valley Rd
- Lone Mountain Rd
- Dixieta Dr
- Patton Rd
- Jomax Rd
- Happy Valley Rd
- Pinnacle Peak Rd
- Deer Valley Rd
- Beardsley Rd
- Union Hills Rd
- Bell Rd
- Greenway Rd
- Waddell Rd
- Cactus Rd
- Peoria Ave
- Olive Ave
- Northern Ave
- Glendale Ave
- Bethany Home Rd
- Camelback Rd
- Indian School Rd
- Thomas Rd
- McDowell Rd
- Van Buren St
- Yuma Rd
- Lower Buckeye Rd



- 379th Ave
- 371st Ave
- 363rd Ave
- 355th Ave
- 347th Ave
- 338th Ave
- 331st Ave
- 323rd Ave
- Johnson Rd
- Bruner Rd
- Sun Valley Pkwy
- Wilson Rd
- Turner Rd
- Oglesby Rd
- Rooks Rd
- Miller Rd
- Apache Rd
- Walson Rd
- Rainbow Rd
- Dean Rd
- Airport Rd
- Jackrabbit Trl/95th Ave
- Perryville Rd/187th Ave
- Citrus Rd/179th Ave





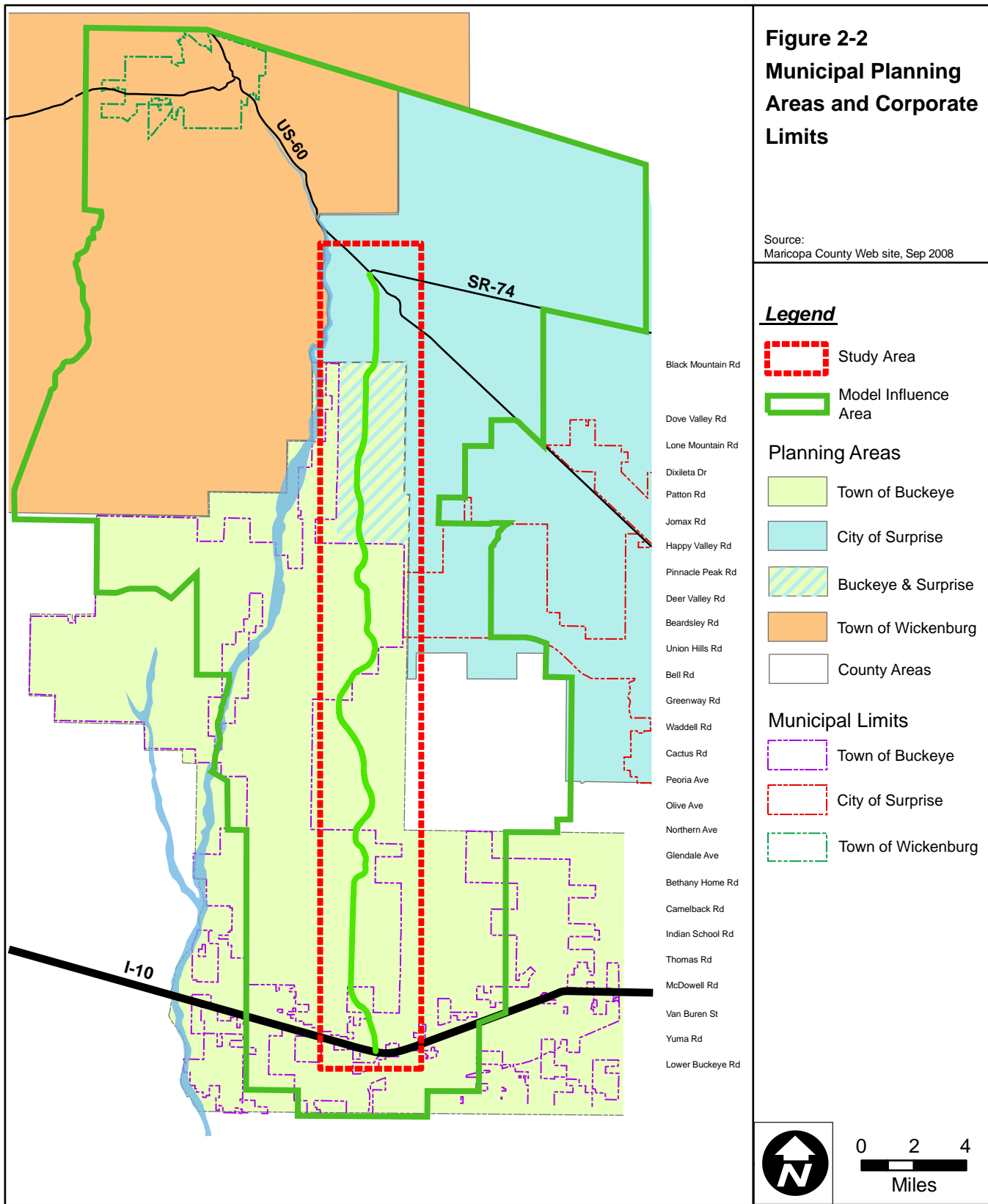
Plans reflect expectations for annexation and expansion into the municipal planning area (MPA). Therefore, Buildout represents the best current understanding of how the region will develop in the long-term. There is no set timeframe within which Buildout will occur, but, generally, it is viewed as occurring during the next 30 to 50 years.

**Figure 2-2** depicts the MPA boundaries for each jurisdiction within the Model Influence Area. Potential land development patterns for State Trust Lands controlled by ASLD also were considered. State Trust Lands cover a significant portion of the Model Influence Area and study area. The ASLD holds these lands for eventual disposition by sale or lease to support Arizona public schools. The ASLD works with the State’s various jurisdictions to develop conceptual plans accommodating an appropriate use of State Lands. The General Plans of each jurisdiction and the Buildout projections developed by MAG reflect the results of this cooperative activity. Population and employment estimates contained in adopted General Plans and Comprehensive Plans were enhanced by MAG for the *I-10/Hassayampa Valley Roadway Framework Study* through examination of current land development plans and any known information on development trends.

### 2.1.2 Existing and Future Population

**Table 2-1** indicates the population within the Turner Parkway travel demand Model Influence Area is projected to reach almost 85,000 residents in Year 2015, in contrast to less than 17,000 in Year 2005. This represents a 400 percent increase in population in ten (10) years, and results in a projected population density of approximately 142 residents per square mile compared to a population density of only 28 residents per square mile in Year 2005. The population of the Model Influence Area is projected to increase by approximately 169,000 residents between Years 2015 and 2030, representing a 200 percent growth. The population in Year 2030 is projected by MAG to be three (3) times greater than in Year 2015. For this same period, the overall population density is expected to increase from 426 residents per square mile to 1,995 residents per square mile.

<b>Table 2-1 Model Influence Area Population and Growth Projections</b>				
	<b>Socioeconomic Data Year</b>			
	<b>2005<sup>1</sup></b>	<b>2015<sup>1</sup></b>	<b>2030<sup>1</sup></b>	<b>Buildout<sup>2</sup></b>
Total Population	16,480	84,983	254,077	1,189,547
Population per Square Mile <sup>a</sup>	28	142	426	1,995
Prepared by: Wilson & Company, September 2008. Notes: Approximately 596 square miles in Model Influence Area.  Source: 1) MAG Year 2005 Socioeconomic Data by TAZI03, August 2007. 2) MAG Interstate 10 - Hassayampa Valley Roadway Framework Study General Plan Buildout Socioeconomic Data by TAZI03, September 2006.				



Under Buildout conditions, the population is projected to be 4.7 times greater than in the Year 2030.<sup>2</sup>

### 2.1.3 Existing and Future Employment

**Table 2-2** presents existing and projected employment for the Model Influence Area. The data show employment is expected to grow at a lower rate than population between Years 2005 and 2015. Still, employment increases are projected to add more than 20,000 jobs to the Model Influence Area by the Year 2015, representing an increase of more than 350 percent. In the next 15 year period from Year 2015 to Year 2030, the expansion in employment will exceed population growth. Projections indicate employment in Year 2030 will be 4.2 times greater with the addition of more than 82,000 jobs. Employment is then projected to grow at a more moderate rate and less than population as Buildout approaches.

<b>Table 2-2 Study Area Employment Growth Projections</b>				
	<b>Socioeconomic Data Year</b>			
	<b>2005<sup>1</sup></b>	<b>2015<sup>1</sup></b>	<b>2030<sup>1</sup></b>	<b>Buildout<sup>2</sup></b>
Total Jobs	5,690	25,777	107,791	361,712
Jobs per Square Mile <sup>a</sup>	10	43	180	606

Prepared by: Wilson & Company, September 2008.  
Notes:  
a) Approximately 596 square miles in Model Influence Area.

Source:  
1) MAG Year 2005 Socioeconomic Data by TAZI03, August 2007.  
2) MAG Interstate 10 - Hassayampa Valley Roadway Framework Study General Plan Buildout Socioeconomic Data by TAZI03, September 2006.

The number of jobs in the Model Influence Area is projected to more than triple from Year 2030 to Buildout with the addition of approximately 254,000 jobs. However, as noted above, population at Buildout is projected to be 4.7 times greater than the Year 2030 projection. Employment density at Buildout is projected to reach 606 jobs per square mile. This compares to an employment density of only ten (10) jobs per square mile in Year 2005. The largest percent change in employment density is projected to occur between Year 2005

<sup>2</sup> Buildout is defined as all land within the Planning Area being designated with appropriate land use based on a series of criteria, including land ownership patterns, topographic and environmental constraints and opportunities, development opportunities, infrastructure support, and private property rights.

and Year 2015. During the twenty-five year period between Year 2005 and Year 2030, employment growth in the Model Influence Area will result in eighteen (18) times more jobs.

### 2.1.4 Title VI, Environmental Justice Assessment

Project sponsors receiving federal funds to develop and implement transportation infrastructure projects are required to follow Title VI regulations of the Civil Rights Act of 1964. The Act states that no person can be denied the benefits of, be excluded from participating in, or be subjected to discrimination by any program receiving federal financial assistance on the grounds of race, color, or national origin. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," issued in 1994, reaffirms the principles of Title VI and related statutes. The Executive Order requires consideration of low-income, minority, disabled, female, and elderly populations in selecting and approving transportation infrastructure improvement projects.

The potential presence of Title VI population groups within the study area was assessed based on demographic data from the U.S. Census 2000. The Environmental Justice population by category is shown in **Table 2-3**. Compared to the state average, the study area has less of a minority population and female head of household with children younger than eighteen (18) years old. Elderly persons (age 60 or more) and people older than five (5) years old with a disability occur at higher percentages within the study area than the state average; families in poverty are represented at a lower percentage than the state average. However, the study area is largely undeveloped lands and residences are widely scattered. Construction of Turner Parkway, as currently conceived, is not likely to result in displacements or relocations of residents or businesses, or cause substantive disruptions to existing neighborhoods. Therefore, it is not anticipated that constructing Turner Parkway will have a disproportionately high or adverse impact on Title VI populations.

<b>Table 2-3 Environmental Justice Population by Category</b>				
<b>Population Category</b>	<b>Study Area</b>	<b>Surprise</b>	<b>Buckeye</b>	<b>AZ State</b>
Minority Population	11.0%	13.6%	26.8%	24.5%
Population of age 60 or more	20.5%	34.1%	10.9%	16.9%
Families in Poverty	7.3%	5.6%	16.2%	9.9%
Population Age 5 and Over with Disability	17.1%	18.0%	20.4%	17.4%
Female Head of Household with Children Less than 18 years of age	5.4%	4.8%	15.2%	10.6%
Source: U.S. Census 2000.				

## 2.2 Land Use

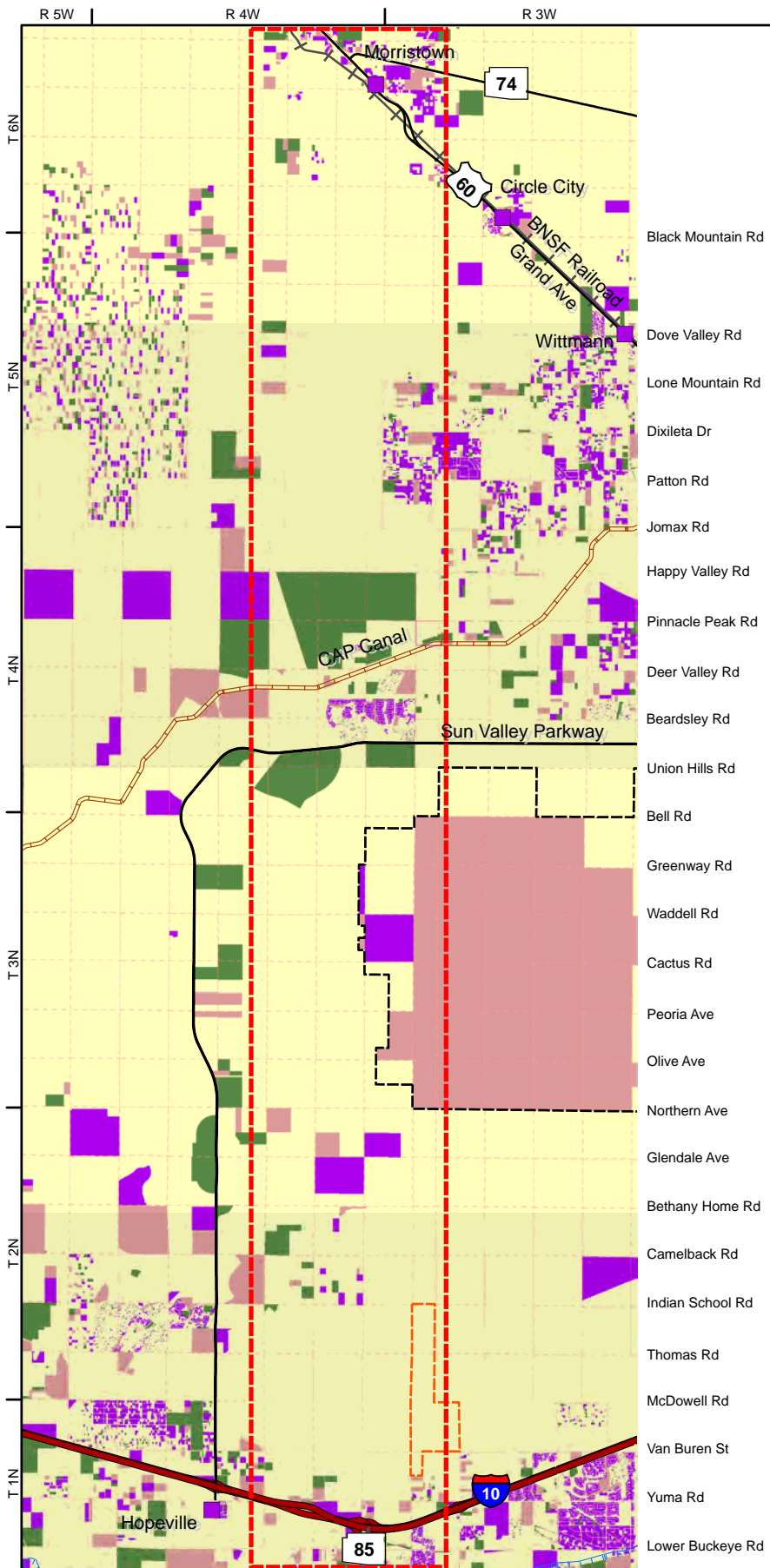
Travel demand is a function of the socioeconomic characteristics of an area and the growth and development patterns that occur in response to those characteristics. The previous section addressed projected increases in population and employment in the study area. This section provides a discussion of the existing and expected future land use pattern, based on current opinion contained in published plans of jurisdictions with authority in the study area. It also establishes foundational information regarding the existing roadway system and the level of travel demand anticipated to be associated with the expected growth and development pattern. The following two sections present information regarding the existing pattern of land uses in the study area and the expected future pattern.

### 2.2.1 Existing Land Use

In general, the entire study area can be characterized as undeveloped desert. There are only two areas of existing development with the study area. The Sun City Festival Ranch master-planned community is situated between the CAP canal and Sun Valley Parkway. Only the eastern portion of this community has been developed to date. The second area of development is the community of Morristown at the north end of the study area. This community is largely located east of US-60; however, scattered rural residential development is present directly to the west between US-60 and the Hassayampa River.

**Figure 2-3** depicts the general pattern of existing land use within the study area. Land uses were derived from property use code (PUC) data provided by the Maricopa County Assessor's Office for study area parcels and consolidated into four (4) categories: agriculture, commercial, residential and vacant. The breakdown of existing land use for the study area is summarized in **Table 2-4**. As shown in the table, the majority (84.7%) of the study area is classified as Vacant, a classification that includes private land holdings, developable State Trust Land controlled by ASLD, and land under the jurisdiction of the Bureau of Land Management (BLM). Agricultural, Commercial and Residential land uses constitute 6.5%, 6.1% and 2.7% of the study area, respectively.

Table 2-4 Study Area Land Use Distribution		
Land Use	Acres	Percentage
Vacant	70,527	84.7%
Agriculture	5,371	6.5%
Commercial	5,099	6.1%
Residential	2,203	2.7%
Total	83,200	100.00%
Source: the CK Group		September 2008

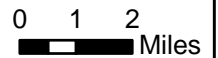


**Figure 2-3  
Existing Land Use**

Sources:  
Maricopa County Assessor, September 2010

**Legend**

- Study Area
  - White Tank Mountain Regional Park
  - Arizona Army National Guard Buckeye Training Site
  - Central Arizona Project Canal
  - Communities
  - Railroads
  - Major Roadways
- Existing Landuse**
- Agriculture
  - Commercial
  - Residential
  - Vacant



Johnson Rd  
Bruner Rd  
Palo Verde Rd  
Wilson Ave  
Turner Rd  
Oglesby Rd  
Rooks Rd  
Miller Rd  
Apache Rd  
Watson Rd  
Rainbow Rd



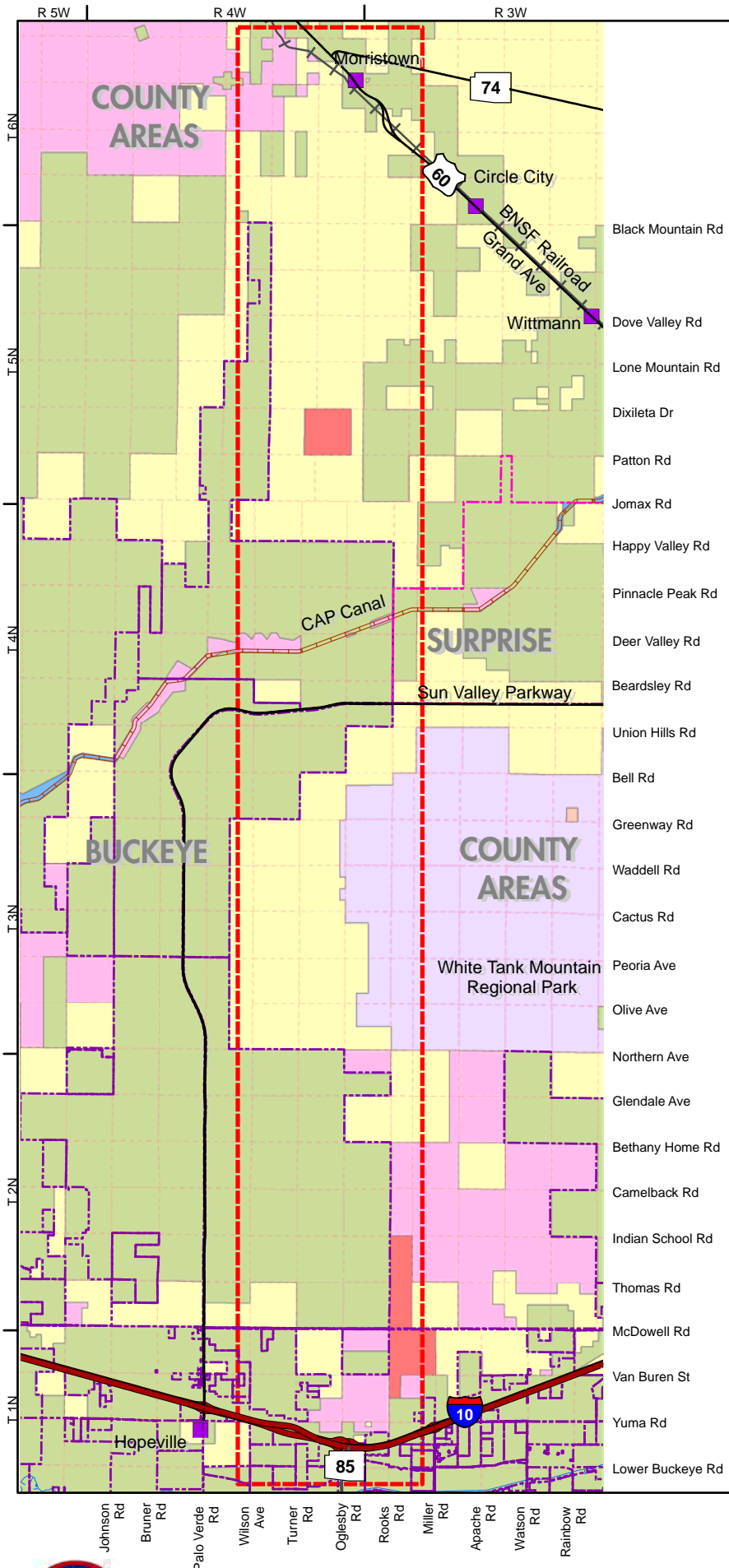
## 2.2.2 Public Land Jurisdiction

Land jurisdiction refers to the city, town, county, state, or federal agency or agencies exercising governmental authority, while land ownership is identified as public or private ownership. **Figure 2-4** shows the boundaries of the municipal and agency jurisdictions as well as generalized land ownership within the study area. The breakdown of land ownership within the study area is summarized in **Table 2-5**. The study area extends over a total of approximately 83,200 acres or 130 square miles and is a mosaic of public and private land ownerships. BLM controlled land, military facilities, and regional parks constitute 14.2% of the study area and are unlikely to be transferred to private interest.

<b>Table 2-5 Study Area Land Ownership Distribution</b>		
<b>Land Ownership</b>	<b>Acres</b>	<b>Percentage</b>
Arizona State Trust Land	36,404	43.8%
Private	35,036	42.0%
Regional Parks	5,812	7.0%
Bureau of Land Management	4,770	5.8%
Military	1,178	1.4%
<b>Total</b>	<b>83,200</b>	<b>100.00%</b>
Source: the CK Group		September 2008

State Trust Lands, held by the ASLD, constitute the largest portion (43.8%) of the study area. ASLD land ultimately is available for development and may eventually transfer to private interest through either sale or lease. However, the rate at which the land is developed generally cannot be forecast. This agency is charged with the stewardship of State Trust lands. The mission of the ASLD is to enhance value and optimize economic return for designated beneficiaries. The State's Common Schools (K-12) constitute the largest beneficiary, owning approximately 87% of the State Trust lands and receiving close to 90% of revenue from the sale, usually an auction, of such lands.

The ASLD has authority over State Trust lands until they are sold or leased, at which time planning and development authority is transferred to the appropriate municipality or county. In support of its mission, the ASLD initiated an *ASLD Conceptual Land Use Plan* for the land holdings within the Buckeye MPA to explore opportunities for future auction. The goal of the plan was to reach consensus with adjacent private landowners and create a land use fabric that meshes with the master-planned communities both north and south of ASLD land holdings west of the White Tank Mountains. The study was not completed, and it is on hold.



**Figure 2-4  
Land Ownership  
& Jurisdiction**

Sources:  
MCDOT, BLM, ASLD, September 2008

**Legend**

- Study Area
  - Central Arizona Project Canal
  - Communities
  - Railroads
  - Major Roadways
- Land Ownership**
- BLM
  - Local or State Parks
  - Military
  - Private
  - State
- Municipal Limits**
- Buckeye
  - Surprise



0 1 2  
Miles





### 2.2.3 Future Land Use

Assumptions regarding planned future land use in the study area are based on adopted general plans published by agencies and organizations with jurisdiction within the study area. In the case of the Town of Buckeye and City of Surprise, land use planning encompasses the MPA, which is greater than established corporate limits. Therefore, the future land use identified herein includes land currently unincorporated but envisioned for annexation in the future. While land in the study area is mostly vacant, the category of undeveloped land would no longer exist under assumptions relating to anticipated Buildout conditions. Summaries of future land use relative to the principal influences in the study area are provided in the following paragraphs.

#### 2.2.3.1 Town of Buckeye

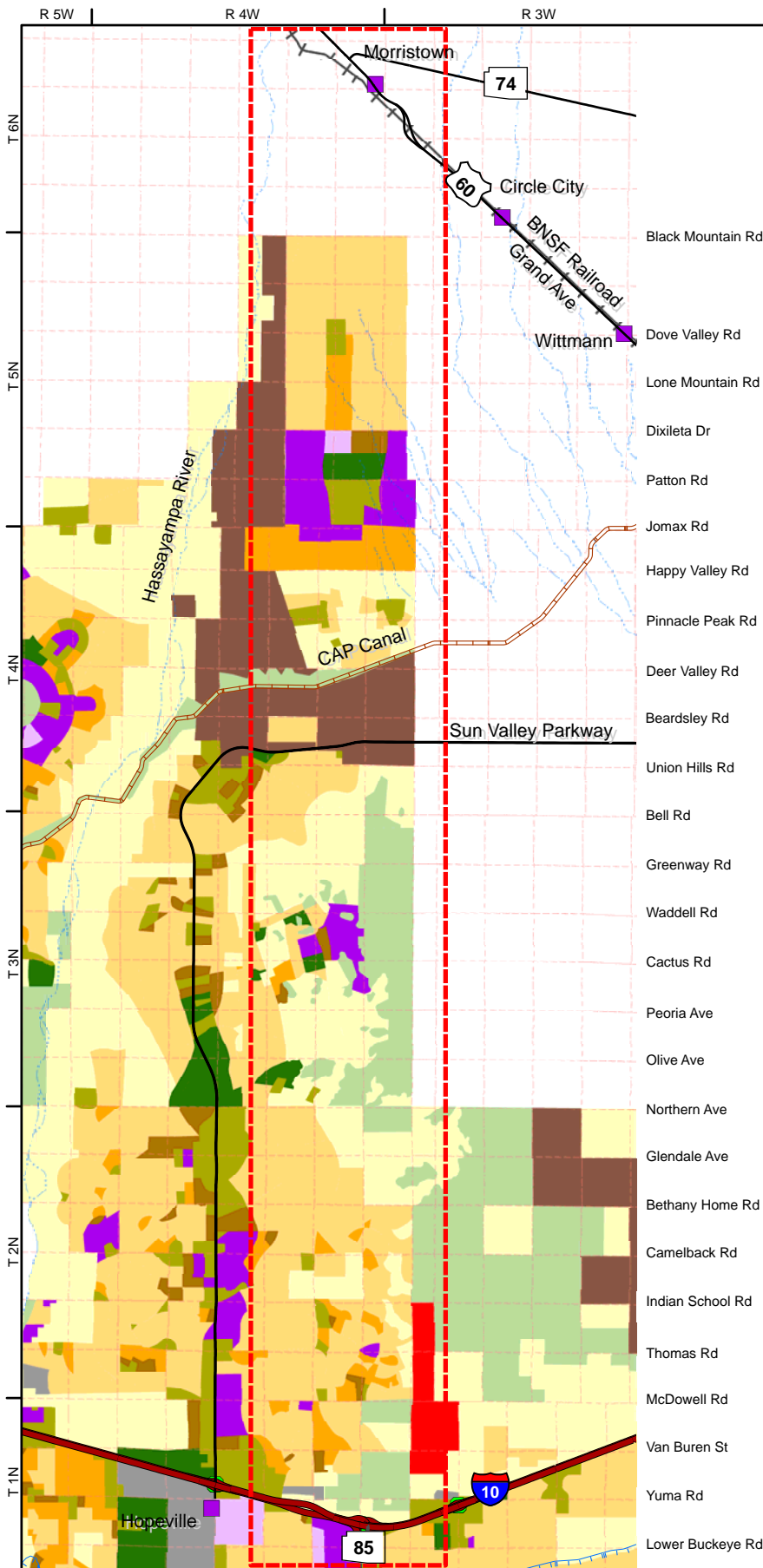
The incorporated municipal boundary of the Town of Buckeye includes approximately 366 square miles of land with an overall MPA encompassing approximately 600 square mile. The area north of I-10 is almost entirely entitled with large master-planned communities. These commitments are expected to result in approximately 290,000 dwelling units (DUs), a projected population of 776,000, and a population density of 4,647 persons per square mile – a development density higher than any other city within the Phoenix metropolitan area. Future land use in the Buckeye MPA is displayed in **Figure 2-5**.

#### 2.2.3.2 City of Surprise

The Surprise MPA is 309 square miles, while the City's incorporated land area is approximately 94 square miles. Future development in the Surprise MPA within the study area has been given little definition by the City. The Year 2030 projected population for the City of Surprise is approximately 402,500. Future land use in the Surprise MPA is displayed in **Figure 2-6**.

#### 2.2.3.3 Master-Planned Developments

There are eight (8) approved major master-planned communities within the study area. These communities are at various stages of growth; some have yet to break ground. **Figure 2-7** shows the major master-planned communities known within the study area, as of August 2008. Most of the land north of I-10 has been defined within the boundaries of several master-planned communities, which will provide various combinations of residential, commercial, mixed-use, open space, and office/employment land uses. The intent of master-planned communities is to provide a balance of uses and activities to foster an integrated live, work, educate, and play environment. Seven (7) master-planned

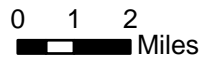


**Figure 2-5**  
**Buckeye MPA**  
**Buildout Land Use**

Source:  
 Town of Buckeye, September 2008

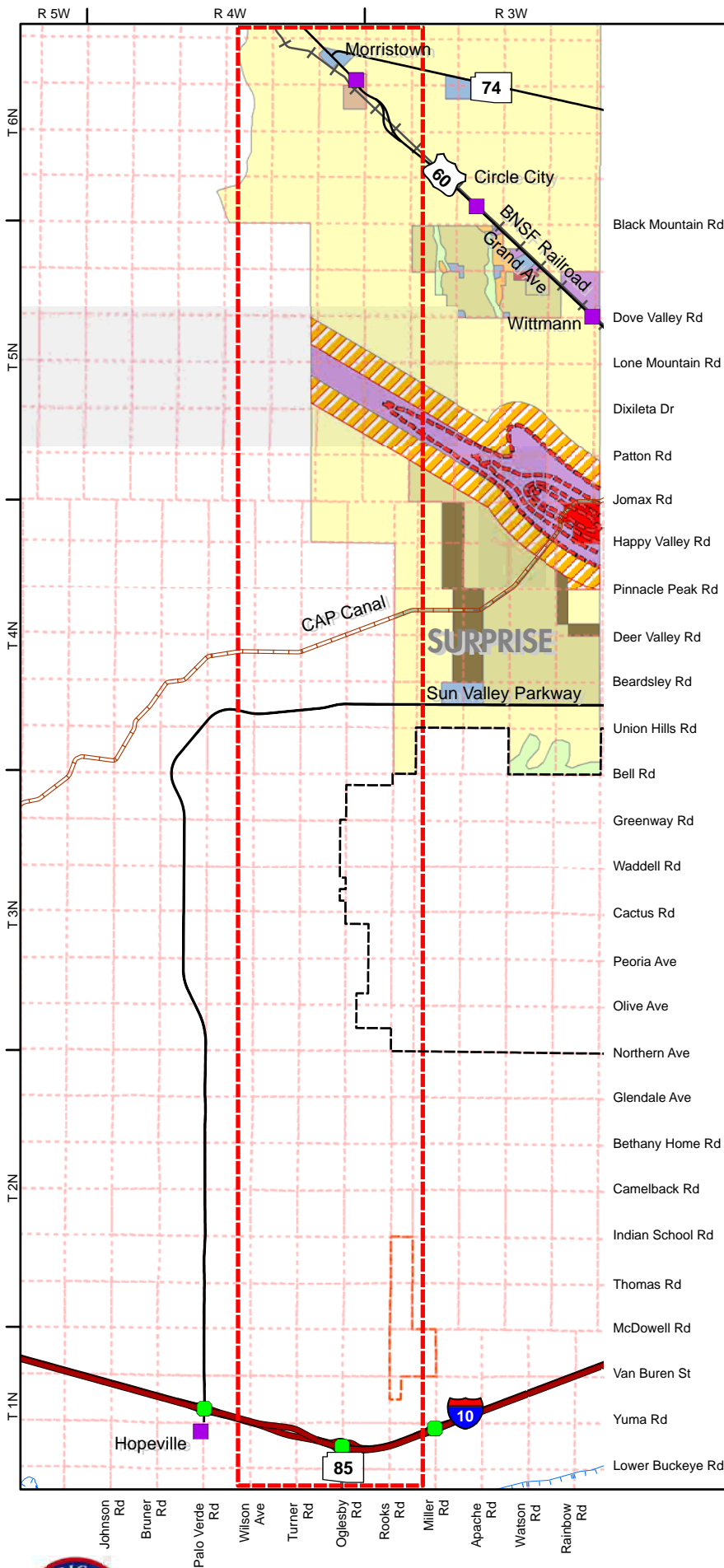
**Legend**

- Study Area
  - Central Arizona Project Canal
  - Communities
  - Traffic Interchanges
  - Railroads
  - Major Roadways
- Future Land Use**
- Low Density Residential
  - Medium Density Residential
  - Medium High Density Residential
  - High Density Residential
  - Commercial
  - Professional Office Employment
  - Business Park
  - Industrial
  - Master - Planned Community
  - Military
  - Mixed Use
  - Open Space



Johnson Rd  
 Bruner Rd  
 Palo Verde Rd  
 Wilson Ave  
 Turner Rd  
 Oglesby Rd  
 Rooks Rd  
 Miller Rd  
 Apache Rd  
 Watson Rd  
 Rainbow Rd





**Figure 2-6**  
**Surprise MPA**  
**Buildout Land Use**

Source:  
 City of Surprise, September 2008

**Legend**

- Study Area
- White Tank Mtn Regional Park
- Arizona Army National Guard Buckeye Training Site
- Central Arizona Project Canal
- Communities
- Existing Traffic Interchanges
- Railroads
- Major Roadways
- Aux1 F16 Noise Contours

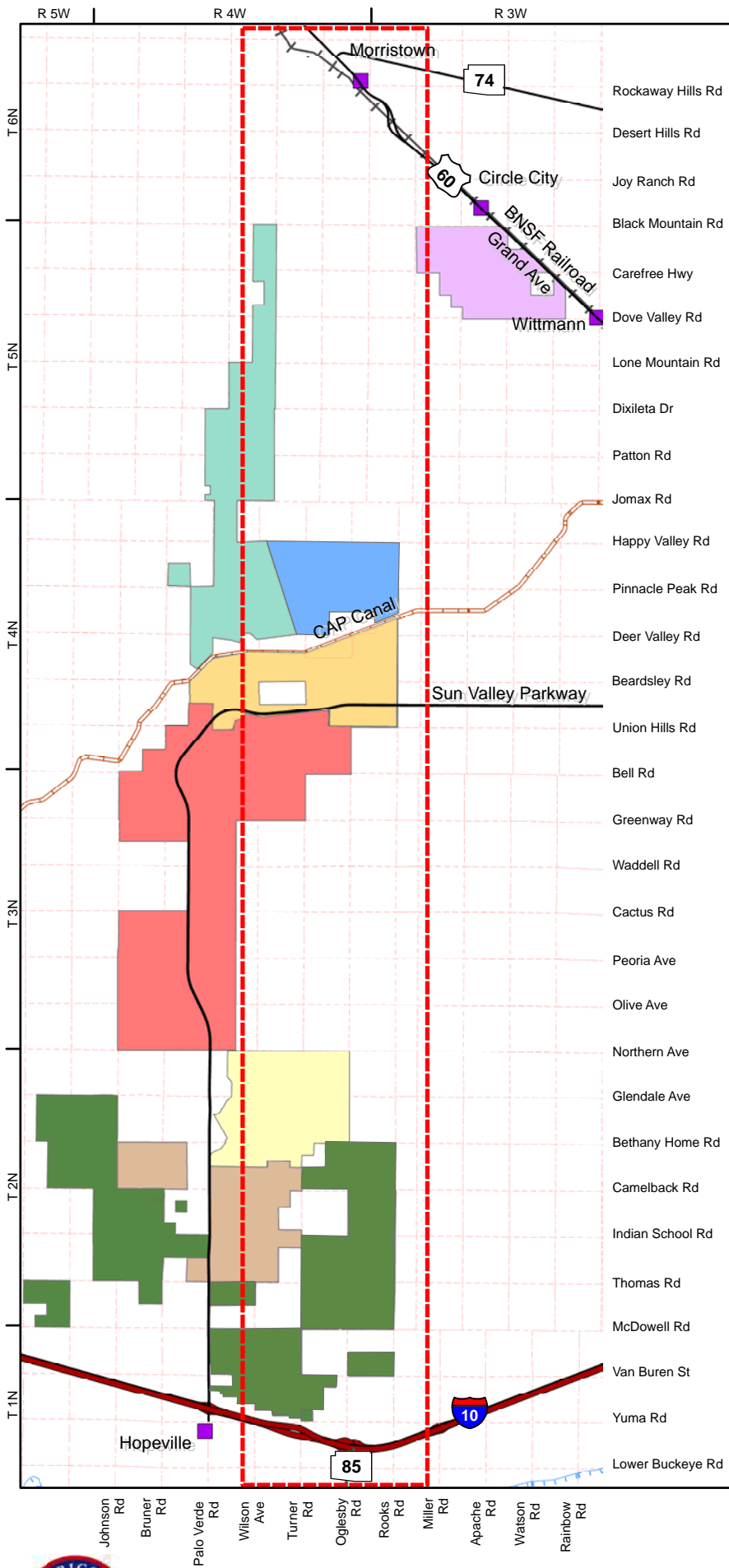
**Future Land Use**

- Rural Residential
- Low Density Residential
- Medium High Density Residential
- High Density Residential
- Commercial
- Employment
- Suburb
- Military
- Open Space
- Mixed Use
- Airport Preservation



0 1 2  
 Miles





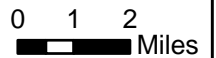
**Figure 2-7**

**Approved Master-Planned Communities**

Source:  
City of Buckeye, August 2008

**Legend**

- Study Area
  - Central Arizona Project Canal
  - Communities
  - Railroads
  - Major Roadways
- Master - Planned Communities**
- Festival Ranch
  - Spurlock Ranch
  - Sun City Festival Ranch
  - Sun Valley
  - Anthem Sun Valley
  - Elianto
  - Tartesso
  - Broadstone Ranch



communities in the study area may potentially may be impacted by construction of the proposed Turner Parkway; the features of these communities are summarized in the following paragraphs. Broadstone Ranch, at the northern end of the study area, should not be impacted and, therefore, is not further discussed.

**Tartesso** – Tartesso is a master-planned community being developed by Stardust Companies. This community, located in the Buckeye MPA, ultimately will become one of the largest communities in the Town of Buckeye. Under current plans, it is expected to include approximately 48,000 residential units, 21 elementary schools, two (2) high schools and one (1) hospital. The community will encompass approximately 13,000 acres (20 square miles) with approximately 843 acres of commercial and 513 acres of mixed-use development. Tartesso consists of the Tartesso West Community Master Plan, located west of Sun Valley Parkway, and the Tartesso Community Master Plan, which lies east of Sun Valley Parkway. The first phase of Tartesso West, outside the study area has been developed north of Thomas Road. Tartesso Town Center, a 480-acre commercial development, is proposed for the northeast quadrant of I-10 and Sun Valley Parkway. The time frame for completion of the Tartesso community is difficult to predict with the current economic slowdown and constraints on housing development. According to information provided by the developer, development adjacent to Turner Parkway could be started by Year 2013 and be completed in 15 to 20 years.

**Elianto** – This mixed-use development is planned to include approximately 13,661 housing units, 142.7 acres of commercial space, four (4) elementary schools and one (1) high school. The Elianto site is comprised of two (2) parcels encompassing approximately 3,900 gross acres. The larger (Village 1) and smaller parcels are located east and west, respectively of Sun Valley Parkway. The limits of Village 1 include the north half of Thomas Road from Sun Valley Parkway to one and one-half miles east, Osborn Road from Wilson Avenue to 283<sup>rd</sup> Avenue, Wilson Avenue, and 283<sup>rd</sup> Avenue from Thomas Road to Osborn Road. The development timeframe for Elianto is not known at this time.

**Anthem Sun Valley** – Anthem Sun Valley also is planned for development on land located east and west of Sun Valley Parkway. The portion on the east side of Sun Valley Parkway lies west of the Rooks Road alignment between Northern Avenue and Camelback Road. This master-planned community is proposed for development on 13,285 acres. It is expected to include 41,370 homes and 1,265 acres of commercial space, when fully developed. Two (2) 18-hole golf courses also are planned for this community. The development timeframe for Anthem Sun Valley is not known at this time.

**Sun Valley Villages** – The Sun Valley Villages master-planned community consists of 16,266 acres. The Turner Parkway corridor passes through Sun Valley Villages I and II, comprising the northeastern portion of the development (5,960 acres). When completed, this

development will consist of 2,300 single- and multi-family dwelling units, 475,000 square feet of retail, 867,000 square feet of office, and two (2) elementary schools. Development of Sun Valley Village II is expected to be completed by Year 2020. Together, Sun Valley Villages I and II will consist of 15,236 single- and multi-family dwelling units, 1,442,000 square feet retail, 7,224,000 square feet of office, nine (9) elementary schools and two (2) high schools.

**Sun City Festival Ranch** – This development is located northwest of the White Tank Mountains between Sun Valley Parkway and the Beardsley Road alignment. Sun City Festival Ranch extends east to west approximately four (4) miles, occupying land between the 287<sup>th</sup> Avenue alignment on the west and 259<sup>th</sup> Avenue alignment on the east. The existing Sun City Festival development east of Desert Oasis Boulevard consists of 2,345 single-family units and the 18-hole Copper Canyon Golf Course. The Lyle Anderson Company, developer of Festival Ranch, sold over 3,500 acres to Pulte Del Webb as an adjunct to Sun City Festival Ranch. Sun City Festival Ranch includes an active adult community (ages 55+) with single-story homes focused around golf and recreational amenities for retirees. Pulte Del Webb intends to develop the remainder of their property west of Desert Oasis Boulevard into a predominantly conventional housing product focused toward young families. There is an enclave of 331 acres of ASLD land within the area of Sun City Festival Ranch west of the Desert Oasis Boulevard (within Section 27).

**Festival Ranch** – The original Festival Ranch master-planned community extended from south of Sun Valley Parkway to Black Mountain Road within the Buckeye incorporated area commonly referred to as the “Buckeye chimney.” The Lyle Anderson Company sold 3,500 acres to Sun City Festival Ranch developer Pulte Del Webb, retaining the remainder for Festival Ranch – a 10,100 acre holding north of the CAP canal. The company is planning to develop Festival Ranch as a pedestrian-oriented Village, to include over 24,000 dwelling units, upscale shopping, and restaurants. A Jack Nicklaus golf course will be a centerpiece of the development.

**Spurlock Ranch** – Spurlock Ranch is located west of the 259<sup>th</sup> Avenue alignment between the CAP canal and Happy Valley Road alignment. This proposed master-planned community is located directly north of the recently completed eastern phase of the Sun City Festival Community. Spurlock Ranch is a mixed-use development expected to include 7,329 dwelling units, 270 acres of commercial space, parks, four (4) elementary schools, one (1) middle school, and one (1) high school. The Project will be developed in three (3) stages with Planning Unit 1 anticipated to be built by Year 2015. The remaining two (2) planning units, along with the commercial development, are planned to be fully built-out by Year 2030. It is estimated that Planning Unit 1 will accommodate 2,046 single-family units with two (2) commercial parcels expected to accommodate 409,000 square feet of retail space and

175,000 square feet of office space. An 11-acre park, 900-student elementary school, and an Arizona Public Service (APS) substation will be constructed as part of Phase 1.

## 2.3 Existing Roadway System

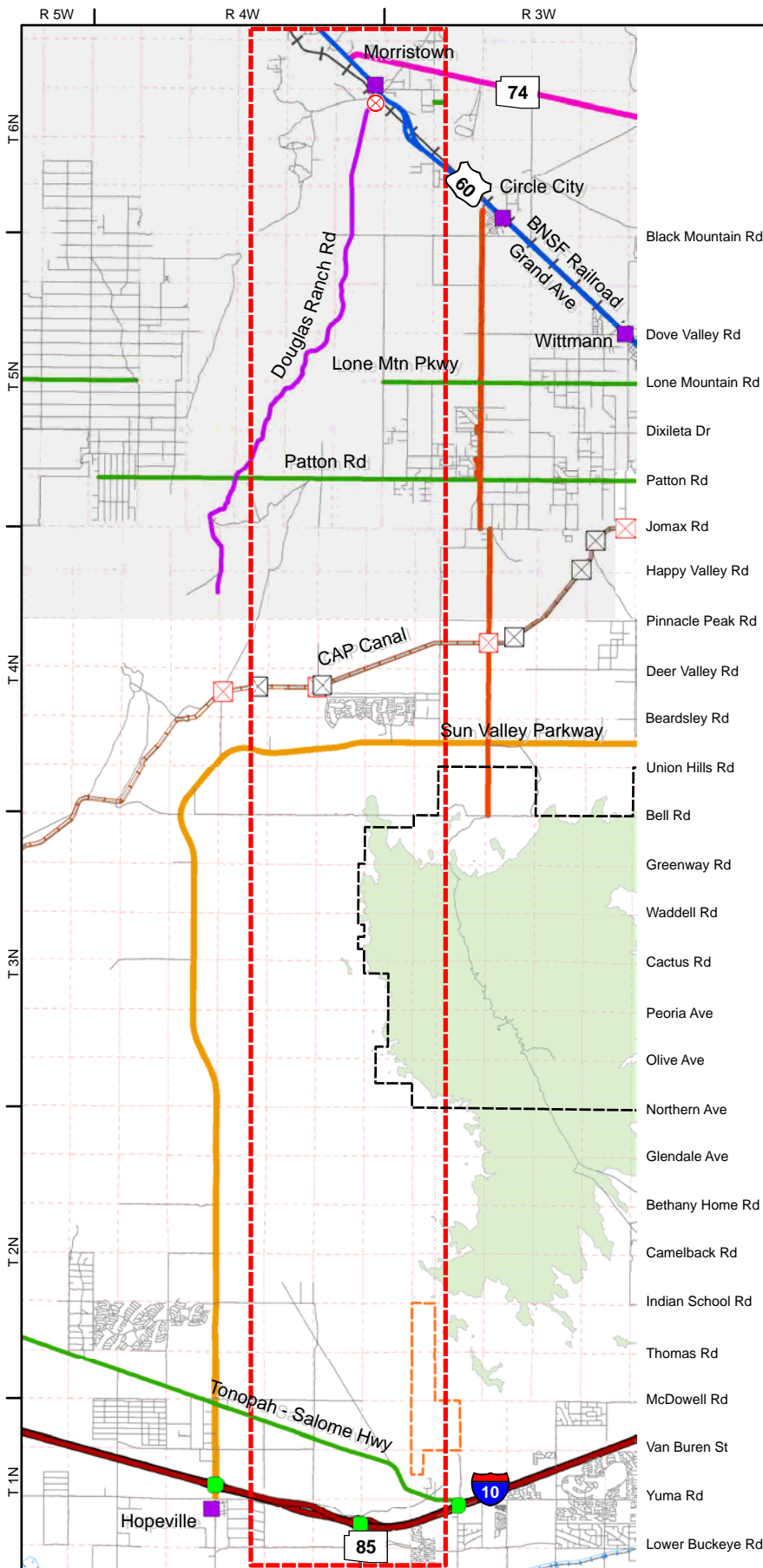
This section presents an inventory of existing roadway facilities and their functional classification in the study area. The information has been developed from various sources including the ADOT State Highway System Map, MCDOT's *Major Streets and Routes Plan* (MSRP) and *Transportation System Plan* (TSP), aerial photography and a window survey of the study area. **Figure 2-8** shows the existing roadway network through the study area. The existing roadway network consists of state highways, arterial roadways and service roadways in the study area west of the White Tank Mountains.

### 2.3.1 Existing State Highways

The study area includes four (4) State highways: I-10, SR-85, US-60/Grand Avenue, and SR-74. Although I-10 and US-60 technically are Federal highways, they are considered part of the State Highway System for administrative purposes and have been given an appropriate functional classification. State highways are operated and maintained by ADOT.

**Interstate 10 (Papago Freeway)** – I-10 is the only existing east-west freeway facility in the study area. It is classified as “Rural Principal Interstate” in the ADOT State Highway System. I-10 has four (4) general-purpose lanes, two (2) in each direction and a 70-foot open median. At Milepost 112.8, there is traffic interchange with SR-85, consisting of a mix of underpasses and overpasses with free-flow ramps for all entering and exiting traffic. At Milepost 109.7, a Rural Diamond Interchange serves traffic movements at the intersection of I-10 and Palo Verde Road/Sun Valley Parkway. At the Turner Road section line alignment, eastbound and westbound lanes of I-10 are separated by approximately 1,000 feet avoiding a butte in the middle.

**State Route 85 (Oglesby Road)** – SR-85 has recently been upgraded to a four-lane highway extending approximately 16 miles to the south from I-10 in Buckeye, beyond which it continues as a two-lane highway to Gila Bend. Turner Parkway, connecting with the I-10/SR-85 traffic interchange, in effect, will be a northerly extension of SR-85. SR-85 is classified as “Urban Principal Other” in the ADOT State Highway System. It serves as a connector and bypass route from Interstate 8 (I-8) to I-10, allowing travelers to avoid the Phoenix metropolitan area. It also is one of the interim segments in Arizona forming the CANAMEX Corridor, which was defined by Congress in the 1995 National Highway Systems Designation Act. This transportation component of the North American Free Trade Agreement (NAFTA) calls for development of a continuous four-lane roadway from Mexico



**Figure 2-8**  
**Existing Roadway Network**

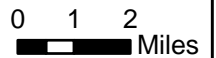
Source:  
MCDOT, September 2008

**Legend**

- Study Area
- White Tank Mountain Regional Park
- Arizona Army National Guard Buckeye Training Site
- White Tank Mountains
- CAP Bridge Structure
- CAP Drainage Structure
- Central Arizona Project Canal
- Communities
- Traffic Interchange
- Railroads
- Railroad Crossing

**Functional Classification**

- Rural Principal Interstates (ADOT)
- Urban Principal Other (ADOT)
- Rural Principal Other (ADOT)
- Rural Major Collector (ADOT)
- Principal Arterial (MCDOT)
- Minor Arterial (MCDOT)
- Major Collector (MCDOT)
- Others



Johnson Rd  
Bruner Rd  
Palo Verde Rd  
Wilson Ave  
Turner Rd  
Oglesby Rd  
Rooks Rd  
Miller Rd  
Apache Rd  
Watson Rd  
Rainbow Rd





through the US into Canada.

**State Route 74** – SR-74 is a state highway in the northwest Phoenix metropolitan area that stretches from its junction with Interstate 17 (I-17) in northern Phoenix to US-60, south of Wickenburg. It is the primary access to the Lake Pleasant Regional Park and serves as a northern bypass around the often-congested stretches of US-60 through the northwest suburbs of the Phoenix metropolitan area. From end to end, it is approximately 31 miles long. SR-74 is classified as “Rural Major Collector” in the ADOT State Highway System. It primarily has two (2) 12-foot general-purpose lanes, one (1) lane in each direction, with occasional auxiliary turn lanes.

**US Route 60/Grand Avenue** – US-60/Grand Avenue, is one of two (2) major roads, along with SR-74, that facilitates travel to/from the Greater Phoenix area to the southeast and the Wickenburg area to the northwest. US-60 runs diagonally in the northwest by southeast direction as a four-lane divided highway. It is classified as “Rural Principal Other” by ADOT and has two (2) 12-foot general-purpose lanes in each direction separated by a 45-foot wide traversable median. US-60 near Morristown crosses the Burlington Northern Santa Fe Railway (BNSF) tracks on two (2) northbound and southbound grade-separated structures.

### **2.3.2 MCDOT Roadways**

MCDOT operates and maintains most of the roadway miles in the study area, including those in the Town of Buckeye and City of Surprise MPA. Major relevant roadways are discussed below:

**Sun Valley Parkway** – Sun Valley Parkway is an existing through roadway, providing a connection between I-10 and SR-303L (Estrella Freeway). This route serves the northern part of the Town of Buckeye, the western and southern sections of the City of Surprise, and unincorporated Maricopa County. It is approximately 28 miles long as it curves around the White Tank Mountains, connecting I-10 with Bell Road. The parkway runs directly north from its traffic interchange with I-10/Palo Verde Road, curves east along the Union Hills Drive alignment, and then switches down to Bell Road east of 219<sup>th</sup> Avenue. Sun Valley Parkway between I-10 and its connection with Bell Road at the Beardsley Canal (187<sup>th</sup> Avenue) is a four-lane divided roadway with two (2) general-purpose lanes in each direction, paved shoulders, and a 16-foot raised median. The MCDOT *Major Streets and Routes Plan* (MSRP) classifies the Sun Valley Parkway as an Enhanced Arterial and Road of Regional Significance. *Maricopa County Transportation System Plan* (TSP) classifies Sun Valley

Parkway as a County Island Roadway, Case 1<sup>3</sup> within the study area. It also is classified as one of the primary roadways in the Maricopa County TSP maps. Currently, it is the only continuous, major roadway facility serving the study area. It is stop controlled at the I-10/Palo Verde Road (291st Avenue) traffic interchange.

**Turner Road** – Turner Road is not shown or classified in MCDOT MSRP on the north side of I-10. On the south side of I-10, it ends at Broadway Road and is classified as “Minor Arterial.”

**Tonopah-Salome Highway** – The Tonopah-Salome Highway originates at Miller Road north of the Miller Road/I-10 traffic interchange and continues in a northwesterly direction parallel to I-10 west of SR-85. At approximately 355<sup>th</sup> Avenue, the highway intersects with Wickenburg Road, which heads north as a two-lane paved highway toward Wickenburg. Under current conditions this roadway is a dirt road and is classified as a Minor Arterial in the MCDOT MSRP. It is identified as a secondary roadway within the Maricopa County TSP. A portion of Tonopah-Salome Highway within the study area is also identified as a County Island Roadway, Case 4.<sup>4</sup>

**Patton Road** – Patton Road serves as an east-west travel corridor that crosses the study area connecting Whispering Ranch, a community located west of the Hassayampa River, with US-60. Patton Road is a two-lane, 28-foot wide rural roadway. It is paved along the entire length (approximately 13 miles) between 299<sup>th</sup> Avenue and US-60. Patton Road is classified as a Minor Arterial in the MCDOT MSRP. The Maricopa County TSP identifies Patton Road as one of the County’s primary roadways, with the west segment near 299<sup>th</sup> Avenue classified as a County Island Roadway, Case 1.

**Douglas Ranch Road** – Douglas Ranch Road is a dirt road that runs northeast from Patton Road to Gates Road. It is classified as Minor Arterial (Future) in the MCDOT MSRP. The Maricopa County TSP classifies it as a primary roadway within the study area. It crosses the BNSF tracks at-grade within the study area.

**Other Major Dirt Roads** – Segments of Lone Mountain Road, Dove Valley Road, 243<sup>rd</sup> Avenue, and 235<sup>th</sup> Avenue along the section lines within the study area are dirt roadways. While ultimately these will be major regional arterial roadways, they currently are not identified in the MCDOT MSRP and Maricopa County TSP.

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<sup>3</sup> County Island Roadway; Case 1 is defined as unincorporated roadway bounded on both sides by municipality (Buckeye in this case).

<sup>4</sup> County Island Roadway; Case 4 is defined as roadway and adjacent lands are unincorporated but the unincorporated lands are bounded by one or more municipalities

## 2.4 Future Roadway Network

Planning for transportation infrastructure development is an ongoing activity throughout the Phoenix metropolitan area. MAG and MCDOT have completed various plans and studies that incorporate all or portions of the study area. In addition, General Plans prepared by the Town of Buckeye and City of Surprise provide guidance relating to future transportation facilities. Findings and conclusions associated with these efforts contribute to the definition of the future roadway network. Key elements of major relevant planning actions are highlighted in the following sections.

### 2.4.1 Maricopa Association of Governments

MAG planning activity relating to Turner Parkway is summarized from two (2) documents: the *MAG I-10/Hassayampa Valley Roadway Framework Study, Final Report*, dated September, 2007 and the current *Regional Transportation Plan (RTP)* which is a comprehensive, performance based, multi-modal and coordinated regional plan, covering through Horizon Year 2031.

#### 2.4.1.1 I-10/Hassayampa Valley Roadway Framework Study

The *I-10/Hassayampa Valley Roadway Framework Study* was a recent collaborative effort conducted by MAG, MCDOT, ADOT, the Town of Buckeye, and the Cities of Surprise and Goodyear to satisfy a prime objective: develop an overarching plan for a major roadway network to help communities preserve necessary rights-of-way in advance of the intensive projected growth in the study area and adjacent lands. An important consideration of the *I-10/Hassayampa Valley Roadway Framework Study* was the establishment of regional connectivity between I-10 and other regional roadways, including US-60/Grand Avenue, SR-74, SR-85, Bell Road, and SR-303L/Estrella Freeway. The area of focus was west of the White Tank Mountains from south of I-10 to SR-74 in the north and from west of the Hassayampa River to SR-303L/Estrella Freeway. The result of the *I-10/Hassayampa Valley Roadway Framework Study* was a comprehensive arterial roadway network developed and modeled to meet traffic demands in the West Valley under Buildout conditions.

The MAG Regional Council and all affected jurisdictions have accepted the *I-10/Hassayampa Valley Roadway Framework Study* Transportation Framework Recommendation. In addition, the various circulation plans of the master-planned communities in the study area have been integrated into the regional roadway network. Expectations deriving from the *I-10/Hassayampa Valley Roadway Framework Study* are that a roadway network consisting of freeways, parkways, and major arterial roads will be able to offer significantly greater travel capacity than that provided by the typical major urban arterial road developed in other parts of the region.

The Turner Road alignment is one of the travel corridors included in the Transportation Framework Recommendation of the *I-10/Hassayampa Valley Roadway Framework Study* as necessitating a higher capacity parkway cross-section. The proposed Conceptual Transportation Framework developed for the study area as a result of the *I-10/Hassayampa Valley Roadway Framework Study* is shown in **Figure 2-9**. Specifically, the study recommends a parkway facility be located generally along the alignment of Turner Road. Subsequent to the *I-10/Hassayampa Valley Roadway Framework Study*, MCDOT in its *Arizona Parkway Design Guideline Recommendations* has determined that future parkways will be developed as wide boulevards with indirect left turns. This operational concept has been accepted by the Town of Buckeye, City of Surprise, and MAG and referred to as the Arizona Parkway. Turner Parkway is classified, therefore, as an Arizona Parkway.

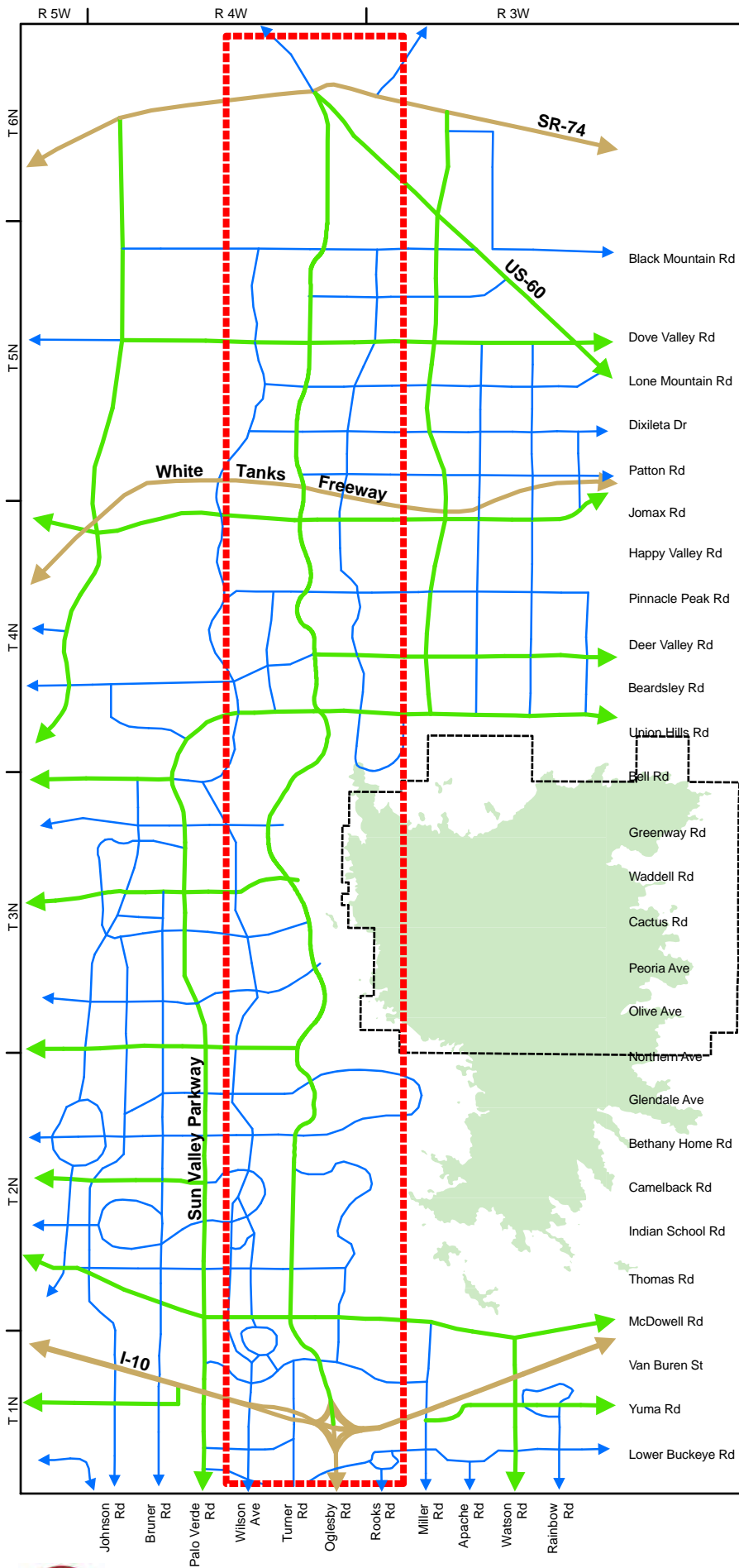
The following goals and objectives support designation of the Arizona Parkway classification:

- ❑ Continuous, high-capacity facility linking I-10 and SR-74;
- ❑ Provision of a facility that would allow improved travel times within a continuous north-south corridor, especially for longer trip lengths;
- ❑ Provision of a facility with improved safety characteristics, as compared to a traditional arterial roadway; and
- ❑ Flexibility to provide six (6) or eight (8) lanes, based on growth in traffic volumes over the next 30 to 60 years.

Additional details regarding the Arizona Parkway concept are provided in Section 5.1 and Technical Memorandum No. 6, Preferred Corridor Alignment, which can be referenced in **Appendix F**.

#### 2.4.1.2 MAG Regional Transportation Plan (RTP) 2007 Update




The MAG Arterial Street System does not identify Turner Parkway alignment in the street network. The Sun Valley Parkway is identified as a 6-lane arterial roadway with most of the arterials east of Sun Valley Parkway identified as 4-lane roads. North of Sun Valley Parkway, Beardsley Road, Jomax Road, Dixileta Road and section of Pinnacle Peak Road are classified as 6-lane arterial streets and the remaining streets are classified as 4-lane arterials. Miller Road and Apache Road are classified as north-south 4-lane arterials. Some of these classifications have been changed, based on the Transportation Framework Recommendation from the *I-10/Hassayampa Valley Roadway Framework Study*, which supersedes the 2007 MAG RTP Update and has been accepted by the MAG Regional Council and affected member jurisdictions.



**Figure 2-9**  
**Study Area Buildout**  
**Roadway Network**

Source:  
 MAG Accepted Transportation Framework Recommendation  
 from I-10/Hassayampa Valley Roadway Framework Study with  
 Edits based on City of Surprise, General Plan 2030  
 Transportation Plan, Map 3.1A - Transportation, July 2008

**Legend**

-  Study Area
-  White Tank Mountains
-  White Tank Mountain Regional Park

**Functional Classification**

-  Freeway
-  Arizona Parkway
-  Major Arterial



0 1 2  
 Miles



## 2.4.2 Maricopa County

MCDOT regularly conducts studies to evaluate the need for roadway improvements. Several studies are relevant to the Turner Parkway Corridor Feasibility Study.

### 2.4.2.1 MCDOT Transportation System Plan

The Maricopa County *Transportation System Plan* (TSP) Update, adopted February 2007, establishes an organized approach to the planning, design and construction of the County's transportation system through 2026. It includes an analysis of future traffic, a needs assessment, and establishes transportation policies for developing the County's transportation systems. The 2007 TSP Update indicates MCDOT must consider a new category of arterial street projects that are incorporated in the MAG Regional Transportation Plan (RTP) and are funded as part of Proposition 400 (Prop 400)<sup>5</sup>. According to the TSP, "where MCDOT has a logical role, due to jurisdiction over part of or all of the adjoining land along the roadway itself, Prop 400 projects may receive medium to high priority. Where MCDOT does not have a logical role, financial participation will normally be less. By focusing appropriate attention on this new category of roadways, MCDOT can play the important role of cooperating partner in the implementation of Proposition 400 projects." Thus, MCDOT has placed emphasis on completion of the *Turner Parkway Corridor Feasibility Study*, due to the needs for north-south travel and the location of the future Turner Parkway within the unincorporated portion of Maricopa County.

### 2.4.2.2 Maricopa County Major Streets and Routes Plan (MSRP)

Development of the MCDOT MSRP was coordinated with the Maricopa County TSP, which introduces the concept of overlays that may be designated to acknowledge the special importance of roads for purposes other than mobility. Six (6) overlays were identified and included in the MCDOT MSRP. A review of the overlays presented in the MCDOT MSRP with respect to the study area indicates that Sun Valley Parkway and Patton Road have been included in the Oversized Load Overlay and Sun Valley Parkway has been designated a Road of Regional Significance (RRS). In addition, US-60 at the north end of the study area has been designated under the Public Transportation Overlay and is designated a Gateway Road of Regional Significance. SR-74 and Castle Hot Springs Road, also at the north end of the study area have been designated under the Scenic/Recreational Overlay.

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<sup>5</sup> Proposition 400 was passed by Maricopa County voters on November 2, 2004. It authorizes a 20-year continuation of the half-cent sales tax for transportation projects in Maricopa County and became effective January 1, 2006.

#### 2.4.2.3 Maricopa County Comprehensive Plan

Maricopa County is required by state law to prepare a Comprehensive Plan "...to conserve the natural resources of the county, to ensure efficient expenditure of public funds, and to promote the health, safety, convenience, and general welfare of the public." (A.R.S. § 11-806). The current plan for 2020 was adopted October 20, 1997, and revised August 7, 2002. The General Plan Development Area (GPDA) identifies unincorporated portions of the County that likely will be annexed by a city or town. Land within the GPDA is included in an adopted municipal General Plan, which often provides specific recommendations for proposed land use. The GPDA, therefore, represents that portion of the County expected and even encouraged to accommodate future growth over the next several years. The Comprehensive Plan classifies a significant portion of the study area as GPDA including the areas north of the Surprise and Buckeye municipal limits and area south of the McDowell Road alignment.

#### 2.4.2.4 Sun Valley Parkway Access Control and Corridor Improvement Study

*The Corridor Improvement Study for Sun Valley Parkway*, completed in December 2006, was initiated to develop a recommendation to locate a new north-south travel corridor that essentially would connect the existing Sun Valley Parkway to SR-74. The importance of the Sun Valley Parkway study for this current study is that several alternative corridors were evaluated. However, resolution of this connection was deferred to upcoming studies, such as the *I-10/Hassayampa Valley Roadway Framework Study* and this subsequent study. The alignment of Turner Parkway incorporated in the Transportation Framework Recommendation of the *I-10/Hassayampa Valley Roadway Framework Study* supersedes the potential Sun Valley Parkway Extension.

#### 2.4.2.5 Patton Road & Jomax Road Access Control/Area Corridor Study

The *Patton Road and Jomax Road Access Control/Area Corridor Study* and the *Hassayampa River Crossing Candidate Assessment Report (CAR)* were prepared for MCDOT in the spring of 2007. The study evaluated the future functional classification of these two roads. Jomax Road was identified as a 6-lane Parkway continuing west of US-60/Grand Avenue with a new bridge crossing at the Hassayampa River. The *Patton Road and Jomax Road Access Control/Area Corridor Study* classifies Patton Road in the Turner Parkway study area as a minor arterial and recommends this facility remain an important linkage in the regional arterial roadway network. The subsequent *I-10/Hassayampa Valley Roadway Framework Study* identified the Patton-Jomax corridor for a future White Tanks Freeway.

### **2.4.3 Town of Buckeye**

There are several plans, studies, and other documents pertinent to development of the Town of Buckeye and creation of its surface transportation system. Materials of specific interest to this study are summarized below.

#### **2.4.3.1 General Plan & Development Code, January 2008**

In January, 2008, the Buckeye Town Council approved the General Plan Update. The main components of the General Plan consist of land use, circulation, recreation and open space, historic preservation, economic development, water resources and downtown revitalization. The Circulation Plan identifies Turner Parkway within the Town of Buckeye's integrated local roadway system. Turner Parkway's inclusion in the Circulation Plan was based on the Transportation Framework Recommendation of the *I-10/Hassayampa Valley Roadway Framework Study*, which provides a guide for regional connectivity. An updated Development Code, adopted January, 2010, is a key to implementing the policies of the General Plan, acting as an incentive promoting new development, redevelopment of underutilized land, stimulates economic development, and improves the quality of life for the residents of Buckeye.

#### **2.4.3.2 Comprehensive Transportation Master Plan**

The Town of Buckeye recently completed a preliminary comprehensive multi-modal Transportation Master Plan for the MPA. The newly developed plan establishes the framework for internal circulation and creates a seamless integration of network recommendations based on the *I-10/ Hassayampa Valley Roadway Framework Study*.

### **2.4.4 City of Surprise**

There are several plans, studies, and other documents pertinent to development of the City of Surprise and creation of its surface transportation system. Materials of specific interest to this study are summarized below:

#### **2.4.4.1 General Plan**

A comprehensive update to the 2001 General Plan 2020 was adopted by the Surprise City Council on July 24, 2008. In July 2008, the City of Surprise incorporated specific elements of the Transportation Framework Recommendation from the *I-10/Hassayampa Valley Roadway Framework Study*, into the City of Surprise *Year 2030 Roadway Plan*, which



constitutes the General Plans Transportation Element. The Plan now identifies Turner Parkway as a regional connecting roadway towards the western end of the City's MPA boundary.

#### 2.4.4.2 Long-Range Master Street Plan

Currently, the City of Surprise is developing preliminary alignments of major streets and detailed designs for Special Planning Areas (SPA). A long-range master street plan will be developed for the six (6) SPAs defined by the General Plan. The study area of the *Turner Parkway Corridor Feasibility Study* interacts with the western portion of SPA 5.

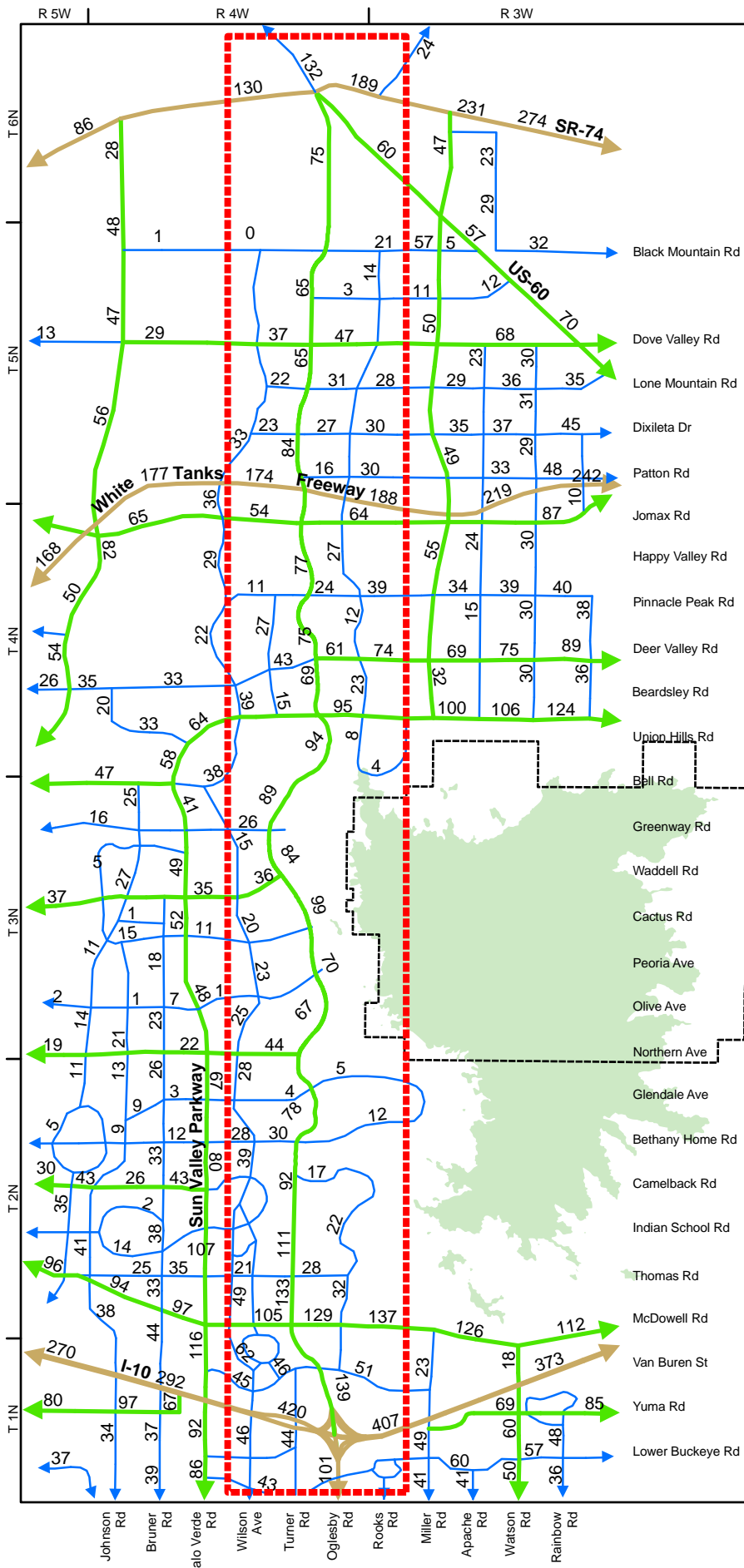
### 2.5 Future Travel Demand in the Turner Parkway Corridor

Turner Parkway is a key continuous north-south facility adopted as part of the *I-10/Hassayampa Valley Roadway Framework Study* Transportation Framework Recommendation. The facility is defined as roughly following the alignment of Turner Road, while being sensitive to the circulation plans of known master-planned communities along the route. The discussion in the previous section establishes the need for this facility; therefore, no additional travel demand analysis is necessary. Nevertheless, this current feasibility study focuses on following up the results of that study to further affirm the need for and feasibility of developing the recommended Turner Parkway facility.

This section addresses forecasted travel demand in the study area. Travel demand for purposes of this feasibility study has been identified under Buildout conditions. Buildout conditions are consistent with the regional transportation modeling carried out for the *I-10/Hassayampa Valley Roadway Framework Study*. Additional details regarding the travel demand analysis and its results are contained in Technical Memorandum No. 2, *Existing and Future Study Area Features*, which may be referenced in **Appendix B**.

#### 2.5.1 Travel Demand Under Buildout Conditions

Travel demand modeling for the study area has been based on a reasonable and reliable future outlook of population and employment growth under Buildout conditions within the defined Model Influence Area (refer to **Figure 2-1**). The intent of this modeling activity was to fully address the purpose and need for the Turner Road alignment to be developed as a parkway facility. Travel demand modeling also aided in revealing potential roadway network deficiencies that may affect operation of a proposed facility. The evaluation of traffic operations in the study area under Buildout conditions focused on future growth scenarios for the Turner Parkway corridor, based on MAG socioeconomic data and MAG's regional travel demand model outputs.



**Figure 2-10**  
**Study Area Buildout Roadway**  
**Network Average Daily Traffic**  
**Volumes**

Source:  
 MAG Buildout Model Rerun with accepted Transportation  
 Framework Recommendation from I-10/Hassayampa Valley  
 Roadway Framework Study plus Inputs from US-60 Access  
 Management Plan and Edits from City of Surprise, July 2008

**Legend**

- Study Area
- White Tank Mountains
- White Tank Mountain Regional Park

**Functional Classification**

- Freeway
- Arizona Parkway
- Major Arterial
- XX Average Daily Traffic Volume (1,000s)



0 1 2  
 Miles



### 2.5.1.1 Buildout Traffic Volumes

**Figure 2-10** shows forecast traffic volumes on the roadway network modeled for Buildout conditions. A total of 286 roadway segments – 140 east-west and 146 north-south – were identified within the Model Influence Area major roadway network and analyzed under Buildout conditions. An assessment of this network was performed based on the current functional classification and principal design parameter – number of lanes – defining each segment in the network. This involved comparing forecast traffic volumes at Buildout with planned threshold capacities of the roadway segments.

The analysis of the roadway segments indicates 75 roadway segments would have traffic volumes exceeding the threshold capacity of the segment functional classification. Roadways forecast to have traffic volumes exceeding planned capacity are identified in **Table 2-6**. Sixteen (16) east-west roadways are expected to have segments operating over capacity at traffic levels forecast at Buildout of the Model Influence Area. Ten (10) north-south roadways are expected to be over capacity under Buildout conditions assumed for the model network. The critical need for Turner Parkway is demonstrated by the forecast over capacity of the north-south roadways. All north-south roadways in the study area are forecast to exceed the threshold capacities for their functional classification. The proposed Turner Parkway, linked with I-10/SR-85, offers a high-capacity alternative for north-south regional travel.

<b>Table 2-6 Over-Capacity Roadways in the Study Area Under Buildout Conditions</b>	
<b>East-West Arterials</b>	<b>North-South Arterials</b>
1. Lower Buckeye Road	1. Johnson Road
2. Interstate 10	2. Bruner Road
3. McDowell Road	3. Sun Valley Parkway
4. Thomas Road	4. Wilson Road
5. Indian School Road	5. Turner Road
6. Sun Valley Parkway	6. SR-85/Turner Parkway
7. Union Hills Road	7. North-South 5 (Unnamed Road)
8. Beardsley Road	8. Miller Road
9. Pinnacle Peak Road	9. Watson Road
10. White Tanks Freeway	10. US-60
11. Patton Road	
12. Dixileta Drive	
13. Lone Mountain Road	
14. Black Mountain Road	
15. SR-74 (Carefree Highway)	
16. East-West 1 (Unnamed Road)	

Source: Table 8-2, Roadway Facility Segments Expected to Operate Over Capacity, Technical Memorandum 2, Turner Parkway Corridor Feasibility Study, December, 2008.

### 2.5.1.2 Buildout Travel Demand Assessment Findings

Turner Parkway is planned to be the prime north-south connector between I-10, the potential White Tanks Freeway, and SR-74 Extension. The following conclusions have been drawn from the travel demand modeling process:

- MAG socioeconomic projections indicate that substantial residential and commercial development is expected to occur within the study area.
- Growth will occur in response to the availability of an extensive amount of prime, developable land along the length of the corridor.
- Roadway segment capacity and cut-line analyses clearly show the White Tank Mountains present a major constraint to east-west travel. This constraint on mobility will influence traffic levels on Turner Parkway, arterial roadways in the study area, and arterial roadways intersecting with Turner Parkway.
- The planning-level analysis confirms I-10 will be the only viable east-west travel route into and out of a large portion of the West Valley, and it will be the primary link between the southern portion of the study area and Phoenix. The travel demand modeling process reveals major traffic capacity issues will exist at the south end of the study area, where development is expected to occur sooner.
- The future White Tanks Freeway, 20 miles to the north of I-10, will not provide a viable travel option for residents living or working in the southern portion of the study area.
- Travel demand model outputs indicate Turner Parkway will be over capacity, as it will be the first high-capacity, parkway-type facility west of the White Tank Mountains connecting the study area with I-10.

The results of the roadway capacity and cut-lines analyses indicate development of Turner Parkway clearly is needed and, in fact, opportunities for additional north-south arterial capacity should be examined.

### **2.5.2 Interim-Year 2030 Travel Demand Analysis**

The structure of the travel demand modeling process also provided a companion set of data (i.e., network assumptions and socioeconomic) useful for generating interim years forecasts for the Model Influence Area and Turner Parkway. Detailed results of the interim year analysis are reported in Technical Memorandum No. 2, *Existing and Future Study Area Features*, which is provided in **Appendix B**.

**Table 2-7** shows the modeled growth in traffic volume forecast to occur along segments of Turner Parkway within the study area between the present and Buildout. The fact that this facility is not expected to be constructed by Year 2015 is apparent from the very low to

<b>Table 2-7 Interim Volume Forecasts and Performance Analysis for Turner Parkway</b>				
<b>From</b>	<b>To</b>	<b>Future Average Daily Traffic Volumes</b>		
		<b>2015<sup>a</sup></b>	<b>2030<sup>b</sup></b>	<b>Buildout<sup>c</sup></b>
I-10	Thomas Rd	0	6,700	140,000
Thomas Rd	Sun Valley Parkway	1,500	8,900	83,100
Sun Valley Parkway	White Tanks Freeway	1,700	14,500	77,800
White Tanks Freeway	SR-74	3,000	13,500	73,200

Notes:

- No facility between I-10 and Thomas Road. Traffic volumes forecast for discontinuous, six-lane, Major Arterial roadway segments between Bell Road alignment and US-60 at Castle Hot Springs Road in Morristown.
- Traffic volume forecasts for various linked six-lane, Major Arterial roadway segments between I-10 and US-60 at Castle Hot Springs Road in Morristown.
- Traffic volume forecasts for eight-lane Arizona Parkway facility between I-10 and the SR-74 Extension.

Source:  
 2015 - MAG Year 2015 Model Run, August 27, 2008.  
 2030 - MAG Year 2030 Model Run, August 27, 2008.  
 Buildout - MAG Buildout Model Rerun with accepted Transportation Framework Recommendation from MAG *Interstate 10 - Hassayampa Valley Roadway Framework Study* plus Inputs from *US-60 Access Management Plan, SR-74 to SR-303L/Estrella Freeway* and Edits from City of Surprise, July 2008.  
 Prepared by Wilson & Company, January 2009.

non-existent volumes. By 2030, the facility is expected to be established as a set of linked arterial segments serving north-south travel demand between I-10 and US-60 at Castle Hot Springs Road in Morristown. Traffic volumes are expected to remain low: a maximum average daily traffic (ADT) volume of 14,500 is forecast between Sun Valley Parkway and the potential White Tanks Freeway. At Buildout, the fully developed Turner Parkway is forecast to support 140,000 ADT between I-10 and Thomas Road at the south end of the study area. Traffic volumes are forecast to exceed 70,000 ADT north of Thomas Road.

In the light of these forecasts and the expected magnitude of growth along the Turner Parkway corridor, it is appropriate that early attention be given to examining the potential deficiencies of the future study area roadway network. This study of Turner Parkway is the initial step toward identifying a direction and a vision for the corridor that will: (1) support, in the near-term, development of a network with adequate capacity to accommodate economic growth; and (2) sustain, in the long-term, the qualities of community, life, and mobility desired by future residents.

## 2.6 Utilities Overview

This section provides an overview of existing and planned major utility infrastructure in the study area. Documentation and figures contained herein provide the foundation for

identifying potential conflicts of existing and planned utilities with the future Turner Parkway alignment.

### **2.6.1 Data Collection**

Utilities within or crossing the Turner Parkway study area have been identified through a number of means and resources. Utility companies were contacted to determine the location of major facilities and plans for new facilities. Geographic information system (GIS) files were requested and major utility facilities mapped to show their location within the study area. The study area also was evaluated through a field survey, during which locations of major existing, planned utility facilities were noted, and photographs were taken to record the presence of these facilities.

### **2.6.2 Existing Major Utilities**

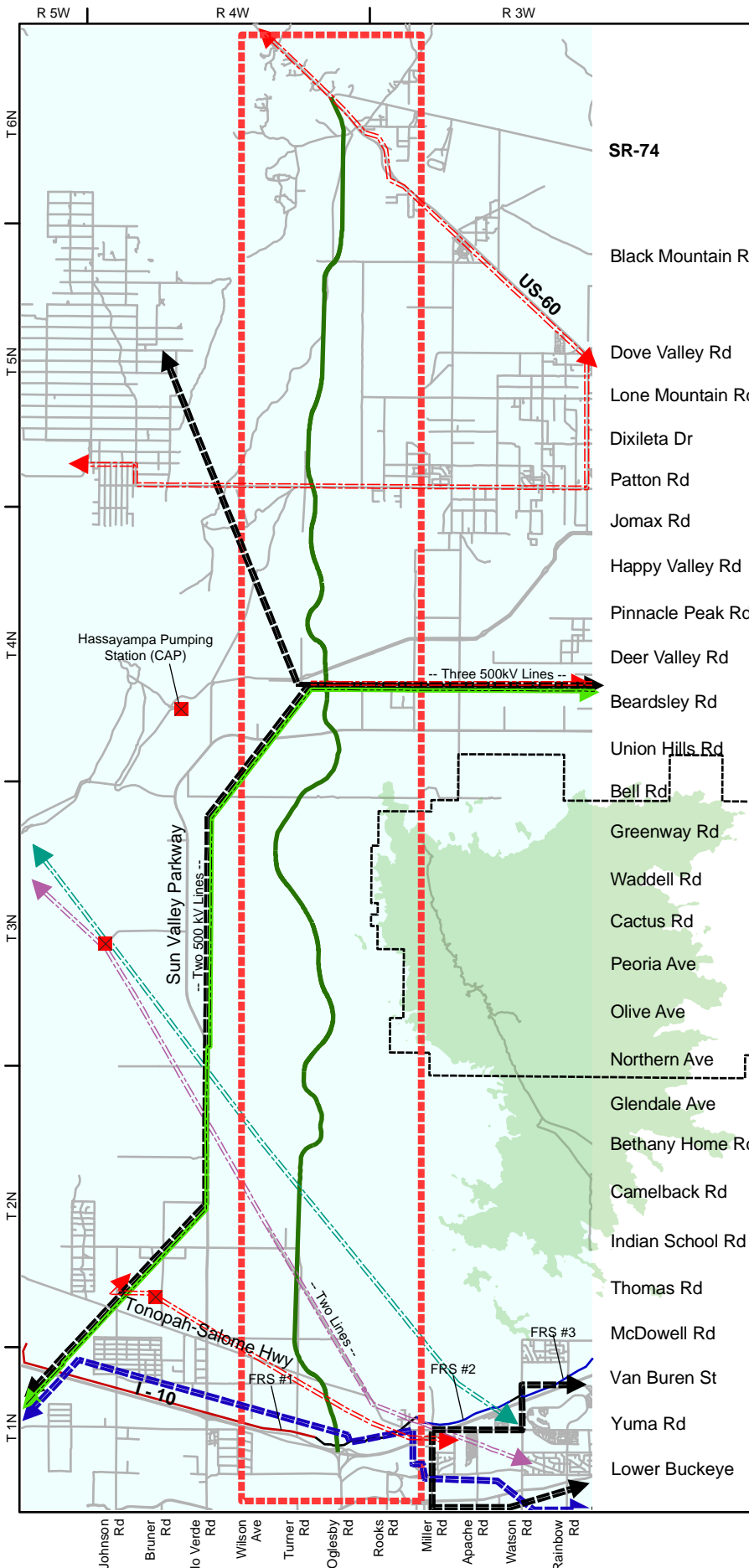
**Figure 2-11** shows the general locations of existing major utilities corridors within the study area, which consist of overhead power lines, telecommunications lines, underground gas and water lines.

#### **2.6.2.1 Overhead Utility Lines**

There are three (3) forms of overhead utility lines in the study area: 500kV overhead electric (OHE) transmission lines; 69kV OHE transmission lines; and a telecommunication line.

**High Voltage Electric Transmission Lines** - Nine (9) overhead electric (OHE) high-voltage transmission lines cross the study area in four (4) utility corridors. A 500 kilovolt (500kV) OHE transmission line is located approximately 1,200 feet north of the SR-85/I-10 traffic interchange. This OHE line is jointly owned by APS and the Salt River Project (SRP). Within the study area, it runs parallel to I-10 until it jogs down and crosses over I-10 at the approximate location of the Miller Road alignment.

Two (2) 500kV OHE transmission lines, owned by the Western Area Power Administration (WAPA), cross the study area diagonally in a southeast by northwest direction. These lines enter the study area just north of Yuma Road alignment and cross over Sun Valley Parkway just south of the Glendale Avenue alignment. A third 345kV WAPA OHE transmission line enters the study area near the Thomas Road alignment and traverses the study area in a southeast by northwest direction, crossing over Sun Valley Parkway at the Northern Avenue alignment. These three (3) WAPA transmission lines pass through the future master-planned community of Tartesso within utility easements. The 345kV line has a 100 to 150 feet easement, while the two (2) 500kV OHE lines each have 250-foot easements.



**Figure 2-11**  
**Existing Major Utility Facilities**

Source:  
 Arizona Public Service, Western Area Power Administration,  
 Town of Buckeye, Transwestern Pipeline Company, Flood  
 Control District of Maricopa County, September 2008

**Legend**

- Study Area
- Existing Street Network
- White Tank Mountains
- White Tank Mountain Regional Park

**Existing Major Utility Facilities**

- APS 500kV
- APS/SRP 500kV
- APS 230kV
- APS 69kV
- WAPA 500kV
- WAPA 345kV
- Existing Substation
- Transwestern 36" Gas Pipeline



0 1 2 Miles



Farther north, there are three (3) 500kV OHE APS/SRP transmission lines running in an east-west direction north of and parallel to the Beardsley Road alignment south of the CAP canal. Directly west of the intersection of Beardsley Road with Desert Oasis Boulevard, two (2) of the transmission lines continue to turn in a southwesterly direction. They cross through Sun City Festival Ranch and over Sun Valley Parkway, eventually running along the west side of Sun Valley Parkway and crossing I-10. The third 500kV transmission line turns off to the northwest, hugging the western property line of the future Spurlock Ranch master-planned community within a 200-foot transmission line easement. Support towers for these 500kV OHE transmission lines are spaced at one-quarter mile intervals.

**Medium Voltage Electric Transmission Lines** - Three (3) 69kV OHE APS transmission lines cross the study area. The first transmission line traverses the study area in a southeast by northwest direction, approximately 5,000 feet north of the SR-85/I-10 traffic interchange. This OHE line crosses the Tonopah-Salome Highway between the Turner Road and Wilson Avenue alignments. It proceeds west over Sun Valley Parkway just north of McDowell Road. Support towers are spaced at 430 to 450 feet. The second 69kV APS transmission line runs parallel to 65 feet north of Patton Road in the study area. Further north, the third 69kV APS transmission line runs on the south side of US-60 through the SR-74/US-60 intersection. The 69kV OHE transmission corridors on the north side of Patton Road and paralleling US-60 have support towers spaced at less than 400-foot intervals.

**Telecommunication Lines** - There is an overhead telecommunications line parallel to the north side of Gates Road. In addition, the 69kV APS transmission line running along the south side of US-60 also has a telecommunication line attached to the utility poles.

#### 2.6.2.2 Underground Utilities

There are two (2) forms of underground utilities in the study area: a gas transmission line and a telecommunication line.

**Gas Transmission Lines** - Transwestern Pipeline Company recently completed its 259-mile Phoenix Expansion Project, constructing a 36-inch natural gas pipeline from Phoenix north to Prescott. This pipeline crosses the study area in the utility corridor just north of the Beardsley Road alignment and south of the CAP canal. The pipeline passes through the Sun City Festival Ranch subdivision and continues in a southwesterly direction parallel to the two (2) 500kV OHE transmission lines. An existing Southwest Gas natural gas pipeline runs parallel to the north side of the SR-74/US-60 intersection.

**Telecommunication Lines** - A buried communications line, owned by Qwest Communications, parallels the north side of the SR-74/US-60 intersection.



### 2.6.2.3 Water Service

The Morristown Water Company supplies water to residents of Morristown east of US-60. It is assumed residential uses west of US-60 rely on on-site wells. The Valencia Water Company provides water service to residents near the southern end of study area. The Festival Ranch Community Facility District (CFD) No. 28880 supplies water throughout the Sun City Festival Ranch master-planned community.

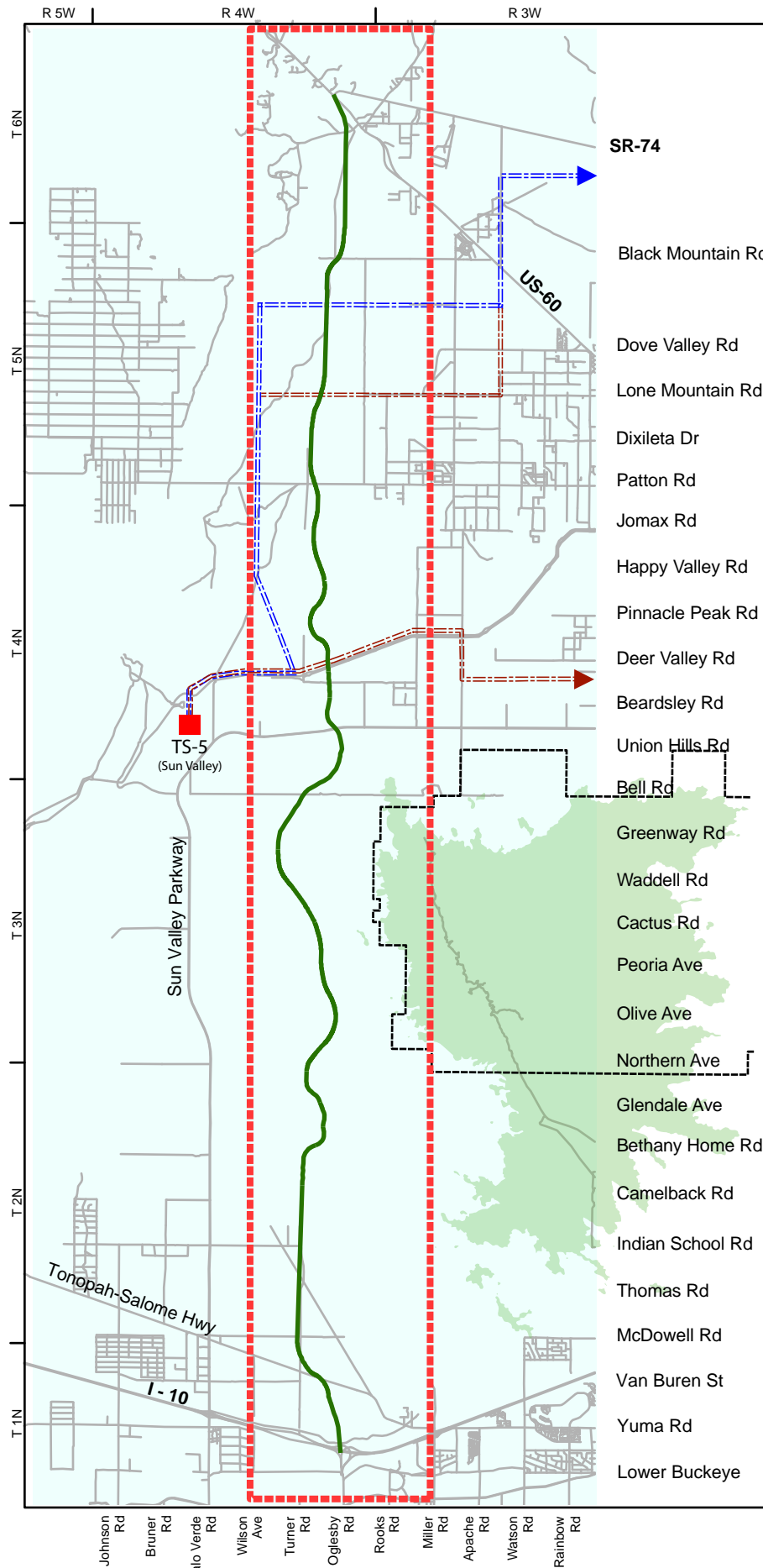
### **2.6.3 Planned Utility Projects**

Based on the information obtained regarding planned APS projects, there are two (2) high-voltage OHE transmission lines planned for future construction within the study area. **Figure 2-12** shows the general location of these planned future utility facilities. The West Valley-North Power Line and Substation Project will involve construction of a high-voltage OHE transmission line along the north side of Beardsley Road. The line will run along the south side of the CAP Canal between the TS-5 substation and 243<sup>rd</sup> Avenue, where it will jog south between the Deer the Valley Road and Beardsley Road alignments and continue further east. This transmission line has been approved and will be constructed by APS in the future.

The second high-voltage OHE transmission line, referred to as the TS-5 to TS-9 500/230kV Project is being evaluated. Both the preferred and alternate routes through the study area north of the CAP Canal are shown in **Figure 2-12**. The final location of this planned 500/230kV OHE line is still being evaluated by APS. Based on past construction methods employed for existing high-voltage OHE lines, it should be expected that APS would construct support towers at one-quarter mile intervals. This interval should not create a serious constraint to the Turner Parkway alignment, particularly as the new power corridor will be perpendicular to the proposed Turner Parkway alignment. Both alternatives will have similar impact to the Turner Parkway Corridor.

No other major, backbone-type fiber optic, telephone, or gas service expansions are known to be planned for the study area in the immediate future. However, the potential for future expansion does exist in relation to continuing infrastructure improvements embarked on by land developers.









Although yet to be physically developed, the Anthem Sun Valley CFD No. 38016 and Elianto CFD No. 28879 have been formed and will provide water service when development proceeds.



**Figure 2-12**  
**Future Major Utility Facilities**

Source:  
Arizona Public Service and Wilson & Company

**Legend**

-  Study Area
  -  Existing Street Network
  -  White Tank Mountains
  -  White Tank Mountain Regional Park
- Future Major Utility Facilities**
-  Approved APS High-Voltage Transmission Line
  -  Approved APS High-Voltage Substation
  -  APS 500kV Preferred Route
  -  APS 500kV Alternate Route 1



0 1 2 Miles



### 3 SUMMARY OF ENVIRONMENTAL CONDITIONS

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The study area has an abundance of physical and natural features and resources typical of the Sonoran Desert biome. This section presents a summary of existing environmental conditions in the study area. Additional details regarding the physical and natural characteristics of the study area are contained in Technical Memorandum No. 3, *Environmental Overview*, which is provided in **Appendix C**.

#### 3.1 Physiography

The study area occurs within the Low Basin and Range physiographic province of southern and central Arizona. This is an area characterized by low desert plains surrounded by fault-block mountain ranges, such as the White Tank Mountains. Geologically, the corridor crosses Precambrian igneous, metamorphic and sedimentary rocks, and Quaternary and upper Tertiary sedimentary deposits. Soils are Hyperthermic Arid, and are representative of the Torrifluvents, Mohall, Gunsight-Rillito-Pinal, Laveen-Rillito and Lithic Camborthids-Rock Outcrop-Lithic Haplargids Associations (Hendricks 1985). The White Tank Mountains, located immediately east of the study area, are composed primarily of a Tertiary or Cretaceous age granitic intrusion, and proterozoic metamorphic rocks.<sup>6</sup> This range of mountains reaches an elevation of approximately 4,000 feet above mean sea level (AMSL).

#### 3.2 Prime and Unique Farmlands

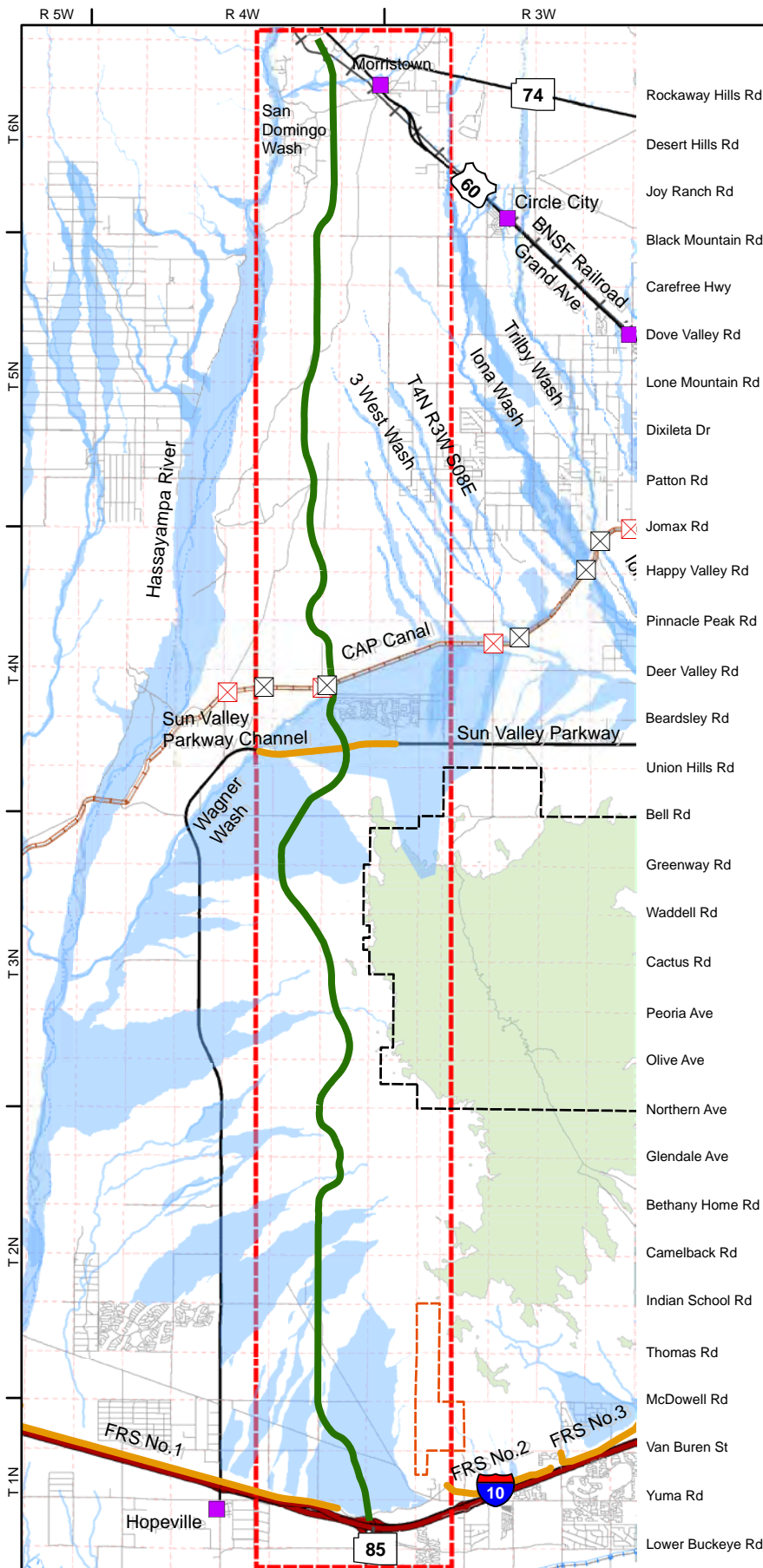
Neither prime nor unique farmlands have been identified in the study area. However, this type of farmland potentially exists in the sense that the land is arable and available for the uses generally identified with prime and unique farmland.

#### 3.3 Water Resources

Water resources include those characteristics and features of the study area created by or an inherent function of the presence of water. All water resources are useful or potentially useful to human habitation. **Figure 3-1** shows the principal waters resources of the study area.

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<sup>6</sup> Arizona Soils, Hendricks, David M, College of Agriculture, University of Arizona, 1985.

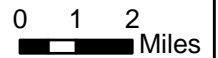


**Figure 3-1  
Major Waterways and  
Floodplains**

Source:  
FCDMC, The CK Group, November 2008

**Legend**

- Study Area
- White Tank Mountain Regional Park
- Arizona Army National Guard Buckeye Training Site
- Potential Turner Pkwy Alignment
- White Tank Mountains
- CAP Bridge Structure
- CAP Drainage Structure
- Central Arizona Project Canal
- Communities
- Railroads
- Major Roadways
- Minor Roadways
- Flood Plains
- Existing Drainage Structures



Johnson Rd  
Bruner Rd  
Palo Verde Rd  
Wilson Ave  
Turner Rd  
Oglesby Rd  
Rooks Rd  
Miller Rd  
Apache Rd  
Watson Rd  
Rainbow Rd



### **3.3.1 Riparian Features**

The Hassayampa River, a mostly underground river characterized by seasonal and storm-related flows, runs through the northwest corner of the study area. Little San Domingo Wash empties into the Hassayampa River west of Morristown. Plus, there are numerous other un-named south, southwest, and west-flowing washes located north of the CAP canal. Most of these washes are tributaries to the Hassayampa River. One of these tributaries is Wagner Wash, which has been truncated by the CAP canal. Wagner Wash also is characterized by seasonal, storm-related flows. Drainage in the wash continues south of the CAP canal via an overchute structure located approximately 500 feet west of the Turner Road section line (Desert Oasis Boulevard). No natural perennial water courses or bodies of water are present in the study area; all drainages are seasonal in nature or storm-related.

### **3.3.2 Wetlands**

Wetlands are defined as areas periodically or permanently inundated by surface water or groundwater that support vegetation adapted for life in saturated soils. No wetlands have been identified within the study area.

### **3.3.3 Unique Waters and Aquifers**

No unique waters, as established by the Arizona Department of Environmental Quality (ADEQ) under A.A.C. R18-11-112, have been identified within the study area. Also, there are no aquifers in the study area that have been designated as a sole source aquifer by the US Environmental Protection Agency (USEPA).

### **3.3.4 Alluvial Fans**

Alluvial fans, as defined by the FCDMC, are a geomorphologic feature characterized by gently sloping, cone- or fan-shaped deposits of boulders, gravel, and fine sediments. They are created through continual erosion of steep mountain slopes and a deposition process facilitated by flood or sheet flows. Numerous active and relict alluvial fans are located within the Turner Parkway Corridor. These fan-shaped features are clearly apparent in **Figure 3-1** in relation to the White Tank Mountains. The unconsolidated and unstable deposits forming alluvial fans are subject to flash flooding, high velocity flows, debris flows, erosion, sediment movement, deposition, and channel migration.

### **3.3.5 100-Year Floodplains**

Floodplains are areas of relatively flat land that border waterways. These geomorphic features are subject to partial or complete inundation during floods. Use of property in

floodplains and areas identified as pending floodplain designation is strictly regulated by FCDMC.

The Hassayampa River floodplain in the northwestern corner of the study area ranges from a few hundred feet to approximately 1,500 feet wide south of Little San Domingo Wash. Low flows within the river historically have covered all of the floodplain at one time or another, but currently flows occur predominantly within several distinct channels. The maximum extent of the Little San Domingo Wash floodplain is approximately 1,300 feet. Other designated 100-year floodplains occur in the study area primarily in relation to major and minor washes. Construction of the CAP canal resulted in creation of a flood pool along its northern flank. **Table 3-1** summarizes the locations of known flood prone areas.

<b>Table 3-1 Summary of 100-Year Floodplains</b>	
<b>Floodplain</b>	<b>Location</b>
Hassayampa River	Along Hassayampa River through the northwestern corner of the Study Area
Little San Domingo Wash	Tributary to Hassayampa River, north of Gates Road/Rockaway Hills Road
CAP Canal Flood Pool	North side of CAP Canal through the Study Area
3 West Wash	Patton Road and 259 <sup>th</sup> Avenue, east of the Turner Parkway Corridor
T4N-R3W-S08E	Patton Road and 251 <sup>st</sup> Avenue, east of the Turner Parkway Corridor
Wagner Wash	Through the central portion of the study area between Patton Road and Sun Valley Parkway
White Tank Alluvial Fans	South of Sun Valley Parkway to I-10/SR-85 Interchange
Source: FCDMC 2005; FEMA 2006	

In addition, there are several instances of floodplain designation pending within the study area. The two most prominent locations of pending designation are associated with: (1) major drainage features north of the CAP canal to the east of the Turner Parkway Corridor; and (2) the alluvial fans located on the south and west face of the White Tank Mountains. The alluvial fans extend from the mountain slopes as far west as Wagner Wash and the Hassayampa River.

### 3.4 Vegetation

#### 3.4.1 Biotic Communities

The study area is located within both the Lower Colorado River Valley and Arizona Uplands Subdivisions of the Sonoran Desert scrub biotic community (Turner and Brown 1994).

Dominant vegetation within the study area includes the creosote bush (*Larrea tridentata*) and triangle-leaf bursage (*Ambrosia deltoidea*). Ephemeral washes bisecting the study area contain xeroriparian habitat that supports blue palo verde (*Cercidium floridum*), ironwood (*Olneya tesota*) and velvet mesquite (*Prosopis velutina*).

### **3.4.2 Native Plants**

The Arizona Department of Agriculture (ADA) administers the protection of plants listed under the Arizona Revised Statutes of the Arizona Native Plant Law (ANPL). Nine (9) protected native plants were identified within the study area, including: blue palo verde (*Cercidium floridum*), velvet mesquite (*Prosopis velutina*), saguaro (*Carnegiea gigantea*), teddy bear cholla (*Opuntia bigelovii*), staghorn cholla (*Opuntia versicolor*), Engelmann's prickly pear (*Opuntia engelmannii*), ironwood (*Olneya tesota*), fishhook barrel cactus (*Ferocactus wislizenii*), and foothills paloverde (*Cercidium microphyllum*).

## **3.5 Wildlife**

### **3.5.1 Common Species**

A review of federally-listed threatened, endangered, proposed, and candidate species and their critical habitat maintained by the US Fish and Wildlife Service (USFWS) revealed 13 protected species and one (1) candidate species in Maricopa County. Only one (1) species, the Lesser Long-Nosed Bat (*Leptonycteris curasoae yerbabuenae*), potentially could be present in the study area; however, it is highly unlikely.

### **3.5.2 Special Status and Protected Species**

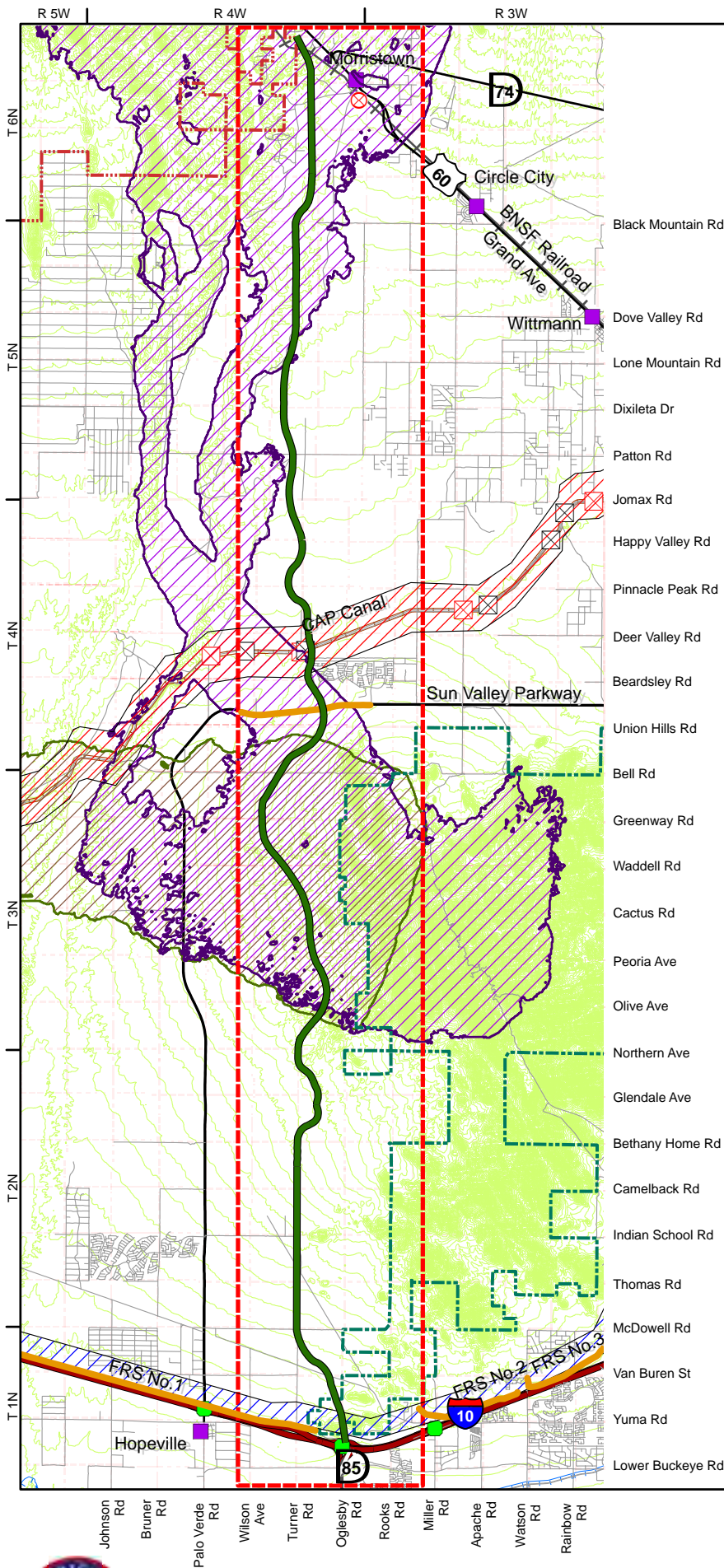
Nine (9) "species of concern" have been observed within three (3) miles of the study area (**Table 3-2**). However, available information obtained from the Environmental On-Line Review Tool also indicates that no critical habitats occur in the study area.

### **3.5.3 Wildlife Linkages**

Three (3) wildlife linkage corridors, supporting known, substantive wildlife activity, have been identified in the study area and are shown in **Figure 3-2**.

## **3.6 Air Quality**

Maricopa County has an air-monitoring station in Buckeye, approximately six (6) miles south of the southern end of the study area. Carbon monoxide, ozone, nitrogen dioxide, and PM<sub>10</sub> levels are monitored at this station. Data reported by the Buckeye monitoring station indicate



**Figure 3-2**

**Wildlife Habitat Linkages**

Sources:  
AZGFD, February 2009

**Legend**

- Study Area
- Potential Turner Parkway Alignment
- CAP Bridge Structure
- CAP Drainage Structure
- Central Arizona Project Canal
- Communities
- Existing Traffic Interchanges
- Railroad
- Railroad Crossing
- Major Roadways
- Minor Roadways
- 10-ft Contours

**Wildlife Habitat Linkages**

- Belmont Mountains
- White Tank Mountains
- White Tank and Belmont Mountains Linkage
- White Tank and Vulture and Heiroglyphic Mountains Linkage
- Potential Wildlife Habitat Linkage
- Central Arizona Project Canal Linkage



0 1 2  
Miles

Johnson Rd  
Bruner Rd  
Palo Verde Rd  
Wilson Ave  
Turner Rd  
Oglesby Rd  
Rooks Rd  
Miller Rd  
Apache Rd  
Watson Rd  
Rainbow Rd





Scientific Name	Common Name	ESA	USFS	BLM	State
<i>Cicindela oregona Maricopa</i>	Maricopa Tiger Beetle	SC	S	S	
<i>Eumeces gilbertii arizonensis</i>	Arizona Skink	SC	S		WSC
<i>Gopherus agassizii</i>	Sonoran Desert Tortoise	SC			WSC
<i>Lasiurus blossivillii</i>	Western Red Bat				WSC
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC			WSC
<i>Myotis velifer</i>	Cave Myotis	SC		S	
<i>Opuntia echinocarpa</i>	Straw-top Cholla				SR
<i>Opuntia engelmannii var. flavispina</i>	Englemann Prickly Pear Cactus				SR
<i>Rana yavapaiensis</i>	Lowland Leopard Frog	SC	S		WSC

Abbreviation Notes:  
 ESA - Endangered Species Act; USFS - U.S. Forest Service; BLM - U.S. Bureau of Land Management  
 SC - Species of Concern; WSC - Wildlife of Special Concern in Arizona; SR – Salvage Restricted; S – Sensitive

Source: Arizona Game and Fish Department, Heritage Data Management System, September 12, 2008.

national standards for PM<sub>10</sub> are greatly exceeded. This could be attributed to road dust, construction, and farming activities, which could contribute to high PM<sub>10</sub> levels within the study area. In addition, the Turner Parkway study area falls within an 8-hour ozone non-attainment area encompassing much of the Phoenix metropolitan area.

### 3.7 Noise

The Noise Control Act of 1972 (40 CFR Parts 201-211) directed the USEPA to develop noise guidelines to protect the population from adverse effects of environmental noise. Existing noise-quality data are not currently available for the majority of the study area.

### 3.8 Hazardous Materials

Hazardous materials are regulated by the Federal Resources Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). ADEQ implements CERCLA, commonly known as the Superfund, and its amendments, the Superfund Amendments and Reauthorization Act (SARA) of 1986. A brief review of the various state and federal hazardous materials databases was conducted for the study area; a review of aerial photographs and a detailed search of these databases were not performed. Sources accessed included: the Arizona Water Quality Assurance Revolving Fund (WQARF); the National Priority List (NPL) Sites (Federal Superfund); the Arizona Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs); the Solid

Waste Landfills (SWLFs); the ADEQ Underground Storage Tanks (UST); the ADEQ Leaking Underground Storage Tanks (LUST); the ADEQ Declaration of Environmental Use Restriction (DEUR); and the Voluntary Environmental Mitigation Use Restriction (VEMUR).

Based on this review, it was determined that there currently there are no known Water Quality Assurance Revolving Fund (WQARF) or National Priority List (NPL) sites within the study area. There is one Department of Defense (DoD) facility within the study area: Luke Air Force Base Auxiliary Airfield No. 4. Auxiliary Airfield No. 4 is listed in the Formerly Used Defense Sites (FUDS) cleanup program. There were no Solid Waste Landfills (SWLFs) noted during research utilizing multiple databases. The search of underground storage tanks (USTs) and leaking USTs (LUSTs) maintained by ADEQ revealed three (3) known facilities with six (6) USTs. According to ADEQ records, no properties within the study area boundaries have a Declaration of Environmental Use Restriction (DEUR) and the Voluntary Environmental Mitigation Use Restriction (VEMUR).

### 3.9 Cultural Resources

Cultural resources may include prehistoric or historic archaeological sites or objects, historically or architecturally significant structures, buildings or landscapes, and/or Traditional Cultural Places which may be eligible for or listed on the NHRP. Literature compiled during preparation of the Sun Valley and Wittmann Area Drainage Master Plans (ADMPs) and available through AZSite (Arizona's inventory of known historic and archaeological cultural resources) indicates numerous cultural resource sites have been identified within the study area.

The background review revealed 18 roads and three (3) mining properties on historic General Land Office plat maps of the study area; no other information pertaining to these properties was available at the time of the review. It was determined that 59 previously recorded archaeological sites have been identified within the study area. Forty (40) cultural resource projects have been conducted within and immediately adjacent to the study area. Twenty (20) cultural resource properties (including nine (9) archaeological sites; ten (10) road segments, and one (1) mining complex) have been previously identified as occurring within approximately 500 feet of the proposed Turner Parkway corridor.

Of the ten (10) archaeological sites (including the mining complex), five (5) have been recommended by the site recorder as eligible for inclusion in the NRHP, four (4) were considered not eligible, and information was not available for one (1). The ten road segments are of indeterminate NRHP eligibility and will need to be individually evaluated to determine their significance. The Blackhawk Gold Mine Site has been recommended as not eligible for inclusion in the National Register of Historic Places (NRHP). However, the majority of the features associated with this property (indicated on the USGS topographic

map of this section of the project area) are located in areas that have not been subjected to formal archaeological survey; thus, recordation of additional elements of this site potentially could affect its NRHP eligibility.

### **3.10 Section 4(f) Resources**

The U.S. Department of Interior (DOI) has identified the CAP canal as a National Recreation Trail, which qualifies it as a Section 4(f) property. No other known publicly-owned parks, recreation areas, or wildlife and waterfowl refuges exist within the study area. However, information from the AZSITE database search, which also includes parks and recreation resources, indicates there may be several historic sites within the project vicinity, which also fall within the framework of Section 4(f).

### **3.11 Section 6(f) Resources**

The Land and Water Conservation Fund Act (LWCF) was signed into law on September 3, 1964. The LWCF Act was established to provide a funding source for acquisition of park and recreation lands by federal, state, and local governments. No Section 6(f) funded properties are currently located within the study area.

## 4 SUMMARY OF DRAINAGE ATTRIBUTES

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As noted previously, the Turner Parkway corridor, as depicted in the *MAG Hassayampa Valley Study*, crosses numerous sensitive alluvial fans and FEMA- or FCDMC-delineated flood zones (refer to **Figure 3-1**). Crossing delineated floodplains will require care not to adversely affect adjacent properties by increasing the flooding limits.

The following is a list of the major drainage features that would be crossed by the future Turner Parkway alignment:

- ❑ FRS No. 1 and Inlet Channel
- ❑ White Tank Mountains Alluvial Fans
- ❑ Sun Valley Parkway Channel
- ❑ Wagner Wash
- ❑ CAP Canal & Flood Pool
- ❑ Hassayampa River Tributaries.

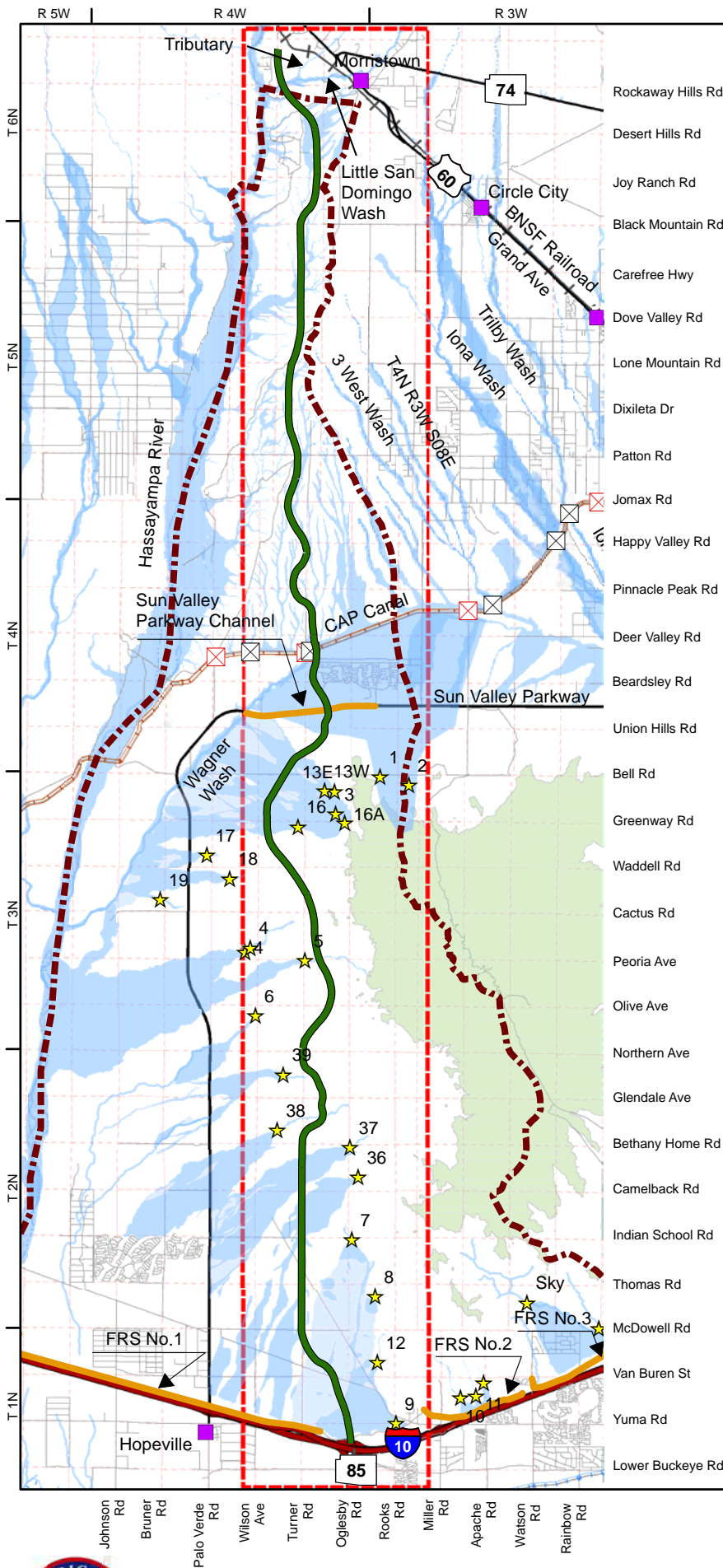
A discussion of the critical characteristics of each of these major drainage features is presented in the following subsections, and their locations are shown graphically in **Figure 4-1**. Additional details regarding the drainage and hydrological characteristics of the study area are contained in Technical Memorandum No. 4 *Conceptual Drainage Report* that is provided in **Appendix D**.

### 4.1 Buckeye Flood Retarding Structure No. 1 and Inlet Channel

Buckeye FRS No. 1 collects runoff from an area of about 74 square miles north of I-10. FRS No. 1 also collects outflows from the principal outlet pipe of Buckeye FRS No. 2 via an earthen inlet channel that runs along the south toe of the hills just north of the I-10/SR-85 traffic interchange. FRS No. 2 collects the principal outlet flows from FRS No. 3 further east. Consequently, during a significant runoff event, moderate discharges will be passed to FRS No. 1 via its inlet channel for many days. The inlet channel also collects local runoff from the drainage area between FRS No. 2 and FRS No. 1.

### 4.2 White Tank Mountains Alluvial Fans

The southern and western slopes of the White Tank Mountains are drained by a series of coalescing unstable alluvial fans. Many of these were studied and delineated for FEMA floodplains during development of the *Sun Valley Area Drainage Master Plan*. In addition, Fans 37 and 38 were delineated separately by engineers for large master planned communities in the area. Fan 36 was previously delineated by the Flood Control District of



**Figure 4-1**  
**Study Area Drainage Features**

Source:  
FCDMC, JE Fuller, November 2008

**Legend**

- Study Area
- Sun Valley ADMP Limits
- Alluvial Fan Apices
- Baseline Alignment
- Floodplain, Floodway, SVADMP Flood Floodprone Areas, Alluvial Fan High Hazard
- White Tank Mountains
- Central Arizona Project Canal
- CAP Bridge Structure
- CAP Drainage Structure
- Towns
- Railroads
- Major Roadways
- Minor Roadways



0 1 2  
Miles



Maricopa County (FCDMC) in 2001. The apex for each fan is identified by a star in **Figure 4-1** and is labeled with the number or name it was assigned during the delineation studies. The Turner Parkway Baseline Alignment, as depicted in the *MAG Hassayampa Valley Study*, is located downstream of the apices of Fans 3, 13, and 16; Fans 36 and 37; and Fans 7, 8, and 12. **Table 4-1** identifies the drainage area and computed 100-year peak discharge at the fan apex for each upstream watershed or tributary area.

Table 4-1 Alluvial Fan Apex Discharges		
Fan Designation	Drainage Area (square miles)	100-year Apex Discharge (cubic feet per second)
13E	0.09	202
13W	0.31	524
3	0.77	836
16	0.62	1,008
37	4.24	2,519
36	5.69	3301
7	1.55	1,453
8	0.52	646
12	1.42	1,050

Source: JE Fuller September 2008

### 4.3 Sun Valley Parkway Channel

The existing Sun Valley Parkway channel is a mostly earthen, trapezoidal channel with numerous hardened grade control structures. Local inflow is concentrated into one of several inlets along the channel. In the vicinity of the proposed Turner Parkway crossing, the channel is a compound trapezoid with a bottom width of about 100 feet and a maximum depth of about 5.5 feet.

Runoff from a portion of the northern extents of the White Tank Mountains drains in a northerly direction toward the east-west trending segment of Sun Valley Parkway. Some intercepted runoff originates from Alluvial Fans 1, 2, 3, and 13. Flows are collected in an existing channel along the south side of Sun Valley Parkway. The channel directs flows to the west into Wagner Wash. Wagner Wash carries the runoff southwest to the Hassayampa River.

#### 4.4 Wagner Wash

Wagner Wash, which originates approximately seven (7) miles north of Sun Valley Parkway (refer to **Figure 4-1**) shows that the Baseline Corridor Alignment of Turner Parkway roughly parallels the wash north of the CAP canal. Wagner Wash and numerous smaller washes were crossed with construction of the CAP canal, and natural drainage flows were severed. The runoff north of the CAP canal now is detained in an expansive, man-made flood pool. Accumulated runoff in the flood pool is released via overchute structures (see discussion of CAP canal and flood pool below). The Wagner Wash overchute permits runoff accumulated in the flood pool to cross over the CAP canal into the original Wagner Wash drainage channel south of the canal. The original, natural channel and floodplain of Wagner Wash, south of the canal, drains southwesterly toward Sun Valley Parkway where the flow is joined by the Sun Valley Parkway Channel.

#### 4.5 CAP Canal and Flood Pool

The CAP Canal bisects the study area. The average cross-section of the canal is 80 feet wide on the top, 24 feet wide on the bottom, and the water is 16.5 feet deep. The canal is fenced along its entire length and has operations and maintenance (O&M) service roads on both sides to facilitate maintenance and security operations. The Department of the Interior (DOI) has identified the CAP Canal as a National Recreation Trail. As part of the recreational planning for the CAP Canal, the Bureau of Recreation (Recreation) has committed itself to maintaining a 20-foot recreation corridor on the right side (facing downstream) of the canal.

The CAP Canal is protected from runoff by an earthen flood-retarding embankment built up along its north side. Detention of runoff in an expansive, man-made flood pool significantly reduces the flow that crosses the CAP Canal. Outflow from the flood pool occurs through one (1) of two (2) 18-foot wide concrete overchute structures in CAP Reach 8. One overchute is located at Wagner Wash (Station 248+00) directly west of the Desert Oasis Boulevard alignment, and the other at Station 181+00 to the west. Peak discharge is reduced from about 7,800 cfs to 150 cfs during a 100-year, 24-hour event [JEF, 2006c]. The Turner Parkway alignment through this area must ensure flood pool capacity is not diminished and continues to operate safely.

#### 4.6 Hassayampa River Tributaries

**Figure 4-1** shows there are significant washes and tributaries feeding the Hassayampa River in the northern portion of the study area.

#### **4.6.1 Unnamed Tributaries to Hassayampa River**

North of the CAP canal, there are two major tributary systems feeding the Hassayampa River. As noted above, the Baseline Corridor Alignment of Turner Parkway between Happy Valley and Jomax Roads is placed through or generally contiguous with Wagner Wash. Runoff from one unnamed wash enters the river approximately 10 miles north of where the CAP canal crosses the river (Dove Valley Road alignment). The wash originates from numerous small washes south of Gates Road and east of Ogden Road southwest of Morristown, approximately four (4) miles north of its entry point in the river. The Baseline Corridor Alignment of Turner Parkway roughly parallels this tributary channel. The proposed Baseline Corridor Alignment north of the Dixileta Drive alignment would require at least 44 drainage crossings. Most of these crossings could be avoided or significantly reduced in size by an alternate alignment to the east or west that follows the natural drainage divide.

#### **4.6.2 Little San Domingo Wash**

Little San Domingo Wash originates northeast of Morristown and drains in a westerly direction across the study area before entering the Hassayampa River. The 100-year FEMA floodplain in the reach crossed by the proposed Baseline Alignment is about 3,200 cfs.

#### **4.6.3 Tributary to Little San Domingo Wash**

The tributary to Little San Domingo Wash enters approximately at six-tenths of a mile from the Hassayampa River along the proposed Baseline Alignment.



## 5 DEVELOPMENT AND EVALUATION OF ALIGNMENT ALTERNATIVES

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This chapter presents a discussion of key design considerations and decisions associated with selecting and defining a Preferred Corridor Alignment for Turner Parkway. It documents the following: evaluation methodology; definition of the Baseline Corridor Alignment; definition and evaluation of Conceptual Alignment Alternatives (where appropriate); evaluation of conditions in special analysis areas; and a summary of findings.

### 5.1 Feasibility Study Process

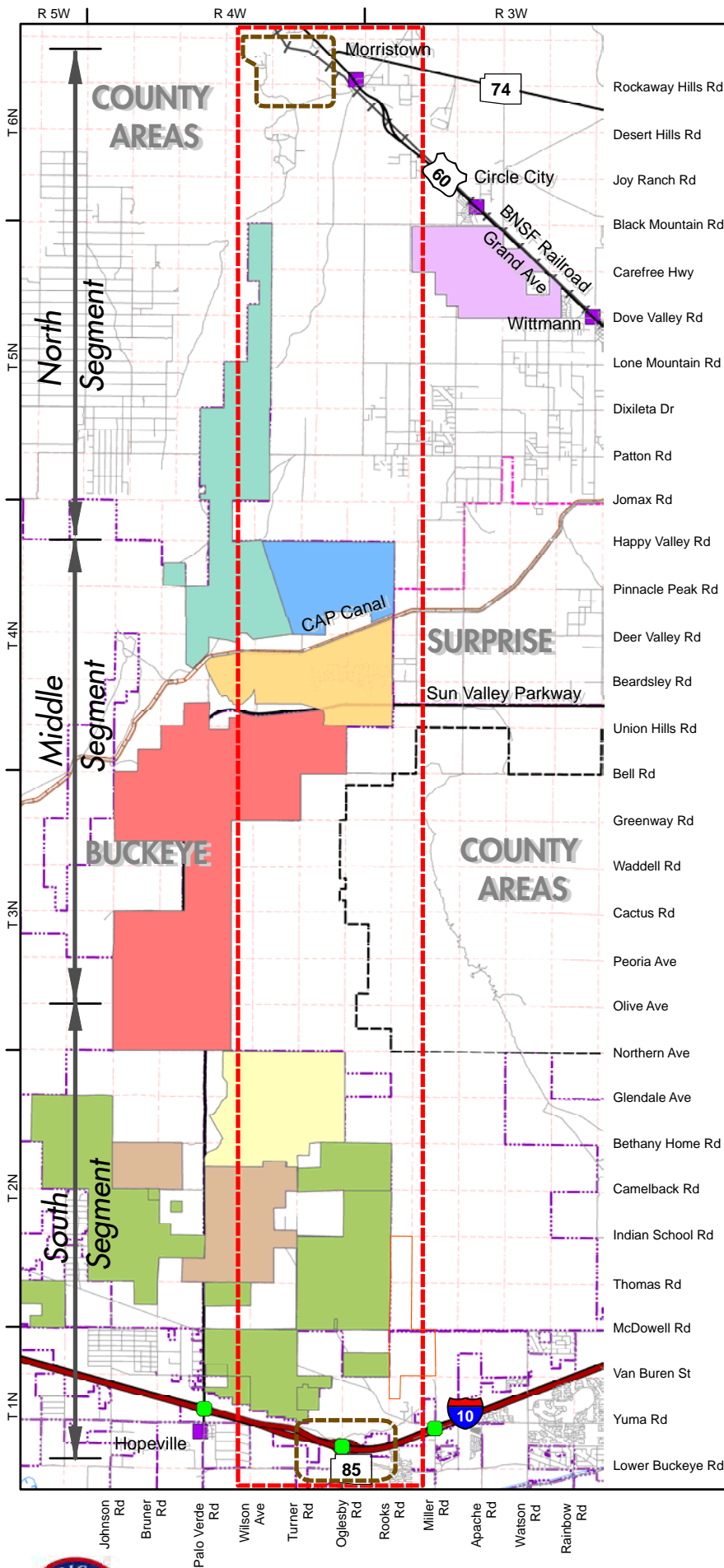
A framework for evaluation and decision-making was established to provide a rational and logical process for the conduct of this feasibility study. Five (5) steps were identified, which are outlined in the following sections.

#### 5.1.1 Define a Baseline Corridor Alignment

The Baseline Corridor Alignment, adopted for this feasibility study, represents a composite plan of recommendations from the *I-10/Hassayampa Valley Roadway Framework Study*, the *Roadway Plan* of the City of Surprise, the Town of Buckeye *General Plan Transportation Circulation Element*, and Turner Parkway alignments depicted in the published circulation plans of several master-planned communities. Analysis and evaluation of the Baseline Corridor Alignment and Conceptual Alignment Alternatives were accomplished by examining major constraints and opportunities within the study area. The number and character of potential constraints, issues, and challenges associated with the Baseline Corridor Alignment varied greatly through the study area. Therefore, the corridor was divided into the three (3) segments, as identified in **Figure 5-1**.

- ❑ South Segment – extends from I-10 to the Olive Avenue alignment in the southern portion of the White Tank Mountain Regional Park;
- ❑ Middle Segment – extends from the Olive Avenue alignment to just north of the of the Happy Valley Road alignment; and
- ❑ North Segment – extends from the Happy Valley Road alignment to SR-74, which is proposed to be extended to the west from US-60 to a future Hassayampa Valley Freeway.

Alignment alternatives were defined to address and resolve issues, constraints, and challenges associated with developing Turner Parkway. Additional investigations were undertaken in special analysis areas including parkway grade-separated interchange (PGSI) locations and the CAP canal crossing to determine project feasibility.

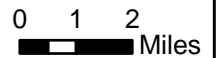


**Figure 5-1  
Study Area Analysis  
Segments**

Sources:  
MCDOT, the CK Group, April 2010

**Legend**

- Study Area
  - White Tank Mountain Regional Park
  - Arizona Army National Guard Buckeye Training Site
  - Central Arizona Project Canal
  - Towns
  - Traffic Interchange
  - Railroad
  - Major Roadways
  - Minor Roadways
- Master Planned Communities**
- Festival Ranch
  - Spurlock Ranch
  - Sun City Festival Ranch
  - Sun Valley
  - Anthem Sun Valley
  - Elianto
  - Tartesso
  - Broadstone Ranch
- Municipal Limits**
- Buckeye
  - Surprise



### ***5.1.2 Identify Issues and Challenges for the Baseline Corridor Alignment***

The second step involved investigation of major opportunities and constraints, as defined by engineering or planning issues and challenges, that potentially would influence constructability and, therefore, feasibility of the project. Initial screening of the Baseline Corridor Alignment for Turner Parkway focused on identifying and understanding issues and challenges pertaining to: physiographic features, drainage patterns, utilities, environmental considerations, and right-of-way requirements. Comments obtained as a result of reviews of this information and input solicited from the project team, Technical Advisory Committee (TAC), and stakeholders served as guidance in the process of identifying opportunities and constraints. The Baseline Corridor Alignment was carefully assessed with respect to study area and corridor conditions to determine if and where mitigating actions were warranted.

### ***5.1.3 Definition and Evaluation of Conceptual Alignment Alternatives***

This element of the feasibility evaluation involved examination of the three (3) analysis segments of the Turner Parkway corridor and resolution of significant issues and constraints associated with the Baseline Corridor Alignment. In all, five (5) Conceptual Alignment Alternatives were formulated and defined with respect to individual sections within the three (3) analysis segments that presented potential constraints. In each case except one, the Buckeye Alignment Alternative, definition of alternatives utilized technically feasible approaches or treatments based on documented data and information. Each was drawn in plan view using a scale large enough to adequately exhibit engineering details and support more detailed investigation and evaluation. The alternatives were evaluated to ascertain the extent to which each would mitigate undesirable effects or results associated with implementing the Baseline Corridor Alignment. Extensive coordination with the TAC and major stakeholders was maintained during definition and evaluation of these alternatives. In the case of the Buckeye Alignment Alternative, a compromise of two (2) alternatives was identified and approved by the Town Council.

### ***5.1.4 Special Analysis Areas***

Special Analysis Areas were identified where additional engineering analysis was deemed necessary to declare with greater confidence the absence of fatal flaws. For example, questions were posed about how the parkway will cross the CAP canal and what will be the best method for addressing larger, unique parkway-to-parkway intersections. Conditions were evaluated in detail to identify critical near-term and future actions required to assure resolution of the issues and challenges.

### 5.1.5 Define Preferred Corridor Alignment

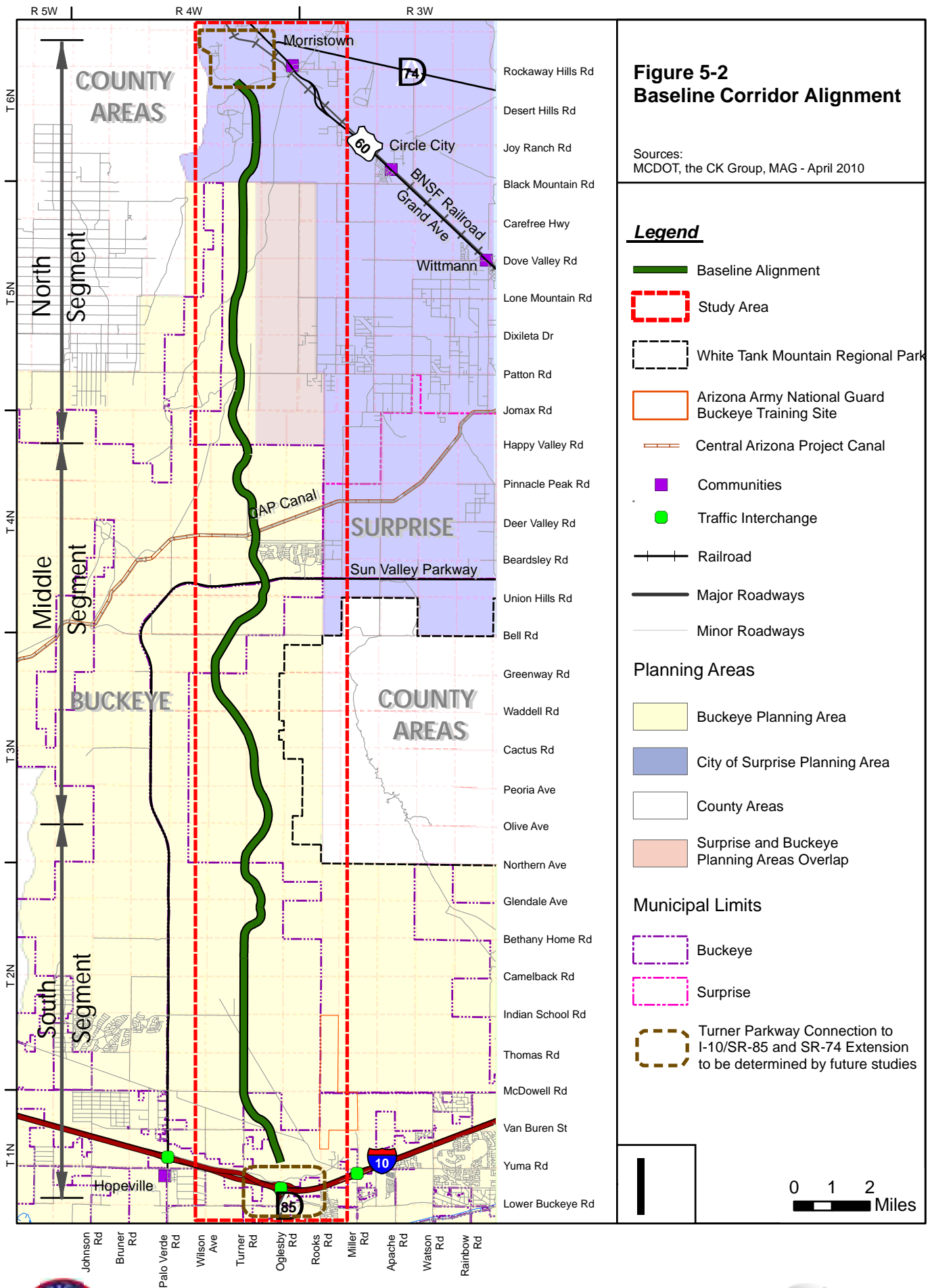
A Preferred Corridor Alignment was defined based on findings and conclusions drawn from the previous steps. It incorporates a combination of segments of the Baseline Corridor Alignment and Conceptual Alignment Alternatives. The Preferred Corridor Alignment represents a feasible route for Turner Parkway devoid of fatal flaws. Although certain sections of the alignment will present engineering challenges, construction of the Preferred Corridor Alignment, as defined, has been deemed feasible.

## 5.2 Definition of Baseline Corridor Alignment

The Baseline Corridor Alignment shown in **Figure 5-2** represents the route originally ascribed through the planning activities of the *I-10/Hassayampa Valley Roadway Framework Study*. It reflects adjustments made in response to detailed review of circulation plans submitted by developers of master-planned communities located in the study area. Connections to the I-10/SR-85 interchange and the proposed SR-74 Extension are fundamental to development of Turner Parkway. However, resolution of the alignments at the ends of the corridor will be accomplished by others during future studies resulting in Design Concept Reports (DCRs).

Consistent with the *I-10/Hassayampa Valley Roadway Framework Study*, the Turner Parkway Baseline Corridor Alignment extends from I-10/SR-85 in a northwesterly direction, diagonally traversing State Land to the Turner Road section line just south of McDowell Road. North of McDowell Road, the MAG-defined Turner Parkway alignment follows the Turner Road section line through the Tartesso master-planned community, continuing along the section line between the Tartesso and Elianto master-planned communities. It proceeds directly north along the section line to Bethany Home Road in the Anthem Sun Valley master-planned community. The alignment continues in a northerly direction, following the established circulation plan for this community to Northern Avenue. The Baseline Corridor Alignment enters State Land west of the White Tank Mountain Regional Park and follows a route that takes it as far west as the 279<sup>th</sup> Avenue alignment.

The Baseline Corridor Alignment enters the Sun Valley Villages master-planned community at Greenway Road, proceeds in a northeasterly direction to Sun Valley Parkway and Desert Oasis Boulevard. It passes through the Sun Valley Festival Ranch master-planned community along the alignment of Desert Oasis Boulevard (273<sup>rd</sup> Avenue) and crosses the CAP canal and a contiguous flood pool. The Baseline Corridor Alignment enters the Spurlock Ranch master-planned community at Deer Valley Road. It follows a dedicated alignment identified in the *Spurlock Ranch Master Street Circulation Plan* between Deer Valley Road and Happy Valley Road and continues in a northerly direction to Happy Valley Road.



North of Happy Valley Road, the Baseline Corridor Alignment meanders northward on a route slightly west of the Turner Road section line for a distance just over four (4) miles. North of Lone Mountain Road, the alignment is reestablished on the Turner Road section line and proceeds directly north to Black Mountain Road. North of Black Mountain Road, the Baseline Corridor Alignment shifts over to the 273<sup>rd</sup> Avenue alignment for two miles before adopting a northwesterly route for its connection with the SR-74 Extension.

The Baseline Corridor Alignment, as defined, crosses multiple active alluvial fans south of Sun Valley Parkway, passes under several high-voltage OHE lines throughout its length, and must cross the CAP canal. The alignment passes through six master-planned communities; however, only Sun Valley Festival Ranch is under development. Grade-separated parkway-to-parkway interchanges are contemplated at the future McDowell Parkway and Sun Valley Parkway.

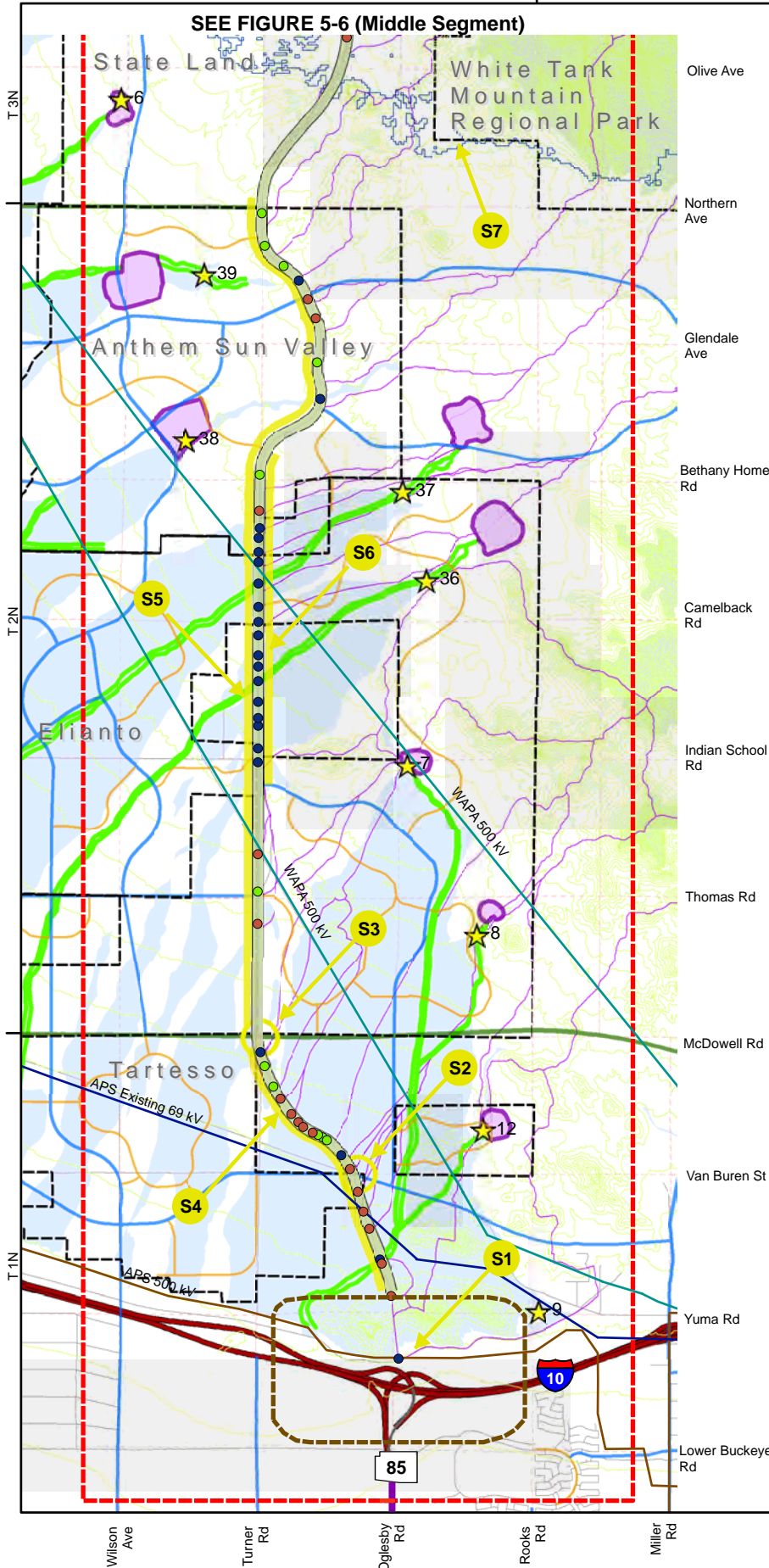
### **5.3 Feasibility Analysis of the Baseline Corridor Alignment**

This feasibility analysis for Turner Parkway involved planning and engineering studies of the Baseline Corridor Alignment within the three analysis segments shown previously in **Figures 5-1** and **5-2**. These studies focused on addressing and resolving opportunities, constraints, issues, and challenges affecting potential project feasibility. Issues of concern generally related to constructability, design, or costs, which significantly influenced potential project feasibility. Conceptual Alignment Alternatives were defined and examined, where notable weaknesses, deficiencies, or implementation issues associated with the Baseline Corridor Alignment were revealed. This section provides a discussion of issues addressed in each segment, and it identifies Conceptual Alignment Alternatives defined to mitigate the negative aspects of constraints that potentially could affect the feasibility of constructing Turner Parkway. Detailed information relating to the identification of issues and constraints and resolution of same is presented in Technical Memorandum No. 5, Corridor Alternatives Development and Evaluation, which is included in **Appendix E**.

#### **5.3.1 South Segment – Urban Core/White Tanks**

Most of the Turner Parkway alignment in the South Segment passes through privately held land, including the master-planned communities of Tartesso, Elianto, and Anthem Sun Valley. Developers of these communities have included Turner Parkway in their circulation plans, as described in the previous section. Therefore, it was not necessary to identify and evaluate alignment alternatives through these communities. However, certain constraints were identified with respect to the Baseline Corridor Alignment that justified identifying mitigation actions or evaluating alignment alternatives (**Figure 5-3**).

SEE FIGURE 5-6 (Middle Segment)



**Figure 5-3**  
**South Segment Baseline**  
**Corridor Alignment**  
**Constraints**

Source:  
 the CK Group, April 2010

**Legend**

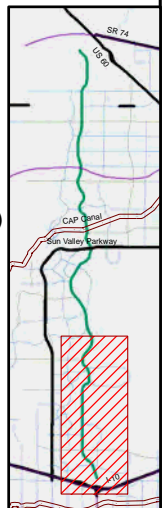
- Study Area
- Subdivision Boundary
- Baseline Turner Pkwy Alignment
- Future Parkway Proposals
- Future Arterial Proposals
- Future Collector Proposals
- 10-Foot Contours
- Alluvial Fan Apex
- Floodplain, Floodway, Floodprone Areas
- Turner Parkway Corridor Watershed Boundary
- Recommended Drainage Corridors
- Recommended Drainage Basins
- Wildlife Habitat Linkages
- Turner Parkway Connection to I-10/SR-85 to be determined by future studies
- Turner Parkway Baseline Corridor Alignment Constraints

**Drainage Crossings**  
**(Discharge in cfs)**

- Small (16 - 335)
- Middle (336 - 1200)
- Large (1201 - 3400)



0 0.5 1  
 Miles



### 5.3.1.1 Feasibility Evaluation

Potential constraints associated with the Baseline Corridor Alignment in the South Segment are discussed below.

**I-10/SR-85/Turner Parkway Junction** (Constraint S1) – As recommended in the *I-10/Hassayampa Valley Roadway Framework Study*, Turner Parkway begins at the I-10/SR-85 interchange. However, detailed evaluation of the southern terminus of Turner Parkway is outside the scope of work of this current study.

**Future Turner Parkway Intersection with Van Buren Street** (Constraint S2) – The Turner Parkway intersection with Van Buren Street, a future arterial roadway, will be skewed, if the Baseline Corridor Alignment is maintained. A skewed intersection would require an undesirable intersection geometry from an operational and safety standpoint. Also, the diagonal (northwest by southeast) orientation of the Baseline Corridor Alignment will split a large parcel of State Land, which, according to the ASLD, potentially could negatively affect its market value. Therefore, investigation of the alignment alternative was considered warranted.

**Future Turner Parkway Intersection with McDowell Parkway** (Constraint S3) – Forecast traffic volumes through the Turner Parkway/McDowell Parkway intersection under Buildout conditions indicate the need for a grade-separated interchange, which will require more right-of-way. Due to the high volume of traffic forecast through this intersection, a grade-separated, parkway-to-parkway interchange was determined to be necessary. The MCDOT *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study* resulted in definition of a special interchange design concept for grade-separating two parkway facilities. The conceptual interchange design is discussed further in the Special Facility Design section below. The footprint of a grade-separated, parkway-to-parkway interchange design will impact the Tartesso community at the northeast and southwest quadrants of the intersection and ASLD lands at the northwest and southeast quadrants.

**Clustered Drainage Crossings, North of I-10 Interchange to McDowell Parkway** (Constraint S4) – The Baseline Corridor Alignment of Turner Parkway diagonally cuts through active Alluvial Fans 7, 8, and 12. This results in the need to install numerous drainage structures, which would be skewed. Concerns for the accommodation of drainage focus on: concentration of flows downstream; capture-redirection of flow by the road embankment; potential need for additional right-of-way; and high construction costs of 19 crossing structures. A Turner Parkway alignment shifted east towards the apices (i.e., upper-most or origination point) of affected alluvial fans potentially could reduce the number of drainage crossings in this segment of the alignment. However, such an alignment



alternative would have significant impact on the circulation plan developed by Tartesso north of McDowell Parkway, and opposition from the development community would be expected. An alignment alternative shifted to the west would reduce transverse impacts on the drainage pattern and be consistent with resolution of other constraining features previously noted with respect to Constraints S2 and S3.

**Right-of-Way Constraints McDowell Road to Northern Avenue** (Constraint S5) – The Baseline Corridor Alignment of Turner Parkway between the McDowell Road and Northern Avenue alignments follows the Turner Road section line and passes through the master-planned communities of Tartesso and Anthem Sun Valley and alongside Elianto. The circulation plans established for these communities do not satisfy the minimum 200-foot right-of-way requirements for the Arizona Parkway cross section.<sup>7</sup> However, developing an alignment alternative to avoid this constraint was considered unwarranted.

**Clustered Drainage Crossings between Indian School Road and Bethany Home Road** (Constraint S6) – A cluster of 18 drainage crossings along the Baseline Corridor Alignment within a two-mile segment between Indian School Road and Bethany Home Road represents additional capacities and redundancies needed for roadway construction. Ultimately, drainage solutions in the South Segment are considered dependent upon construction phasing of the Sun Valley Area Drainage Master Plan (ADMP) basin and walled corridors concept relative to ongoing development and Turner Parkway. This phasing will not impact feasibility of constructing Turner Parkway. Construction of Turner Parkway prior to development of the basin and walled corridors, however, will result in subsequent actions to modify preexisting drainage paths crossing the facility. Nevertheless, developing an alignment alternative to avoid drainage constraints was considered unwarranted.

**Wildlife Linkages** (Constraint S7) – Two (2) potential wildlife habitat linkages are present at the northern end of the South Segment. Wildlife linkages have been identified by Arizona Game and Fish Department (AZGFD) to aid planning and development of public facilities, such as Turner Parkway. Viable wildlife corridors, which enable connectivity to adjacent habitat blocks, are critical to the protection of in situ wildlife populations from localized extirpation and decreased genetic diversity. Specific mitigation actions, involving design of the facility were beyond the scope of this study. Future studies need to include close coordination with AZGFD to evaluate specific mitigation elements (e.g., drainage crossing enhancements) that may be available to best accommodate wildlife movements.

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<sup>7</sup> MCDOT Design Guideline Recommendations for the Arizona Parkway (August, 2008).

### 5.3.1.2 Definition of Alignment Alternative

The extent of the Turner Parkway corridor between the I-10/SR-85 interchange and the future intersection of Turner Parkway/McDowell Parkway exhibits several constraints warranting investigation of an alignment alternative. Therefore, a Conceptual Alignment Alternative was defined to avoid the skewed crossing of Van Buren Street, splitting ASLD land, and excessive drainage crossings, as shown in **Figure 5-4**.

Immediately north of the future Turner Parkway/I-10/SR-85 interchange area, the Conceptual Alignment Alternative proceeds in a west by northwest direction toward the Turner Road section line (275<sup>th</sup> Avenue) one mile to the west. It intersects the section line at a point that will permit an adequate tangent length along the section line to avoid a skewed intersection of Turner Parkway with Van Buren Street. The Turner Parkway alignment continues north along the section line from Van Buren Street to the future McDowell Parkway. A Parkway Grade-Separated Interchange (PGSI) would be developed at the parkway-to-parkway intersection at McDowell Road.

### 5.3.1.3 Discussion

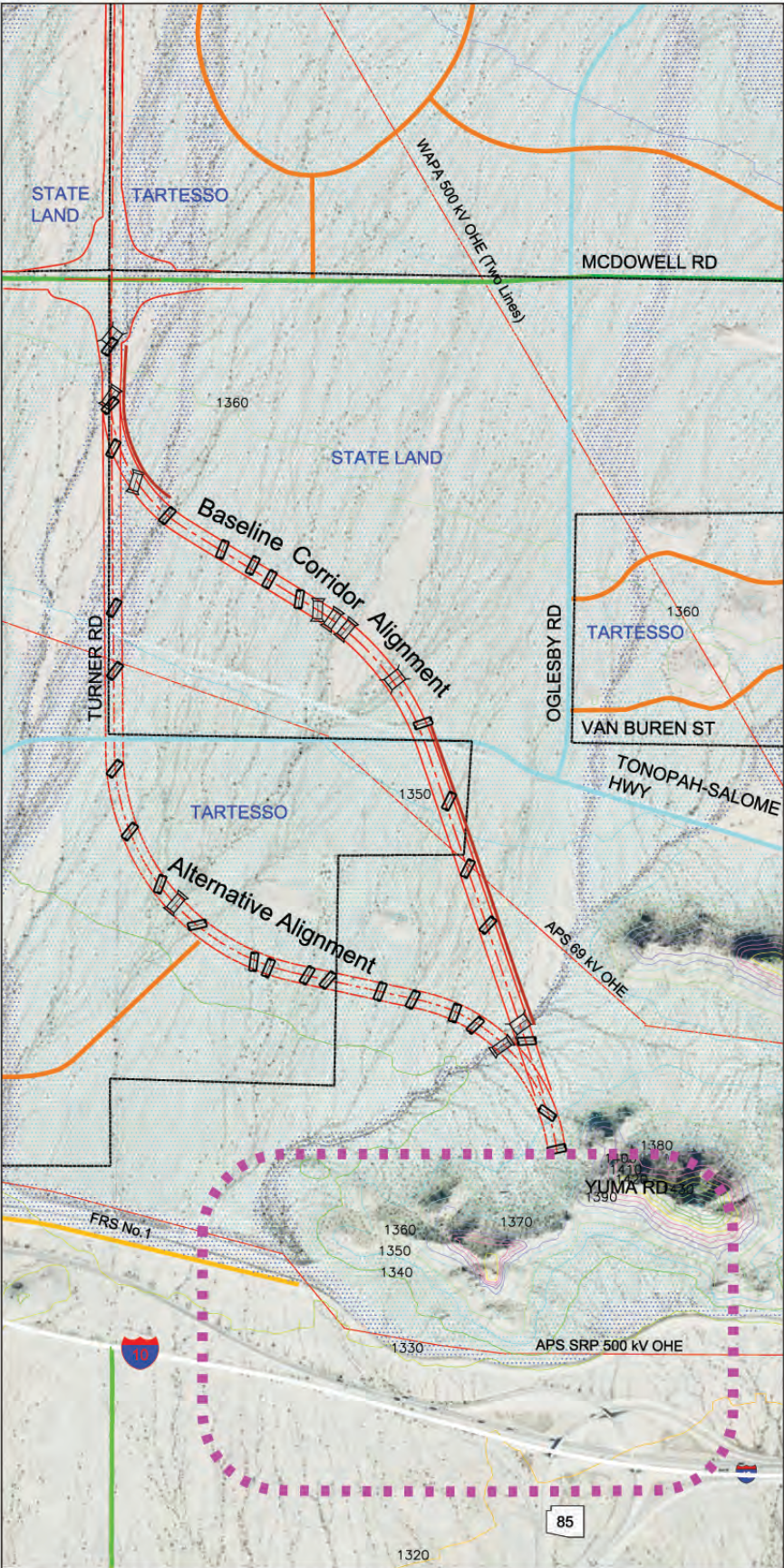
**Table 5-1** compares the characteristics of the Conceptual Alignment Alternative to the Baseline Corridor Alignment of Turner Parkway. While the Conceptual Alignment Alternative will result in approximately two (2) additional lane miles for Turner Parkway, it will satisfy several issues and concerns related to the Baseline Corridor Alignment, namely:

- A skewed intersection at Van Buren Street will be eliminated;
- There will be sufficient tangent section south of McDowell Parkway to accommodate an efficient and safe grade-separated, parkway-to-parkway interchange design;
- The ASLD parcel will not be fragmented;
- The alignment will coincide with the Turner Road section line, which is an accepted roadway alignment; and
- There will be a significant reduction in drainage easement requirements.

Thus, the proposed Conceptual Alignment Alternative for the South Segment will yield appropriate mitigation of identified concerns and satisfy tests of feasibility.

**Figure 5-4  
South Segment  
Conceptual Alternative Alignment  
I-10 to McDowell Parkway**

Source: the CK Group, June 2009



**Legend**

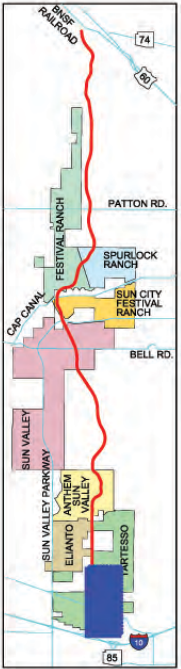
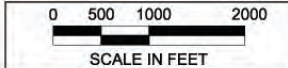
- Floodplain
- Archaeological Sites
- Drainage Structures
- Recommended Drainage Corridors
- Turner Parkway Alignment / Connection to I-10/SR 85 to be Determined by future studies
- 30' Drainage Easement
- 10-FT Contours

**Future Roadway Network**

- Parkways
- Arterials
- Collectors

**Drainage Crossings**

- Large (Bridge)
- Medium (Box Culvert)
- Small (CMP or Small Box Culvert)



<b>Table 5-1 Comparison of Alignments: South Segment</b>		
<b>Characteristic</b>	<b>Baseline Corridor Alignment</b>	<b>Conceptual Alignment Alternative</b>
Segment Length (Miles)	2.2	2.5
Number of Lane Miles (Assumes a six-lane parkway cross-section)	13	15
Number of Drainage Crossings		
Small	12	19
Medium	5	2
Large	3	0
<b>Total</b>	<b>20</b>	<b>21</b>
Drainage Easement (linear feet of frontage)	5,610	NIL
Right-of-Way Requirement (Acres)		
Private	9	32
State/Federal	49	28
<b>Total</b>	<b>58</b>	<b>60</b>
Significant Utility Crossings	1	1
Anticipated Construction Cost (Millions of 2009\$)	29.7	32.3
Compatibility with Adopted/Proposed Plans	High	High
Public Acceptability	High	High
Source: the CK Group <span style="float: right;">June 2009</span>		

#### 5.3.1.4 Special Facility Design Considerations

**I-10/SR-85 Interchange Connection** - The exact Turner Parkway alignment south of the McDowell Parkway alignment ultimately will be dependent on location and design of the I-10/SR-85/Turner Parkway interchange, which is beyond the scope of this current study. Considering the challenges associated with connection to I-10, a detailed feasibility study will need to be initiated to examine alternatives. Such a study could be led by MAG with the Arizona Department of Transportation (ADOT), MCDOT, FCDMC, and the Town of Buckeye as supporting agencies.

#### **I-10/SR-85 Interchange to McDowell Parkway Section**

There is adequate distance to shift the alignment from Oglesby Road (SR-85) to the Turner Road section line below Van Buren Street, rather than taking it diagonally over to McDowell Parkway. While this will result in approximately two (2) additional lane miles of roadway,

the defined Conceptual Alignment Alternative will satisfy several issues and concerns related to the Baseline Corridor Alignment as mentioned above.

### **McDowell Parkway Intersection**

The magnitude of forecast traffic volumes at the Turner Parkway/McDowell Parkway intersection instigated development of a new interchange design to accommodate travel demand. The MCDOT *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study*, September, 2009, concluded this intersection will need to be grade separated to accommodate forecast traffic volumes. The study produced a preliminary Parkway Grade-Separated Interchange (PGSI) design concept that maintains the indirect left-turn maneuver associated with the Arizona Parkway operational scheme. The interchange concept maintains operational consistency relative to the travel experience for drivers. The PGSI design (**Figure 5-5**) has been tested with traffic modeling software and shown to support the heavy traffic volumes forecast for the Turner Parkway/McDowell Parkway intersection. Right-of-way requirements will be less than those associated with the standard diamond or single point urban interchange (SPUI). Guidance regarding preservation of needed right-of-way for the mainline roadway is provided in MCDOT's *Design Guideline Recommendations for the Arizona Parkway* and MCDOT's *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study* referenced in this report.

As shown previously in **Figure 5-4**, the future Turner Parkway/McDowell Parkway interchange will be located in the midst of the Tartesso development and be the first parkway-to-parkway access point north of I-10/SR-85. The PGSI concept was shared with project stakeholders at the Technical Advisory Committee (TAC) meeting on April 29, 2009. Developers of the Tartesso community have not raised objection to the proposed PGSI design at this intersection. Nevertheless, Tartesso representatives reserved the right to further evaluate this option when additional more detailed studies are conducted in the future.

### **5.3.2 Middle Segment – Sun Valley/Festival**

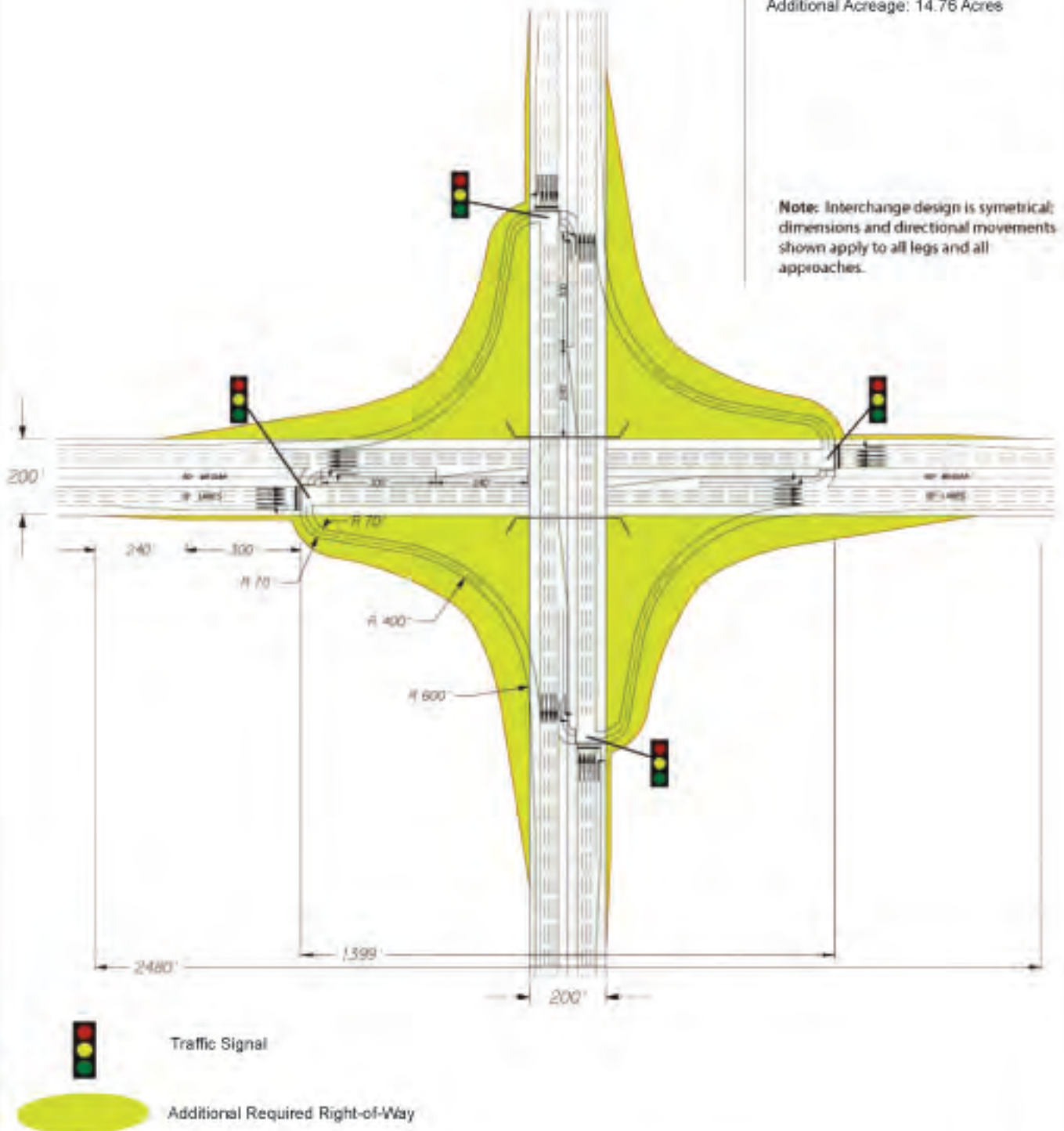
The Middle Segment presents the greatest challenge to development of Turner Parkway. The Baseline Corridor Alignment crosses three (3) major utility corridors, passes through the central portion of three (3) master-planned communities, and crosses the CAP canal and the flood pool north of the CAP canal. The Baseline Corridor Alignment coincided with circulation plans established for three (3) of the master-planned communities. Still, there were several constraints with the proposed roadway network and other undesirable characteristics, as identified in **Figure 5-6**.

**Figure 5-5  
PGSI Design Concept**

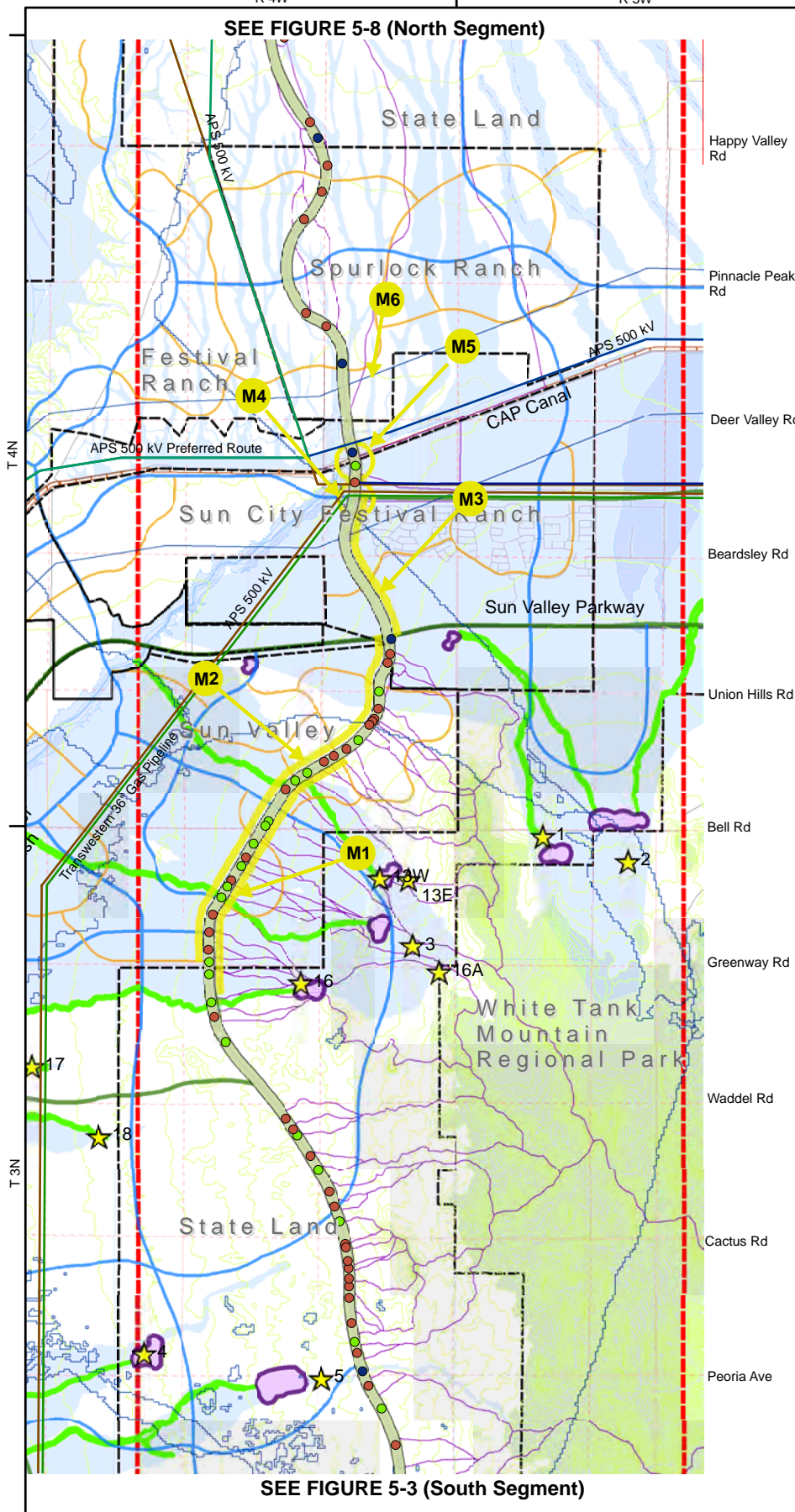
Source: Wilson & Company, Inc.

PGSI Design Concept  
Additional Acreage: 14.76 Acres

**Note:** Interchange design is symmetrical; dimensions and directional movements shown apply to all legs and all approaches.



SEE FIGURE 5-8 (North Segment)



SEE FIGURE 5-3 (South Segment)

**Figure 5-6**  
**Middle Segment Baseline**  
**Corridor Alignment**  
**Constraints**

Source:  
 the CK Group, April 2010

**Legend**

- Study Area
- Subdivision Boundaries
- Baseline Turner Pkwy Alignment
- Future Parkway Proposals
- Future Arterial Proposals
- Future Collector Proposals
- 10-Foot Contours
- Alluvial Fan Apices
- Floodplain, Floodway, Floodprone Areas
- Turner Parkway Corridor Watershed Boundaries
- Recommended Drainage Corridors
- Recommended Drainage Basins
- Wildlife Habitat Linkage Boundary
- Turner Parkway Baseline Corridor Alignment Constraints

**Drainage Crossings (Discharge in cfs)**

- Small (16 - 335)
- Middle (336 - 1200)
- Large (1201 - 3400)



0 0.5 1 Miles



### 5.3.2.1 Feasibility Evaluation

#### Clustered Drainage Crossings North of Waddell Road to North of Bell Road (Constraint M1).

– There is a cluster of 18 drainage crossings within a two-mile section of the Baseline Corridor Alignment from one-half mile north of Waddell Road to Bell Road. An alignment alternative was considered that shifted Turner Parkway towards the apices of alluvial fans to reduce the number of drainage crossings. However, such an alignment will have significant impact on the Sun Valley Villages circulation plan. In addition, it will place the alignment higher up on the slopes of the White Tank Mountains. The majority of the Baseline Corridor Alignment in this portion of the corridor coincides with established right-of-way set forth in the Sun Valley Villages circulation plan. Consequently, an alternate alignment likely would face opposition from the development community. Additionally, should the Sun Valley ADMP basins and walled corridors concept be implemented prior to Turner Parkway, these drainage improvements will minimize the challenge presented by the clustered drainage crossings.

Right-of-Way from Greenway Road to Sun Valley Parkway (Constraint M2) – The dedicated right-of-way of 130 feet for a Major Arterial through Sun Valley Villages does not satisfy the 200-foot right-of-way requirement for an Arizona Parkway. Additional right-of-way will be required to accommodate Turner Parkway within the Sun Valley Villages community. Also, additional right-of-way will be required at Sun Valley Parkway to accommodate a PGSI, as referenced above for the Turner Parkway/McDowell Parkway intersection.

Right-of-Way through Sun City Festival Ranch (Constraint M3) – There are homes or home-site pads constructed on the east side of Desert Oasis Boulevard, which is a segment of the Baseline Corridor Alignment. Additional homes, a mixed-use area, and a second golf course are planned, but not yet platted, for the west side of this Major Arterial. Desert Oasis Boulevard has been developed with a 130-foot right-of-way, which is not adequate for an Arizona Parkway facility. The developer is opposed to the additional 70 feet of right-of-way that will be required to accommodate the Arizona Parkway cross-section. Pulte Homes is concerned the wider parkway facility would pose challenges to residents using golf carts, which are a preferred means of travel through the community for some residents. In addition, a PGSI at Sun Valley Parkway will directly impact home-site pads already prepared, which occupy the northeast quadrant of the interchange area. Therefore, investigation of an alignment alternative approximately two (2) miles west of the Baseline Corridor Alignment was undertaken to avoid direct impacts to this community.

Intersection of Beardsley Parkway and Turner Parkway (Constraint M4) – Beardsley Road is identified to be a parkway east of the Baseline Corridor Alignment (Desert Oasis Boulevard), but is identified as an Major Arterial roadway to the west. This change in functional classification may require different roadway cross-sections east and west of Turner Parkway.



Only 130 feet of right-of-way has been established for Beardsley Road through the Sun City Festival Ranch master-planned community. Designation as a parkway in the Transportation Framework Recommendation of the *MAG I-10/Hassayampa Valley Roadway Framework Study* means additional right-of-way will be needed east of the Baseline Corridor Alignment to accommodate the Arizona Parkway concept, which requires 200 feet of right-of-way. Also, additional right-of-way needs to be established for Beardsley Road west of Turner Parkway to permit design of an effective transition through the intersection.

CAP Canal Crossing Influence Area (Constraint M5) – The influence area associated with the CAP canal crossing is approximately 2,200 feet in length, extending from just north of the future Turner/Beardsley parkway-to-parkway intersection to beyond the flood pool area on the north side of the CAP canal. Clearances over the canal and protection of an established flood control feature present critical engineering issues. This portion of the corridor presents the following significant challenges:

1. Existing and future OHE transmission lines cross this portion of the corridor on an east-west alignment along the south side of the CAP canal;
2. Desert Oasis Boulevard, as noted earlier, already is laid out and partially constructed on the Turner Parkway Baseline Corridor Alignment;
3. Established rights-of-way for Desert Oasis Boulevard and Beardsley Road (east and west of the Baseline Corridor Alignment) are inadequate for the cross-section requirements of the Arizona Parkway concept;
4. The Baseline Corridor Alignment of Turner Parkway must cross over the CAP canal and the flood pool, which exists on the north side of the canal;
5. Potential disturbance of the Wagner Wash floodway located directly west of the Baseline Corridor Alignment and south of the CAP canal; and
6. The CAP canal is identify as a wildlife linkage; therefore, crossing the CAP canal will require appropriate planning to create wildlife friendly crossing opportunities through consultation with AZGFD.

Considering the complexity of constraints associated with the CAP canal and right-of-way issues noted above (M3 and M4), a thorough investigation of an alignment alternative was warranted (refer to M3 above).

Wildlife Linkages (Constraint M6) – Two potential wildlife habitat linkages are present in the Middle Segment. Resolution of specific issues associated with wildlife linkages and Turner Parkway, a regional thoroughfare, is beyond the scope of this study. No alternative route would reduce or eliminate potential impacts to wildlife linkages, due to their broad geographic extent. Future studies need to include close coordination with AZGFD to evaluate specific mitigation elements (e.g., drainage crossing enhancements) that may be available to best accommodate wildlife movements.

### 5.3.2.2 Definition of Alignment Alternatives

The initial feasibility evaluation required definition of an alignment alternative to address certain constraints on the Baseline Corridor Alignment, particularly passage of Turner Parkway through the Sun City Festival Ranch. A Western Alignment Alternative, shifting Turner Parkway approximately two (2) miles to the west was established for evaluation (**Figure 5-7**). While this alignment had the advantage of avoiding Sun City Festival Ranch, it presented other less advantageous conditions, which resulted in the Baseline Corridor Alignment being the preferred route to Turner Parkway. However, public meetings in the corridor led MCDOT and the Town of Buckeye to conclude an alignment through Sun City Festival Ranch would not be viable. Therefore, discussions were conducted to identify an acceptable alignment. As a result of these discussions, the Town of Buckeye defined and approved an alignment around the western end of Sun City Festival Ranch. A definition of this alignment and discussion of special facility design considerations for its implementation are presented below. Information regarding the Western Alignment Alternative and a comparison of it to the Baseline Corridor Alignment is provided in Technical Memorandum No. 5, *Corridor Alternatives Development and Evaluation* included in **Appendix E**.

### 5.3.3 ***Buckeye Alignment Alternative***

The events that lead to approval of the Town of Buckeye Alignment Alternative in the middle segment by the Town Council are discussed in the sub section below.

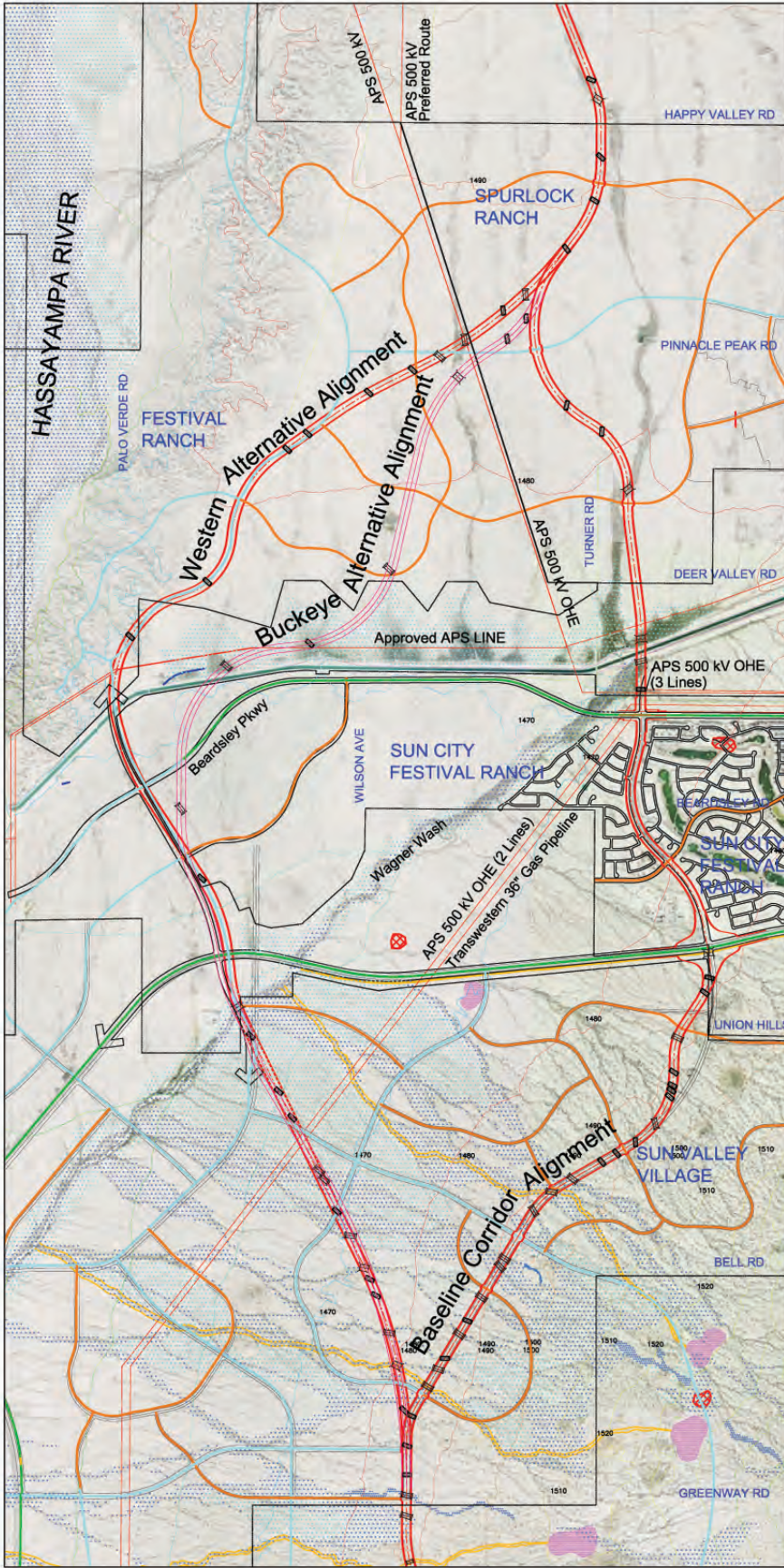
#### 5.3.3.1 Background

With the completion of the feasibility evaluation, a corridor alignment was defined that incorporated the Baselines Corridor Alignment. The Baseline Corridor Alignment followed Desert Oasis Boulevard through the center of Sun City Festival Ranch. A Western Alignment Alternative was located approximately two (2) miles west of Desert Oasis Boulevard in the vicinity of the Palo Verde Road section line (291<sup>st</sup> Avenue). **Figure 5-7** shows the locations of these two alignments. The feasibility evaluation, summarized in the previous section, supported the Baseline Corridor Alignment, passing through Sun City Festival Ranch, as the more desirable alignment. A public Open House was conducted at Sun City Festival Ranch by MCDOT staff and Town of Buckeye officials. The purpose of this May, 2009, meeting was to obtain public feedback regarding the two (2) alignment alternatives evaluated for the Middle Segment.

MCDOT anticipated making a final alignment decision by the end of June, 2009. However, input obtained during the Open House revealed residents of Sun City Festival Ranch strongly favored the Western Alignment Alternative. This alignment also was favored by Pulte Homes,

**Figure 5-7  
Middle Segment  
Conceptual Alignment Alternatives  
Greenway Rd to Happy Valley Rd**

Source: the CK Group, June 2009



**Legend**

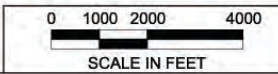
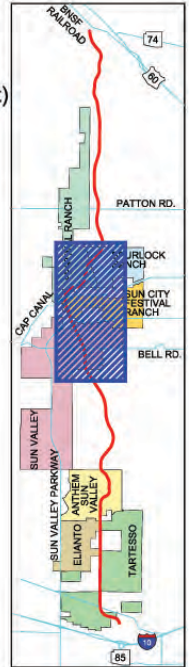
- Floodplain
- Archaeological Sites
- Drainage Structures
- Recommended Drainage Basins
- 10-FT Contours

**Future Roadway Network**

- Parkways
- Arterials
- Collectors

**Drainage Crossings**

- Large (Bridge)
- Medium (Box Culvert)
- Small (CMP or Small Box Culvert)



developer of Sun City Festival Ranch. In addition, persons attending the Open House voiced concern that many residents reside away from the Sun City Festival Ranch community during the months of June to September. They requested that further action be suspended until the winter months to enable full involvement of their community. In response to the residents' request, MCDOT agreed to postpone a decision on the final alignment to permit additional study.

During this extended study period, the Town of Buckeye undertook the responsibility of addressing objections to the Turner Parkway segment following Desert Oasis Boulevard (the Baseline Corridor Alignment). Town officials actively pursued definition of an alignment alternative that would alleviate concerns raised by residents of Sun City Festival Ranch and the community's developer. As part of its outreach, the Town of Buckeye organized an Education Forum in October, 2009, to share additional information and obtain input from residents. Progress was made toward a compromised alignment west of Desert Oasis Boulevard; however, a consensus could not be achieved.<sup>8</sup>

Additional discussions ultimately lead to a new alignment at the western edge of Sun City Festival Ranch, referred to in this report as the *Buckeye Alignment Alternative*. This alignment also is shown in **Figure 5-7**. This adjustment of the Turner Parkway alignment was presented for public review January 14, 2010, at the Town of Buckeye council work session and approved by the Town Council a week later.<sup>9</sup> An Addendum to Technical Memorandum No. 5, Corridors Alternatives Development and Evaluation, specifically addressing adjustment of the alignment in the vicinity of Sun City Festival Ranch between Greenway Road and Pinnacle Peak Road was prepared. This Addendum is contained in **Appendix E**. The following sections provide definitions of the two alignment alternatives considered within the Middle Segment and discuss special facility considerations.

### 5.3.3.2 Definition of Alignment

The approved "Buckeye Alignment Alternative" follows the Western Alignment Alternative between Greenway Road and Beardsley Road. Approximately one-half mile north of Greenway Road, Turner Parkway continues its northwesterly trend, crossing Wagner Wash before intersecting with Sun Valley Parkway. It is anticipated that a PGSI interchange will be developed at the intersection of Turner Parkway and Sun Valley Parkway. It continues northwest, south of Beardsley Road it shifts to the north generally following the 287<sup>th</sup> Avenue

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<sup>8</sup> "Study on parkway is postponed a 3rd time," Arizona Republic, Tuesday, January 5, 2010.

<sup>9</sup> "Residents back parkway route," Arizona Republic, Sunday, January 14, 2010; and "Buckeye council OKs new route for proposed Turner Parkway," AZCentral.com, January 22, 2010, 01:20 PM, The Arizona Republic.

alignment just east of the Palo Verde Road section line. It crosses the CAP canal at an angle, passing through the canal-created floodpool area for a distance of approximately three-quarters of a mile. The alignment turns north into the Festival Ranch master-planned community approximately 1½ miles north of the CAP canal. It crosses into the Spurlock Ranch master-planned community near 279<sup>th</sup> Avenue/Pinnacle Peak Road. North of Pinnacle Peak Road, the alignment transitions back to the Baseline Corridor Alignment at 275<sup>th</sup> Avenue.

### 5.3.3.3 Special Facility Design Considerations

This section of the report focuses on specific areas, where critical issues or challenges are present that could affect project feasibility. These critical design and development concerns must be addressed in the subsequent Design Concept Report (DCR) phase of project development to assure successful project implementation.

**Roadway Network** – The recently completed MCDOT *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study*, recommends the PGSI design treatment for the Turner Parkway/Sun Valley Parkway intersection. The Town of Buckeye will need to assure adequate right-of-way is preserved for the PGSI regardless of which alignment is selected for Turner Parkway. In addition, the proximity of a PGSI at Sun Valley Parkway with a required Wagner Wash bridge will create design challenges with respect to drainage and cross-section requirements.

Within this portion of the Middle Segment, there is the potential, depending on final design of the facilities involved, that Turner Parkway would have a skewed intersection with Beardsley Road. Future DCRs for both facilities will be able to address this issue with satisfactory results. Consideration will need to be given to extending Beardsley Road as a parkway west of Desert Oasis Boulevard, to remain consistent with the Transportation Framework Recommendation of the *I-10/Hassayampa Valley Roadway Framework Study*.

This Buckeye Alignment Alternative creates greater conflicts with the circulation plans of Festival Ranch and Spurlock Ranch than either the Baseline Corridor Alignment or the Western Alignment Alternative. However, development plans for these master-planned communities have not been finalized. This means alignment adjustments can be made to both Turner Parkway and elements of these circulation plans during preparation of future DCRs. Therefore, future, detailed studies are expected to support an efficient and effective traffic system design for the area.

**CAP Canal Crossing** – The influence area associated with the CAP canal crossing covers a distance of approximately 1.2 miles. It extends from just north of the future Turner Parkway/Beardsley Road intersection through the flood pool area on the north side of the

CAP canal. Based on the alignment approved by the Town of Buckeye, the bridging structure required to cross the CAP canal likely will be skewed. The bridging structure will span the CAP canal, service roads, and trails. Approach embankments will be required to attain the required clearance over the canal. It will traverse the canal-created flood pool area for a distance of approximately three-quarters of a mile. Required embankments north of the canal potentially will impact the flood pool. Ultimately, potential impacts will depend on the final horizontal alignment to be determined through detailed future studies. A slight adjustment of the alignment could eliminate the skew and reduce impacts to the flood pool.

### **5.3.4 North Segment – State Land/SR-74 Extension**

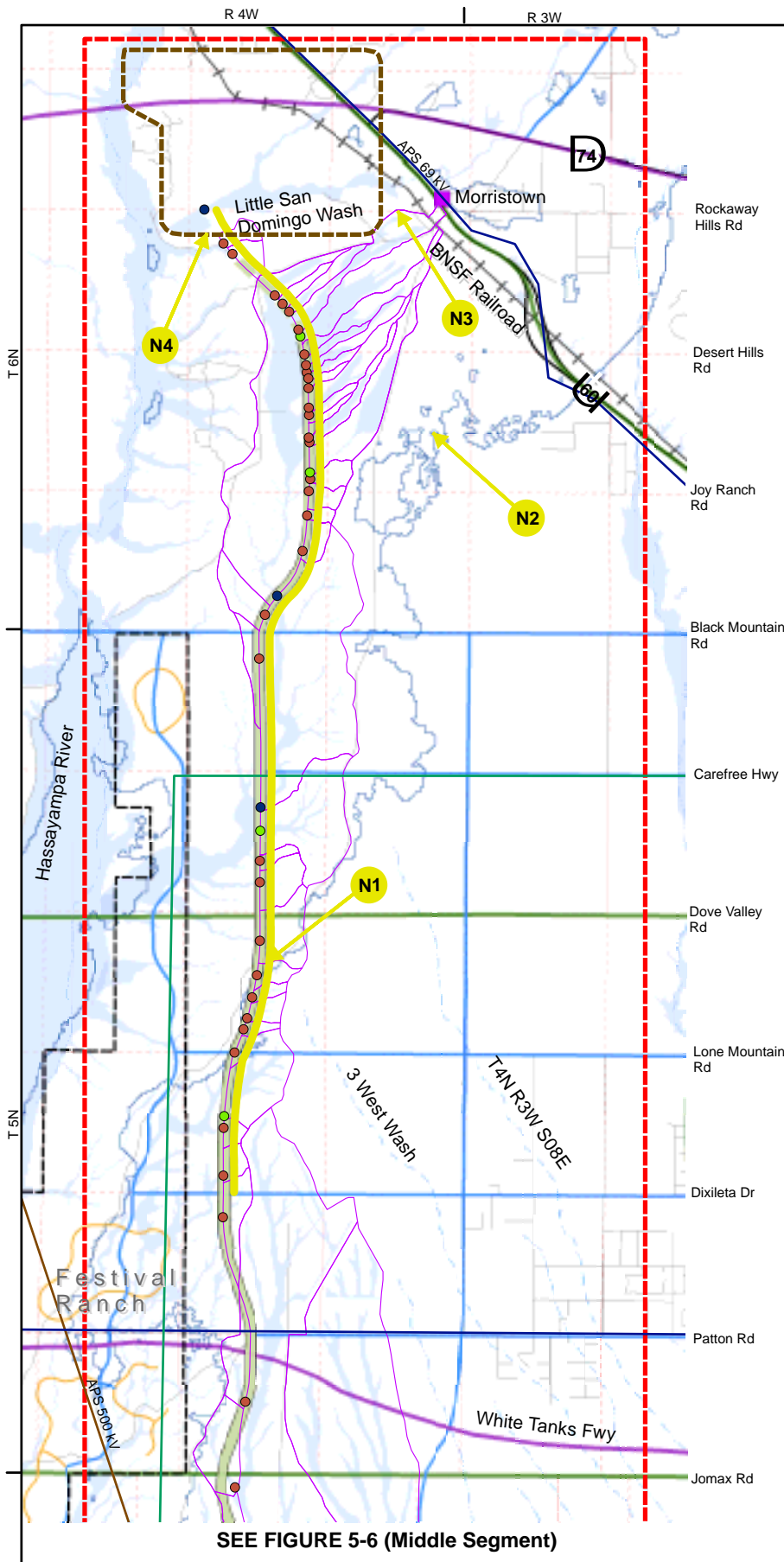
Most of the Turner Parkway corridor in the North Segment traverses State Land. There are minimal topographic constraints, and future developments already have established rights-of-way for Turner Parkway. Thus, with exception of the terminus of Turner Parkway at the future SR-74 Extension west of US-60, which will be addressed during future studies, the North Segment presents the least amount of constraints or challenges among the three (3) corridor segments. Potential constraints associated with the Baseline Corridor Alignment in the North Segment are discussed below and shown in **Figure 5-8**.

#### **5.3.4.1 Feasibility Evaluation**

**Clustered Drainage Crossings Dixileta Road to SR-74** (Constraint N1) – Numerous washes and drainage paths will require 38 drainage crossings between Dixileta Drive and the future SR-74 Extension. In addition, a considerable bridge structure will be required at Little San Domingo Wash. These conditions add greatly to the design challenges of the proposed Parkway facility in the North Segment. Two alignment alternative were defined that would reduce transverse impacts on the drainage pattern and be consistent with resolution of other constraining features.

**Wildlife Linkages** (Constraint N2) – One (1) potential wildlife habitat linkage is present in the North Segment: the “White Tanks and Vulture and Hieroglyphic Mountains Linkage” (Linkage #51). The extent of this linkage ranges from the north of SR-74 into the Middle Segment and the western extent of the White Tank Mountains. The Baseline Corridor Alignment and any alternatives would pass through this linkage zone north of the Lone Mountain Road alignment (extended). Future studies need to include close coordination with AZGFD to evaluate specific mitigation elements (e.g., drainage crossing enhancements) that may be available to best accommodate wildlife movements.

**SR-74 Extension/Turner Parkway Junction** (Constraint N3) – As recommended in the *I-10/Hassayampa Valley Roadway Framework Study*, Turner Parkway would terminate at the SR-74 Extension. However, detailed evaluation of the northern terminus of Turner Parkway is



**Figure 5-8  
North Segment Baseline  
Corridor Alignment  
and Constraints**

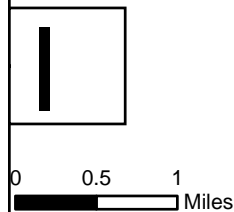
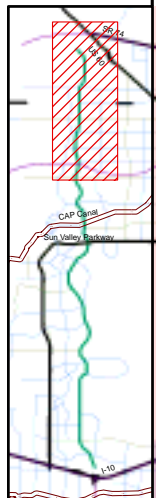
Source:  
the CK Group, April 2010

**Legend**

- Study Area
- Subdivision Boundaries
- Baseline Turner Pkwy Alignment
- Future Freeway Proposals
- Future Parkway Proposals
- Future Arterial Proposals
- Future Collector Proposals
- 10-Foot Contours
- Floodplain, Floodway, Floodprone Areas
- Turner Parkway Corridor Watershed Boundaries
- Wildlife Habitat Linkage Boundary
- Turner Parkway Connection to SR-74/US-60 (N3) to be determined by Future studies
- Turner Parkway Baseline Corridor Alignment Constraints

**Drainage Crossings (Discharge in cfs)**

- Small (16 - 335)
- Middle (336 - 1200)
- Large (1201 - 3400)



SEE FIGURE 5-6 (Middle Segment)



outside the scope of work of this current study.

**Impacts to Existing Homes (Constraint N4)** – There are several existing large lot residences located in the northern segment of the study area. Evaluation of the baseline alignment indicates that a few of these homes could be impacted. Therefore, future studies should include further evaluation of the baseline alignment to minimize or eliminate potential impact.

#### 5.3.4.2 Conceptual Alignment Alternatives

The Baseline Corridor Alignment traverses two (2) large areas with multiple drainage paths. The alignment generally runs parallel with flow, rather than crossing these drainage paths. Therefore, two (2) Conceptual Alignment Alternatives were developed to aid in evaluating opportunities for reducing drainage impacts in this segment and, thereby, minimize structural requirements, construction challenges, and project costs (**Figure 5-9**). It should be noted that the bridge structure required to cross Little San Domingo Wash will be necessary with all alternatives investigated.

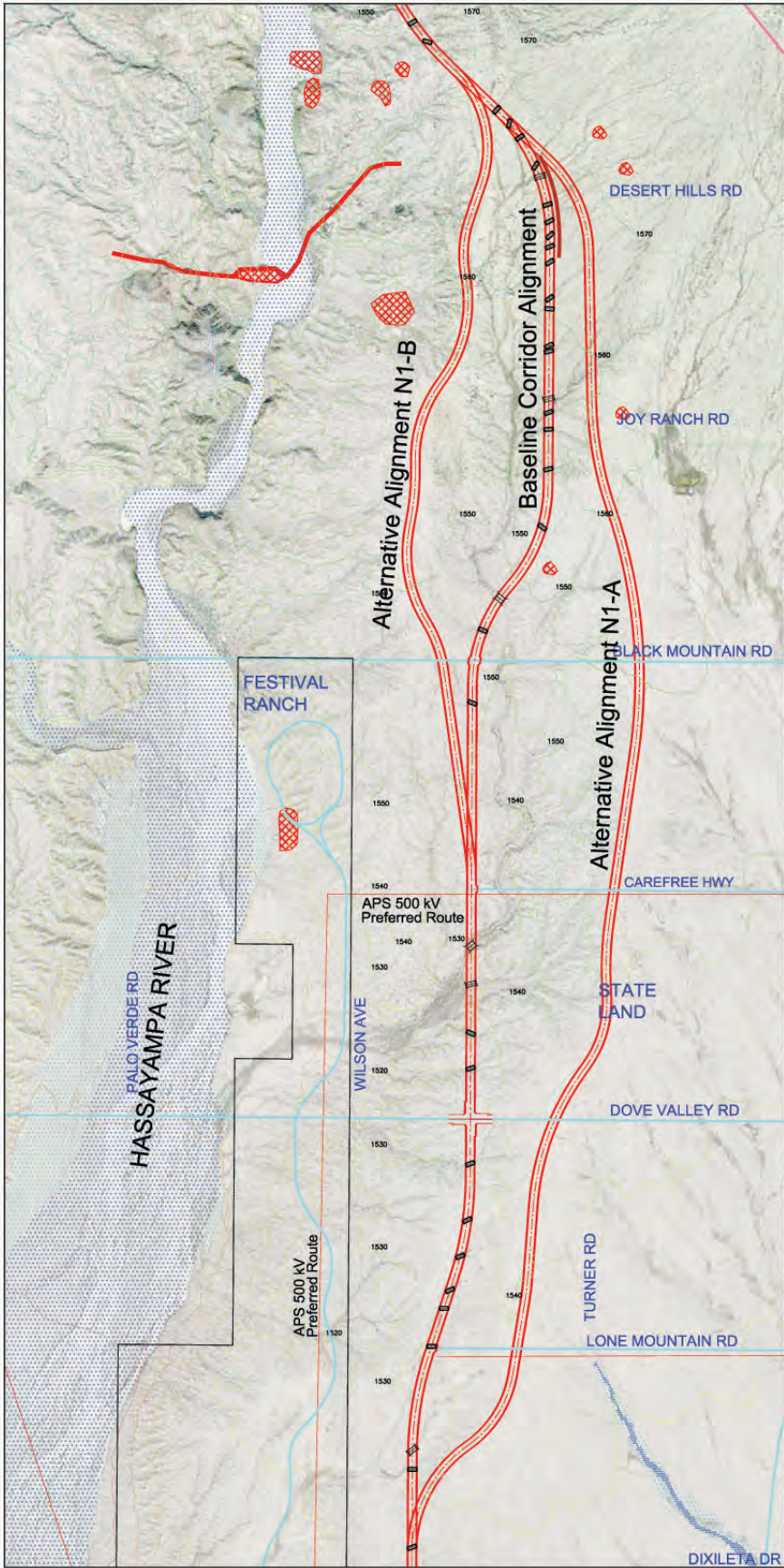
**Alignment Shift to the East (N1-A)** – This alignment alternative shifts Turner Parkway to the east, beginning one-quarter to one-half mile north of Dixileta Drive, to follow a ridgeline separating drainage sheds. The alignment will shift as far east as 267<sup>th</sup> Avenue at Black Mountain Road before shifting back to the west, tying into the Baseline Corridor Alignment between Desert Hills Road and Rockaway Hills Road.

**Alignment Shift to the West (N1-B)** – This alignment alternative shifts Turner Parkway to the west, beginning about one-quarter mile north of Carefree Highway alignment to follow a ridgeline separating two small drainage sheds. The alignment will shift as far west as 273<sup>rd</sup> Avenue at the Joy Ranch Road alignment before shifting back to the east. North of Desert Hills Road, the alignment will curve to the west, tying into the Baseline Corridor Alignment just south of Little San Domingo Wash.

#### 5.3.4.3 Discussion

**Table 5-2** below provides a summary evaluation of Conceptual Alignment Alternatives relative to the Baseline Corridor Alignment. **Alternative N1-B** eliminates a large number of drainage crossings and reduces the length of Turner Parkway by 0.4 miles. This western alignment of Turner Parkway also will be less disruptive of and, therefore, more compatible with State Land. By comparison, shifting Turner Parkway to the east, as defined by **Alternative N1-A**, will eliminate fewer drainage crossings and slightly increase the length of Turner Parkway. The eastern alignment also will be less compatible with State Land.





**Figure 5-9**  
**North Segment**  
**Conceptual Alignment Alternatives**  
**Dixileta Dr to Rockaway Hills Rd**

Source: the CK Group, June 2009


**Legend**

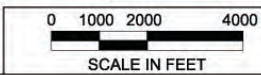
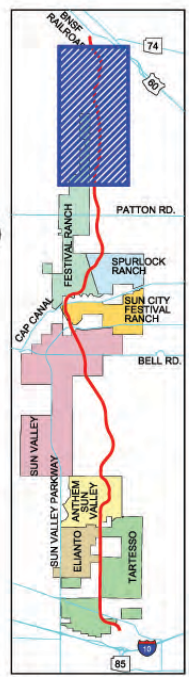
-  Floodplain
-  Archaeological Sites
-  Drainage Structures
-  Future Roadway Network
-  25' Drainage Easement
-  10-FT Contours

**Future Roadway Network**

-  Parkways
-  Arterials
-  Collectors

**Drainage Crossings**

-  Large (Bridge)
-  Medium (Box Culvert)
-  Small (CMP or Small Box Culvert)



<b>Table 5-2 Comparison of Alignments: North Segment</b>			
<b>Characteristic</b>	<b>Baseline Corridor Alignment</b>	<b>Conceptual Alignment Alternatives</b>	
		<b>Eastern Alignment (N1-A)</b>	<b>Western Alignment (N1-B)</b>
Segment Length (Miles)	7.3	7.5	6.9
Number of Lane Miles (Assumes a six-lane parkway cross-section)	44	45	41
Number of Drainage Crossings			
Small	29	26	11
Medium	4	0	1
Large	<u>2</u>	<u>0</u>	<u>1</u>
<b>Total</b>	<b>35</b>	<b>26</b>	<b>13</b>
Drainage Easement (Linear feet of frontage)	2,450	Similar to Baseline	Nil
Right-of-Way Requirement (acres)			
Private	0	0	0
State/Federal	<u>177</u>	<u>183</u>	<u>167</u>
<b>Total</b>	<b>177</b>	<b>183</b>	<b>167</b>
Significant Utility Crossings	Nil	Nil	Nil
Anticipated Construction Cost (Millions of 2009\$)	95.0	98.2	90.2
Compatibility with Adopted/Proposed Plans	Compatible	Compatible	Highly Compatible
Public Acceptability	High	High	High
Source: the CK Group		June 2009	

#### 5.3.4.4 Special Facility Considerations

This section of the report focuses on specific areas, where critical issues or challenges are present that could affect project feasibility. These critical design and development concerns must be addressed in the subsequent Design Concept Report (DCR) phase of project development to assure successful project implementation.

#### Drainage Patterns

Constructability of Turner Parkway will be heavily influenced by an extensive, dense drainage pattern associated with the Hassayampa River. This pattern will result in a high number of drainage crossings. The large number of drainage crossings in this segment can be significantly reduced – even largely avoided, by implementing either of the Conceptual Alignment Alternatives evaluated. Both follow natural drainage divides, which were not readily apparent during previous regional planning studies regarding Turner Parkway. The

need for drainage structures and potential impacts on drainage will be minimized under the Western Alignment Alternative (N1-B).

### **Major Utilities**

A proposed 500 kV OHE transmission line is proposed to cross the study area along the alignments of Long Mountain Road or Carefree Highway. Future coordination with APS regarding the location of towers for this line will be an obvious benefit to the Turner Parkway project. Also, the existing 69kV OHE transmission lines on the north side of Patton Road and in the vicinity of the SR-74/US-60 intersection have support towers spaced at less than 400-foot intervals. Although the tower interval is sufficiently wide for a typical parkway cross-section, the Arizona Parkway cross-section preferred for Turner Parkway may push the limits established by these supports. Adaptation of these lines for crossing the parkway likely will be necessary.

### **SR-74 Extension Connection**

The exact Turner Parkway alignment connecting with SR-74 ultimately will be dependent on location and design studies conducted for extension of SR-74 westward as a freeway facility. The required parkway-to-freeway interchange is beyond the scope of this current study. Preliminary review during this feasibility study revealed no fatal flaws associated with this future connection. However, the Turner Parkway alignment and its relation to SR-74 will need to be addressed in more detail through a detailed feasibility study to examine alternatives. Such a study could be led by MAG with the Arizona Department of Transportation (ADOT), MCDOT, FCDMC, and the City of Surprise and Town of Wickenburg as supporting agencies.

## 6 PREFERRED CORRIDOR ALIGNMENT

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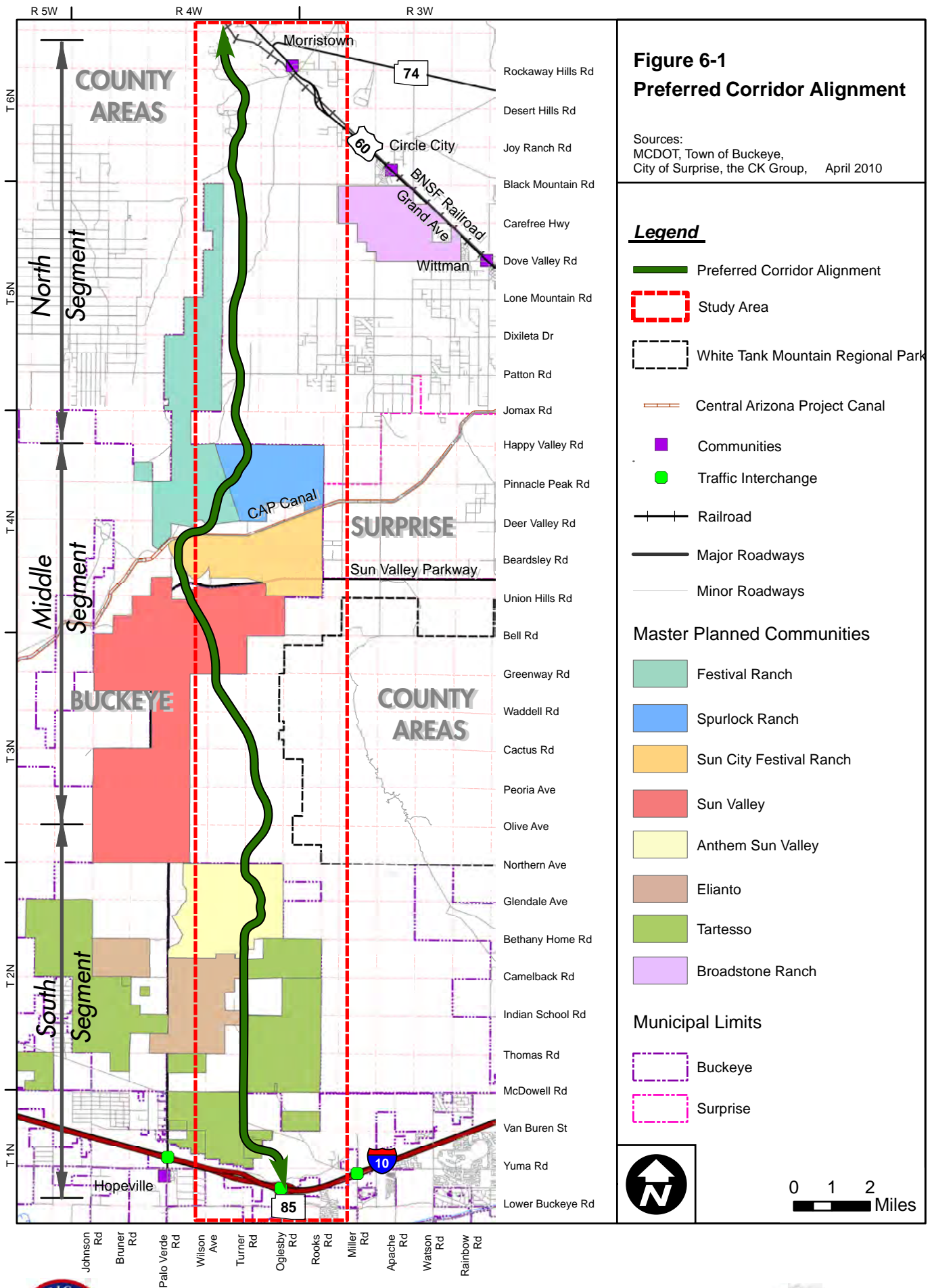
This study determined that construction of Turner Parkway (275<sup>th</sup> Avenue) between I-10 and SR-74 is feasible. The Preferred Corridor Alignment is described in this chapter. Description of the Preferred Corridor Alignment does not include the north and south termini at I-10/SR-85 and SR-74 extension, respectively. Evaluation and design concepts for these termini are not within the scope of this study and will be developed during future studies. As noted previously, the Preferred Corridor Alignment, defined as a result of this feasibility study, represents a composite plan of various recommendations and proposals associated with other studies and plans recorded for master-planned communities.

Initial identification of intersections along Turner Parkway was obtained from the Transportation Framework Recommendation formulated during the *I-10/Hassayampa Valley Roadway Framework Study*. Other circulation plans and development proposals previously cited were reviewed to identify specific locations of crossing roadways, the type of roadway (e.g., parkway, arterial, etc.), and any additional roadways not previously identified. The Preferred Corridor Alignment also incorporates alignment adjustments developed and adopted to alleviate potential and perceived impacts in response to direct stakeholder and community involvement in the Middle Segment.

### 6.1 General Description

The Preferred Corridor Alignment of Turner Parkway, as defined herein, assumes phased construction of four-, six-, and eight-lane parkway segments as growth occurs in the study area (**Figure 6-1**). It includes 25 intersections with major cross streets, excluding any future connection to I-10/SR-85 and SR-74. The intersection with the potential White Tanks Freeway is included, as it will be located in the study area. However, final configuration of this intersection is not addressed herein. In addition to the major cross streets, 13 minor cross streets have been identified and are shown intersecting Turner Parkway. The number of intersections likely will be reduced as a result of adjustments to master-planned community circulation plans and detailed engineering studies conducted during preparation of future DCRs for corridor segments.

Seven (7) of the 25 major cross streets have been identified as parkway-to-parkway intersections as a result of the *Arizona Parkway Intersection/Interchange Operational*



*Analysis and Design Concepts Study.*<sup>10</sup> Grade-separation is recommended at two (2) parkway-to-parkway intersections – McDowell Parkway and Sun Valley Parkway – to accommodate forecast average daily traffic under Buildout conditions in the study area. One grade-separated traffic interchange is anticipated at the crossing of the potential White Tanks Freeway. Development of Turner Parkway will involve crossing 13 (including three future) major utility corridors and traversing three (3) confirmed and one (1) potential wildlife linkage corridors. Evaluations conducted for this feasibility study indicate the potential for construction of 120 drainage structures.

## **6.2 Segments Descriptions**

This section provides detailed description of the Preferred Corridor Alignment within each of the segments identified for this feasibility study.<sup>11</sup> Large-scale (1" = 1,000') plan view drawings of the Preferred Corridor Alignment in its entirety are presented at the end of this report. These drawings show the recommended facility centerline, required rights-of-way, drainage crossings and other pertinent physical corridor features.

### **6.2.1 South Segment – Urban Core/White Tanks**

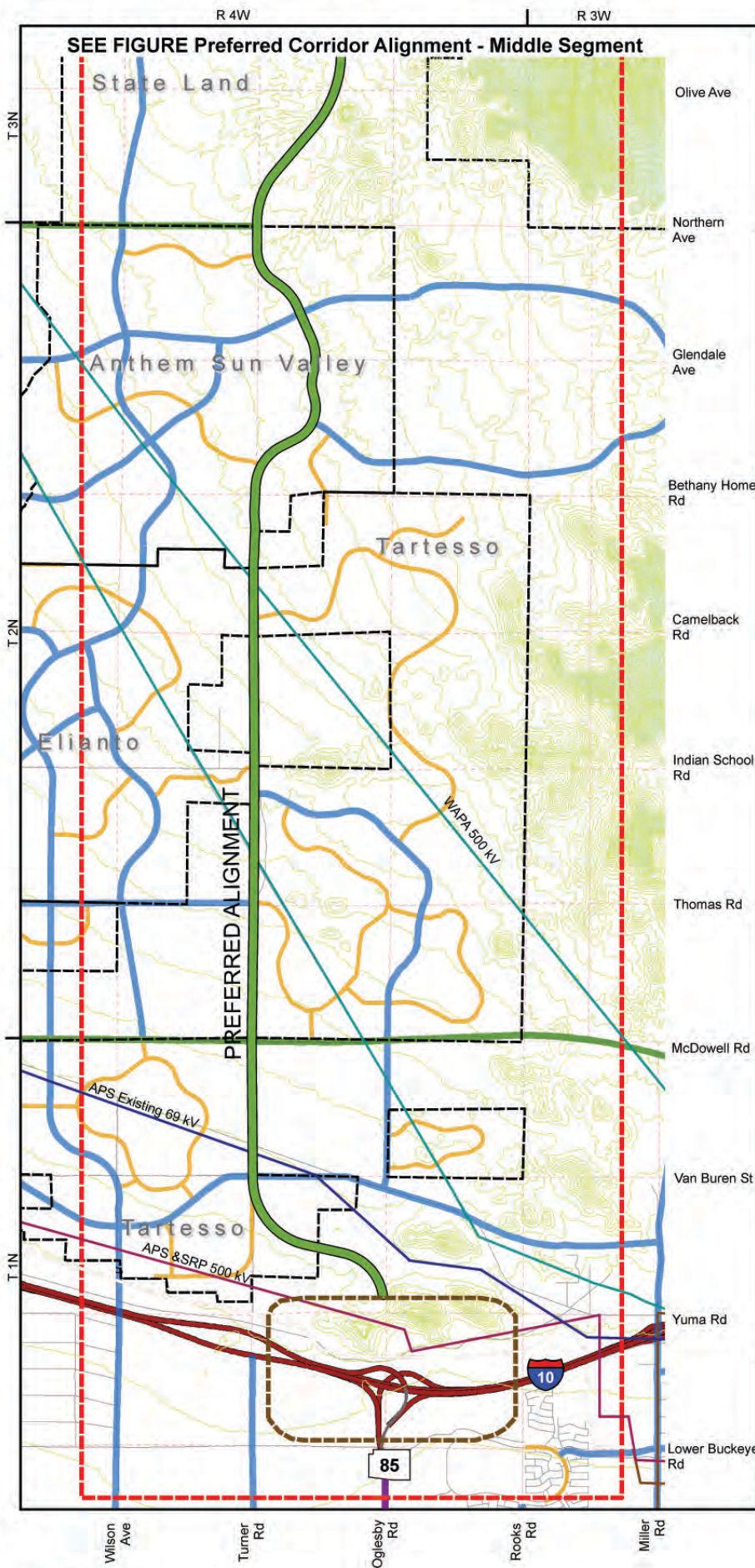
Overview: The Preferred Corridor Alignment for Turner Parkway in the South Segment (**Figure 6-2**) extends from the I-10/SR-85 interchange to the Olive Avenue alignment. Turner Parkway in the South Segment ultimately will be integrated with the I-10/SR-85 interchange. However, as noted above, resolution of the design of this connection was beyond the scope of this study. Exact alignment of the Turner Parkway connection with the I-10/SR-85 interchange and the segment directly north of the interchange will be the focus of future detailed studies.

Immediately north of the future Turner Parkway/I-10/SR-85 interchange area, the Preferred Corridor Alignment proceeds in a west by northwest direction toward the Turner Road section line (275<sup>th</sup> Avenue) one mile to the west. It intersects the section line at a point that will permit an adequate tangent length along the section line to avoid a skewed intersection with Van Buren Street. The Turner Parkway alignment continues north along the section line from Van Buren Street to the future McDowell Parkway. A PGSI is anticipated to be developed at the parkway-to-parkway intersection with McDowell Road (refer to **Figure 5-5**).

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<sup>10</sup> MCDOT Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study, MCDOT, August, 2009.

<sup>11</sup> Sheet references are provided to aid the reader in locating in Appendix A the facility design feature(s) discussed.











**Figure 6-2**  
Preferred Corridor Alignment  
- South Segment

Source:  
the CK Group,

March 2010

**Legend**

-  Study Area
-  Subdivision Boundaries
-  Preferred Turner Pkwy Alignment
-  Future Parkway Proposals
-  Future Arterial Proposals
-  Future Collector Proposals
-  10-Foot Contours
-  Turner Parkway Connection to I-10/SR-85 to be determined by future studies



0 0.5 1  
Miles



This is consistent with recommendations contained in *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study*.<sup>12</sup> North of McDowell Parkway, Turner Parkway proceeds north to the Bethany Home Road alignment and continues north in a meandering fashion through the Anthem Sun Valley master-planned community. It shifts east to 271<sup>st</sup> Avenue, approximately one-quarter mile north of Bethany Home Road, and follows 271<sup>st</sup> Avenue for approximately one mile. Between Glendale Avenue and Northern Avenue, it shifts back west to the Turner Road section line. The Preferred Corridor Alignment follows the section line until it passes Northern Avenue. North of Northern Avenue, it shifts east again, intersecting Olive Avenue at the 271<sup>st</sup> Avenue alignment.

### **6.2.2 Middle Segment – Sun Valley/Festival**

Overview: The Middle Segment of the Preferred Corridor Alignment (**Figure 6-3**) extends from the Olive Avenue alignment to Happy Valley Road. The route takes Turner Parkway through five miles of ASLD land holdings and as far west as 289<sup>th</sup> Avenue before returning to the Baseline Corridor Alignment at the Turner Road section line just south of Happy Valley Road.

In the southern portion of this segment, Turner Parkway continues north from Olive Avenue, turning back to the west before reaching Peoria Avenue. It crosses Peoria Avenue west of 271<sup>st</sup> Avenue, then picks up 273<sup>rd</sup> Avenue and follows it to Cactus Road. At Cactus Road the Preferred Corridor Alignment takes up a north by northwest route, crossing the Turner Road section line at an angle. Approximately one-half mile south of Greenway Road, the Preferred Corridor Alignment picks up the alignment of 281<sup>st</sup> Avenue and goes straight north for one (1) mile. It enters the Sun Valley Villages master-planned community at the intersection of the Greenway Road and 281<sup>st</sup> Avenue alignments.

The Preferred Corridor Alignment north from Greenway Road to Pinnacle Peak Road was developed by the Town of Buckeye as a result of public and developer feedback. Approximately one-half mile north of Greenway Road, Turner Parkway returns to the north by northwest route, crossing Wagner Wash before intersecting with Sun Valley Parkway. A PGSI will be developed at this intersection to facilitate Turner Parkway crossing over Sun Valley Parkway. Turner Parkway continues in a northwesterly direction, turning north along the general alignment of 287<sup>th</sup> Avenue south of Beardsley Parkway.

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<sup>12</sup> Ibid. Arizona Parkway.










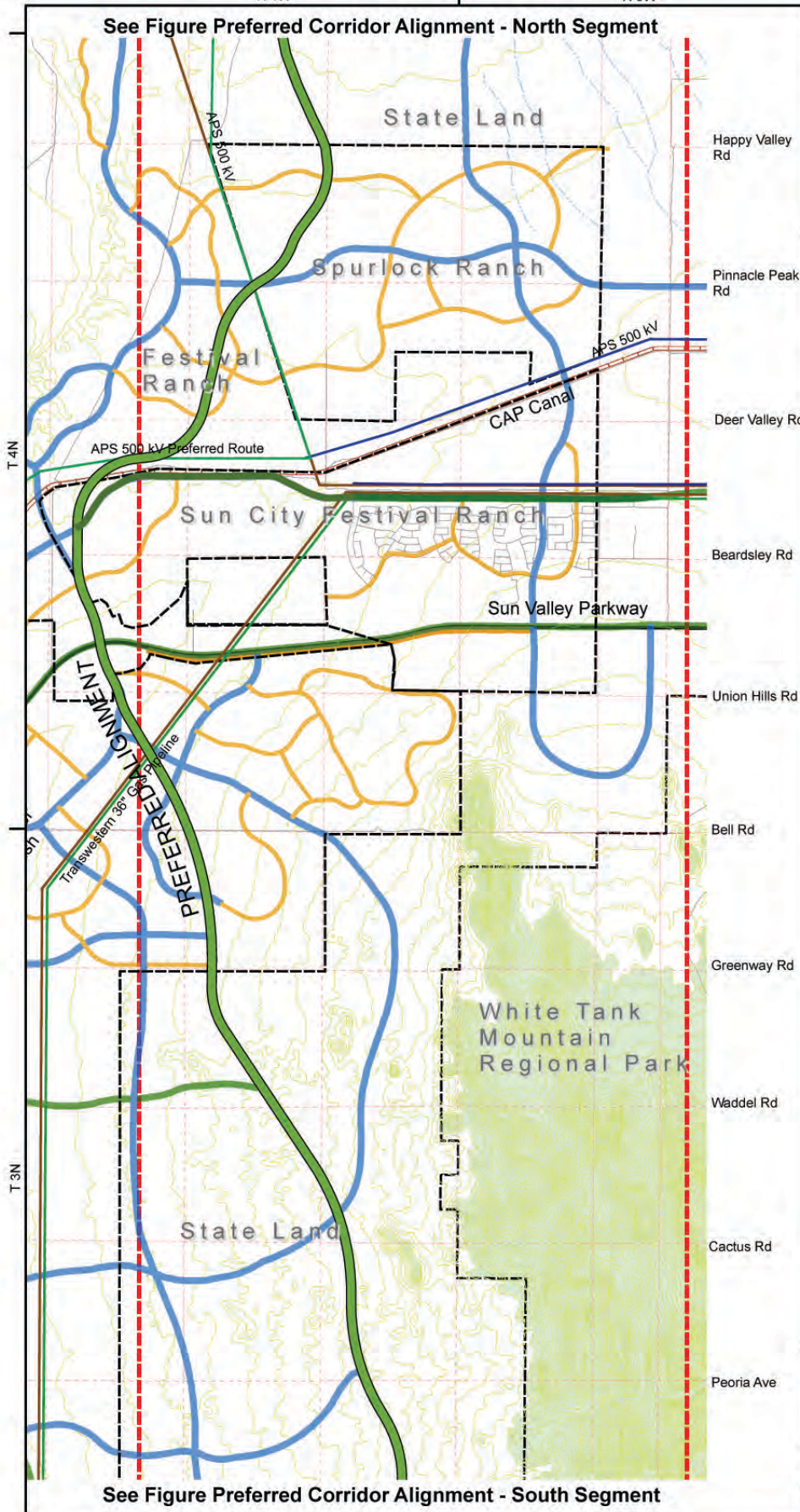
See Figure Preferred Corridor Alignment - North Segment

**Figure 6-3  
Preferred Corridor Alignment  
- Middle Segment**

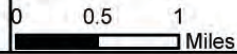
Source:  
the CK Group, March 2010

**Legend**

-  Study Area
-  Subdivision Boundaries
-  Baseline Turner Pkwy Alignment
-  Future Parkway Proposals
-  Future Arterial Proposals
-  Future Collector Proposals
-  10-Foot Contours



See Figure Preferred Corridor Alignment - South Segment



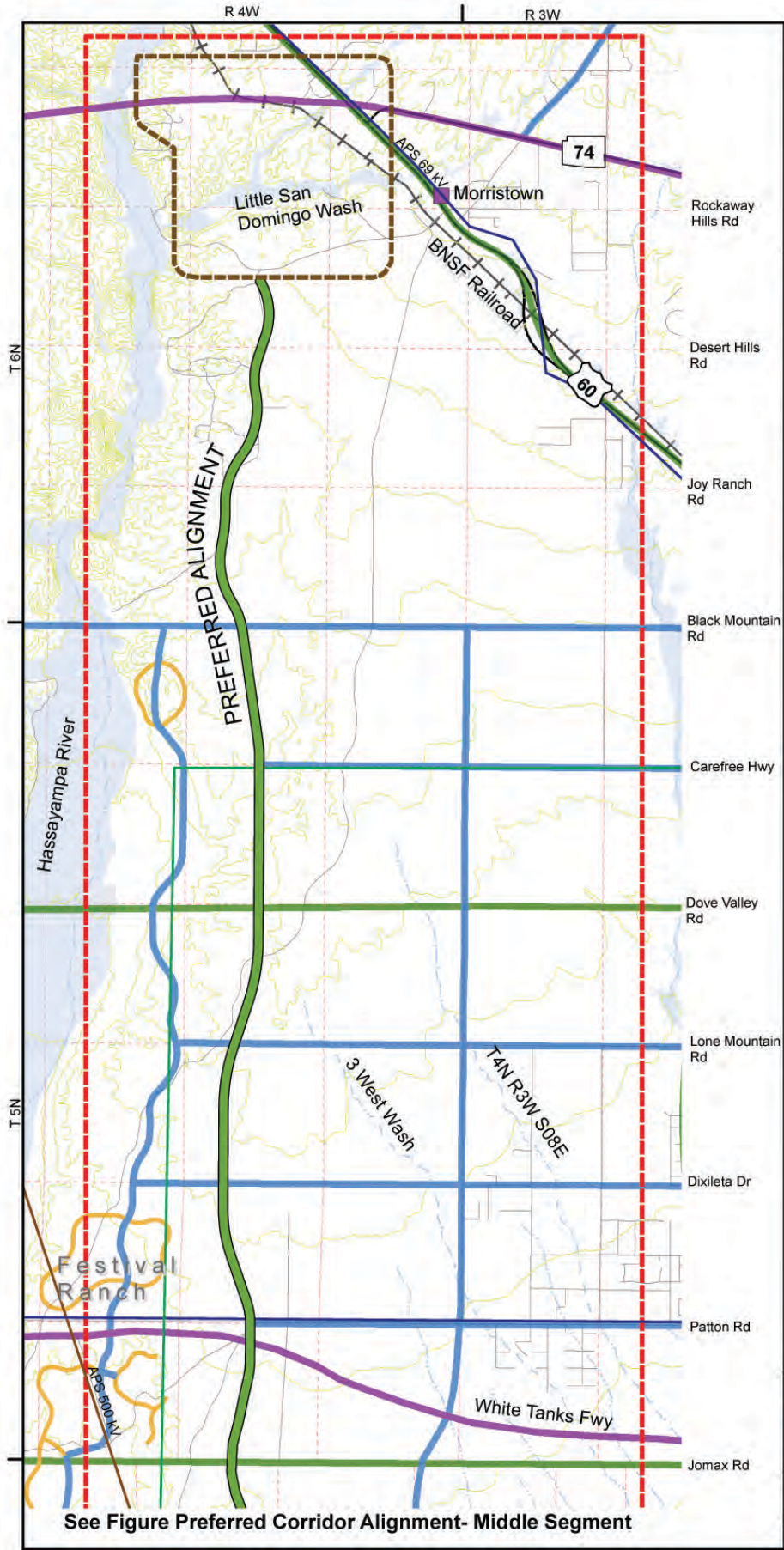
Continuing north, Turner Parkway crosses the CAP canal east of the Palo Verde Road section line approximately at 289<sup>th</sup> Avenue. North of the CAP canal, the alignment immediately turns to the east, passing through the canal-created flood pool area for a distance of approximately three-quarters of a mile. The alignment turns in a north by northeast direction at the 281<sup>st</sup> Avenue alignment and continues through the Festival Ranch master-planned community. It crosses into the Spurlock Ranch master-planned community near the intersection of Pinnacle Peak Road and 279<sup>th</sup> Avenue approximately 1½ miles north of the CAP canal. North of Pinnacle Peak Road, Turner Parkway transitions back to the Baseline Corridor Alignment, continuing northeast to the Turner Road section line (275<sup>th</sup> Avenue) at Happy Valley Road.

### **6.2.3 North Segment – State Land/SR-74 Extension**

Overview: The Preferred Corridor Alignment for Turner Parkway in the North Segment (**Figure 6-4**) continues in a generally northerly direction from Happy Valley Road through predominantly ASLD land to the future westward extension of SR-74. In this segment, Turner Parkway crosses the potential White Tanks Freeway between Patton Road and the Jomax Road alignment. The White Tanks Freeway is recommended in *the I-10/Hassayampa Valley Roadway Framework Study*. This major regional transportation facility will connect US-60, approximately 10 miles to the east, with the future Hassayampa Freeway, approximately 10 miles to the west.

Turner Parkway continues north from Happy Valley Road into an area of State Land, trending slightly to the northwest to 279<sup>th</sup> Avenue at Jomax Road. It shifts back to the east, crossing Patton Road in the vicinity of 277<sup>th</sup> Avenue. North of Patton Road, it shifts back to 279<sup>th</sup> Avenue, following 279<sup>th</sup> Avenue to Lone Mountain Road. North of Lone Mountain Road, the Preferred Corridor Alignment shifts back east to 277<sup>th</sup> Avenue and follows 277<sup>th</sup> Avenue to Black Mountain Road. Directly north of the alignment of Carefree Highway, Turner Parkway shifts to the west to minimize impacts on drainage and reduce facility costs. Crossing Black Mountain Road at 278<sup>th</sup> Avenue, Turner Parkway follows a route west to 279<sup>th</sup> Avenue, shifting back to the 277<sup>th</sup> Avenue alignment north of the Joy Ranch Road alignment. The Preferred Corridor Alignment shifts east to 276<sup>th</sup> Avenue at Desert Hills Road, and reconnects with the Baseline Corridor Alignment one-half mile north of Desert Hills Road.

The *I-10/Hassayampa Valley Roadway Framework Study* resulted in the recommendation that SR-74 be extended west of US-60 as a freeway, connecting with the future Hassayampa Freeway approximately 11 miles to the west. Consistent with this recommendation, the Preferred Corridor Alignment incorporates a shift of Turner Parkway westward north of the Desert Hills Road alignment and south of Little San Domingo Wash. This shift will permit Turner Parkway to connect with the proposed SR-74 Freeway extension west of US-60 and

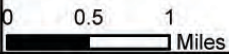


**Figure 6-4  
Preferred Corridor Alignment  
- North Segment**

Source:  
the CK Group March 2010

**Legend**

- Study Area
- Subdivision Boundaries
- Baseline Turner Pkwy Alignment
- Future Freeway Proposals
- Future Parkway Proposals
- Future Arterial Proposals
- Future Collector Proposals
- 10-Foot Contours
- Turner Parkway Connection to SR-74/US-60 to be determined by Future studies



See Figure Preferred Corridor Alignment- Middle Segment



the BNSF Railway corridor. This alignment adjustment also is consistent with the long-range planning for the major street system of the City of Surprise.<sup>13</sup> And, it satisfies the need for physical space to construct a grade-separated interchange at this intersection. The exact alignment and connection of Turner Parkway with the proposed SR-74 Freeway will be identified by others subsequent to future, more detailed studies.

### 6.2.4 Summary

**Table 6-1** provides a summary of principal characteristics of the Preferred Corridor Alignment including total length, lane miles, drainage crossing and Right-of-Way requirements for each segment.

<b>Facility Characteristic</b>	<b>South Segment</b>	<b>Middle Segment</b>	<b>North Segment</b>	<b>Total</b>
Segment Length (Miles)	10.00	11.35	11.03	<b>32.38</b>
Number of Lane Miles (Assumes a six-lane parkway cross-section)	60	68.10	66.18	<b>194.28</b>
Number of Drainage Crossings				
Small	17	32	16	<b>65</b>
Medium	9	17	2	<b>28</b>
Large	<u>21</u>	<u>4</u>	<u>2</u>	<b>27</b>
<b>Total</b>	<b>47</b>	<b>53</b>	<b>20</b>	<b>120</b>
Right-of-Way Requirement (acres)				
Private	153	174	0	<b>327</b>
State/Federal	<u>97</u>	<u>105</u>	<u>267</u>	<b>469</b>
<b>Total</b>	<b>250</b>	<b>279</b>	<b>267</b>	<b>796</b>

Source: the CK Group February, 2010

### 6.3 Facility Design Concept

This section identifies foundational descriptions of roadway design elements and cross-sections associated with Turner Parkway. It also addresses guidelines for crossing the CAP canal and other facility development considerations relative to major utility crossings and environmental concerns. Various design considerations for corridor feasibility evaluation were based on Buildout conditions forecast for the study area. This means evaluations and facility design treatments presented herein are based on MAG area-wide

<sup>13</sup> "Overview, Special Planning Area 4 and 5," Long Range Major Street Plan, City of Surprise, December 2008.

projections of population and employment beyond 2030. The expected Buildout population in the area within eight (8) to 10 miles of the future Turner Parkway is projected to approach 1.2 million persons (refer to Section 2.1 for future population and employment projections under Buildout conditions).

### 6.3.1 Roadway Design Elements

**Table 6-2** below identifies key roadway design elements associated with the Arizona Parkway concept, as adopted by MCDOT for future parkway facilities in Maricopa County. These design parameters were used for this study effort to validate the Baseline Corridor Alignment for Turner Parkway as well as define the Conceptual Alignment Alternatives.

<b>Table 6-2 Urban Roadway Design Elements for Arizona Parkway</b>		
<b>Design Element</b>	<b>Urban</b>	<b>Rural</b>
Standard Right-of-Way Requirement <sup>1</sup>	200 feet	200 feet
Design Speed <sup>2</sup>	55 MPH	65 MPH
Super Elevation <sup>2</sup>	4% maximum	8% maximum
Longitudinal Grades <sup>2</sup>	5% maximum	3% maximum
Notes: 1) Excludes additional right-of-way required for drainage, slope easements, and ramps that may be associated with parkway-to-parkway grade-separated intersections. 2) Reported values are for predominant level terrain conditions along the Turner Parkway Corridor.  Source: Urban roadway design parameters from MCDOT Roadway Design Manual, Revised 2004, and MCDOT Design Guideline Recommendations for the Arizona Parkway, August 2008.		

### 6.3.2 Conceptual Design Elements

Turner Parkway is proposed to be an Arizona Parkway-type facility. The Arizona Parkway concept is based on a traffic flow concept that requires vehicle operators desiring to turn left at an intersection to turn right then make a U-turn to accomplish a left-turn. This “indirect left-turn” operational protocol was first adopted on a large scale in Michigan; hence, it often is referred to as the “Michigan indirect left-turn” roadway. The Arizona Parkway concept has been adopted by MCDOT and accepted by MAG, the City of Surprise, and the Town of Buckeye as the principal facility design for major arterial roadways.

The Arizona Parkway concept has been determined essential to accommodate travel demand under Buildout conditions in the study area. To this end, MCDOT commissioned

development and publication of guidelines for the design and operation of the Arizona Parkway.<sup>14</sup> The MCDOT *Design Guideline Recommendations for the Arizona Parkway* (August, 2008), a copy of which is included in Technical Memorandum 6, **Appendix F** was followed by the *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study* (September, 2009), which identified parkway-to-parkway intersections that would need grade separation to accommodate forecast traffic volumes.

### 6.3.2.1 Facility Cross-Section

MCDOT guidelines for the Arizona Parkway incorporate the cross-sections shown in **Figure 6-5**. This type of facility can be developed as a four-, six-, or eight-lane roadway. The typical urban cross-sections for the Arizona Parkway shown in **Figure 6-5** have an extra-wide median. The width of the median varies according to the number of lanes and the types of vehicles anticipated to be using the roadway. Longer, over-the-road truck-trailer combinations have a larger turning radius and, therefore, parkway design must incorporate a median correlated with the number of available lanes. Regardless of the number of lanes or the width of the median, the minimum right-of-way for an Arizona Parkway, established by the MCDOT guidelines for purposes of planning the roadway network and right-of-way preservation, is 200 feet. This recommended right-of-way width will accommodate an eight-lane parkway with indirect left-turns by the largest vehicles.

### 6.3.2.2 Conceptual Intersection Designs

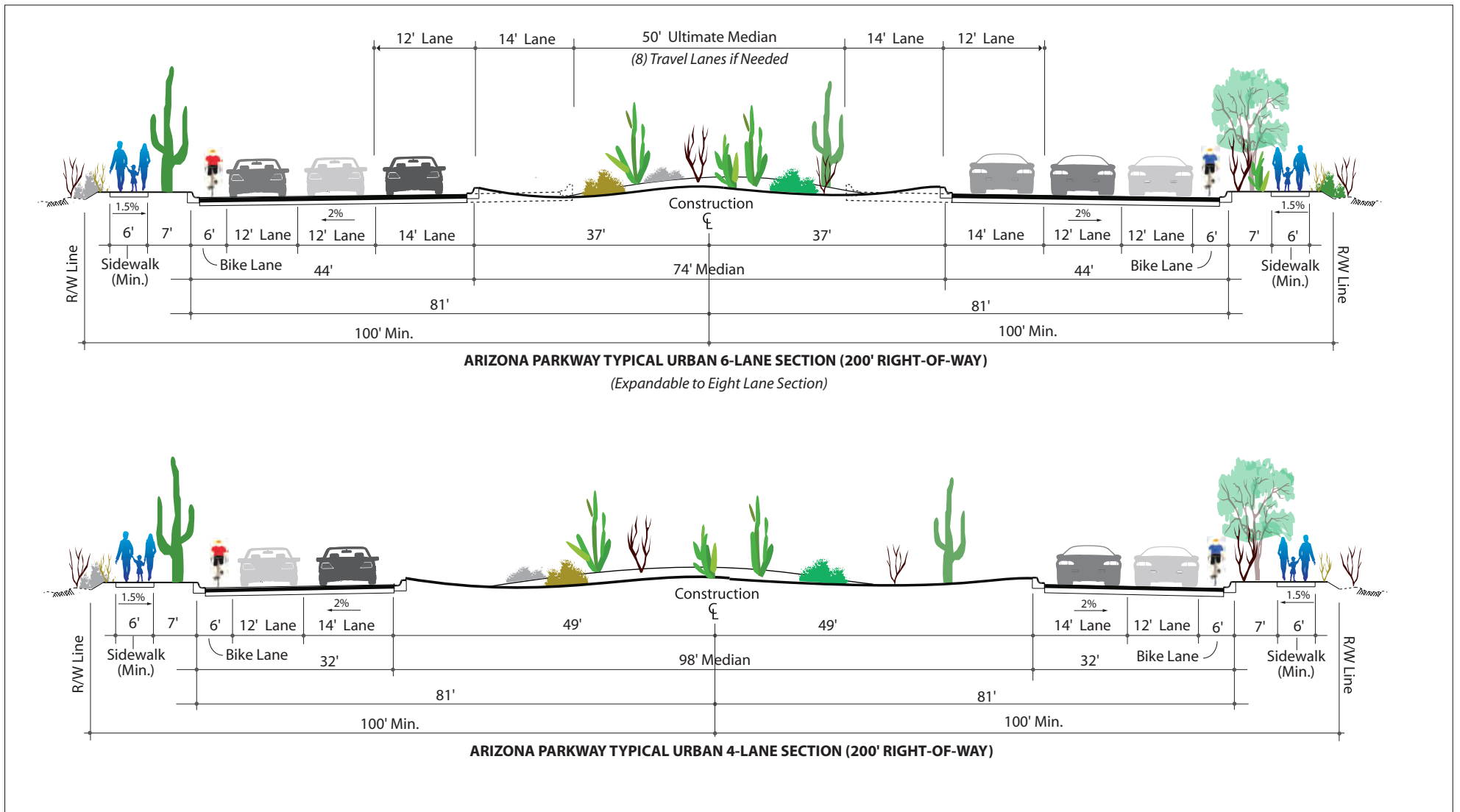
MCDOT has gone forward with additional planning to determine how and where the major arterial roadways will intersect and what type of intersection will be required to accommodate forecast travel demand. Its study of the operational requirements of parkway-to-parkway intersections, based on forecast traffic from the *I-10/Hassayampa Valley Roadway Framework Study*, identified the type of intersection needed at each potential parkway-to-parkway intersection.<sup>15</sup> This MCDOT study identifies the need for five grade-separated intersections along the future Turner Parkway at the following locations:

- I-10/SR-85 – freeway-to-parkway intersection, which already is developed as a grade-separated interchange;
- McDowell Parkway (PGSI) – parkway-to-parkway intersection;
- Sun Valley Parkway (PGSI) – parkway-to-parkway intersection;

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<sup>14</sup> Ibid. MCDOT Design Guideline.

<sup>15</sup> Ibid. Arizona Parkway.



**Figure 6-5**  
**Arizona Parkway Facility Typical Urban Cross Sections**

Source: MCDOT Design Guideline Recommendations for the Arizona Parkway, August, 2008



- White Tanks Freeway – freeway-to-parkway intersection, potential new facility recommended in the *I-10/Hassayampa Valley Roadway Framework Study*; and
- SR-74 Extension – freeway-to-parkway intersection, recommended in the *I-10/Hassayampa Valley Roadway Framework Study*.

As shown previously in Figure 5-5, the PGSI conceptual design was developed during the MCDOT study to meet the needs associated with grade separation of two parkway facilities forecast to have high traffic volumes. Future, more detailed studies to be conducted as development of Turner Parkway proceeds should incorporate appropriate reference to the two MCDOT design guideline publications prepared for the Arizona Parkway facility. In addition, ADOT is currently developing templates for Freeway to Parkway interchanges. It is anticipated that this study will be completed by the end of the year.

### 6.3.2.3 CAP Canal Crossing Design Considerations

A new bridge structure will be required to cross the CAP canal and the impoundment area (also referred to as green-up area or flood pool) on the north side of the canal. The design solution for this crossing must satisfy requirements listed below established by the CAWCD, administrator of the CAP canal.

- The bridge must span the CAP canal and the Operating and Maintenance (O&M) roads on both sides.
- The bridge must provide a vertical clearance of 14'-6" above the O&M roads to allow maintenance vehicles to operate unimpeded.
- The bridge must span the future Central Arizona Project Trail. The minimum trail width will be 20 feet and located along the canal's right bank (facing downstream).
- Bridge piers located on each side of the canal shall not be closer than 5'-0" from the edge of the canal lining.
- The O&M roads may be closed one at a time, but both roads shall not be closed simultaneously during construction.
- Material/debris should be prevented from falling into the canal during construction. Any material/debris falling into the canal must be removed per CAP instructions.
- The existing bridge may be removed, if necessary. The existing pier in the canal shall not be removed.
- Gated access for the O&M road to/from the crossing roadway, which in this case will be Turner Parkway, must be provided.
- Final selection of the corridor alignment shall implement measures to keep the pool area north of CAP canal working efficiently without affecting the CAP canal O&M.



Achieving the 14½ feet of vertical clearance will require fill embankments north and south of the CAP crossing to accommodate a new Arizona Parkway bridge. This requirement will, in turn, pose vertical constraints for the alignment of the parkway facility approach on both sides of the canal. Also, the embankment on the north side of the CAP Canal could adversely impact the impoundment (or flood pool) area. In order to minimize potential impact on this area and allow cross drainage across parkway alignment, the bridge structure north of the CAP canal may need to span the full width of the impoundment area. Any loss of flood storage capacity must be reinstated through excavation of adjacent land.

#### 6.3.2.4 Drainage Considerations

The Preferred Corridor Alignment of Turner Parkway crosses numerous floodplains and tributary drainage features. Potential impacts to floodplains need to be evaluated and mitigated: roadway alignments should avoid excessively long sections in a delineated floodplain. Therefore, the size and number of drainage structures must be considered. Existing drainage conditions were identified and evaluated with reference to local and national guidance for design solutions to potential drainage challenges. Significant drainage design factors associated with the feasibility of constructing Turner Parkway are noted below (refer to Technical Memorandum #4, Drainage Overview):

- All floodplain studies of alluvial fans in the Turner Parkway study area provide only 'approximate' floodplain delineations. As such, they do not specify base flood elevations associated with each zone. FEMA has indicated flood hazards on alluvial fans cannot be sufficiently mitigated by placement of fill alone. Generally, FEMA promotes 'whole fan solutions' to remove floodplain zones on alluvial fans.
- The crossing of delineated floodplains must adhere to design guidelines of the FCDMC. Such crossings shall not adversely affect adjacent properties by increasing established flooding limits or directly impact properties adjacent to drainage crossings of the roadway facility.
- The design discharge for the Sun Valley Parkway Channel, primary drainage path of floodwaters from White Tank Alluvial Fans 1 and 2 and a portion of Alluvial Fans 3 and 13 is 1,840 cfs.
- A bridging structure, including fill embankments, constructed to cross over the CAP canal cannot adversely impact the impoundment area on the north side of the canal.
- The bridging structure over the CAP canal cannot adversely impact the west/east cross drainage flow of the flood pool or the capacity of the flood pool.
- Little San Domingo Wash has a peak flow of approximately 3,220 cfs at its crossing of the Turner Parkway Preferred Corridor Alignment. The width of the floodplain at this location is about 600 feet.

- Drainage crossings have been classified into three (3) types based on run-off quantity and required sizing of standard drainage facilities: Small: less than 335 cfs; Medium: 335 – 1,200 cfs ; Large: 1,200 – 3,300 cfs.

#### 6.3.2.5 Environmental Considerations

Maintaining viable wildlife corridors to facilitate connectivity between adjacent habitat blocks is critical to protecting *in situ* wildlife populations from localized extirpation and decreased genetic diversity. The environmental overview prepared for this study established the basis for identifying and evaluating potential impacts. Specific environmental design considerations will need to be identified and considered during future studies in accordance with established federal, state, and local laws and policies. These more detailed design studies will need to include close coordination with AZGFD and FCDMC. Parkway design treatments should seek to minimize impacts to the Sonoran Desert Tortoise as well as other Special Status Species and wildlife linkages known to be present or occur within or in the vicinity of the Preferred Corridor Alignment. AZGFD should have the opportunity to review, evaluate, and suggest changes to parkway design treatments.

During subsequent environmental documentation activities for the study area, ambient noise levels may need to be monitored at specific locations. The future noise quality for the study area will need to be evaluated against the existing noise data to conform to the *MCDOT Noise Abatement Policy*. In addition, local noise ordinances will need to be evaluated in considering future project development.

#### 6.3.2.6 Utility Crossings

The Turner Parkway study area is crossed by high-voltage, overhead electric (OHE) transmission (550 kV, 345 kV, and 230 kV) and 69 kV transmission lines owned by APS, APS/SRP, and WAPA. The number of utility crossings and required clearances were identified and considered during development, definition, and evaluation of the Preferred Corridor Alignment. Minimum electric utility clearance requirements are noted in **Table 6-3**. Individual utilities will need to be contacted to secure permits for the crossing of established right-of-way and obtain specific utility clearances, depending on the final alignment and profile of Turner Parkway.

The Baseline Corridor Alignment of Turner Parkway also crosses a 36-inch natural gas pipeline recently constructed by the Transwestern Pipeline Company. The pipeline runs along the north side of the Beardsley Road alignment, north of Sun City Festival Ranch. It crosses Desert Oasis Boulevard and continues in a southwesterly direction parallel to the APS/SRP OHE transmission lines. It crosses the Preferred Corridor Alignment approximately one-half mile south of Sun Valley Parkway. The minimum ground cover for the gas pipeline is four (4)

feet. Flow of natural gas through the pipeline cannot be disrupted, thus eliminating any opportunity for relocating or lowering the gas pipeline. Future roadways that will cross the pipeline, including Turner Parkway, will be required to acquire utility crossing clearance from the Transwestern Pipeline Company.

Table 6-3 Overhead Electric Transmission Line Clearance Requirement							
Transmission Line (kilovolts)	Number of Transmission Lines	Owner	Location	Pole/Tower Spacing (feet)	Easement (feet)	Clearance Requirement (feet)	
						Horizontal <sup>1</sup>	Vertical <sup>2</sup>
69 kV	1	APS	North side of I-10	400	NA	32	22.57
	1	APS	North side of Patton Rd	400	NA		
	1	APS	South side of US-60	NA	NA		
345 kV	1	WAPA	Through Tartesso Development	1,000 to 1,300	100 to 150	32	31.77
500 kV	1	APS/SRP	North of I-10/SR-85	1,000	NA	32	36.93
	2	WAPA	Through Tartesso Development	1,000 to 1,300	250		
	3	APS/SRP	North of Beardsley Rd	1,320	NA		
	Planned	APS	North of Lone Mountain Rd	NA	NA		

Notes:  
 1) AASHTO Roadside Design Guide.  
 2) Where the controlling authority requires a greater clearance, that clearance will be met. When it is reasonable to assume vehicles greater than 14 feet will be operating under the line, the clearance shall be increased by the difference between 14 feet and the height of the vehicles.

Source: APS, the CK Group June 2009

## 6.4 Access Management Guidelines

The MCDOT *Design Guidelines Recommendations for the Arizona Parkway* (August, 2008) includes guidance for access management along parkway facilities. The guidelines highlight the following design criteria for establishing access management for an Arizona Parkway facility.

- The Arizona Parkway consists of a divided cross-section with a 74' typical median (exclusive of turn lanes).
- U-turn directional crossovers are restricted to a maximum of eight per mile.
- Left-turns in any direction are prohibited at all intersections (full median break).
- Left-turns from a side-street or driveway onto the Parkway are prohibited.
- Left-turns from the Parkway to a side-street or driveway are discouraged due to conflicts between U-turns and right-turns. However, this can be accommodated by

- aligning the U-turn crossover with the side-street or driveway in order to facilitate left-turns and U-turns.
- Intersections (full median breaks) preferably are restricted to one-mile spacing and a minimum spacing of half-mile.
  - No on-street parking.

This publication indicates “access management guidelines should be considered as a minimum and may be supplemented or superseded by the guidelines and policies of the local agency which has jurisdiction over the roadway.” It also points out that “during an interim stage when the indirect left-turn is not fully implemented, direct left-turns may be allowed.”

## 6.5 Planning-Level Cost Estimates

Unit cost and total projects costs have been prepared for planning purposes. These costs should be reevaluated and revised accordingly, as more detail engineering solutions are defined.

Planning-level cost estimates were developed for a typical Arizona Parkway facility based on previously conducted Parkway studies by MCDOT in 2007 and 2008. A roadway construction cost of \$9.6 million per mile was estimated for construction of a six-lane Arizona Parkway cross-section. It was developed by averaging estimated roadway construction costs reported in recently completed MCDOT planning studies conducted for similar parkway facilities in years 2007 and 2008. This estimated unit cost includes 20 percent contingencies in anticipation of considerable drainage complications.

The preliminary probable project cost to construct Turner Parkway, based on planning-level assumptions, findings, and conclusions documented herein, is estimated to be \$478.7 million (2009 \$\$). This includes: construction of the parkway facility; right-of-way acquisition; and construction of major grade-separated interchanges at McDowell Parkway and Sun Valley Parkway. This planning level cost estimate does not include the cost for purchase or relocation of existing residences in the corridor. The **Table 6-4** provides a summary of the major costs associated with construction of Turner Parkway along the Preferred Corridor Alignment.

The estimated cost of the CAP canal bridge crossing structure was developed from a \$123 per square-foot unit cost, based on detailed estimates developed for significant crossing structures in the MCDOT *Patton Road and Jomax Road Area Corridor Study*, completed in October 2007. A \$21.3 million cost for the potential PGSI was obtained from

<b>Table 6-4 Planning-Level Project Cost Estimate (Millions of 2009 \$\$)</b>				
Anticipated Roadway Construction Cost	\$96.0	\$109.0	\$105.9	<b>\$310.9</b>
Roadway Right-of-Way <sup>1</sup>	\$35.7	\$40.0	\$38.5	<b>\$114.2</b>
Major Structural Elements				
PGSI <sup>2</sup>	\$21.3	\$21.3	-	<b>\$42.6</b>
White Tanks Freeway Interchange <sup>3</sup>	-	-	-	-
CAP Canal Crossing	-	\$11.0	-	<b>\$11.0</b>
<b>Total Estimated Project Cost</b>	<b>\$153.0</b>	<b>\$181.3</b>	<b>\$144.4</b>	<b>\$478.7</b>
Notes:				
1) Unit costs for right-of-way were provided by MCDOT, which considered properties sold in 2006 around the study area.				
2) <i>Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study</i> , MCDOT and Wilson & Company, September 2009.				
3) The exact location of connection with the potential White Tanks Freeway will be identified through future studies.				
Source: the CK Group				February, 2010

the MCDOT *Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study*. Unit costs for right-of-way were established at: \$3.29 per square-foot or \$143 thousand per acre. Unit costs for right-of-way were provided by MCDOT, which considered properties sold in 2006 around the study area.

## 6.6 Project Phasing

The MCDOT *Design Guideline Recommendations for the Arizona Parkway* identify a strategy for phasing development, as may be necessary in response to area growth and travel demand. Ideally, the full 200-foot right-of-way would be obtained and available to construct full typical section initially. However, this may not always be the case. Assuming only one-half of the eventual full right-of-way width is available for the initial construction, the half-street should be constructed and operated as a traditional arterial roadway allowing left-turns at intersections. The recommendations note that median crossovers should not be developed/provided in conjunction with a partial facility. Median crossover locations should be determined after the development pattern (and accompanying access requirements) has been established. This will permit planners and engineers to optimize median crossover locations.

Under conditions permitting full street construction, the number of lanes initially constructed is typically less than the planned ultimate cross-section, the phasing strategy should recognize the needs of the ultimate full-width cross-section. Thus, if a 4-lane urban cross-section is constructed, median crossovers should be designed and constructed in the location required for a 6- or 8-lane parkway, depending on the ultimate cross-section. Initially, the outermost lanes will be constructed. As warranted by traffic demands, additional lanes in each direction will be added into the median. Thus, the outside curb line can be

constructed in its ultimate location with the first phase of implementation and reconstruction will not be required with the addition of travel lanes.

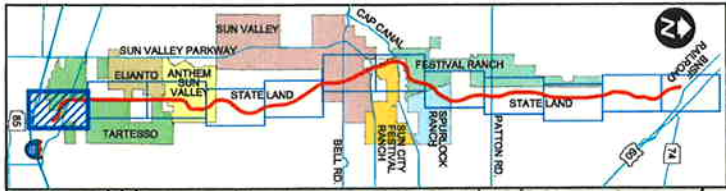
# Plan Drawings of the Preferred Corridor Alignment Concept

*Final Report*

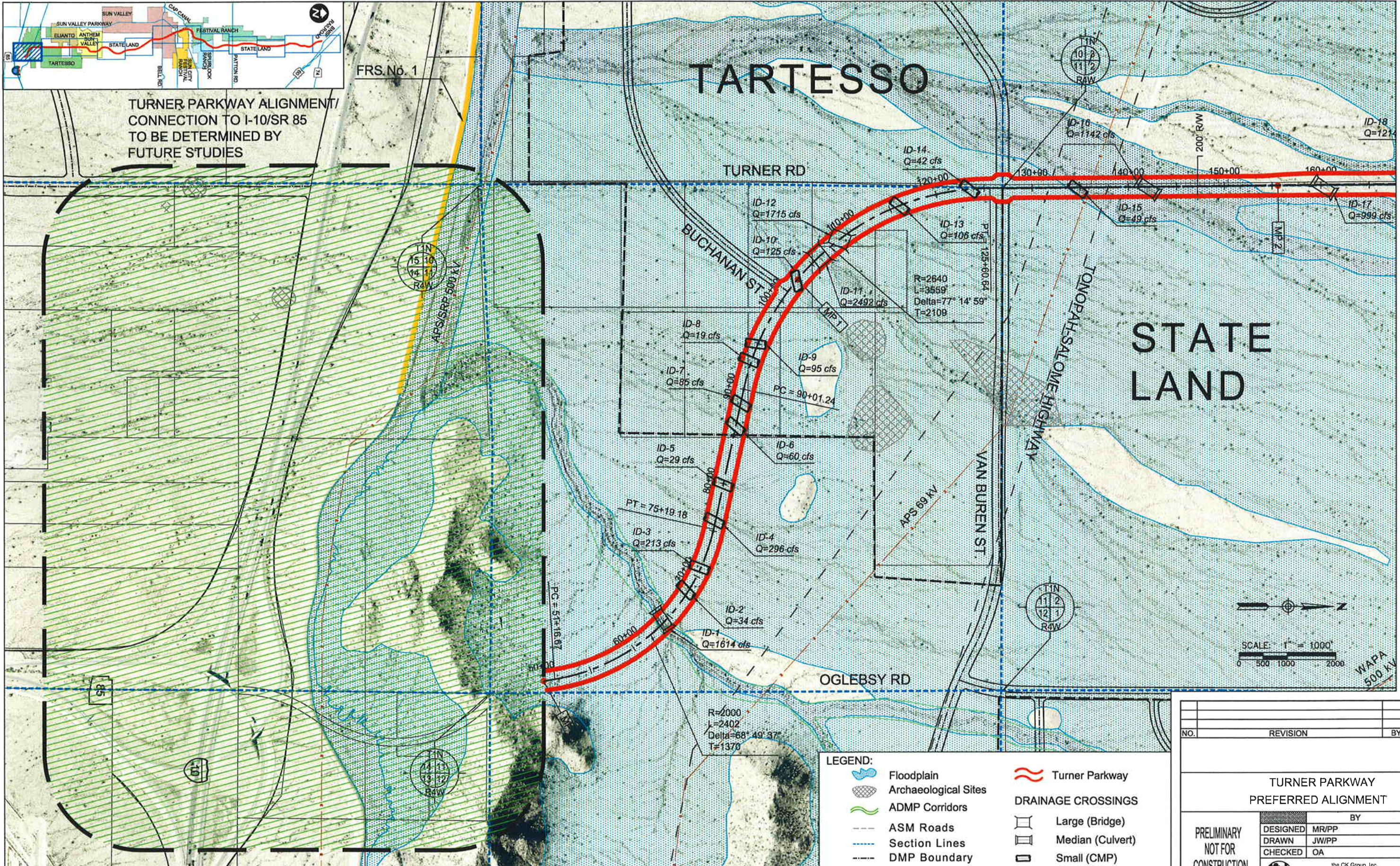
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Turner Parkway Corridor Feasibility Study  
I-10 to SR- 74





TURNER PARKWAY ALIGNMENT/  
CONNECTION TO I-10/SR 85  
TO BE DETERMINED BY  
FUTURE STUDIES



STATE  
LAND

TARTESSO

TURNER RD

BUCHANAN ST

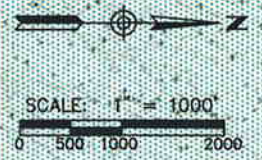
VAN BUREN ST

OGLEBSY RD

JONPAHSALOME HIGHWAY

**LEGEND:**

	Floodplain		Turner Parkway
	Archaeological Sites	<b>DRAINAGE CROSSINGS</b>	
	ADMP Corridors		Large (Bridge)
	ASM Roads		Median (Culvert)
	Section Lines		Small (CMP)
	DMP Boundary		



NO.	REVISION	BY	DATE

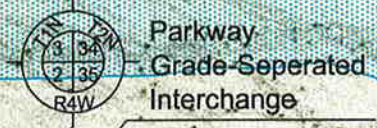
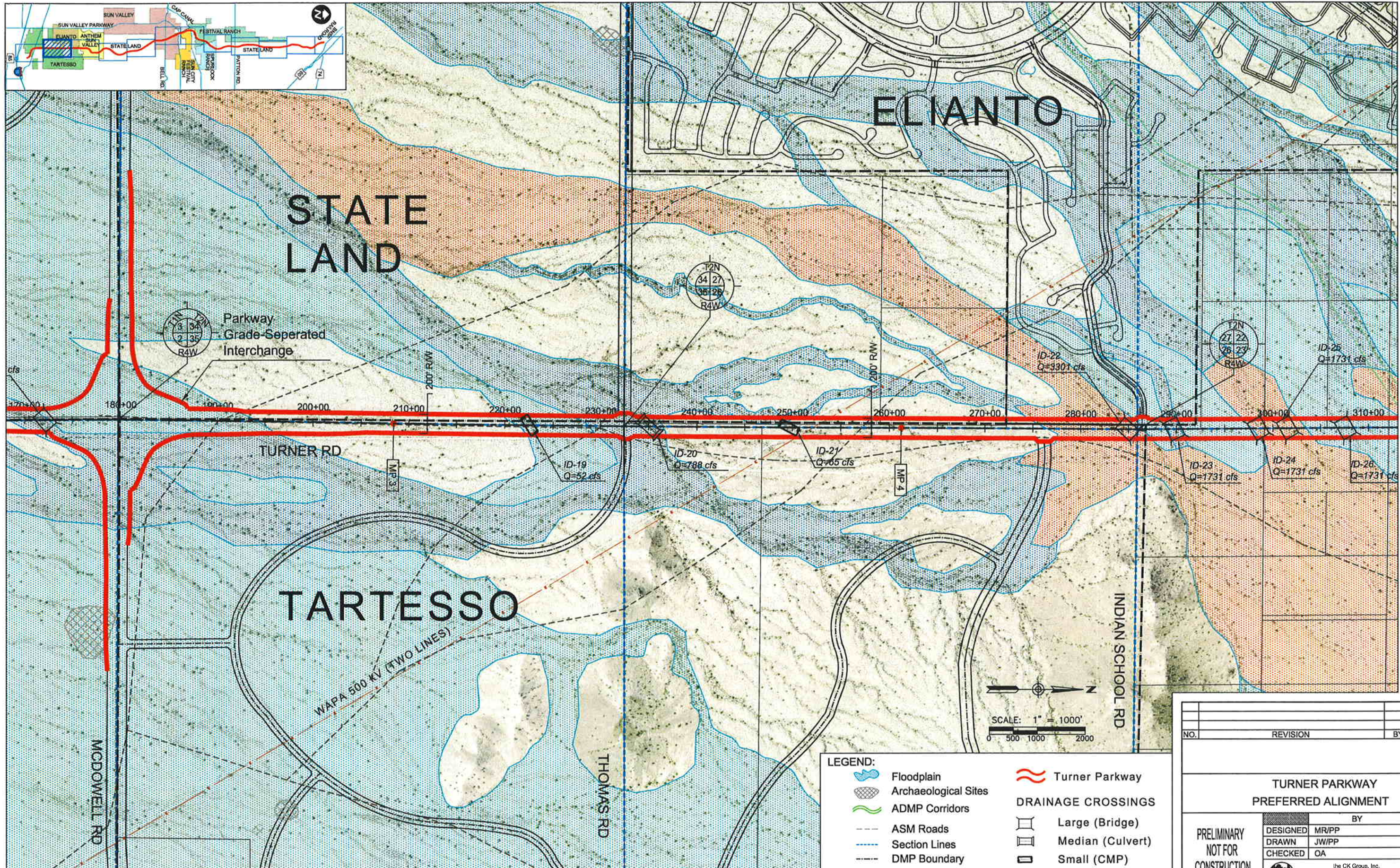
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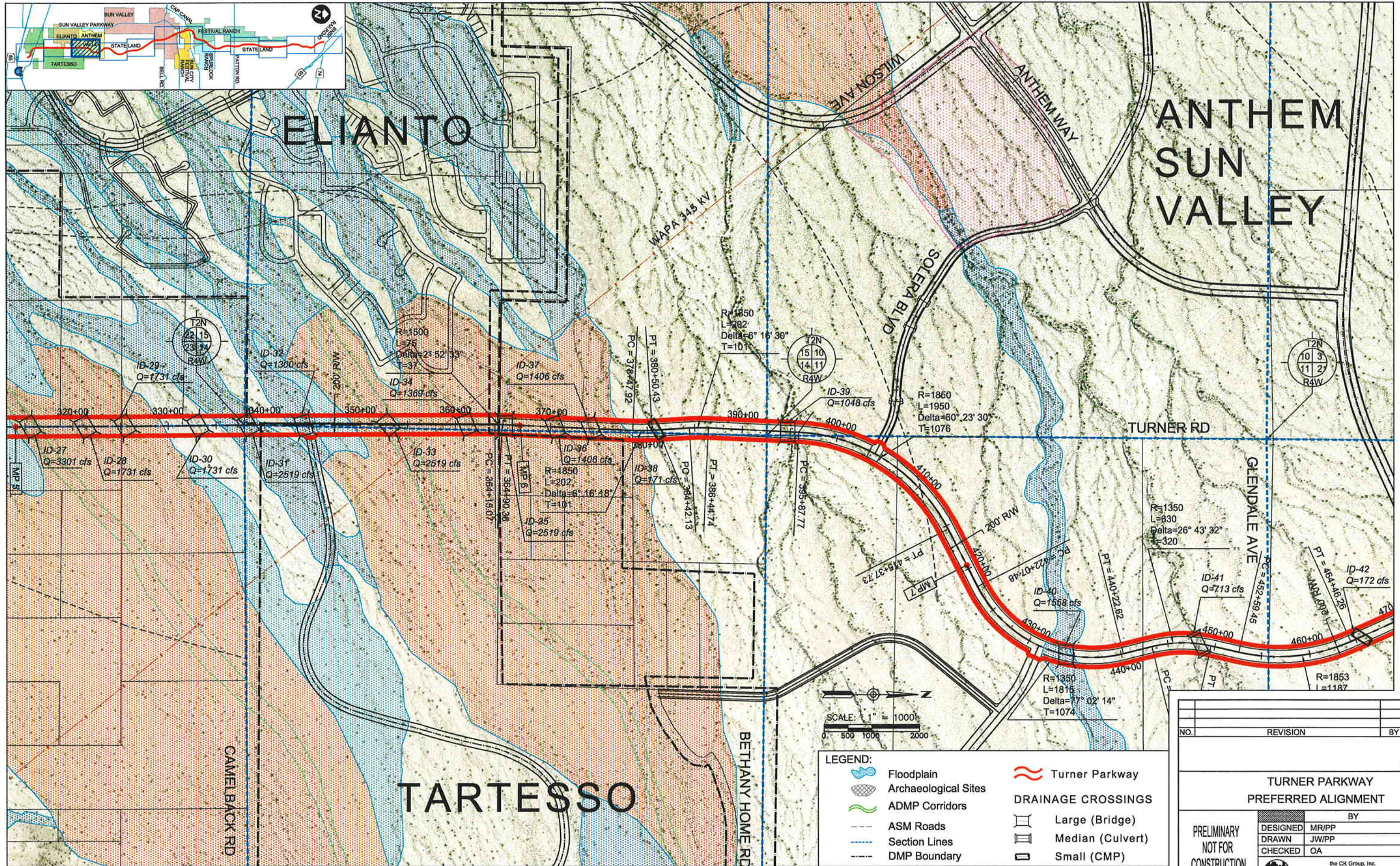


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	Archaeological Sites	<b>DRAINAGE CROSSINGS</b>	
	ADMP Corridors		Large (Bridge)
	ASM Roads		Median (Culvert)
	Section Lines		Small (CMP)
	DMP Boundary		

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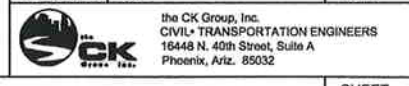
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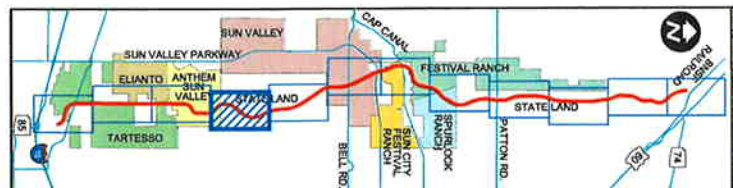
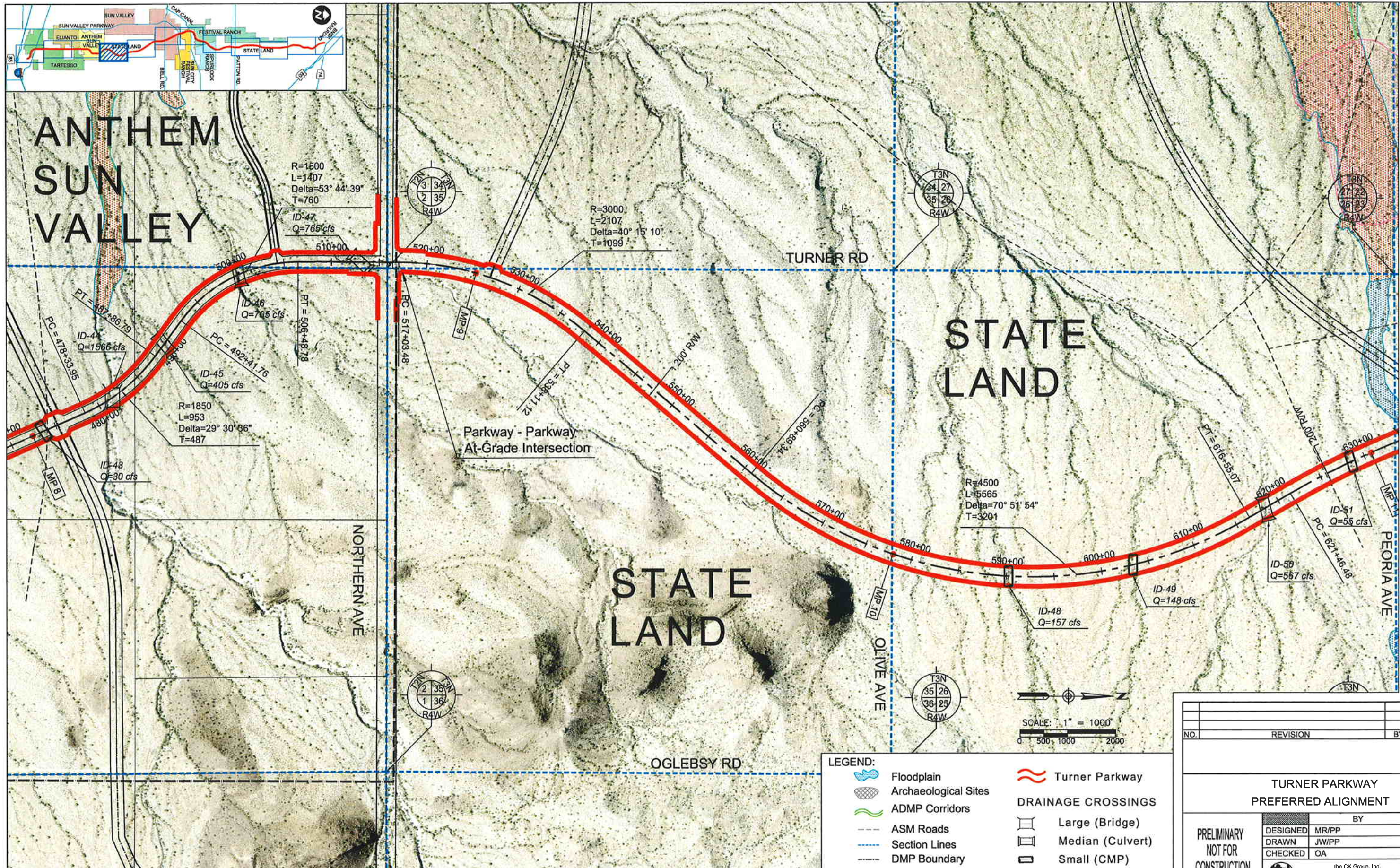
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Archaeological Sites	<b>DRAINAGE CROSSINGS</b>
ADMP Corridors	Large (Bridge)
ASM Roads	Median (Culvert)
Section Lines	Small (CMP)
DMP Boundary	

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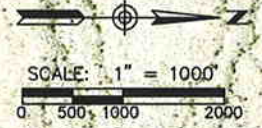
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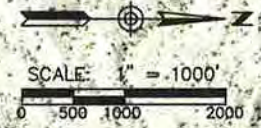
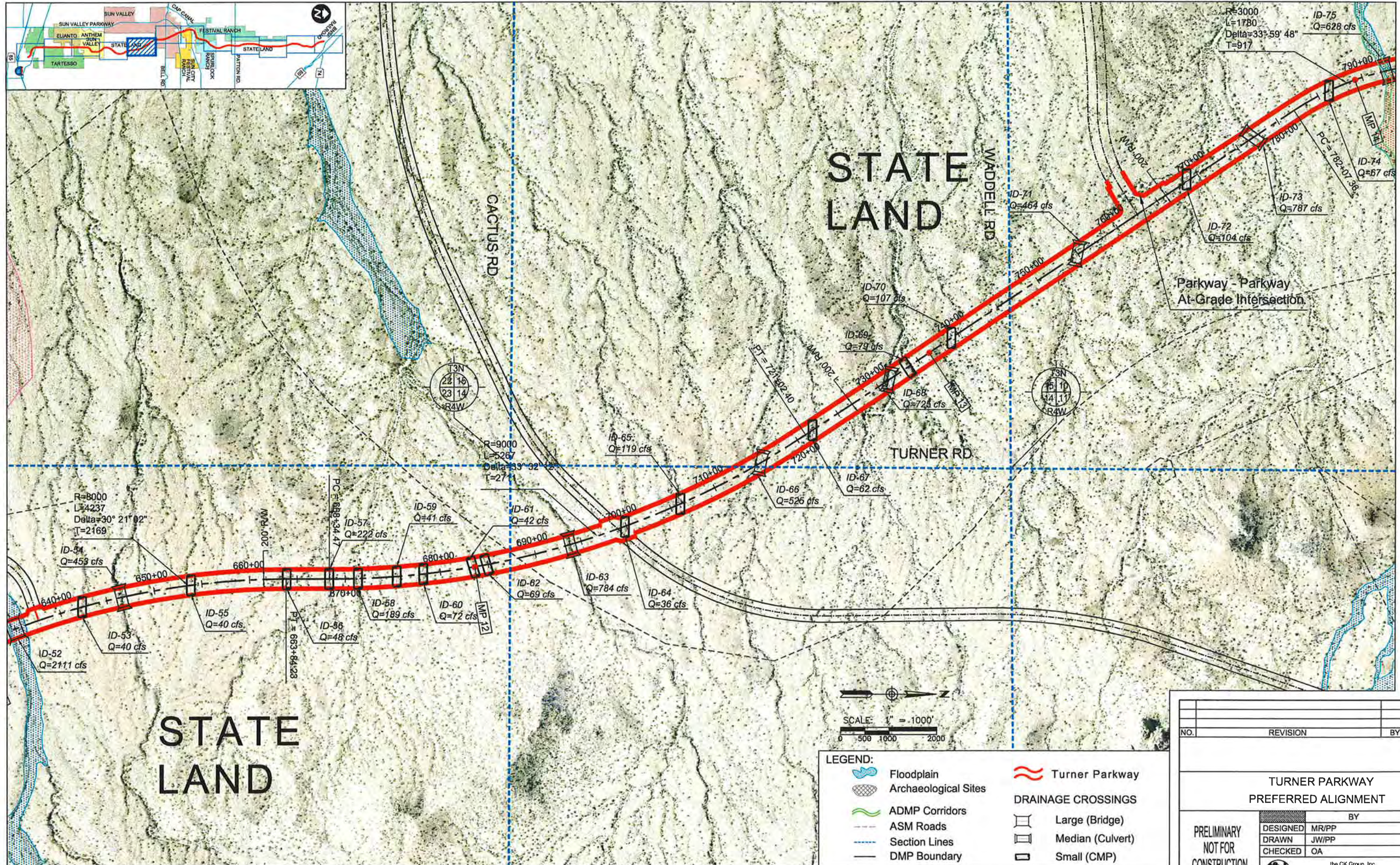
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- Floodplain
- Archaeological Sites
- ADMP Corridors
- ASM Roads
- Section Lines
- DMP Boundary
- Turner Parkway
- DRAINAGE CROSSINGS**
- Large (Bridge)
- Median (Culvert)
- Small (CMP)



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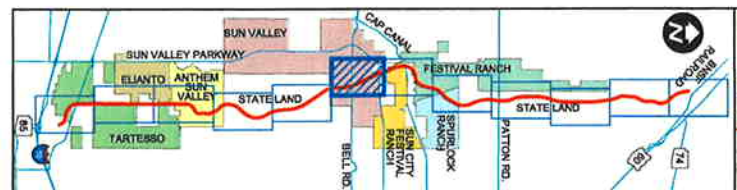
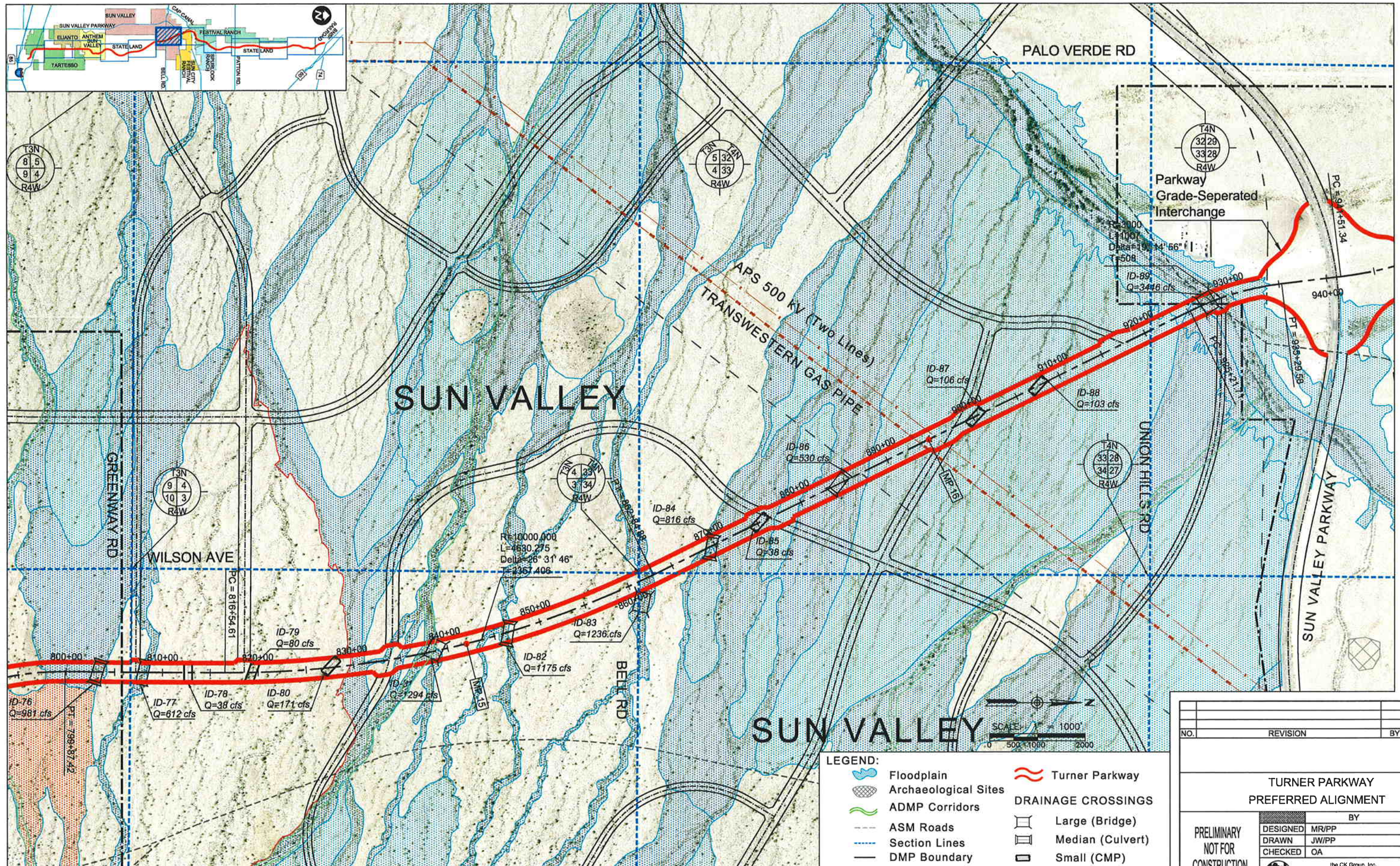
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	Archaeological Sites	<b>DRAINAGE CROSSINGS</b>	
	ADMP Corridors		Large (Bridge)
	ASM Roads		Median (Culvert)
	Section Lines		Small (CMP)
	DMP Boundary		

NO.	REVISION	BY	DATE

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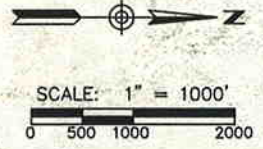
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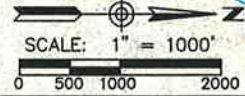
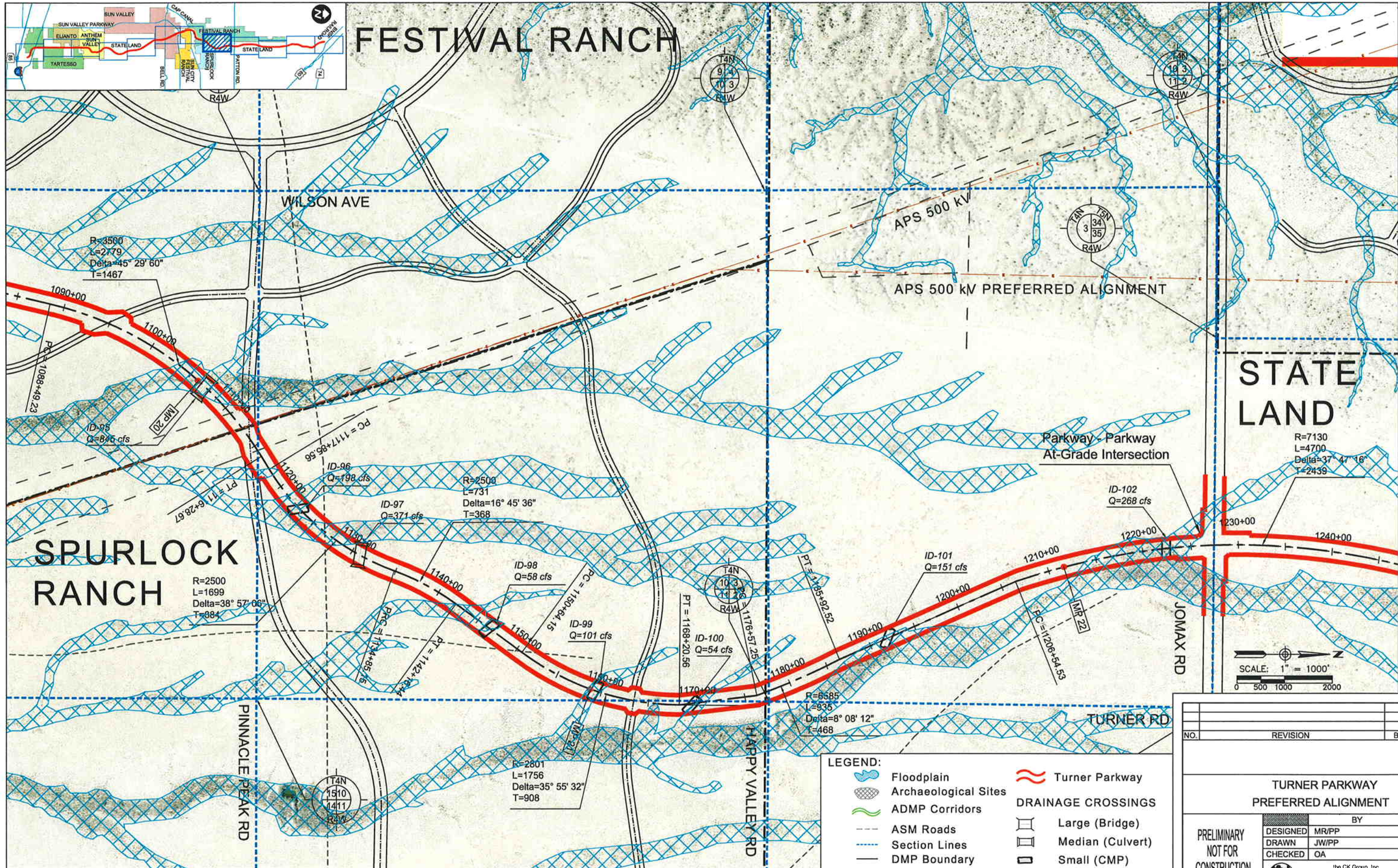


**LEGEND:**

Floodplain	Turner Parkway
Archaeological Sites	<b>DRAINAGE CROSSINGS</b>
ADMP Corridors	Large (Bridge)
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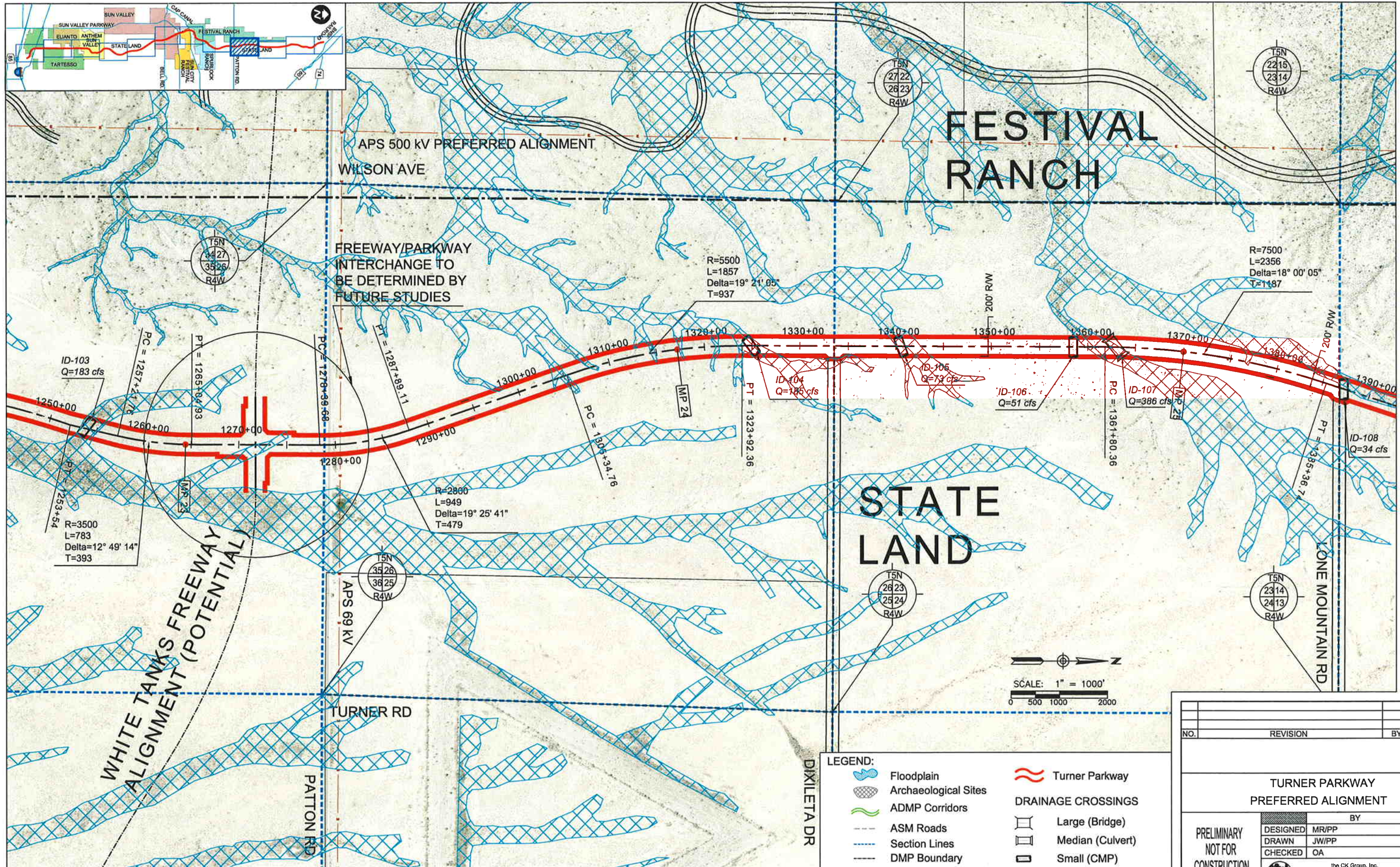
TURNER PARKWAY PREFERRED ALIGNMENT		
	BY	DATE
DESIGNED	MR/PP	04/10
DRAWN	JW/PP	04/10
CHECKED	OA	04/10



**LEGEND:**

Floodplain	Turner Parkway
Archaeological Sites	<b>DRAINAGE CROSSINGS</b>
ADMP Corridors	Large (Bridge)
ASM Roads	Median (Culvert)
Section Lines	Small (CMP)
DMP Boundary	

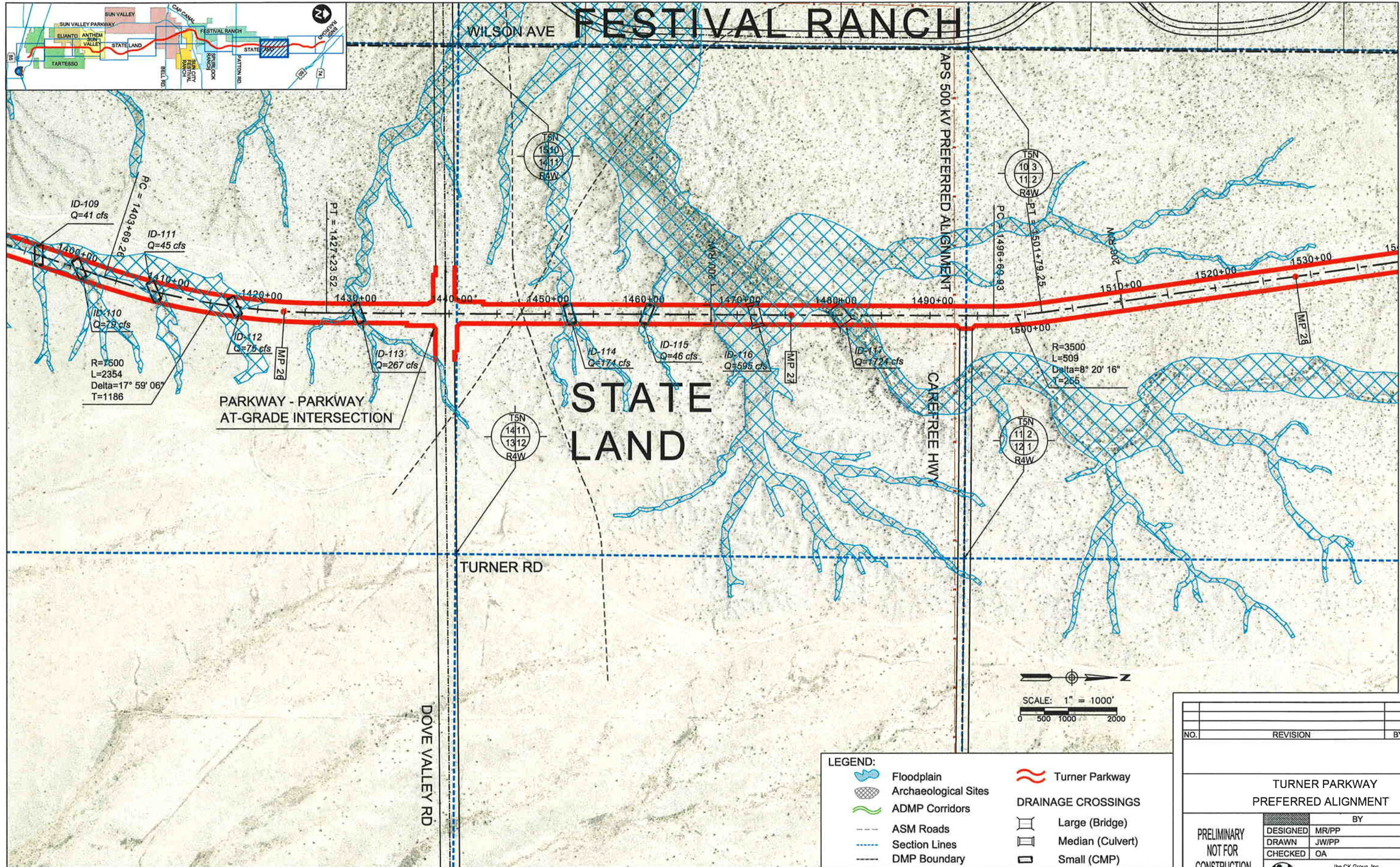
NO.	REVISION	BY	DATE
<b>TURNER PARKWAY PREFERRED ALIGNMENT</b>			
<b>PRELIMINARY NOT FOR CONSTRUCTION</b>	DESIGNED	MR/PP	04/10
	DRAWN	JW/PP	04/10
	CHECKED	OA	04/10
<small>the CK Group, Inc. CIVIL &amp; TRANSPORTATION ENGINEERS 16448 N. 40th Street, Suite A Phoenix, Ariz. 85032</small>			SHEET 08 OF 12



NO.	REVISION	BY	DATE

TURNER PARKWAY PREFERRED ALIGNMENT		
DESIGNED	MR/PP	04/10
DRAWN	JW/PP	04/10
CHECKED	OA	04/10





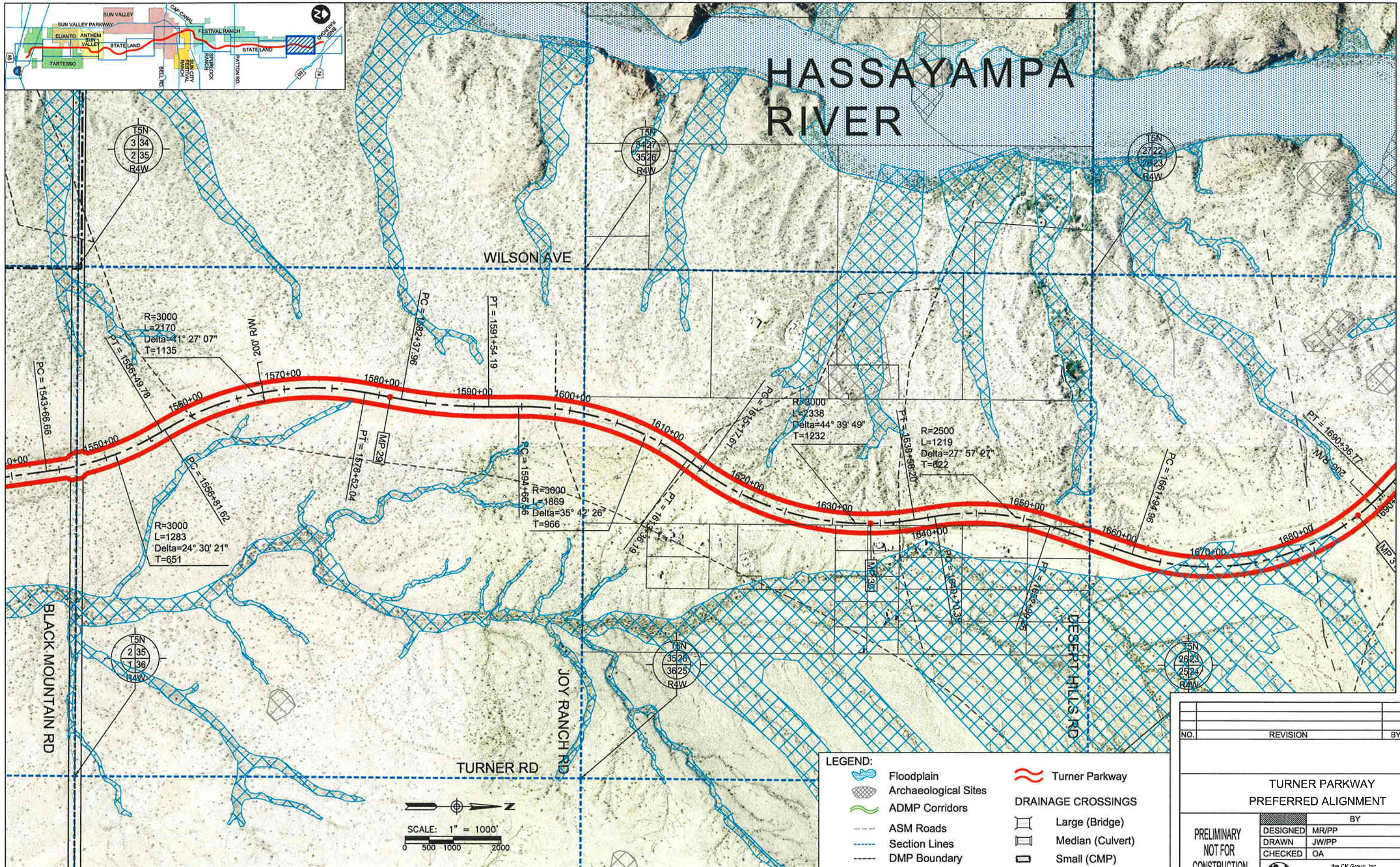
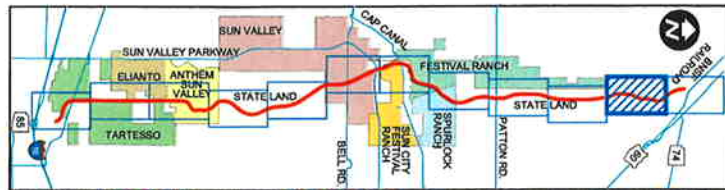
**LEGEND:**

	Floodplain		Turner Parkway
	Archaeological Sites		Large (Bridge)
	ADMP Corridors		Median (Culvert)
	ASM Roads		Small (CMP)
	Section Lines		
	DMP Boundary		

**DRAINAGE CROSSINGS**

NO.	REVISION	BY	DATE

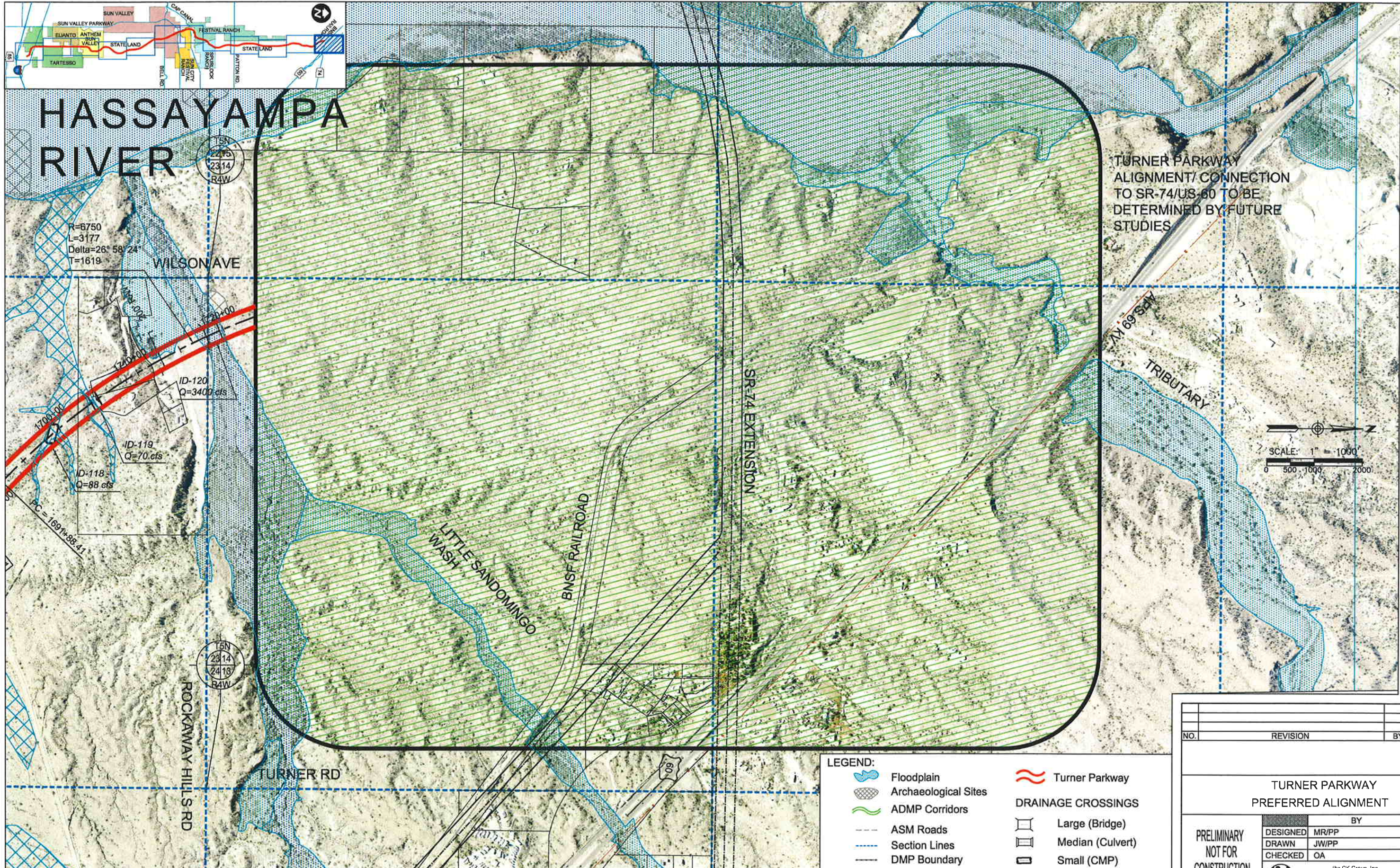
<b>TURNER PARKWAY PREFERRED ALIGNMENT</b>		
	BY	DATE
DESIGNED	MR/PP	04/10
DRAWN	JW/PP	04/10
CHECKED	OA	04/10



NO.	REVISION	BY	DATE

<b>TURNER PARKWAY PREFERRED ALIGNMENT</b>			
<b>PRELIMINARY NOT FOR CONSTRUCTION</b>	DESIGNED	MR/PP	04/10
	DRAWN	JW/PP	04/10
	CHECKED	OA	04/10
<small>the CK Group, Inc. CIVIL TRANSPORTATION ENGINEERS 16448 N. 40th Street, Suite A Phoenix, Ariz. 85032</small>			<b>SHEET 11 OF 12</b>



TURNER PARKWAY ALIGNMENT/ CONNECTION TO SR-74/US-60 TO BE DETERMINED BY FUTURE STUDIES



**LEGEND:**

Floodplain	Turner Parkway
Archaeological Sites	<b>DRAINAGE CROSSINGS</b>
ADMP Corridors	Large (Bridge)
ASM Roads	Median (Culvert)
Section Lines	Small (CMP)
DMP Boundary	

NO.	REVISION	BY	DATE
<b>TURNER PARKWAY PREFERRED ALIGNMENT</b>			
<b>PRELIMINARY NOT FOR CONSTRUCTION</b>	DESIGNED	MR/PP	04/10
	DRAWN	JW/PP	04/10
	CHECKED	OA	04/10
<small>the CK Group, Inc. CIVIL TRANSPORTATION ENGINEERS 16448 N. 40th Street, Suite A Phoenix, Ariz. 85032</small>			<b>SHEET</b> 12 OF 12