

# Wellton

Transportation Long-Range Plan  
PARA STUDY  
Task Assignment MPD 30-10

**FINAL REPORT  
AND EXECUTIVE SUMMARY**

REDUCED  
SPEED  
AHEAD

WELCOME  
TO  
**WELLTON**  
EST. 1878 INC. 1970







# Wellton Transportation Long-Range Plan PARA Study

ADOT MPD Task Assignment 30-10  
PGTD 0541  
Contract # T08-49-U0001

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## EXECUTIVE SUMMARY

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ARIZONA DEPARTMENT OF TRANSPORTATION  
TOWN OF WELLTON

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## A. INTRODUCTION

The Arizona Department of Transportation (ADOT) awarded funding for the Wellton Transportation Long-Range Plan PARA Study (Wellton PARA Study) through the Planning Assistance for Rural Areas (PARA) program. The purpose of the PARA program is to assist rural counties, cities, towns, and tribal communities in addressing a broad range of multimodal transportation planning issues related to roadways, transit, and non-motorized modes of travel.

The principal purpose of the Wellton Transportation Long-Range Plan PARA Study is to develop a multimodal transportation plan for a 44-square-mile planning area in the vicinity of the Town of Wellton. The study has resulted in a plan of improvements for short-term, mid-term, and long-term transportation planning horizons. The recommendations are multimodal, considering roadways, transit, and non-motorized (i.e., bicycle and pedestrian) transportation modes.

This executive summary of the *Wellton Transportation Long-Range Plan PARA Study Final Report* provides a brief summary of current and future conditions, transportation needs and issues, recommended improvements, and the implementation plan. More detailed information can be found in the *Final Report*.

The Wellton Transportation Long-Range Plan PARA Study encompasses the area bounded by County 10<sup>th</sup> Street, Avenue 20E, County 14<sup>th</sup> Street, and Avenue 31E, as shown in **Figure ES-1**.

## B. CURRENT CONDITIONS

### ***B.1 Current Land Uses, Ownership, and Environment***

The study area is currently comprised of commercial, industrial, residential, agricultural, and public uses. In general, commercial areas are along Avenue 29E (William Street) near Interstate 8 (I-8), and along Los Angeles Avenue/Old Highway 80 between Avenue 28E and Avenue 30E. There are a few industrial areas located along the Union Pacific Railroad lines through the study area as well as along I-8.

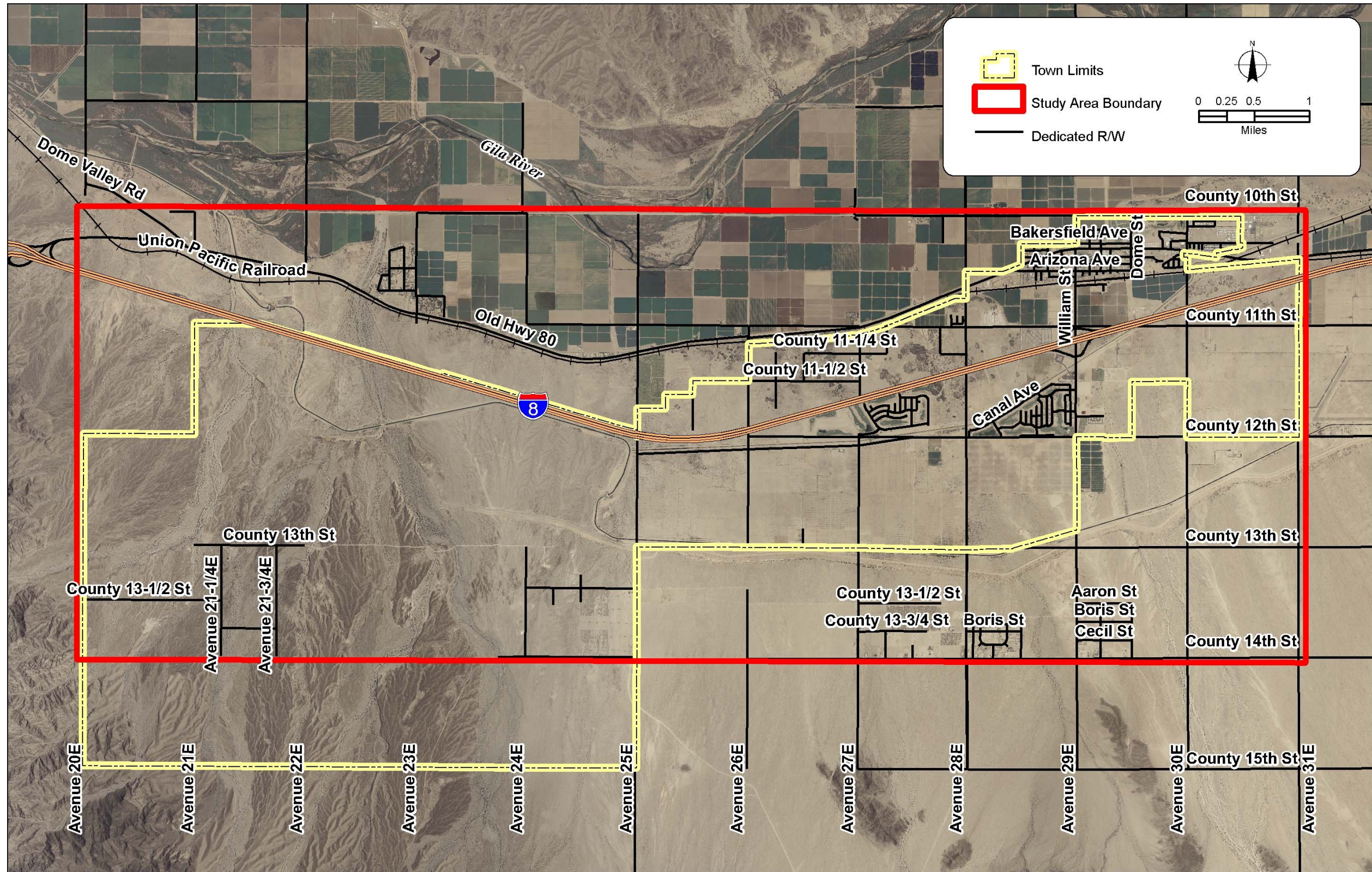
Residential land uses are spread throughout the study area at varying degrees of density. The majority of the residential areas are designated low or rural density residential. The areas of land designated medium or suburban density residential are dispersed throughout the study area, with large pockets north of the Town of Wellton limits and south of I-8 along County 12<sup>th</sup> Street. The proximity of the Barry M. Goldwater Range (BMGR) to the land along the southern boundary of the study area limits the parcel size of residential development that may occur in these areas. The majority of the land within the study area west of Avenue 25E is designated for agricultural, rural preservation, or open space uses.

Public ownership within the study area includes: the Town of Wellton, Yuma County, Arizona State Land Department (ASLD), U.S. Bureau of Reclamation (USBR), U.S. Customs and Border Protection (CBP), and U.S. Bureau of Land Management (BLM). The largest private land owner in the area is the Wellton-Mohawk Irrigation and Drainage District (WMIDD).

Most of the study area is relatively flat with typical Sonoran Desert vegetation. Two large washes, the Ligurta Wash and the Coyote Wash, traverse the study area in a general north-south direction. The study area also contains the Mohawk Canal, Wellton Canal, and the Wellton-Mohawk Canal.

Environmental features in the vicinity of the study area include the Gila River and Muggins Mountains Wilderness to the north of the study area, the Gila Mountains to the west of the study area, and the Copper Mountains to the south of the study area. The Juan Bautista de Anza National Historic Trail follows along the Gila River through the study area. Cultural resources have been identified within the BLM-designated Ligurta Area Special Cultural Resource Management Area near Ligurta Wash.





Sources: Yuma County and ADOT

Figure ES-1 – Study Area



## B.2 Current Population and Employment Estimates

The 2008 year-round population estimate for the Town of Wellton is 2,318 people per the Arizona Department of Commerce (ADC) website and Table II-2 in the Yuma Metropolitan Planning Organization (YMPO) 2010-2033 *Regional Transportation Plan* (RTP). To be consistent with the RTP, the 2008 Wellton population estimate is considered the “current” population of Wellton for the purposes of this study.

The 2008 population of the unincorporated land within the study area was estimated using 2007 aerial photography and the population/dwelling unit ratio of 2.59 for unincorporated areas that is shown in Table II-3 in the RTP. The 2008 population estimates for the study area are shown in **Table ES-1**.

**Table ES-1 – Current Study Area Population**

| Portion of Study Area                                | 2008 Population |
|--|-----------------|
| Population within the Town of Wellton                | 2,318           |
| Population within the study area unincorporated land | 568             |
| <b>Total</b>   | <b>2,886</b>    |

Sources: Arizona Department of Commerce and aerial photography

It should be noted that there is a significant winter visitor and part-time resident population of several hundred people within the study area that is above and beyond the population shown in **Table ES-1**.

Agriculture and ranching activities provide the most employment of any sector in the Wellton area. Employment data for the study area was estimated using a ratio of employment to population. Per the RTP, an employment-to-population ratio of 0.34 is valid for the Town of Wellton and a ratio of 0.25 is valid for Yuma County. Based on these ratios, 2008 employment for the study area was estimated as shown in **Table ES-2**.

**Table ES-2 – Current Study Area Employment**

| Portion of Study Area                                | 2008 Employment |
|--|-----------------|
| Employment within the Town of Wellton                | 788             |
| Employment within the study area unincorporated land | 142             |
| <b>Total</b>   | <b>930</b>      |

Source: Kimley-Horn and Associates, Inc.

## B.3 Current Roadway Network

The current roadway network in the study area is composed of an interstate highway, collectors, and local streets. The major existing roadways are I-8, Old Highway 80 (Los Angeles Avenue), and Avenue 29E (William Street). All of the paved roads in the study area have two through lanes (one in each direction) except for I-8 and the five-lane section of Los Angeles Avenue between Arizona Avenue and Jessie Street. All intersections in the study area are currently unsignalized.



Only having a few paved roads and crossings of I-8 and the railroad limits the route options through the study area. This is particularly a potential issue for emergency response providers who like to have multiple alternate routes in case the primary route is blocked.

### **B.3.1 Traffic Volumes**

Available traffic count data was reviewed to ascertain the volume of traffic on study area roadways. Daily traffic volume and heavy vehicle percentage data on selected roadway segments was collected in July 2010 by YMPO. The highest surface street daily traffic volumes occurred on Los Angeles Avenue (4,400 vehicles per day east of William Street) and Avenue 29E (3,600 vehicles per day between I-8 and County 12<sup>th</sup> Street). Daily traffic volumes on I-8 average about 13,000 vehicles per day. I-8 has a high heavy vehicle percentage of 22 percent, indicating its importance as a freight route.

Peak period intersection movement volumes were counted in July 2010 by YMPO as part of this study at three intersections. The morning, mid-day, and afternoon peak periods were counted at the intersections of Old Highway 80/William Street, I-8 Westbound Ramp/William Street, and I-8 Eastbound Ramp/William Street.

### **B.3.2 Levels of Service**

Daily traffic volumes and corresponding roadway segment capacity thresholds were used to calculate volume-to-capacity (v/c) ratios for the study area roadways to identify roadway segments that are approaching their maximum capacity. The v/c ratios correspond to level of service (LOS) values ranging from A (no delay) to F (severe congestion). All study area roadway segments for which current traffic count volume data was available provide acceptable levels of service (i.e., LOS D or better).

For the three intersections where peak hour intersection movement volumes were counted, a planning-level capacity analysis was conducted on the afternoon peak hour volumes (generally the highest peak hour volumes of the day). It was determined that all three intersections operate at LOS B.

### **B.3.3 Crash Analysis**

Crash data was obtained for all crashes between 2004 and 2008. There were a total of 21 crashes in the study area during the analysis period. There was one fatal crash along William Street, north of the I-8 interchange. This crash involved a motorcycle speeding too fast for conditions and alcohol may have also contributed to the crash. No crash patterns were identified at any of the crash locations that would be susceptible to correction by safety countermeasures.

## **B.4 Current Transit Network**

### **B.4.1 Public Transit**

Public transit services are currently provided in the Wellton area through the Yuma County Area Transit (YCAT) Orange Route that runs between Yuma and Wellton. There are currently three bus stops along this route within the study area at Old Highway 80/I-8 (Ligurta Station), Old Highway 80/Avenue 23E (Ligurta Creek Road), and Avenue 29E (William Street)/Arizona Avenue. The Orange Route hours of operation are now from 6 a.m. to 6 p.m., Monday through Saturday. The frequency of service in Wellton is one morning and two afternoon trips. Per data provided by YMPO, the total Orange Line ridership in fiscal year 2010 was 12,971.

YMPO provides a Dial-a-Ride (DAR) curb-to-curb service for Yuma County residents who are 60 years and older or who are disabled and cannot use the fixed route system.

Funding issues threatened to force the shutdown of the entire YCAT system in 2010. The Yuma region recently took the first step towards creating a regional transportation authority that can levy a regional transit tax by forming the Yuma County Intergovernmental Public Transportation Authority (YCIPTA). Responsibility for YCAT service operations may transition from YMPO to YCIPTA in the future.

## **B.4.2 Rail**

The railroad tracks that run east-west through the study area are owned by Union Pacific Railroad (UPRR). UPRR provides freight services on the tracks while Amtrak provides passenger services.

The primary railroad tracks in the study area are part of UPRR's Sunset Route, which runs as many as 70 trains per day from Los Angeles to Houston. The Sunset Route tracks were recently double-tracked in the study area by UPRR to promote more efficient and safer movement of train traffic. A branch track known as the Wellton Branch splits off from the Sunset Route tracks just east of Avenue 30E and continues northeast towards Roll. Other sidings and spur tracks exist near downtown Wellton.

The unstaffed Amtrak station in nearby Yuma provides passenger rail service. Amtrak's Texas Eagle and Sunset Limited routes currently stop at the Yuma station three times a week.

There are two grade-separated roadway crossings and three at-grade roadway crossings of the main railroad tracks in the study area. A quiet zone was recently established at the William Street at-grade crossing, effectively eliminating train horn noise through much of Wellton.

## **B.5 Current Non-motorized Network**

Non-motorized (i.e., bicycle and pedestrian) facilities are an important part of the multimodal transportation network in that they provide various options for travel (which is especially critical for travelers who cannot drive).

Elements that make up bicycle networks can include designated bike routes, striped bike lanes, paved shoulders along roadways, wide curb lanes, multi-use paths, and sidewalks. The only street within the study area with paved shoulders is Old Highway 80.

Pedestrian networks are typically comprised of sidewalks, trails, and multi-use paths. Few roadway segments in the study area currently contain sidewalks. Portions of the Juan Bautista de Anza National Historic Trail and the El Camino del Diablo Trail are located within the study area.

## **C. FUTURE CONDITIONS**

Future transportation conditions have been analyzed for both the 2033 analysis year and the future build-out condition. The 2033 analysis year was selected to be consistent with the long-term future 2033 analysis year utilized in the YMPO RTP. The build-out condition is when all of the developable land is developed per the future land use plan. There is no specific year assigned to build-out as it is highly dependent on how quickly land develops.

### **C.1 Future Land Uses**

Residential land uses are expected to increase throughout the study area in the future build-out condition, most notably in the areas west of Avenue 28E and south of I-8. The majority of the land use changes between current and build-out conditions will occur through the development of land that is currently vacant or that is being currently used for farming and agricultural land uses. The conversion of vacant or agricultural land to higher intensity uses will result in greater transportation needs in the build-out



condition. There are two regions of the study area where the residential land use is not expected to change significantly from current conditions: near the BMGR; and near the Gila River.

Current commercial land uses along Old Highway 80/Los Angeles Avenue and in the area of the I-8 traffic interchange at Avenue 29E/William Street are anticipated to remain commercial land uses in the future. Additional future commercial land uses are generally expected to occur along major roadways like I-8 and Old Highway 80 and at the intersections of major roadways such as at the intersections of Old Highway 80 with Avenue 20E, Avenue 23E, and Avenue 25E. The agricultural land along Avenue 29E/William Street near I-8 is expected to ultimately be converted to commercial land uses.

Industrial land uses are expected to increase in the future, primarily in the land adjacent to the UPRR tracks between I-8 and Old Highway 80 on the west side of the study area.

Future open space land uses are anticipated to generally be located along the existing WMIDD canals, floodways, and protective dikes in the study area where development potential is limited.

**Figure ES-2** shows the assumed future build-out study area land uses.

## C.2 Future Population and Employment Projections

A two percent compound annual growth rate was assumed to develop an updated 2033 population projection for the Town of Wellton of 3,803 people. For the build-out population projection, the future land uses shown in **Figure ES-2** were used to determine the projected number of dwelling units, from which a build-out population of 102,995 people was calculated. **Table ES-3** shows the estimated 2008, projected 2033, and projected build-out year-round resident populations for the study area.

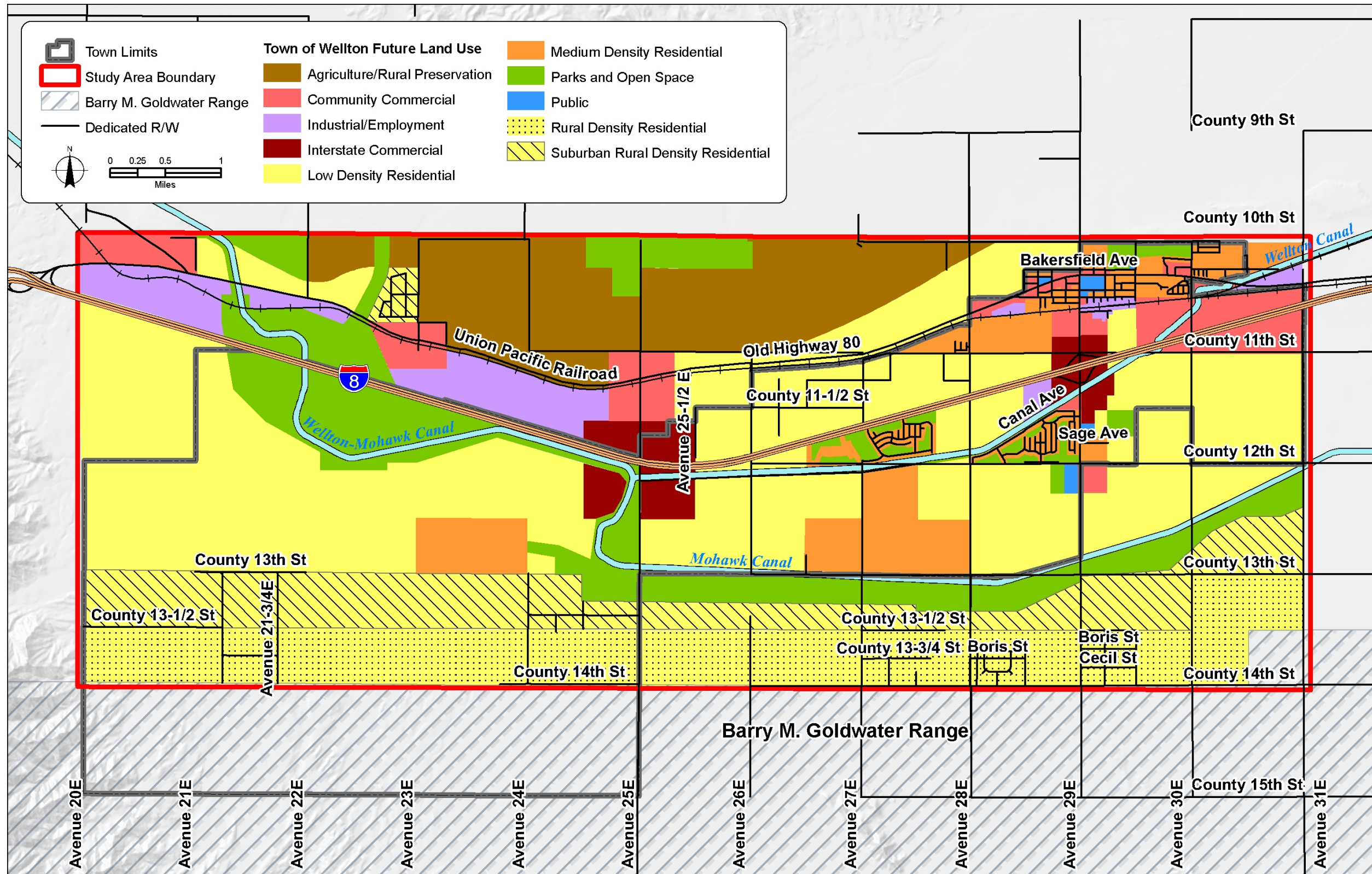
**Table ES-3 – Future Study Area Population Projections**

| Portion of Study Area                                | 2008 Population | 2033 Population | Build-out Population |
|--|-----------------|-----------------|----------------------|
| Population within the Town of Wellton                | 2,318           | 3,803           | 80,189               |
| Population within the study area unincorporated land | 568             | 932             | 22,806               |
| <b>Total</b>   | <b>2,886</b>    | <b>4,735</b>    | <b>102,995</b>       |

Sources: Arizona Department of Commerce, aerial photography, and Kimley-Horn and Associates, Inc.

It is anticipated that the winter visitor and part-time resident population will continue to be significant in the future, though it is anticipated that the percentage of winter visitors and part-time residents as a portion of the total population will decrease over the years. While the winter visitor population is not included in the population numbers, it is accounted for in the projected traffic volume demands.

**Table ES-4** shows a 2033 employment projection of 1,894 employees and a build-out employment projection of 41,198 employees for the study area. These employment projections were derived from the study area population projections in **Table ES-3** using an employment/population ratio of 0.40.



Source: Kimley-Horn and Associates, Inc.

Figure ES-2 – Build-out Land Use



**Table ES-4 – Future Study Area Employment Projections**

| Portion of Study Area                                | 2008<br>Employment | 2033<br>Employment | Build-out<br>Employment |
|--|--------------------|--------------------|-------------------------|
| Employment within the Town of Wellton                | 788                | 1,521              | 32,076                  |
| Employment within the study area unincorporated land | 142                | 373                | 9,122                   |
| <b>Total</b>   | <b>930</b>         | <b>1,894</b>       | <b>41,198</b>           |

Source: Kimley-Horn and Associates, Inc.

### **C.3 Future Roadway Network**

#### **C.3.1 Anticipated Roadway Improvement Projects**

There is currently one programmed/funded study area roadway improvement project in the *YMPO 2011 to 2016 Transportation Improvement Program (TIP)*: widening Old Highway 80/Los Angeles Avenue over Coyote Wash to provide pedestrian facilities across Coyote Wash.

#### **C.3.2 Traffic Volume Forecasts**

A travel demand model was developed for the study area to provide a tool for estimating future traffic volumes. The model utilizes population and employment data, typical vehicle trip generation characteristics, and roadway network information such as number of through lanes and speed limits to estimate traffic volumes on the roadway network. The model estimates traffic volumes by determining the number of vehicle trips produced and attracted by the various land uses and assigning those trips to the adjacent roadway network.

The RTP 2008 travel demand model was used to create a baseline 2008 model for the study area. A 2033 model was developed using 2033 population and employment data. Due to the relatively low level of growth anticipated between 2008 and 2033 in the study area, traffic volumes only changed significantly on Avenue 29E/William Street between Old Highway 80 and I-8, where anticipated daily volumes increased from about 4,000 vehicles per day in 2008 to 7,000 vehicles per day in 2033. The model outputs project that all study area roadways will provide acceptable levels of service (i.e., LOS D or better) in 2033.

A build-out model was also developed that accounts for the anticipated future build-out land uses in the study area. The build-out model indicates that practically every existing study area roadway segment will be at or over capacity in the build-out condition if no improvements are made to the current roadway network.

### **C.4 Future Transit Network**

#### **C.4.1 Public Transit**

Public transit services in the study area are anticipated to continue to be provided by YMPO in the near future via YCAT and DAR services.

The RTP outlines several unfunded recommendations for YCAT, including increasing the Orange Line frequency, creating a new local circulator route in Wellton, building a park-and-ride lot in the Wellton-

Tacna area, and modifying street design standards to require transit features such as bus pullouts. Due to the current funding issues associated with YCAT and the possible transition of transit services from YMPO to YCIPTA, it is unclear if the recommendations listed in the RTP will be implemented as planned.

ADOT recently commenced a PARA study on transit in the Yuma region that will assess the current and future transit needs in the Yuma region and make recommendations on how to improve the current YCAT and DAR system and address YCAT funding issues.

Based on the projected transit demand, it is anticipated that the study area in the build-out condition would be able to support a local fixed-route transit system, with tie-ins to a regional transit system.

## **C.4.2 Rail**

Railroad traffic is anticipated to increase in the future as population and employment increase in the United States in general. As both rail and roadway traffic increase, the need for more grade-separated crossings will become greater. The Town currently has plans for one additional grade-separated railroad crossing in the downtown area near or along Dome Street. This project is currently included in the *YMPO 2011-2016 Transportation Improvement Program* though a funding source has not been secured.

ADOT's *2010 Statewide Rail Framework Study (SRFS)* identifies several rail opportunities which could affect the study area, including expanded Amtrak service and a high-capacity passenger rail line between Phoenix and San Diego.

The RTP cites the potential for a 5,000 acre inland port in the Yuma region per an ongoing Arizona multimodal logistics center study. The development of an inland port in the region would increase the rail and truck traffic through the study area.

## **C.5 Future Non-motorized Network**

At the national level, there is emphasis on complying with the Americans with Disabilities Act (ADA) and providing more bicycle and pedestrian facilities along roadways to create "complete streets". Complete streets are designed to function for all users to safely and effectively move along and across a complete street (see [www.completestreets.org](http://www.completestreets.org)).

Elements of a complete street in an urban area include sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible transit stops, frequent crossing opportunities, median islands, accessible pedestrian signals, curb extensions, and more. A complete street in a rural area may have different elements, but should achieve the same goal.

## **D. IDENTIFIED CURRENT AND FUTURE NEEDS**

Transportation system needs were identified during the analysis of current and future conditions. In addition, comments have been received from the public, the Technical Advisory Committee (TAC), and community leaders. The transportation system needs result from a variety of factors, including roadway congestion; physical barriers such as irrigation facilities, I-8, and the UPRR; inadequate traffic control devices; land development and growth projections; gaps in pedestrian and bicycle facilities; and limited transit service.



## ***D.1 Identified Current Needs***

### **D.1.1 Roadway Network**

The following study area roadway segment and intersection improvements are currently needed:

- Paving of multiple roadways;
- Federal functional reclassification of several existing roadway segments;
- New freeway interchanges along I-8; and
- New at-grade and/or grade-separated railroad crossings.

### **D.1.2 Transit Network**

The study area transit needs include improving the current YCAT Orange Line transit service to provide more frequent service and to expand the Orange Line route to serve more areas of Wellton. A new, dedicated source of local funding for transit services is also needed.

### **D.1.3 Non-motorized Network**

There is a need for bicycle and pedestrian facilities on most roadways within the study area, particularly in the vicinity of activity centers such as school and government facilities. Bicycle and pedestrian trails are also desirable along canals. Complete streets roadway cross-sections need to be developed for all classifications of roadways to better accommodate bicycle and pedestrian travel.

## ***D.2 Identified 2033 Future Needs***

### **D.2.1 Roadway Network**

The following study area roadway segment and intersection improvements will be needed by 2033:

- Paving of additional roadways;
- A traffic control change at the Old Highway 80 and Avenue 29E/William Street intersection;
- Additional freeway interchanges along I-8;
- Reconstruction of the existing freeway interchange along I-8 at Avenue 29E; and
- Additional and/or reconstructed at-grade and grade-separated railroad crossings.

### **D.2.2 Transit Network**

Further expansion of the YCAT Orange Line route and additional increase in service frequency during peak periods may be needed by 2033.

### **D.2.3 Non-motorized Network**

Additional bicycle and pedestrian facilities on roadways, particularly in the vicinity of activity centers such as school and government facilities, will be needed by 2033. Complete streets roadway cross-sections need to be implemented where feasible for all classifications of roadways to better accommodate bicycle and pedestrian travel.

## ***D.3 Identified Build-out Future Needs***

### **D.3.1 Roadway Network**

The following study area roadway segment and intersection improvements will be needed at build-out:

- The construction of a comprehensive, interconnected roadway network;
- Traffic signals or roundabouts at major roadway intersections;
- Additional and/or reconstructed freeway interchanges along I-8; and
- Additional and/or reconstructed at-grade and grade-separated railroad crossings.

### **D.3.2 Transit Network**

Transit demand estimates suggest that the study area at build-out will need a local comprehensive fixed-route transit system. The local fixed-route transit system will need to be integrated with, and connected to, future regional transit and rail opportunities. These opportunities include regional transit service, regional park-and-ride lots, expanded Amtrak service, a regional multimodal logistics center, and a high-capacity passenger rail line between Phoenix and San Diego that could potentially include a station or transfer point within the study area.

### **D.3.3 Non-motorized Network**

Clearly-defined, continuous bicycle and pedestrian networks along roadways and multi-use pathways will be needed at build-out. This includes bicycle and pedestrian facilities in the vicinity of activity centers such as school and government facilities.

Complete streets roadway cross-sections need to continue to be implemented where feasible for all classifications of roadways to better accommodate bicycle and pedestrian travel.

## **E. IMPROVEMENT CONSIDERATIONS**

The improvement considerations described below guided the development and analysis of potential improvements.

### ***E.1 Evaluation Criteria***

The following evaluation criteria were considered in the analysis of proposed improvement projects to identify potential benefits, impacts, and constraints:

- Meets identified need;
- Cost;
- Impacts to right-of-way;
- Impacts to existing businesses/residences;
- Engineering issues;
- Level of service/delay;
- Accessibility/mobility;
- Network continuity;
- Environmental impacts;
- Multimodal compatibility;
- Safety; and
- Public acceptability.



## **E.2 Functional Classification**

Functional classification defines the hierarchy of streets in a roadway system according to the character of service they provide as it relates to mobility, access, and trip length. Functional classification groups include principal arterials, minor arterials, collectors, and local roads. In general, principal and minor arterials provide a high level of mobility for the traveling public with minimal allowance for access, while the collectors and local roads provide for residential and non-residential access.

To utilize federal funding on roadway improvements, the roadway must have a functional classification. Most federal funding can only be used on roadways classified as rural major collectors or higher.

## **E.3 Freeway Interchange Spacing**

Federal access control policies for interstate systems generally limit new traffic interchanges (TI) to a minimum separation distance of two miles. There is currently one TI along I-8 within the study area at Avenue 29E/William Street. The next closest TIs are the Dome Valley/Ligurta TI, located less than one-half mile west of the western study area boundary, and the Avenue 36E TI, located five miles east of the eastern study area boundary. These existing interchanges will affect the location of any proposed TIs based on the two-mile separation distance requirement.

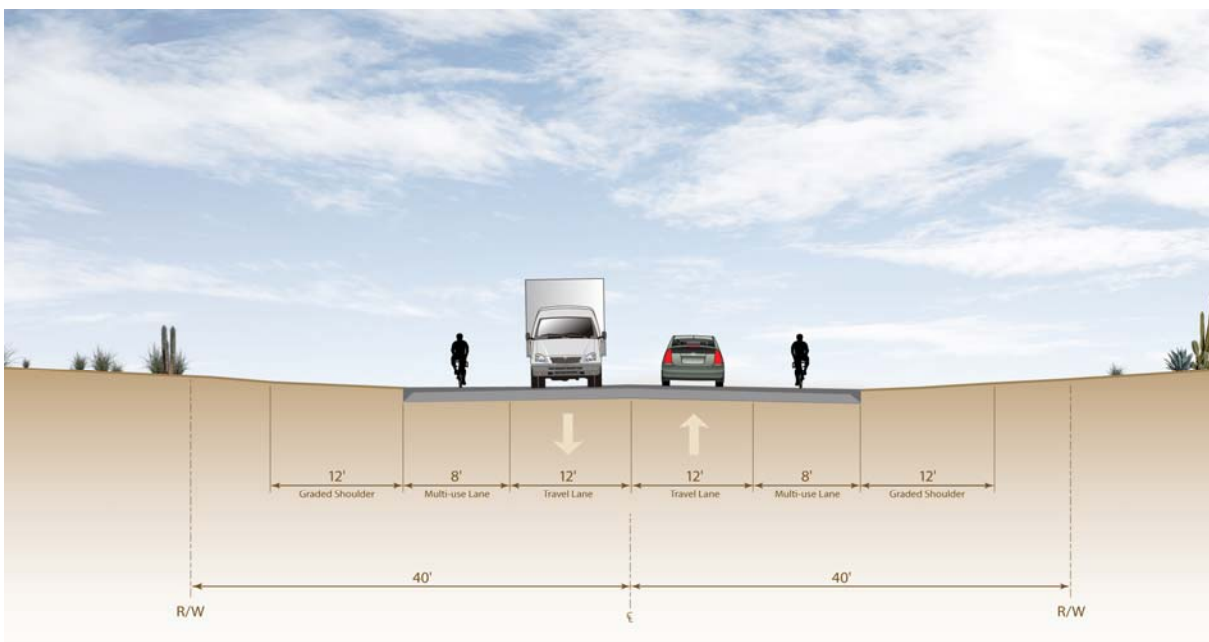
## **E.4 Railroad Grade Separation**

A railroad grade separation provides a crossing of the railroad where the roadway crosses over or under the railroad so that there is no conflict between the train and vehicles. A grade-separated crossing provides a safety benefit and reduces delay compared to an at-grade crossing.

The Federal Highway Administration (FHWA) *Railroad-Highway Grade Crossing Handbook* recommends that when the crossing exposure (the product of the number of trains per day and the average annual daily traffic volume (AADT)) exceeds 125,000 in rural areas like Wellton, a grade-separated crossing should be considered. Using an AADT of 3,500 vehicles per day (vpd) and assuming an average of 60 trains per day, the existing at-grade crossing at Avenue 29E has a crossing exposure of 210,000, which meets this criterion. A grade-separated crossing should be considered at this location. Potential new crossings of the railroad should also be evaluated against the FHWA guidelines to determine if grade separation should be considered.

## **E.5 Complete Streets**

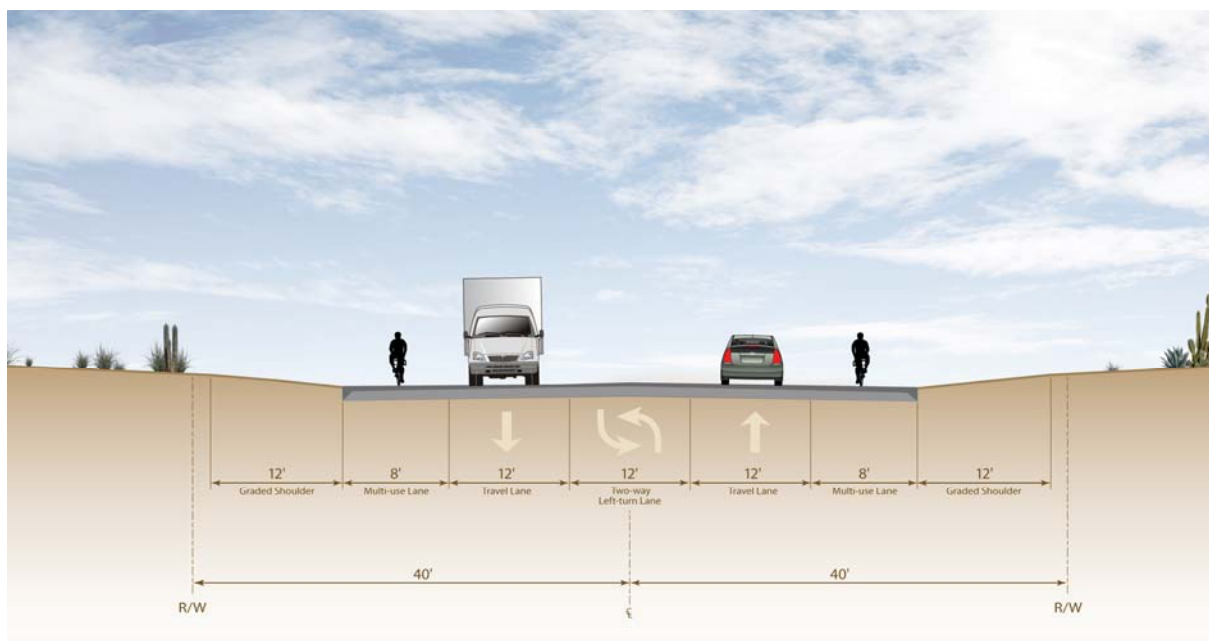
Proposed complete streets cross-sections for the Town of Wellton are provided in **Figure ES-3**, **Figure ES-4**, **Figure ES-5**, **Figure ES-6**, and **Figure ES-7**. The arterial cross-sections generally are appropriate for roadways carrying more than 10,000 vpd, while the collector cross-sections generally are appropriate for roadways carrying less than 10,000 vpd. The multi-use lane shown in the cross-sections is intended for use by bicycles, as well as by golf carts (as long as the posted speed limit is no higher than 35 mph per State statute).



Rural Minor Collector

Source: Kimley-Horn and Associates, Inc.

**Figure ES-3 – Complete Streets Cross-Section: Rural Minor Collector**

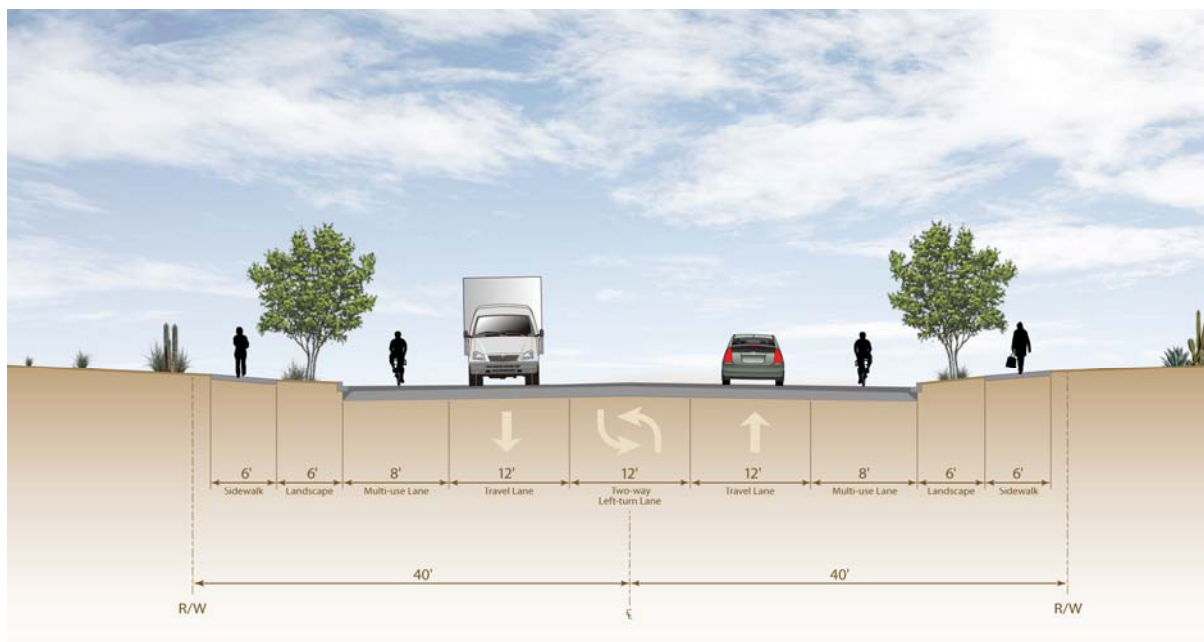


Rural Major Collector

Source: Kimley-Horn and Associates, Inc.

**Figure ES-4 – Complete Streets Cross-Section: Rural Major Collector**





Urban Collector

Source: Kimley-Horn and Associates, Inc.

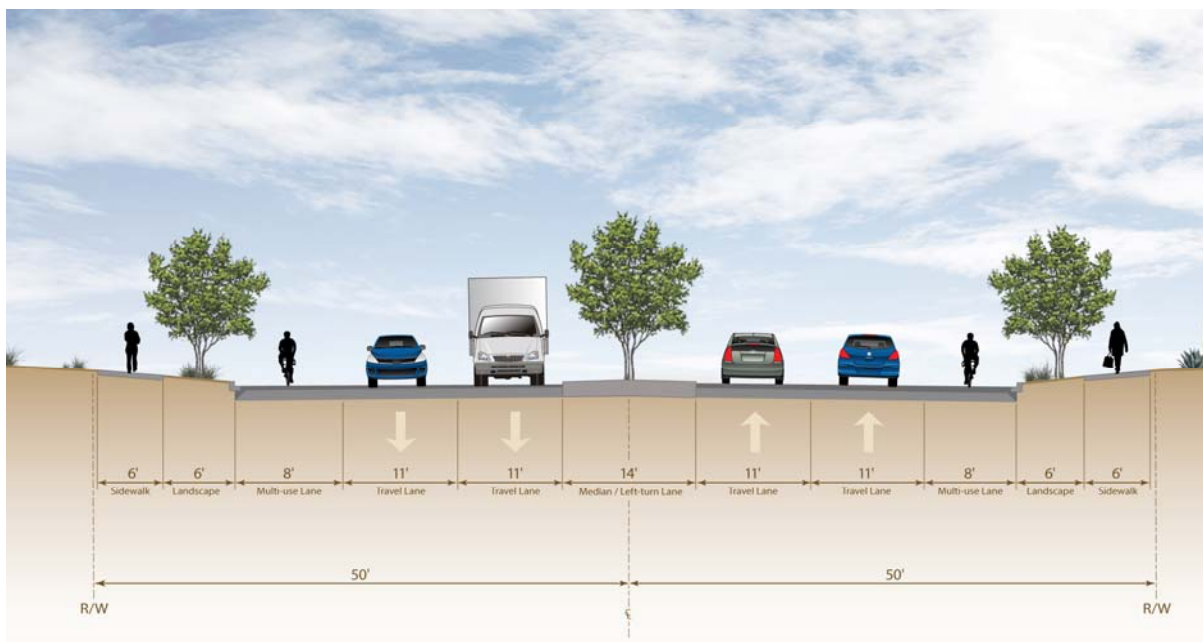
**Figure ES-5 – Complete Streets Cross-Section: Urban Collector**



Rural Minor Arterial

Source: Kimley-Horn and Associates, Inc.

**Figure ES-6 – Complete Streets Cross-Section: Rural Minor Arterial**



Urban Minor Arterial

Source: Kimley-Horn and Associates, Inc.

**Figure ES-7 – Complete Streets Cross-Section: Urban Minor Arterial**

## F. RECOMMENDED IMPROVEMENTS

Based on the evaluation criteria and considerations described previously, recommended improvements have been developed to address the study area's identified current and 2033 future transportation needs.

### F.1 Roadway Network

#### F.1.1 Roadway Paving

Roadway paving is assumed to include the installation of asphalt pavement to the width of the existing unpaved roadway, generally two lanes in width. This pavement width will allow one paved travel lane in each direction. Graded shoulders and minor drainage improvements are assumed to be included in the roadway paving improvement.

The following roadways should be paved by 2033:

- County 10<sup>th</sup> Street – Avenue 22E to Avenue 27E;
- County 11<sup>th</sup> Street – Avenue 29E to Avenue 31E;
- County 12<sup>th</sup> Street – Avenue 25E to Avenue 27E;
- County 12<sup>th</sup> Street – Avenue 29E to Avenue 31E;
- County 14<sup>th</sup> Street – Avenue 25E to Avenue 27E;
- Avenue 22E – Old Highway 80 to County 10<sup>th</sup> Street;
- Avenue 23E – Old Highway 80 to County 10<sup>th</sup> Street; and
- Avenue 25E – County 12<sup>th</sup> Street to County 14<sup>th</sup> Street.



### **F.1.2 Roadway Widening**

Old Highway 80 should be widened from Avenue 29-1/4E/Fresno Street to Wellton Mohawk Drive by 2033. Roadway widening includes widening from one lane in each direction to two lanes in each direction with a raised or painted median and bicycle lanes and sidewalks on both sides of the roadway. The widening will increase capacity and improve operations.

A design concept report (DCR) should be prepared before final design plans are developed to define the design concept to be used in widening Old Highway 80 from Avenue 29-1/4E/Fresno Street to Wellton Mohawk Drive.

### **F.1.3 Intersection Traffic Control Change**

The Old Highway 80 and Avenue 29E/William Street intersection traffic control should be changed from two-way stop to four-way stop, traffic signal, or roundabout control by 2033.

### **F.1.4 New Freeway Interchanges**

New TIs along I-8 are recommended at Avenue 25E and at Avenue 31E by 2033. Both of these roadways already have a grade-separated crossing of I-8 (underpass at Avenue 25E and overpass at Avenue 31E). Ramps will need to be added that connect the cross-streets to I-8. It is possible that the grade-separated crossings may need to be reconstructed in conjunction with the construction of the ramps due to the age and narrowness of the crossing structures.

A DCR should be prepared before final design plans are developed to define the design concept to be used at each of the new TIs. The Avenue 25E DCR should cover Avenue 25E from Old Highway 80 to County 12<sup>th</sup> Street, including both the TI and the nearby railroad crossing. The Avenue 31E DCR should cover Avenue 31E from Old Highway 80 to County 11<sup>th</sup> Street, including both the TI and the nearby railroad crossing.

### **F.1.5 Freeway Interchange Improvements**

The existing TI at Avenue 29E/William Street should be improved by 2033. Recommended improvements include bridge structure rehabilitation/reconstruction and widening of Avenue 29E to provide an additional travel lane in each direction along with bicycle and pedestrian facilities on both sides of the roadway. The traffic control at the ramp intersections could also potentially need to be upgraded to a traffic signal or roundabout.

A DCR should be prepared before final design plans are developed to define the design concept to be used to improve the existing TI. The DCR should cover the interchange itself plus the adjacent segments of Avenue 29E from County 11<sup>th</sup> Street to County 12<sup>th</sup> Street.

### **F.1.6 Railroad Grade Separations**

Grade-separated railroad crossings should be provided at the following locations:

- Avenue 25E;
- Avenue 29E/Dome Street; and
- Avenue 31E.

A DCR should be prepared before final design plans are developed to define the design concept to be used at each of the railroad grade separations. The Avenue 25E and Avenue 31E railroad grade separations should be included in the aforementioned DCRs for the Avenue 25E and Avenue 31E TIs.

The DCR for upgrading the existing at-grade railroad crossing on Avenue 29E to grade separation should cover Avenue 29E from Old Highway 80 to County 11<sup>th</sup> Street as well as the Dome Street grade separation concept supported by the Town of Wellton.

### F.1.7 Functional Classification Changes

A review of the current functional classifications and daily traffic volume counts of the study area roadways indicates that several roadways in the study warrant reclassification. The recommended functional classifications are described in **Table ES-5**. The reclassification process involves reviewing the changes with YMPO and submitting them to ADOT for approval.

**Table ES-5 – Recommended Functional Classification Changes**

| Roadway            | Location   | Existing Functional Classification         | Recommended Functional Classification |
|--------------------|--|--|---------------------------------------|
| Avenue 25E         | Old Highway 80 to County 12 <sup>th</sup> Street                 | None                                       | Rural Minor Collector                 |
| Avenue 25E         | County 12 <sup>th</sup> Street to County 14 <sup>th</sup> Street | None                                       | Rural Local                           |
| Avenue 29E         | County 10 <sup>th</sup> Street to County 12 <sup>th</sup> Street | Rural Minor Collector/<br>Rural Local/None | Rural Major Collector                 |
| Avenue 29E         | County 12 <sup>th</sup> Street to County 14 <sup>th</sup> Street | None                                       | Rural Minor Collector                 |
| Dome Street        | County 10 <sup>th</sup> Street to Arizona Avenue                 | None                                       | Rural Minor Collector                 |
| Avenue 31E         | Old Highway 80 to County 12 <sup>th</sup> Street                 | Rural Local/None                           | Rural Minor Collector                 |
| County 10th Street | Avenue 27E to Avenue 29E   | None                                       | Rural Local                           |
| County 10th Street | Avenue 29E to Avenue 31E   | None                                       | Rural Minor Collector                 |
| Arizona Avenue     | Old Highway 80 to Dome Street                                    | None                                       | Rural Minor Collector                 |
| County 11th Street | Avenue 28E to Avenue 29E   | None                                       | Rural Minor Collector                 |
| County 11th Street | Avenue 29E to Avenue 31E   | None                                       | Rural Minor Collector                 |
| County 12th Street | Avenue 25E to Avenue 27E   | None                                       | Rural Local                           |
| County 12th Street | Avenue 27E to Avenue 29E   | None                                       | Rural Minor Collector                 |
| County 12th Street | Avenue 29E to Avenue 31E   | None                                       | Rural Local                           |
| County 14th Street | Avenue 25E to Avenue 27E   | None                                       | Rural Local                           |
| County 14th Street | Avenue 27E to Avenue 29E   | None                                       | Rural Minor Collector                 |

Sources: ADOT and Kimley-Horn and Associates, Inc.

## ***F.2 Transit Network***

### **F.2.1 Improve Transit Frequency**

Improving the frequency of the buses on the current YCAT Orange Line route to regular 60- or 30-minute headways is recommended. This increase in frequency will enhance the service and attractiveness of the transit system, particularly during peak periods. To increase the frequency of transit service, additional vehicles, operators, and funding will be required.

### **F.2.2 Extend Current Transit Route**

Extending the current YCAT Orange Line to service the Coyote Wash area south of I-8 is recommended. The proposed route extension should commence at the current last bus stop at Avenue 29E/William Street and Arizona Avenue and continue south along Avenue 29E to the Coyote Wash development. At least one additional bus stop south of I-8 is envisioned with the Orange Line extension.

### **F.2.3 Support Efforts to Address Local YCAT Funding Issues**

The Town of Wellton should coordinate with the other YCAT funding partners to support efforts to address current and future YCAT funding issues. The Town of Wellton should continue to be involved in, and provide support to, the recently formed YCIPTA.

The Town of Wellton should actively participate in the Yuma Regional PARA Transit Study, providing input on the Town's transit needs and desired improvements to the YCAT system and its funding.

### **F.2.4 Conduct a Local Transit Circulator Feasibility Study**

A local transit circulator feasibility study that includes a community survey should be conducted to aid Wellton in planning out the feasibility, routing, and timing of implementing a local transit circulator beyond the 2033 timeframe. This local circulator will be the initial step towards a comprehensive fixed-route build-out transit system.

### **F.2.5 Future Regional Transit and Rail Opportunities**

It is recommended that study TAC member agencies be active participants in upcoming discussions on regional transit and rail opportunities such as regional transit service, regional park-and-ride lots, expanded Amtrak service, a regional multimodal logistics center, and a high-capacity passenger rail line between Phoenix and San Diego.

## ***F.3 Non-motorized Network***

### **F.3.1 Develop Trails/Bicycle/Pedestrian Plan**

A trails/bicycle/pedestrian plan should be developed that provides more detail on the location, type, and design parameters of non-motorized improvements in the study area.

### **F.3.2 Add Bicycle and Pedestrian Facilities to Roadways**

Bicycle and pedestrian facilities should be provided along the following roadway segments:

- Avenue 29E/William Street – Old Highway 80 to County 12<sup>th</sup> Street;
- Old Highway 80 – Avenue 25E to Avenue 31E;



- County 11<sup>th</sup> Street – Avenue 29E to Avenue 31E;
- County 12<sup>th</sup> Street – Avenue 25E to Avenue 31E;
- Avenue 25E – Old Highway 80 to County 12<sup>th</sup> Street; and
- Avenue 31E – Old Highway 80 to County 12<sup>th</sup> Street.

### **F.3.3 Safe Routes to School**

It is recommended that the Town of Wellton coordinate with the Wellton Elementary School District to examine conditions in the vicinity of school facilities and submit applications for Safe Routes to School (SRTS) funding for planning assistance and for projects and activities that improve bicycle and pedestrian safety and accessibility and reduce traffic and air pollution in the vicinity of school facilities.

## **G. BUILD-OUT RECOMMENDATIONS**

Because the build-out condition is beyond the timeframe of the plan for improvements, specific recommended improvement projects have not been identified for the build-out condition. There are, however, several general recommendations that should be considered and accounted for when making decisions that could adversely impact transportation in the build-out condition.

### **G.1 Build-out Roadway Improvements**

A recommended build-out roadway network has been established for the study area. The resulting projected build-out daily traffic volumes on the network are presented in **Figure ES-8**. The recommended build-out roadway network includes all the proposed roadway improvements described previously plus numerous other new and improved roadways, including the following:

- New grid network of complete streets arterial and collector roadways that include pedestrian and bicycle facilities;
- Traffic signals or roundabouts at the major roadway intersections;
- New Avenue 23E TI;
- Improved Dome Valley/Ligurta TI (addition of the south half);
- Grade separated crossings at all railroad crossings in the study area; and
- Widening of I-8 to six lanes (three in each direction).

All roadways are expected to operate at level of service D or better with these recommended improvements.

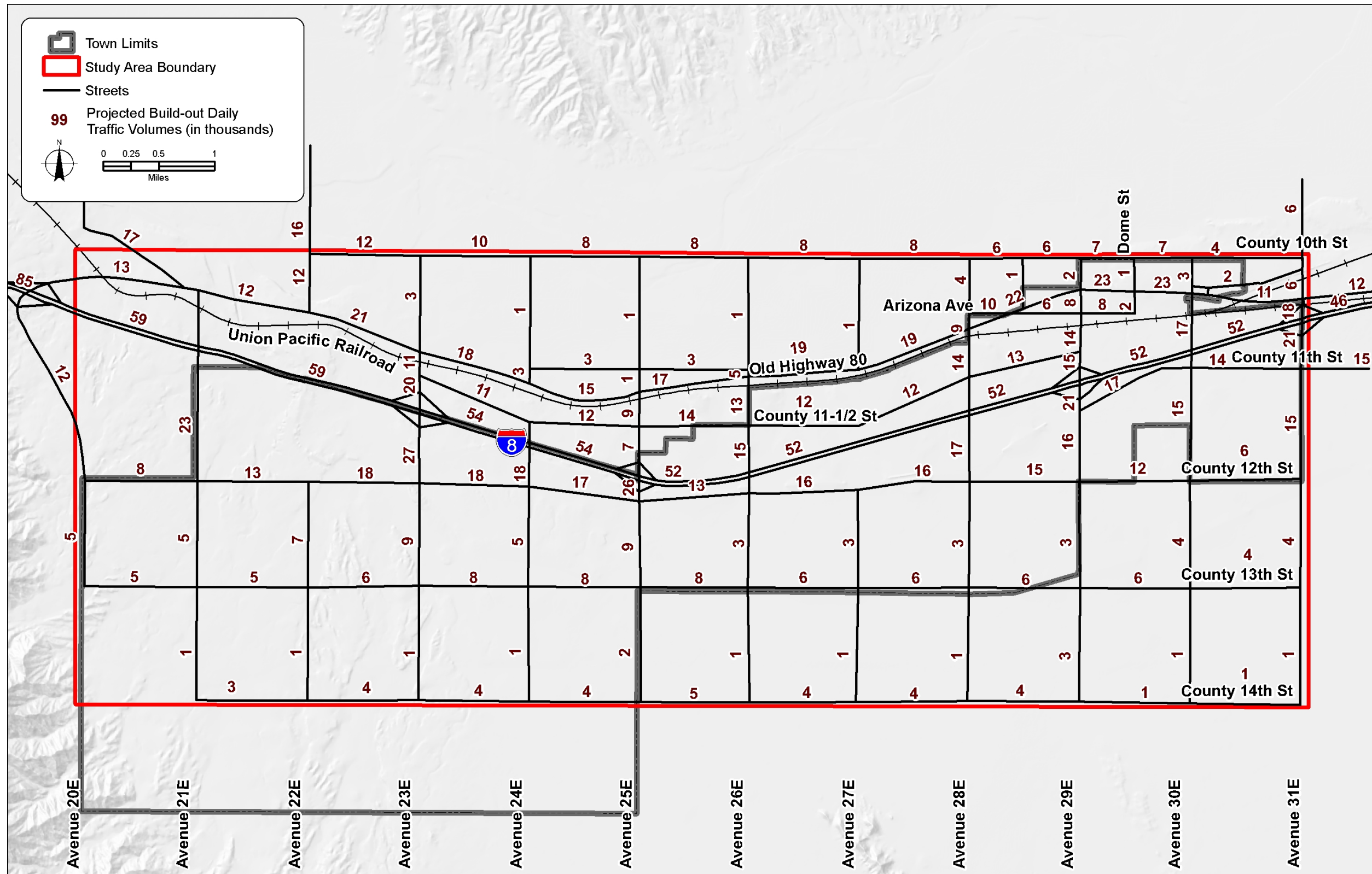
**Figure ES-9** shows the recommended functional classifications associated with the recommended build-out roadway network. These classifications correspond to the five complete streets cross-sections presented previously and accommodate the projected build-out daily traffic volumes.

### **G.2 Build-out Transit Improvements**

A comprehensive fixed-route transit system should be provided in build-out that serves the Wellton area and is integrated with, and includes connections to, future Yuma County regional transit and rail facilities.

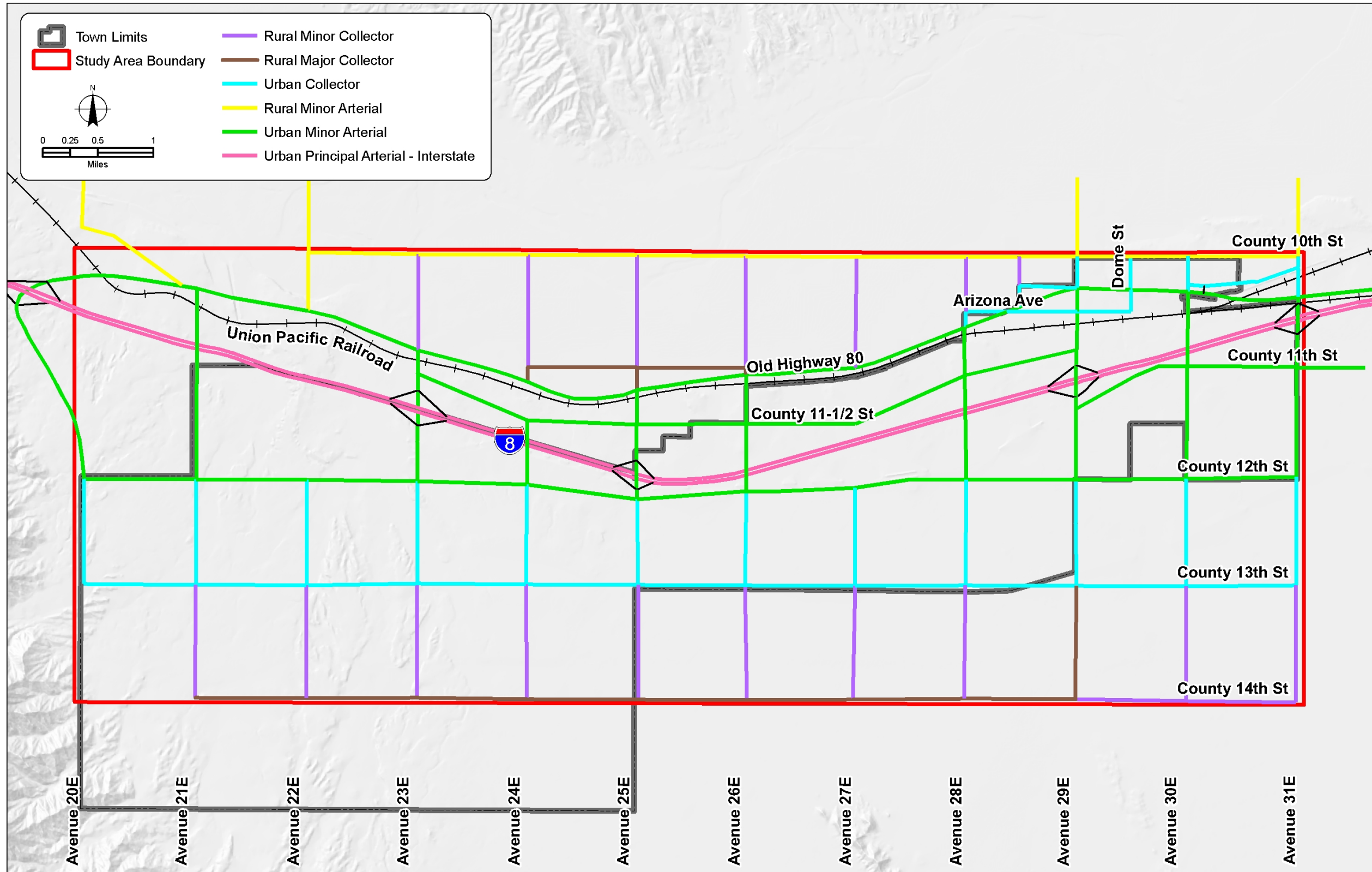
### **G.3 Build-out Non-motorized Improvements**

Clearly-defined continuous bicycle and pedestrian networks along roadways and multi-use pathways and in the vicinity of activity centers such as school and government facilities are recommended at build-out. The extensive network of canals in the study area provides an ideal location for new multi-use pathways.



Source: Kimley-Horn and Associates, Inc.

Figure ES-8 – Projected Build-out Daily Traffic Volumes on Recommended Build-out Network



Source: Kimley-Horn and Associates, Inc.

**Figure ES-9 – Proposed Roadway Classifications for Recommended Build-out Network**



## H. PLAN FOR IMPROVEMENTS

An implementation plan has been developed to prioritize the recommended improvements into short-term (2011-2015), mid-term (2016-2020), and long-term (2021-2033) timeframes. **Table ES-6** presents the implementation plan, which summarizes the short-term, mid-term, and long-term improvements by mode. The cost estimate in 2011 dollars is \$7.8 million for the short-term timeframe, \$26.7 million for the mid-term timeframe, and \$95.6 million for the long-term timeframe, for a total plan cost of \$130.1 million. It should be noted that these plan costs do not include the annual operating costs of improving the frequency, or expanding the coverage, of transit routes.

The actual phasing of implementation of the recommended improvements will be determined by a variety of factors, including funding availability, development activity, traffic patterns, and private participation. Improvement projects may be combined to make more efficient use of available funding. The need for improvements should be re-evaluated each year as part of the various implementing agencies' budget processes or as needed if conditions and travel patterns change significantly.

The overall transportation improvement plan, combining the short-term, mid-term, and long-term recommended improvements, is presented in **Figure ES-10**.

### H.1 Revenue

Due to recent economic conditions, traditional revenue sources have been reduced or eliminated. Projected revenues are significantly less than the estimated costs of the recommended improvements. Additional revenue sources will need to be secured if the recommended improvements are to be constructed within the recommended timeframes. There are numerous local, state and federal public sector potential revenue opportunities that should be considered. Private sector revenue opportunities such as developer impact fees should also be pursued.

Another revenue opportunity is a public-private partnership (P3), where public agencies partner with private entities to design, construct, operate, and/or maintain transportation infrastructure. Potential benefits of P3s include access to private funding, accelerated project implementation schedule, and more efficient asset management. Potential drawbacks of P3s include loss of some public agency oversight, difficulty in determining appropriate rates for users, and public resistance to private sector participation.

### H.2 Title VI Impacts

The U.S. Department of Transportation regulations related to disadvantaged, or Title VI, populations (i.e., minority, low-income, and elderly populations) state that in determining the site or location of transportation facilities, selection cannot be made with the purpose or effect of excluding persons from, denying them the benefits of, or subjecting them to discrimination under any program to which this regulation applies. According to the regulations, a project cannot be implemented that will cause disproportionately high and adverse impacts to disadvantaged populations.

The Wellton Transportation Long-Range Plan PARA Study is a long-range multimodal planning study that was prepared to address the transportation needs in the region for the short-term, mid-term, and long-term transportation planning horizons. The recommended improvements are expected to improve the overall transportation system of the region and benefit the region as a whole. Recommended improvement projects were not selected based on the population that would be impacted, but rather were selected to address an identified transportation need. More detailed analysis will be needed for individual projects that are federally-funded to ensure that there are no disproportionately high and adverse impacts to disadvantaged populations.

**Table ES-6 – Implementation Plan**

| <b>Short-term Improvements (2011-2015)</b>  |   |                   |                 |                  |
|---|---|-------------------|-----------------|------------------|
| <b>Project Location</b>   | <b>Improvement Description</b>                              | <b>Cost (\$)</b>  |                 |                  |
|   |   | <b>Short-term</b> | <b>Mid-term</b> | <b>Long-term</b> |
| <b>Roadway Improvements</b>   |   |                   |                 |                  |
| Avenue 25E, Avenue 29E, Dome Street, Avenue 31E, County 10 <sup>th</sup> Street, Arizona Avenue, County 11 <sup>th</sup> Street, County 12 <sup>th</sup> Street, and County 14 <sup>th</sup> Street | Update/assign federal functional classifications            | -                 |                 |                  |
| Avenue 29E: Old Highway 80 to County 11 <sup>th</sup> Street and Dome Street potential railroad grade separation  | DCR for railroad grade separation                           | 400,000           |                 |                  |
| County 11 <sup>th</sup> Street: Avenue 29E to Avenue 31E  | Pave roadway  | 3,000,000         |                 |                  |
| County 12 <sup>th</sup> Street: Avenue 25E to Avenue 27E  | Pave roadway  | 3,000,000         |                 |                  |
| <b>Transit Improvements</b>   |   |                   |                 |                  |
| YCAT Orange Line  | Improve frequency to 60-minute headways during peak periods | 500,000*          |                 |                  |
| Modified YCAT Orange Line route   | Extend route south of I-8 to serve Coyote Wash area         | 250,000*          |                 |                  |
| <b>Non-motorized Improvements</b>   |   |                   |                 |                  |
| Town of Wellton and surrounding community   | Trails/bicycle/pedestrian plan                              | 150,000           |                 |                  |
| Avenue 29E: Old Highway 80 to County 12 <sup>th</sup> Street  | Provide pedestrian and bicycle facilities                   | 750,000           |                 |                  |
| County 12 <sup>th</sup> Street: Avenue 27E to Avenue 29E  | Provide pedestrian and bicycle facilities                   | 500,000           |                 |                  |
| <b>Subtotal Short-term Improvements Cost*</b>   |   | <b>7,800,000</b>  |                 |                  |

\*annual operating cost, not included in the total plan cost

Source: Kimley-Horn and Associates, Inc.

| Mid-term Improvements (2016-2020)  |  |            |                   |           |
|--|--|------------|-------------------|-----------|
| Project Location   | Improvement Description  | Cost (\$)  |                   |           |
|  |  | Short-term | Mid-term          | Long-term |
| <b>Roadway Improvements</b>  |  |            |                   |           |
| Old Highway 80: Avenue 29-1/4E to Wellton Mohawk Drive   | DCR for widening, bridge over Coyote Wash  |            | 350,000           |           |
| Avenue 25E: Old Highway 80 to County 12 <sup>th</sup> Street   | DCR for TI and railroad grade separation   |            | 500,000           |           |
| Avenue 29E: County 11 <sup>th</sup> Street to County 12 <sup>th</sup> Street                                     | DCR for TI improvements  |            | 350,000           |           |
| Avenue 31E: Old Highway 80 to County 11 <sup>th</sup> Street   | DCR for TI and railroad grade separation   |            | 500,000           |           |
| County 12th Street: Avenue 29E to Avenue 31E   | Pave roadway   |            | 3,000,000         |           |
| County 14th Street: Avenue 25E to Avenue 27E   | Pave roadway   |            | 3,000,000         |           |
| Avenue 25E: County 12 <sup>th</sup> Street to County 14 <sup>th</sup> Street                                     | Pave roadway   |            | 3,000,000         |           |
| Avenue 29E: Old Highway 80 to County 11 <sup>th</sup> Street and Dome Street potential railroad grade separation | Construct railroad grade separation and Dome Street/Avenue 29E connector roadway if Dome Street location is selected for railroad crossing |            | 15,000,000        |           |
| <b>Transit Improvements</b>  |  |            |                   |           |
| YCAT Orange Line   | Improve frequency to 30-minute headways during peak periods  |            | 500,000*          |           |
| <b>Non-motorized Improvements</b>  |  |            |                   |           |
| County 11 <sup>th</sup> Street: Avenue 29E to Avenue 31E   | Provide pedestrian and bicycle facilities  |            | 500,000           |           |
| County 12 <sup>th</sup> Street: Avenue 25E to Avenue 27E   | Provide pedestrian and bicycle facilities  |            | 500,000           |           |
| <b>Subtotal Mid-term Improvements Cost*</b>  |  |            | <b>26,700,000</b> |           |

\*annual operating cost, not included in the total plan cost

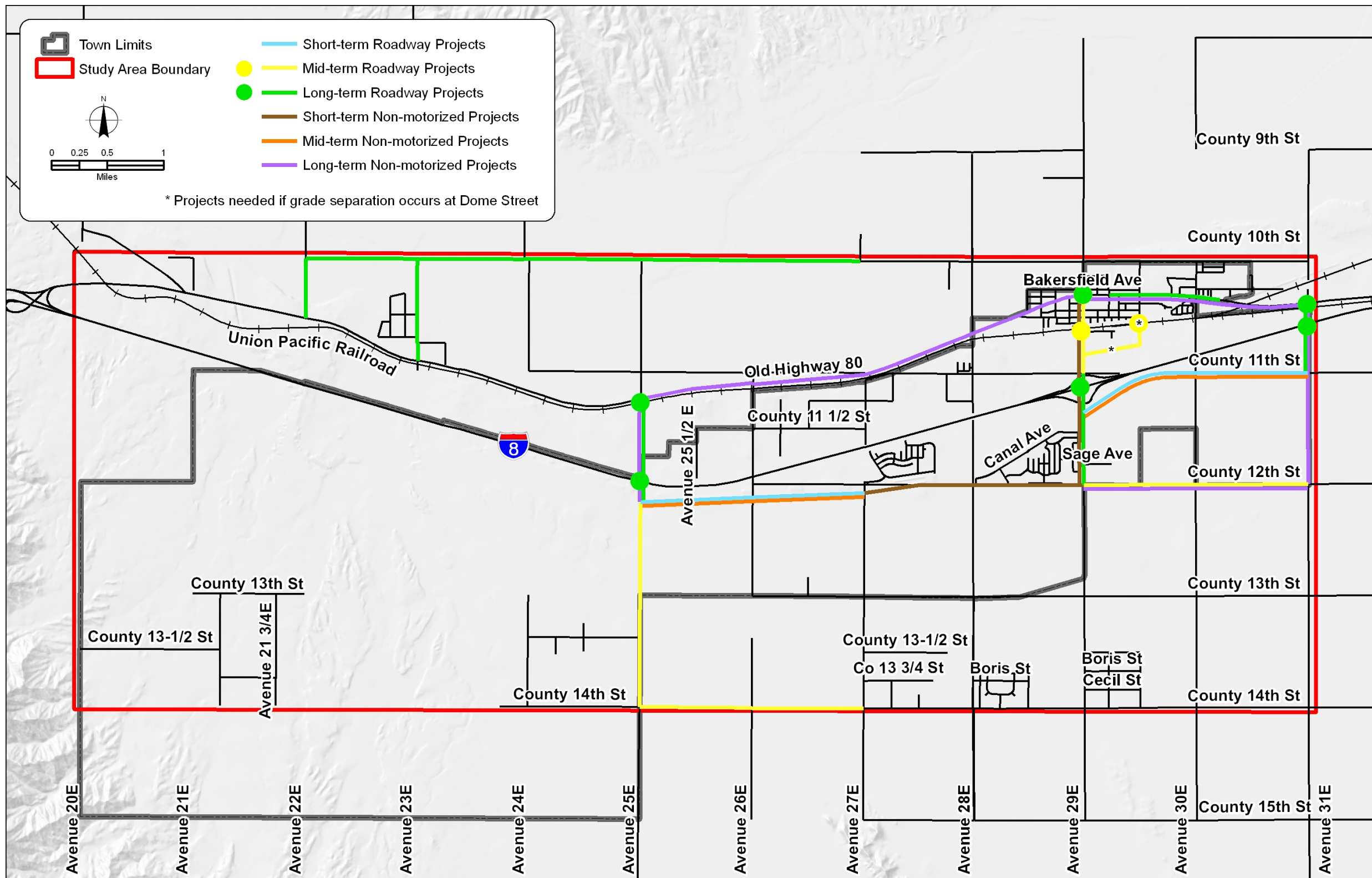
Source: Kimley-Horn and Associates, Inc.



| Long-term Improvements (2021-2033)   |  |                  |                   |                   |
|--|--|------------------|-------------------|-------------------|
| Project Location   | Improvement Description                                | Cost (\$)        |                   |                   |
|  |  | Short-term       | Mid-term          | Long-term         |
| <b>Roadway Improvements</b>  |  |                  |                   |                   |
| County 10 <sup>th</sup> Street: Avenue 22E to Avenue 27E                     | Pave roadway   |                  |                   | 7,500,000         |
| Avenue 22E: Old Highway 80 to County 10 <sup>th</sup> Street                 | Pave roadway   |                  |                   | 750,000           |
| Avenue 23E: Old Highway 80 to County 10 <sup>th</sup> Street                 | Pave roadway   |                  |                   | 1,100,000         |
| Old Highway 80 and Avenue 29E/William Street                                 | Upgrade traffic control at intersection                |                  |                   | 300,000           |
| Old Highway 80: Avenue 29-1/4E to Wellton Mohawk Drive                       | Widen to four lanes, including bridge over Coyote Wash |                  |                   | 4,000,000         |
| Avenue 25E: Old Highway 80 to County 12 <sup>th</sup> Street                 | Construct TI and railroad grade separation             |                  |                   | 35,000,000        |
| Avenue 29E: County 11 <sup>th</sup> Street to County 12 <sup>th</sup> Street | Construct TI improvements                              |                  |                   | 10,000,000        |
| Avenue 31E: Old Highway 80 to County 11 <sup>th</sup> Street                 | Construct TI and railroad grade separation             |                  |                   | 35,000,000        |
| <b>Transit Improvements</b>  |  |                  |                   |                   |
| Town of Wellton and surrounding community                                    | Local transit circulator feasibility study             |                  |                   | 150,000           |
| <b>Non-motorized Improvements</b>  |  |                  |                   |                   |
| Old Highway 80: Avenue 25E to Avenue 31E                                     | Provide pedestrian and bicycle facilities              |                  |                   | 800,000           |
| Avenue 25E: Old Highway 80 to County 12 <sup>th</sup> Street                 | Provide pedestrian and bicycle facilities              |                  |                   | 250,000           |
| Avenue 31E: Old Highway 80 to County 12 <sup>th</sup> Street                 | Provide pedestrian and bicycle facilities              |                  |                   | 250,000           |
| County 12 <sup>th</sup> Street: Avenue 29E to Avenue 31E                     | Provide pedestrian and bicycle facilities              |                  |                   | 500,000           |
| <b>Subtotal Long-term Improvements Cost*</b>                                 |  |                  |                   | <b>95,600,000</b> |
| <b>Total Implementation Plan Cost* = \$130.1 million</b>                     |  | <b>7,800,000</b> | <b>26,700,000</b> | <b>95,600,000</b> |

\*annual operating cost, not included in the total plan cost

Source: Kimley-Horn and Associates, Inc.



**Projects not Shown in Improvement Plan Graphic**

**Short-term Timeframe**

- Roadway*
- Federal functional classification changes
  - Design Concept Report:
    - Avenue 29E or Dome Street railroad grade separation

- Transit*
- Improve frequency to 60-minute headways during peak periods
  - Provide service south of I-8
- Non-motorized*
- Trail/Bicycle/Pedestrian Plan

**Mid-term Timeframe**

- Roadway*
- Design Concept Report:
    - I-8/Avenue 25E TI and railroad grade separation
    - I-8/Avenue 29E TI improvements
    - I-8/Avenue 31E TI and railroad grade separation
    - Old Highway 80: Avenue 29-1/4E to Mohawk Wellton Drive widening

- Transit*
- Improve frequency to 30-minute headways during peak periods

**Long-term Timeframe**

- Transit*
- Local transit circulator feasibility study

Source: Kimley-Horn and Associates, Inc.

**Figure ES-10 – Improvement Plan**



# Wellton Transportation Long-Range Plan PARA Study

ADOT MPD Task Assignment 30-10  
PGTD 0541  
Contract # T08-49-U0001

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## FINAL REPORT

*Prepared by:*



*In association with:*  
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*Prepared for:*  
ARIZONA DEPARTMENT OF TRANSPORTATION  
TOWN OF WELLTON

May 2011  
091374037





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# 1 INTRODUCTION

The Arizona Department of Transportation (ADOT) awarded funding for the Wellton Transportation Long-Range Plan PARA Study (Wellton PARA Study) through the Planning Assistance for Rural Areas (PARA) program. The purpose of the PARA program is to assist rural counties, cities, towns, and tribal communities in addressing a broad range of multimodal transportation planning issues related to roadways, transit, and non-motorized modes of travel.

## 1.1 Study Purpose

The principal purpose of the Wellton Transportation Long-Range Plan PARA Study is to develop a multimodal transportation plan for a 44-square-mile planning area in the vicinity of the Town of Wellton. The study has resulted in a plan of improvements for short-term, mid-term, and long-term transportation planning horizons. The recommendations are multimodal, considering roadways, transit, and non-motorized (i.e., bicycle and pedestrian) transportation modes.

## 1.2 Study Objectives

Objectives of the Wellton Transportation Long-Range Plan PARA study are:

- Collect and analyze available traffic volume data, crash information, and existing roadway, non-motorized transportation, and transit infrastructure and services in order to document current needs;
- Develop a travel demand TransCAD model for the Wellton area using available population and employment information and the current roadway network;
- Use the TransCAD model to project future travel demand for 2033 and build-out;
- Evaluate the performance of the transportation network for each of the horizon years and document the current and future needs;
- Develop a set of multimodal potential improvements to address the current and future needs;
- Coordinate with ADOT to identify potential new and upgraded interchanges and grade-separated crossings on Interstate 8 (I-8);
- Collaborate with the Union Pacific Railroad and ADOT to identify future railroad grade separation needs and pursue future passenger rail service;
- Provide implementation recommendations;
- Formulate infrastructure development policies and guidelines that facilitate public-private partnerships;
- Explore creative financing opportunities to fund recommended improvements; and
- Document the results of the study process and the recommendations in a ‘reader-friendly’ final report and executive summary.

## 1.3 Study Process

During the course of the project, interim documents were prepared to detail the results of specific work tasks. These interim documents were subject to review and comment and form the basis of the *Wellton Transportation Long-Range Plan PARA Study Final Report*. More detailed information can be found in the following interim documents:

- *Working Paper No. 1 – Current Conditions;*
- *Working Paper No. 2 – Future Conditions and Modeling;*
- *Working Paper No. 3 – Evaluation Criteria and Plan for Improvements;*



- *Public Open House No. 1 Summary*; and
- *Public Open House No. 2 Summary*.

## 1.4 Study Area

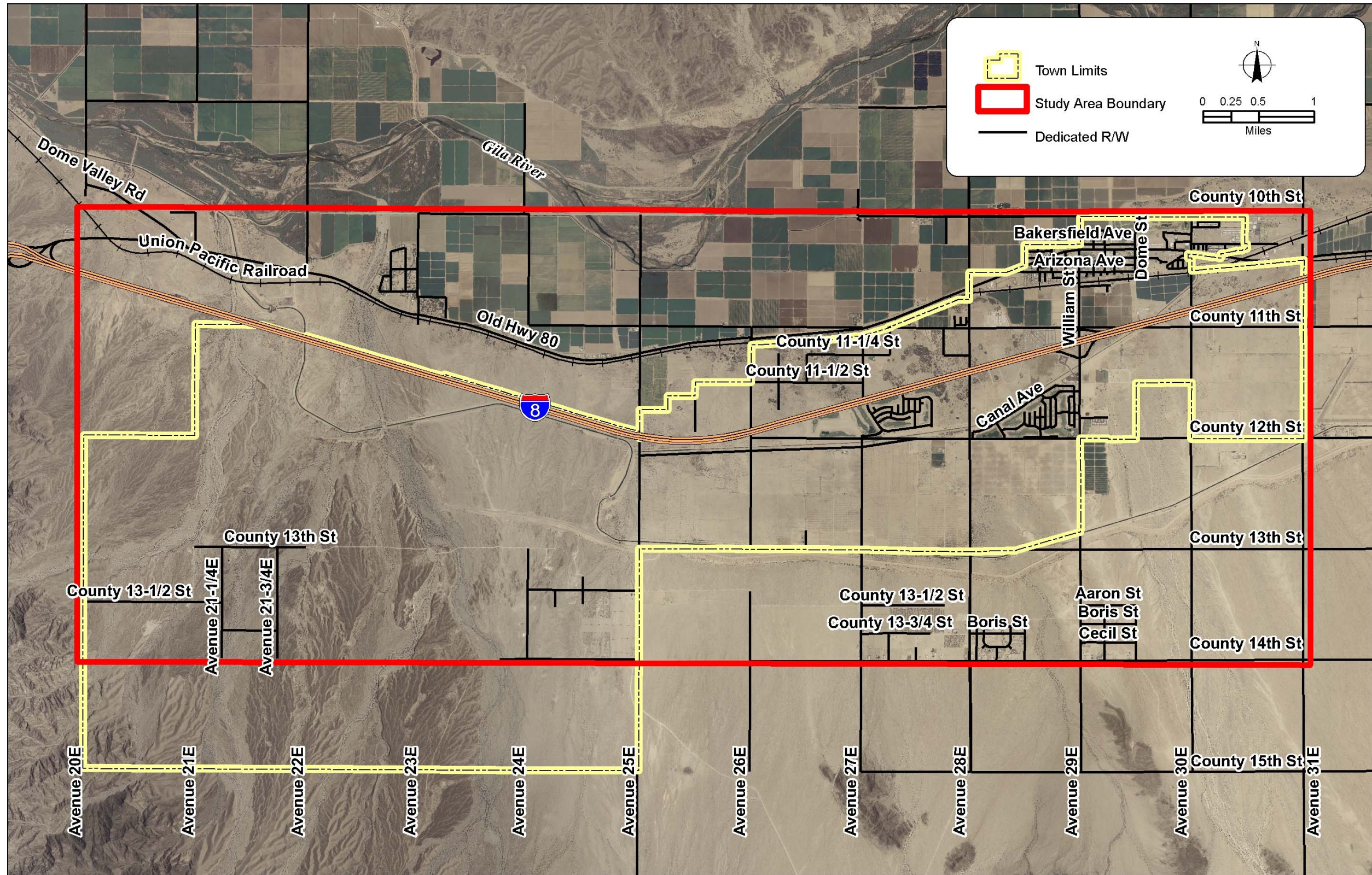
The study area for the Wellton Transportation Long-Range Plan PARA study encompasses the area bounded by County 10<sup>th</sup> Street, Avenue 20E, County 14<sup>th</sup> Street, and Avenue 31E, as shown in **Figure 1**.

## 1.5 Summary of Relevant Plans, Documents, and Studies

The following plans, documents, and studies were reviewed in the preparation of this study so that relevant findings and recommendations could be considered and incorporated in this study.

- *Arizona Department of Transportation Arizona Statewide Bicycle and Pedestrian Program* (January 2007);
- *Arizona Department of Transportation Rural Transit Needs Study* (May 2008);
- *Arizona Department of Transportation 2010 Statewide Rail Framework Study* (March 2010);
- *Arizona Department of Transportation 2010 Statewide Transportation Planning Framework* (March 2010);
- *Arizona Subcounty Population Projections* (December 2006);
- *Bureau of Land Management Yuma Field Office Approved Resource Management Plan* (January 2010);
- *Coyote Wash Traffic Impact Analysis* (June 2005);
- *Dome Valley/Wellton Planning Area Background Study* (August 2006);
- *Dome Valley/Wellton Planning Area Citizen Advisory Group Report* (August 2007);
- *Federal Highway Administration Railroad-Highway Grade Crossing Handbook* (August 2007);
- *Federal Highway Administration Updated Guidance for the Functional Classification of Highways* (August 2010);
- *Final Environmental Impact Statement for the Wellton-Mohawk Title Transfer Act* (December 2006);
- *Highway Capacity Manual* (October 2000);
- *Joint Land Use Study Part Two: Gila Bend Air Force Auxiliary Field/Barry M. Goldwater Range* (February 2005);
- *Town of Wellton General Plan 2003-2013* (October 2003);
- *Town of Wellton Preliminary Feasibility Assessment Report* (April 2006);
- *Town of Wellton Railroad Crossing Alternatives* (June 2008);
- *Town of Wellton Water System Master Plan for the Areas South of the Union Pacific Railroad and Interstate 8* (March 2008);
- *Transit Capacity and Quality of Service Manual* (January 1999);
- *Yuma County 2010 Comprehensive Plan Update* (July 2006);
- *Yuma International Airport Master Plan* (September 1999);
- *Yuma Metropolitan Planning Organization Transit Development Plan for Yuma County Area Transit* (May 2003);
- *Yuma Metropolitan Planning Organization Yuma Regional Transportation Coordination Plan* (Updated April 2008);
- *Yuma Metropolitan Planning Organization 2010-2033 Regional Transportation Plan Final Report* (April 2010); and
- *Yuma Metropolitan Planning Organization 2011 to 2016 Transportation Improvement Program* (July 2010).





Sources: Yuma County and ADOT

Figure 1 – Study Area



## **1.6 Technical Advisory Committee and Stakeholders**

A Technical Advisory Committee (TAC) provided input on technical issues related to the study and reviewed deliverables. Members of the TAC represent the following agencies:

- ADOT Multimodal Planning Division;
- ADOT Communication and Community Partnerships;
- ADOT Yuma District;
- Arizona Game and Fish Department (AGFD);
- Arizona State Land Department (ASLD);
- Town of Wellton;
- Yuma County; and
- Yuma Metropolitan Planning Organization (YMPO).

Other key stakeholders for the study included representatives from the following entities:

- ADOT Environmental Planning Group;
- Arizona Department of Environmental Quality;
- Arizona Farm Bureau;
- Glen Curtis Development, Inc.;
- Union Pacific Railroad (UPRR);
- U.S. Army Yuma Proving Ground;
- U.S. Bureau of Land Management (BLM);
- U.S. Bureau of Reclamation (USBR);
- U.S. Customs and Border Protection (CBP);
- U.S. Marine Corps Air Station – Yuma (MCAS);
- Wellton Elementary School District; and
- Wellton-Mohawk Irrigation and Drainage District (WMIDD).

## **1.7 Public Involvement**

Public participation is an integral part of a successful transportation plan. As part of the Wellton Transportation Long-Range Plan PARA Study, input was obtained from the general public, business leaders, and elected officials at two public meetings.

The first meeting was held on October 27, 2010 from 5 p.m. to 7 p.m. at the Wellton Community Center. Information on current and future conditions and needs was presented. The second meeting was held on March 2, 2011 from 5 p.m. to 7 p.m. at the Wellton Community Center. Information on potential improvement projects and preliminary recommendations were presented. Each meeting included a brief presentation followed by a question-and-answer session.

The meetings were staffed by Town of Wellton, ADOT, Yuma County, YMPO, and consultant personnel who were available to provide information, answer questions, and receive comments. Exhibits related to the study were provided as boards or handouts. Comment forms were made available for use in submitting written comments. Summaries of the public meetings are located in **Appendix 10-1**.

## 2 CURRENT CONDITIONS

### 2.1 Land Uses

An understanding of current land uses is important for modeling travel characteristics. Land use information is converted to population and employment data at the traffic analysis zone level for use in the travel demand model. Typically, population produces trips while employment attracts trips in the travel demand model.

The study area is currently comprised of commercial, industrial, residential, agricultural, and public uses. In general, commercial areas are along Avenue 29E (William Street) near I-8, and along Los Angeles Avenue/Old Highway 80 between Avenue 28E and Avenue 30E. There are a few industrial areas located along the Union Pacific Railroad lines through the project area as well as along I-8.

Residential land uses are spread throughout the study area at varying degrees of density. The majority of the residential areas are designated low or rural density residential. The areas of land designated medium or suburban density residential are dispersed throughout the study area, with large pockets north of the Town of Wellton limits and south of I-8 along County 12<sup>th</sup> Street.

The largest land use in the study area is designated as “Parks and Open Space” by the Town of Wellton and “Agricultural/Rural Preservation” by Yuma County. The majority of the land within the study area west of Avenue 25E is designated with these Agricultural/Open Space uses. The current land use plan is shown in **Figure 2**.

There is an extensive canal system through the study area, including the Mohawk Canal, Wellton Canal, and the Wellton-Mohawk Canal.

The proximity of the Barry M. Goldwater Range (BMGR) to the land along the southern boundary of the study area affects its use designation. The Town of Wellton has adopted the land use designations recommended by the Federal Government in the *Joint Land Use Study* for the BMGR. The Town’s “Rural Density Residential” and “Suburban Rural Density Residential” land uses limit the parcel size of the residential development that may occur in these areas. Parcels within half a mile of the range have a 5-acre minimum parcel size and parcels between a mile and half a mile from the range have a 2-acre minimum parcel size.

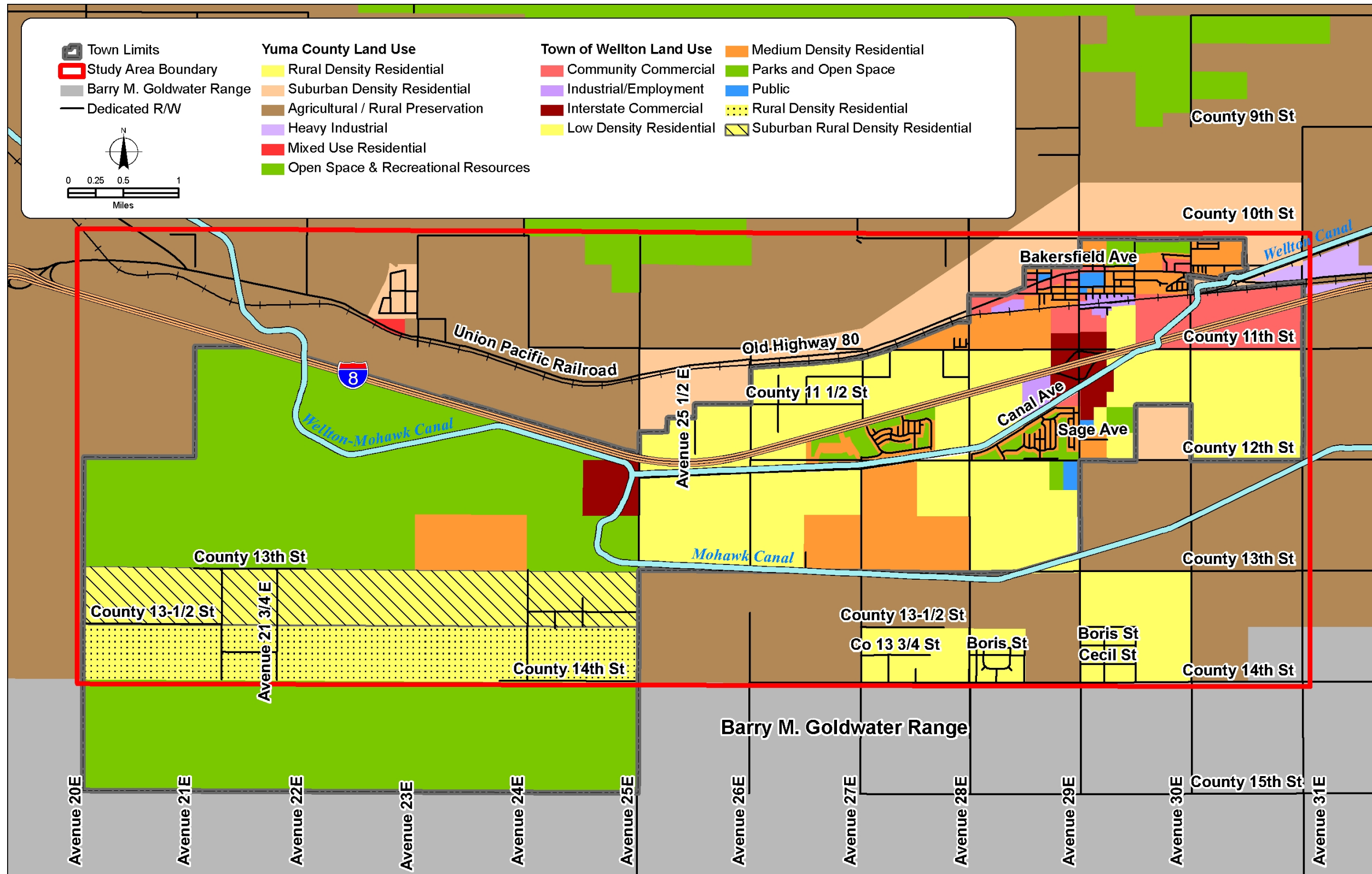
A new CBP Border Patrol station is currently being built in Wellton on the west side of Avenue 31E, directly south of I-8. The new Border Patrol station will accommodate approximately 300 agents.

### 2.2 Land Ownership

The current land ownership within the study area is shown in **Figure 3**. Public ownership within the study area includes: the Town of Wellton, Yuma County, ASLD, USBR, CBP, and BLM.

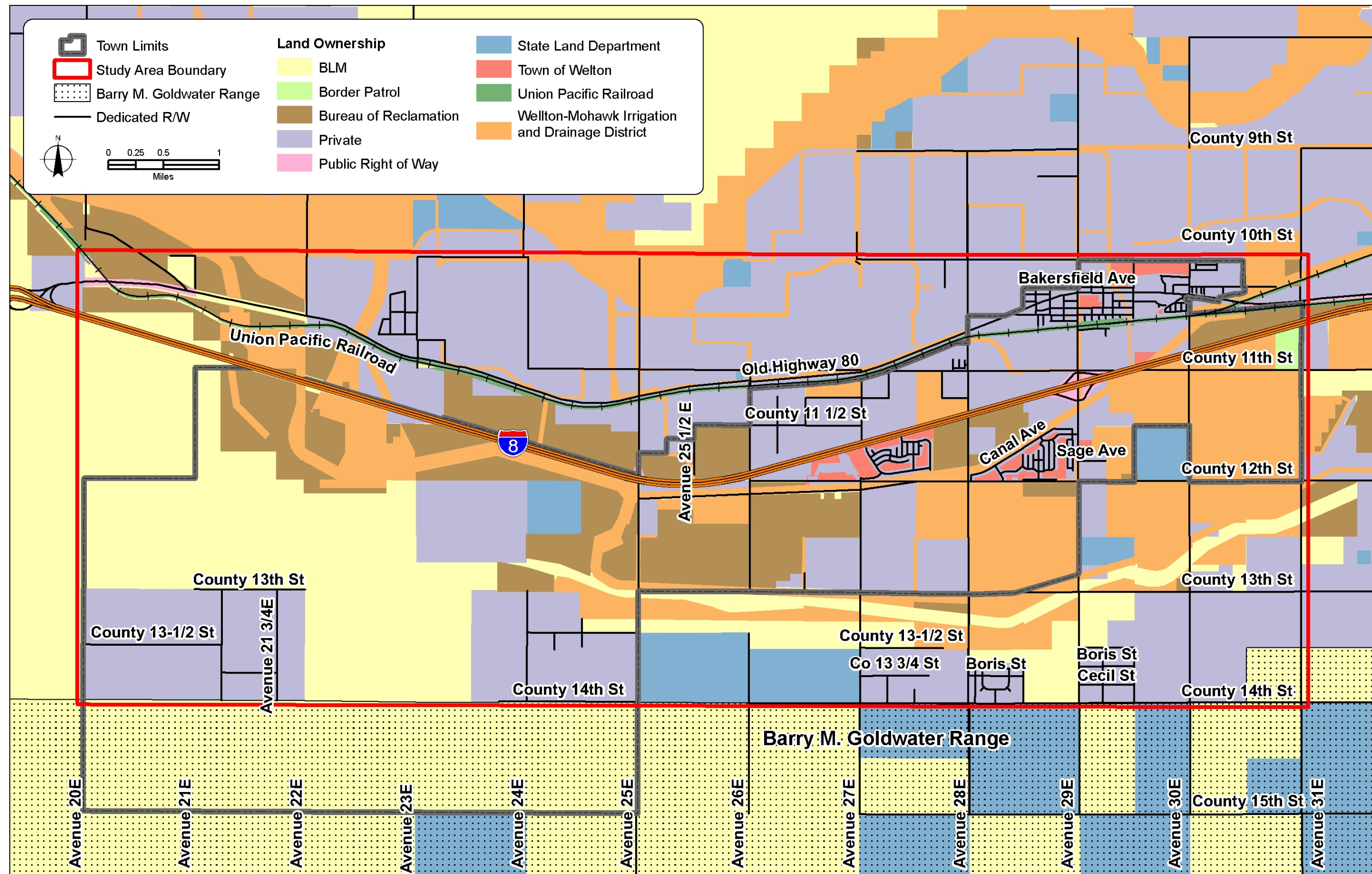
The largest private land owner in the area is WMIDD. Much of the land within the study area belonging to WMIDD was acquired in a title transfer with USBR. According to the *Final Environmental Impact Statement for the Wellton-Mohawk Title Transfer Act*, approximately 9,800 acres of the undeveloped land acquired by WMIDD is considered suitable for development in the future. A portion of this transferred land may also be privately purchased for agriculture-related purposes.





Sources: Yuma County and Town of Wellton

Figure 2 – Current Land Use Plan



Sources: Yuma County and WMIDD

Figure 3 – Land Ownership

## 2.3 Environment

Environmental features in the vicinity of the study area include the Gila River and Muggins Mountains Wilderness to the north of the study area, the Gila Mountains to the west of the study area, and the Copper Mountains to the south of the study area.

Most of the study area is relatively flat with typical Sonoran Desert vegetation. Drainage flows from the surrounding mountains to the Gila River through numerous washes, as shown in **Figure 4**. Two large washes, the Ligurta Wash and the Coyote Wash, traverse the study area in a general north-south direction.

The Juan Bautista de Anza National Historic Trail follows along the Gila River through the study area with the El Camino del Diablo Trail following Avenue 25E between I-8 and the BMGR.

Cultural resources have been identified within the BLM-designated Ligurta Area Special Cultural Resource Management Area (SCRMA) and Muggins Mountains Terraces SCRMA shown in **Figure 4**. According to the *BLM Yuma Field Office Approved Resource Management Plan*, the cultural resources within the Ligurta Area SCRMA are considered to primarily be for scientific use while the cultural resources within the Muggins Mountains Terraces SCRMA are considered to be for traditional viewing and future conservation use.

## 2.4 Population and Employment Data

### 2.4.1 Current Population and Employment Totals

The population estimate for the study area is comprised of two components:

- The population within the Town limits; and
- The population within the project study area outside of the Town limits, in adjacent unincorporated land.

The 2008 year-round population estimate for the Town of Wellton is 2,318 people per the Arizona Department of Commerce (ADC) website ([www.azcommerce.com/econinfo/demographics](http://www.azcommerce.com/econinfo/demographics)) and Table II-2 in the *YMPO 2010-2033 Regional Transportation Plan (RTP)*. To be consistent with the RTP, the 2008 Wellton population estimate is considered the “current” population of Wellton for study purposes.

The 2008 population of the unincorporated land within the study area was estimated using 2007 aerial photography and the population/dwelling unit ratio of 2.59 for unincorporated areas that is shown in Table II-3 in the RTP. The 2008 population estimates for the study area are shown in **Table 1**.

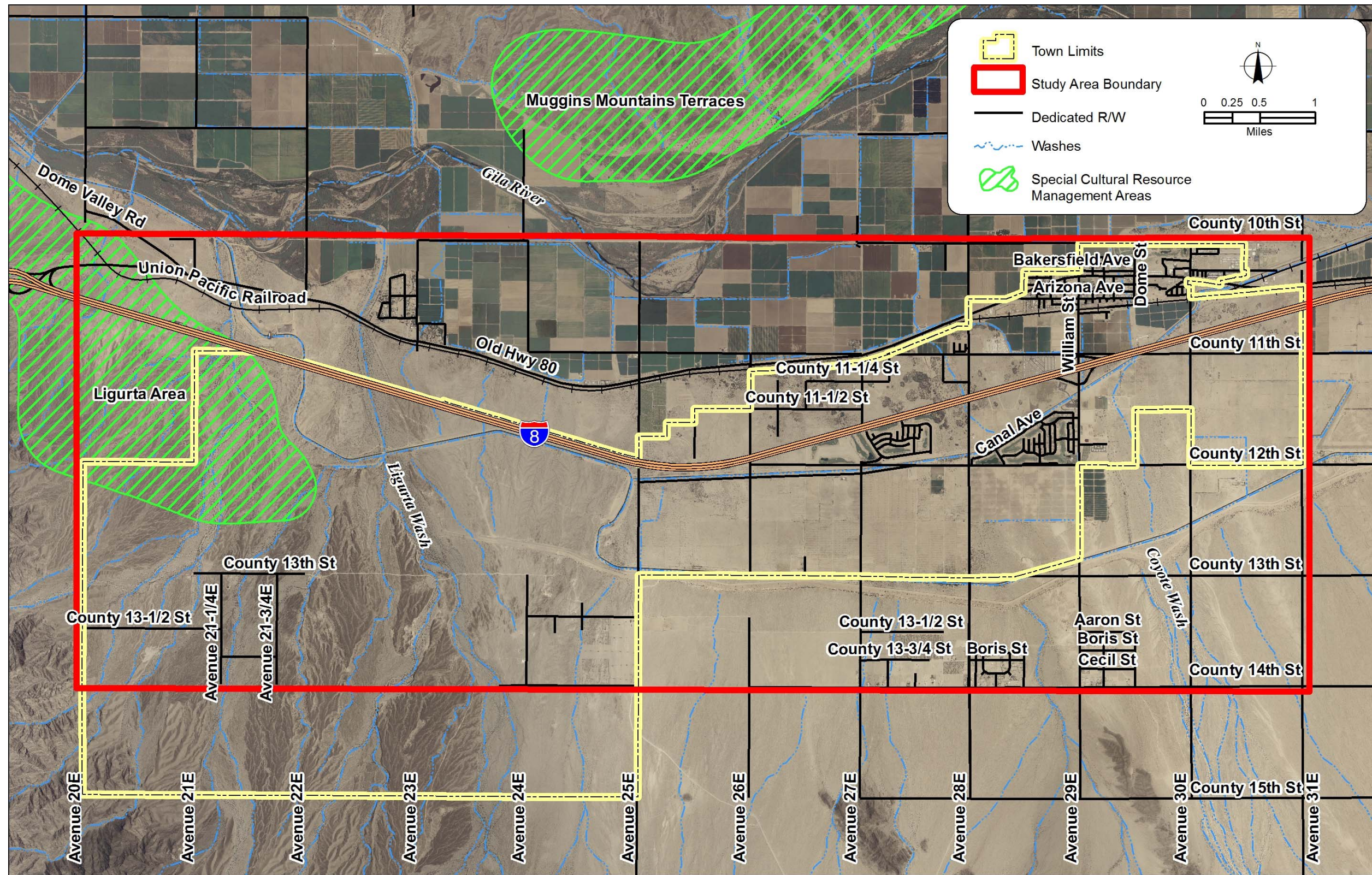
**Table 1 – Current Study Area Population**

| Portion of Study Area                                | 2008 Population |
|--|-----------------|
| Population within the Town of Wellton                | 2,318           |
| Population within the study area unincorporated land | 568             |
| <b>Total</b>   | <b>2,886</b>    |

Sources: Arizona Department of Commerce and aerial photography

It should be noted that there is a significant winter visitor and part-time resident population of several hundred people within the study area that is above and beyond the population shown in **Table 1**.





Sources: Yuma County and BLM

Figure 4 – Environmental and Drainage Features



Agriculture and ranching activities provide the most employment of any sector in the Wellton area. Employment data for the study area was estimated using a ratio of employment to population. Per the RTP, an employment-to-population ratio of 0.34 is valid for the Town of Wellton and a ratio of 0.25 is valid for Yuma County. Based on these ratios, 2008 employment for the study area was estimated as shown in **Table 2**.

**Table 2 – Current Study Area Employment**

| Portion of Study Area                                | 2008 Employment |
|--|-----------------|
| Employment within the Town of Wellton                | 788             |
| Employment within the study area unincorporated land | 142             |
| <b>Total</b>   | <b>930</b>      |

Source: Kimley-Horn and Associates, Inc.

## 2.4.2 Current Population and Employment by Traffic Analysis Zones

The RTP divided Yuma County into Traffic Analysis Zones (TAZs) for use in the development of a travel demand model. TAZs are geographic subdivisions of the study area that are used in the database of the travel demand model. Portions of six of the TAZs used in the RTP (numbered 506, 510, 511, 512, 513, and 514) are located within the study area. The RTP TAZs are shown in **Figure 5**.

Because five of the six RTP TAZ boundaries extend past the study area, the population and employment data for these five TAZs was adjusted to more accurately reflect the socioeconomic conditions within the study area. The small areas in the southwest and southeast corners of the study area not covered by any of the RTP TAZs were determined to be negligible in the current condition because these areas are vacant.

The RTP TAZs divided the employment totals into numerous categories. The categories currently applicable to the study area are retail, office, service, industrial, public, manufacturing, and elementary/junior high school. The 2008 population and employment estimates for the portion of each TAZ within the study area are shown in **Table 3**.

**Table 3 – Current Population and Employment Estimates by RTP Traffic Analysis Zones**

| TAZ          | 2008 Dwelling Units | 2008 Population | 2008 Employment |           |            |            |            |               |                 | Total      |
|--------------|---------------------|-----------------|-----------------|-----------|------------|------------|------------|---------------|-----------------|------------|
|              |                     |                 | Retail          | Office    | Service    | Industrial | Public     | Manufacturing | Elementary/JRHS |            |
| 506          | 62                  | 161             | 1               | 0         | 5          | 0          | 0          | 45            | 0               | 51         |
| 510          | 5                   | 10              | 0               | 0         | 0          | 0          | 0          | 0             | 0               | 0          |
| 511          | 437                 | 978             | 45              | 5         | 134        | 27         | 22         | 2             | 0               | 235        |
| 512          | 198                 | 466             | 66              | 3         | 175        | 4          | 2          | 0             | 0               | 250        |
| 513          | 494                 | 1,110           | 53              | 10        | 52         | 3          | 200        | 6             | 68              | 392        |
| 514          | 66                  | 161             | 0               | 0         | 2          | 0          | 0          | 0             | 0               | 2          |
| <b>Total</b> | <b>1,262</b>        | <b>2,886</b>    | <b>165</b>      | <b>18</b> | <b>368</b> | <b>34</b>  | <b>224</b> | <b>53</b>     | <b>68</b>       | <b>930</b> |

Source: YMPO 2010-2033 Regional Transportation Plan and Kimley-Horn and Associates, Inc.

To develop a more accurate and detailed travel forecast model for the project study area, the six RTP TAZs in the study area were subdivided into 38 TAZs, designated hereinafter as PARA TAZs. The PARA TAZs are shown in **Figure 6**. **Appendix 10-2** shows the 2008 population and employment estimates divided into the PARA TAZs.

### 2.4.3 Title VI Populations

Title VI of the Civil Rights Act of 1964 and related statutes assure that individuals are not subjected to discrimination on the basis of race, color, national origin, age, sex, or disability. In February 1994, President Clinton signed Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” The purpose of the order was to focus attention on the “environmental and human health conditions in minority communities and low income communities with the goal of achieving environmental justice.” The Order does not supersede existing laws or regulations; rather, it requires consideration and inclusion of these targeted populations as mandated in previous legislation including:

- Title VI of the Civil Rights Act of 1964
- National Environmental Policy Act of 1969 (NEPA)
- Section 309 of the Clean Air Act; and
- Freedom of Information Act.

The U.S. Department of Transportation issued its final order to implement the provisions of Executive Order 12898 on April 15, 1997. This final order requires that information be obtained concerning the race, color or national origin, and income level of populations served or affected by proposed programs, policies, and activities. It further requires that steps be taken to avoid disproportionately high and adverse impacts on these populations. One of the first steps in assuring environmental justice is the identification of those populations specifically targeted by the Order – minority and low-income populations.

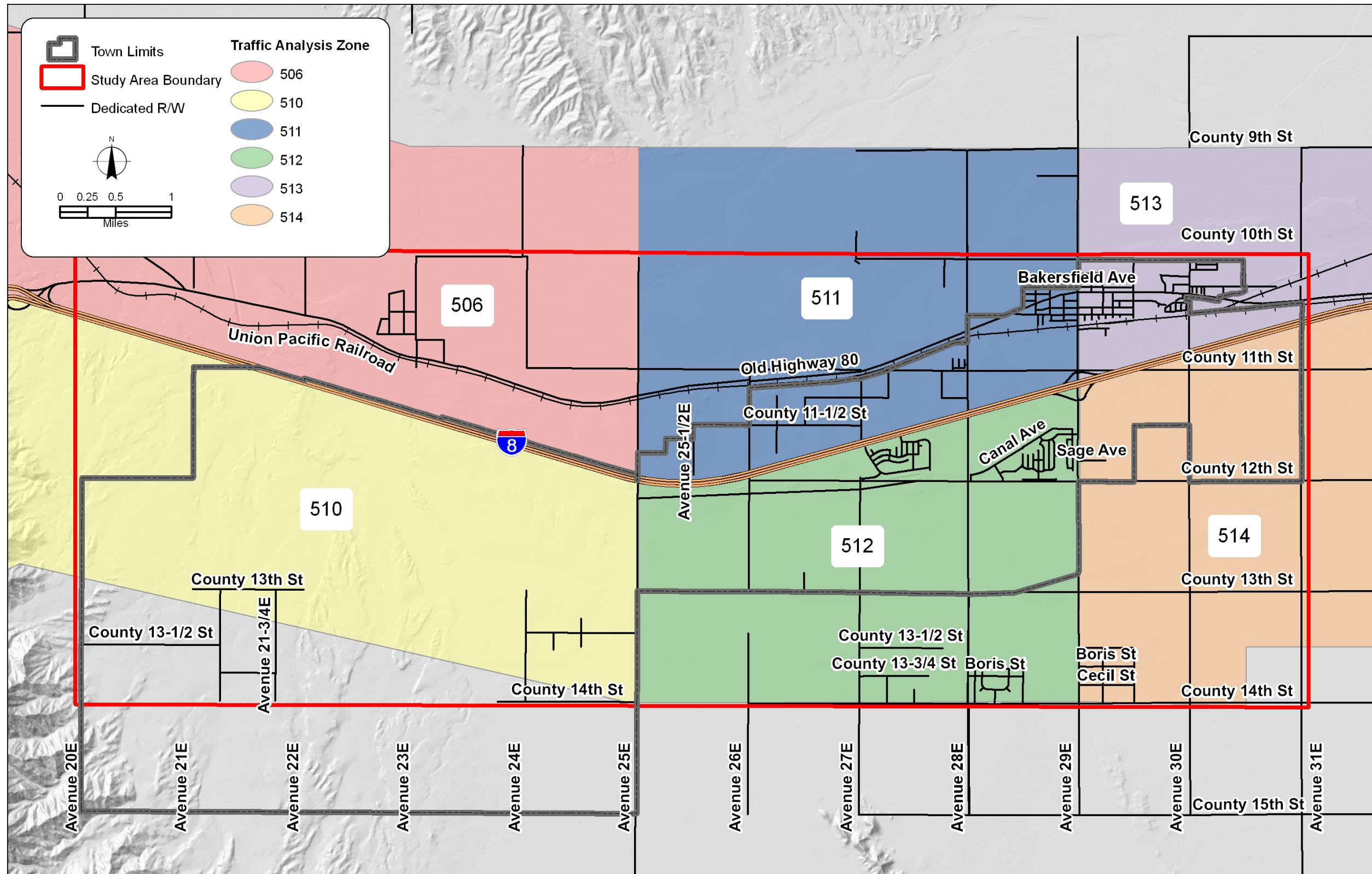
According to the 2000 U.S. Census, the racial composition of the Town of Wellton was predominantly white, with about 32 percent minorities, as shown in **Table 4**.

**Table 4 – Racial Demographic Percentages in the Town of Wellton**

| White Not Hispanic | African American | Native American | Asian | Native Hawaiian | Other | Two or More Races | Hispanic or Latino |
|--------------------|------------------|-----------------|-------|-----------------|-------|-------------------|--------------------|
| 68%                | 2%               | 1%              | <1%   | <1%             | 25%   | 3%                | 41%                |

Source: 2000 Census

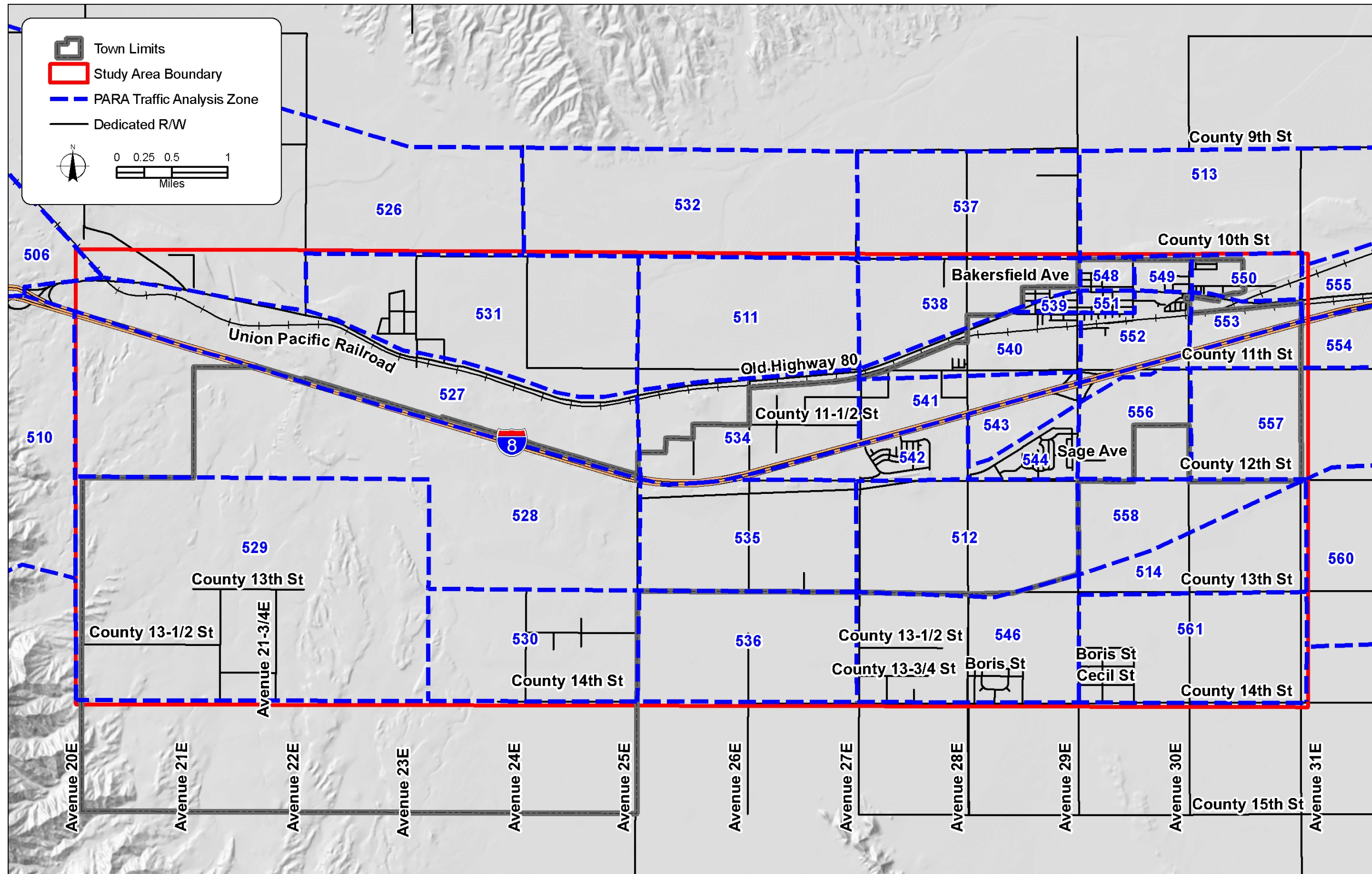
The Executive Order also requires the consideration of persons older than 60 years of age. According to the 2000 U.S. Census, approximately 37 percent of the population in Wellton is 60 years or older. In addition, the Order mandates that impacts on low-income people must also be considered. Approximately 21 percent of all people in Wellton are estimated to be living below the poverty level according to the 2000 Census data. Title VI population data for the year 2000 for the Town of Wellton and Yuma County is shown in **Table 5**.



Source: YMPO

Figure 5 – RTP Traffic Analysis Zones





Source: Kimley-Horn and Associates, Inc.

Figure 6 – PARA Traffic Analysis Zones



**Table 5 – 2000 Title VI Population Percentages**

| Population Category                    | Town of Wellton | Yuma County |
|--|-----------------|-------------|
| Females                                | 50.4%           | 49.5%       |
| Males                                  | 49.6%           | 50.5%       |
| Minority Races                         | 31.8%           | 31.8%       |
| Persons with disability                | 25.8%           | 20.8%       |
| Persons over age 60                    | 37.0%           | 21.4%       |
| Persons living below the poverty level | 21.3%           | 19.2%       |

Source: 2000 Census

## 2.5 Current Roadway Network

The current roadway network in the study area is composed of an interstate highway, collectors, and local streets. The major existing roadways are described below.

- **I-8** – I-8 is an east-west interstate highway that runs from San Diego, California to its junction with I-10 near Casa Grande, Arizona. Within the study limits, access to I-8 is limited to the interchange at Avenue 29E (William Street). I-8 has four through lanes (two in each direction). I-8 is also a part of the Strategic Highway Network (STRAHNET), a system of roads deemed necessary to support U.S. military operations;
- **Old Highway 80 (Los Angeles Avenue)** – Within the study area, Old Highway 80 is a rural major collector that runs east-west in between I-8 and the Gila River. Old Highway 80 has two through lanes in each direction plus a center median between Arizona Avenue and Jessie Street. The remainder of Old Highway 80 in the study area is typically a two-lane rural roadway. Within the Town of Wellton, Old Highway 80 is also referred to as Los Angeles Avenue; and
- **Avenue 29E (William Street)** – Avenue 29E is a two-lane north-south roadway that provides access to I-8 via a traffic interchange. It is one of the few roadways in the study area that crosses I-8, providing the most direct connection between the Town facilities north of I-8 and the residential and commercial developments to the south. (Avenue 25E and Avenue 31E are the two other roadways within the study area that cross I-8, though neither of them have a traffic interchange at I-8.) Within the study area, Avenue 29E is classified as a rural local road between Canal Avenue and Old Highway 80 and a rural minor collector north of Old Highway 80. Within the Town of Wellton, Avenue 29E is also referred to as William Street.

**Figure 7** shows the location of the paved roads and grade-separated crossings of I-8 within the study area. All of the paved roads in the study area have two through lanes (one in each direction), except for I-8 and the five-lane section of Los Angeles Avenue described above.

Only having a few paved roads and crossings of I-8 and the railroad limits the route options through the study area. This is particularly a potential issue for emergency response providers who like to have multiple alternate routes in case the primary route is blocked.

### 2.5.1 Traffic Control

All intersections in the study area are currently unsignalized, meaning there are no traffic signals in the study area.

## 2.5.2 Functional Classifications

Functional classification defines the hierarchy of streets in a roadway system according to the character of service they are intended to provide as it relates to mobility, access, and trip length. The roles and standards for each type of roadway must be established in order to plan an efficient and effective system. Most travel involves movement through a network of roadways of varying functional classification.

The Federal Highway Administration (FHWA) has developed guidelines for federal functional classification of roadways. The federal functional classification groups include principal arterials, minor arterials, collectors, and local roads. In general, the principal and minor arterials provide a high level of mobility for the traveling public with minimal allowance for access, while the collectors and local roads provide for residential and non-residential access. The FHWA guidelines also distinguish between rural roadways (in areas with a population less than 5,000) and urban roadways (in areas with a population greater than 5,000). To utilize federal funding on roadway improvements, the roadway must have a federal functional classification. Most federal funding can only be used on roadways classified as rural major collectors or higher.

The following describe the general characteristics associated with the different functional classifications.

### Principal Arterials

- Include freeways and major highways;
- Provide regional connectivity;
- Mobility is the primary objective;
- Serve the highest volume generators;
- Usually carry regional bus routes; and
- Limited access with capability of moving high volumes at high speeds.

### Minor Arterials

- Higher speed than collector or local;
- Longer trip length compared to collector and local;
- Carry the majority of trips entering or leaving the area;
- Do not usually connect through neighborhoods; and
- Usually carry local bus routes.

### Collectors

- Distribute traffic to/from arterials;
- Collect traffic from local streets;
- May carry local bus routes; and
- May access neighborhoods.

### Local Roads

- Provide direct access to abutting land;
- Discourage through traffic; and
- Lower speed limit than other classifications.

The study area roadways that currently have federally recognized functional classifications are shown graphically in **Figure 8**.

### 2.5.3 Traffic Volumes

Traffic volume information serves to indicate how close to capacity roadway segments or intersections may be. Actual daily traffic volume counts are also used to help calibrate the travel demand model as one of its principal outputs is estimates of daily traffic volumes.

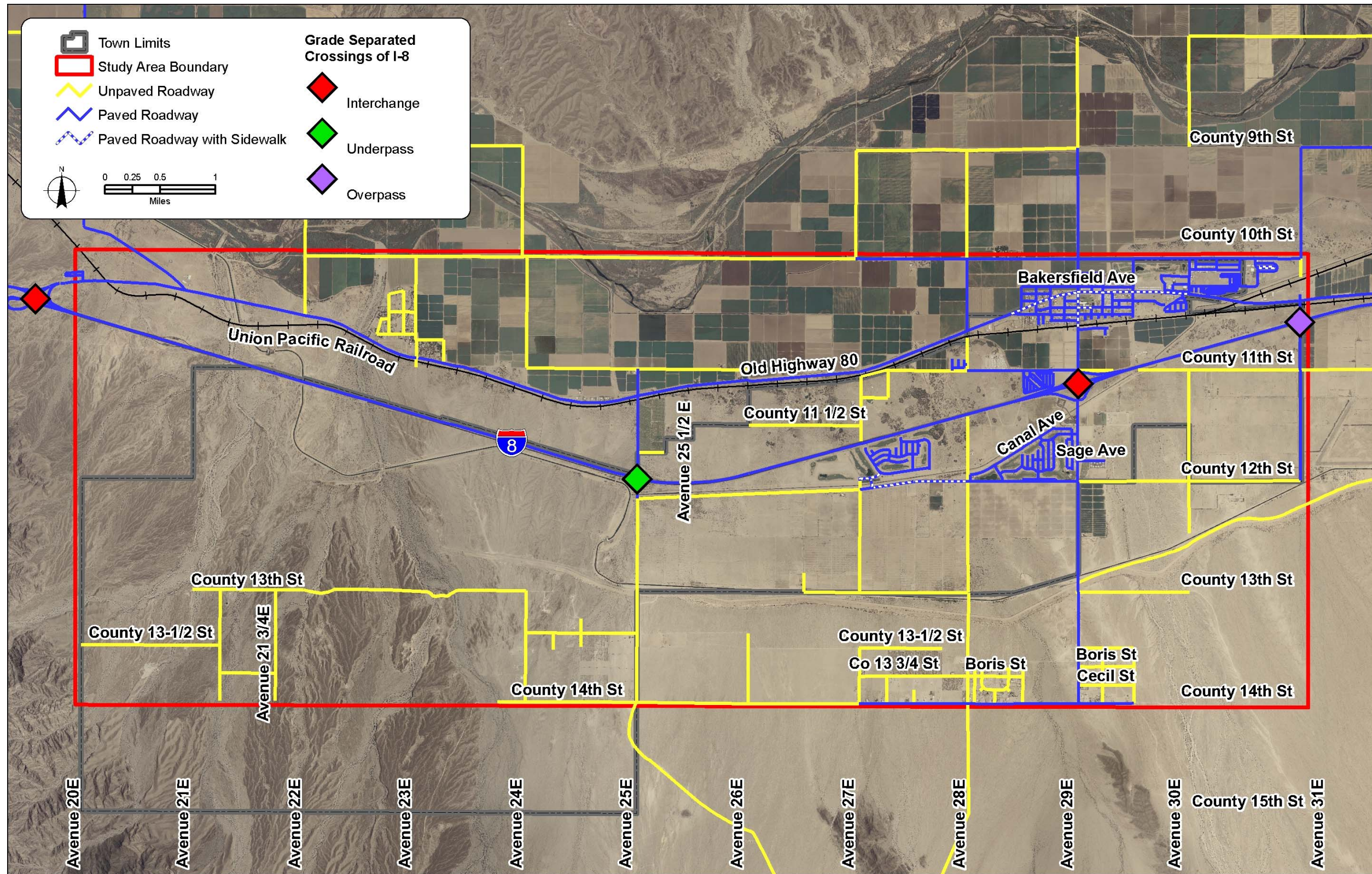
Available traffic count data was reviewed to ascertain the volume of traffic on study area roadways. Daily traffic volume and heavy vehicle percentage data on selected roadway segments was collected in July 2010 by YMPO. The daily traffic volume data was adjusted by a seasonal factor of 1.33 to represent average daily traffic (ADT) volumes. The highest surface street daily traffic volumes occurred on Los Angeles Avenue (4,400 vehicles per day east of William Street) and Avenue 29E (3,600 vehicles per day between I-8 and County 12<sup>th</sup> Street). Daily traffic volumes on I-8 average about 13,000 vehicles per day.

I-8 ADTs from 2009 were provided by YMPO. I-8 heavy vehicle percentages were provided by ADOT. I-8 has a high heavy vehicle percentage of 22 percent, indicating its importance as a freight route.

Morning (AM), mid-day (MD), and afternoon (PM) peak period intersection movement volumes were counted in July 2010 by YMPO as part of this study at the intersections of Old Highway 80/William Street, I-8 Westbound Ramp/William Street, and I-8 Eastbound Ramp/William Street.

The ADT volumes are shown in **Figure 9** while the AM, MD, and PM peak hour volumes are respectively shown in **Table 6**, **Table 7**, and **Table 8**.

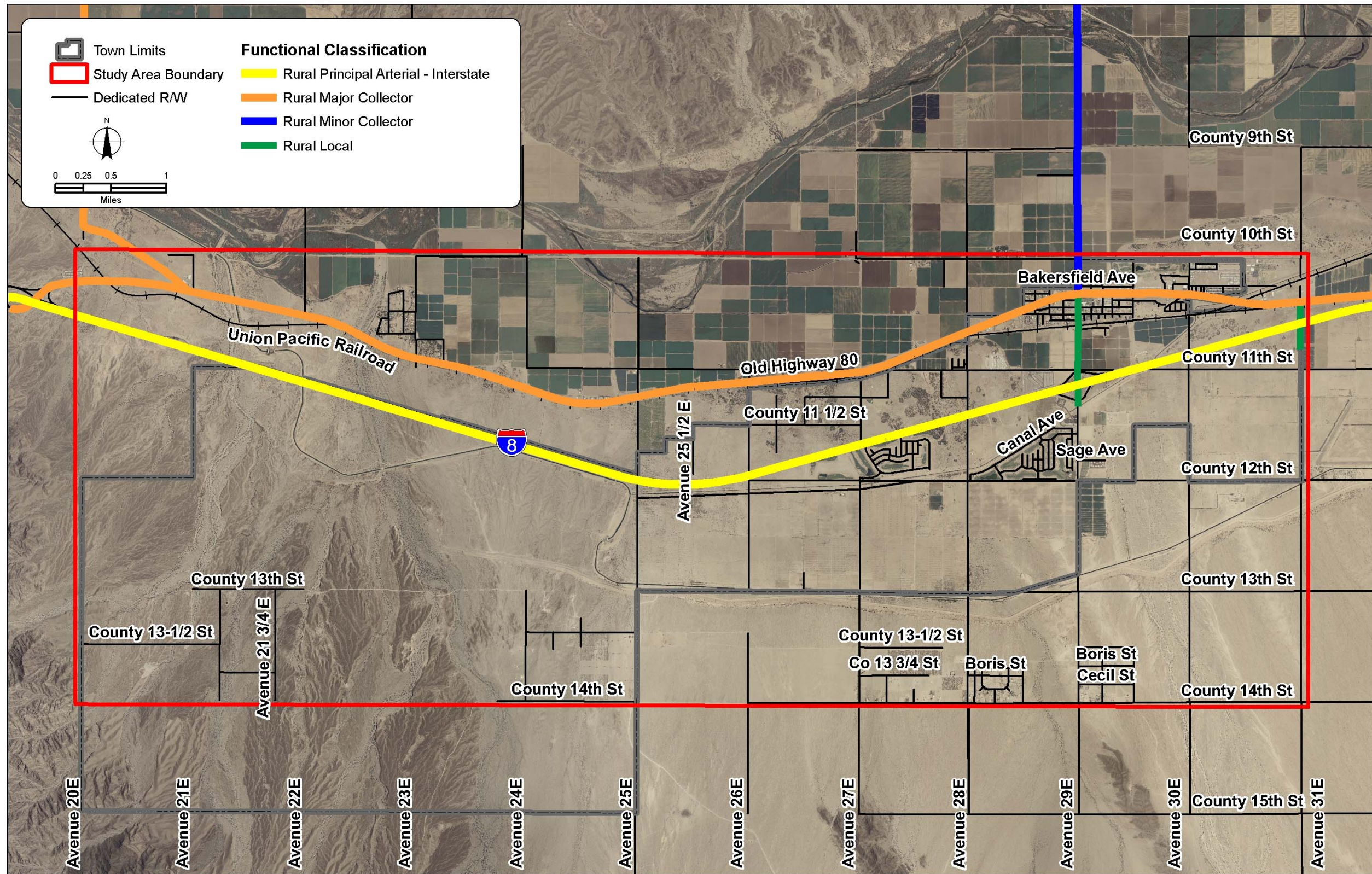




Sources: Yuma County and Kimley-Horn and Associates, Inc.

Figure 7 – Current Roadway Conditions

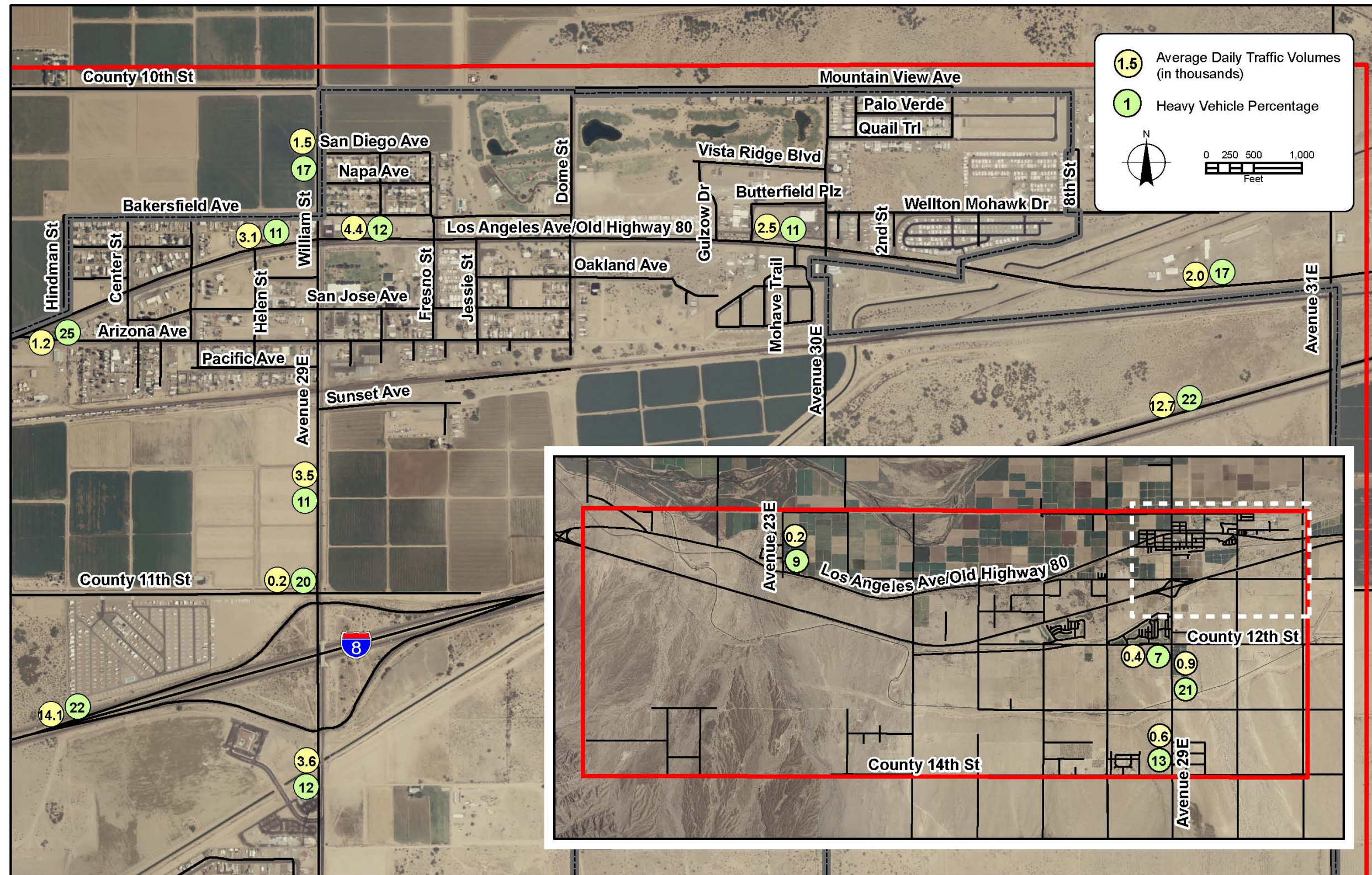




Sources: ADOT and YMPO

Figure 8 – Current Functional Classifications





Sources: ADOT and YMPO

Figure 9 – Daily Traffic Volume Counts



**Table 6 – Morning Peak Hour Volume Counts**

| Intersection Name                              | AM Peak Hour Volume Count by Intersection Movement<br>(L=Left, T=Through, and R=Right) |     |    |            |    |    |           |    |    |           |    |   | Total |
|--|--|-----|----|------------|----|----|-----------|----|----|-----------|----|---|-------|
|  | Northbound   |     |    | Southbound |    |    | Eastbound |    |    | Westbound |    |   |       |
|  | L  | T   | R  | L          | T  | R  | L         | T  | R  | L         | T  | R |       |
| Old Highway 80 and William Street              | 24   | 27  | 44 | 12         | 25 | 21 | 8         | 41 | 24 | 41        | 57 | 1 | 325   |
| Interstate 8 Westbound Ramp and William Street | 45   | 144 | 0  | 0          | 51 | 59 | 0         | 0  | 0  | 15        | 0  | 7 | 321   |
| Interstate 8 Eastbound Ramp and William Street | 0  | 102 | 17 | 11         | 72 | 0  | 82        | 0  | 29 | 0         | 0  | 0 | 313   |

Source: YMPO

**Table 7 – Mid-Day Peak Hour Volume Counts**

| Intersection Name                              | MD Peak Hour Volume Count by Intersection Movement<br>(L=Left, T=Through, and R=Right) |     |    |            |    |    |           |    |    |           |    |    | Total |
|--|--|-----|----|------------|----|----|-----------|----|----|-----------|----|----|-------|
|  | Northbound   |     |    | Southbound |    |    | Eastbound |    |    | Westbound |    |    |       |
|  | L  | T   | R  | L          | T  | R  | L         | T  | R  | L         | T  | R  |       |
| Old Highway 80 and William Street              | 31   | 27  | 57 | 20         | 31 | 21 | 20        | 76 | 29 | 41        | 77 | 3  | 433   |
| Interstate 8 Westbound Ramp and William Street | 39   | 125 | 0  | 0          | 96 | 65 | 0         | 0  | 0  | 19        | 0  | 11 | 355   |
| Interstate 8 Eastbound Ramp and William Street | 0  | 109 | 27 | 7          | 86 | 0  | 73        | 0  | 32 | 0         | 0  | 0  | 334   |

Source: YMPO

**Table 8 – Afternoon Peak Hour Volume Counts**

| Intersection Name                              | PM Peak Hour Volume Count by Intersection Movement<br>(L=Left, T=Through, and R=Right) |     |    |            |    |    |           |    |    |           |    |    | Total |
|--|--|-----|----|------------|----|----|-----------|----|----|-----------|----|----|-------|
|  | Northbound   |     |    | Southbound |    |    | Eastbound |    |    | Westbound |    |    |       |
|  | L  | T   | R  | L          | T  | R  | L         | T  | R  | L         | T  | R  |       |
| Old Highway 80 and William Street              | 21   | 33  | 96 | 13         | 24 | 24 | 12        | 60 | 21 | 49        | 65 | 3  | 421   |
| Interstate 8 Westbound Ramp and William Street | 59   | 154 | 0  | 0          | 56 | 63 | 0         | 0  | 0  | 29        | 5  | 12 | 378   |
| Interstate 8 Eastbound Ramp and William Street | 0  | 105 | 37 | 7          | 74 | 0  | 112       | 0  | 73 | 0         | 0  | 0  | 408   |

Source: YMPO



## 2.5.4 Roadway Segment Levels of Service

Roadway traffic operations are defined and categorized by the amount of delay experienced by an average driver. The operations are categorized by a grading system called level of service (LOS), which has a letter designation ranging from A (no delay) to F (severe congestion). LOS definitions and corresponding volume-to-capacity (v/c) ratios are given in **Table 9** as per the Transportation Research Board's *Highway Capacity Manual 2000* (HCM). The LOS categories or levels are visually depicted in the photographs shown in **Figure 10**.

LOS can be determined from the volume-to-capacity (v/c) ratio of a roadway. As defined in the HCM, the vehicle capacity of a roadway is "the maximum number of vehicles that can pass a given point during a specified period under prevailing roadway, traffic, and control conditions." The roadway capacity thresholds for various facility types shown in **Table 10** are derived from the HCM.

Roadway segments below the maximum volume threshold for LOS C likely do not currently need additional through capacity while roadway segments above the maximum volume threshold for LOS D likely do currently need additional through capacity. For roadway segments between the maximum volume thresholds for LOS C and LOS D, more detailed analysis should be conducted to evaluate intersection geometry, traffic control, and number and spacing of driveways to determine if additional through capacity is needed.

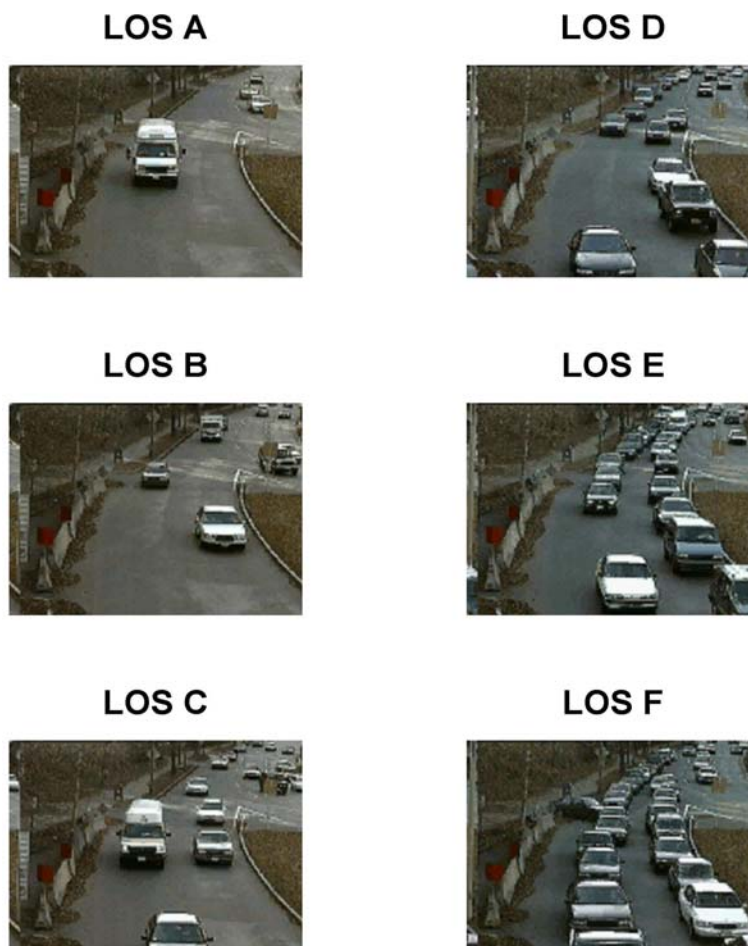
Daily traffic volumes and corresponding roadway segment capacity thresholds from **Table 10** were used to calculate v/c ratios for the study area roadways to identify roadway segments that are approaching their maximum capacity.

Based on the v/c ratio ranges and corresponding LOS values given in **Table 9**, all study area roadway segments for which current traffic count volume data was available provide acceptable levels of service (i.e., LOS D or better).

**Table 9 – LOS Definitions and V/C Ratios**

| LOS | Definition  | V/C Ratio Range |
|-----|---|-----------------|
| A   | Free flow conditions; virtually no delay  | 0.0 to 0.50     |
| B   | In the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable  | 0.51 to 0.60    |
| C   | Still in the range of stable flow, but marks the beginning of the range in which the operation of individual users becomes significantly affected by others                           | 0.61 to 0.72    |
| D   | High-density but still stable flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience | 0.73 to 0.84    |
| E   | Represents operating conditions at or near the capacity level. All speeds are reduced to a low but relatively uniform value   | 0.85 to 1.00    |
| F   | Traffic stream is defined as forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point       | > 1.00          |

Source: Highway Capacity Manual (2000)



Source: Florida DOT Quality/Level of Service Handbook

**Figure 10 – Level of Service Visual Depictions**

**Table 10 – Roadway Capacities by Facility Type**

| Facility Type         | 2-Lane | 4-Lane | 6-Lane  |
|-----------------------|--------|--------|---------|
| Interstate            | -      | 75,000 | 115,000 |
| Principal Arterial    | -      | 34,500 | 51,800  |
| Minor Arterial        | -      | 32,900 | 49,300  |
| Rural Major Collector | 12,600 | 25,200 | -       |
| Rural Minor Collector | 12,600 | -      | -       |
| Urban Collector       | 14,100 | 28,200 | -       |

Source: YMPO 2010-2033 Regional Transportation Plan

## 2.5.5 Intersection Levels of Service

For the three intersections where peak hour intersection movement volumes were counted, a planning-level capacity analysis was conducted on the PM peak hour volumes (generally the highest peak hour volumes of the day) using the *HCS+* software package. **Table 11** shows the LOS values for the three intersections according to the results of the peak hour capacity analysis. For the one-way stop-controlled I-8/William Street ramp intersections, the LOS value represents the LOS of the minor approach (i.e., the I-8 off-ramp). For the four-way stop-controlled intersection of Old Highway 80/William Street, the LOS value represents the overall intersection LOS. All three study area intersections for which current traffic count volume data was available provide acceptable levels of service (i.e., LOS D or better).

**Table 11 – Intersection LOS Values**

| Intersection                       | LOS Value |
|------------------------------------|-----------|
| Old Highway 80/William Street      | B         |
| I-8 Westbound Ramp/ William Street | B         |
| I-8 Eastbound Ramp/ William Street | B         |

Source: Kimley-Horn and Associates, Inc.

## 2.5.6 Crash Analysis

Crash data was obtained from ADOT's Safety Data Mart in May 2010 for the most currently validated five-year analysis period at that time, which was for all crashes between 2004 and 2008. There were a total of 21 crashes in the study area during the analysis period. The crashes by violation type and collision manner are shown in **Table 12** and **Table 13**. The locations and severity of these crashes are shown in **Figure 11**. There was one fatal crash along William Street, north of the I-8 intersection. This crash involved a motorcycle speeding too fast for conditions and alcohol may have also contributed to the crash. No crash patterns were identified at any of the crash locations that would be susceptible to correction by safety countermeasures.

**Table 12 – Crashes by Violation Type**

| Violation Type                            | Crashes   |
|---|-----------|
| No Improper Action                        | 7         |
| Inattention - Distraction                 | 4         |
| Speed Too Fast for Conditions             | 3         |
| Other                                     | 2         |
| Failed to Yield Right-of-Way              | 1         |
| Followed Too Closely                      | 1         |
| Other - Unsafe Passing                    | 1         |
| Knowingly Operated with Missing Equipment | 1         |
| Drove Road in Opposing Traffic Lane       | 1         |
| <b>Total</b>                              | <b>21</b> |

Source: ADOT



**Table 13 – Crashes by Collision Manner**

| Collision Manner           | Crashes   |
|----------------------------|-----------|
| Single Vehicle             | 11        |
| Rear End                   | 3         |
| Other                      | 3         |
| Sideswipe (Same Direction) | 2         |
| Angle                      | 1         |
| Head-On                    | 1         |
| <b>Total</b>               | <b>21</b> |

Source: ADOT

## 2.6 Current Transit Network

### 2.6.1 Public Transit

Public transit services are currently provided in the Wellton area through the Yuma County Area Transit (YCAT) system. YCAT services the communities of Yuma, San Luis, Somerton, and Foothills. YCAT's long-distance Orange Route is the fixed route that runs between Yuma and Wellton. There are currently three bus stops along this route within the study area. Funding issues have forced the elimination of two bus stops along the Orange Route in the study area. The three remaining bus stops are currently located on Old Highway 80 at I-8 (Ligurta Station), Old Highway 80 at Avenue 23E (Ligurta Creek Road), and Avenue 29E (William Street) at Arizona Avenue. The route and bus stops in the study area are shown in **Figure 12**. The Orange Route hours of operation are now from 6 a.m. to 6 p.m., Monday through Saturday. The frequency of service to the Wellton stops is one morning and two afternoon trips. One-way fares on the Orange Route are \$3.50. Per data provided by YMPO, the total Orange Line ridership in fiscal year 2010 was 12,971.

YMPO provides a Dial-a-Ride (DAR) curb-to-curb service for Yuma County residents who are 60 years and older or who are disabled and cannot use the fixed route system. Prospective riders must apply and interview for a photo I.D. card which verifies their eligibility to utilize the service. The DAR service operates Monday through Saturday, 6 a.m. to 6 p.m. Any DAR rider that lives in the Wellton area that is Americans with Disabilities Act (ADA) certified can only be charged double the fixed-route rate, or \$7.00 per one-way trip. If the rider lives beyond three-quarters of a mile from the fixed route service, they will need to pay the normal Zone H fare of \$8.00. The entire study area is within the Zone H (\$8.00) DAR fare zone.

Funding issues threatened to force the shutdown of the entire YCAT system in 2010. The Yuma region recently took the first step towards creating a regional transportation authority that can levy a regional transit tax by forming the Yuma County Intergovernmental Public Transportation Authority (YCIPTA). Responsibility for YCAT service operations may transition from YMPO to YCIPTA in the future.

### 2.6.2 Rail

The railroad tracks that run east-west through the study area are owned by Union Pacific Railroad (UPRR). UPRR provides freight services on the tracks while Amtrak provides passenger services.

Per the RTP, the primary railroad tracks in the study area are part of UPRR's Sunset Route, which runs as many as 70 trains per day from Los Angeles to Houston. The Sunset Route tracks were recently double-tracked in the study area by UPRR to promote more efficient and safer movement of train traffic. A branch track known as the Wellton Branch splits off from the Sunset Route tracks just east of Avenue 30E and continues northeast towards Roll. Other sidings and spur tracks exist along the one-mile segment of the Sunset Route tracks between Hindman Street and Dome Street near downtown Wellton.

The unstaffed Amtrak station in nearby Yuma provides passenger rail service. Amtrak's Texas Eagle and Sunset Limited routes currently stop at the Yuma station three times a week.

There are two grade-separated roadway crossings and three at-grade roadway crossings of the main railroad tracks in the study area. **Figure 12** shows the locations of these crossings. A quiet zone was recently established at the William Street at-grade crossing, effectively eliminating train horn noise through much of Wellton.

## **2.7 Current Non-motorized Network**

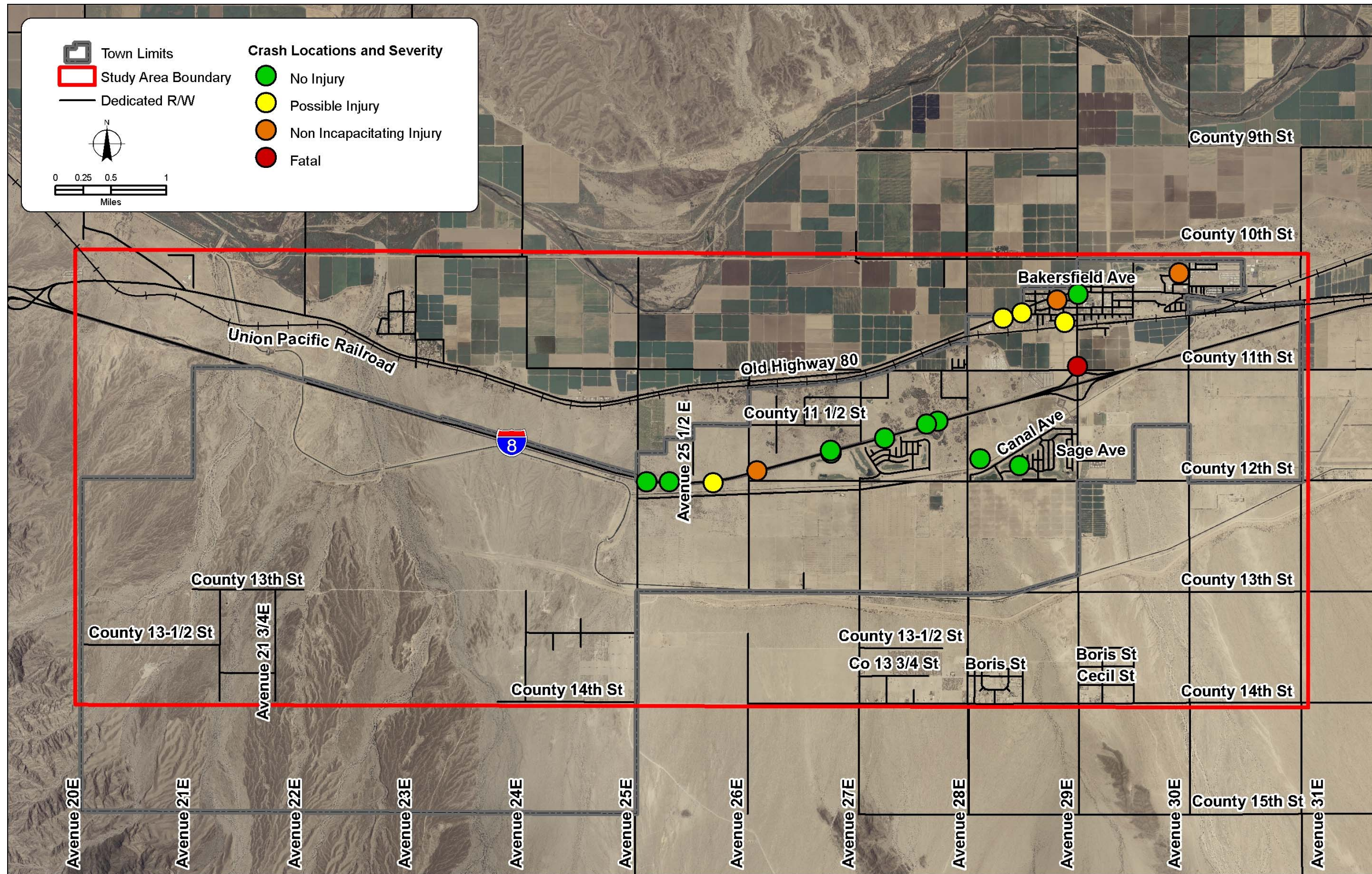
Non-motorized (i.e., bicycle and pedestrian) facilities are an important part of the multimodal transportation network in that they provide various options for travel (which is especially critical for travelers who cannot drive).

Elements that make up bicycle networks can include designated bike routes, striped bike lanes, paved shoulders along roadways, wide curb lanes, multi-use paths, and sidewalks. The only street within the study area with paved shoulders is Old Highway 80.

Pedestrian networks are typically comprised of sidewalks, trails, and multi-use paths. The previously referenced **Figure 7** shows the existing sidewalks within the study area. The only street within the study area with paved shoulders is Old Highway 80.

Portions of the Juan Bautista de Anza National Historic Trail and the El Camino del Diablo Trail are also located within the study limits. These off-road multi-use trails provide recreational opportunities.

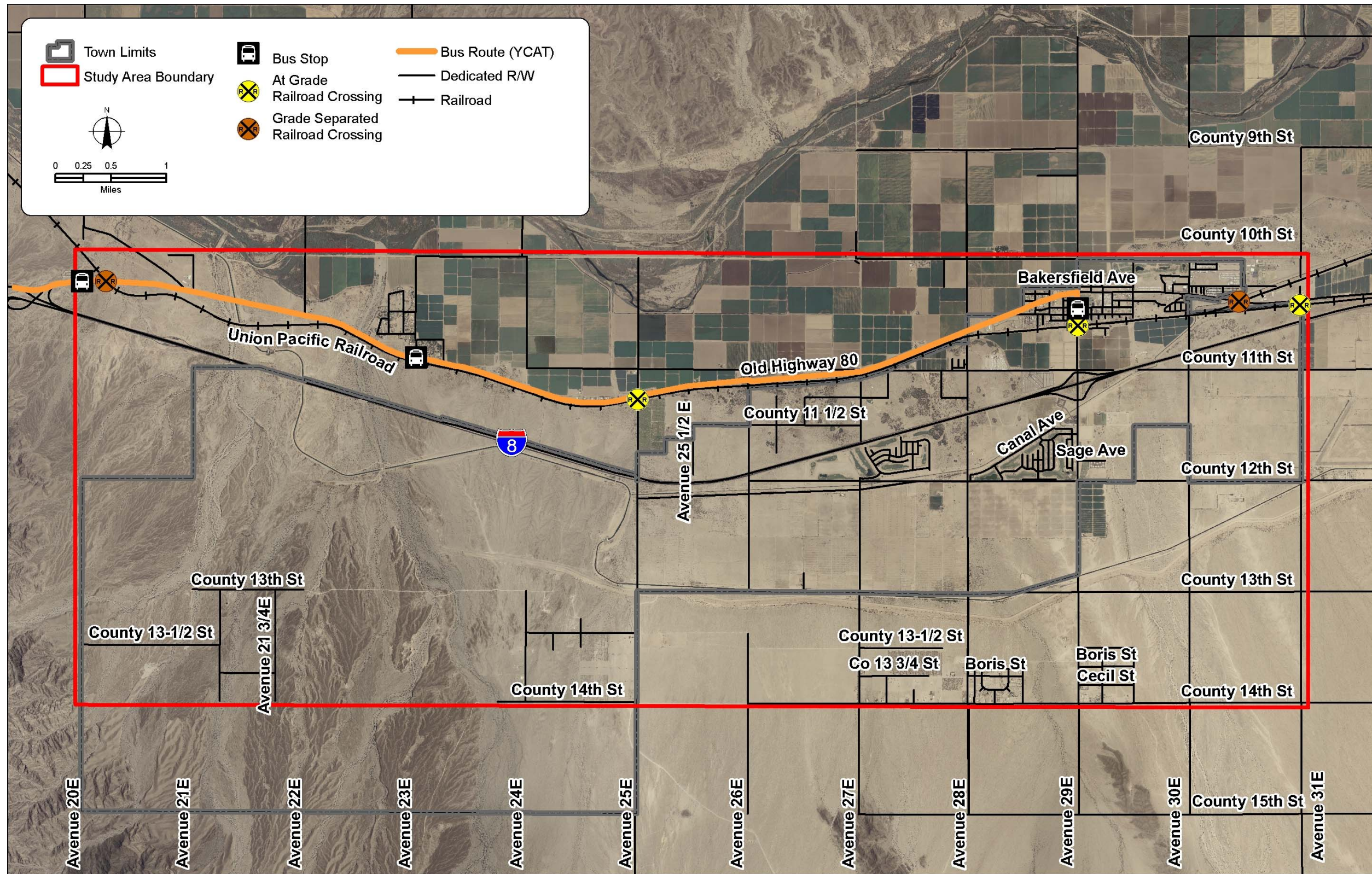




Source: ADOT

Figure 11 – Crash Locations and Severity





Sources: YMPO and Kimley-Horn and Associates, Inc.

Figure 12 – Transit and Rail Network



### 3 FUTURE CONDITIONS

Future transportation conditions have been analyzed for both the 2033 analysis year and the future build-out condition. The 2033 analysis year was selected to be consistent with the long-term future 2033 analysis year utilized in the YMPO RTP. The build-out condition is when all of the developable land is developed per the future land use plan. There is no specific year assigned to build-out as it is highly dependent on how quickly land develops.

Identifying the transportation needs for the build-out year benefits the local community by recognizing specific transportation needs that extend beyond the 20-year design period normally used by ADOT. Certain local decisions, such as those associated with land use, zoning, and infrastructure planning, could address longer-term development impacts. For example, Wellton may choose to designate and protect a wider transportation right-of-way corridor than needed for a two-lane road because the build-out condition will require a four-lane road.

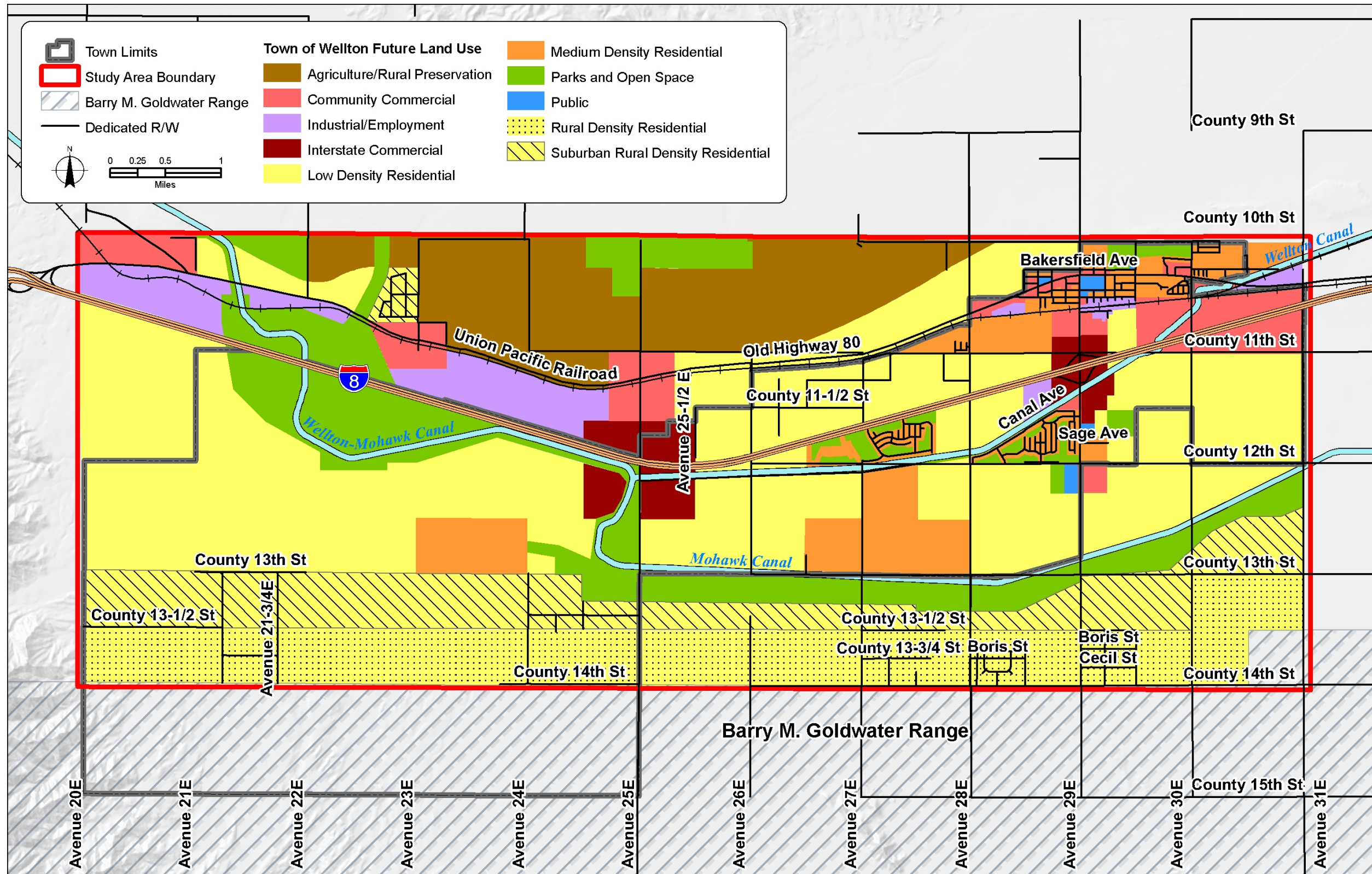
#### 3.1 Land Uses

For the purposes of this study, all the land within the study area is anticipated to be within Wellton jurisdictional limits in the future build-out condition. Wellton’s current land use designations and densities have been used to model the future conditions within the study area. One additional land use, Agriculture/Rural Preservation, was added to the Wellton land use designations for the agricultural land directly south of the Gila River. **Table 14** shows the future land use categories and densities assumed for this study. **Figure 13** shows the assumed future study area land uses in the future build-out condition.

**Table 14 – Future Wellton Land Use Categories**

| Category                           | Density  |
|------------------------------------|--|
| Agriculture/Rural Preservation     | Minimum parcel size of 40 acres                  |
| Rural Density Residential          | Minimum parcel size of 5 acres per dwelling unit |
| Suburban Rural Density Residential | Minimum parcel size of 2 acres per dwelling unit |
| Low Density Residential            | Maximum 4 dwelling units per acre                |
| Medium Density Residential         | 4 to 8 dwelling units per acre                   |
| Interstate Commercial              | Minimum parcel size of 10 acres                  |
| Community Commercial               | Maximum parcel size of 10 acres                  |
| Industrial                         | N/A  |
| Parks and Open Space               | N/A  |
| Public                             | N/A  |

Sources: Town of Wellton General Plan, Yuma County 2010 Comprehensive Plan Update, and Kimley-Horn and Associates, Inc.



Source: Kimley-Horn and Associates, Inc.

Figure 13 – Build-out Land Use



Residential land uses are expected to increase throughout the study area in the future build-out condition, most notably in the areas west of Avenue 28E and south of I-8. A large majority of the land south of I-8 is anticipated to be low density residential with smaller pockets of medium density residential scattered throughout. The areas of medium density residential south of I-8 represent anticipated residential developments that are currently reflected in the *Town of Wellton General Plan (WGP)*. The majority of the land use changes between current and build-out conditions will occur through the development of land that is currently vacant or that is being currently used for farming and agricultural land uses. The conversion of vacant or agricultural land to higher intensity uses will result in greater transportation needs in the build-out condition.

There are two regions of the study area where the residential land use is not expected to change significantly from current conditions: near the BMGR; and near the Gila River. The current land use restrictions placed upon land within one mile of BMGR are expected to remain in place in the future. Land within one-half mile of BMGR is restricted to rural density residential use and land within one mile of the range is restricted to suburban rural density residential use. Land use in the area between the Gila River and Old Highway 80 that is currently used primarily for agricultural purposes is expected to remain as such under the category of agriculture/rural preservation.

Current commercial land uses along Old Highway 80/Los Angeles Avenue and in the area of the I-8 traffic interchange at Avenue 29E/William Street are anticipated to remain commercial land uses in the future. Additional future commercial land uses are generally expected to occur along major roadways like I-8 and Old Highway 80 and at the intersections of major roadways such as at the intersections of Old Highway 80 with Avenue 20E, Avenue 23E, and Avenue 25E. The agricultural land along Avenue 29E/William Street near I-8 is expected to ultimately be converted to commercial land uses.

Industrial land uses are expected to increase in the future, primarily in the land adjacent to the UPRR tracks between I-8 and Old Highway 80 on the west side of the study area.

A significant portion of the study area is anticipated to remain open space and has been categorized as parks and open space as shown in **Figure 13**. While the parks and open space use designation allows for the preservation of land, it also allows it to be utilized for recreational purposes such as trails. This future land use is generally located along the existing Wellton-Mohawk Irrigation and Drainage District canals, floodways, and protective dikes in the study area where development potential is limited.

## **3.2 Population and Employment Data**

### **3.2.1 Future Population and Employment Projections**

A two percent compound annual growth rate was assumed to develop an updated 2033 population projection for the Town of Wellton of 3,803 people. For the build-out population projection, the future land uses shown in **Figure 13** were used to determine the projected number of dwelling units, from which a build-out population of 102,995 people was calculated using an assumed population/dwelling unit ratio of 2.41. **Table 15** shows the estimated 2008, projected 2033, and projected build-out year-round resident populations for the study area.

It is anticipated that the winter visitor and part-time resident population will continue to be significant in the future, though it is anticipated that the percentage of winter visitors and part-time residents as a portion of the total population will decrease over the years. This proportional decline in winter visitors and part-time residents is expected to occur because the rate of growth of full-time residents is expected to be higher than the rate of growth of winter visitors and part-time residents as the Town of Wellton

becomes more developed and more services can be provided locally. While the winter visitor population is not included in the population numbers, it is accounted for in the projected traffic volume demands.

**Table 15 – Future Study Area Population Projections**

| Portion of Study Area                                | 2008 Population | 2033 Population | Build-out Population |
|--|-----------------|-----------------|----------------------|
| Population within the Town of Wellton                | 2,318           | 3,803           | 80,189               |
| Population within the study area unincorporated land | 568             | 932             | 22,806               |
| <b>Total</b>   | <b>2,886</b>    | <b>4,735</b>    | <b>102,995</b>       |

Sources: Arizona Department of Commerce, aerial photography, and Kimley-Horn and Associates, Inc.

**Table 16** shows the projected build-out population for the various residential land use types. The density ratios in **Table 16** are generally the high end of the density range based on current land uses defined in the *Yuma County 2010 Comprehensive Plan Update* and the WGP. One exception is that the ratio of three dwelling units per acre was used for low density residential rather than the maximum allowable density of four dwelling units per acre per the WGP. The lower density ratio of three dwelling units per acre was used to account for the fact that all of the land designated with this use will most likely not be built out to the maximum density and land will also need to be set aside for public uses such as schools and parks. Medium density residential use has a range of four to eight dwelling units per acre. The maximum of eight dwelling units per acre was deemed unrealistic, so a median density of six dwelling units per acre was used in the build-out projections.

**Table 16 – Build-out Population Projections by Land Use Type**

|                     | Residential Land Uses                 |                  |                     |               |                   |         |
|---------------------|---------------------------------------|------------------|---------------------|---------------|-------------------|---------|
|                     | Agriculture/<br>Rural<br>Preservation | Rural Density    | Suburban<br>Density | Low Density   | Medium<br>Density | Total   |
| Total Area [acres]  | 3,002                                 | 3,686            | 2,896               | 9,658         | 1,917             | 21,159  |
| % of Study Area     | 11                                    | 13               | 11                  | 35            | 7                 | 77      |
| Density Ratio       | 1 DU per 40 acres                     | 1 DU per 5 acres | 1 DU per 2 acres    | 3 DU per acre | 6 DU per acre     | -       |
| Dwelling Units (DU) | 75                                    | 737              | 1,448               | 28,974        | 11,502            | 42,736  |
| Population          | 181                                   | 1,777            | 3,490               | 69,827        | 27,720            | 102,995 |

Source: Kimley-Horn and Associates, Inc.

**Table 17** shows a 2033 employment projection of 1,894 employees and a build-out employment projection of 41,198 employees for the study area. These employment projections were derived from the study area population projections in **Table 15** using an employment/population ratio of 0.40. The employment/population ratio of 0.40 matches the projected employment/population ratio of the Town of Wellton in 2033 per the RTP.

It is expected that as the region continues to grow, the current employment land uses will be replaced by more intense employment land uses and more services will be provided locally, requiring fewer trips outside of the study area for services.

**Table 17 – Future Study Area Employment Projections**

| Portion of Study Area                                | 2008 Employment | 2033 Employment | Build-out Employment |
|--|-----------------|-----------------|----------------------|
| Employment within the Town of Wellton                | 788             | 1,521           | 32,076               |
| Employment within the study area unincorporated land | 142             | 373             | 9,122                |
| <b>Total</b>   | <b>930</b>      | <b>1,894</b>    | <b>41,198</b>        |

Source: Kimley-Horn and Associates, Inc.

The population and employment projection totals shown in **Table 15** and **Table 17** were distributed among the 38 PARA TAZs based on the RTP TAZ distribution for 2033, the anticipated future land uses within each TAZ, aerial photography, and input from the Town of Wellton, Yuma County, and other project stakeholders. The 2033 population and employment projections for the PARA TAZs are shown in **Appendix 10-3**. The build-out population and employment projections for the PARA TAZs are shown in **Appendix 10-4**.

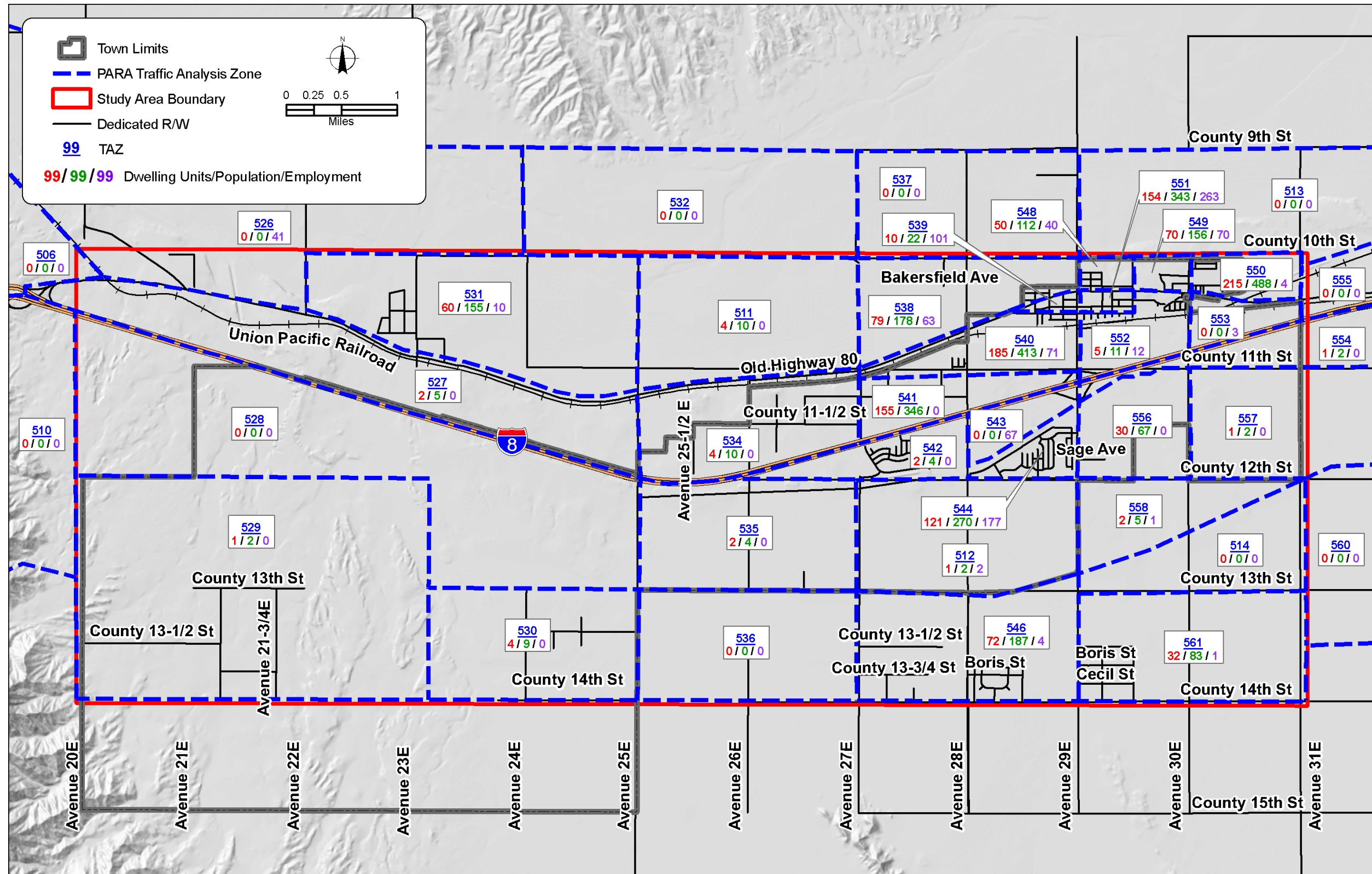
The 2033 population projection total shown in **Appendix 10-3** was calculated based on population/dwelling unit ratios used in the travel demand model for the individual TAZs and thus does not exactly match the 2033 projection total in **Table 15**. The population/dwelling unit ratios of 2.24 for Wellton and 2.68 for unincorporated areas that are shown in Table II-13 in the RTP for 2033 were used to calculate the projected 2033 population in each PARA TAZ.

For comparison purposes, the 2008, 2033, and build-out dwelling units, population, and employment for each TAZ are displayed graphically in **Figure 14**, **Figure 15**, and **Figure 16**, respectively.

### 3.2.2 Title VI Populations

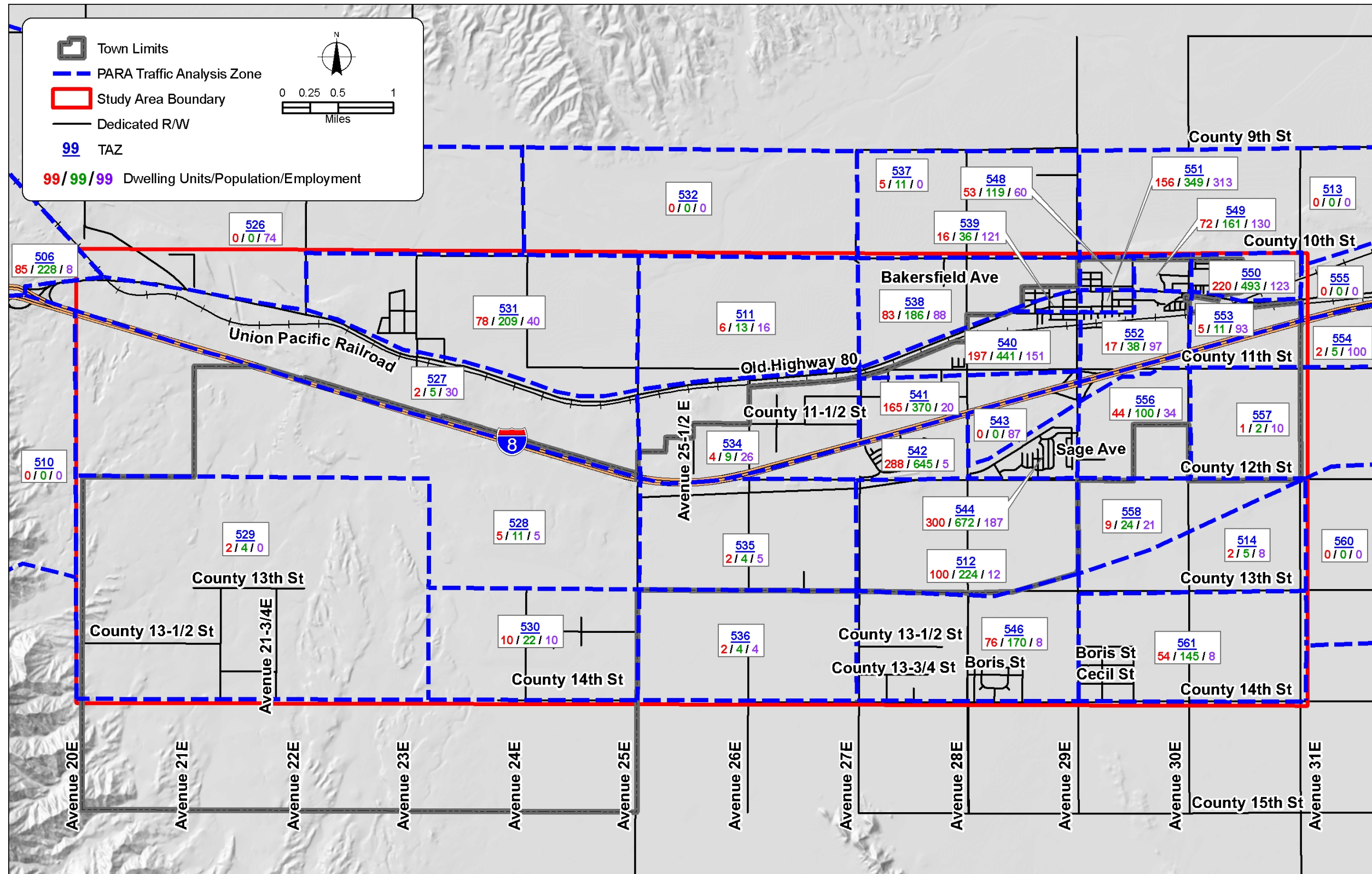
The 2010 Census will provide updated information on Title VI populations in the Wellton area. The 2010 Census demographic data for the study area will be available in late 2011 or early 2012. Comparing the 2010 Census Title VI information to the 2000 Census Title VI information may provide insights into how the percentages and locations of Title VI populations may change in the future condition.





Sources: YMPO and Kimley-Horn and Associates, Inc.

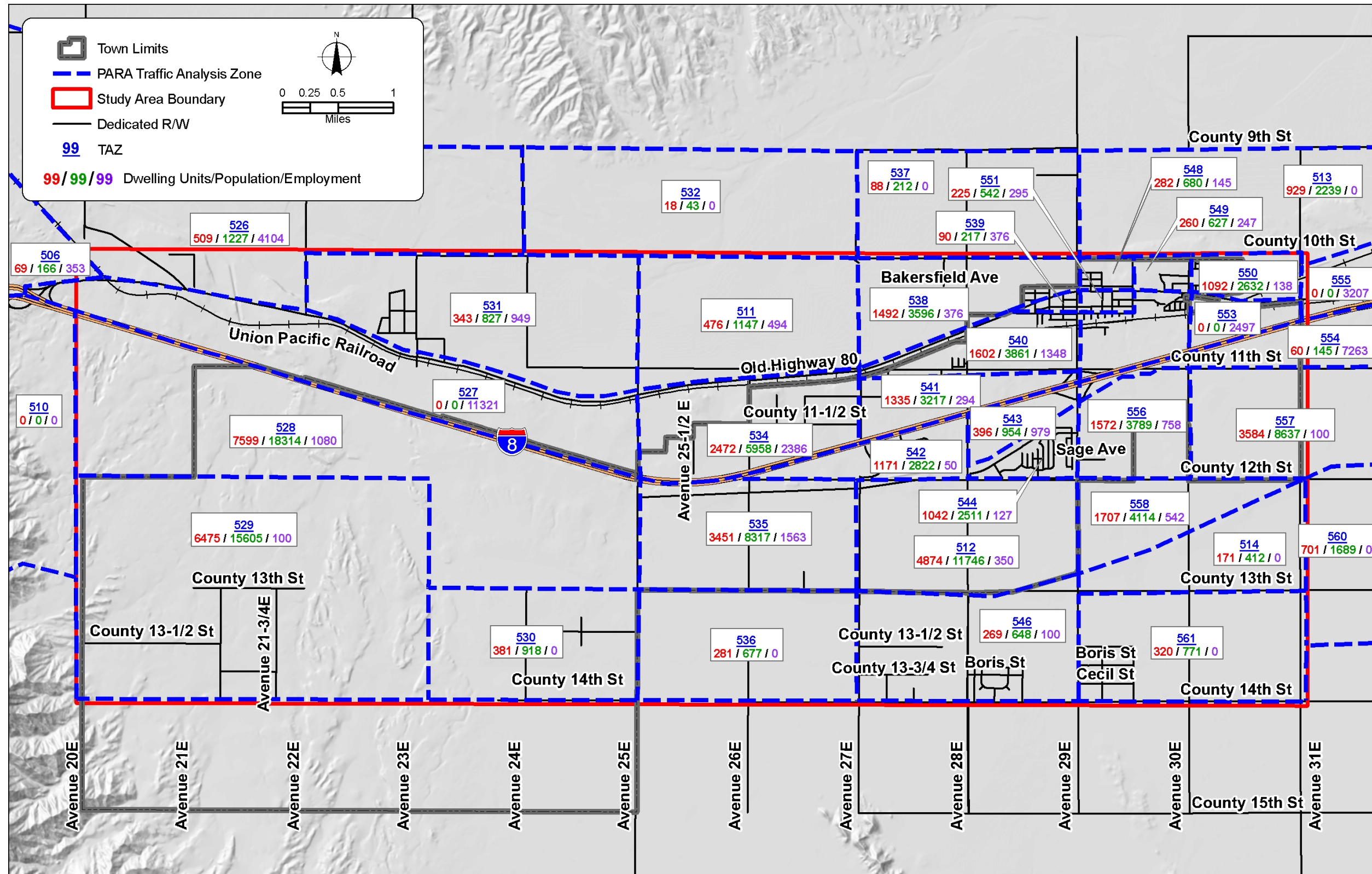
Figure 14 – 2008 Dwelling Units, Population, and Employment by TAZ



Sources: YMPO and Kimley-Horn and Associates, Inc.

Figure 15 – 2033 Dwelling Units, Population, and Employment by TAZ





Source: Kimley-Horn and Associates, Inc.

Figure 16 – Build-out Dwelling Units, Population, and Employment by TAZ



### 3.3 Future Roadway Network

#### 3.3.1 Anticipated Roadway Improvement Projects

There is currently one programmed/funded study area roadway improvement project in the *YMPO 2011 to 2016 Transportation Improvement Program (TIP)*:

- Widening Old Highway 80/Los Angeles Avenue over Coyote Wash to provide pedestrian facilities across Coyote Wash.

ADOT's recently completed *2010 Statewide Transportation Planning Framework (STPF)* includes a 2050 Recommended Statewide Scenario for transportation facilities in the state. This scenario indicates I-8 through the study area is projected to need to be widened by 2050, as shown in the excerpt of the 2050 Recommended Statewide Scenario presented as **Figure 17**. It should be noted that the STPF provides a fiscally unconstrained vision for 2050 and its recommendations are not tied to available funding.

#### 3.3.2 Functional Classification Changes

ADOT, YMPO, and the Town of Wellton have had discussions about updating the current study area roadway functional classifications to more accurately reflect how the roadways currently function. Additional functional classification changes will likely be needed in the build-out condition.

#### 3.3.3 Traffic Volume Forecasts

A travel demand model was developed for the study area to provide a tool for estimating future traffic volumes. The model utilizes TAZ population and employment data, typical vehicle trip generation characteristics, and roadway network information such as number of through lanes and speed limits to estimate traffic volumes on the roadway network. The model estimates traffic volumes by determining the number of vehicle trips produced and attracted in each TAZ and then assigning those trips to the adjacent roadway network. The model was developed utilizing the TransCAD software program.

The RTP 2008 travel demand model was used to create a baseline 2008 model for the study area. As described previously, the RTP TAZ boundaries were revised by splitting them into 38 smaller PARA TAZ boundaries. The roadway network within the model was then updated to account for existing roadways in the study area because the RTP roadway network in the study area consists only of I-8 and its interchange with Avenue 29E/William Street. Roads such as Old Highway 80 and Arizona Avenue were added to the roadway network. The roadway network was configured to ensure that each PARA TAZ touches at least one roadway so that the volumes generated in each TAZ can be assigned to the roadway network. The 2008 volumes generated by the model were then compared to available recent traffic count data from YMPO. Where there were large discrepancies between the YMPO-supplied traffic count data and the 2008 model output volumes, model parameters were adjusted until the two data sets were similar – a process known as model calibration.

Once the 2008 model was calibrated, a 2033 model was developed using the 2033 TAZ population and employment data in **Appendix 10-3**. The 2033 volumes generated by the model were reviewed for reasonableness and minor adjustments were made as needed. **Figure 18** shows the projected 2033 study area traffic volumes for all roadways carrying at least 100 vehicles per day. Due to the relatively low level of growth anticipated between 2008 and 2033 in the study area, traffic volumes only changed significantly on Avenue 29E/William Street between Old Highway 80 and I-8, where anticipated daily volumes increased from about 4,000 vehicles per day in 2008 to 7,000 vehicles per day in 2033. The

model outputs project that all study area roadways will provide acceptable levels of service (i.e., LOS D or better) in 2033.

A build-out model was also developed that accounts for the anticipated future land uses in the study area. The build-out model utilizes the current roadway network to demonstrate what conditions would be like in build-out if no improvements were made to the current roadway network. The build-out model indicates that practically every existing study area roadway segment will be at or over capacity in the build-out condition if no improvements are made to the current roadway network.

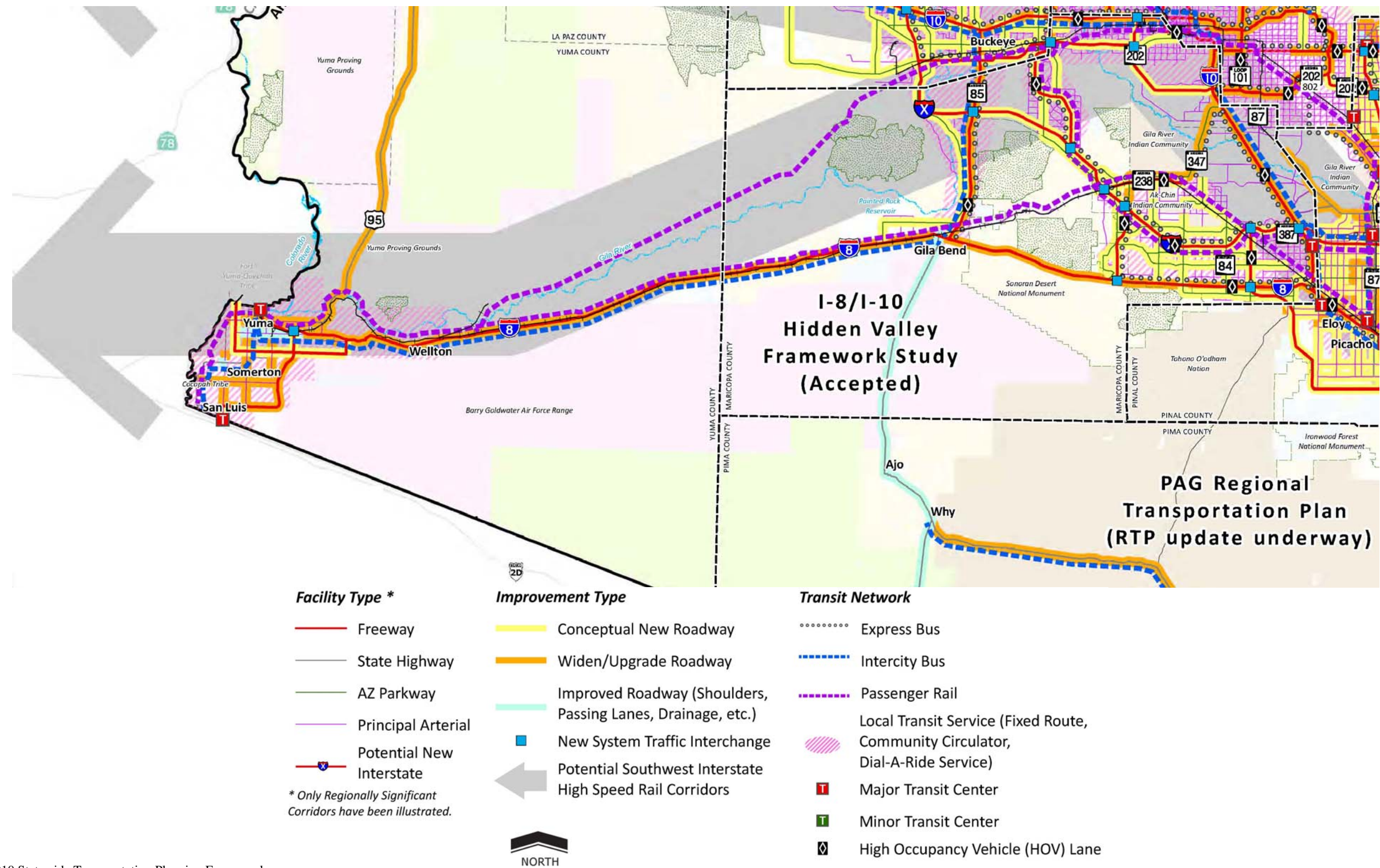
### **3.3.4 Traffic Control**

There are currently no planned traffic control projects within the study area. Preliminary analysis indicates the intersection of Old Highway 80 and Avenue 29E/William Street will be close to warranting a traffic control change by 2033. In the build-out condition, it is anticipated that traffic signalization or roundabouts will likely be needed where all locally significant roadways intersect.

### **3.3.5 Interchanges**

As the population and roadway traffic increase, the need will become greater for more interchanges with I-8 to improve mobility, access, and emergency response within the study area.

The existing interchange on I-8 at Avenue 29E is approaching the end of its useful life and will need to be evaluated for its continued functionality. The structure is currently classified as “functionally obsolete” by the ADOT bridge rating system.



Source: ADOT 2010 Statewide Transportation Planning Framework

Figure 17 – 2050 Recommended Statewide Scenario Excerpt





## 3.4 Future Transit Network

### 3.4.1 Public Transit

Public transit services in the study area are anticipated to continue to be provided by YMPO in the near future via YCAT and DAR services. There are currently no funded or committed projects for new public transit facilities.

The RTP outlines several unfunded recommendations for YCAT, including increasing the Orange Line frequency, creating a new local circulator route in Wellton (see **Figure 19**), building a park-and-ride lot in the Wellton-Tacna area, and modifying street design standards to require transit features such as bus pullouts. Due to the current funding issues associated with YCAT and the possible transition of transit services from YMPO to YCIPTA, it is unclear if the recommendations listed in the RTP will be implemented as planned.

The 2050 Recommended Statewide Scenario created with the 2010 STPF shows an “inter-city bus” route along I-8 through the study area. This recommended route, shown in **Figure 17**, is similar to Greyhound’s current service route along I-8.

ADOT recently commenced a PARA study on transit in the Yuma region that will assess the current and future transit needs in the Yuma region and make recommendations on how to improve the current YCAT and DAR system and address YCAT funding issues.

A transit demand forecast based on projected population growth within the study area is shown in **Table 18**. The 2000 Title VI Population Percentages in **Table 5** and 2008 population estimates from **Table 15** were used to calculate the 2008 population of elderly, disabled, and living below the poverty level within the study area. The Arkansas Public Transportation Needs Assessment (APTNA) model was used to estimate the 2008 transit demand based on the 2008 population estimates. The APTNA method, which is used in both the RTP and ADOT’s *Rural Transit Needs Study* (May 2008) to project transit demand, uses the following trip rates:

- An elderly person age 60 and over would make about 6.79 one-way passenger trips annually;
- A person with disabilities under age 60 would make about 4.49 one-way passenger trips annually; and
- A person living in poverty under age 60 would make about 20.50 one-way passenger trips annually.

The percent change in population between the 2008/2033 and 2033/build-out estimates in **Table 15** were used to calculate the population and annual trip demand for 2033 and build-out. The population and trip demand forecast in **Table 18** illustrates the growing demand for transit in Wellton and the surrounding unincorporated area in the future. In 2008, the total ridership for the YCAT fixed-route system was 348,000. The build-out annual ridership forecast of 395,618 suggests that the study area in the build-out condition would be able to support a local fixed-route transit system.

Another method of identifying potential demand for transit is to determine where the dwelling unit and employment densities are high enough to support fixed route transit services. The Transit Cooperative Research Program’s *Transit Capacity and Quality of Service Manual* (January 1999) defines transit supportive areas as those having at least three dwelling units or four jobs per acre. Using this methodology, the dwelling unit and employment densities for the TAZs in the study area were estimated for both the 2033 and build-out timeframes using the dwelling unit and employment data for each PARA TAZ in **Appendix 10-3** and **Appendix 10-4**. Only one PARA TAZ (TAZ 551) meets the transit supportive area criteria for the 2033 timeframe. In the build-out timeframe, fourteen PARA TAZs meet either the dwelling unit or employment density criteria. **Figure 20** and **Figure 21** illustrate the locations of the PARA TAZs meeting the dwelling unit and employment density criteria.

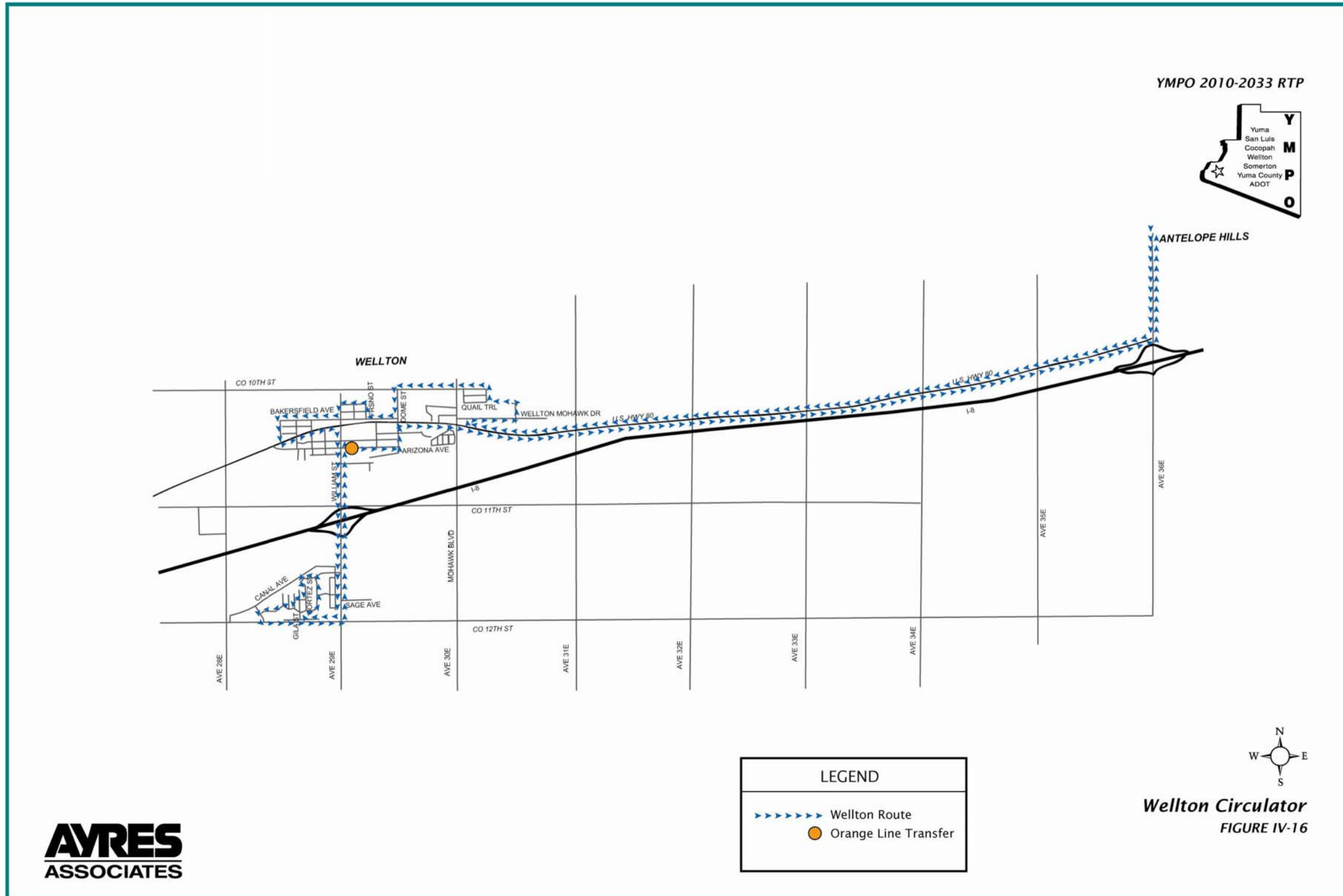


**Table 18 – Population Growth and Transit Demand Forecasts**

|  |                 | 2008   | 2033   | Build-out |
|--|-----------------|--------|--------|-----------|
| <b>Population</b>                      |                 |        |        |           |
| Persons over age 60                    | Town of Wellton | 858    | 1,407  | 29,670    |
|  | Yuma County     | 122    | 199    | 4,880     |
|  | Total           | 979    | 1,607  | 34,550    |
| Persons with disability                | Town of Wellton | 598    | 981    | 20,689    |
|  | Yuma County     | 118    | 194    | 4,744     |
|  | Total           | 716    | 1,175  | 25,432    |
| Persons living below the poverty level | Town of Wellton | 494    | 810    | 17,080    |
|  | Yuma County     | 109    | 179    | 4,379     |
|  | Total           | 603    | 989    | 21,459    |
| <b>Annual Trip Demand</b>              |                 |        |        |           |
| YCAT Orange Line Ridership             |                 | 11,436 | 18,762 | 395,618   |
| APTNA Model                            | Town of Wellton | 18,630 | 30,566 | 644,497   |
|  | Yuma County     | 3,591  | 5,893  | 144,202   |
|  | Total           | 22,222 | 36,459 | 788,699   |

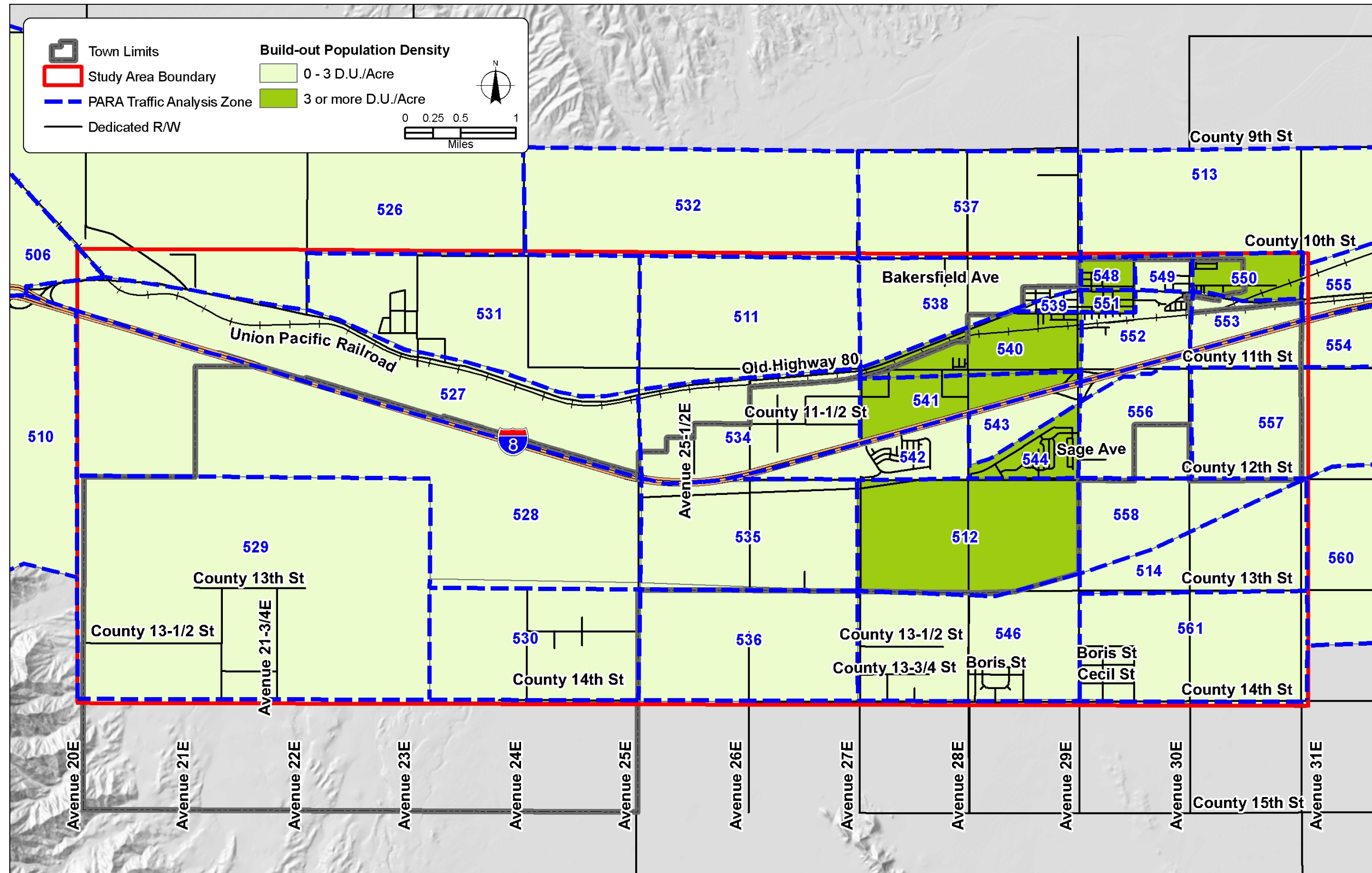
Source: Kimley-Horn and Associates, Inc.





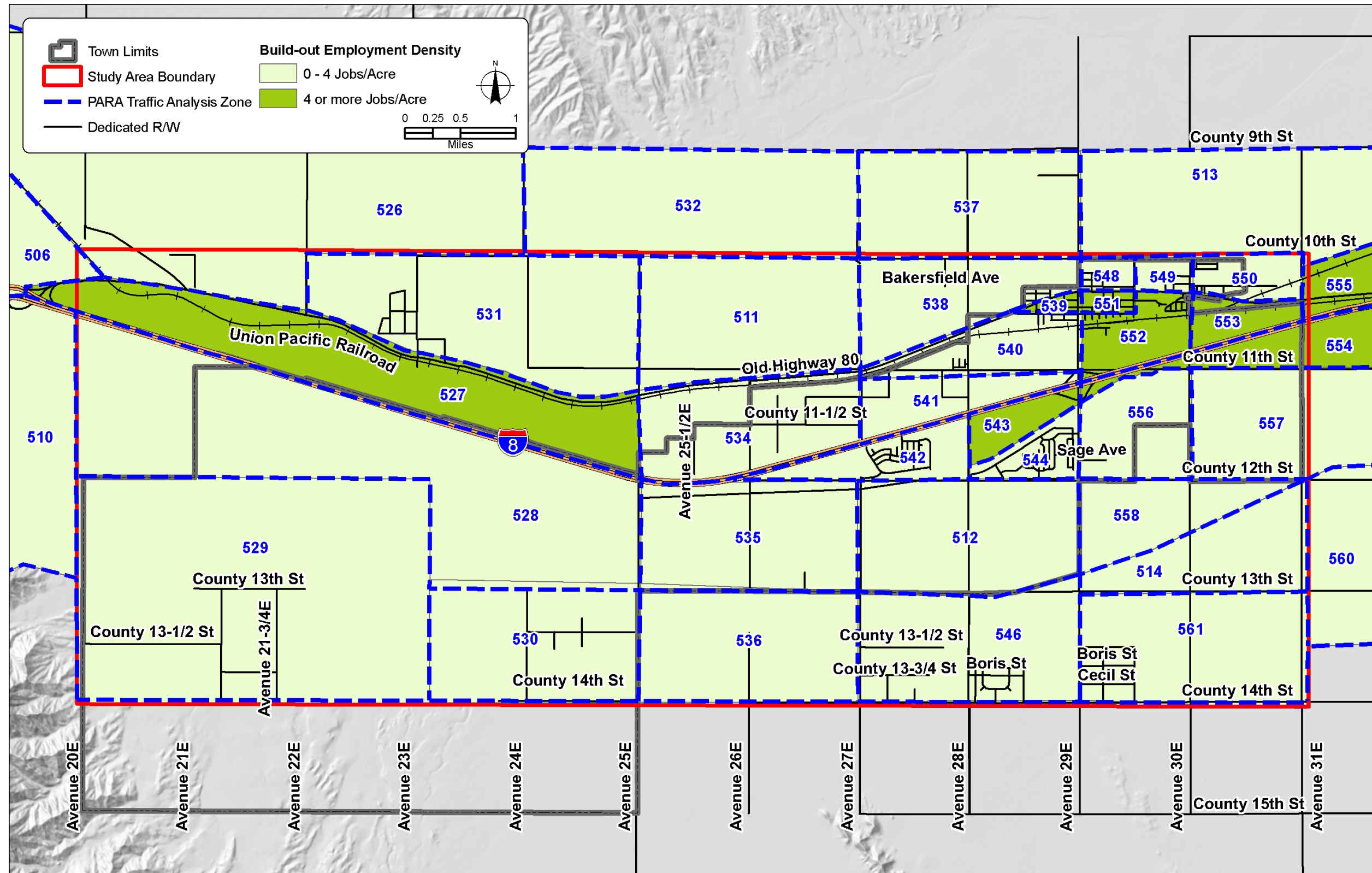
Source: YMPO 2010-2033 Regional Transportation Plan

**Figure 19 – Proposed Wellton Circulator per YMPO RTP**



Source: Kimley-Horn and Associates, Inc.

Figure 20 – Projected Build-out Population Density



Source: Kimley-Horn and Associates, Inc.

Figure 21 – Projected Build-out Employment Density



### 3.4.2 Rail

Railroad traffic is anticipated to increase in the future as population and employment increase in the United States in general. As both rail and roadway traffic increase, the need for more grade-separated crossings will become greater. As has previously been mentioned, the Town currently has plans for one additional grade-separated railroad crossing in the downtown area along either Avenue 29E or Dome Street but funding for the grade separation has not been secured.

ADOT's 2010 *Statewide Rail Framework Study* (SRFS) identifies several freight and passenger rail opportunities which could affect the study area. A "potential southwest interstate high speed rail corridor" has been identified through the study area in the vicinity of the existing I-8/UPRR corridor. This high speed rail route would provide a link between Phoenix and San Diego. The RTP and SRFS report that the federal government has outlined a strategic plan for high-speed passenger rail. Federal funding has been identified for future high-speed rail projects to connect population centers that are 100 to 600 miles apart. The project study area lies within the potential corridor for a high-speed rail link between Phoenix/Tucson and Southern California.

The SRFS also recommends the enhancement of current Amtrak services in Arizona, including capital improvements associated with the Texas Eagle and Sunset Limited routes, which currently run along the UPRR tracks through Wellton. The SRFS, based on a 2050 horizon year, forecasts a daily ridership as high as 2,600 passengers between Phoenix and Yuma.

The SRFS also identifies several freight rail opportunities in the region including:

- Reopening the UPRR Wellton Branch from Phoenix to Yuma;
- Identifying new short line rail opportunities to spur economic development;
- Enhancing/developing Mexican deepwater ports to spur new rail corridors; and
- Developing incentives and funding mechanisms for inland port development.

The RTP cites the potential for a 5,000 acre inland port in the Yuma region per an ongoing Arizona multimodal logistics center study. The development of an inland port in the region would increase the rail and truck traffic through the study area. The reopening of the UPRR Wellton Branch from Phoenix to Yuma is shown on the STPF's 2050 Recommended Statewide Scenario in **Figure 17**.

### 3.5 Future Non-motorized Network

At the national level, there is emphasis on ADA compliance and providing more bicycle and pedestrian facilities along roadways to create "complete streets". Complete streets are designed to function for all users to safely and effectively move along and across a complete street (see [www.completestreets.org](http://www.completestreets.org)). Sample references include the *Revised Draft Guidelines for Accessible Public Rights-of-Way*, produced by the Access Board in 2005; the *Guide for the Development of Bicycle Facilities*, produced by the American Association of State Highway and Transportation Officials (AASHTO) in 1999; and the *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, produced by AASHTO in 2004.

Elements of a complete street in an urban area include sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible transit stops, frequent crossing opportunities, median islands, accessible pedestrian signals, curb extensions, and more. A complete street in a rural area may have different elements, but should achieve the same goal.

## 4 IDENTIFIED CURRENT AND FUTURE NEEDS

Transportation system needs were identified during the analysis of current and future conditions. In addition, comments have been received from the public, the TAC, and community leaders. Based on the needs identified and the comments received, areas for improvements were identified, evaluation measures were defined, and potential improvement projects and actions were developed.

The transportation system needs result from a variety of factors, including roadway congestion; physical barriers such as irrigation facilities, I-8 and the UPRR; inadequate traffic control devices; land development and growth projections; gaps in pedestrian and bicycle facilities; and limited transit service.

### 4.1 Identified Current Needs

#### 4.1.1 Roadway Network

The following study area roadway segment and intersection improvements are currently needed:

- Paving of multiple roadways;
- Functional reclassification of several existing roadway segments;
- New freeway interchanges along I-8; and
- New at-grade and/or grade-separated railroad crossings.

#### 4.1.2 Transit Network

The study area transit needs include improving the current YCAT Orange Line transit service to provide more frequent service and to expand the Orange Line route to serve more areas of Wellton. A new, dedicated source of local funding for transit services is also needed.

#### 4.1.3 Non-motorized Network

There is a need for bicycle and pedestrian facilities on most roadways within the study area, particularly in the vicinity of activity centers such as school and government facilities. Bicycle and pedestrian trails are also desirable along canals. Complete streets roadway cross-sections need to be developed for all classifications of roadways to better accommodate bicycle and pedestrian travel.

### 4.2 Identified 2033 Future Needs

#### 4.2.1 Roadway Network

The following study area roadway segment and intersection improvements will be needed by 2033:

- Paving of additional roadways;
- A traffic control change at the Old Highway 80 and Avenue 29E/William Street intersection;
- Additional freeway interchanges along I-8;
- Reconstruction of the existing freeway interchange along I-8 at Avenue 29E; and
- Additional and/or reconstructed at-grade and grade-separated railroad crossings.

#### 4.2.2 Transit Network

Further expansion of the YCAT Orange Line route and additional increase in service frequency during peak periods may be needed by 2033.

### **4.2.3 Non-motorized Network**

Additional bicycle and pedestrian facilities on roadways, particularly in the vicinity of activity centers such as school and government facilities, will be needed by 2033. Complete streets roadway cross-sections need to be implemented where feasible for all classifications of roadways to better accommodate bicycle and pedestrian travel.

## **4.3 Identified Build-out Future Needs**

### **4.3.1 Roadway Network**

The following study area roadway segment and intersection improvements will be needed at build-out:

- The construction of a comprehensive, interconnected roadway network;
- Traffic signals or roundabouts at major roadway intersections;
- Additional and/or reconstructed freeway interchanges along I-8; and
- Additional and/or reconstructed at-grade and grade-separated railroad crossings.

### **4.3.2 Transit Network**

Transit demand estimates suggest that the study area at build-out will need a local comprehensive fixed-route transit system. The local fixed-route transit system will need to be integrated with, and connected to, future regional transit and rail opportunities. These opportunities include regional transit service, regional park-and-ride lots, expanded Amtrak service, a regional multimodal logistics center, and a high-capacity passenger rail line between Phoenix and San Diego that could potentially include a station or transfer point within the study area.

### **4.3.3 Non-motorized Network**

Clearly-defined, continuous bicycle and pedestrian networks along roadways and multi-use pathways will be needed at build-out. This includes bicycle and pedestrian facilities in the vicinity of activity centers such as school and government facilities.

Complete streets roadway cross-sections need to continue to be implemented where feasible for all classifications of roadways to better accommodate bicycle and pedestrian travel.



## **5 EVALUATION CRITERIA**

The following evaluation criteria were considered in the analysis of potential improvements to identify potential benefits, impacts, and constraints.

### **5.1 Meets Identified Need**

Improvements should meet an identified need. This criterion helps ensure that staff and financial resources are spent on projects that address identified needs rather than on extraneous improvements.

### **5.2 Cost**

Planning-level construction cost estimates were calculated. The costs are based on unit costs for each project type. The cost is calculated in 2011 dollars.

### **5.3 Impacts to Right-of-Way**

This is a quantitative measure that identifies if and how much right-of-way is anticipated to be needed. It does not include right-of-way for easements or construction activities.

### **5.4 Impacts to Existing Businesses/Residences**

This is a quantitative measure that documents the number of buildings expected to be acquired. The number is a conservative estimate at the planning stage.

### **5.5 Engineering Issues**

Engineering issues require special design features to make a potential improvement feasible. Engineering issues could include drainage, terrain, railroad crossings, and utilities.

### **5.6 Level of Service/Delay**

Level of service and delay are quantitative measures for how much traffic congestion occurs. These measures give an indication of the overall impact on the efficiency of the transportation system.

### **5.7 Accessibility/Mobility**

This is a qualitative measure of a potential improvement's ability to improve the overall transportation system in terms of accessibility and mobility.

### **5.8 Network Continuity**

This is a qualitative measure to assess a potential improvement's impact on providing a continuous transportation system by eliminating gaps that may exist in the current system.

### **5.9 Environmental Impacts**

This is a qualitative measure that notes potential environmental issues. At the planning level, it is a visual observation of possible environmental constraints such as adjacent schools or parks or natural habitat.



## **5.10 Multimodal Compatibility**

This is a qualitative measure that considers whether a potential improvement addresses multiple modes of travel.

## **5.11 Safety**

This is a qualitative assessment that considers safety impacts.

## **5.12 Public Acceptability**

This is a qualitative assessment of the public support shown, or anticipated to be shown, for a potential improvement.

## 6 IMPROVEMENT CONSIDERATIONS

The improvement considerations described below guided the development and analysis of potential improvements.

### 6.1 Freeway Interchange Spacing

Federal access control policies for interstate systems generally limit new traffic interchanges (TI) to a minimum separation distance of two miles. There is currently one TI along I-8 within the study area at Avenue 29E/William Street. The next closest TIs are the Dome Valley/Ligurta TI, located less than one-half mile west of the western study area boundary, and the Avenue 36E TI, located five miles east of the eastern study area boundary. These existing interchanges will affect the location of any proposed TIs based on the two-mile separation distance requirement.

### 6.2 Railroad Grade Separation

A railroad grade separation provides a crossing of the railroad where the roadway crosses over or under the railroad so that there is no conflict between the train and vehicles. A grade-separated crossing provides a safety benefit and reduces delay compared to an at-grade crossing.

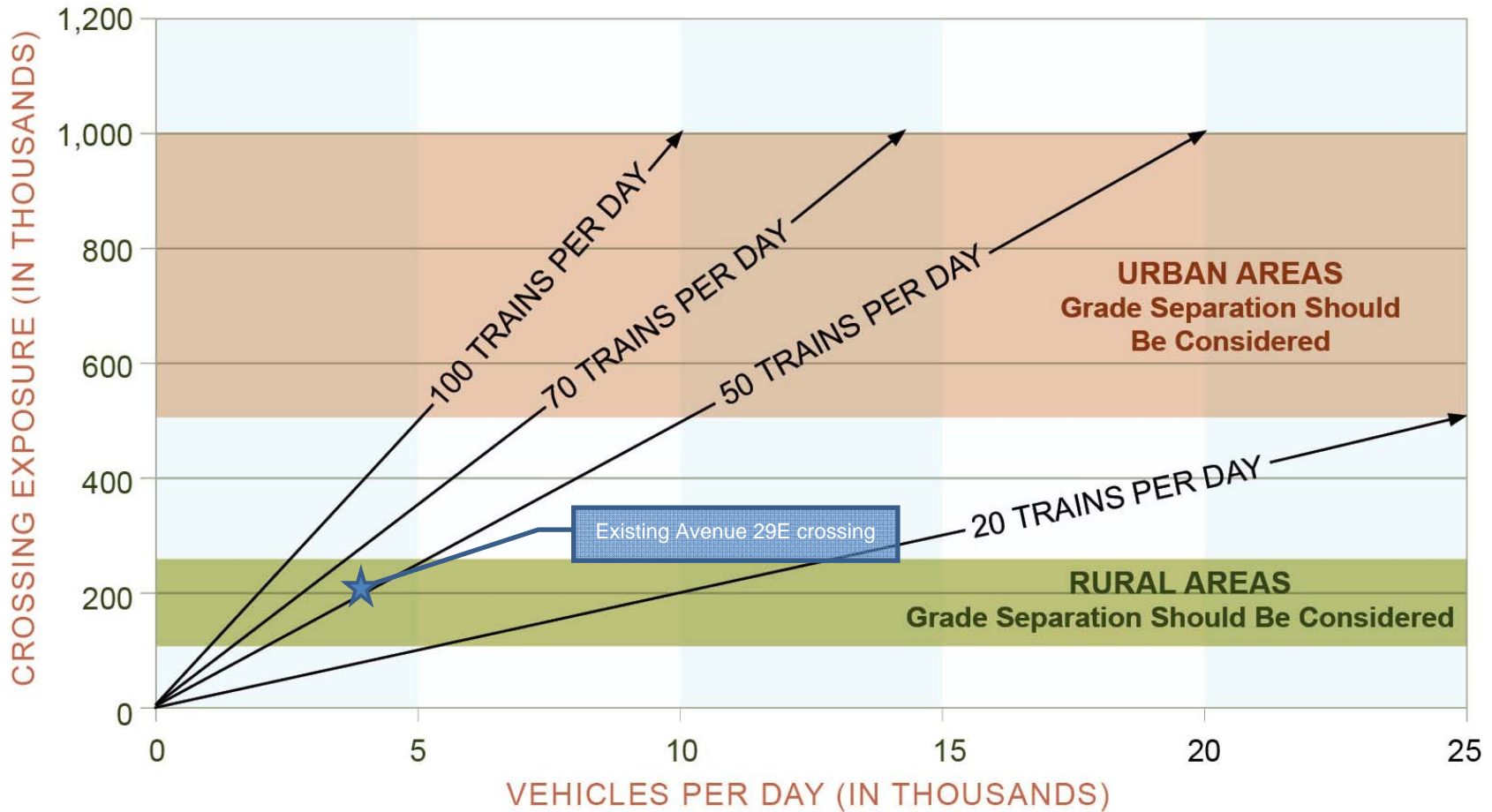
According to the FHWA *Railroad-Highway Grade Crossing Handbook*, a grade-separated crossing should be considered for grade separation whenever the cost of grade separation can be economically justified based on fully allocated life cycle costs and when any of the following conditions exist:

- The highway is part of the designated National Highway System as defined by FHWA;
- The highway is otherwise designed to have partial controlled access;
- The posted highway speed exceeds 55 miles per hour (mph);
- Annual Average Daily Traffic (AADT) exceeds 50,000 in urban areas or 25,000 in rural areas;
- Maximum authorized train speed exceeds 100 mph;
- An average of 75 or more total trains per day;
- An average of 50 or more passenger trains per day in urban areas or 12 or more passenger trains per day in rural areas;
- Crossing exposure (the product of the number of trains per day and AADT) exceeds 500,000 in urban areas or 125,000 in rural areas;
- Passenger train crossing exposure (the product of the number of passenger trains per day and AADT) exceeds 400,000 in urban areas or 100,000 in rural areas;
- The expected accident frequency for active devices with gates, as calculated by the United States Department of Transportation (USDOT) Accident Prediction Formula including five-year accident history, exceeds 0.2;
- Vehicle delay exceeds 30 vehicle hours per day;
- An engineering study indicates that the absence of a grade separation structure would result in the highway facility performing at a level of service below its intended minimum design level 10 percent or more of the time.

The crossing exposure criterion has been graphically depicted in **Figure 22**. Using an AADT of 3,500 vehicles per day (vpd) and assuming an average of 60 trains per day, the existing rural at-grade crossing at Avenue 29E has a crossing exposure of 210,000, which meets this criterion. A grade-separated crossing should be considered at or near this location. Potential new crossings of the railroad should also be evaluated against the FHWA guidelines to determine if grade separation should be considered.



## GRADE SEPARATION CONSIDERATIONS



Sources: FHWA Railroad-Highway Grade Crossing Handbook and Kimley-Horn and Associates, Inc.

**Figure 22 – Railroad Grade Separation Considerations**

### 6.3 Build-out Roadway Network Scenarios

Two build-out roadway network scenarios were developed to aid in determining a recommended roadway network for the study area. The TransCAD build-out travel demand model described previously was utilized to evaluate the impacts on traffic volumes of each scenario.

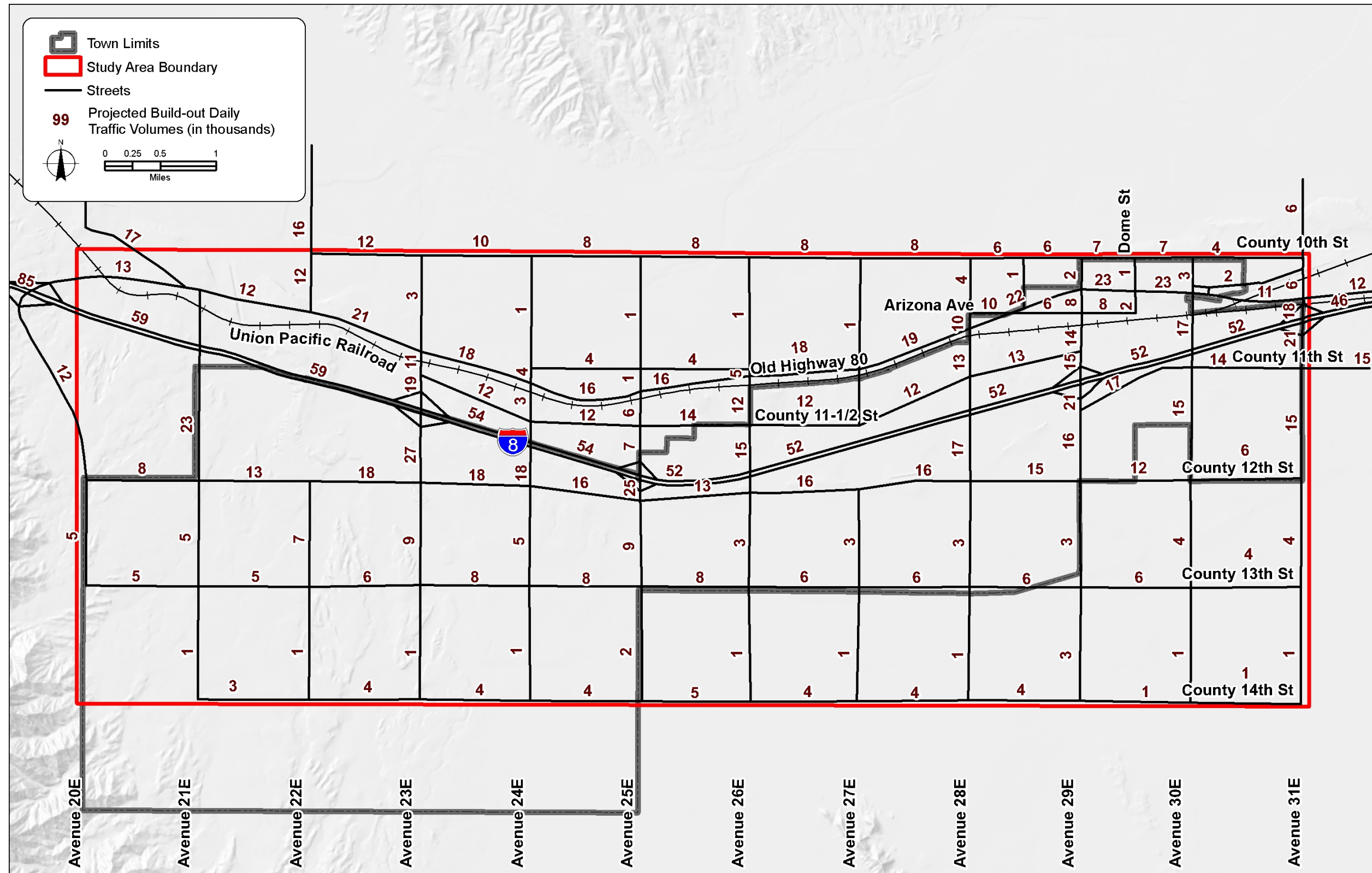
Both scenarios incorporate a grid roadway network over the entire study area with improved roadways generally at one-mile spacing except where existing features are not conducive to such spacing. Existing features include Old Highway 80, I-8, the railroad tracks, canals, Ligurta Wash, the Coyote Wash golf course between Avenue 26E and Avenue 28E, and the mountains in the southwest corner of the study area. Both scenarios include new TIs along I-8 at Avenue 23E, Avenue 25E, and Avenue 31E.

The first scenario, named “1-Mile Crossing Scenario” and shown in **Figure 23**, generally represents a one-mile roadway network of four-lane and two-lane roadways (based on projected build-out traffic volumes) with a maximum number of crossings of I-8 and the railroad. Mobility and accessibility are maximized with this scenario as vehicles, bicyclists, and pedestrians typically would have to go no more than one-half mile east or west to cross I-8 or the railroad. A disadvantage of this scenario is its higher cost of construction with a finer-grid roadway network.

The second scenario, named “Interchange Crossings Scenario” and shown in **Figure 24**, represents a more consolidated roadway network compared to the first scenario. The roadway network only has crossings of I-8 and the railroad along the roadways that also have TIs with I-8, resulting in five fewer crossings. Based on projected build-out traffic volumes, six-lane roadways will be needed at most of the freeway crossings. The remaining roadways will need to be four-lane roadways and two-lane roadways as in the 1-Mile Crossings Scenario, except that County 13<sup>th</sup> Street will need to be a four-lane roadway instead of a two-lane roadway. Mobility and accessibility are reduced with this scenario as travelers typically would have to go one or two miles east or west to cross I-8 or the railroad. This reduction in mobility will most adversely impact bicyclists, pedestrians, and emergency services. Providing emergency services facilities south of I-8 would offset the reduction in mobility related to emergency response times. An advantage of this scenario over the first scenario is a reduction in cost as the number of crossings is reduced. The cost of each respective crossing, however, will be higher with the Interchange Crossings Scenario because each crossing will need to accommodate a wider roadway than with the 1-Mile Crossings Scenario.

### 6.4 Complete Streets

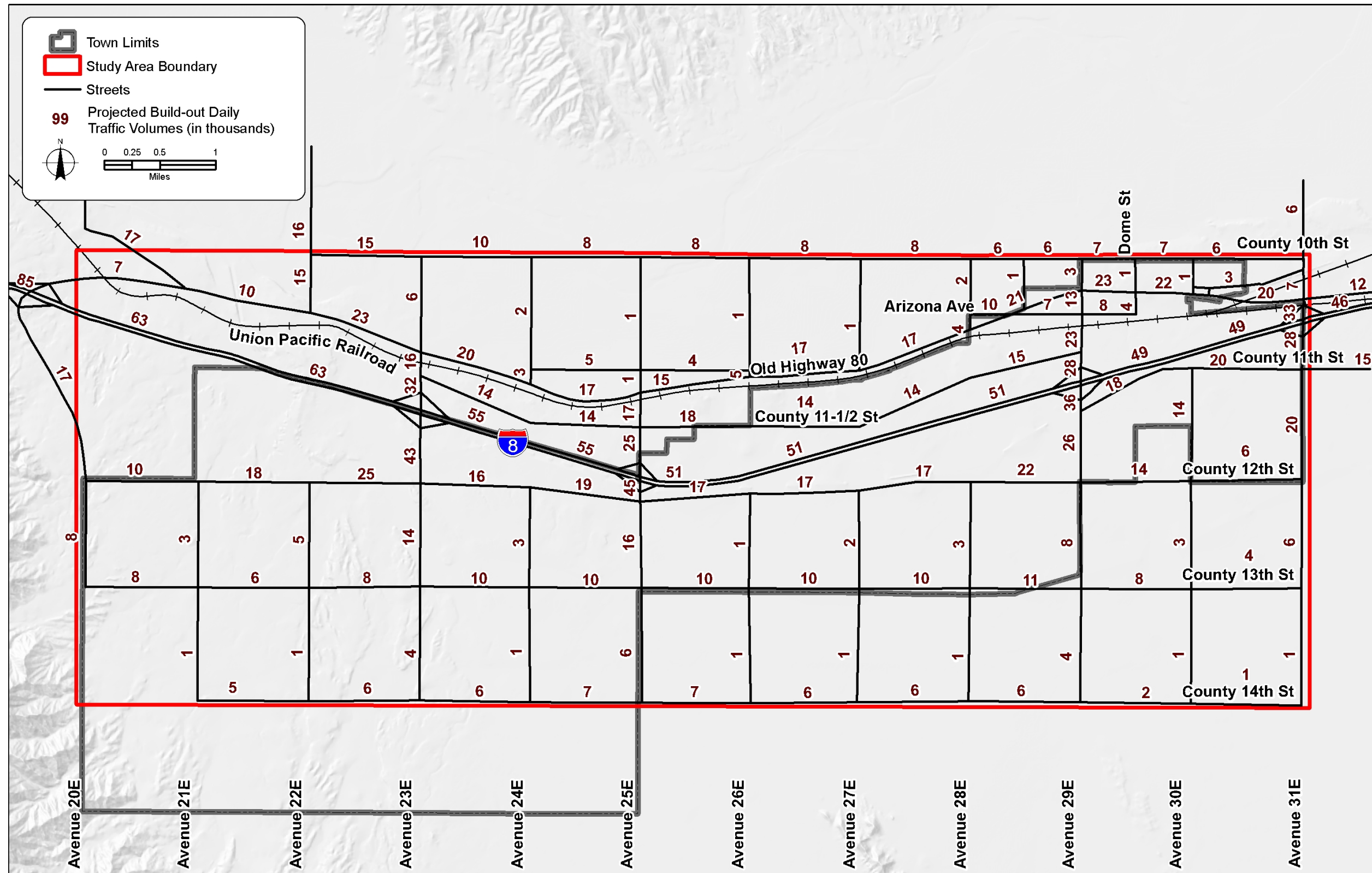
Proposed complete streets cross-sections for the Town of Wellton are provided in **Figure 25**, **Figure 26**, **Figure 27**, **Figure 28**, and **Figure 29**. The arterial cross-sections generally are appropriate for roadways carrying more than 10,000 vpd, while the collector cross-sections generally are appropriate for roadways carrying less than 10,000 vpd. The multi-use lane shown in the cross-sections is intended for use by bicycles, as well as by golf carts (as long as the posted speed limit is no higher than 35 mph per State statute).



Source: Kimley-Horn and Associates, Inc.

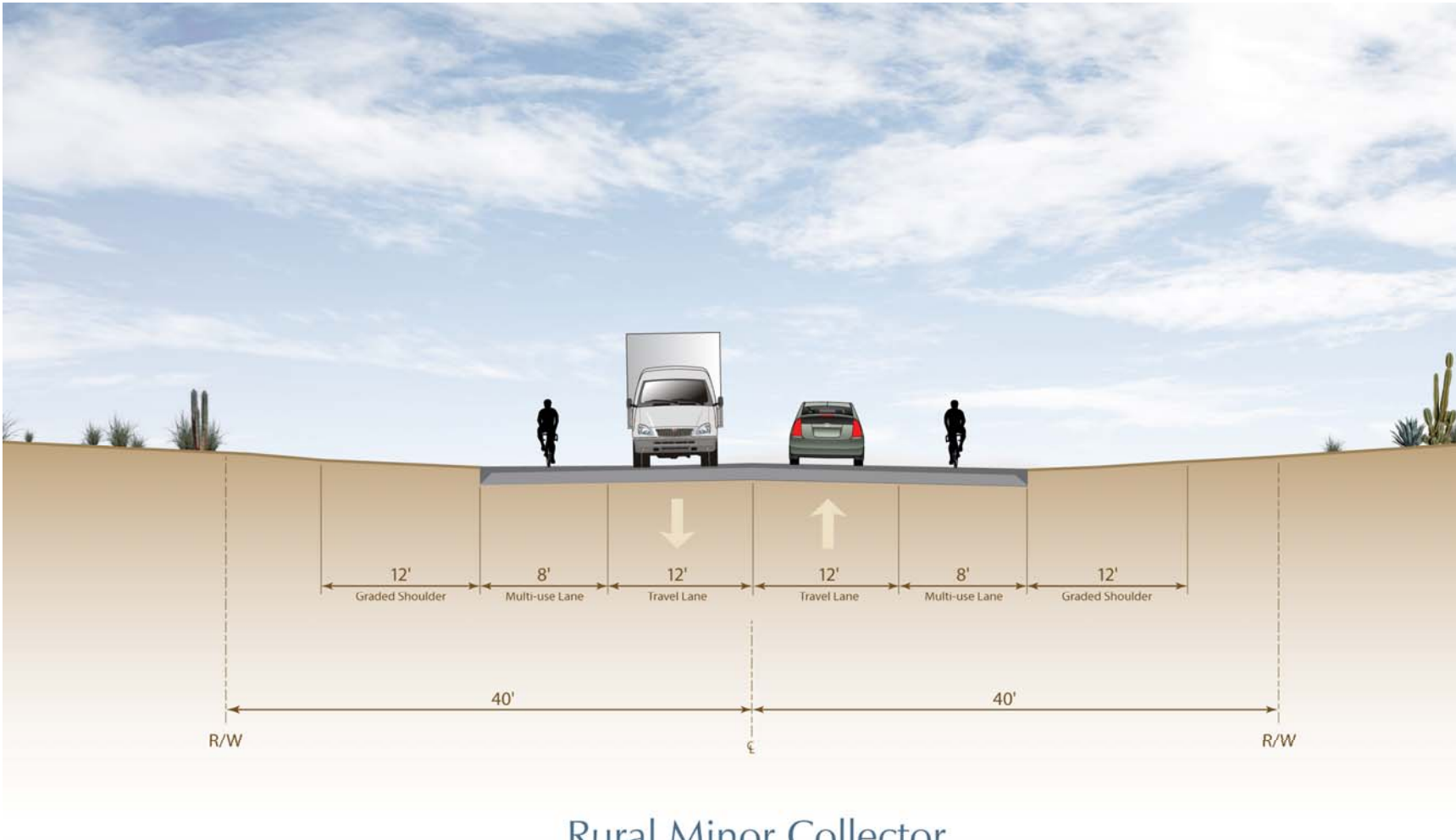
Figure 23 – Projected Build-out Daily Traffic Volumes with 1-Mile Crossing Network





Source: Kimley-Horn and Associates, Inc.

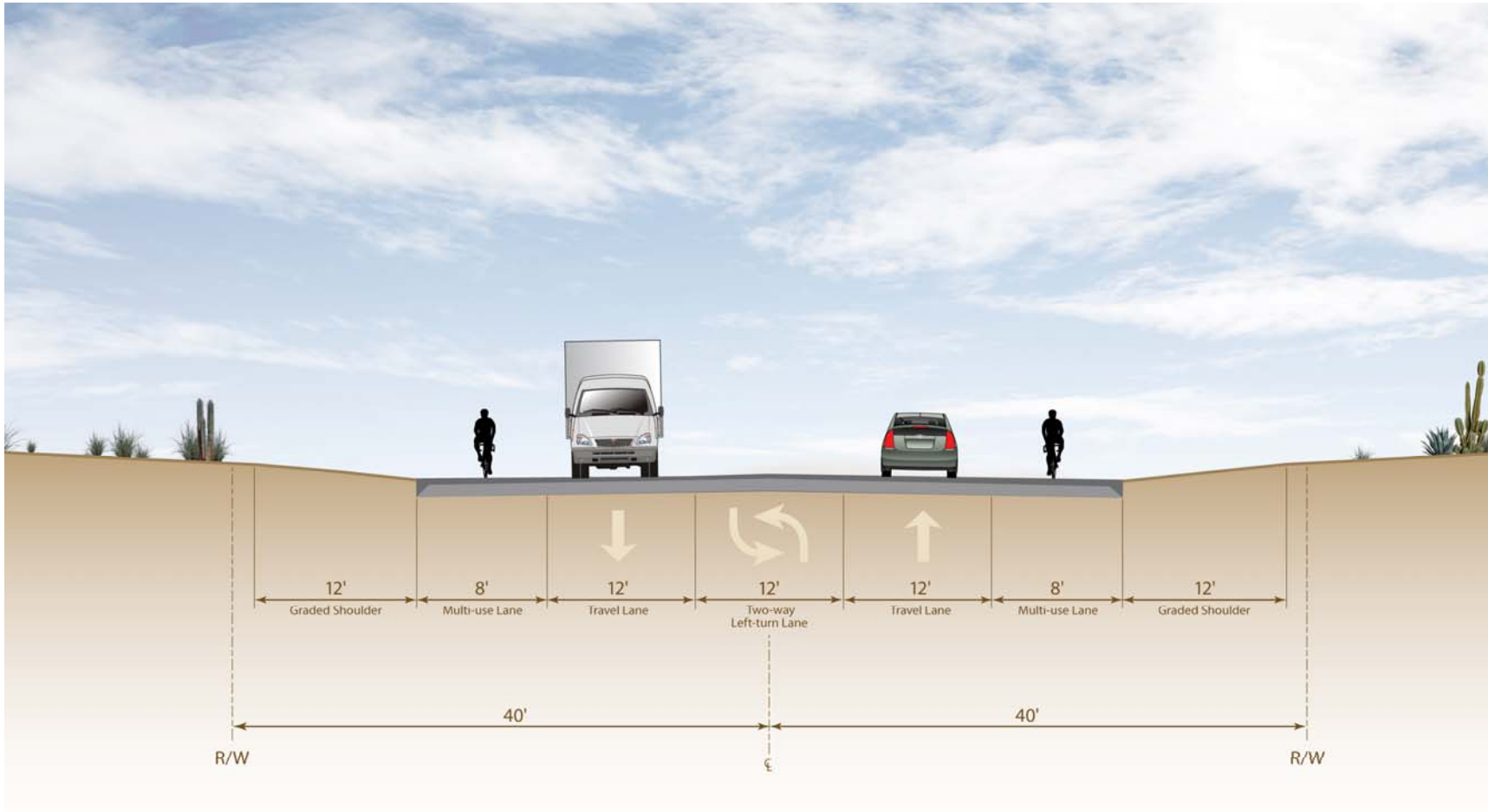
Figure 24 – Projected Build-out Daily Traffic Volumes with Interchange Crossings Network



## Rural Minor Collector

Source: Kimley-Horn and Associates, Inc.

**Figure 25 – Complete Streets Cross-Section: Rural Minor Collector**

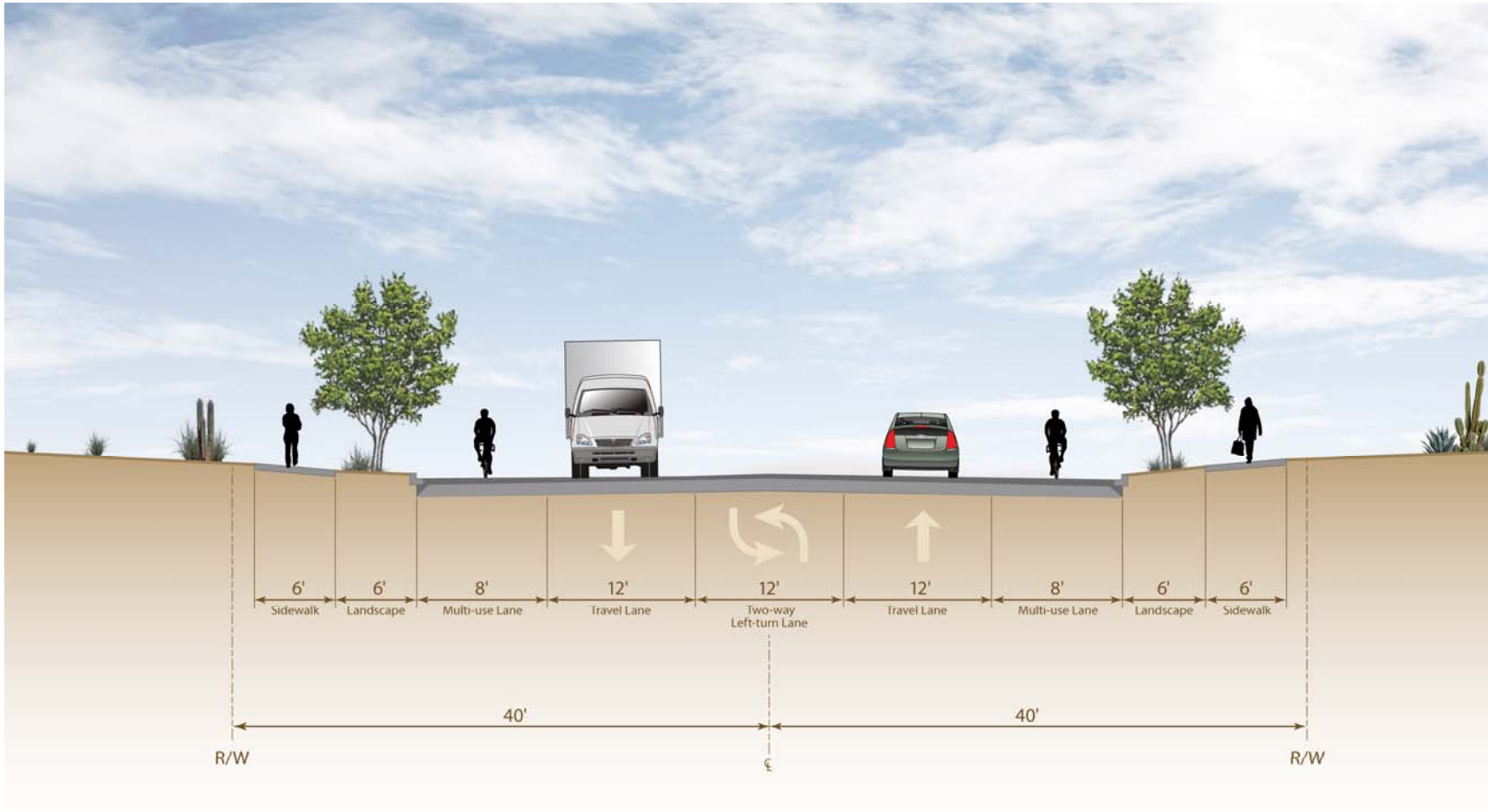


## Rural Major Collector

Source: Kimley-Horn and Associates, Inc.

**Figure 26 – Complete Streets Cross-Section: Rural Major Collector**

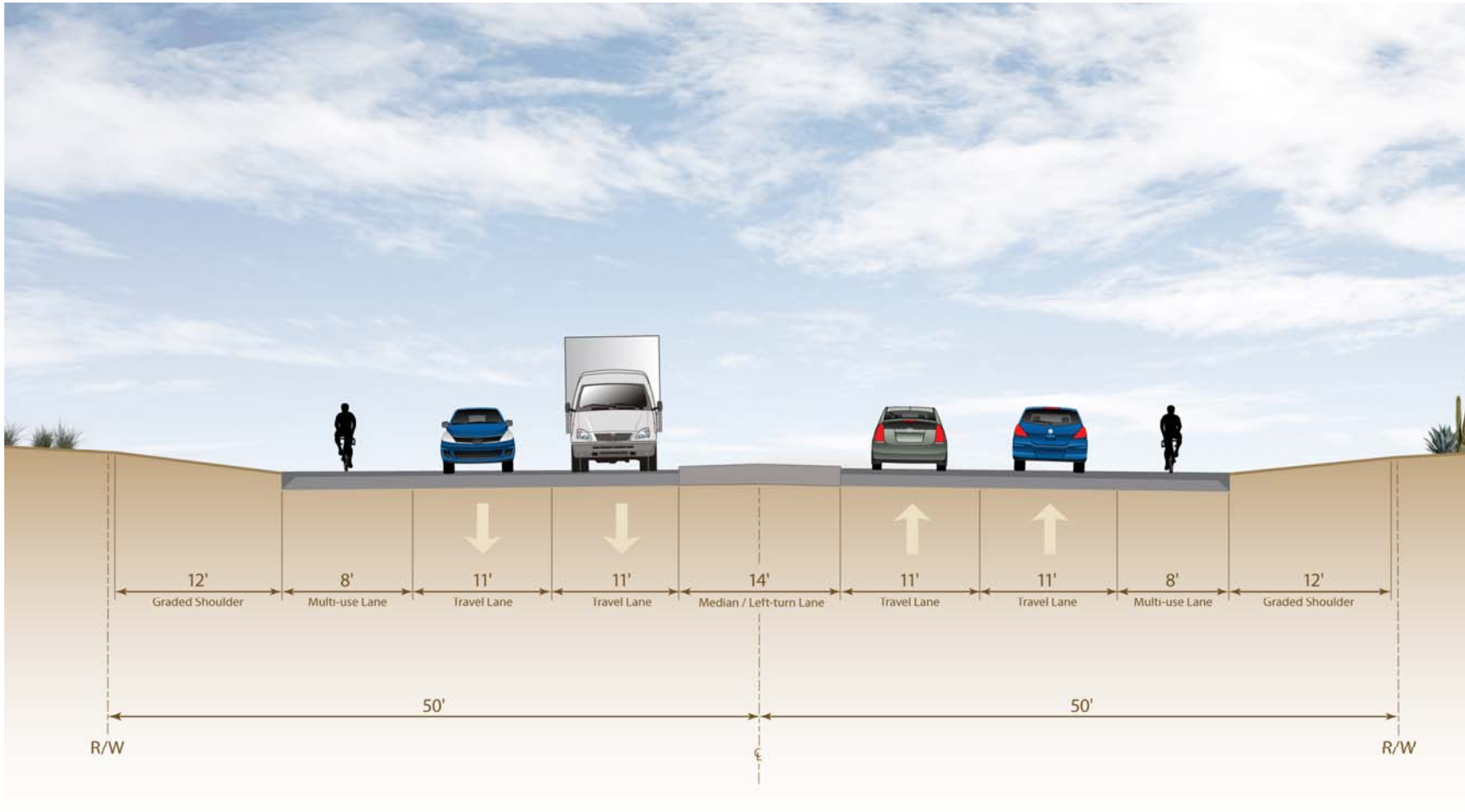




## Urban Collector

Source: Kimley-Horn and Associates, Inc.

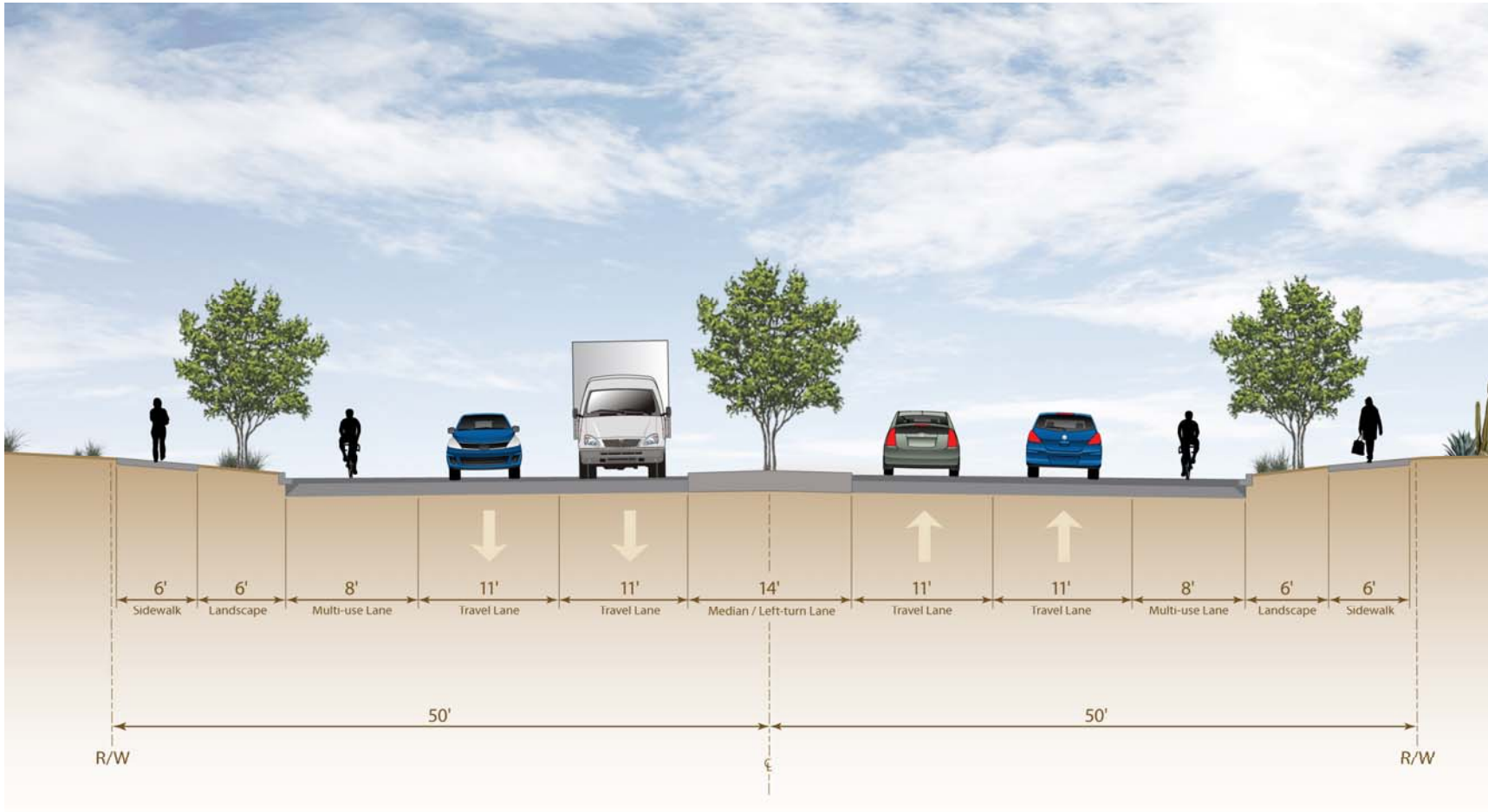
**Figure 27 – Complete Streets Cross-Section: Urban Collector**



## Rural Minor Arterial

Source: Kimley-Horn and Associates, Inc.

**Figure 28 – Complete Streets Cross-Section: Rural Minor Arterial**



## Urban Minor Arterial

Source: Kimley-Horn and Associates, Inc.

**Figure 29 – Complete Streets Cross-Section: Urban Minor Arterial**



## 7 RECOMMENDED IMPROVEMENTS

Based on the evaluation criteria and considerations described previously, recommended improvements have been developed to address the study area's identified current and 2033 future transportation needs. Build-out recommendations are discussed in Section 8 of this document.

### 7.1 Roadway Network

The recommended roadway network improvements are grouped in the categories below by type of improvement. Whenever feasible, these roadway improvements should incorporate complete streets concepts and accommodate multimodal travel.

- Roadway Paving;
- Roadway Widening;
- Intersection Traffic Control Change;
- New Freeway Interchanges;
- Freeway Interchange Improvements;
- Railroad Grade Separations; and
- Functional Classification Changes.

#### 7.1.1 Roadway Paving

Roadway paving is assumed to include the installation of asphalt pavement to the width of the existing unpaved roadway, generally two lanes in width. This pavement width will allow one paved travel lane in each direction. Graded shoulders and minor drainage improvements are assumed to be included in the roadway paving improvement.

The following roadways should be paved by 2033:

- County 10<sup>th</sup> Street – Avenue 22E to Avenue 27E;
- County 11<sup>th</sup> Street – Avenue 29E to Avenue 31E;
- County 12<sup>th</sup> Street – Avenue 25E to Avenue 27E;
- County 12<sup>th</sup> Street – Avenue 29E to Avenue 31E;
- County 14<sup>th</sup> Street – Avenue 25E to Avenue 27E;
- Avenue 22E – Old Highway 80 to County 10<sup>th</sup> Street;
- Avenue 23E – Old Highway 80 to County 10<sup>th</sup> Street; and
- Avenue 25E – County 12<sup>th</sup> Street to County 14<sup>th</sup> Street.

#### 7.1.2 Roadway Widening

Old Highway 80 should be widened from Avenue 29-1/4E/Fresno Street to Wellton Mohawk Drive by 2033. Roadway widening includes widening from one lane in each direction to two lanes in each direction with a raised or painted median and bicycle lanes and sidewalks on both sides of the roadway. The widening will increase capacity and improve operations.

A design concept report (DCR) should be prepared before final design plans are developed to define the design concept to be used in widening Old Highway 80 from Avenue 29-1/4E/Fresno Street to Wellton Mohawk Drive.

### 7.1.3 Intersection Traffic Control Change

The Old Highway 80 and Avenue 29E/William Street intersection traffic control should be changed from two-way stop to four-way stop, traffic signal, or roundabout control by 2033. This improvement includes signing and pavement marking modifications. In the case of traffic signal control, this improvement also includes the installation of traffic signal equipment. In the case of roundabout control, it also includes the construction of curb and geometry improvements associated with a roundabout.

### 7.1.4 New Freeway Interchanges

New TIs along I-8 are recommended at Avenue 25E and at Avenue 31E by 2033. Both of these roadways already have a grade-separated crossing of I-8 (underpass at Avenue 25E and overpass at Avenue 31E). Ramps will need to be added that connect the cross-streets to I-8. It is possible that the grade-separated crossings may need to be reconstructed in conjunction with the construction of the ramps due to the age and narrowness of the crossing structures.

A DCR should be prepared to define the design concept to be used at each of the new TIs. The Avenue 25E DCR should cover Avenue 25E from Old Highway 80 to County 12<sup>th</sup> Street, including both the TI and the nearby railroad crossing. The Avenue 31E DCR should cover Avenue 31E from Old Highway 80 to County 11<sup>th</sup> Street, including both the TI and the nearby railroad crossing.

### 7.1.5 Freeway Interchange Improvements

The existing TI at Avenue 29E/William Street should be improved by 2033. Recommended improvements include bridge structure rehabilitation/reconstruction and widening of Avenue 29E to provide an additional travel lane in each direction along with bicycle and pedestrian facilities on both sides of the roadway. The traffic control at the ramp intersections could also potentially need to be upgraded to a traffic signal or roundabout.

A DCR should be prepared to define the design concept to be used to improve the existing TI. The DCR should cover the interchange itself plus the adjacent segments of Avenue 29E from County 11<sup>th</sup> Street to County 12<sup>th</sup> Street.

### 7.1.6 Railroad Grade Separations

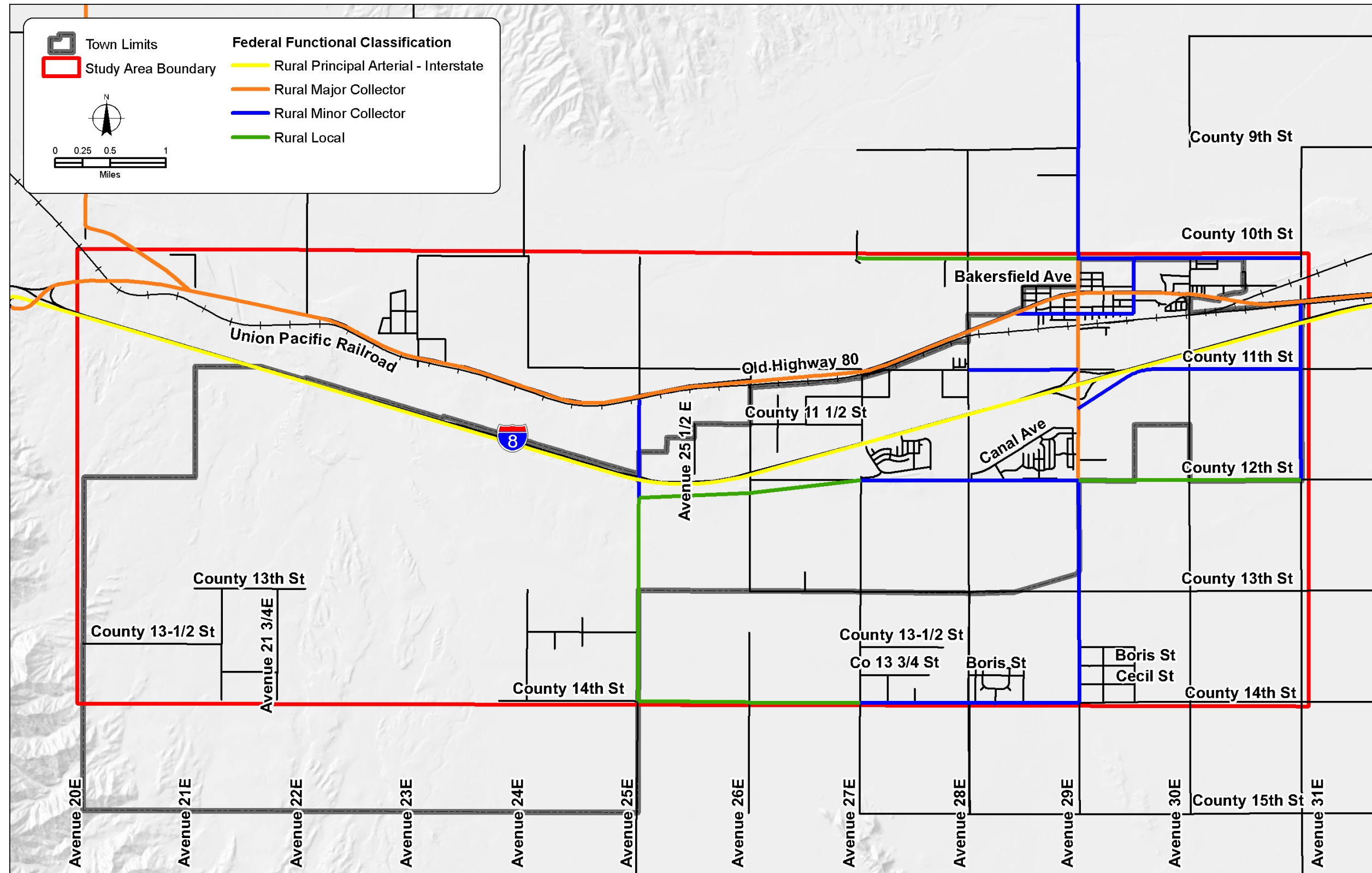
Grade-separated railroad crossings should be provided at the following locations:

- Avenue 25E;
- Avenue 29E/Dome Street; and
- Avenue 31E.

A DCR should be prepared to define the design concept to be used at each of the railroad grade separations. The Avenue 25E and Avenue 31E railroad grade separations should be included in the aforementioned DCRs for the Avenue 25E and Avenue 31E TIs. The DCR for upgrading the existing at-grade railroad crossing on Avenue 29E to grade separation should cover Avenue 29E from Old Highway 80 to County 11<sup>th</sup> Street as well as the Dome Street grade separation concept supported by the Town of Wellton.

### 7.1.7 Functional Classification Changes

Several roadways in the study area warrant reclassification. Recommended functional classifications are shown in **Figure 30** and described more fully in **Table 19**. The reclassification process involves reviewing the changes with YMPO and submitting them to ADOT for approval.



Source: Kimley-Horn and Associates, Inc.

Figure 30 – Recommended Federal Functional Classifications



**Table 19 – Recommended Functional Classification Changes**

| <b>Roadway</b>     | <b>Location</b>  | <b>Existing Functional Classification</b>  | <b>Recommended Functional Classification</b> |
|--------------------|--|--|--|
| Avenue 25E         | Old Highway 80 to County 12 <sup>th</sup> Street                 | None                                       | Rural Minor Collector                        |
| Avenue 25E         | County 12 <sup>th</sup> Street to County 14 <sup>th</sup> Street | None                                       | Rural Local                                  |
| Avenue 29E         | County 10 <sup>th</sup> Street to County 12 <sup>th</sup> Street | Rural Minor Collector/<br>Rural Local/None | Rural Major Collector                        |
| Avenue 29E         | County 12 <sup>th</sup> Street to County 14 <sup>th</sup> Street | None                                       | Rural Minor Collector                        |
| Dome Street        | County 10 <sup>th</sup> Street to Arizona Avenue                 | None                                       | Rural Minor Collector                        |
| Avenue 31E         | Old Highway 80 to County 12 <sup>th</sup> Street                 | Rural Local/None                           | Rural Minor Collector                        |
| County 10th Street | Avenue 27E to Avenue 29E   | None                                       | Rural Local                                  |
| County 10th Street | Avenue 29E to Avenue 31E   | None                                       | Rural Minor Collector                        |
| Arizona Avenue     | Old Highway 80 to Dome Street                                    | None                                       | Rural Minor Collector                        |
| County 11th Street | Avenue 28E to Avenue 29E   | None                                       | Rural Minor Collector                        |
| County 11th Street | Avenue 29E to Avenue 31E   | None                                       | Rural Minor Collector                        |
| County 12th Street | Avenue 25E to Avenue 27E   | None                                       | Rural Local                                  |
| County 12th Street | Avenue 27E to Avenue 29E   | None                                       | Rural Minor Collector                        |
| County 12th Street | Avenue 29E to Avenue 31E   | None                                       | Rural Local                                  |
| County 14th Street | Avenue 25E to Avenue 27E   | None                                       | Rural Local                                  |
| County 14th Street | Avenue 27E to Avenue 29E   | None                                       | Rural Minor Collector                        |

Sources: ADOT and Kimley-Horn and Associates, Inc.

## **7.2 Transit Network**

The focus of the recommended transit improvements is to improve riders' experience and manage system growth to attract new ridership and promote multimodal travel. Recommended transit improvements include better service through increased frequency, enhanced accessibility, and coordinated multimodal mobility. There may also be opportunities to include bus shelters and bus pull-outs in the roadway improvements presented previously. The transit recommendations should be implemented incrementally, with regular evaluation resulting in adjustments as needed to ensure their long-term effectiveness.

### **7.2.1 Improve Transit Frequency**

Improving the frequency of the buses on the current YCAT Orange Line route to regular 60- or 30-minute headways is recommended. This increase in frequency will enhance the service and attractiveness of the

transit system, particularly during peak periods. To increase the frequency of transit service, additional vehicles, operators, and funding will be required.

### **7.2.2 Extend Current Transit Route**

Extending the current YCAT Orange Line to service the Coyote Wash area south of I-8 is recommended. The proposed route extension should commence at the current last bus stop at Avenue 29E/William Street and Arizona Avenue and continue south along Avenue 29E to the Coyote Wash development. At least one additional bus stop south of I-8 is envisioned with the Orange Line extension.

Additional future route extensions could be needed if new activity centers develop in the future that are beyond the current service area of the Orange Line.

### **7.2.3 Support Efforts to Address Local YCAT Funding Issues**

The Town of Wellton should coordinate with the other YCAT funding partners to support efforts to address current and future YCAT funding issues. The Town of Wellton should continue to be involved in, and provide support to, the recently formed YCIPTA.

The Town of Wellton should actively participate in the Yuma Regional PARA Transit Study, providing input on the Town's transit needs and desired improvements to the YCAT system and its funding.

### **7.2.4 Conduct a Local Transit Circulator Feasibility Study**

A local transit circulator feasibility study that includes a community survey should be conducted to aid Wellton in planning out the feasibility, routing, and timing of implementing a local transit circulator beyond the 2033 timeframe. This local circulator will be the initial step towards a comprehensive fixed-route build-out transit system.

### **7.2.5 Future Regional Transit and Rail Opportunities**

It is recommended that study TAC member agencies be active participants in upcoming discussions on regional transit and rail opportunities. These opportunities include regional transit service, regional park-and-ride lots, expanded Amtrak service, a regional multimodal logistics center, and a high-capacity passenger rail line between Phoenix and San Diego (which would involve reactivating the Wellton line of tracks) that could potentially include a station or transfer point within the study area.

To the extent possible, study TAC member agencies should support development of regional transit and rail facilities and transfer points within the study area to further increase multimodal opportunities in the study area. The Town of Wellton and Yuma County could potentially consider strategic zoning changes to better facilitate the use of land in the study area for future regional transit and rail facilities.

## **7.3 Non-motorized Network**

The focus of the recommended non-motorized (i.e., bicycle and pedestrian) improvements is to provide a safe and effective environment for bicyclists and pedestrians. The following design elements should be incorporated to help create complete streets.

- Provide bicycle and pedestrian access to shopping, schools, and other activity centers;
- Provide continuous bicycle facilities (e.g., bicycle lanes, multi-use lanes, and wide shoulders); and
- Provide continuous pedestrian facilities (e.g., sidewalks and trails) that meet ADA requirements.

Some of these improvements may overlap recommended roadway improvements and should be constructed in conjunction with the roadway improvements.

### **7.3.1 Develop Trails/Bicycle/Pedestrian Plan**

A trails/bicycle/pedestrian plan should be developed that provides more detail on the location, type, and design parameters of non-motorized improvements in the study area.

### **7.3.2 Add Bicycle and Pedestrian Facilities to Roadways**

Bicycle and pedestrian facilities should be provided along the following roadway segments:

- Avenue 29E/William Street – Old Highway 80 to County 12<sup>th</sup> Street;
- Old Highway 80 – Avenue 25E to Avenue 31E;
- County 11<sup>th</sup> Street – Avenue 29E to Avenue 31E;
- County 12<sup>th</sup> Street – Avenue 25E to Avenue 31E;
- Avenue 25E – Old Highway 80 to County 12<sup>th</sup> Street; and
- Avenue 31E – Old Highway 80 to County 12<sup>th</sup> Street.

Some roadways have sections of existing pedestrian or bicycle facilities, in which case the recommended improvement would just be filling in the gaps in between the existing facilities and upgrading the existing facilities to more fully comply with the latest ADA requirements.

### **7.3.3 Safe Routes to School**

It is recommended that the Town of Wellton coordinate with the Wellton Elementary School District to examine conditions in the vicinity of school facilities and submit applications for Safe Routes to School (SRTS) funding for planning assistance and for projects and activities that improve bicycle and pedestrian safety and accessibility and reduce traffic and air pollution in the vicinity of school facilities.



## 8 BUILD-OUT RECOMMENDATIONS

Because the build-out condition is beyond the timeframe of the plan for improvements, specific recommended improvement projects have not been identified for the build-out condition. There are, however, several general recommendations that should be considered and accounted for when making decisions that could adversely impact transportation in the build-out condition.

### 8.1 *Build-out Roadway Improvements*

Using a mix of the two potential build-out roadway network scenarios described previously, a recommended build-out roadway network has been established for the study area. This network includes all the freeway crossings shown in the 1-Mile Crossing scenario, but eliminates several of the lower traffic volume railroad crossings that do not meet the grade separation crossing exposure threshold of 500,000 AADT for urban areas. The resulting projected build-out daily traffic volumes on the recommended roadway network are presented in **Figure 31**. The recommended build-out roadway network includes all the proposed roadway improvements described in the previous sections plus numerous other new and improved roadways, including the following:

- New grid network of complete streets arterial and collector roadways that include pedestrian and bicycle facilities;
- Traffic signals or roundabouts at the major roadway intersections;
- New Avenue 23E TI;
- Improved Dome Valley/Ligurta TI (addition of the south half);
- Grade separated crossings at all railroad crossings in the study area; and
- Widening of I-8 to six lanes (three in each direction).

All roadways are expected to operate at level of service D or better with the recommended build-out roadway improvements.

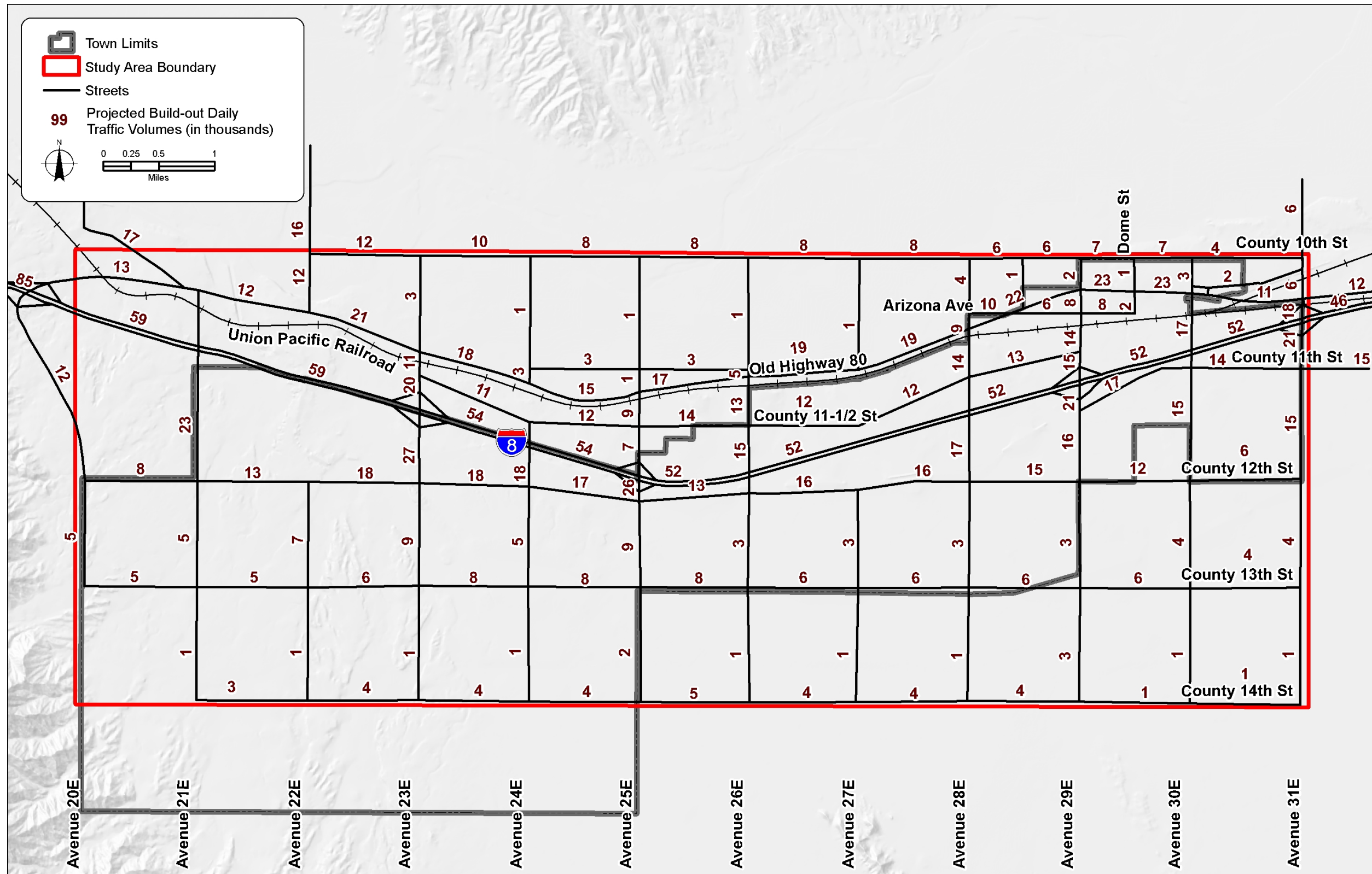
**Figure 32** shows the recommended functional classifications associated with the recommended build-out roadway network. These classifications correspond to the five complete streets cross-sections presented previously and accommodate the projected build-out daily traffic volumes.

### 8.2 *Build-out Transit Improvements*

A local comprehensive fixed-route transit system should be provided in the build-out condition that serves the Wellton area and is integrated with, and includes connections to, future regional Yuma County transit and rail facilities.

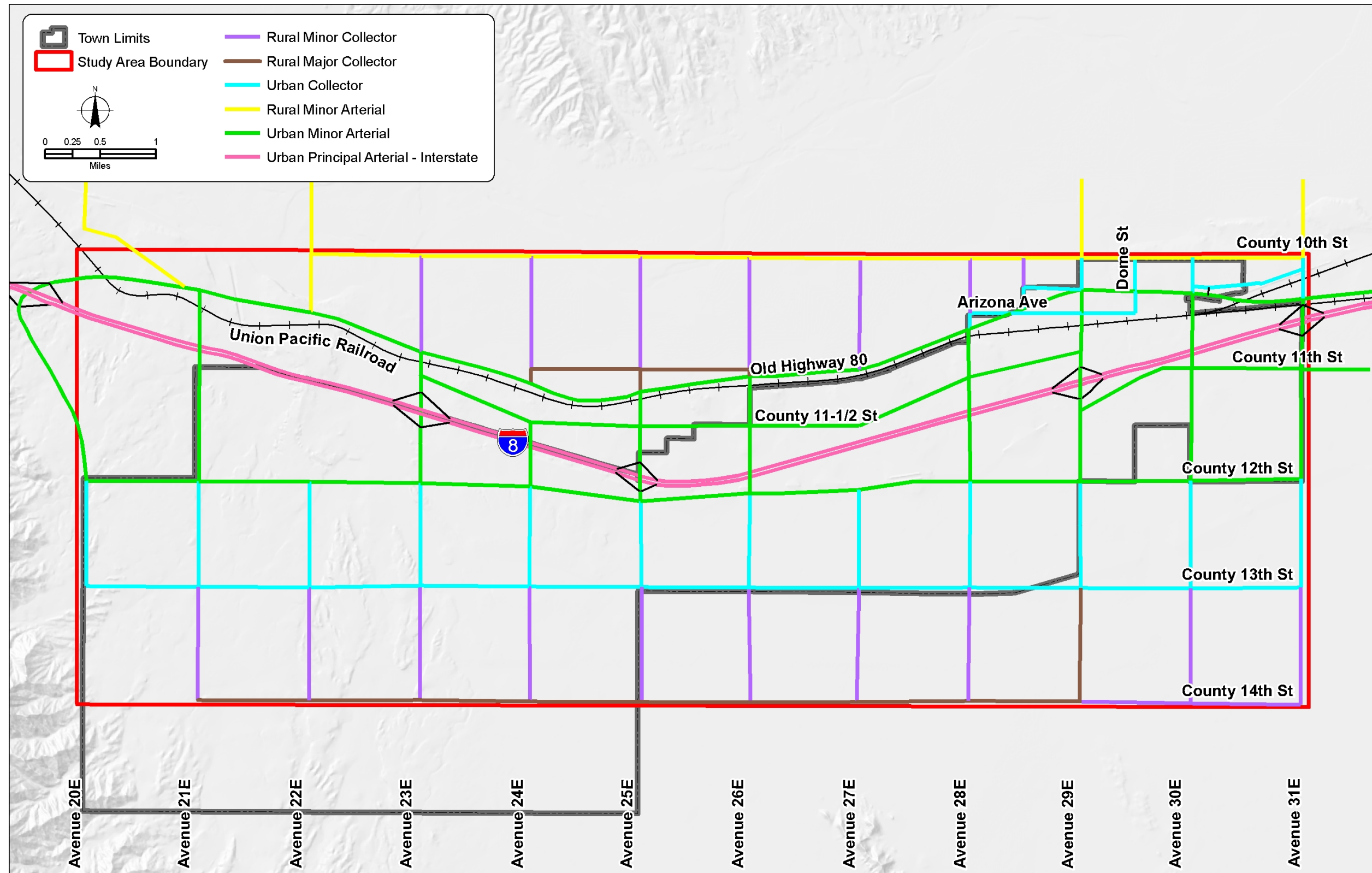
### 8.3 *Build-out Non-motorized Improvements*

Clearly-defined continuous bicycle and pedestrian networks along roadways and multi-use pathways and in the vicinity of activity centers such as school and government facilities are recommended at build-out. The extensive network of canals in the study area provides an ideal location for new multi-use pathways.



Source: Kimley-Horn and Associates, Inc.

Figure 31 – Projected Build-out Daily Traffic Volumes on Recommended Build-out Network



Source: Kimley-Horn and Associates, Inc.

Figure 32 – Proposed Roadway Classifications for Recommended Build-out Network



## 9 PLAN FOR IMPROVEMENTS

An implementation plan has been developed to prioritize the recommended improvements into short-term (2011-2015), mid-term (2016-2020), and long-term (2021-2033) timeframes. **Table 20** presents the implementation plan, which summarizes the short-term, mid-term, and long-term improvements by mode. The cost estimate in 2011 dollars is \$7.8 million for the short-term timeframe, \$26.7 million for the mid-term timeframe, and \$95.6 million for the long-term timeframe, for a total plan cost of \$130.1 million. It should be noted that these plan costs do not include the annual operating costs of improving the frequency, or expanding the coverage, of transit routes.

The actual phasing of implementation of the recommended improvements will be determined by a variety of factors, including funding availability, development activity, traffic patterns, and private participation. Improvement projects may be combined to make more efficient use of available funding. The need for improvements should be re-evaluated each year as part of the various implementing agencies' budget processes or as needed if conditions and travel patterns change significantly.

The overall transportation improvement plan, combining the short-term, mid-term, and long-term recommended improvements, is presented in **Figure 33**.

### 9.1 Traditional Revenue Sources

The Town of Wellton, Yuma County, and ADOT have traditionally used Local Transportation Assistance Fund (LTAF), Highway User Revenue Fund (HURF), local general fund, and federal money administered through YMPO to fund transportation improvements in the study area. These sources can be used for capital improvements or for operations and maintenance and are briefly described below. Due to recent economic conditions, these revenue sources have been reduced or eliminated.

#### 9.1.1 Local Transportation Assistance Fund (LTAF)

LTAF revenues were supplied by a portion of Arizona Lottery and national Powerball revenues. Revenues were distributed to cities, towns, and counties based on population and a percentage of the revenues were required to be spent on transit services based on the population of the jurisdiction or the amount of the distribution. Due to economic conditions, the state has repealed LTAF funding and eliminated the program.

#### 9.1.2 Highway User Revenue Fund (HURF)

Highway User Revenue Funds are primarily derived from gasoline and vehicle license taxes. They are available to the State, counties, cities, and towns. The State receives 50.5 percent of the HURF dollars to be used statewide, cities and towns receive 27.5 percent, cities with a population over 300,000 receive an additional 3 percent, and counties receive 19 percent. The city and county distribution is based on population and gasoline sales. An estimate of the ADOT HURF allocation to the Yuma area was calculated based on the Yuma County proportion of population and highway miles compared to the overall state. HURF can only be used for the construction, operations or maintenance of roadways.

The forecast of expected HURF values for the short-term (2011-2015), mid-term (2016-2020), and long-term (2021-2033) timeframes are provided in **Table 21**. The short-term and mid-term totals are derived from ADOT's *Arizona HURF Process & Results FY2011-2020*, published in October 2010. The long-term total is calculated using the average annual increase of ADOT's HURF forecast from 2010 to 2020 and then applying that increase (equal to 1.038%) each year thereafter through 2033.

**Table 20 – Implementation Plan**

| <b>Short-term Improvements (2011-2015)</b>  |   |                   |                 |                  |
|---|---|-------------------|-----------------|------------------|
| <b>Project Location</b>   | <b>Improvement Description</b>                              | <b>Cost (\$)</b>  |                 |                  |
|   |   | <b>Short-term</b> | <b>Mid-term</b> | <b>Long-term</b> |
| <b>Roadway Improvements</b>   |   |                   |                 |                  |
| Avenue 25E, Avenue 29E, Dome Street, Avenue 31E, County 10 <sup>th</sup> Street, Arizona Avenue, County 11 <sup>th</sup> Street, County 12 <sup>th</sup> Street, and County 14 <sup>th</sup> Street | Update/assign federal functional classifications            | -                 |                 |                  |
| Avenue 29E: Old Highway 80 to County 11 <sup>th</sup> Street and Dome Street potential railroad grade separation  | DCR for railroad grade separation                           | 400,000           |                 |                  |
| County 11 <sup>th</sup> Street: Avenue 29E to Avenue 31E  | Pave roadway  | 3,000,000         |                 |                  |
| County 12 <sup>th</sup> Street: Avenue 25E to Avenue 27E  | Pave roadway  | 3,000,000         |                 |                  |
| <b>Transit Improvements</b>   |   |                   |                 |                  |
| YCAT Orange Line  | Improve frequency to 60-minute headways during peak periods | 500,000*          |                 |                  |
| Modified YCAT Orange Line route   | Extend route south of I-8 to serve Coyote Wash area         | 250,000*          |                 |                  |
| <b>Non-motorized Improvements</b>   |   |                   |                 |                  |
| Town of Wellton and surrounding community   | Trails/bicycle/pedestrian plan                              | 150,000           |                 |                  |
| Avenue 29E: Old Highway 80 to County 12 <sup>th</sup> Street  | Provide pedestrian and bicycle facilities                   | 750,000           |                 |                  |
| County 12 <sup>th</sup> Street: Avenue 27E to Avenue 29E  | Provide pedestrian and bicycle facilities                   | 500,000           |                 |                  |
| <b>Subtotal Short-term Improvements Cost*</b>   |   | <b>7,800,000</b>  |                 |                  |

\*annual operating cost, not included in the total plan cost

Source: Kimley-Horn and Associates, Inc.

| Mid-term Improvements (2016-2020)  |  |            |                   |           |
|--|--|------------|-------------------|-----------|
| Project Location   | Improvement Description  | Cost (\$)  |                   |           |
|  |  | Short-term | Mid-term          | Long-term |
| <b>Roadway Improvements</b>  |  |            |                   |           |
| Old Highway 80: Avenue 29-1/4E to Wellton Mohawk Drive   | DCR for widening, bridge over Coyote Wash  |            | 350,000           |           |
| Avenue 25E: Old Highway 80 to County 12 <sup>th</sup> Street   | DCR for TI and railroad grade separation   |            | 500,000           |           |
| Avenue 29E: County 11 <sup>th</sup> Street to County 12 <sup>th</sup> Street                                     | DCR for TI improvements  |            | 350,000           |           |
| Avenue 31E: Old Highway 80 to County 11 <sup>th</sup> Street   | DCR for TI and railroad grade separation   |            | 500,000           |           |
| County 12th Street: Avenue 29E to Avenue 31E   | Pave roadway   |            | 3,000,000         |           |
| County 14th Street: Avenue 25E to Avenue 27E   | Pave roadway   |            | 3,000,000         |           |
| Avenue 25E: County 12 <sup>th</sup> Street to County 14 <sup>th</sup> Street                                     | Pave roadway   |            | 3,000,000         |           |
| Avenue 29E: Old Highway 80 to County 11 <sup>th</sup> Street and Dome Street potential railroad grade separation | Construct railroad grade separation and Dome Street/Avenue 29E connector roadway if Dome Street location is selected for railroad crossing |            | 15,000,000        |           |
| <b>Transit Improvements</b>  |  |            |                   |           |
| YCAT Orange Line   | Improve frequency to 30-minute headways during peak periods  |            | 500,000*          |           |
| <b>Non-motorized Improvements</b>  |  |            |                   |           |
| County 11 <sup>th</sup> Street: Avenue 29E to Avenue 31E   | Provide pedestrian and bicycle facilities  |            | 500,000           |           |
| County 12 <sup>th</sup> Street: Avenue 25E to Avenue 27E   | Provide pedestrian and bicycle facilities  |            | 500,000           |           |
| <b>Subtotal Mid-term Improvements Cost*</b>  |  |            | <b>26,700,000</b> |           |

\*annual operating cost, not included in the total plan cost

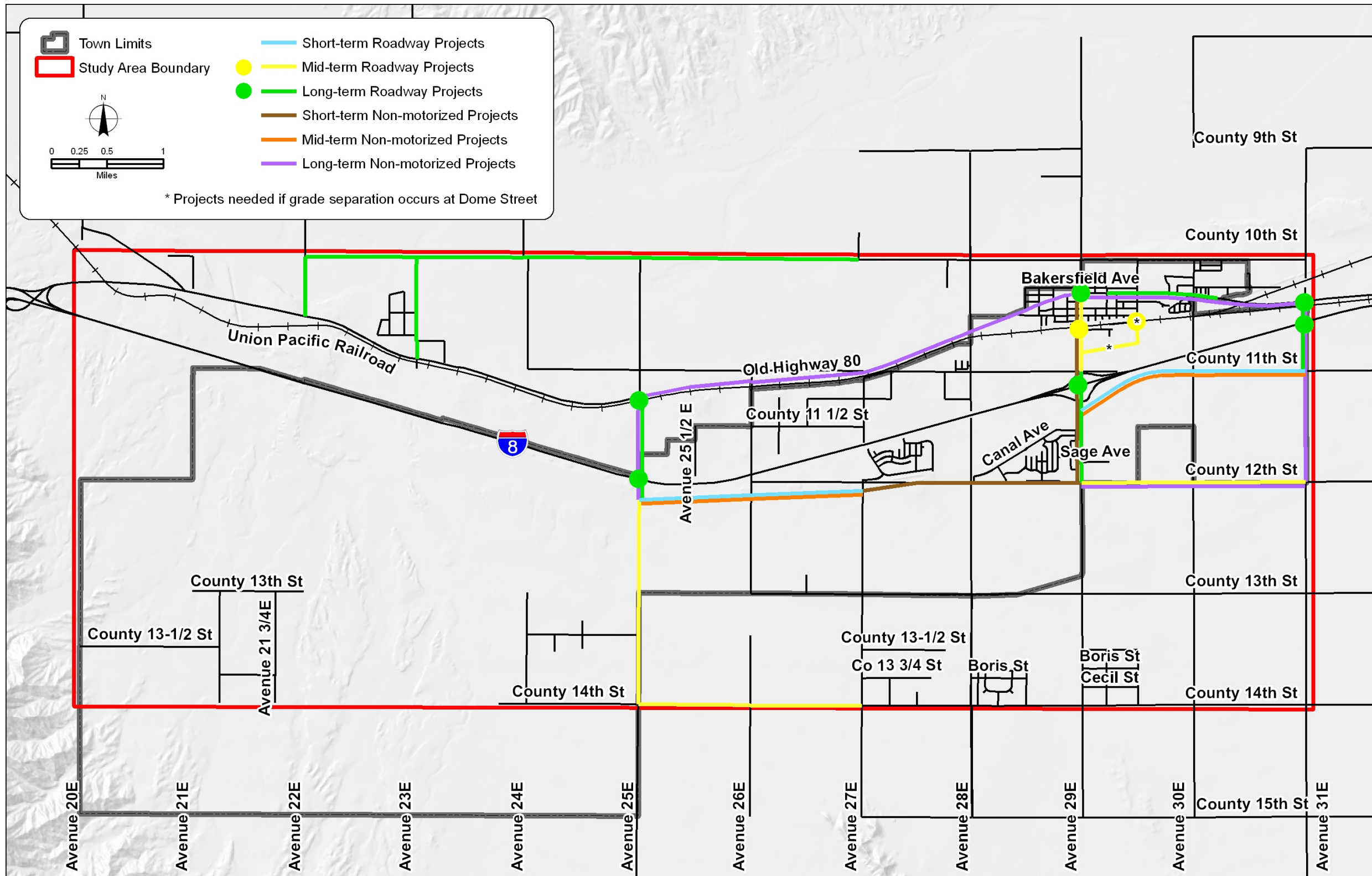
Source: Kimley-Horn and Associates, Inc.



| Long-term Improvements (2021-2033)   |  |                  |                   |                   |
|--|--|------------------|-------------------|-------------------|
| Project Location   | Improvement Description                                | Cost (\$)        |                   |                   |
|  |  | Short-term       | Mid-term          | Long-term         |
| <b>Roadway Improvements</b>  |  |                  |                   |                   |
| County 10 <sup>th</sup> Street: Avenue 22E to Avenue 27E                     | Pave roadway   |                  |                   | 7,500,000         |
| Avenue 22E: Old Highway 80 to County 10 <sup>th</sup> Street                 | Pave roadway   |                  |                   | 750,000           |
| Avenue 23E: Old Highway 80 to County 10 <sup>th</sup> Street                 | Pave roadway   |                  |                   | 1,100,000         |
| Old Highway 80 and Avenue 29E/William Street                                 | Upgrade traffic control at intersection                |                  |                   | 300,000           |
| Old Highway 80: Avenue 29-1/4E to Wellton Mohawk Drive                       | Widen to four lanes, including bridge over Coyote Wash |                  |                   | 4,000,000         |
| Avenue 25E: Old Highway 80 to County 12 <sup>th</sup> Street                 | Construct TI and railroad grade separation             |                  |                   | 35,000,000        |
| Avenue 29E: County 11 <sup>th</sup> Street to County 12 <sup>th</sup> Street | Construct TI improvements                              |                  |                   | 10,000,000        |
| Avenue 31E: Old Highway 80 to County 11 <sup>th</sup> Street                 | Construct TI and railroad grade separation             |                  |                   | 35,000,000        |
| <b>Transit Improvements</b>  |  |                  |                   |                   |
| Town of Wellton and surrounding community                                    | Local transit circulator feasibility study             |                  |                   | 150,000           |
| <b>Non-motorized Improvements</b>  |  |                  |                   |                   |
| Old Highway 80: Avenue 25E to Avenue 31E                                     | Provide pedestrian and bicycle facilities              |                  |                   | 800,000           |
| Avenue 25E: Old Highway 80 to County 12 <sup>th</sup> Street                 | Provide pedestrian and bicycle facilities              |                  |                   | 250,000           |
| Avenue 31E: Old Highway 80 to County 12 <sup>th</sup> Street                 | Provide pedestrian and bicycle facilities              |                  |                   | 250,000           |
| County 12 <sup>th</sup> Street: Avenue 29E to Avenue 31E                     | Provide pedestrian and bicycle facilities              |                  |                   | 500,000           |
| <b>Subtotal Long-term Improvements Cost*</b>                                 |  |                  |                   | <b>95,600,000</b> |
| <b>Total Implementation Plan Cost* = \$130.1 million</b>                     |  | <b>7,800,000</b> | <b>26,700,000</b> | <b>95,600,000</b> |

\*annual operating cost, not included in the total plan cost

Source: Kimley-Horn and Associates, Inc.



**Projects not Shown in Improvement Plan Graphic**

**Short-term Timeframe**

- Roadway*
- Federal functional classification changes
  - Design Concept Report:
    - Avenue 29E or Dome Street railroad grade separation
- Transit*
- Improve frequency to 60-minute headways during peak periods
  - Provide service south of I-8
- Non-motorized*
- Trail/Bicycle/Pedestrian Plan

**Mid-term Timeframe**

- Roadway*
- Design Concept Report:
    - I-8/Avenue 25E TI and railroad grade separation
    - I-8/Avenue 29E TI improvements
    - I-8/Avenue 31E TI and railroad grade separation
    - Old Highway 80: Avenue 29-1/4E to Mohawk Wellton Drive widening
- Transit*
- Improve frequency to 30-minute headways during peak periods

**Long-term Timeframe**

- Transit*
- Local transit circulator feasibility study

Source: Kimley-Horn and Associates, Inc.

**Figure 33 – Improvement Plan**

**Table 21 – HURF Revenue Forecast**

| <b>Timeframe</b>          | <b>ADOT:<br/>Yuma Area</b> | <b>Yuma<br/>County</b> | <b>Town of<br/>Wellton</b> |
|---------------------------|----------------------------|------------------------|----------------------------|
| Short-term<br>(2011-2015) | \$81,312,600               | \$54,164,321           | \$735,910                  |
| Mid-term<br>(2016-2020)   | \$99,772,500               | \$65,568,306           | \$890,866                  |
| Long-term<br>(2021-2033)  | \$368,178,984              | \$240,758,333          | \$3,271,103                |
| Total<br>(2011-2033)      | \$549,264,084              | \$360,490,961          | \$4,897,880                |

Source: Arizona HURF Process & Results FY2011-2020, calculations by Kimley-Horn

### 9.1.3 Local General Funds

The Town of Wellton utilizes local general funds for transportation-related projects on an as-needed basis. Local general funds are typically applied to roadway operations and maintenance activities although they can also be applied to capital improvements.

### 9.1.4 Surface Transportation Program (STP)

The federally-funded Surface Transportation Program (STP) provides flexible funding that may be used by states and localities for projects on any federal-aid roadway functionally classified as a rural major collector or higher, transit capital projects, and public bus terminals and facilities. These funds are distributed by ADOT and YMPO.

### 9.1.5 Developer Contributions

It is common practice for agencies to require developers to dedicate right-of-way for streets adjacent to the development and to construct the adjacent half street. For large developments requiring or desiring significant transportation improvements such as a freeway TI, agreements between the developer and the governing agency are typically prepared that spell out each party's responsibilities. Impact fees are another way in which agencies can require developers to contribute to the infrastructure needs of the community.

## 9.2 Revenue Opportunities

Based on discussions with TAC member agencies and a review of project programming documents such as the TIP and the RTP, it is apparent that TAC member agencies likely will not have sufficient revenue to complete all of the recommended improvements in this study plus the other programmed and planned improvements for each agency. Additional revenue sources will need to be secured if the recommended improvements are to be constructed within the recommended timeframes.

Public and private sector revenue opportunities have been identified that could potentially provide funding for the implementation of recommended improvements.



## 9.2.1 Public Sector Opportunities

Public sector potential revenue opportunities, including existing revenue sources already in use as well as new revenue sources, are described in **Table 22**.

**Table 22 – Local, State, and Federal Revenue Opportunities**

| <b>Local</b>                        |  |
|-------------------------------------|--|
| Bonds                               | Municipal bonds are securities that are issued for the purpose of financing the infrastructure needs of the issuing municipality. These needs vary greatly but can include schools, streets and highways, bridges, hospitals, public housing, sewer and water systems, power utilities, and various public projects. Municipal bonds may be general obligations of the issuer or secured by specified revenues.  |
| General Funds                       | In public sector accounting, the primary or catchall fund of a government. It records all assets and liabilities of the entity that are not assigned to a special purpose fund. It provides the resources necessary to sustain the day-to-day activities and thus pays for all administrative and operating expenses.  |
| Sales Tax                           | A municipality or county can levy a sales tax for general purposes or for a specific purpose such as transportation, it can have a time limit or can extend until rescinded or revised. A sales tax is charged at the point of purchase for certain goods and services. The tax amount is usually calculated by applying a percentage rate to the taxable price of a sale and adding the tax to the price at the point of sale.  |
| Impact Fees                         | A fee imposed on property developers by municipalities for the new infrastructure that must be built or increased due to new property development. These fees are designed to offset the impact of the additional development and residents on the municipality's infrastructure and services.   |
| Community Facilities Districts      | The Arizona Community Facilities District Act addresses a critical issue for developers: the financing of increasingly costly infrastructure requirements without unduly burdening the developer. The law authorizes bonds to be issued and repaid with a mechanism that taxes (or assesses) only the lands directly benefiting from the new infrastructure. This allows community development which would otherwise be unfeasible due to the prohibitive costs. All community facilities districts are required to be included within an incorporated city or town. |
| Improvement Districts               | An improvement district allows a local government agency to levy and collect special assessments on property that is within the boundaries of the improvement district for the purpose of making infrastructure improvements within the improvement district.  |
| Regional Transportation Authorities | The board of supervisors of a county with a population of four hundred thousand or fewer persons but more than two hundred thousand persons may establish a regional transportation authority in the county. The membership of the authority consists of each municipality in the county, the county, and any other members of the regional council of governments. The regional transportation authority can levy a tax for regional transportation services.   |
| <b>State</b>                        |  |
| Highway User Revenue Fund (HURF)    | The State of Arizona taxes motor fuels and collects a variety of fees and charges relating to the registration and operation of motor vehicles on the public highways of the state. These collections include gasoline and use fuel taxes, motor carrier fees, vehicle license tax, motor vehicle registration fees, and other miscellaneous fees. These revenues are deposited in the Arizona HURF and are then distributed to the cities, towns, counties, and the State Highway Fund.   |



| <b>Federal</b>                             |  |
|--|--|
| Surface Transportation Program (STP)       | The Surface Transportation Program (STP) provides flexible funding that may be used by states and localities for projects on federal-aid highways (including the National Highway System, urban arterials and collectors, and rural arterials and collectors except for rural minor collectors), bridge projects on any public road functionally classified higher than a rural minor collector, transit capital projects, and intra-city and intercity bus terminals and facilities. A local funding match is typically required.   |
| Planning Assistance for Rural Areas (PARA) | The PARA program provides funding to address a broad range of local and regional planning issues related to roadway, transit, and non-motorized transportation modes. The PARA program was developed and is managed by ADOT, but the funding for the program comes from State Planning and Research federal funds. PARA funds are limited to planning applications and may not be use for the design or construction of transportation facilities. Eligible applicants include tribal governments and cities, towns, and counties located outside transportation management area boundaries. No local funding match is typically required.   |
| Highway Safety Improvement Program (HSIP)  | <p>The goal of the HSIP funding program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related highway safety improvements. Each state's Strategic Highway Safety Plan (SHSP) identifies the state's key safety needs and guides HSIP investment decisions.</p> <p>States with SHSPs that meet the requirements of 23 USC 148 may obligate HSIP funds for projects on any public road or publicly owned bicycle and pedestrian pathway or trail. Each state must have an SHSP to be eligible to use up to 10 percent of its HSIP funds for other safety projects under 23 USC (including education, enforcement and emergency medical services). It must also certify that it has met its railway-highway crossing and infrastructure safety needs. The core HSIP also requires the development and implementation of a Railway-Highway Crossing Program and High Risk Rural Road Program. A local funding match is typically required.</p> |
| Railway-Highway Crossing Program           | <p>This program distributes money annually specifically for eliminating hazards and installing and/or upgrading protective devices at public highway-railroad crossings. Eligible projects eliminate hazards to both vehicles and pedestrians at railroad-highway crossings. These projects may include but are not limited to:</p> <ul style="list-style-type: none"> <li>• Installation of grade separation;</li> <li>• At-grade crossing elimination;</li> <li>• Reconstruction of existing grade separations; and</li> <li>• At-grade crossing improvements.</li> </ul> <p>State agencies determine which public crossings require improvements and identify the scope of the improvements. ADOT maintains the inventory of all public railroad crossings, which are ranked based on the Relative Hazard Exposure Index. A local funding match is typically required.</p>  |
| High Risk Rural Road Program (HRRRP)       | Each state's apportionment of HSIP funds is subject to a set-aside for construction and operational safety improvements on high-risk rural roads. A high-risk rural road is defined as any roadway functionally classified as a rural major or minor collector or rural local road on which the accident rate for fatalities and incapacitating injuries exceeds the statewide average for those functional classes of roadways; or that will likely have increases in traffic volume that will lead to an accident rate for fatalities and incapacitating injuries that exceeds the statewide average for those functional classes of roadways. In Arizona, the HRRRP will kick-off in fiscal year 2011. A local funding match is typically required.   |



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| National Highway System Program                 | The National Highway System (NHS) Program provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate Highway System and designated connections to major intermodal terminals. In addition, NHS program funds may also be used for transit improvements in NHS corridors. NHS funds are distributed to individual states, where up to 50 percent may be transferred to its Interstate Maintenance, Surface Transportation, Congestion Mitigation and Air Quality, Highway Bridge Replacement and Rehabilitation, or Recreational Trails programs. A local funding match is typically required.   |
| Interstate Maintenance (IM) Program             | The Interstate Maintenance (IM) Program provides funding for resurfacing, restoring, rehabilitating and reconstructing (4R) most routes on the Interstate System. Projects on routes on the Interstate System are eligible for funding. Construction of additional Single Occupancy Vehicle (SOV) lanes continues to be ineligible for IM program funds. A local funding match is typically required.  |
| Highway Bridge Program                          | The Highway Bridge Program provides funding to enable states to improve the condition of their highway bridges through replacement, rehabilitation, and systematic preventive maintenance.<br><br>Eligible activities are expanded to include systematic preventative maintenance on Federal-aid and non-Federal-aid highway systems. States may carry out projects for the installation of scour countermeasures or systematic preventative maintenance without regard to whether the bridge is eligible for rehabilitation or replacement. A local funding match is typically required.  |
| Transportation Enhancement (TE) Program         | The goal of this program is to strengthen the cultural, aesthetic, and environmental aspects of the Nation's intermodal transportation system. A State's TE funding is derived from a set-aside from its annual STP apportionment.<br><br>This funding source is designated to provide funding for capital projects that enhance existing surface transportation system. Successful projects must fulfill one of twelve specific goals. The TE Program is a reimbursement program. Project sponsors must be prepared to pay for all costs incurred and then request reimbursement for expenditures as specified. There is a required minimum 5.7% hard cash local match. The maximum grant amount for individual local projects is \$750,000.  |
| Coordinated Border Infrastructure (CBI) Program | The goal of this program is to improve the safe movement of motor vehicles at or across the land border between the U.S. and Mexico. States may use funds in a border region, defined as any portion of a border State within 100 miles of an international land border with Mexico, for the following types of improvements to facilitate/expedite cross border motor vehicle and cargo movements: <ul style="list-style-type: none"> <li>• Improvements to existing transportation and supporting infrastructure;</li> <li>• Construction of highways and related safety and safety enforcement facilities related to international trade;</li> <li>• Operational improvements, including those related to electronic data interchange and use of telecommunications;</li> <li>• Modifications to regulatory procedures; and</li> <li>• International coordination of transportation planning, programming, and border operation with Canada and Mexico.</li> </ul> A local funding match is typically required. |



|  |  |
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| <p>Safe Routes to School (SRTS) Program</p>                              | <p>The goal of the SRTS Program is to enable and encourage children to walk and bicycle to school. The program accomplishes this by facilitating the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution near schools. Eligible projects must meet the following two criteria:</p> <ul style="list-style-type: none"> <li>• Funding is only for elementary and middle schools; and</li> <li>• Programs and projects must be within a 2-mile radius of the school.</li> </ul> <p>Funding is given in the form of reimbursement once a project is implemented. There is no required local match. Funding can be provided for planning assistance, non-infrastructure projects, infrastructure projects, and materials and regional support projects.</p> |
| <p>Federal Transit Administration (FTA) Section 5307 Transit Program</p> | <p>The 5307 Program provides grants for urbanized areas (50,000 or greater population) for transit capital investments and operating expenses. A local funding match is typically required.</p>  |
| <p>FTA Section 5309 Transit Program</p>                                  | <p>The 5309 Program provides funding for capital investment grants of \$75 million or less (small starts). Grants are for capital costs associated with bus corridor improvements and bus rapid transit. A local funding match is typically required.</p>  |
| <p>FTA Section 5310 Transit Program</p>                                  | <p>The 5310 Program provides funds to transit projects for the elderly and disabled. Funds are allocated to each state on a formula basis and then the state allocates to eligible recipients, that include public bodies and private, non-profit organizations. Capital costs, as well as costs associated with contracted services, are eligible expenses. A local funding match is typically required.</p>  |
| <p>FTA Section 5311 Transit Program</p>                                  | <p>The 5311 Program provides funds to support costs associated with public transportation in non-urbanized areas. Funds are allocated to each state on a formula basis and then the State allocates to eligible recipients, that include public bodies and private, non-profit organizations. Both capital and operating costs are eligible expenses. A local funding match is typically required.</p>   |
| <p>FTA Section 5316 Transit Program</p>                                  | <p>The 5316, or Job Access and Reverse Commute (JARC), Program provides federal funding for transit-related capital, operating, and planning projects. The purpose of the program is to provide new or expanded service to enable welfare recipients and low-income individuals to access places of employment. The funding from this program can be used for a variety of purposes including shuttle service, expanded fixed-route service, and guaranteed-ride-home services. A local funding match is typically required.</p>   |
| <p>FTA Section 5317 Transit Program</p>                                  | <p>The 5317, or New Freedom, Program provides federal funding and is designed to create and improve transportation facilities that go beyond the Americans with Disabilities Act (ADA) standards for persons with disabilities. Funds are competitively distributed based on the population of persons with disabilities, and are intended for capital and operating expenses for new public transportation services and new public transportation alternatives beyond those required by the ADA. A local funding match is typically required.</p>   |

Sources: ADOT, USDOT, FTA, and FHWA

## 9.2.2 Public-Private Partnerships

Public-private partnerships (P3s) are created when public agencies partner with private entities to design, construct, operate, and/or maintain transportation infrastructure. Potential benefits of P3s include access to private funding, accelerated project implementation schedule, and more efficient asset management. Potential drawbacks of P3s include loss of some public agency oversight, difficulty in determining appropriate rates for all users, and public resistance to private sector participation. Examples of P3s include toll roads, managed lanes, and advertising.

### 9.3 Agency Coordination and Partnering

Many of the recommended improvements cross jurisdictional boundaries or impact multiple agencies. Successful implementation of the recommended improvements will require agency coordination and partnering from planning, design, construction, and funding standpoints. Agencies that should be included in the coordination and partnering efforts, as applicable, include the Town of Wellton, Yuma County, ADOT, YMPO, FHWA, UPRR, WMIDD, Wellton Elementary School District, CBP Border Patrol, MCAS, BLM, USBOR, ASLD, and AGFD.

### 9.4 Title VI Impacts

The U.S. Department of Transportation regulations related to disadvantaged, or Title VI, populations (i.e., minority, low-income, and elderly populations) state that in determining the site or location of transportation facilities, selection cannot be made with the purpose or effect of excluding persons from, denying them the benefits of, or subjecting them to discrimination under any program to which this regulation applies. According to the regulations, a project cannot be implemented that will cause disproportionately high and adverse impacts to disadvantaged populations.

The Wellton Transportation Long-Range Plan PARA Study is a long-range multimodal planning study that was prepared to address the transportation needs in the region for the short-term, mid-term, and long-term transportation planning horizons. The recommended improvements are expected to improve the overall transportation system of the region and benefit the region as a whole. Recommended improvement projects were not selected based on the population that would be impacted, but rather were selected to address an identified transportation need. More detailed analysis will be needed for individual projects that are federally-funded to ensure that there are no disproportionately high and adverse impacts to disadvantaged populations.



## 10 APPENDIX

Appendix 10-1: Summaries from Public Open House Meeting No. 1 and Meeting No. 2

Appendix 10-2: 2008 Population and Employment Estimates by TAZ

Appendix 10-3: 2033 Population and Employment Estimates by TAZ

Appendix 10-4: Build-out Population and Employment Estimates by TAZ



## **Appendix 10-1: Summaries from Public Open House Meeting No. 1 and Meeting No. 2**

### **Public Open House Meeting No. 1**

Meeting date: Wednesday, October 27, 2010  
5:00 p.m. to 7:00 p.m.

Meeting Location: Wellton Community Center, 10234 Dome Street, Wellton, AZ 85356

Participants: 24 community members attended

#### **Project Overview**

The Arizona Department of Transportation (ADOT) is working together with the Town of Wellton to conduct a long-range transportation study. The study will result in a plan of improvements for planning periods of 5, 10, and 20 years. The study will also project future build-out conditions and develop a framework for accommodating build-out travel demands. The final recommendation will be multimodal, considering roadways, non-motorized transportation modes (bicycles and pedestrians) and transit (bus and rail) components.

The public's input is essential to the study results. The first of two public open houses was held on Wednesday, October 27, at the Wellton Community Center. Project team members presented information related to the existing and future conditions and needs of Wellton's transportation system. A second open house will be held in 2011 to present the study's findings related to the recommended plan.

#### **Public Meeting Notification**

Efforts were made to notify the Wellton community as well as the surrounding areas. A variety of methods were used to announce the study and the public open house.

Prior to the open house, ADOT:

- Inserted notifications in the Town's October utility billing cycle. Approximately 1,000 Wellton residents received these notifications with their water bill.
- Distributed emails to a list of 326 individuals on Tuesday, October 26, 2010.
- Distributed notification posters to twelve locations throughout town including:
  - Coyote Wash Golf Course – Pro Shop
  - Mota's Market
  - Pioneer RV Park
  - Sun Country RV Park
  - Sunset Community Health Center
  - Tier Drop RV Park
  - Wellton Coffee Shop
  - Wellton Justice Court
  - Wellton Laundry Mat

- Wellton Post Office
- Wellton Senior Center/Community Center
- Wellton Town Hall
- Distributed information to the media the week of October 18. This included the Yuma Sun, Bajo el Sol, KSWT News Channel 13, KYMA News Channel 11, El Dorado Broadcasting, KLIZ, KAWC, San Luis News, and El Siglo.

### **Public Meeting Overview**

ADOT Multimodal Planning Division Project Manager, Mark Hoffman, welcomed the participants, recognized elected officials in attendance, and introduced the project team. He then gave a brief overview of the Planning Assistance in Rural Areas (PARA) program. Michael Grandy, Project Manager with Kimley-Horn and Associates, presented technical information regarding the study. He introduced the study area, reviewed the current and projected populations, and discussed the existing and future needs of the transportation system. He then turned the meeting over to Gaby Gonzalez, ADOT Public Information Officer, to lead the participants in a question and answer session.

Below is a summary of the questions asked and answers provided at the end of the presentation.

### **Question-and-Answer Session Summary**

1. *We experience a lot of golf cart traffic during the winter months when the winter visitors arrive. How are golf carts classified? They do not seem to fit into any multimodal category. Golf carts are a problem because they travel too slow and create dust when using non-paved surfaces.*  
Golf carts will be considered in their own category. This study does recognize the increase in population in the winter months, and will consider golf cart transportation. Additionally, the town recognizes the issue and applied for funding to construct a multi-use path along Avenue 29E/William Street. At this time, no funding has been secured but the town will continue to pursue funding opportunities.
2. *We need to develop a solution for emergency services to cross the railroad tracks. Often times, trains are stopped on the tracks and traffic backs up. If there is an emergency on the other side of the tracks, emergency responders need to be able to get through.*  
Safety is one of ADOT's highest priorities. Emergency access will be considered when developing a transportation plan. Opportunities for crossing the railroad tracks in an emergency situation will be identified.
3. *There has been a lot of discussion regarding new interstate interchanges. Where would these new interchanges be located?*  
This plan will include potential new interstate interchanges. Specific locations will be identified and traffic volumes will be analyzed to determine the best locations. ADOT has a policy that interchanges need to be spaced in two-mile increments. Per that policy, potential interchange locations could include locations such as Avenue 25E, Avenue 27E, and Avenue 31E. A couple of interested parties have approached ADOT about building new interchanges, but ADOT does not have funding for and has not programmed the building of any new interchanges in the Wellton area. ADOT is, however, willing to work with the Town of Wellton and other government

agencies in seeking outside funding for new interchanges. ADOT is also willing to work with private developers willing to fund improvements to I-8.

4. *Does YCAT have a line running from the Yuma International Airport or the Greyhound station out to Wellton?*

There used to be direct routes to both the Yuma International Airport and the Greyhound station; however, due to funding YCAT routes were consolidated. There are new locations along YCAT routes that are near both the Yuma International Airport and the Greyhound station.

5. *If additional railroad facilities are to be constructed, then both rail and vehicle traffic will increase. Will ADOT share a portion of the cost of new roadway facilities that will need to be constructed to handle the increased traffic?*

This depends on the location of the railroad and roadway facilities. If the railroads intersect with an ADOT facility, then ADOT may need to help share the cost with the railroad company of providing a roadway crossing over or under the railroad. Generally, the railroad will contribute five percent of the total cost of roadway crossings over or under the railroad and the community will need to fund the remaining 95 percent. If the roadway is an ADOT facility, there may be opportunities for ADOT to contribute funding for the crossing of the railroad. Once a total cost has been identified, funding opportunities can be identified and pursued.

6. *How did winter visitors factor into your calculations of the projected population?*

Winter visitors are not included in the population numbers presented; however, they are considered when calculating the projected traffic volume demands. We assume that the percentage of winter visitors as a portion of the total population will continue to decrease over the years as they become full time residents of Wellton.

7. *At-grade crossings are best for large farm equipment. Drivers have considerably less visibility when driving large farm equipment and having to use an overpass or underpass is more difficult than at-grade crossings.*

Railroads do issue permits to allow communities to construct new crossings, but they prefer these crossings to either go over or under the railroad. They are less likely to issue a permit for an at-grade crossing due to safety concerns.

8. *Can we put a limitation on the amount of time trains can stop on tracks blocking traffic? In an emergency situation, there is no way to access the other side of the tracks.*

Trains are operated by the railroad companies and regulated by the Federal Railroad Administration of the U.S. Department of Transportation. Neither ADOT nor the Town of Wellton has control over where and how often trains can stop.

9. *Avenue 27E does not cross the interstate because of the Coyote Wash development. If a bridge is constructed over the railroad tracks at Avenue 27E, where would the road lead? There is no possible connection on the south side of the interstate.*

The feasibility of bridges over the railroad and associated connecting roadways is something that will be considered and evaluated as part of this study.



10. *How do you fund roads that are used by unregistered vehicles such as golf carts and bicycles?*  
Different funding sources can be applied for to assist in funding roadways, multiuse paths, bike lanes, etc. With a transportation plan in place, the town can begin to identify and pursue funding opportunities to implement the improvements.
11. *What is the build-out population projected for Yuma?*  
ADOT recently completed a Statewide Transportation Planning Framework study which was accepted by the State Transportation Board in January 2010. This study projected the total population for Arizona to be near 14.8 million in the year 2050, with Yuma County's population being nearly 400,000. As of 2005, Yuma County's population was 173,000. More information regarding this study can be found on [www.bqaz.gov](http://www.bqaz.gov).
12. *Who is responsible for paying for a new interstate interchange?*  
The responsible party depends on the reason for the construction of the interchange. If the interchange is driven by a new development, then the developer will need to fund the construction of the interchange. If there is already an interchange in place, ADOT is responsible for maintenance and improvements. If the need is driven by the community in general, the first step in the process is to get it into a regional transportation plan. Once it's included in a regional transportation plan, funding can be obtained at either a state or federal level. A study such as this one is the first step in the process to identify the need for a new interchange and get it included in the regional transportation plan.
13. *Does the federal government have grants available for improvements to Avenue 25E? It is because of the military that traffic has increased on this roadway. As such, the federal government/military should be responsible for funding improvements.*  
A portion of this study will be to evaluate multiple funding opportunities for improvements. The results will be included in the final report and will be available once the study is complete in 2011.
14. *Are other areas of Arizona doing plans like this?*  
Yes, this study is part of ADOT's Planning Assistance for Rural Areas (PARA) program. The program provides federal funding for rural communities to develop short-, mid-, and long-range transportation plans. Projects are awarded based on a competitive annual application process.

#### Comments Received Verbally During the Question-and-Answer Session

- Golf carts also pose a safety problem. In Sun City, golf carts are licensed and drive on roadways. Because of their low speed and lack of consideration for other motor vehicles, safety is a major concern.
- As a local farmer, safely transporting large farming equipment throughout town is a major concern. There are limited options regarding roadways in Wellton which we can use to move this equipment. We used to use Avenue 29E to cross the interstate; however, we are no longer able to get our equipment through because of the new concrete median implemented at the railroad crossing as part of the railroad quiet zone. There needs to be another point where we can safely cross the interstate and railroad tracks. The Avenue 31E overpass is also dangerous. Visibility while driving large equipment is poor.
- Frontage roads should be considered now before there is too much development.

- There is a need for additional YCAT service in Wellton. Many students at the Arizona Western College Campus are affected by the existing routes and schedules. Transportation is a big concern for the students coming from the Yuma area. It would also be nice to have YCAT service to Dateland.
- Senior citizens are also affected by the YCAT schedule. They need to be able to have access to medical services, grocery stores, etc., and it would be nice for there to be more routes in Wellton to assist the senior citizens.
- Avenue 27E is a good location to construct a bridge over the railroad tracks with connecting frontage roads for emergency services to cross the railroad tracks when trains are stopped.
- We need to construct a stoplight in town. Not everyone knows how to drive through a four-way stop.
- The roadways in Wellton are very narrow and large trucks have a hard time navigating turns. We need to improve this so that trucks stop driving on sidewalks and curbs.
- There needs to be a way to provide access around Interstate 8 in situations where accidents close the freeway. Right now, traffic is directed onto Avenue 29E and it gets very congested with trains and freeway traffic.
- It would be nice to have bike lanes along Avenue 29E. As we become more conscious about the environment, bicyclists on the road will become more of an issue.
- I'm not sure that rail would solve the problems we have in this area. It's nice to be able to ride a train for long distances, but how do you get around once you arrive at your destination? In order for rail to be a reasonable solution, there needs to be a local transportation system. San Diego has a trolley system which goes to multiple places throughout town.
- We should widen the interstate bridge at Avenue 29E like 16<sup>th</sup> Street in Yuma.
- Please consider improving ADA compliance throughout town.

#### Verbal Comments from the Mayor

- The cost of constructing a bridge over the railroad tracks is very high. There are many options that the town has considered, including a bridge at Avenue 27E, Dome Street, and William Street. By constructing a new bridge, farmers will be able to use it to relocate equipment.
- A study on commuter rail between Phoenix, Tucson, and Yuma is currently underway; but at this time there are no plans to build.

#### Written Responses Received to Survey Questions

##### 1. What are your top three transportation issues in and around the Wellton area?

- (1)Bus services. (2)Railroad crossing bridge. (3)Many Road Improvements.
- (1)Emergency freeway access at Avenue 25E and Avenue 31E. (2)Safe walking and bicycling paths. (3)Frontage roads from Avenue 25E to Avenue 31E on the north side.
- (1)Safely transporting farm equipment to and from fields.
- (1)Railroad crossings. (2)Routing of industrial/farm equipment. (3)Golf cart/bicycle/foot traffic.
- (1)Railroad grade separation. (2)Road paving. (3)Sidewalk and trails.

- (1)Bike trails. (2)Bus transit. (3)Golf paths.
- (1)Bike and walking trails. (2)Bus transit. (3)Golf cart paths.
- (1)Rail traffic. (2)Farm equipment.

2. Do you think that public transportation options, such as bus service, are important to you and your community? Please tell us why.

- To me not so much. However, low cost transportation is always good for the community.
- Minor.
- Bus service is a big need. We have many college students who need to ride in to Arizona Western College Main Campus.
- Bus service convenient to college schedules should have priority to general service.
- Yes. Bus service to Yuma is important to Wellton.
- Movement for the elderly and poor.
- YCAT is important for all the reasons mass transit is a favored option. Is a small local mass transit (bus system) feasible?

3. What type of pedestrian facilities would you like to see in your community? These include facilities used for non-motorized transportation such as walking and biking, widened shoulders, new multiuse pathways, trails, sidewalks, bike lanes, etc.

- We need widened shoulders for biking from Avenue 20E to Avenue 32E. "Bike lanes". Trails in mountain areas.
- I would like to see more paved bike trails in the eastern part of town.
- More bike and walking trails.
- Multiuse paths are getting a lot of use. I could see more paths as a positive.

4. What is the number one traffic problem in the community that you feel needs to be addressed?

- Railroad crossings.
- The railroad crossing. We need a bridge.
- Crossing of railroad tracks.

5. If you had \$100 to spend on transportation improvements how much would you spend on each of the following?

| Transportation Mode            | Average \$ Amount | Range of \$ Amount |
|--------------------------------|-------------------|--------------------|
| Bike paths/lanes               | \$17              | \$0 - \$50         |
| Transit                        | \$20              | \$0 - \$50         |
| Sidewalks                      | \$10              | \$0 - \$33         |
| Railroad Crossing Improvements | \$36              | \$0 - \$70         |
| Traffic Signals                | \$3               | \$0 - \$10         |
| Freeway Interchanges           | \$13              | \$0 - \$60         |
| Roundabout                     | \$1               | \$0 - \$5          |
| Other                          | \$0               | n/a                |





6. Please feel free to share any additional comments with us!

- If there is concern with golf carts, Sun City is an example of what not to do.
- An at-grade crossing of the railroad tracks at Avenue 27E connecting Highway 80 with County 11<sup>th</sup> Street would be rather inexpensive alternative route than through town.
- Wellton needs better emergency access to town from I-8. One entrance is too little. Another exit on I-8 at Avenue 25E would relieve congestion and serve the Coyote Wash population as well as Wellton proper. Avenue 25E has tremendous traffic and is in need of study. It serves military and residential traffic.

### ***Public Open House Meeting No. 2***

Meeting date: Wednesday, March 2, 2011  
5:00 p.m. to 7:00 p.m.

Meeting Location: Wellton Community Center, 10234 Dome Street, Wellton, AZ 85356

Participants: 13 community members attended

#### **Project Overview**

The Arizona Department of Transportation (ADOT) is working together with the Town of Wellton to conduct a long-range transportation study. The study will result in a plan of improvements for planning periods of 5, 10, and 20 years. The study will also project future build-out conditions and develop a framework for accommodating build-out travel demands. The final recommendation will be multimodal, considering roadways, non-motorized transportation modes (bicycles and pedestrians) and transit (bus and rail) components and will serve as a guide for future community development, project funding and project implementation.

The public's input is essential to the study results. The second of two public open houses was held on Wednesday, March 2, at the Wellton Community Center. Project team members presented a draft improvement plan that includes roadway, transit, and non-motorized projects and asked for public input regarding the projects presented.

#### **Public Meeting Notification**

Efforts were made to notify the Wellton community as well as the surrounding areas. A variety of methods were used to announce the public open house.

Prior to the open house, ADOT:

- Inserted notifications in the Town's February utility billing cycle. Approximately 1,000 Wellton residences received these notifications with their water bill.
- Distributed emails to a list of 326 individuals on Wednesday, February 16, 2011.
- Distributed notification posters to twelve locations throughout town including:

- Butterfield Municipal Golf Course
  - Coyote Wash Golf Course
  - Olsen's IGA Grocery Store
  - Pioneer RV Park
  - Sun Country RV Park
  - Sunset Community Health Center
  - Tier Drop RV Park
  - Wellton Coffee Shop
  - Wellton Justice Court
  - Wellton Post Office
  - Wellton Senior Center/Community Center
  - Wellton Town Hall
- Distributed information to the media the week of February 21. This included the Yuma Sun, Bajo el Sol, KSWT News Channel 13, KYMA News Channel 11, El Dorado Broadcasting, KLIZ, KAWC, San Luis News, and El Siglo.

### **Public Meeting Overview**

ADOT Multimodal Planning Division Project Manager, Mark Hoffman, welcomed the participants, recognized elected officials in attendance, and introduced the project team. He then gave a brief overview of the Planning Assistance for Rural Areas (PARA) program. Michael Grandy, Project Manager with Kimley-Horn and Associates, presented technical information regarding the study. He reviewed the study area, current, future, and build-out needs, and the draft improvement plan. Questions were allowed during the presentation. The following is a summary of the questions asked and the answers provided.

### **Question-and-Answer Summary**

1. *Does the same study team conduct PARA studies statewide, or does each PARA have different team members?*  
Each PARA is made up of different team members including ADOT staff, local government officials, and consultants.
2. *What effect does the state budget have on the funding for PARA studies?*  
PARA studies are federally funded programs, so they are not dependent upon the state budget for funding.
3. *Does the amount of funding depend on the population?*  
Federal funding is calculated using a formula to divide money among all fifty states based in part on population. Once Arizona receives its allocation of federal funding, the State Transportation Board makes decisions regarding which projects in Arizona are funded.
4. *Does the study account for the increase in Wellton's population due to winter visitors? This area of the state is unlike any other area.*  
Yes. There is a local ADOT office in Yuma that understands the fluctuation of population throughout the year. Additionally, some of the decision makers in the ADOT Phoenix office are former Yuma residents.

5. *Should we look at expanding the study area farther east?*  
It is anticipated that the area east of the current study area will likely continue to grow and the traffic generated by this projected growth has already been considered in this study. However, due to funding constraints, and for the purpose of this study, the study area does not extend east of Avenue 31E.
6. *How many trains travel through Wellton per day?*  
On average there are about 50 trains per day per information provided by Union Pacific Railroad.
7. *How many accidents have occurred at railroad crossings in the study area?*  
There are very few recorded accidents at the at-grade railroad crossings in the study area, but the potential for accidents will increase as vehicle and train volumes increase in the future at the at-grade railroad crossings.
8. *What is the delay for emergency vehicles when a train is stopped on the tracks?*  
Train delays depend upon the train operator. Anecdotal evidence indicates that waits can exceed 15 minutes in length.
9. *Has there been consideration of frontage roads?*  
Frontage roads were considered, but due to existing right-of-way and development constraints, it does not appear that frontage roads would be beneficial in the study area; however, more parallel collector and minor arterial roads have been added to the proposed roadway network to help relieve future congestion on Interstate 8, especially when Interstate 8 is closed or restricted due to accidents.
10. *Are you aware of any other ongoing projects to add an alternative route to Interstate 8 in the event of an emergency?*  
No, ADOT is not aware of any such study. The Yuma Metropolitan Planning Organization (YMPO) would need to initiate and review a study of that nature if such a study were warranted.
11. *Raised concrete medians cost a lot of money and prevent access of emergency vehicles into some locations. They also result in U-turns, which seem to be less safe than a left turn. Why are they being considered?*  
Raised concrete medians are being considered on some streets because they have been proven to increase safety on roadways. On roads where traffic is heavier, they help control access and consolidate left-turn traffic, thus reducing the potential for collisions. National research has shown that U-turns followed by a right turn is safer than a left turn in most situations. Emergency vehicles will be able to drive over or around the medians in the event of an emergency.
12. *Why isn't there a special lane for emergency vehicles?*  
Emergency vehicles can use the median or shoulders to move past traffic in an emergency.
13. *You have used the word "shade" on several occasions when referencing the potential design of the streets. Shade trees cost money for maintenance. Can cacti be used instead?*



Trees for shade are proposed in more densely populated areas where pedestrians are more likely to use them. In rural areas with fewer pedestrians, trees would most likely not be planted to provide shade.

14. *Where does the Coyote Wash development get water?*

The Coyote Wash development gets its water from the Town of Wellton.

15. *Do you consider water sources for the future development you predict?*

The Town of Wellton has a water plan, which the team has referenced. Water does play a major role in future development.

16. *Have electric cars and locations to plug the cars in been considered?*

This plan does not include electric cars specifically, but the proposed transportation network would accommodate electric cars. The demand for development of electric cars and charging stations will be market driven.

17. *Is there anything planned for constructing a pedestrian path over Coyote Wash?*

The Town of Wellton is working towards securing funding for this project.

18. *Is there an unofficial park-and-ride at Ligurta Wash?*

There is an open area where individuals park and carpool into the Goldwater Range or into Yuma. A more formal park-and-ride lot could be provided in the future in the study area when warranted. The Yuma Metropolitan Planning Organization would be responsible for evaluating the need and locations for regional park-and-ride lots.

19. *Are park-and-ride lots generally manned and what do they look like?*

Park-and-ride lots can sometimes have manned booths with security. It is dependent upon the lot.

20. *What is a quiet zone and are there any in Wellton?*

A Quiet Zone is a railroad grade crossing at which trains are prohibited from sounding their horns in order to decrease the noise level for nearby residents. It is authorized and administered by the Federal Railroad Administration and requires that safety improvements be implemented to offset the elimination of the train horn. Required Quiet Zone safety improvements can range from constructing raised medians to providing additional crossing gates, or wayside horns to improve safety near the crossing. With the appropriate safety improvements in place and approval from the Federal Railroad Administration, trains passing through a Quiet Zone would be prohibited from sounding their horns except in emergencies. There is currently a Quiet Zone in the Wellton area at Avenue 29E/William Street.

21. *Can overpass construction impacts similar to that of the 16<sup>th</sup> Street Widening project recently completed in Yuma be avoided in Wellton? Can the project be built to its full size the first time to avoid future construction?*

Construction impacts are unavoidable for a large project like an overpass, but measures can be taken to minimize those impacts where feasible. An overpass can be built to its full size the first time to avoid future construction if the necessary funding is available. Because funding is often

limited, overpasses are often constructed initially at a smaller size that will be functional for several years before widening or improvements are needed.

#### Comments Received Verbally During Presentation

- It would be nice to have an interchange at Interstate 8 and Avenue 25E.
- There is talk of the railroad companies building double tracks. This would increase the daily number of trains.
- There is talk about building a passenger train between Phoenix and Yuma.
- Something needs to be done to improve the railroad crossing at Avenue 36E. The train companies claim that they will triple the daily number of trains by 2012 as a result of improvements they plan to implement.
- Railroad crossing issues seem to be the most costly ideas. These should be addressed first.
- There are many RV parks adjacent to the railroad tracks. Sounding horns may deter visitors from coming.
- A grade separated crossing of the railroad at Dome Street would likely result in the closure of the existing at-grade crossing at Williams Street, according to the railroad company. A closure of the existing at-grade crossing will affect access to the school and community medical facility.

#### Written Responses Received to Survey Questions

1. What are the top three transportation issues in the community that need to be addressed?
  - Above grade railroad crossings at Avenue 29E. Keep a straight shot to Coyote Wash.
2. Do you feel the proposed improvement plan addresses the transportation problems/needs of the community? If not, what improvement projects should be added or removed from the plan?
  - Yes
3. Improvement projects identified in this plan have been prioritized into one of the three timeframes: short-, mid-, or long-term. Do you think any of the improvement projects should be reprioritized into another timeframe? If so, which project(s) should be reprioritized?
  - No responses.
4. Please feel free to share any additional comments with us!
  - No responses.

### Appendix 10-2: 2008 Population and Employment Estimates by TAZ

| TAZ | 2008 Dwelling Units | 2008 Population | 2008 Employment |        |         |            |        |               |                 |       |
|-----|---------------------|-----------------|-----------------|--------|---------|------------|--------|---------------|-----------------|-------|
|     |                     |                 | Retail          | Office | Service | Industrial | Public | Manufacturing | Elementary/JRHS | Total |
| 506 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 510 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 511 | 4                   | 10              | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 512 | 1                   | 2               | 0               | 0      | 0       | 0          | 2      | 0             | 0               | 2     |
| 513 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 514 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 526 | 0                   | 0               | 0               | 0      | 1       | 0          | 0      | 40            | 0               | 41    |
| 527 | 2                   | 5               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 528 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 529 | 1                   | 2               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 530 | 4                   | 9               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 531 | 60                  | 155             | 1               | 0      | 4       | 0          | 0      | 5             | 0               | 10    |
| 532 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 534 | 4                   | 10              | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 535 | 2                   | 4               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 536 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 537 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 538 | 79                  | 178             | 15              | 1      | 47      | 0          | 0      | 0             | 0               | 63    |
| 539 | 10                  | 22              | 30              | 2      | 47      | 0          | 22     | 0             | 0               | 101   |
| 540 | 185                 | 413             | 0               | 2      | 40      | 27         | 0      | 2             | 0               | 71    |
| 541 | 155                 | 346             | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 542 | 2                   | 4               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 543 | 0                   | 0               | 2               | 0      | 65      | 0          | 0      | 0             | 0               | 67    |
| 544 | 121                 | 270             | 64              | 3      | 110     | 0          | 0      | 0             | 0               | 177   |
| 546 | 72                  | 187             | 0               | 0      | 0       | 4          | 0      | 0             | 0               | 4     |
| 548 | 50                  | 112             | 5               | 5      | 10      | 0          | 20     | 0             | 0               | 40    |
| 549 | 70                  | 156             | 40              | 5      | 25      | 0          | 0      | 0             | 0               | 70    |
| 550 | 215                 | 488             | 0               | 0      | 0       | 3          | 0      | 1             | 0               | 4     |
| 551 | 154                 | 343             | 8               | 0      | 17      | 0          | 170    | 0             | 68              | 263   |
| 552 | 5                   | 11              | 0               | 0      | 0       | 0          | 10     | 2             | 0               | 12    |
| 553 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 3             | 0               | 3     |
| 554 | 1                   | 2               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |





| TAZ          | 2008 Dwelling Units | 2008 Population | 2008 Employment |           |            |            |            |               |                 | Total      |
|--------------|---------------------|-----------------|-----------------|-----------|------------|------------|------------|---------------|-----------------|------------|
|              |                     |                 | Retail          | Office    | Service    | Industrial | Public     | Manufacturing | Elementary/JRHS |            |
| 555          | 0                   | 0               | 0               | 0         | 0          | 0          | 0          | 0             | 0               | 0          |
| 556          | 30                  | 67              | 0               | 0         | 0          | 0          | 0          | 0             | 0               | 0          |
| 557          | 1                   | 2               | 0               | 0         | 0          | 0          | 0          | 0             | 0               | 0          |
| 558          | 2                   | 5               | 0               | 0         | 1          | 0          | 0          | 0             | 0               | 1          |
| 560          | 0                   | 0               | 0               | 0         | 0          | 0          | 0          | 0             | 0               | 0          |
| 561          | 32                  | 83              | 0               | 0         | 1          | 0          | 0          | 0             | 0               | 1          |
| <b>Total</b> | <b>1,262</b>        | <b>2,886</b>    | <b>165</b>      | <b>18</b> | <b>368</b> | <b>34</b>  | <b>224</b> | <b>53</b>     | <b>68</b>       | <b>930</b> |



### Appendix 10-3: 2033 Population and Employment Estimates by TAZ

| TAZ | 2033 Dwelling Units | 2033 Population | 2033 Employment |        |         |            |        |               |                 | Total |
|-----|---------------------|-----------------|-----------------|--------|---------|------------|--------|---------------|-----------------|-------|
|     |                     |                 | Retail          | Office | Service | Industrial | Public | Manufacturing | Elementary/JRHS |       |
| 506 | 85                  | 228             | 4               | 0      | 4       | 0          | 0      | 0             | 0               | 8     |
| 510 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 511 | 6                   | 13              | 5               | 2      | 5       | 0          | 0      | 4             | 0               | 16    |
| 512 | 100                 | 224             | 0               | 0      | 5       | 0          | 7      | 0             | 0               | 12    |
| 513 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 514 | 2                   | 5               | 2               | 4      | 2       | 0          | 0      | 0             | 0               | 8     |
| 526 | 0                   | 0               | 5               | 0      | 11      | 0          | 0      | 58            | 0               | 74    |
| 527 | 2                   | 5               | 0               | 0      | 0       | 30         | 0      | 0             | 0               | 30    |
| 528 | 5                   | 11              | 0               | 0      | 0       | 0          | 0      | 5             | 0               | 5     |
| 529 | 2                   | 4               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 530 | 10                  | 22              | 0               | 0      | 0       | 0          | 0      | 10            | 0               | 10    |
| 531 | 78                  | 209             | 11              | 5      | 14      | 0          | 0      | 10            | 0               | 40    |
| 532 | 0                   | 0               | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 534 | 4                   | 9               | 7               | 5      | 12      | 2          | 0      | 0             | 0               | 26    |
| 535 | 2                   | 4               | 5               | 0      | 0       | 0          | 0      | 0             | 0               | 5     |
| 536 | 2                   | 4               | 0               | 2      | 0       | 0          | 0      | 2             | 0               | 4     |
| 537 | 5                   | 11              | 0               | 0      | 0       | 0          | 0      | 0             | 0               | 0     |
| 538 | 83                  | 186             | 25              | 16     | 47      | 0          | 0      | 0             | 0               | 88    |
| 539 | 16                  | 36              | 30              | 12     | 47      | 0          | 32     | 0             | 0               | 121   |
| 540 | 197                 | 441             | 70              | 12     | 40      | 27         | 0      | 2             | 0               | 151   |
| 541 | 165                 | 370             | 5               | 10     | 5       | 0          | 0      | 0             | 0               | 20    |
| 542 | 288                 | 645             | 0               | 0      | 5       | 0          | 0      | 0             | 0               | 5     |
| 543 | 0                   | 0               | 12              | 0      | 65      | 10         | 0      | 0             | 0               | 87    |
| 544 | 300                 | 672             | 74              | 3      | 110     | 0          | 0      | 0             | 0               | 187   |
| 546 | 76                  | 170             | 0               | 2      | 0       | 6          | 0      | 0             | 0               | 8     |
| 548 | 53                  | 119             | 5               | 25     | 10      | 0          | 20     | 0             | 0               | 60    |
| 549 | 72                  | 161             | 60              | 25     | 25      | 20         | 0      | 0             | 0               | 130   |
| 550 | 220                 | 493             | 35              | 40     | 0       | 27         | 20     | 1             | 0               | 123   |
| 551 | 156                 | 349             | 14              | 30     | 17      | 0          | 170    | 0             | 82              | 313   |
| 552 | 17                  | 38              | 60              | 0      | 15      | 0          | 10     | 12            | 0               | 97    |
| 553 | 5                   | 11              | 20              | 35     | 15      | 0          | 0      | 23            | 0               | 93    |
| 554 | 2                   | 5               | 0               | 100    | 0       | 0          | 0      | 0             | 0               | 100   |



| TAZ          | 2033 Dwelling Units | 2033 Population | 2033 Employment |            |            |            |            |               |                 | Total        |
|--------------|---------------------|-----------------|-----------------|------------|------------|------------|------------|---------------|-----------------|--------------|
|              |                     |                 | Retail          | Office     | Service    | Industrial | Public     | Manufacturing | Elementary/JRHS |              |
| 555          | 0                   | 0               | 0               | 0          | 0          | 0          | 0          | 0             | 0               | 0            |
| 556          | 44                  | 100             | 30              | 4          | 0          | 0          | 0          | 0             | 0               | 34           |
| 557          | 1                   | 2               | 0               | 10         | 0          | 0          | 0          | 0             | 0               | 10           |
| 558          | 9                   | 24              | 5               | 10         | 6          | 0          | 0          | 0             | 0               | 21           |
| 560          | 0                   | 0               | 0               | 0          | 0          | 0          | 0          | 0             | 0               | 0            |
| 561          | 54                  | 145             | 2               | 2          | 4          | 0          | 0          | 0             | 0               | 8            |
| <b>Total</b> | <b>2,061</b>        | <b>4,720</b>    | <b>486</b>      | <b>354</b> | <b>464</b> | <b>122</b> | <b>259</b> | <b>127</b>    | <b>82</b>       | <b>1,894</b> |



### Appendix 10-4: Build-out Population and Employment Estimates by TAZ

| TAZ | Build-out Dwelling Units | Build-out Population | Build-out Employment |        |         |            |        |               |                  |             |        |
|-----|--------------------------|----------------------|----------------------|--------|---------|------------|--------|---------------|------------------|-------------|--------|
|     |                          |                      | Retail               | Office | Service | Industrial | Public | Manufacturing | Elementary /JRHS | High School | Total  |
| 506 | 69                       | 166                  | 20                   | 50     | 10      | 100        | 0      | 173           | 0                | 0           | 353    |
| 510 | 0                        | 0                    | 0                    | 0      | 0       | 0          | 0      | 0             | 0                | 0           | 0      |
| 511 | 476                      | 1,147                | 149                  | 75     | 100     | 0          | 0      | 170           | 0                | 0           | 494    |
| 512 | 4,874                    | 11,746               | 0                    | 0      | 20      | 0          | 30     | 0             | 300              | 0           | 350    |
| 513 | 929                      | 2,239                | 0                    | 0      | 0       | 0          | 0      | 0             | 0                | 0           | 0      |
| 514 | 171                      | 412                  | 0                    | 0      | 0       | 0          | 0      | 0             | 0                | 0           | 0      |
| 526 | 509                      | 1,227                | 1,000                | 500    | 1,000   | 0          | 500    | 1,104         | 0                | 0           | 4,104  |
| 527 | 0                        | 0                    | 500                  | 500    | 1,500   | 4,521      | 500    | 3,800         | 0                | 0           | 11,321 |
| 528 | 7,599                    | 18,314               | 180                  | 175    | 425     | 0          | 0      | 0             | 300              | 0           | 1,080  |
| 529 | 6,475                    | 15,605               | 0                    | 0      | 0       | 0          | 0      | 0             | 100              | 0           | 100    |
| 530 | 381                      | 918                  | 0                    | 0      | 0       | 0          | 0      | 0             | 0                | 0           | 0      |
| 531 | 343                      | 827                  | 50                   | 100    | 224     | 0          | 50     | 425           | 100              | 0           | 949    |
| 532 | 18                       | 43                   | 0                    | 0      | 0       | 0          | 0      | 0             | 0                | 0           | 0      |
| 534 | 2,472                    | 5,958                | 700                  | 286    | 1,200   | 0          | 100    | 0             | 100              | 0           | 2,386  |
| 535 | 3,451                    | 8,317                | 700                  | 100    | 400     | 0          | 63     | 0             | 100              | 200         | 1,563  |
| 536 | 281                      | 677                  | 0                    | 0      | 0       | 0          | 0      | 0             | 0                | 0           | 0      |
| 537 | 88                       | 212                  | 0                    | 0      | 0       | 0          | 0      | 0             | 0                | 0           | 0      |
| 538 | 1,492                    | 3,596                | 25                   | 30     | 40      | 0          | 81     | 0             | 0                | 200         | 376    |
| 539 | 90                       | 217                  | 100                  | 100    | 76      | 0          | 100    | 0             | 0                | 0           | 376    |
| 540 | 1,602                    | 3,861                | 325                  | 150    | 400     | 75         | 150    | 148           | 100              | 0           | 1,348  |
| 541 | 1,335                    | 3,217                | 200                  | 0      | 94      | 0          | 0      | 0             | 0                | 0           | 294    |

| TAZ          | Build-out Dwelling Units | Build-out Population | Build-out Employment |              |               |              |              |               |                  |             |               |
|--------------|--------------------------|----------------------|----------------------|--------------|---------------|--------------|--------------|---------------|------------------|-------------|---------------|
|              |                          |                      | Retail               | Office       | Service       | Industrial   | Public       | Manufacturing | Elementary /JRHS | High School | Total         |
| 542          | 1,171                    | 2,822                | 0                    | 0            | 0             | 0            | 50           | 0             | 0                | 0           | 50            |
| 543          | 396                      | 954                  | 400                  | 40           | 20            | 379          | 40           | 100           | 0                | 0           | 979           |
| 544          | 1,042                    | 2,511                | 127                  | 0            | 0             | 0            | 0            | 0             | 0                | 0           | 127           |
| 546          | 269                      | 648                  | 0                    | 0            | 0             | 0            | 0            | 0             | 100              | 0           | 100           |
| 548          | 282                      | 680                  | 20                   | 55           | 50            | 0            | 20           | 0             | 0                | 0           | 145           |
| 549          | 260                      | 627                  | 200                  | 47           | 0             | 0            | 0            | 0             | 0                | 0           | 247           |
| 550          | 1,092                    | 2,632                | 20                   | 118          | 0             | 0            | 0            | 1             | 0                | 0           | 138           |
| 551          | 225                      | 542                  | 125                  | 0            | 0             | 0            | 70           | 0             | 100              | 0           | 295           |
| 552          | 594                      | 1,432                | 500                  | 484          | 300           | 450          | 200          | 800           | 0                | 0           | 2,734         |
| 553          | 0                        | 0                    | 800                  | 250          | 1,000         | 0            | 250          | 197           | 0                | 0           | 2,497         |
| 554          | 60                       | 145                  | 1,263                | 800          | 3,000         | 0            | 500          | 1,700         | 0                | 0           | 7,263         |
| 555          | 0                        | 0                    | 0                    | 0            | 200           | 2,207        | 0            | 800           | 0                | 0           | 3,207         |
| 556          | 1,572                    | 3,789                | 200                  | 108          | 250           | 0            | 100          | 0             | 100              | 0           | 758           |
| 557          | 3,584                    | 8,637                | 0                    | 0            | 0             | 0            | 0            | 0             | 100              | 0           | 100           |
| 558          | 1,707                    | 4,114                | 50                   | 75           | 217           | 0            | 100          | 0             | 100              | 0           | 542           |
| 560          | 701                      | 1,689                | 0                    | 0            | 0             | 0            | 0            | 0             | 0                | 0           | 0             |
| 561          | 320                      | 771                  | 0                    | 0            | 0             | 0            | 0            | 0             | 0                | 0           | 0             |
| <b>Total</b> | <b>45,930</b>            | <b>110,692</b>       | <b>7,654</b>         | <b>4,043</b> | <b>10,526</b> | <b>7,732</b> | <b>2,904</b> | <b>9,417</b>  | <b>1,600</b>     | <b>400</b>  | <b>44,276</b> |