Town of Gilbert
Transportation Master Plan
Draft Final Report

Prepared for

GILBERT
ARIZONA

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1. INTRODUCTION

The Town of Gilbert, incorporated in 1920, is a relatively new community that has seen tremendous growth the past three decades. As shown in Figure 1-1, Gilbert is located in the southeast portion of the Phoenix metropolitan area. Today, the Gilbert planning area encompasses 72.6 square miles and the population has grown from 5,717 in 1980 to an estimated 217,000 in 2012. Even during the most recent decade between 2000 and 2010, the population growth was 90 percent. The Town has experienced a rapid transition from an agricultural based community to an economically diverse suburban center located in the Southeast Valley.

Transportation planning is shifting away from moving vehicular traffic towards looking at all transportation modes

Transportation planning is shifting away from the singular goal of moving vehicular traffic towards an approach that looks at all transportation modes and takes into consideration quality of life, economic development, and the environment. The transportation planning process is a cycle that involves several steps – 1) identify problems and issues; 2) perform technical analysis; 3) develop a multimodal plan; and 4) monitor and update. A Transportation Master Plan (TMP) is a long-range blueprint for travel and mobility. A TMP needs to provide mobility and access in a way that is safe and convenient; while preserving quality of life considerations by minimizing congestion, air pollution, and noise. The Town of Gilbert TMP implements the broader community vision contained in the 2011 Town General Plan – “a safe, healthy, clean, attractive, family-oriented community that embraces our Town’s heritage yet recognizes the opportunities of the future without sacrificing the resources of today”. The TMP covers all forms of personal travel - walk, bike, transit, and automobile – by implementing complete streets.

Complete streets are designed and operated to enable safe access for all users. A complete streets policy ensures that streets work for drivers, transit riders, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities. The concept of complete streets, while a relatively new term, is not new in practice. The Town of Gilbert has been implementing complete streets for many years by including accommodations for cars, bicycles, pedestrians, and buses in their engineering standards.

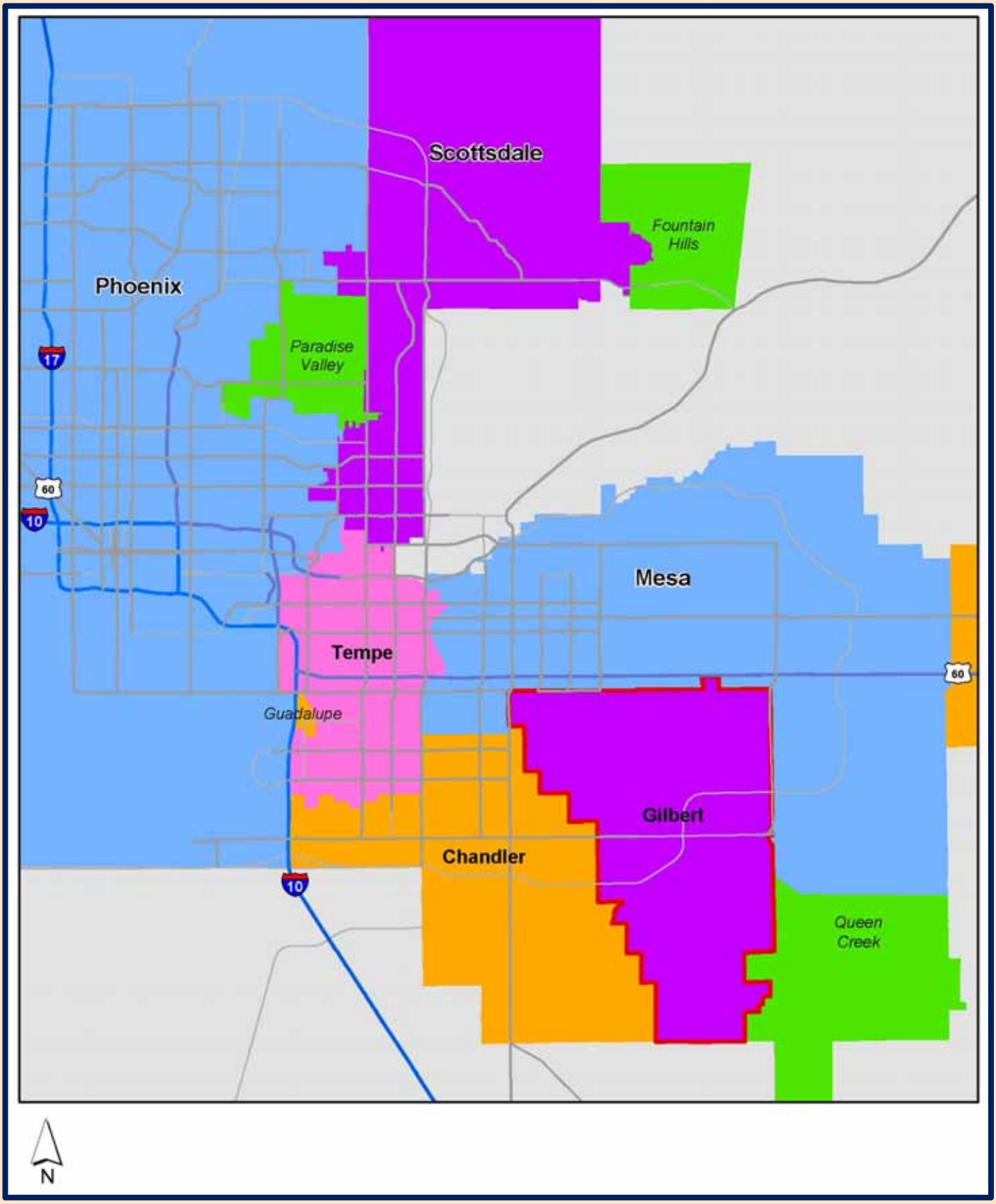


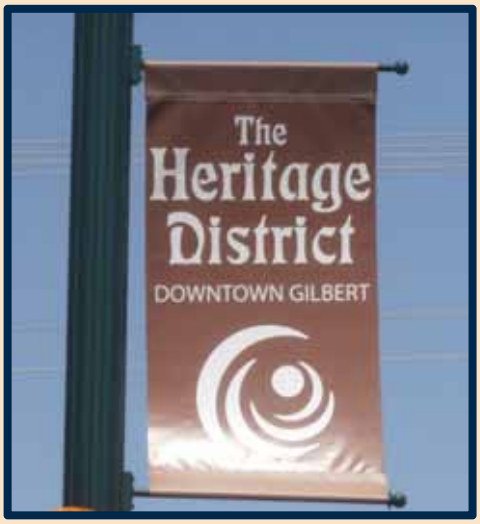
FIGURE 1-1: VICINITY MAP

Complete streets make Gilbert more walkable and bikeable

Complete streets make Gilbert more walkable and bikeable, support investments in transit, encourage social interaction and community pride, boost the local economy and property values, and improve the livability and long-term sustainability of the Town.

As economic and environmental conditions continue to change, transportation investments must be cost-effective and contribute to a healthy environment. One key will be to provide transportation choices such as public transportation and non-motorized options as well as technology options that promote telecommuting and reduce the need for travel. A comprehensive multimodal transportation plan that promotes livability, mobility, economic development, and provides accountability will meet the future needs of Gilbert.

The Maricopa Association of Governments (MAG) recently adopted new socio-economic projections for Maricopa and Pinal Counties. These projections exhibit a more conservative growth than in the past. The year 2035 has been selected as the study year for this transportation plan. The Town is expected to be near buildout in that timeframe.



At the national level, a new transportation act with emphasis on economic vitality, transparency, livability, complete streets, mobility, safety, and freight movement was recently signed into law. As we enter a new era in transportation, the next several years are likely to see broad changes and policy transitions.

A. Federal Regulations

Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law on July 6, 2012. MAP-21 funds surface transportation programs for fiscal years (FY) 2013 and 2014, and transforms the policy and programmatic framework for investments to guide the growth and development of the country's vital transportation infrastructure. MAP-21 creates a streamlined, performance-based, multimodal program to improve safety, maintain infrastructure condition, reduce traffic congestion, improve efficiency of freight movement, protect the environment, and

reduce delays in project delivery. MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established in 1991. MAP-21 ensures that local communities are able to build multimodal, sustainable projects ranging from passenger rail and transit to bicycle and pedestrian paths as well as the traditional street projects.

B. Study Area

The study area, which is the Gilbert planning area, is shown in Figure 1-2. The Town of Gilbert is bounded on the west by the Cities of Mesa and Chandler; on the north by Mesa; on the east by Mesa and the Town of Queen Creek; and on the south by the Gila River Indian Community. The Town of Gilbert has a street system comprised of a section line (mile) arterial street grid complimented by mid-section collector streets primarily in the northern portion of the Town. Within the corporate limits is one regional freeway, Loop 202, which generally extends in an east-west direction. The Town is also served by US 60, an east/west freeway just one-half mile north of the Town limits. The Gilbert planning area includes all the incorporated areas of the Town as well as Maricopa County land within the Gilbert planning area.

C. Study Purpose

This study and transportation plan preparation is the second phase of Capital Improvement Project (CIP) # ST147. Phase 1 was the Intersection Improvement Master Plan which documented existing and projected demand at the major arterial intersections within the Town, recommended improvements to address level of service and safety deficiencies, and prioritized the implementation of the improvements. The purpose of phase 2 is to prepare an integrated, multimodal transportation master plan (TMP) that addresses a number of issues related to transportation within Gilbert and to incorporate recommendations from previous studies as appropriate. Several previous studies were reviewed as part of the process and the recommendations were updated based on recent development and current growth projections.

Project Purpose:
Prepare an integrated multimodal transportation plan

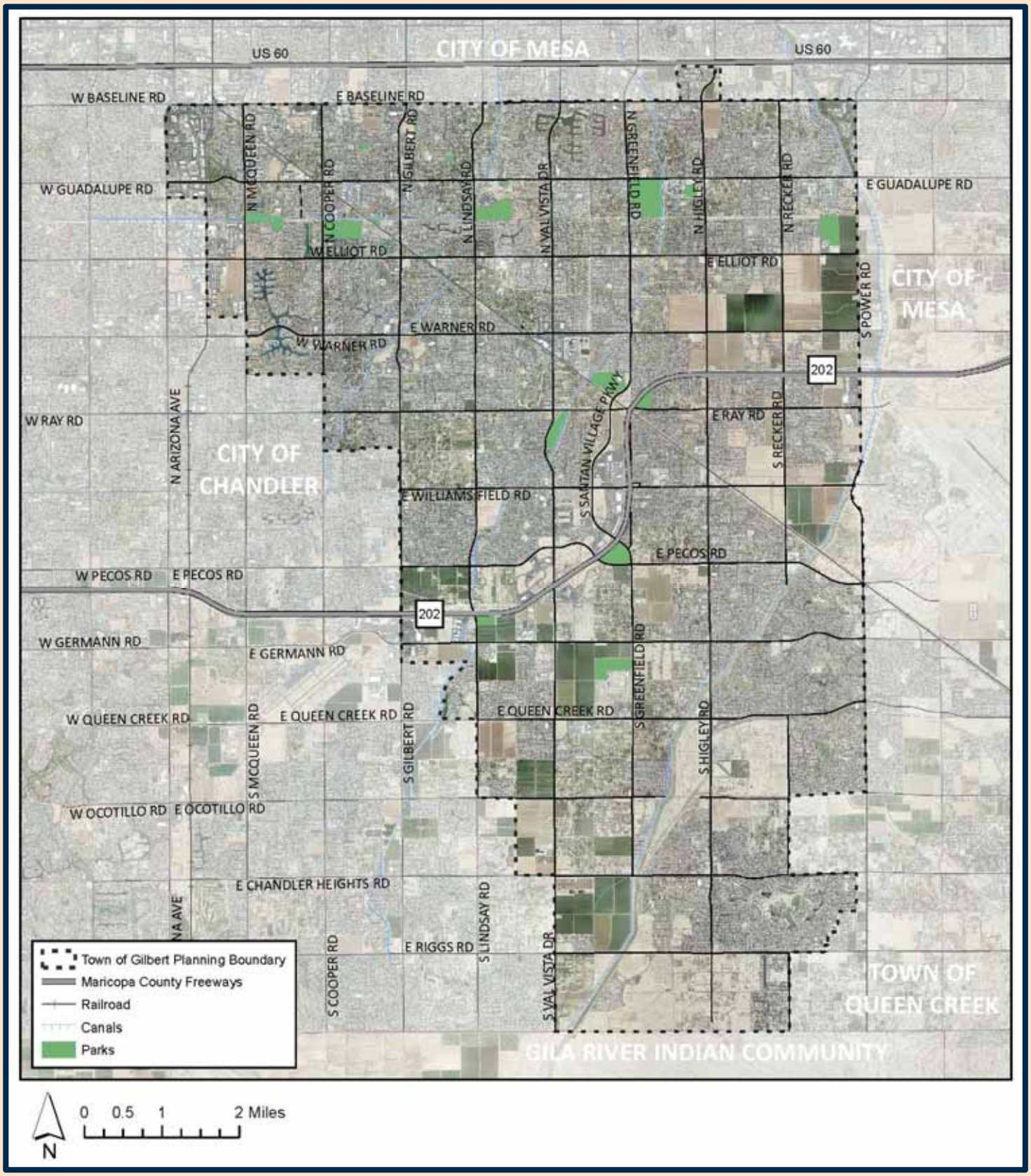


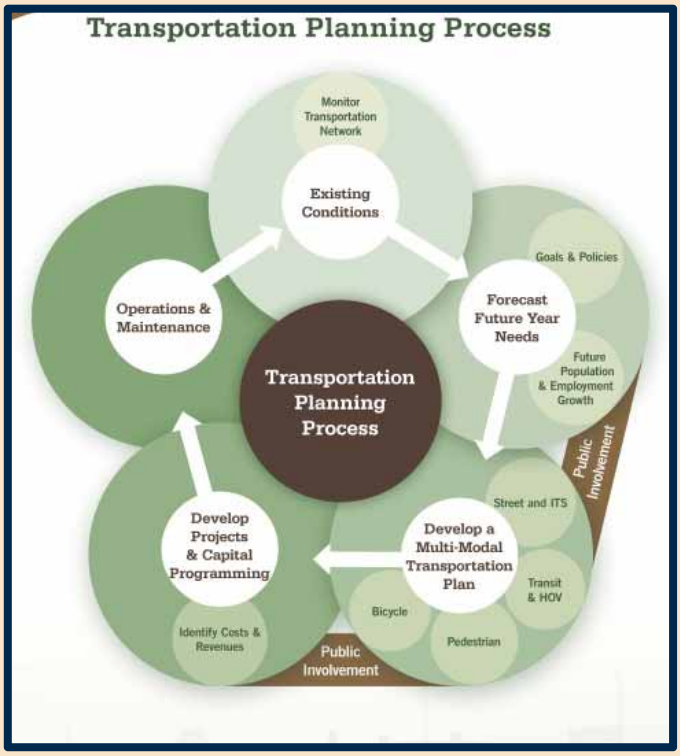
FIGURE 1-2: STUDY AREA

A number of key issues, which are summarized below, were instrumental in developing the goals and objectives; and in formulating the components of the transportation plan.

- Create a balanced transportation system
- Improve mobility and accessibility for all users
- Construct street widening and intersection improvements
- Manage traffic congestion
- Improve public transit
- Consider the inter-relationship between land use and transportation
- Address the needs of bicyclists and pedestrians
- Coordinate with surrounding communities
- Provide adequate transportation funding
- Improve air quality

D. Study Process

As part of the transportation plan development, a number of work tasks were performed. During the course of the project, interim products were prepared to document the results of these work tasks. The products were in draft form, subject to review and comment and formed the basis of this final document.



The products included:

- Working Paper #1 – Goals and Policies
- Working Paper #2 - Public Involvement Plan
- Working Paper #3 – Data Collection and Analysis
- Working Paper #4A - Existing Street Conditions
- Working Paper #4B - Future Street Conditions
- Working Paper #5 – Transit and High Occupancy Vehicle Element
- Working Paper #6 – Bicycle Element
- Working Paper #7 – Pedestrian Element
- Working Paper #8 – Intelligent Transportation Systems Element
- Working Paper #9 – Capital Programming and Funding Element

2. PLAN DEVELOPMENT

There are several land use characteristics that affect travel behavior including density of development, type and mix of land use, access to roadways and parking, and site design. Similarly, the transportation system affects land value, sustainability, community development, and land use patterns. Land use and transportation have a reciprocal relationship that must be balanced to achieve vibrant communities. Coordinating land use and transportation planning and development are considered one facet of "smart growth" and sustainable development, which are relatively new concepts in regional planning. Land use and transportation can work in unison to support and guide development that encourages all transportation modes in their design. Sustainable development needs a balanced transportation system to serve the users. More importantly, a multimodal system provides options for users and helps to maintain a vibrant community that defines Gilbert as a desirable place to live, work, and play.

> Transportation and land use should work in unison

> A multimodal transportation system provides options for all users

The U.S. Department of Transportation, the Department of Housing and Urban Development, and the Environmental Protection Agency are working in partnership to promote livable and sustainable communities. Federal programs sponsored by these agencies are focused on projects that link transportation, housing, transit, neighborhood vitality, and fiscal management. Successful communities meet the needs of their residents and visitors by providing community mobility and supporting regional mobility. Investing in mobility is recognized as a critical requirement for communities to become sustainable by creating an integrated multimodal transportation system with walkable, bikeable mixed-use neighborhoods, offering choices in transportation modes, linking regional activity centers, and revitalizing neighborhoods and downtown areas.

Emerging strategies for linking transportation with community development recognize that regional mobility is more than adding capacity to the transportation system. Important aspects of regional mobility include the integration of transportation systems and modes and recognizing the interdependence of

neighborhoods and activity centers. Using transportation to promote healthy and sustainable communities also promotes reduced motor vehicle use, air quality improvements, less highway congestion, and improved safety.

The development of this transportation plan was guided by an advisory committee known as the Steering Committee. The committee met regularly during the study to discuss items brought forward by the project team. One specific function of the committee was to identify a future transportation vision for Gilbert based on the recently completed General Plan and then develop goals that would help achieve that vision.

Multimodal transportation promotes healthy and sustainable communities

The development of a multimodal transportation plan needs to consider a number of factors to meet the vision and goals of the plan. Specifically, the following should be considered.

Safety - All areas of design, operations, and maintenance of the transportation system should minimize hazards and emphasize safety for all modes of travel. Special consideration should be given to minimizing conflicts between travel modes.

Efficiency - Transportation systems must be well-designed to effectively serve adjacent land uses. The degree to which each mode meets the needs of the community should be considered in terms of efficiency.

Balance - A balanced transportation system provides multiple choices that are convenient and accessible for travelers. Balance is important to meet the diverse travel needs of a growing community.

Integration - It is important to integrate travel modes that facilitate the transfer from one mode to another. Many trips involve using more than one mode. People who drive to work walk from their car to the office, and others ride their bike to a transit stop, and finish the trip on the bus. A multimodal system provides convenient, easy access between travel modes.

Mobility - Mobility describes a person's ability to travel to destinations within a community. A balanced transportation system provides the ability to choose a travel mode based on the type and distance of a trip.

Accessibility - Accessibility describes the degree to which travelers can use various modes in the transportation system. Accessible transportation systems provide ease of use for all people, regardless of physical ability or economic status.

Aesthetics - Forms a uniqueness of the area and creates a theme that invites people to use the system and includes facility design, landscaping, and art.

The Integrated Multimodal Transportation Master Plan is the first multimodal plan prepared by the Town of Gilbert. The components of the transportation system included in this plan will encourage transit and pedestrian oriented development while maintaining a strong street system. These features will establish Gilbert as a modern urban town with a sustainable transportation system, strong economic centers, and development opportunities.

The transportation plan establishes long range plans for streets, transit, bicycles, pedestrians, and intelligent transportation. The street system will continue to be the backbone of the transportation system and support the other modes. Transit, bicycle, and pedestrian facilities will be incorporated into the street system design. Bus pullouts will be provided at major intersections, bike lanes and routes will be included on much of the street system, and sidewalks will be an integral part of the street cross section. It should be noted that these features are already incorporated into the Town's design standards.

The transit system will be expanded. The transit plan includes new local, express, and bus rapid transit (BRT) routes; and local circulators will be introduced in areas of concentrated employment and retail activity.

The Bicycle Element includes bike lanes and routes on most of the arterial and collector streets, and shared use paths along the canals and the utility corridors. The paths would be developed in conjunction with the Parks and Recreation Department and would include amenities to support bicycle travel.

The Pedestrian Element supports pedestrian oriented development (POD) and includes recommendations to complete the gaps in the pedestrian system.

A. Vision and Goals

The purpose of the goals is to outline the framework for developing and implementing the transportation plan in a manner that achieves the overall vision for transportation. Specifically, the goals are statements concerning desirable long-range achievements. The development of the plan goals was an iterative process. An initial set of goals was developed based on the circulation element of the 2011 General Plan, input received during public meetings, and review of goals from other transportation plans. This initial list was reviewed with the steering committee and refined to the vision statement and the nine goals presented here.

Vision Statement:
A comprehensive, integrated multimodal transportation system that promotes and enhances safety, mobility, efficiency, quality of life, and sustainability

Vision: A comprehensive, integrated multimodal transportation system that promotes and enhances safety, mobility, efficiency, quality of life, and sustainability.

Goal 1 – Economic Development: Foster economic development through an integrated multimodal transportation system that connects major generators to the region, each other and to neighborhoods and facilitates the movement of people and goods between different modes of travel.

Goal 2 – Land Use: Implement a transportation system that is compatible with adjacent land uses and preserves scenic, aesthetic, historic and environmental resources while balancing safety, mobility, and access.

Goal 3 – Arterial Roadways: Establish a safe, continuous arterial street network that can accommodate all modes, minimize congestion, and connect to arterial street networks of neighboring communities.

Goal 4 – Collector and Local Roadways: Develop a safe, continuous network of collector and local streets that connects neighborhoods to the arterial street network, encourages bicycling and walking, and incorporates traffic calming strategies.

Goal 5 - Bicycle: Promote bicycling as a viable transportation option through a safe, comprehensive network of bicycle facilities with access to employment, shopping, schools, parks, and neighborhoods.

Goal 6 - Walking: Provide a safe, comfortable, aesthetically pleasing, walkable Town that accommodates all types of pedestrians and promotes walking between shopping, schools, parks, and neighborhoods.

Goal 7 - Transit: Work with regional transit partners to develop a transit network that meets the needs of Gilbert residents and serves local employment centers, shopping, schools, and neighborhoods and also connects to regional destinations.

Goal 8 – Project Needs: Identify transportation projects that protect the existing system and address identified needs for expansion of the system in line with the Town's goals, priorities, design standards and available funds.

Goal 9 – Regional Mobility: Support public and private efforts to improve mobility in the region and reduce impacts on the environment.

B. Performance Measures

There is a current trend to assess transportation investments using performance-based measures. MAP-21 established general, qualitative performance goals for federal highway programs. The recent Arizona Department of Transportation (ADOT) Long-Range Transportation Plan for 2035 also included performance measures by plan goal. Table 1-1 presents a comparison between the FHWA and ADOT plan goals.

Additionally, municipal agencies are including performance measures in their transportation planning activities.

Based on the Town of Gilbert transportation plan goals, Table 1-2 lists the goals along with possible performance measures

TABLE 1-1:SUMMARY OF FHWA AND ADOT GOALS

GOAL	FHWA	ADOT
Safety	X	X
Infrastructure Condition	X	X
Congestion Reduction	X	X
System Reliability	X	
Freight Movement	X	
Economic Vitality	X	X
Environmental Sustainability	X	X
Reduced Project Delivery Delays	X	
Link Transportation & Land Use		X
Strengthen Partnerships		X
Promote Fiscal Stewardship		X

TABLE 1-2: POSSIBLE PERFORMANCE MEASURES

GOAL	Possible Performance Measures
Economic Development	Roads improved to/from employment centers Job creation Job retention
Link Transportation & Land Use	Improved access management Hours of delay
Safety	Number of fatalities by mode Number of crashes by mode Number of safety infrastructure projects
Congestion	Percent of miles at acceptable congestion level Average speed during peak periods
System Reliability/Condition	Percent of miles in fair or better condition Percent of required maintenance spending
Multimodal	Vehicle occupancy Percent of sidewalk gaps Percent of bike lane gaps Percent transit trips
Environmental Sustainability	Change in vehicle-related emissions
Strengthen Partnerships	Multi-jurisdiction improvements

3. PUBLIC OUTREACH

A. Introduction

Public involvement was a key component of the Gilbert Transportation Master Plan development. The Town of Gilbert embraces the public involvement process and, as such, consideration of public information and input was incorporated throughout plan development and included the ability to provide comments through various media. The team worked closely with the Town of Gilbert Communications Department and Neighborhood Services to develop web-based content, maximize the use of the Town's social media, and tap into Gilbert's many registered neighborhoods and homeowner's associations in an effort to reach out to Gilbert residents, property owners, and users of Gilbert's transportation system.

The Town of Gilbert embraces the public involvement process

Outreach methods included branding the project, "Gilbert On The Move", to distinguish it and make it easily identifiable amongst other efforts taking place in the Town of Gilbert. In addition, the team assembled a steering committee for the project for ongoing discussion and input into the process, conducted an online survey for resident input, held a series of public meetings in various locations to make it more convenient for citizens, presented to the Gilbert Chamber of Commerce, sent e-blasts with information, provided articles in the Arizona Republic and various HOA newsletters, and incorporated an input tool for interested individuals to submit their specific comments with respective location to the project team.

B. Public Involvement Strategies and Methods

Public involvement was incorporated into all aspects of the transportation master plan development. A general plan of approach was discussed during project scoping and implemented as part of the effort. Additional strategies and outreach methods were incorporated into the public involvement timeline to cast and widen the net even further in encouraging public participation.

Timeline

The following delineates the timeline and public involvement events as part of this effort. Additional information is provided in the section following the timeline.

- Spring 2013 –
  - Stakeholder Interviews
  - Assemble and Convene Steering Committee Meeting #1
  - Launch Gilbert Transportation Master Plan Public Information
  - Establish Web Presence
  - Notifications and Press Releases for Public Meetings
  - Mayor's Youth Advisory Committee
  - Public Meeting #1 (2) – one in north Gilbert and one in south Gilbert
  - Develop and launch on-line survey
  - Steering Committee Meeting #2
- Summer 2013 –
  - Outreach for survey responses
  - Presentations to Chamber of Commerce and Heritage District Merchants
- Fall 2013/Winter 2014 -
  - Working Group Meetings with Town Staff
  - Constitution Day Booth
  - Faith Summit Information
  - Steering Committee Meeting #3 and #4
  - Public Meetings (2) – one in north Gilbert and one in south Gilbert
  - Meetings with staff from Chandler Unified, Gilbert, and Higley school districts
  - Additional outreach for build-a-plan input
- Spring 2014 -
  - Steering Committee Meeting #5
  - Public Meeting

Stakeholder Interviews

Stakeholder interviews were conducted in April 2013 as part of the initial community research for the project. These included interviews with key individuals and organizations in the Town of Gilbert to determine their interest, thoughts and concerns related to the development of the Transportation Master Plan. Key stakeholders included representatives of:

- Elected officials
- Town Management
- Public Schools
- Chandler Gilbert Community College
- Hospitals
- Chamber of Commerce
- Small Business Alliance
- Several large Gilbert HOAs
- Heritage District
- San Tan Village
- Mayor's Youth Advisory Committee

This information was used for initial Steering Committee discussions and identifying information to be included in the plan.

Steering Committee

A Transportation Master Plan Steering Committee was assembled to provide direction and guidance to the project team during the plan development. Participants included representatives from Town Council and various Town Departments or Boards to include the Manager's Office, Development Services, Planning, Parks, Public Works, and Engineering. Five Steering Committee meetings were conducted to discuss and develop information for public consideration and initial review of draft plan components.

Public Meetings

A total of five public meetings were held: Two separate locations in May 2013 to launch the project and seek initial general input into area of interest and concern; two separate locations in

November 2013 to provide information from initial research and inventory of existing transportation infrastructure and volumes, and to seek input from the public related to this information and development of the draft plan; and one in May 2014 to provide participants an opportunity to comment on the draft plan.

To facilitate discussion at the public meetings, each meeting began with a presentation and participants were then invited to visit various stations, such as transit, bicycle & pedestrian, Intelligent Transportation Systems (ITS), and streets. Comment forms were available at each of the public meetings and each public meeting provided a mechanism for submitting additional information; at the first round of meetings, a survey instrument was made available which was later launched on line, and the second round of meetings include a “Build a Plan” document to provide input. After the public meetings, this information was e-mailed to all invitees for their input, and any information from the public meetings such as exhibits and information were made available on the Town website at the project webpage.

Notifications for public meetings were distributed via the following methods:

- Town website/Project webpage
- Town Social Media: Twitter/Facebook
- Neighborhood Services e-blast
- AzCentral.com
- Arizona Republic
- Posted at Gilbert Park & Ride
- E-blast invite sent to Mayor’s Youth Advisory Committee, Parks & Recreation Master Plan Stakeholder List, Heritage District Emails, Previous Town of Gilbert Capital Projects Stakeholder Listing

It should be noted that, while these methods were the initial methods in distributing information, there were several forwards, re-tweets, or further postings that expanded the reach of the public notice. These included Valley Metro, Maricopa Association of Governments (MAG), Gilbert Congress of Neighborhoods, Gilbert Chamber of Commerce, Power Ranch, and Chandler-Gilbert Community College.

736 surveys were completed

Stakeholder Survey

An on-line survey was launched in May 2013 to offer residents, property owners, businesses and travelers in Gilbert an opportunity to provide their thoughts and concerns related to the future of Gilbert's transportation. Notification of the survey was distributed similarly to the public meetings. The survey launch was also distributed with the Town's water bill insert. In addition, the Town's webmaster placed the survey as a banner on the Town of Gilbert website, as a pop-up for anyone visiting the Town's website, and Valley Metro provided a link on their website to the survey site. In September 2013, surveys were made available as part of a booth at the Town of Gilbert's Constitution Day Celebration. A total of 736 surveys were completed and selected results are depicted in Figures 3-1 and 3-2.

Working Group Meetings

Working Group meetings were conducted in September 2013 with Town staff and departments to better understand their thoughts and concerns related to draft plan elements. Working group meetings were held for each of the plan components; Transit, ITS, Bicycle & Pedestrian, and Streets.

C. Acknowledgements

The project team would like to thank the Town of Gilbert Communication Department and Neighborhood Services team for their assistance in coordinating the messages and information for the project. Their partnership created the ability to reach many more residents, property owners, businesses and interested individuals in a timely manner, which provided those that were interested in participating with the opportunity to do so.

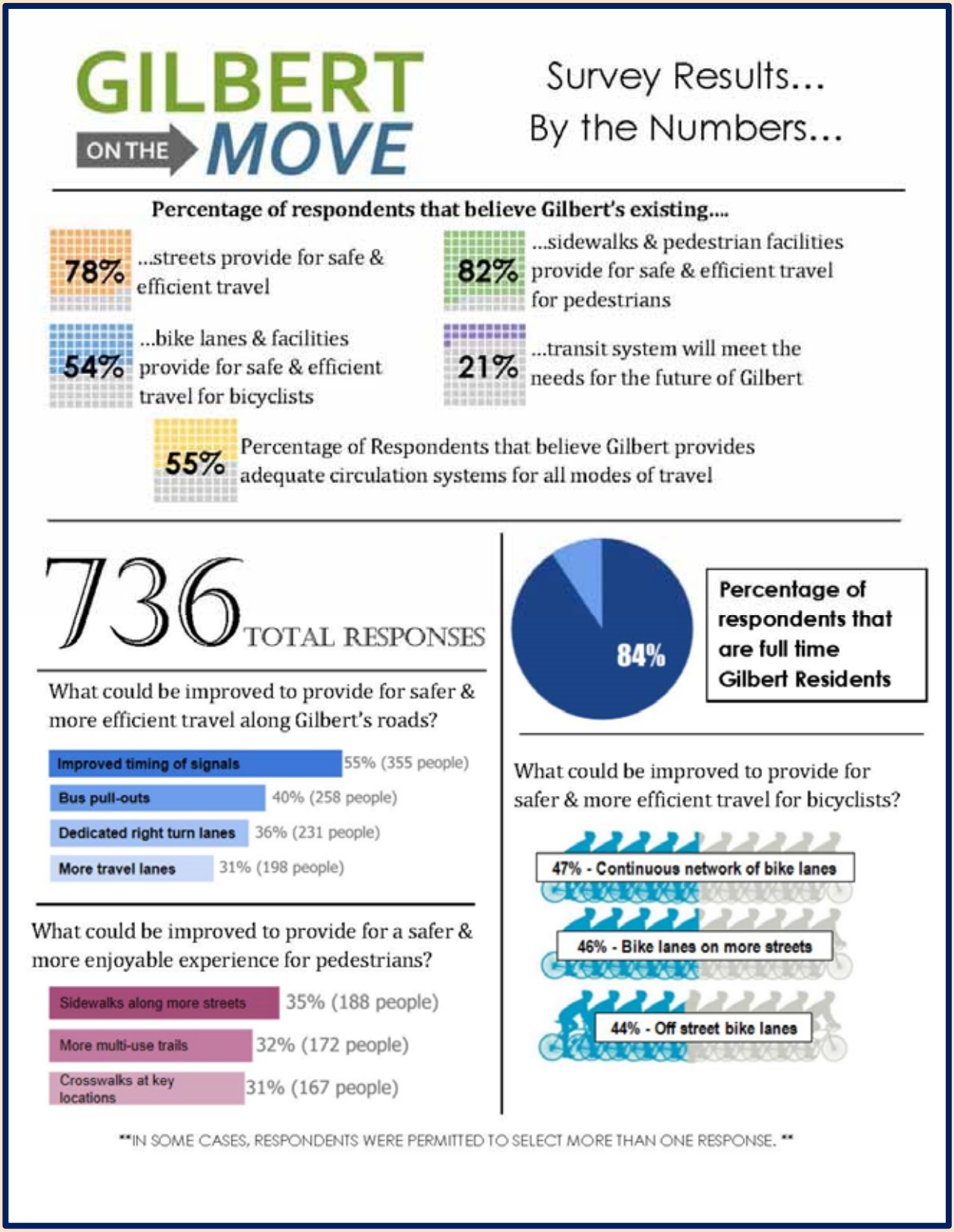


FIGURE 3-1: SURVEY RESULTS-PART 1

What could be done to aesthetically improve Gilbert's transportation system in the future?

- More natural shade (trees)
- Shade structures
- Better separation between vehicles & non-vehicles

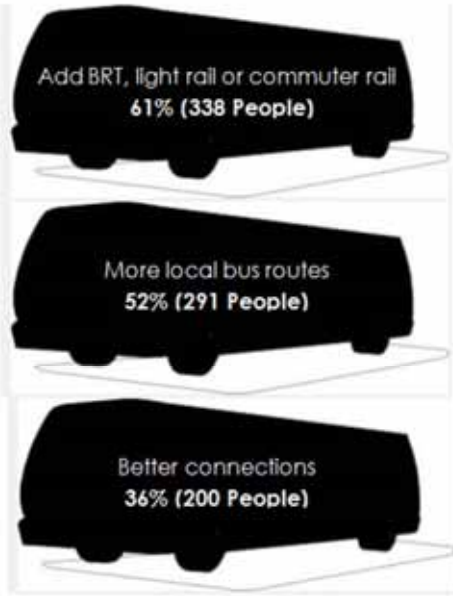
What connections are important for bicyclists?

What is your PRIMARY and SECONDARY mode of travel?

PRIMARY - Vehicle/Automobile
88% (536 people)

SECONDARY - Pedestrian/Walk
41% (244 people)

What could be done to better prepare Gilbert's transit system for the future?



What mode of travel needs the most improvement or consideration for the future of Gilbert?

Transit - **56% (335 people)**

What is the **second** mode of travel which needs the most improvement or consideration for the future of Gilbert?

Bicycle - **37% (219 people)**

**IN SOME CASES, RESPONDENTS WERE PERMITTED TO SELECT MORE THAN ONE RESPONSE. **

FIGURE 3-2: SURVEY RESULTS-PART 2

4. EXISTING CONDITIONS

The basis for developing a transportation plan is to document the current conditions that affect the transportation system and then forecast the future conditions based on planned growth. The following sections present the existing conditions for each of the modes and documents various characteristics associated with each mode.

A. Streets

The backbone of the Town's transportation system is the street network

The backbone of the Town's transportation system is the arterial and collector street network and will continue to be in the future. The street network provides the infrastructure for the other modes - transit, pedestrian, and bicycle.

Functional Classification

Functional classification defines the hierarchy of streets in a roadway system. The classifications generally used in the Maricopa Association of Governments (MAG) region include freeway, major arterial, minor arterial, major collector, minor collector, and local. In general, the freeways and arterials provide a high level of mobility for the traveling public, with minimal allowance for access, while the collectors and local streets provide for direct residential, commercial, and employment access.

The roles and standards for each type of roadway are established in order to plan an efficient and effective system. Most travel involves movement through a network of roads of varying functional classification. Functional classification denotes the relationship of mobility, access, and trip length. The following are general characteristics associated with the different classifications in an urban system.

Freeway

Freeways are high-speed, limited access facilities that provide inter- and intraregional access with grade separated interchanges at arterial streets. The Town of Gilbert has two freeways that serve the Town. Loop 202 (Santan Freeway) passes through the

Town and has six interchanges that provide access to the Town. US 60 (Superstition Freeway) is ½ mile north of and parallel to the north Town border and provides access to residents and visitors.

Arterial Streets

Arterials are high capacity roadways that carry large volumes of traffic between areas of high residential density, employment, retail and commercial land uses. Arterial streets provide limited direct access to abutting land uses. Primarily, the arterial street system in Gilbert is laid out on the mile grid.

Collector Streets

Collector streets provide connections between arterial roadways and local streets linking residential, employment and commercial areas. Collector streets strengthen the continuity of the street network and establish an interconnected street pattern between the mile arterial grid streets. An interconnected collector street system provides multiple routes, diffuses automobile traffic and provides better accessibility for non-motorized traffic.

Local Streets

Local streets are designed primarily to provide direct access to property and secondarily to move local neighborhood traffic. Local streets carry low volumes of vehicle traffic traveling at lower speeds.

The functional classification of roadways taken from the General Plan is shown in Figure 4-1. Except for a section of Recker Road, the section line streets are arterials; generally, major arterials are six-lane streets and minor arterials are four-lane streets. Currently, there are approximately 1,120 centerline miles of roadway in the Town – 179 arterial miles, 98 collector miles, 703 local miles, and 140 miles of other street types including alleys and private roadways.

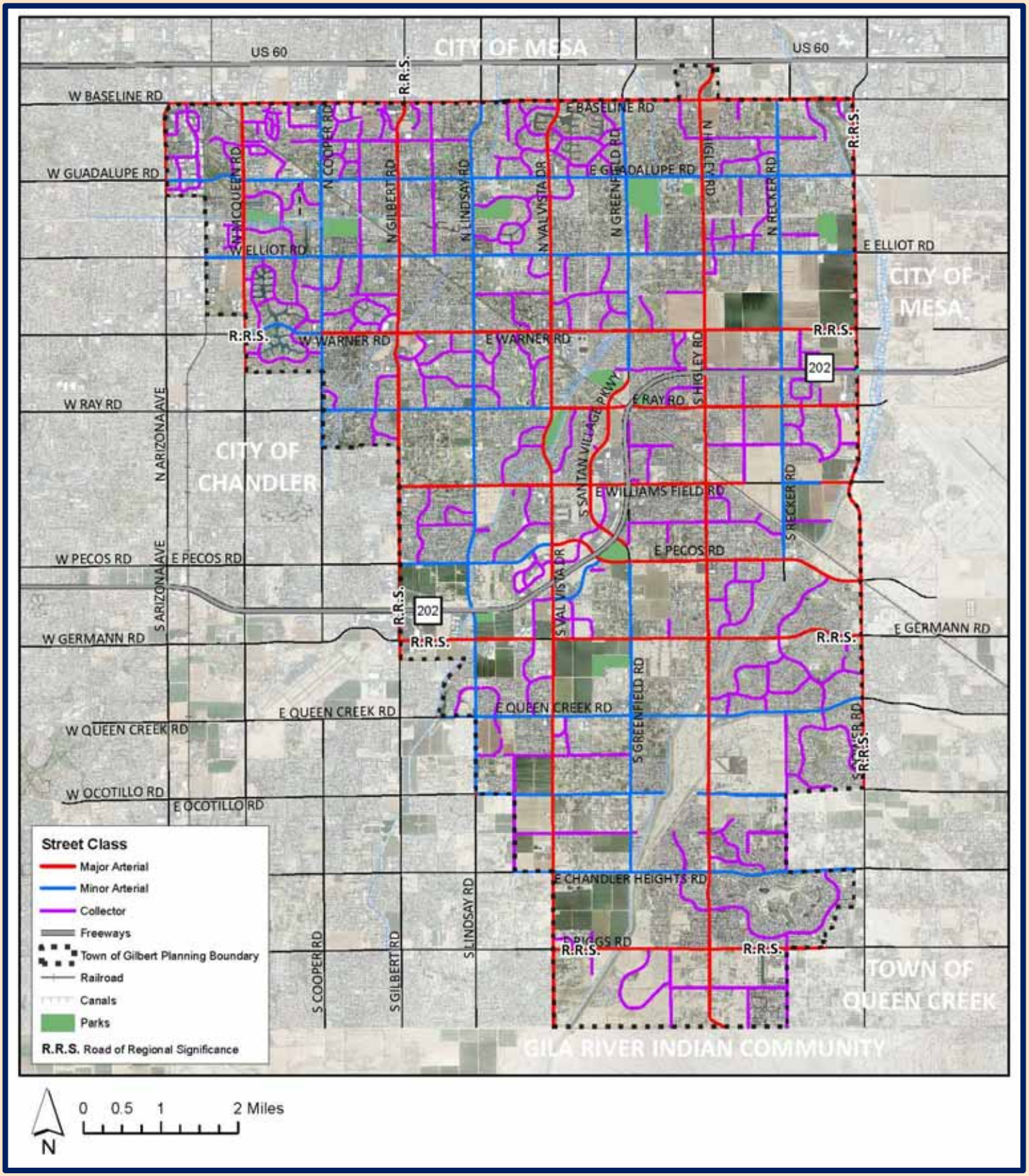


FIGURE 4-1: FUNCTIONAL CLASSIFICATION

Existing Lanes

The existing number of through lanes provided on the arterial streets currently varies from one through lane in each direction to three through lanes in each direction. The existing number of through lanes on the arterial street system is shown in Figure 4-2. It should be noted the figure represents the general number of through lanes on each mile segment. There may be short sections with more lanes where development has occurred or fewer lanes in a county island. The number of lanes provided at individual intersections also varies. There are locations where additional through and/or turn lanes exist to improve intersection capacity.

Traffic Signals

A traffic signal can be simply defined as an automated device which alternately directs traffic to stop and then proceed. When properly used, traffic signals are valuable devices for the control of vehicular and pedestrian traffic. They assign the right-of-way to the various traffic movements and thereby influence traffic flow. Traffic control signals have one or more of the following advantages:

- They provide for the orderly movement of traffic.
- They increase the traffic-handling capacity of the side-streets
- They reduce the frequency and severity of certain types of crashes, especially right-angle collisions.
- When operated in a coordinated system, traffic signals can improve flow along a route.
- They are used to interrupt heavy traffic at intervals to permit other traffic, whether vehicular, bicycle, or pedestrian, to cross.

Figure 4-3 shows the location of the traffic signals within the Town. There are a total of 180 traffic signals in the Town including the following types:

- Intersections – 157 locations
- Freeway interchanges – 4 locations
- Trail crossings – 9 locations
- Fire stations – 10 locations

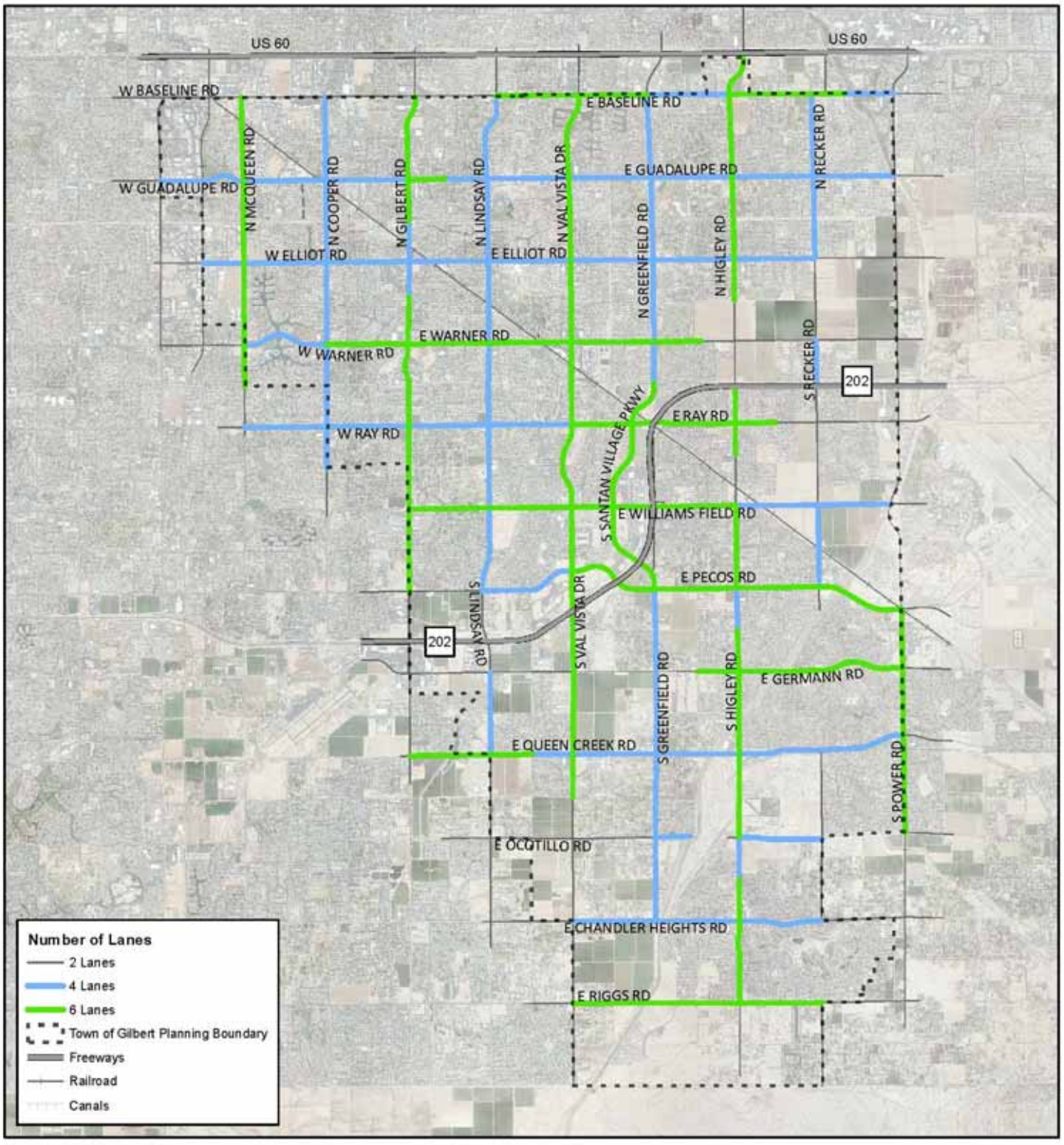


FIGURE 4-2: EXISTING THROUGH LANES

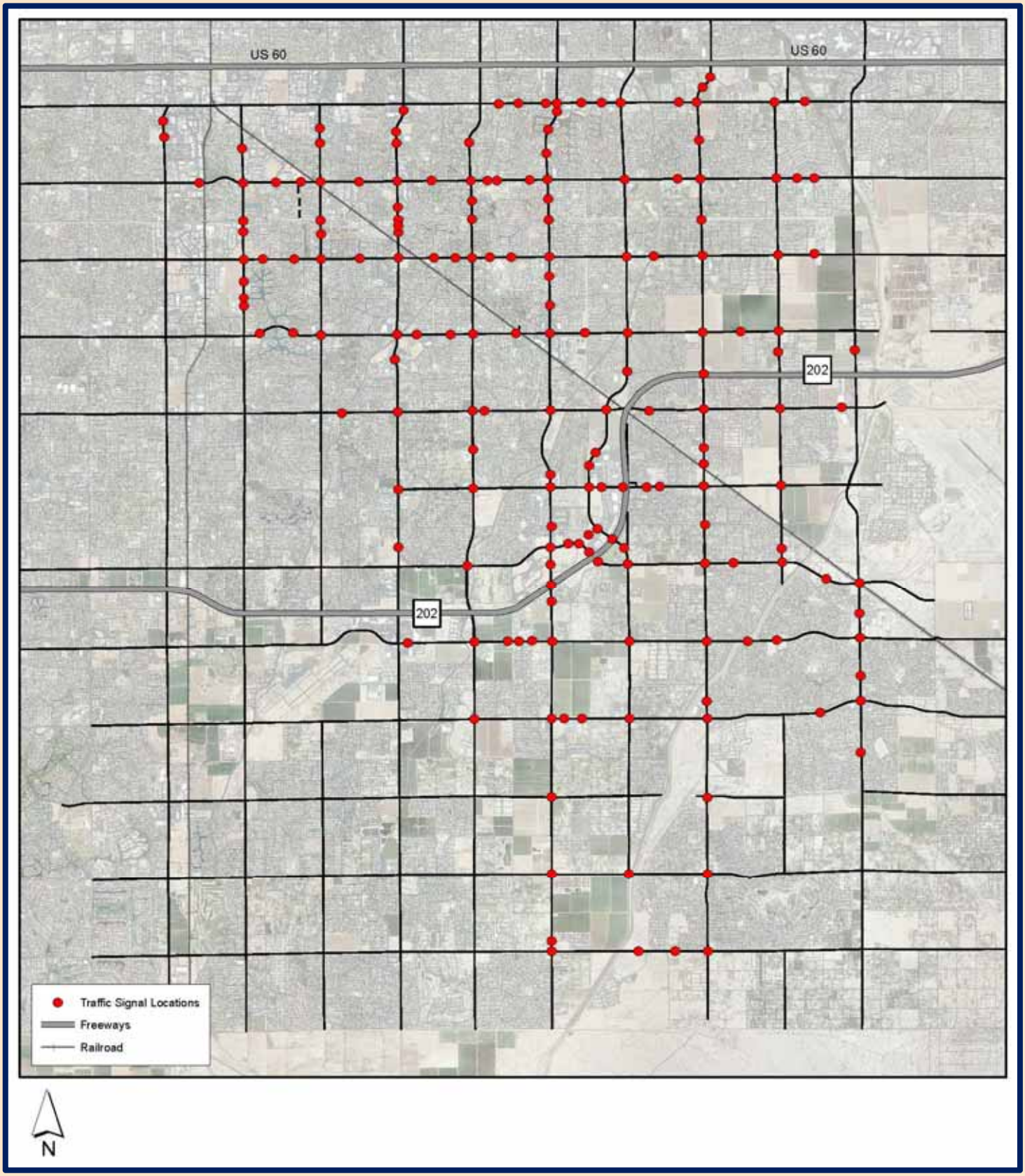


FIGURE 4-3: EXISTING TRAFFIC SIGNALS

The signals are operated from the Town's Traffic Operations Center (TOC) and can be monitored so that the most efficient operation is provided. The Town operates the majority of the intersection traffic signals that have left-turn phases with lagging left-turn phase operation.

Crash Data

Crash data was obtained by the Town from the Arizona Department of Transportation (ADOT) for the period from January 1, 2010 to December 31, 2012. The data was sorted by location and grouped by mile segment for the arterial streets. The analysis did not include intersection crashes. An evaluation of intersection crashes and crash rates were included in the Town of Gilbert Intersection Improvement Master Plan completed in September 2012.

Table 4-1 shows the roadway segments with the highest number of crashes and/or the highest crash rate for the three year period. The crash rate is the average number of crashes per year per million vehicles miles. As can be seen from the table, Higley Road between Williams Field Road and Pecos had the highest number of crashes and the highest crash rate. Two other sections of Higley Road were also among the highest segments. However, much of this portion of Higley Road has recently been improved, which should improve the safety.

TABLE 4-1: HIGHEST CRASH ROADWAY SEGMENTS

Street	From Street	To Street	Average Daily Traffic (2013 count)	Total # of Crashes for three years	Annual Crash rate (per million vehicle miles)
Higley	Williams Field	Pecos	18,171	49	2.5
Gilbert	Baseline	Guadalupe	35,152	44	1.1
Cooper	Baseline	Guadalupe	36,310	31	0.8
Warner	Lindsay	Val Vista	24,860	29	1.1
Higley	Ray	Williams Field	17,008	28	1.5
Higley	Warner	Ray	24,659	27	1.0
McQueen	Elliot	Warner	23,894	26	1.0
Williams Field	Santan Village	Higley	22,233	24	1.0
Warner	McQueen	Cooper	23,258	23	0.9
Val Vista	Ray	Williams Field	27,165	21	0.7
Santan Village Parkway	Williams Field	Loop 202	13,073	14	1.0
Germann	Lindsay	Val Vista	12,942	13	0.9

Traffic Volumes

In conjunction with the development of this plan, 48-hour traffic counts were obtained on every mile segment within the Town except those locations where there was active construction that would affect the validity of the count. The traffic counts were conducted at 140 locations and the 24-hour averages are shown in Figure 4-4. The ten highest volume locations are listed in Table 4-2. Some interesting facts derived from the traffic count data are:

Five of the highest traffic volume segments are on Val Vista Drive

- Five of the highest volume segments are on Val Vista Drive,
- Seven of the highest volumes occur on segments leading to a freeway, and
- Nine of the ten highest volume segments are on north-south street segments indicating that a majority of travel in Gilbert is north-south.

Figure 4-4 also shows the highest volume segments in 2013 as well as those in 2009, the last time traffic counts were conducted on a town-wide basis. It is interesting to note that the higher volume segments are shifting to the south as growth continues in that direction.

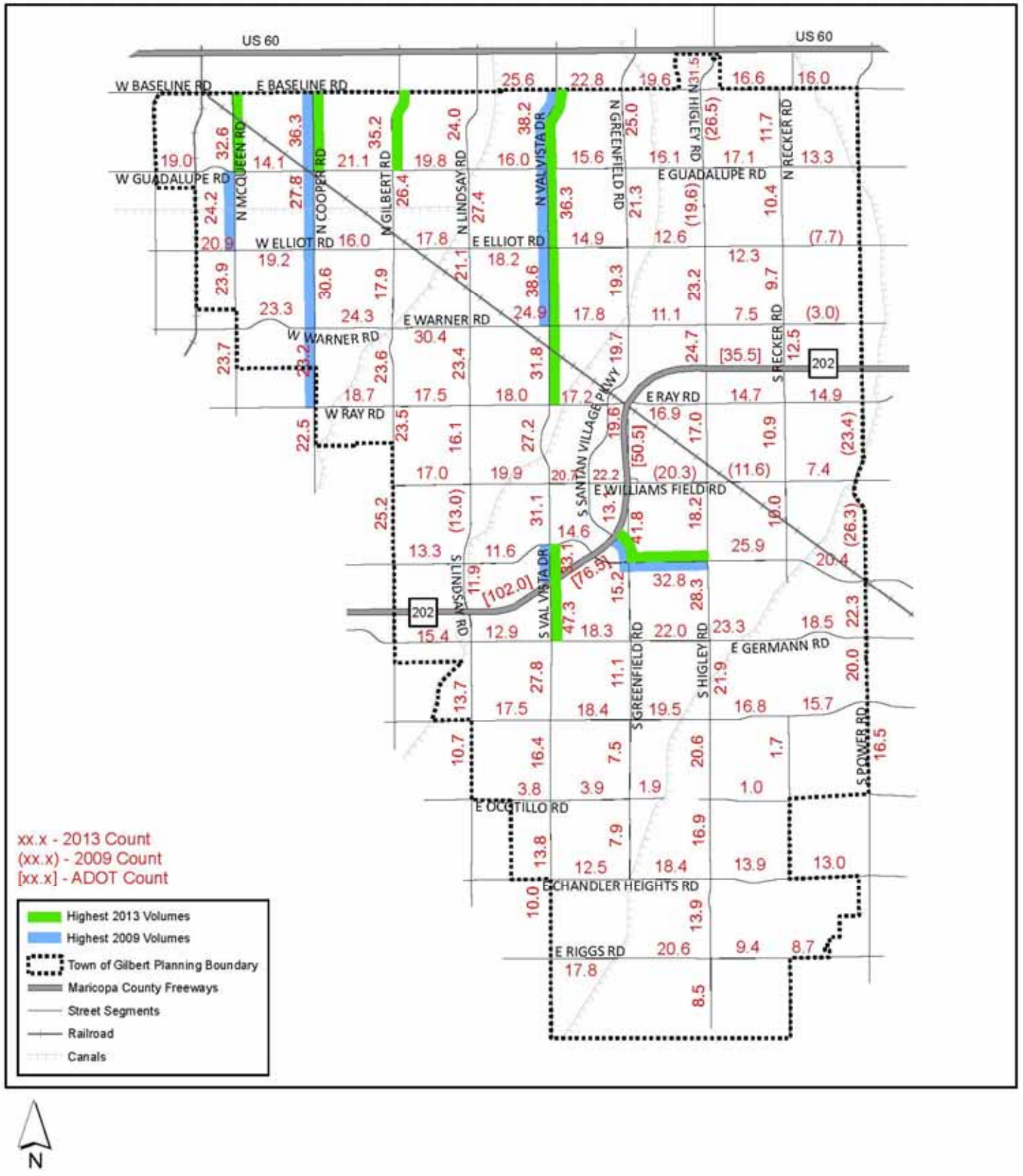


FIGURE 4-4: EXISTING DAILY TRAFFIC VOLUMES

TABLE 4-2: HIGHEST VOLUME LOCATIONS

STREET SEGMENT	FROM STREET	TO STREET	2013 DAILY VOLUME
Val Vista	Loop 202	Germann	47,251
SanTan Village	Loop 202	Pecos	41,794
Val Vista	Elliot	Warner	38,584
Val Vista	Baseline	Guadalupe	38,205
Cooper	Baseline	Guadalupe	36,310
Val Vista	Guadalupe	Elliot	36,251
Gilbert	Baseline	Guadalupe	35,152
Val Vista	Pecos	Loop 202	33,144
Pecos	Greenfield	Higley	32,759
McQueen	Baseline	Guadalupe	32,597

The ten segments with the highest percent change from 2009 are shown in Table 4-3. Not surprisingly, these locations are in the eastern and southern sections of the Town where the volumes are lower and percent change is more dramatic. It is recommended that annual or bi-annual counts be continued to evaluate shifting trends in traffic.

TABLE 4-3: HIGHEST VOLUME INCREASE

STREET SEGMENT	FROM STREET	TO STREET	2013 VOLUME	2009 VOLUME	INCREASE	PERCENT CHANGE
Ocotillo	Higley	Recker	1,028	318	710	223%
Val Vista	Chandler Heights	Riggs	9,961	3,945	6,016	152%
Pecos	Gilbert	Lindsay	13,342	6,001	7,341	122%
Recker	Warner	Ray	12,505	5,823	6,682	115%
Ray	Higley	Recker	14,736	7,534	7,202	96%
Val Vista	Williams Field	Pecos	31,053	15,992	15,061	94%
Greenfield	Ocotillo	Chandler Heights	7,947	4,223	3,724	88%
Queen Creek	Lindsay	Val Vista	17,498	9,838	7,660	78%
Val Vista	Ocotillo	Chandler Heights	13,811	7,815	5,996	77%
Ocotillo	Lindsay	Val Vista	3838	2191	1,647	75%

Level of Service

Level of service (LOS) is a qualitative measure of a roadway's effectiveness at handling traffic. LOS ranges from A to F, where LOS A represents free flow conditions and LOS F represents a congested, unstable flow and is defined as over capacity. The vehicle capacity of a roadway can be defined as "the maximum number of vehicles that can pass a given point during a specified period under prevailing roadway, traffic, and control conditions" (Highway Capacity Manual 2010, Transportation Research Board). The ratio of the volume on a road segment compared to the traffic capacity of the segment is known as the volume to capacity or v/c ratio. The level of service definitions and related v/c ratios are presented in Table 4-4.

For this study, LOS D or better was considered the minimum acceptable level of service. The traffic volumes that represent the level of service between 'E' and 'F' (v/c = 1.0) or capacity are presented in Table 4-5. These volumes are based on existing Gilbert roadway cross sections and Town standards.

TABLE 4-4 – LOS DEFINITIONS AND V/C RATIOS FOR ROADWAY SEGMENTS

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 0.70
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	0.71 to 0.85
E	Represents operating conditions at or near the capacity level. All speeds are reduced to a low but relatively uniform value	0.86 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 2010, Transportation Research Board

TABLE 4-5: DAILY TRAFFIC VOLUMES AT CAPACITY (VEHICLES PER DAY)

Type of Roadway	Number of Through Lanes	Daily Volume
Arterial	2	16,500
Arterial (no median)	4	32,000
Arterial (with median)	4	35,500
Arterial (with median)	4/6*	42,900
Arterial (no median)	6	49,000
Arterial (with median)	6	54,000

**4-lane arterial with widening to 6 through lanes at major intersections*

Based on the volumes shown in Figure 4-4 and the capacity values in Table 4-5, the road segments with existing level of service E and F are summarized in Table 4-6 and existing level of service D, E, and F are shown in Figure 4-5. LOS D, E, and F were selected to show roadway segments that are approaching capacity or over capacity. The existing number of through lanes is also shown and represents the least number of lanes along the segment.

18% of the street segments are level of service D, E, or F today

There were 140 segments analyzed and 27 segments (19%) were LOS D, E, or F, and 9 (6%) were LOS E or F. Of the nine LOS E or F, three are currently under design to be widened within the next two years and four segments have unimproved portions with only two through lanes. Only one improved six-lane roadway is LOS E or worse and that is Val Vista Drive between Loop 202 and Germann Road.

TABLE 4-6: EXISTING LOS D, E, OR F

Street	From	To	Through Lanes	V/C	LOS
Ray	Higley	Recker	2	0.89	E
Germann	Gilbert	Lindsay	2	0.93	E
Germann	Val Vista	Greenfield	2	1.11	F*
Germann	Greenfield	Higley	2	1.34	F*
Cooper	Guadalupe	Elliot	4	0.87	E
Val Vista	Loop 202	Germann	6	0.88	E
Val Vista	Queen Creek	Ocotillo	2	0.99	E
Higley	Elliot	Warner	2	1.41	F
Higley	Warner	Loop 202	2	1.49	F*

*currently under design

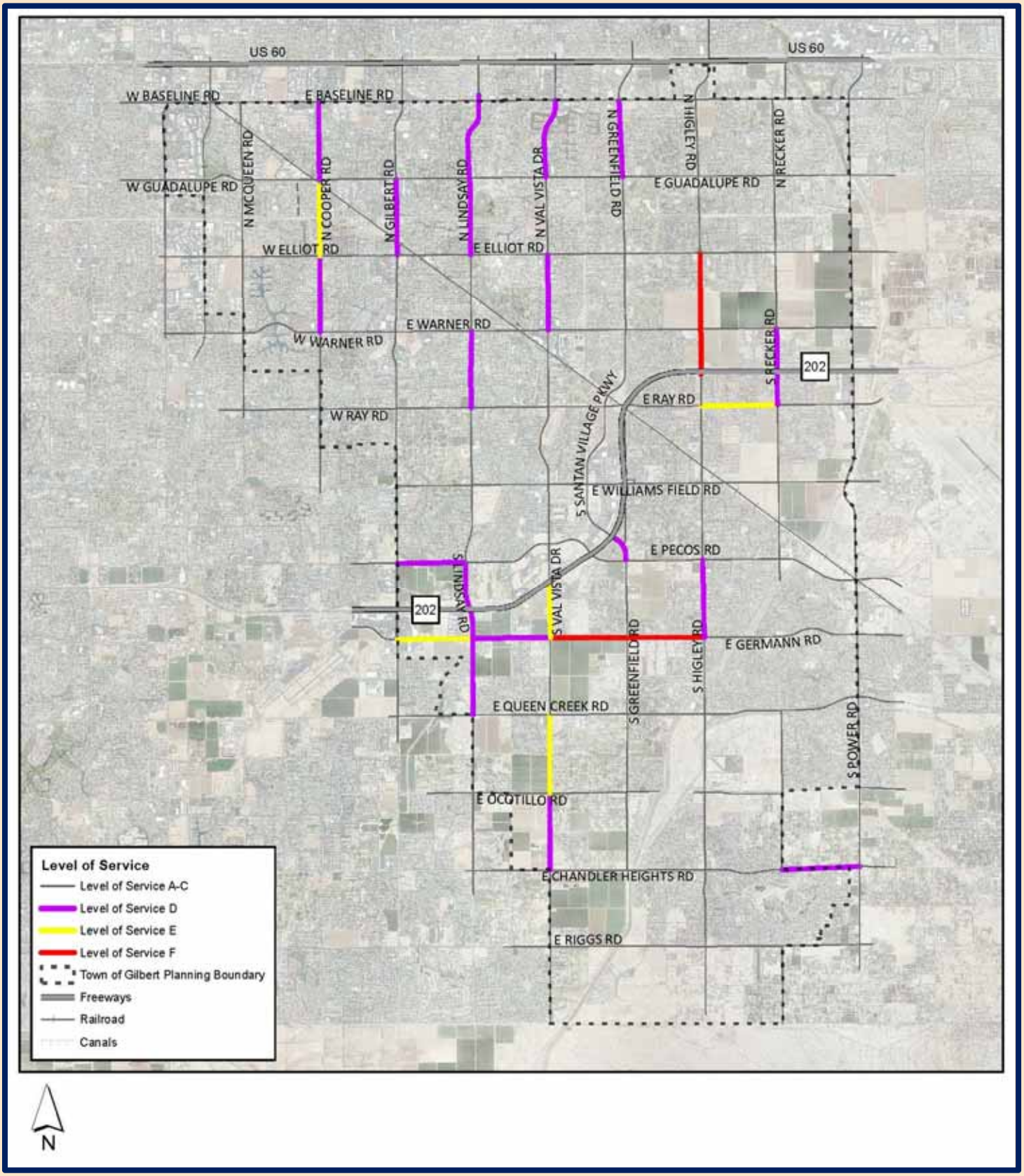


FIGURE 4-5: EXISTING LEVEL OF SERVICE

B. Transit Service and Facilities

Like many metropolitan regions, cities and towns in the Valley coordinate transit operations through a regional authority. Transit service in Gilbert is provided by Valley Metro, the regional public transportation authority for Maricopa County, and a variety of social service agencies. However, the region is unique in that much of its transit service is supported by a combination of regional and local funds. This fiscal situation means that transit funding and service levels differ from city to city. Almost all transit service is operated by private contractors, but the contracting agency may be one of several cities or Valley Metro.

Current Gilbert Transit Service

The transit network currently serving the Town of Gilbert includes five local bus routes, one express route, LINK service, and paratransit. In addition to these services, capital investments (facilities and infrastructure) make up the local transit system. All existing bus routes in Gilbert are currently programmed to be regionally funded through Proposition 400.

The Town of Gilbert entered into an intergovernmental agreement with the Regional Public Transportation Agency (RPTA) in July 1996 to provide bus services in the Town of Gilbert and to provide Dial-A-Ride (DAR) services for eligible residents. Transit services within the Town of Gilbert include the following routes:

Gilbert has five local, one BRT, and one express route serving residents

- Route 108 - Elliot Road
- Route 112 - Arizona Avenue
- Route 136 - Gilbert Road
- Route 156 - Williams Field Road
- Route 184 - Power Road
- LINK - Arizona Avenue
- Route 531 - Mesa/Gilbert Express

Existing Gilbert transit service operates on the arterial streets within the Town limits. The transit routes serve a wide range of trip needs, including work, shopping, medical appointments and school trips. The service design emphasizes system efficiency and effectiveness, in order to provide a high level of transit service that is reliable and

Transit routes serve a wide range of trip needs

affordable for users and taxpayers in the region. Service levels on particular routes are dictated by the demand for transit along those routes, as well as by availability of funding. Routes typically operate 14 to 16 hours per day, seven days a week, in some cases with higher levels of service during peak travel hours. The bus network is supported in Gilbert by transit infrastructure that includes bus stops and a park-and-ride lot. There are different types of bus stops that serve the routes in Gilbert.

- a bus pull out that has a bench and shelter
- a bus pull out that has only a sign
- a bus stop in the travel lane that has a bench and shelter
- a bus stop in the travel lane that has only a sign.

The following presents a discussion of the transit service provided in the Town and the routes are shown in Figure 4-6.

Local Route 108

Route 108 is primarily an east-west route operating on Elliot Road and Guadalupe Road that extends from the Pecos Road park-and-ride in Chandler to the Superstition Springs Transit Center in Mesa. Within the Town, Route 108 operates on Elliot Road to Val Vista Drive, then on Val Vista Drive to Guadalupe Road, and then on Guadalupe Road to Power Road.

Local Route 112

Route 112 is a north-south route that extends from Country Club Drive and McKellips Road in Mesa to Arizona Avenue and Pecos Road in Chandler. Within Gilbert, Route 112 operates in the northbound direction between the south town limit on Arizona Avenue to Baseline Road.

Local Route 136

Route 136 is primarily a north-south route on Gilbert Road that extends from Germann Road near the Gilbert/Chandler border. The route diverts onto Civic Center Drive and Warner Road to serve the Gilbert government complex. Within the Town, Route 136 operates on Gilbert Road between Germann Road and Baseline Road.

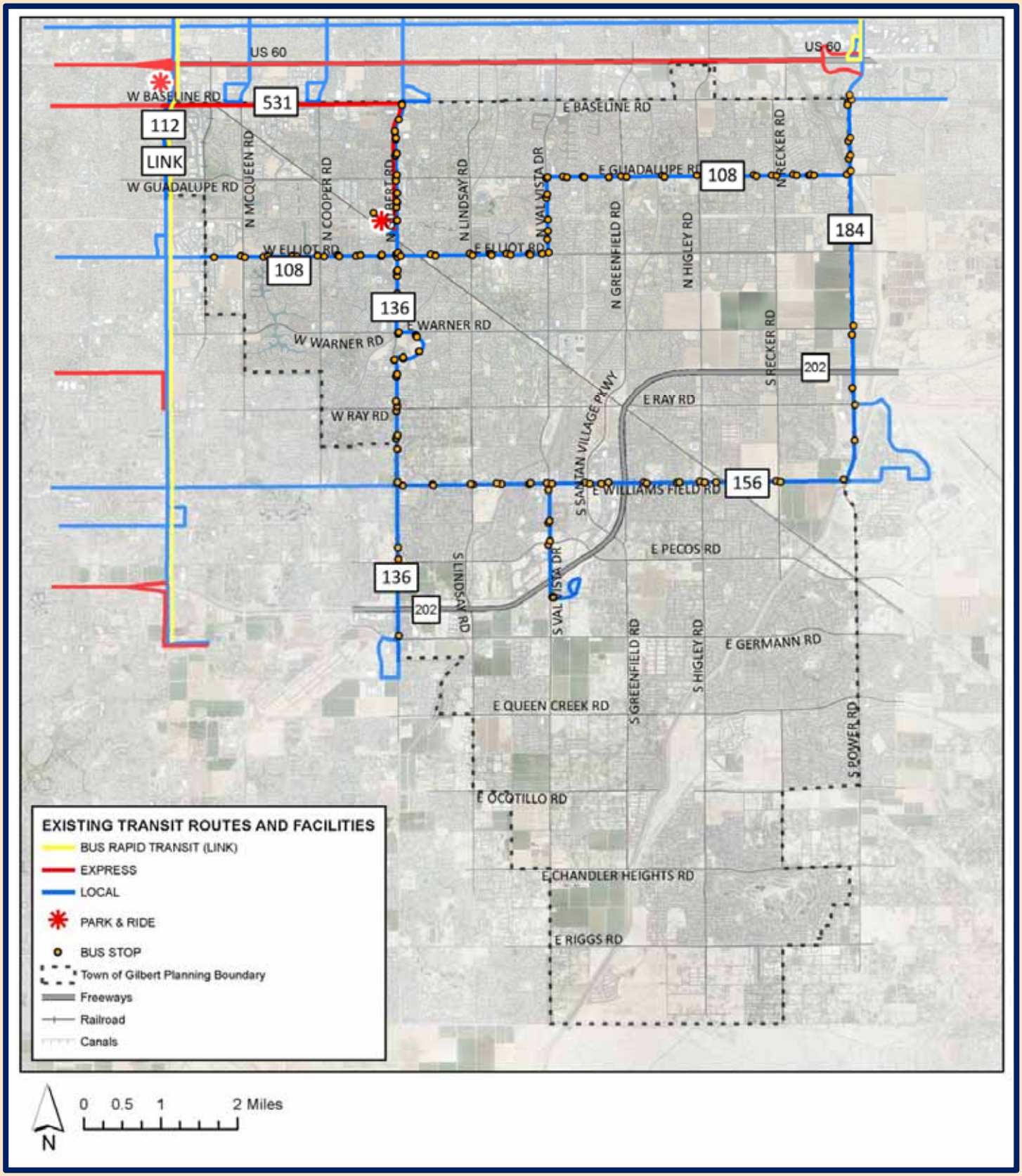


FIGURE 4-6: EXISTING TRANSIT ROUTES AND STOPS

Local Route 156

Route 156 is an east-west route that extends from 48th Street and Chandler Boulevard in Phoenix to Power Road and Williams Field Road and ASU Polytechnic Campus in Mesa. Within Gilbert, Route 156 operates on Williams Field Road from the west town limit to the east town limit and provides service to the Mercy Gilbert Medical Center.

Local Route 184

Route 184 is a north-south route that extends from the Power Road park-and-ride, north of McDowell Road in Mesa to Phoenix-Mesa Gateway Airport. Within Gilbert, Route 184 operates in the southbound direction between Baseline Road and Williams Field Road.

ALINK

ALINK is a north-south bus rapid transit route that extends from the Sycamore Light Rail station in Mesa to Arizona Avenue and Germann Road in Chandler. Within Gilbert, ALINK operates in the northbound direction between the south town limit on Arizona Avenue to Baseline Road and provides access to the Light Rail line.

Express Route 531

Express Route 531 connects downtown Gilbert with downtown Phoenix and the Capitol complex. Within the Town, the route operates on Gilbert Road between Baseline Road and the park-and-ride located in the Heritage District. The route provides inbound service to Central Phoenix in the AM peak and outbound service in the PM peak.

Paratransit

The East Valley Dial-a-Ride (EVDAR) is a partnership among the Cities of Mesa, Chandler, Tempe, and Scottsdale, the Town of Gilbert, and the RPTA. Dial-a-Ride service operates daily from 4 a.m. until 1 a.m. Extended service hours are provided for individuals who qualify under the ADA.

The Town also participates in the RideChoice program.

Summary of Gilbert Transit Services

Table 4-7 summarizes the bus routes that serve the Town and shows the hours of operation and frequency. Except for Express Route 531, the start and end times are for the endpoints of the routes which are not within the Town.

TABLE 4-7: GILBERT BUS ROUTES

			FREQUENCY (Minutes)	
ROUTE	DAY(S)	HOURS	PEAK	OFF PEAK
	Monday-Friday	5:13 am to 10:17 pm	30	60 (after 6 pm)
Local 108	Saturday	5:32 am to 12:00 am	60	NA
	Sunday	5:32 am to 1:00 pm	60	NA
	Monday-Friday	5:14 am to 12:18 am	30	30
Local 112	Saturday	6:03 am to 9:32 pm	60	NA
	Sunday	6:38 am to 9:07 pm	60	NA
	Monday-Friday	4:30am to 7:33pm	30	30
Local 136	Saturday	7:52am to 7:13pm	30	NA
	Sunday	NA	NA	NA
	Monday-Friday	4:53 am to 10:09 pm	30	30
Local 156	Saturday	6:49 am to 9:31 pm	30	NA
	Sunday	7:19 am to 7:34 pm	30	NA
	Monday-Friday	4:20 am to 9:42 pm	15	34
Local 184	Saturday	5:11 am to 8:54 pm	60	NA
	Sunday	5:11 am to 8:54 pm	60	NA
	Monday-Friday	4:48 am to 10:47 pm	25 - 35	60 (after 8:30 pm)
ALINK	Saturday	6:37 am to 11:23 pm	60	NA
	Sunday	7:22 am to 9:58 pm	60	NA
	Monday-Friday	WB 5:29 am to 8:24 am	6*	NA
Express 531	Monday-Friday	EB 3:30 pm to 6:20 pm	6*	NA
	Saturday/Sunday	NA	NA	NA

*Represents the number of trips for the express route

Local Route 184 - Power Road operates on a 15 minute frequency during the peak hours on weekdays while the other local routes have a 30 minute frequency during the peak hours.

Table 4-8 summarizes the FY 2013 ridership associated with the transit service in the Town of Gilbert as well as the increase in ridership between 2012 and 2013 for weekday operation. Tables 4-9 and 4-10 show the ridership data for Saturday and Sunday. Routes 112, 184, and ALINK boardings are only for one direction because these are on the Town boundary. Route 112 and ALINK have NB boardings and Route 184 has SB boardings. As can be seen in Table 4-8, Route 136 had the highest number of boardings followed by Route 156, while Route 112 and ALINK had the highest boardings per mile. Route 108 had the largest percent increase in boardings between 2012 and 2013 and all routes had an increase in boardings between 2012 and 2013.

For comparison, the total number of passengers on all Valley Metro fixed routes was 42,407,165 and the average number of passengers per mile was 2.3. The total number of passengers on all the BRT routes was 297,636 and the average number of passengers per mile was 1.6. While Gilbert transit ridership is increasing, it still is generally lower than the average for the entire system. This can partly be attributed to the lack of choices and transit connections available to Gilbert residents

TABLE 4-8: WEEKDAY GILBERT TRANSIT RIDERSHIP (FY 13)

Route	Directional route miles	Revenue Miles	Boardings per Mile	Boardings (2013)	Boardings (2012)	% change in boardings
Local 108	19	65,819	0.4	24,269	18,659	30
Local 112	1.25	10,517	1.5	15,584	12,950	20
Local 136	15	97,774	0.9	87,685	69,990	25
Local 156	15	164,145	0.3	46,611	44,805	4
Local 184	5	43,256	0.2	7,769	6,248	24
Express 531	3.2	16,279	1.3	21,975	27,214	-19
ALINK	1.25	7,238	1.0	7,553	6,894	10
GILBERT TOTAL	**56.5**	**388,749**	**0.5**	**189,471**	**159,546**	**19**

TABLE 4-9: SATURDAY GILBERT TRANSIT RIDERSHIP (FY 13)

Route	Directional route miles	Revenue Miles	Boardings per Mile	Boardings (2013)	Boardings (2012)	% change in boardings
Local 112	1.25	1,011	0.9	927	647	43
Local 136	15	14,431	0.5	6,584	5,025	31
Local 156	15	29,448	0.2	5,082	4,952	3
Local 184	5	3,813	0.2	829	813	2
ALINK	1.25	756	0.9	655	574	16
GILBERT TOTAL	**56.5**	**388,749**	**0.5**	**189,471**	**159,546**	**19**

TABLE 4-10: SUNDAY GILBERT TRANSIT RIDERSHIP (FY 13)

Route	Directional route miles	Revenue Miles	Boardings per Mile	Boardings (2013)	Boardings (2012)	% change in boardings
Local 112	1.25	1,162	0.8	957	629	52
Local 156	15	30,297	0.1	3,961	4,105	-4
Local 184	5	4,447	0.2	787	485	62
ALINK	1.25	806	0.5	407	470	-13
GILBERT TOTAL	**56.5**	**388,749**	**0.5**	**189,471**	**159,546**	**19**

Cost of Gilbert Transit Services

Table 4-11 presents a summary of the estimated cost of fixed route bus service in Gilbert for the period from July 1, 2013 to June 30, 2014. As noted earlier, all the Town's fixed route services are funded by Proposition 400 and included in the RTP and therefore there is no operational cost to the Town.

TABLE 4-11: GILBERT TRANSIT SERVICE COST (FY 13)

Route	Estimated Miles	Estimated Net Cost	Net Cost per Mile
Local 108	66,014	$334,068	$5.06
Local 112	13,281	$50,936	$3.84
Local 136	112,600	$527,882	$4.69
Local 156	224,076	$1,145,134	$5.11
Local 184	51,421	$268,447	$5.22
ALINK	8,818	$39,822	$4.52
531 Express	10,247	$14,258	$1.39

Gilbert's funding for Dial-a-Ride is provided through the Local Transportation Assistance Fund (LTAF) which received funding through voter approved distribution of lottery proceeds. Additional funding is provided through the Transit Lifecycle Program (TLCP) which receives revenues from the Maricopa County half-cent sales tax and from federal Public Transportation Funds (PTF) funded by $0.0286 per gallon

federal fuel tax: Expenses for Dial-a-Ride services under this Agreement are allocated to jurisdictions that are part of the EVDAR System (Member Jurisdictions) based upon the number of vehicle revenue miles (VRM) projected to be provided to the member jurisdiction's passengers based on residency status.

C. Bicycle Conditions

The Town of Gilbert has a comprehensive bicycle network consisting of on-street bike lanes on arterial and collector streets and off-street shared use paths/trails. Gilbert's bicycle network provides options for all types of bicyclists in the Town of Gilbert.

Gilbert has a comprehensive bicycle network

On-Street Bike Lanes

Bike lanes are typically included on all collector and arterial streets within the Town as part of new construction or major reconstruction. It is also the policy of the Town to require new development to include bike lanes on new collectors and arterials. Currently, the Town has approximately 193 miles of roadway with on-street bike lanes on both sides and five miles of roadway with on-street bike lanes on one side. Gilbert's bike lane network is more developed than most municipalities in the Phoenix area, due in large part to the fact that most Gilbert streets have been improved since the time when bike lanes became a generally accepted component of major street design standards. The existing bike lane network (including projects currently under construction) is shown in Figure 4-7.

Over the past decade, the number of miles of on-street bike lanes has expanded commensurate with new development. Most gaps in the bike lane network are located in the south and east parts of town where adjacent land is undeveloped. As these areas continue to develop, the number and length of gaps in the bike lane network will be reduced.

Local Streets

Local neighborhood streets are not typically marked with bike lanes but are generally considered suitable for on-street bicycle travel because they have lower traffic speeds and volumes than collector and arterial streets. Local streets are an important element of the bicycle network as they provide connectivity to schools, to bike lanes, and to shared use paths and trails.

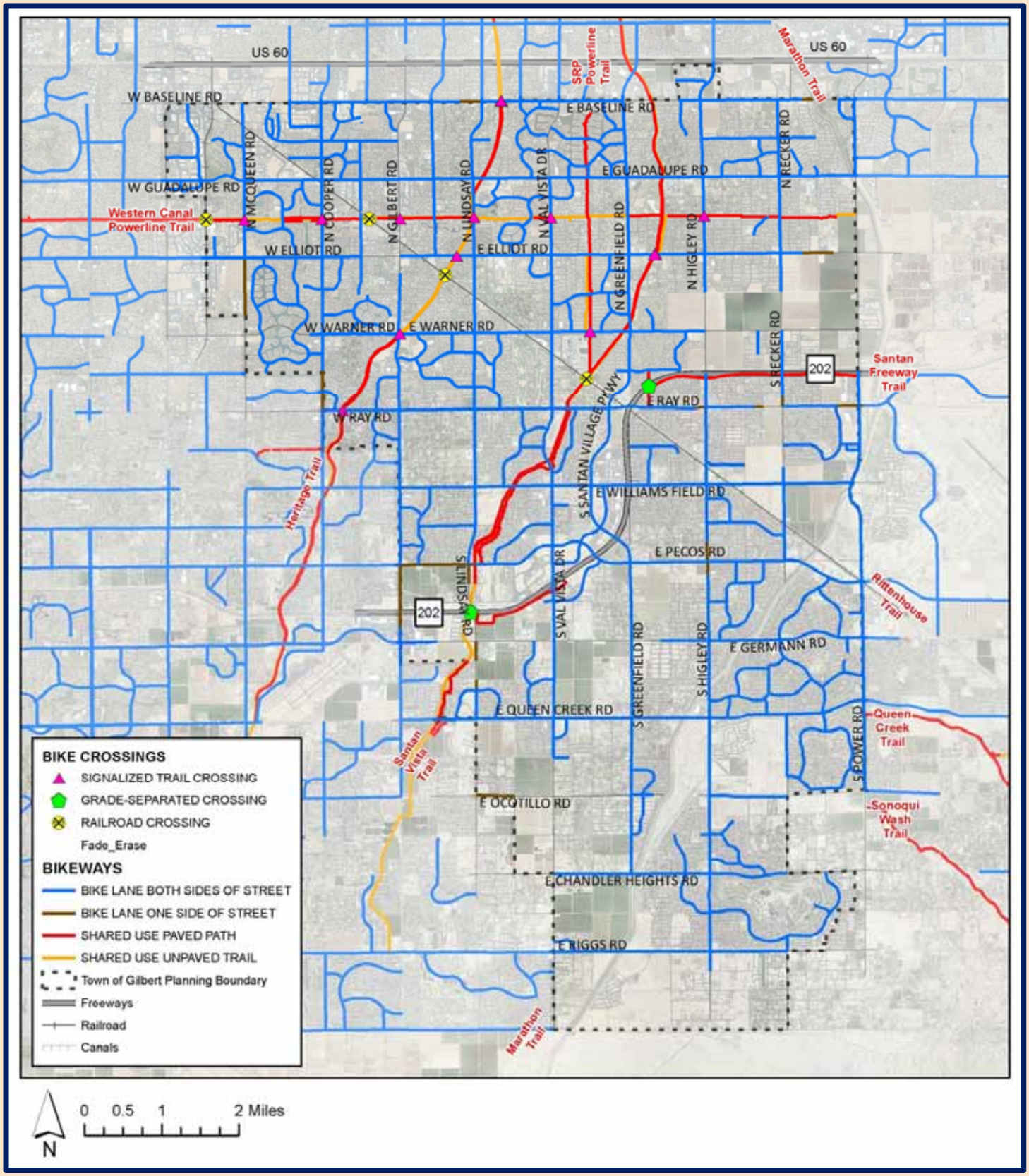


FIGURE 4-7: EXISTING BICYCLE FACILITIES

Off-Street Shared Use Paths and Trails

Gilbert's rich agricultural heritage includes a network of irrigation canals used to deliver water to farm fields. The irrigation canal system generally runs diagonally to the north-south and east-west arterial street grid network. The Town of Gilbert has implemented an off-street shared use path/trail network along some of the irrigation canal banks, electrical transmission lines, and portions of Loop 202 right-of-way. The resultant network of shared use paths/trails provides bicycle corridors with paved (asphalt or concrete) paths and unpaved trails that connect to the roadway and on-street bike lane networks.

Designated existing shared use paths/trails include the Western Canal Powerline Trail, Santan Vista Trail, Heritage Trail, SRP Powerline Trail, and Santan Freeway Trail. The shared use paved paths (defined as at least 10 feet in width, except the Powerline Trail north of Warner Road is six feet wide) are shown in Figure 4-7 as red lines while the shared use unpaved trails are shown in Figure 4-7 as orange lines.

Currently, there are approximately 23 miles of officially designated shared use paved paths and 16 miles of officially designated shared use unpaved trails within the Town of Gilbert. Shared use facility mileage refers to overall segment length (e.g., a one-mile segment with a paved path on either side of a canal is considered to be one mile in length rather than two miles).

These off-street facilities serve to connect residential neighborhoods to key destinations throughout the community (e.g., parks, schools, employment centers, and community facilities) and to desired locations in adjacent communities. Many of the neighborhoods within Gilbert also contain internal/private paths and trails that are not included in Figure 4-7.

The current shared use paved path network has gaps that reduce its ability to meet recreational and utilitarian transportation needs. Facilities that alternate between paved and unpaved surfaces are less functional for bicyclists who prefer a consistent and smooth paved surface. For example, the Western Canal Powerline Trail, which runs east/west between Guadalupe Road and Elliot Road, is paved for several miles

but includes five unpaved sections (including one at-grade railroad crossing) and one sidewalk section that prevent this facility from being a continuously paved off-street shared use paved path across Town.

The Town has plans to continue to improve the network of shared use paths and trails. Future plans include the construction of shared use paved paths and improvements to path/trail crossings (e.g., signalized crossings) at streets, canals and railroad tracks. According to the Town's *2013-2018 Capital Improvement Plan* (CIP), there are approximately four miles of programmed shared use paved paths in the next five years, and another 15 miles of shared use paved paths scheduled beyond the five-year timeframe. New designated shared use paths/trails that are mentioned in the CIP are the Rittenhouse Trail and Marathon Trail. The *2005 Gilbert Bicycle and Pedestrian Plan* and the 2014 *Gilbert Parks, Recreation, and Trails Master Plan* include additional new shared use paths/trails along Queen Creek and Sonoqui Wash.

Gilbert plans to continue to improve the network of shared use paths

Several of the existing and planned shared use paths/trails cross railroad tracks at locations that are not public streets or intersections. As this situation is common in many of the Phoenix-area municipalities, the Maricopa Association of Governments (MAG) is currently working with the railroad, local municipalities, and other stakeholders to develop a set of guidelines and recommendations for bicycle and pedestrian facility crossings at railroad tracks.

Bicycle Crash Data

An analysis of the Town's bicycle/motor vehicle crash records was performed to identify and compare crash patterns and to identify locations with a high number of crashes. Crash records contained data on the date and time of the crash, crash location, injury severity, physical condition, violations, action, travel direction, and manner of collision. The reported bicycle/motor vehicle collisions from 2010-2012 were divided into total collisions, injury collisions, and fatal collisions and their locations are shown in Figure 4-8.

There were 221 bicycle/motor vehicle crashes out of 7,299 total vehicle crashes in Gilbert during the three-year analysis period, representing 3.0% of all crashes in Gilbert. Of the 221 bicycle/motor vehicle crashes, there was one fatal crash (0.4%), 161 crashes with injury (72.8%), and 59 crashes with property damage only (26.7%).

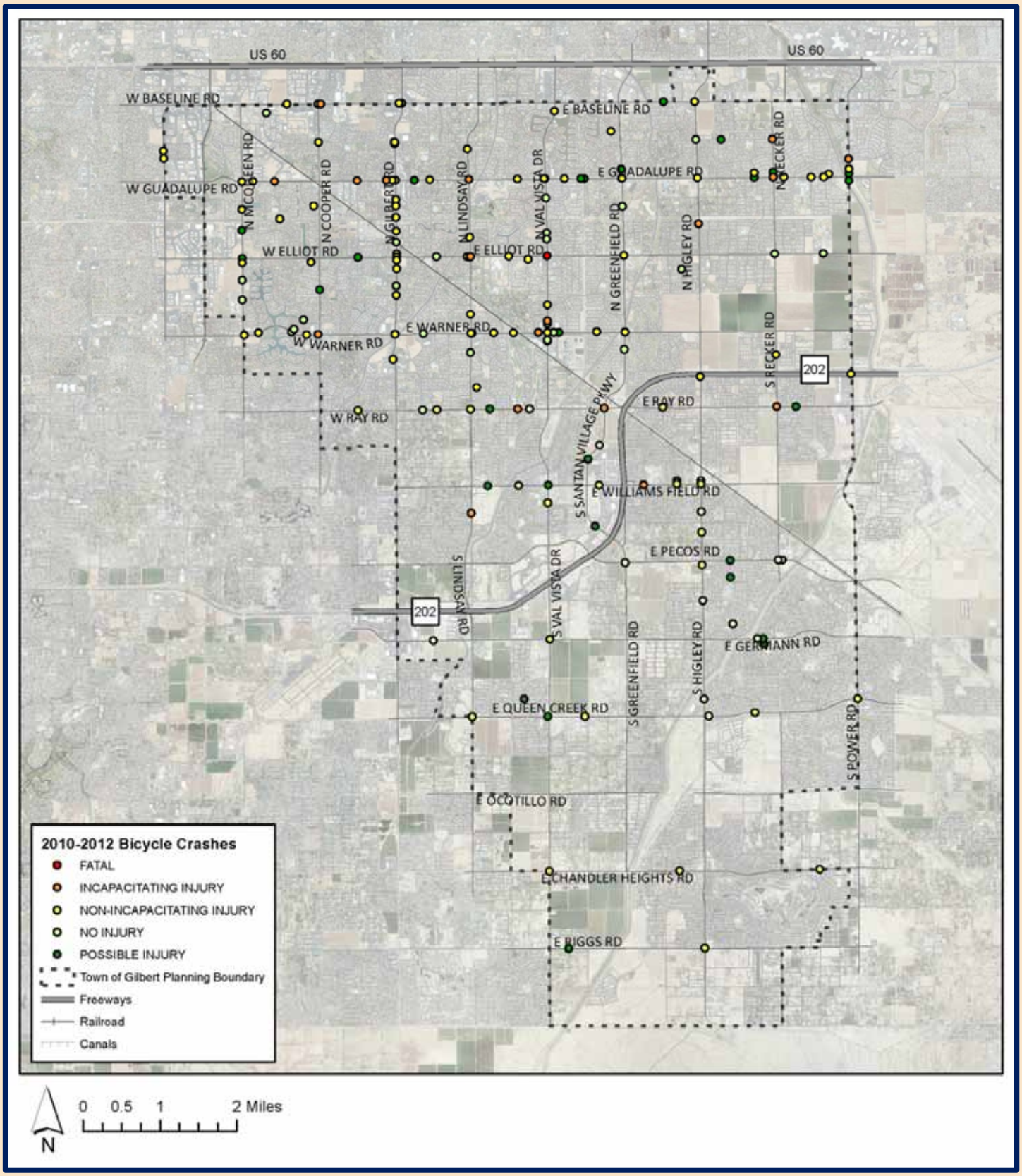


FIGURE 4-8: 2010-2012 BICYCLE/MOTOR VEHICLE CRASHES

The one fatal bicycle/motor vehicle crash in Gilbert within the analysis period occurred in 2011 at the intersection of Val Vista Drive and Elliot Road.

For comparison purposes, statewide crash data from the Arizona Department of Transportation[1] (ADOT) was reviewed for 2012, the most recently available year. Statewide, there were 2,134 bicycle/motor vehicle crashes out of 103,637 total vehicle crashes (2.1%) in 2012. Of the 2,134 bicycle/motor vehicle crashes, there were 18 fatal crashes (0.8%), 1,739 crashes with injury (81.5%), and 377 crashes with property damage only (17.7%).

86% of bicycle crashes are intersection related

Gilbert's bicycle/motor vehicle crash patterns are fairly similar to Arizona's bicycle/motor vehicle crash patterns, with Gilbert having a slightly lower percentage of injury crashes (73%) than Arizona (82%). For both Gilbert and Arizona, the crash data indicates that when a bicycle/motor vehicle crash does occur, the likelihood of injury is high.

Other bicycle/motor vehicle crash attributes included:

- 36 of the 221 crashes (16%) occurred in dark conditions, including the one fatal crash
- 189 of the 221 crashes (86%) were intersection-related
- 154 of the 221 crashes (70%) occurred on the major mile arterials
- One crash occurred at a railroad-roadway crossing
- Locations with higher-density crashes include:
- **Gilbert Road from Guadalupe Road to south of Elliot Road** – this roadway segment contains a trail crossing, a railroad crossing, and a bus route, does not have existing bike lanes, has high bicycle activity through the Heritage District, and passes through a developed commercial area with numerous driveways and few raised medians
- **Guadalupe Road from west of Recker Road to Power Road, including the Guadalupe Road/Power Road intersection** – this roadway segment contains trail crossings and a bus route, does have existing bike lanes, and passes through a developed residential area that includes a high school

[1] www.azdot.gov

- **Near and at the Warner Road/Val Vista Road intersection** – this roadway segment has existing bike lanes and passes through a developed commercial area with numerous driveways and many raised medians

Additional detailed analysis of individual police reports at the locations with higher-density crashes is recommended. Detailed analysis may potentially identify some or all of the following common contributing factors to bicycle/motor vehicle crashes:

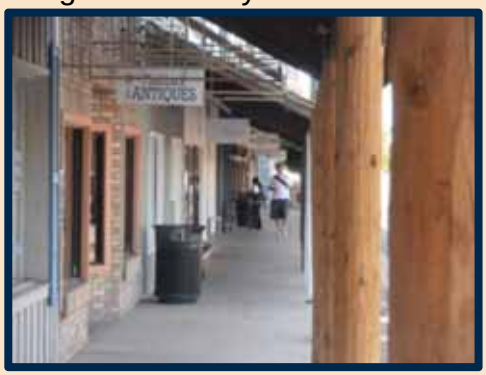
- Bicyclists riding facing traffic on the sidewalk or roadway – in these crashes, motorists are often exiting a side-street or driveway and do not see the bicyclist who is approaching from the right
- Bicyclists attempting to cross the roadway mid-block, at an intersection, at a trail crossing, or near a bus stop
- Bicyclists or motorists riding at night without proper lighting and reflectors
- Motorists not obeying the three-foot safe passing distance from bicyclists

Education and enforcement serve critical roles to improve bicyclist safety. The 'Three-Foot Safe Passing Distance Law"[2] and other Arizona bicycle laws promote safety and establish the rights and responsibilities of bicyclists on the roadway

D. Pedestrian Conditions

The Town of Gilbert has a comprehensive pedestrian network in place consisting of sidewalks, off-street shared use paths/trails, and crossings of roadways.

Sidewalks

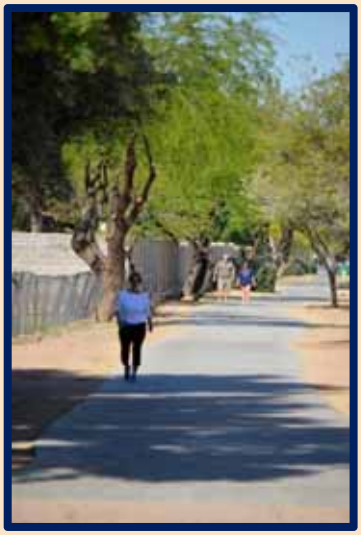


Most streets in Gilbert have sidewalks. Sidewalks are included on all streets within the Town as part of new construction or major reconstruction by the Town. It is also the policy of the Town to require new development to include sidewalk on all new streets. Currently, the Town has sidewalks on both sides of approximately 85% of the Town's 277 miles of arterial and collector streets and sidewalks on only one side of another 7% of arterial and collector streets. This level of sidewalk coverage is estimated to be similar to that of most municipalities in the Phoenix area. The identified gaps in the existing sidewalk

[2] (http://azbikelaw.org)

network ("existing" includes projects currently under construction) are shown in Figure 4-9.

Over the past decade, the sidewalk network has expanded commensurate with new development. Most gaps in the sidewalk network are located in the south and east parts of town where adjacent land is undeveloped. As these areas continue to develop, the number and length of gaps in the sidewalk network will be reduced.



Off-Street Shared Use Paths and Trails

The description of the Town's off-street shared-use paths and trails was included in the existing bicycle conditions (Section C). These facilities are also part of the existing pedestrian network.

Pedestrian Crash Data

An analysis of the Town's pedestrian/motor vehicle crash records was performed to identify and compare crash patterns and to identify locations with a high number of crashes. Crash records contained data on the date and time of the crash, crash location, injury severity, physical condition, violations, action, travel direction, and manner of collision. The reported pedestrian/motor vehicle collisions from 2010-2012 were divided into total collisions, injury collisions, and fatal collisions and their locations are shown in Figure 4-10.

There were 71 pedestrian/motor vehicle crashes out of 7,299 total vehicle crashes in Gilbert during the three-year analysis period, representing 1.0% of all crashes in Gilbert. The number of pedestrian/motor vehicle crashes has increased each of the past three years. There were 17 pedestrian/motor vehicle crashes in 2010, 23 in 2011, and 31 in 2012. Of the 71 pedestrian/motor vehicle crashes, there were two fatal crashes (2.8%), 60 crashes with injury (84.5%), and nine crashes with property damage only (12.7%).

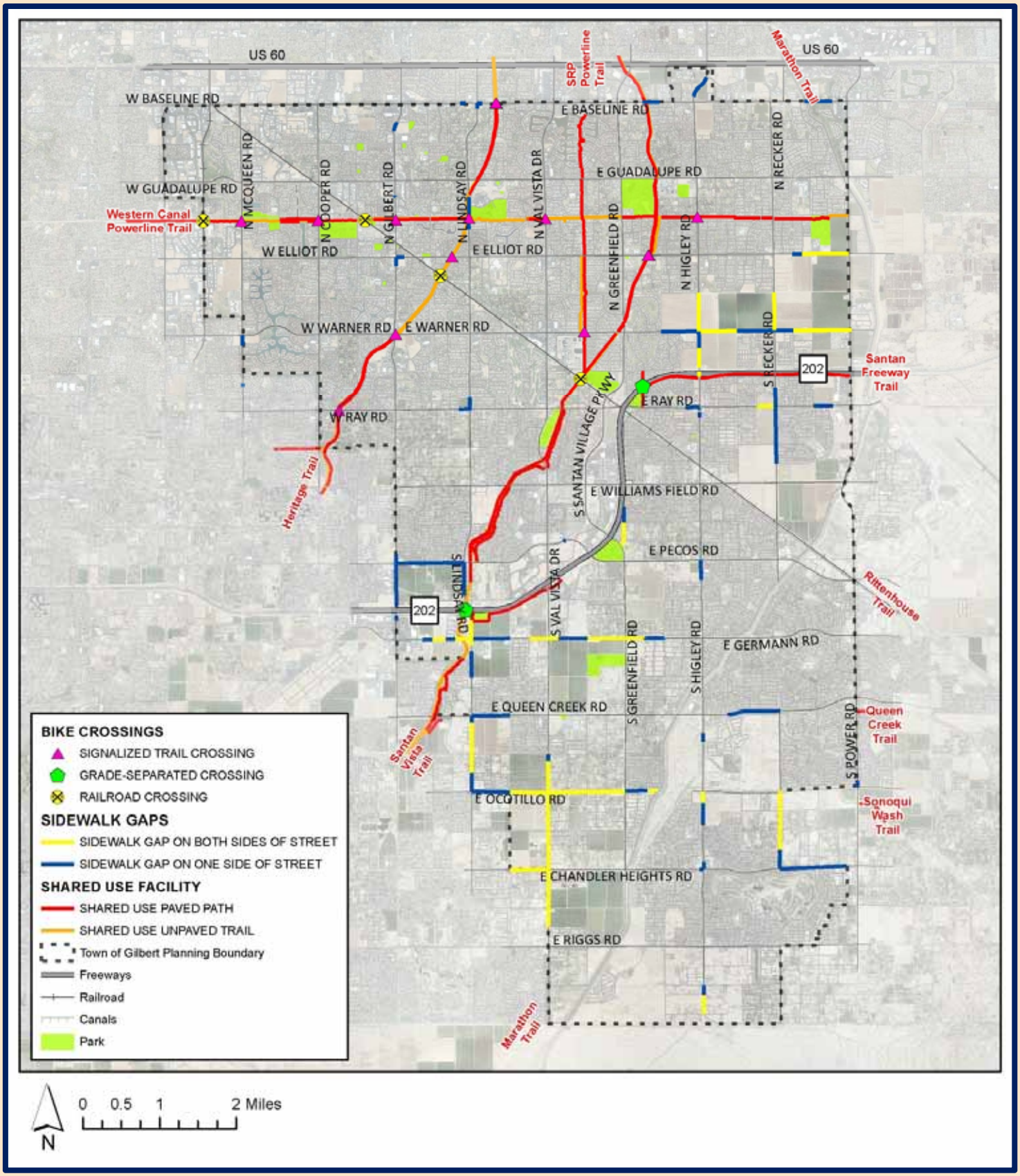


FIGURE 4-9: EXISTING PEDESTRIAN FACILITIES

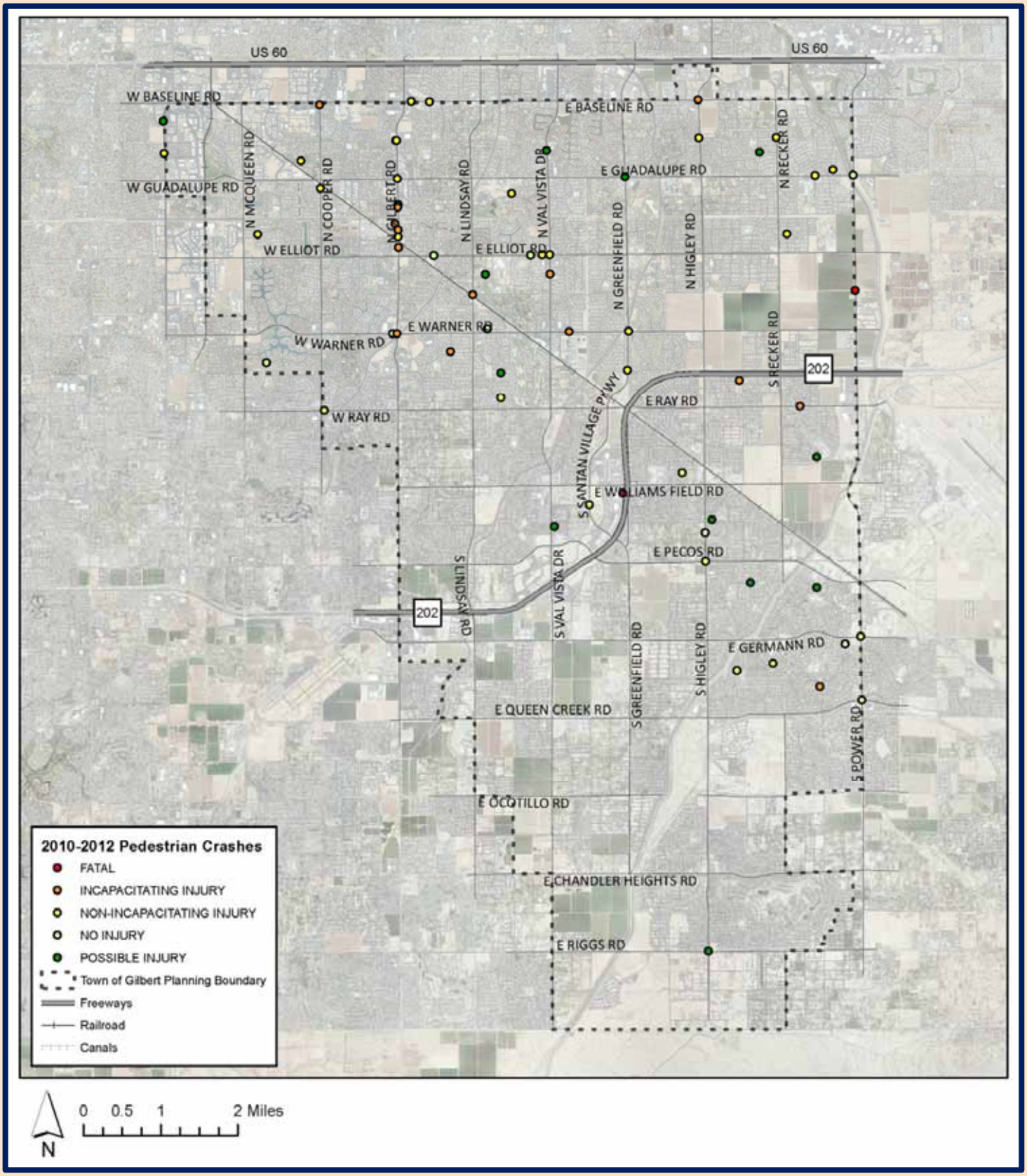


FIGURE 4-10: 2010-2012 PEDESTRIAN/MOTOR VEHICLE CRASHES

For comparison purposes, statewide crash data from the Arizona Department of Transportation[3] (ADOT) was reviewed for 2012, the most recently available year. Statewide, there were 1,575 pedestrian/motor vehicle crashes out of 103,637 total vehicle crashes (1.5%) in 2012. Of the 1,575 pedestrian/motor vehicle crashes, there were 130 fatal crashes (8.3%), 1,279 crashes with injury (81.2%), and 166 crashes with property damage only (10.5%).

Gilbert's pedestrian/motor vehicle crash patterns are fairly similar to Arizona's pedestrian/motor vehicle crash patterns, with Gilbert having a lower percentage of fatal crashes (2.8%) than Arizona (8.3%) but a higher percentage of injury crashes (84.5%) than Arizona (81.2%). For both Gilbert and Arizona, the crash data indicates that when a pedestrian/motor vehicle crash does occur, the likelihood of injury is high.

One fatal crash occurred on Loop 202 (which is under ADOT jurisdiction but within the study area) south of Williams Field Road while the other fatal crash occurred on Power Road 0.5 miles north of Warner Road (which is under Maricopa County jurisdiction).

Other pedestrian/motor vehicle crash attributes included:

58%of the crashes involving pedestrians were intersection related

- 24 of the 71 crashes (34%) occurred in dark conditions, including both fatal crashes
- 41 of the 71 crashes (58%) were intersection-related
- 24 of the 71 crashes (34%) occurred on the major mile arterials
- Locations with higher-density crashes include:
- Gilbert Road from Guadalupe Road to Elliot Road – this roadway segment contains a trail crossing, a railroad crossing, and a bus route, has existing sidewalks, has high pedestrian activity through the Heritage District, and passes through a developed commercial area with numerous driveways and few raised medians
- Elliot Road near the Val Vista Drive intersection – this roadway segment contains a bus route, has sidewalks, and passes through a developed commercial and residential area that includes a high school

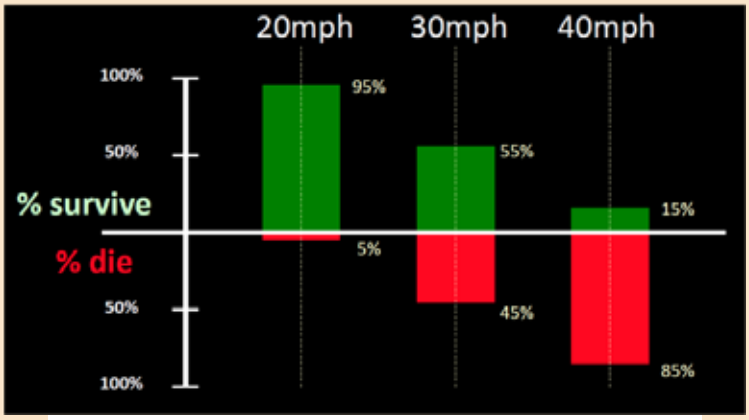
[3] www.azdot.gov

Additional detailed analysis of individual police reports at the locations with higher-density crashes is recommended.

Relationship of Vehicle Speed and Pedestrian Injury Severity[4]

When pedestrian/motor vehicle crashes occur, common sense and experience shows a strong correlation between the speed of the vehicle and the severity of injury to the pedestrian. This relationship has been affirmed through research and is summarized in Figure 4-11. The likelihood that a pedestrian will survive a crash with a motor vehicle is very high (95%) at vehicle speeds less than 20 miles per hour (mph). At 30 mph, 55% of pedestrians typically survive. At vehicle speeds of 40 mph, only 15% of pedestrians typically survive. Roadways with lower speeds make for a more comfortable and safe pedestrian environment.

FIGURE 4-11 – RELATIONSHIP BETWEEN VEHICLE SPEED AND PEDESTRIAN SURVIVAL RATE



Source: http://communitybuilders.net

E. Existing ITS Infrastructure

The Town of Gilbert has ITS infrastructure in place that provides the Town with the capability to operate and manage the Town's existing traffic signal system and transportation network. The ITS infrastructure provides communications between various Town facilities, eliminating or reducing leased communications line expenses for several Town departments. Over the past 10 years, Gilbert has invested in ITS infrastructure as the Town has developed and grown. ITS infrastructure and

[4] www.nhtsa.gov

equipment are installed with Town roadway projects and with new development. The Town's current ITS infrastructure includes the following:

There are 60 CCTV cameras controlled from the TOC

- A Traffic Operations Center (TOC), located at 529 North Lindsay Road, which contains a video wall and is a centralized location from which traffic conditions can be monitored and signal timing adjusted;
- 180 traffic signals connected to the fiber optic network – 60% connected directly via fiber optic cable and 40% connected wirelessly via broadband or 900 MHz radios – that communicate to the TOC via a central signal system;
- More than 27 miles of fiber optic cable along backbone rings or branch lines connected to the backbone rings. The fiber optic network is shared by Town Traffic Operations and Information Technology (IT) staff;
- 60 Closed Circuit Television (CCTV) cameras with pan, tilt, and zoom capabilities that are centrally controlled from the TOC;
- Video detection cameras at most traffic signals and some selected locations provide video images to the TOC;
- Two permanent Dynamic Message Signs (DMS) on Gilbert Road that are locally controlled; and
- Two portable Bluetooth readers deployed that capture travel time information from Bluetooth devices in use by drivers.

The Town has plans to expand the fiber optic network to increase the percentage of traffic signals connected via fiber optic cable and to connect to additional Town facilities.

The two existing DMS in the Town are located on Gilbert Road north of Guadalupe Road (facing northbound traffic) and south of Ray Road (facing southbound traffic). They are used primarily to provide public service announcements, with limited use otherwise because the DMS are not connected to the fiber optic network and must be locally controlled. Town staff has also indicated that the existing DMS would likely be utilized more for traveler information if they were facing the opposite direction (toward downtown Gilbert) as downtown events can impact traffic conditions and patterns. Figure 4-12 shows the existing ITS infrastructure in Gilbert.

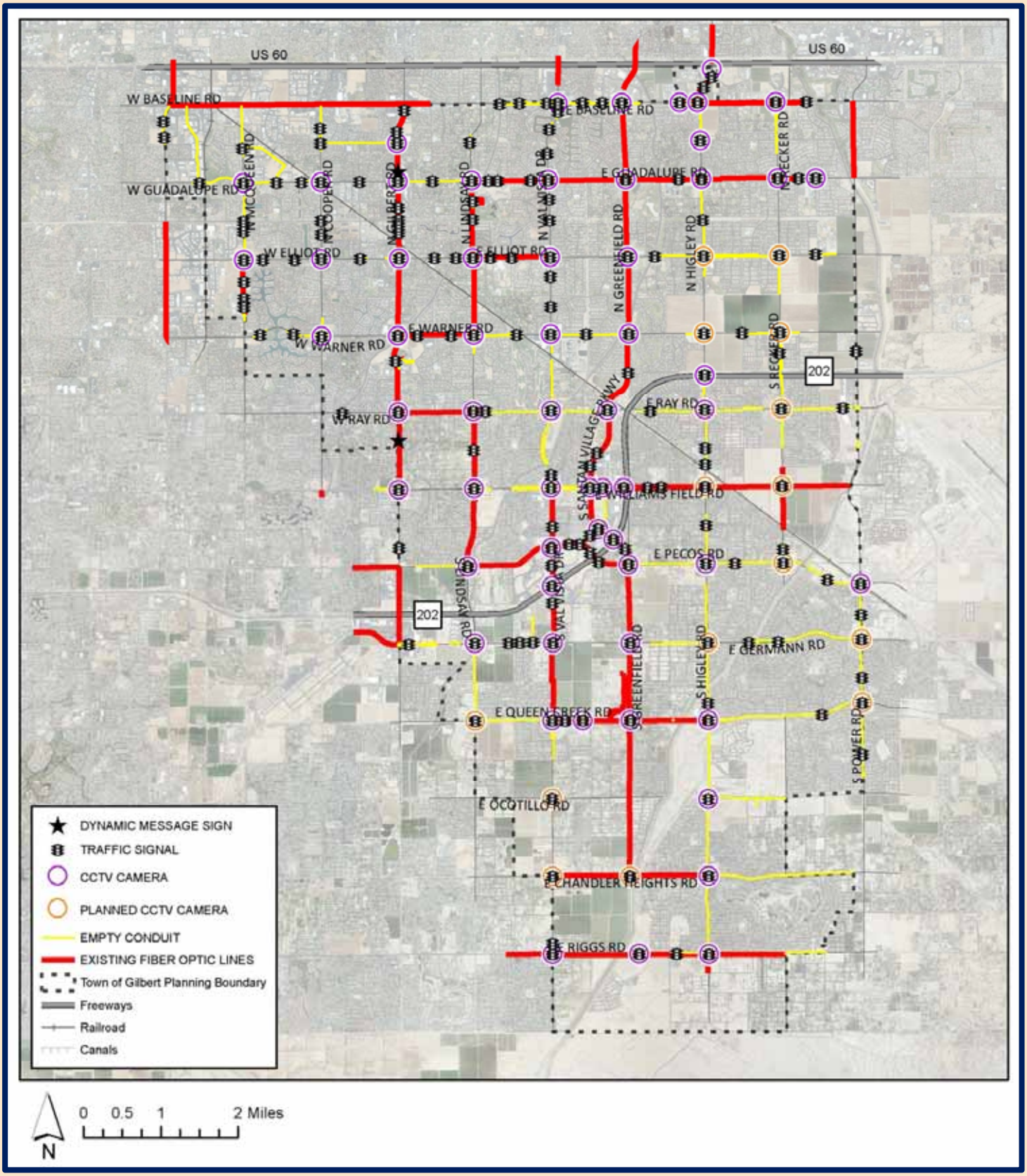


FIGURE 4-12: EXISTING ITS INFRASTRUCTURE

F. Socio-Economic Data

The Maricopa Association of Governments (MAG) is the designated Metropolitan Planning Organization (MPO) for transportation planning for the metropolitan Phoenix area and Maricopa County as well as portions of Pinal County. MAG is also designated as the Air Quality Planning Agency for the region. MAG membership consists of 27 incorporated cities and towns within Maricopa and Pinal Counties and the contiguous urbanized area, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Fort McDowell Yavapai Nation, Maricopa County, Pinal County, Arizona Department of Transportation (ADOT), and Citizens Transportation Oversight Committee (CTOC). ADOT and CTOC serve as ex-officio members for transportation-related issues.

The Arizona Department of Administration (ADOA) prepares the state and county resident population projections, but authorizes Councils of Governments to prepare projections below the county level that are consistent with the County control totals developed by ADOA.

As the designated MPO, MAG is authorized to prepare sub-regional projections using the county population as a control total. In preparing these projections, MAG is required to follow standards established by the Arizona Department of Administration. Sub-regional projections are used:

- by MAG as input into the MAG transportation models to predict automobile traffic.
- by MAG as input into the MAG air quality models to predict emissions and concentrations.
- by local governments to evaluate infrastructure improvements.
- for gauging regional development and land use plans.
- by local governments to prepare general plans.

The corporate boundaries of a city or town define the area over which the jurisdiction exercises its authority. Because MAG projects future conditions, there is a need to define the future corporate boundaries of each city and town and maintain a constant geography over the projection horizon. As a result, MAG prepares its projections by

Municipal Planning Area (MPA). An MPA represents a jurisdiction's area of planning concern and is based upon the anticipated future corporate boundaries of a city or town.

MAG approved new socioeconomic projections for the region in June 2013. Prior to the development of a new set of socioeconomic projections, MAG reviews the MPA boundaries with each member agency through the MAG POPTAC. Maps are distributed showing the MPA boundaries from the last set of projections and input is requested. A jurisdiction is responsible for reviewing and providing input on land use, base data, surveys, assumptions and draft socioeconomic projections for the entire MPA. MAG tabulates the data by Regional Analysis Zone (RAZ) and Traffic Analysis Zone (TAZ) for use in their various modeling activities. TAZs are modified as expected growth in a 30-year horizon expands geographically or density in existing TAZs warrants a split.

Population

The most recent census provides a good source of information for developing projections. The 2010 decennial census was an actual population and dwelling unit count. The following variables were extracted from the 2010 decennial census and used as a part of the projections base:

- resident population in households
- resident population in group quarters
- total housing units
- occupied housing units
- vacant housing units.

Because the 2010 census was conducted on April 1, 2010, it was necessary to adjust the database to July 1, 2010 to provide a mid-year benchmark for the projections series. This adjustment was carried out by adding the sum of housing units constructed and demolished from April 2, 2010 through June 30, 2010 to the April 1, 2010 housing unit figure. By applying census occupancy rates and persons per occupied household to the July 1, 2010 housing stock, a July 1, 2010 population was derived.

Employment

Total 2010 employment at the county-level was derived from a population control total developed by the Arizona Department of Administration (ADOA). Total employment includes self-employed as well as wage and salary workers. Using the 2010 Maricopa County employment control total, 2010 sub-regional employment estimates were prepared and reviewed by MAG member agencies. The employment from the employer database was then benchmarked to the ADOA North American Industry Classification System (NAICS) county totals. A land use was assigned to each employer record based on industry, industry to land use relationships, and TAZ land use.

2013 Projections

The new projections include 2013 population and employment estimates based on the 2010 census. The RAZ and TAZ boundaries are shown in Figure 4-13 and the 2013 population and employment data by RAZ is presented in Table 4-12. The highest population is in RAZ 311 which is in the northwest area of the Town followed by RAZ 319 which is between Warner Road and Ocotillo Road, east of Greenfield Road. The highest employment if found in RAZ 311.

TABLE 4-12: 2013 SOCIOECONOMIC DATA BY RAZ*

RAZ	Population	Employment
311	72,824	34,108
312	28,666	4,995
318	42,849	16,834
319	63,045	6,856
329	29,373	1,642
TOTAL	**236,757**	**64,435**

**source MAG*

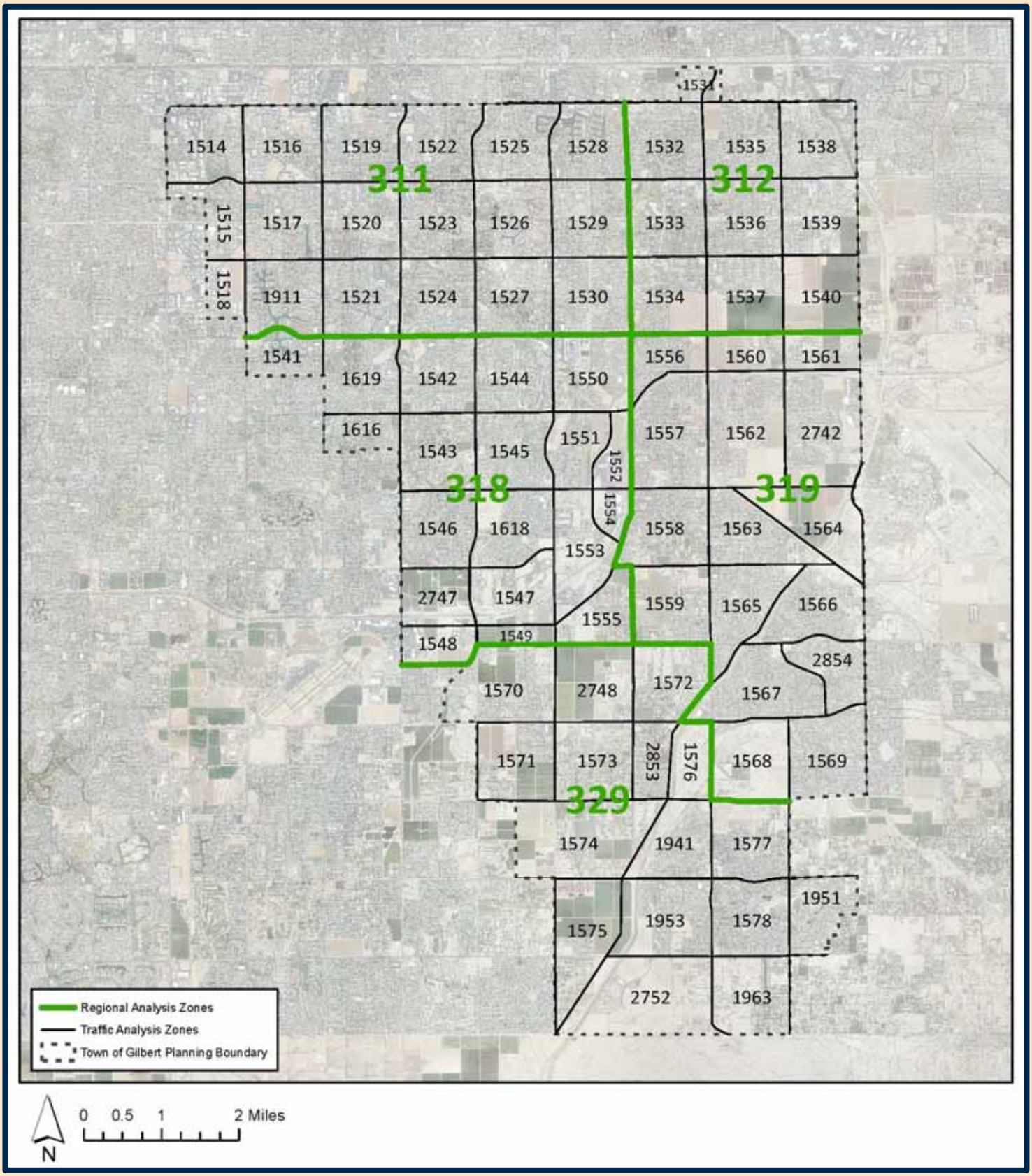


FIGURE 4-13: REGIONAL ANALYSIS ZONES (RAZ'S)

Major Employers & Activity Centers

One purpose of the transportation system is to provide access to major employers and activity centers and in fact a comprehensive transportation system is considered by major employers when deciding where to locate.

The top five private employers identified in the 2010 Town of Gilbert Community Profile are

- Banner Health
- Mercy Gilbert Medical Center
- Go Daddy Software
- Dillard's
- General Dynamics

The major public employers are the three school districts and the Town of Gilbert. There are several activity centers/growth areas that are concentrations of trip activity. These are shown on Figure 4-14 and include the Heritage District, the SanTan Village shopping area, and the Power Road corridor.

Title VI Population

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

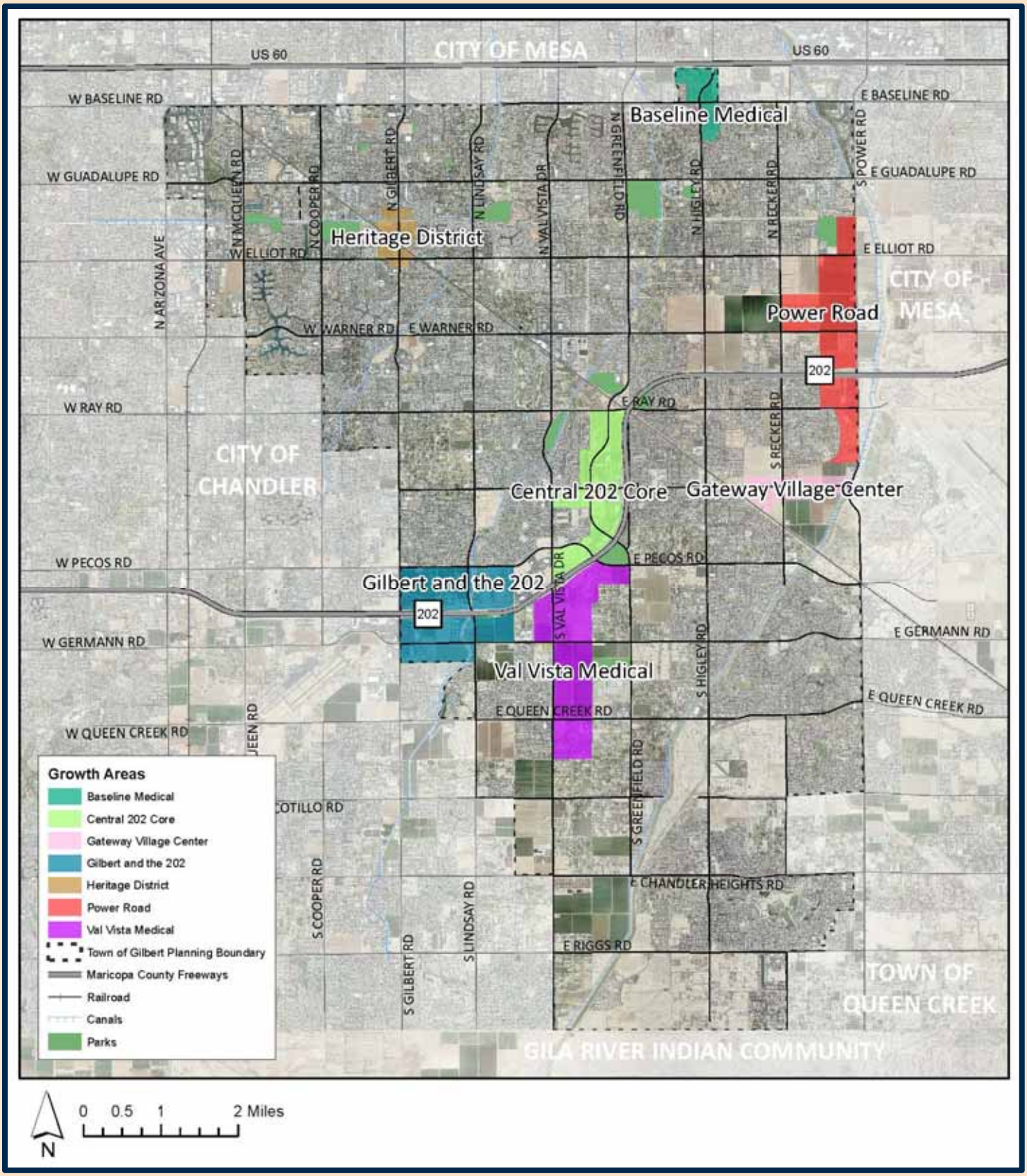


FIGURE 4-14: GROWTH AREAS AND ACTIVITY CENTERS

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.

Starting in 1997, the U.S. Census began to utilize six categories to identify race: White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Some Other Race. However, the U.S. Census views race and origin (ethnicity) as two separate and distinct concepts. Consequently, one's Hispanic origin is viewed as the heritage, nationality group, lineage, or country of birth of the person or the person's parents or ancestors before their arrival in the United States. People who identify their origin as Hispanic, Latino, or Spanish may be any race. As seen in Table 4-13, the 2010 U.S. Census indicates the majority of Gilbert residents identified their race as White (81.8%) with 85.1% not of Hispanic or Latino origin, regardless of race.

TABLE 4-13: 2010 RACIAL DEMOGRAPHICS

Population Group	Percent of Population
White not Hispanic	81.8%
African American	3.4%
Native American	0.8%
Asian	5.8%
Native Hawaiian/Other Pacific Islander	0.2%
Other Race	4.5%
Two or more races	3.5%
Hispanic or Latino (any race)	14.9%
Not Hispanic or Latino (any race)	85.1%

Source: 2010 Census

Additionally environmental justice is the identification of those populations specifically targeted by the Order – minority and low-income populations.

Figures 4-15 – 4-17 present a geographic distribution of elderly, Hispanic, and poverty level populations within the Town planning area. The highest concentration of persons over age 65 occurs between Queen Creek Road and Ocotillo Road, east of Higley Road. There are several locations of 1,001 to 10,000 Hispanic persons per square mile primarily in the northwest portion of the town. There are also several areas of persons in poverty status generally located north of Germann Road and east of Val Vista Drive.

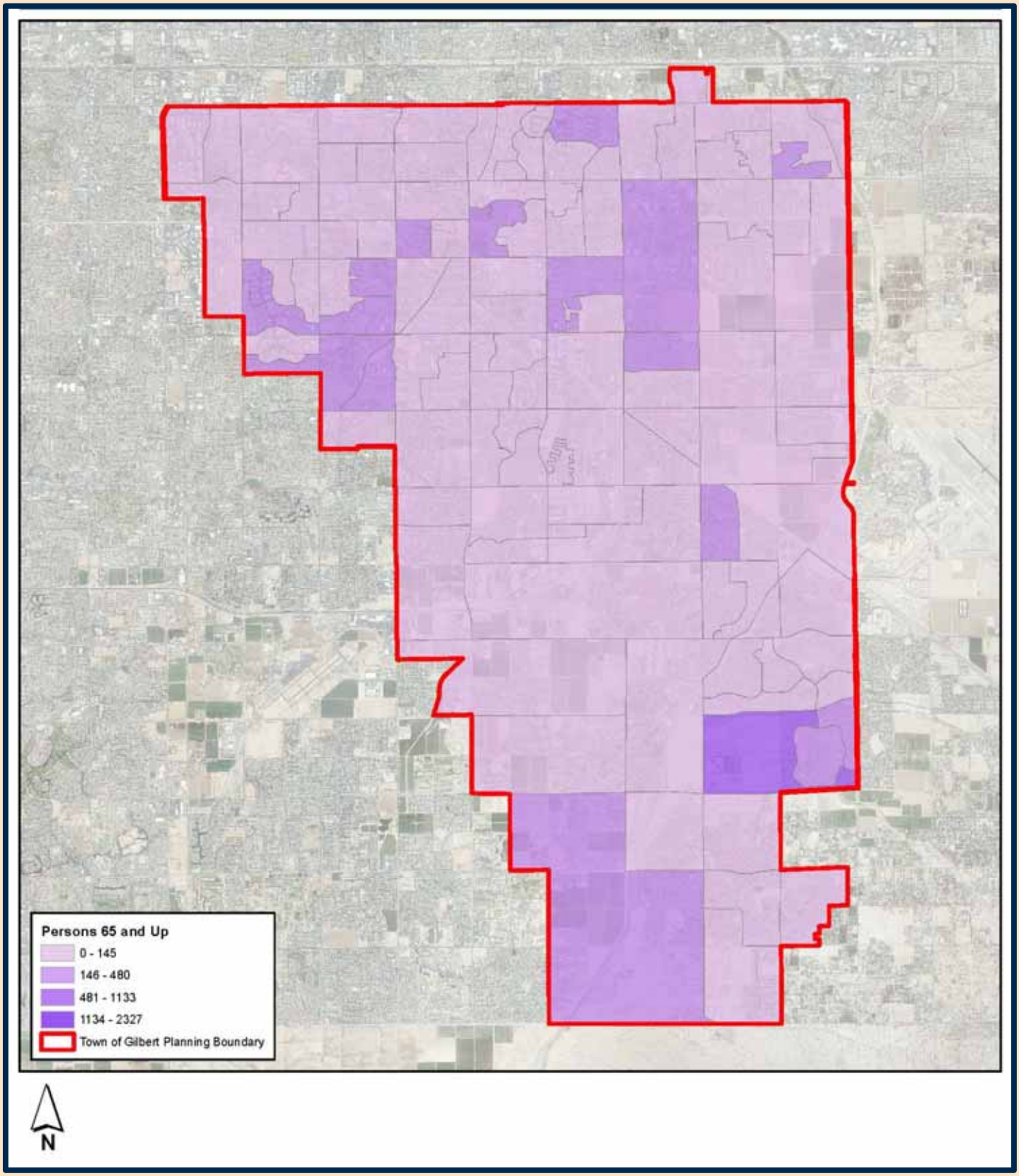
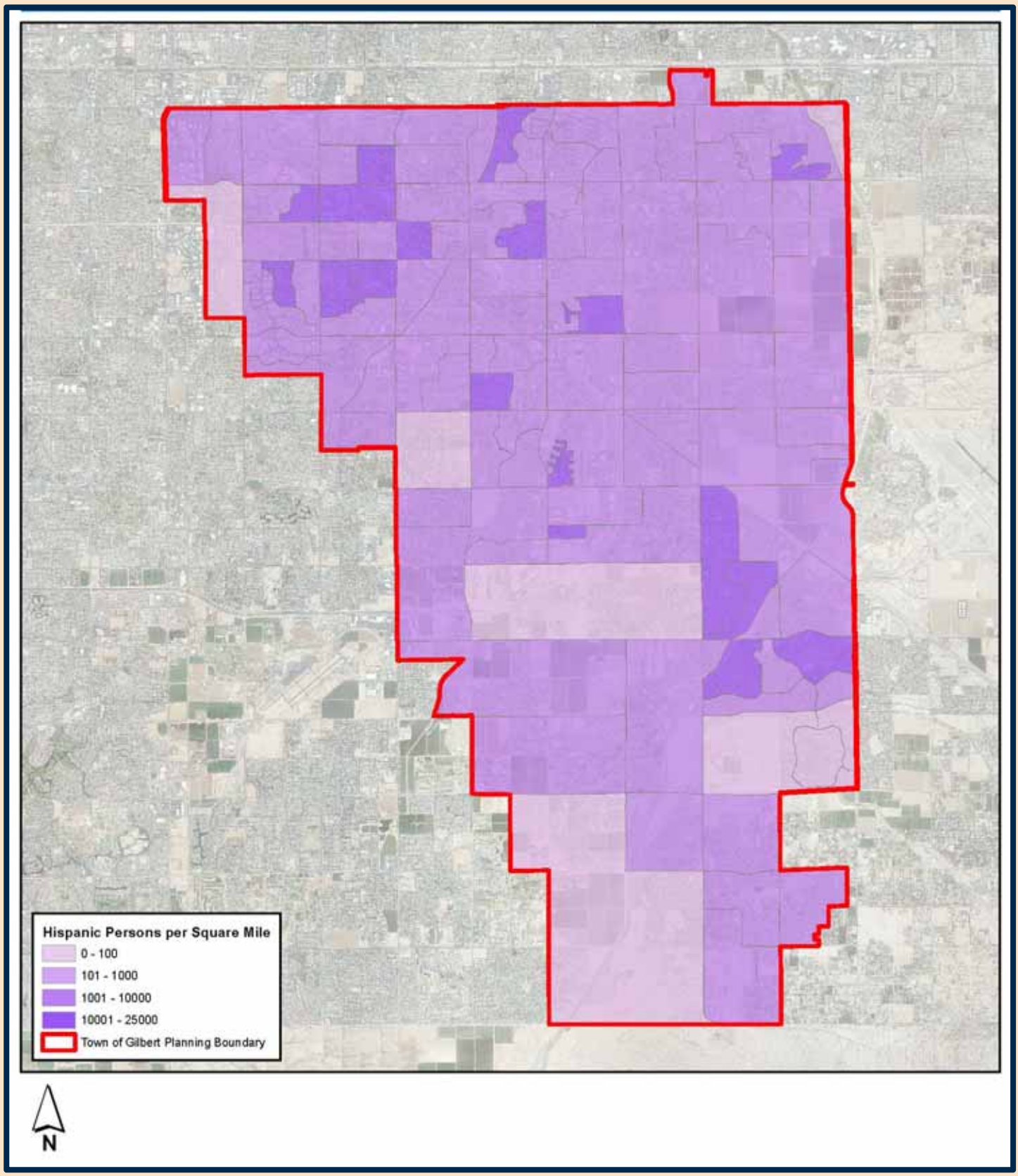


FIGURE 4-15: PERSONS 65 AND OLDER



101FIGURE 4-16: PERSONS OF HISPANIC ORIGIN

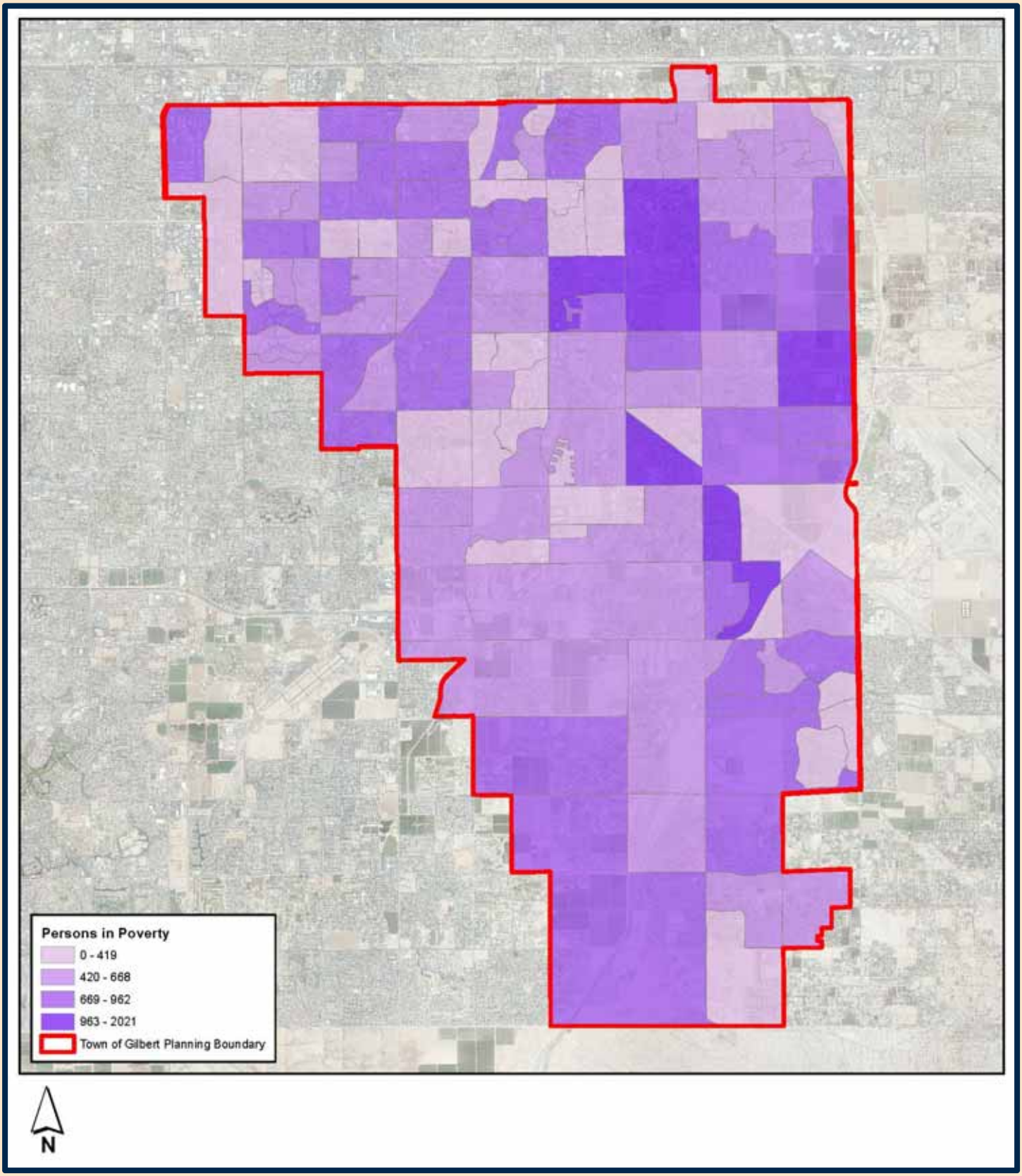


FIGURE 4-17: PERSONS BELOW THE POVERTY LEVEL

G. Funding Sources and Programmed Projects

The Town of Gilbert prepares an annual Capital Improvement Plan (CIP) to document planned projects, estimated cost, and anticipated funding. The project implementation is identified by fiscal year for the first five years, years' 5-10, and beyond 10 years. According to the 2013 – 2018 Capital Improvements Plan (CIP), funding sources for the streets component includes general obligation (GO) bonds, federal grants, MAG RTP funds, outside sources, developer contributions, City of Mesa, General Fund, Streets Fund, Water Fund, Wastewater Fund, investment income, and Signal System Development Fee (SDF). The estimated funding amount by source and year for the 2013-2018 CIP is presented in Table 4-14. The current year includes more than $56 million while years 2014 to 2018 includes only $8 million. Tables 4-15, 4-16 and 4-17 list the projects that are planned between years 2013 and 2023.

TABLE 4-14: CURRENT FUNDING SOURCES (COST IN THOUSANDS)

Source	Total	FY 14	FY 15	FY 16	FY 17	FY 18	Years 6-10	Beyond 10 years
Future Bonds	$87,434	$0	$0	$0	$0	$0	$1,844	$85,590
2003 GO Bonds 05A	$108	$108	$0	$0	$0	$0	$0	$0
2003 GO Bonds 05B	$3,639	$3,639	$0	$0	$0	$0	$0	$0
2006 GO Bonds 08	$16,814	$16,814	$0	$0	$0	$0	$0	$0
2007 GO Bonds 08	$7,075	$7,075	$0	$0	$0	$0	$0	$0
2007 GO Bonds-future	$29,639	$0	$0	$0	$0	$0	$29,639	$0
Federal Grant	$640	$640	$0	$0	$0	$0	$0	$0
MAG RTP Arterial	$128,358	$17,395	$1,364	$5,120	$1,131	$0	$30,272	$73,076
MAG RTP Transit	$1,005	$1,005	$0	$0	$0	$0	$0	$0
CIP Outside Sources	$805	$805	$0	$0	$0	$0	$0	$0
Developer Contribution	$0	$0	$0	$0	$0	$0	$0	$0
City of Mesa	$8,346	$0	$0	$0	$0	$0	$0	$8,346
General Fund	$10	$10	$0	$0	$0	$0	$0	$0
Streets Fund	$12,269	$5,661	$105	$105	$105	$0	$0	$6,293
Water Fund	$6,835	$3,100	$0	$0	$0	$0	$618	$3,117
Wastewater Fund	$0	$0	$0	$0	$0	$0	$0	$0
Investment Income	$0	$0	$0	$0	$0	$0	$0	$0
Total by Year	**$302,977**	**$56,252**	**$1,469**	**$5,225**	**$1,236**	**$0**	**$62,373**	**$176,422**

**source Town of Gilbert 2013-2018 CIP*

TABLE 4-15: PROGRAMMED PROJECTS 2013-2018 (COST IN THOUSANDS)

PROJECT	PROJECT #	COST*	ESTIMATED COMPLETION
Germann Road - Val Vista to Higley	ST058	$12,916	Dec 2014
Higley and Williams Field Improvements	ST062	$19,055	Dec 2013
Cooper and Guadalupe Intersection	ST094	$9,511	May 2015
Power Road - San Tan Freeway to Pecos Road	ST103	$8,749	April 2014
Bus Stop Passenger Improvements-Phase III	ST111	$1,400	July 2014
PM10 Paving	ST119	$1,490	Ongoing
Gilbert Road Median Landscaping	ST126	$389	Feb 2014
Guadalupe and Gilbert Intersection	ST129	$8,865	Feb 2014
Elliot and Cooper Intersection	ST138	$7,615	
Neighborhood Streetlight Rehabilitation	ST148	$2,440	July 2014
Higley Groves West Pavement Reconstruction	ST150	$2,465	July 2014
McQueen Road Median Landscaping	ST151	$706	Feb 2014
Higley and Warner Improvements	ST152	$6,056	Dec 2014
Left-Turn Safety Enhancements	ST154	$355	

**source Town of Gilbert 2013-2018 CIP*

TABLE 4-16: PROGRAMMED PROJECTS 2018-2023 (COST IN THOUSANDS)

PROJECT	PROJECT #	COST*
Higley Road - Riggs to Hunt Highway	ST098	$8,417
Val Vista Drive - Appleby to Riggs	ST112	$21,527
Lindsay Road - Queen Creek to Ocotillo	ST114	$5,991
Lindsay Road - Pecos to Germann	ST117	$2,204
Warner Road - Power to 1/4 Mile West	ST118	$1,844
Power Road - Guadalupe to Santan Freeway	ST120	$7,427
Warner and Greenfield Intersection	ST130	$7,615
Guadalupe and Val Vista Intersection	ST133	$7,615
Elliot and Val Vista Intersection	ST137	$7,615

**source Town of Gilbert 2013-2018 CIP*

TABLE 4-17: PROGRAMMED TRAFFIC SIGNAL PROJECTS

PROJECT	PROJECT #
Minor Intersection Signal Program	TSMIN
Higley Road and Warner Road*	TS122
Ray Road and Recker Road	TS123
Advanced Traffic Management System, Ph. III	TS131
Advanced Traffic Management System, Ph. IV	TS132
Advanced Traffic Management System, Ph. V	TS133
Advanced Traffic Management System, Ph. VI	TS134
Elliot Road and Islands Drive	TS140
Recker Road and Cooley Loop North	TS144
Recker Road and Cooley Loop South	TS145
Williams Field Road and Cooley Loop West	TS146
Williams Field Road and Cooley Loop East	TS147
Riggs Road and Recker Road	TS150
Val Vista Drive and Ocotillo Road	TS154
Val Vista Drive and Chandler Heights Road	TS155
Greenfield Road and Ocotillo Road	TS156
Recker Road and Warner Road	TS157
Recker Road and Ocotillo Road	TS158
Higley Road and Coldwater Blvd.	TS162
Val Vista Drive and Frye *	TS172
Baseline Road and Quinn Avenue*	TS 180
Higley Road and Agritopia Loop.	
Higley Road and Seville Blvd.	
Higley Road and Willis road/Portolla Valley Drive.	
Lindsay Road and Settlers Point Drive	
Advanced Detection	

*in progress

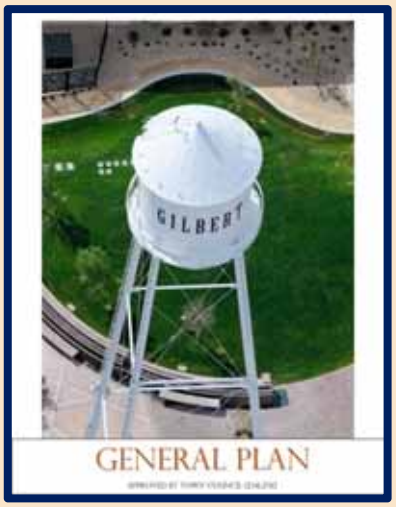
5. STREET ELEMENT

A. Review of Previous Plans

There have been several plans prepared by the Town recently that included an analysis of various aspects of the arterial street system. The following presents a brief summary of each.

Town of Gilbert Arterial Street Plan – 2004

The *2004 Arterial Street Plan* prepared for the Town included recommendations for mid-range and long-range arterial street widening as well as intersection improvements. The intersection improvements included in the mid-range plan were generally intended to address capacity deficiencies on four lane roads. The long range plan was more aggressive and recommended widening to six lanes on most roadways. The mid-range plan covered a 20 year timeframe (2005-2024) and the long range plan was beyond 20 years.

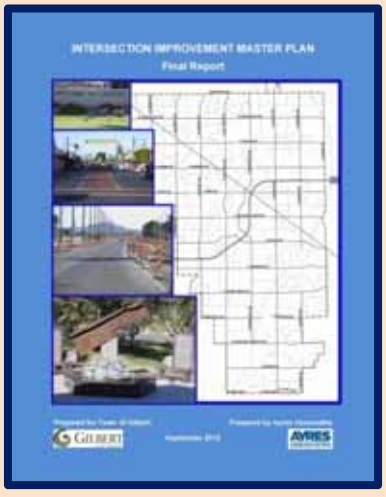


Town of Gilbert General Plan - 2012

The *2011 General Plan* circulation element includes a functional classification map that outlines future number of lanes based on major or minor arterial classification. The major arterial classification signifies a six-lane roadway while the minor arterial classification is a four-lane roadway.

Intersection Improvement Master Plan – 2012

The *2012 Intersection Improvement Master Plan* was a comprehensive analysis of the Town's arterial street system intersections. A detailed capacity analysis of the intersections was performed for both existing conditions and year 2031 conditions resulting in a prioritization of specific intersection improvements. As noted above, the mid-range plan from the *2004 Arterial Street Plan* also included intersection improvements at locations where one or both intersecting streets had four through lanes.



Regional Transportation Plan - 2014

The "2035 Regional Transportation Plan" (RTP) is a comprehensive, performance based, multimodal and coordinated regional plan, covering the period through Fiscal Year (FY) 2035 prepared by MAG. The RTP covers all major modes of transportation from a regional perspective, including freeways/highways, streets, public mass transit, airports, bicycles and pedestrian facilities, goods movement and special needs transportation.

The MAG 2035 RTP, updated August 2013, includes a variety of transit improvements that are funded by Proposition 400. The improvements that affect Gilbert are:

- Germann Road – Gilbert Road to Val Vista Drive (FY 2019-26)
- Germann Road –Val Vista Drive to Higley Road (FY 2014-18)
- Greenfield Road – Elliot Road to Ray Road (FY 2027-35)
- Ray Road – Val Vista Drive to Power Road (FY 2019-26)
- Elliot/Cooper intersection (FY 2014-18)
- Elliot/Gilbert intersection (FY 2019-26)
- Elliot/Greenfield intersection (FY 2019-26)
- Elliot/Higley intersection (FY 2019-26)
- Elliot/Val Vista intersection (FY 2019-26)
- Guadalupe/Cooper intersection (FY 2014-18)
- Guadalupe/Gilbert intersection (FY 2014-18)
- Guadalupe/Greenfield intersection (FY 2019-26)
- Guadalupe/Power intersection (FY 2019-26)
- Guadalupe/Val Vista intersection (FY 2019-26)
- Ray/Gilbert intersection (FY 2019-26)
- Warner/Greenfield intersection (FY 2019-26)
- Power Road – Pecos Road to Chandler Heights Road (FY 2019-26)

B. Comparison of Previous Plans

Table 5-1 presents a comparison of the recommended lanes from the arterial street plan and the functional classifications from the General Plan. The sections of arterial streets where different recommendations were provided in these previous plans are shown bold for reference. As noted with bold text in Table 5-1, there are many street segments where the number of through lanes recommended in these previous studies is inconsistent.

TABLE 5-1: COMPARISON OF ARTERIAL STREET PLAN AND GENERAL PLAN

STREET	FROM STREET (North/West)	TO STREET (South/East)	ARTERIAL STREET PLAN (2005-2024)	ARTERIAL STREET PLAN (BEYOND 2024)	GENERAL PLAN
Arizona	Baseline	Town limit	6 lanes	6 lanes	6 lanes
McQueen	Baseline	Town limit	6 lanes	6 lanes	6 lanes
Cooper	Baseline	Town limit	4 lanes	6 lanes	4 lanes
Gilbert	Baseline	Guadalupe	6 lanes	6 lanes	6 lanes
Gilbert	**Guadalupe**	**Elliot**	**4 lanes**	**4 lanes**	**6 lanes**
Gilbert	Elliot	Town limit	6 lanes	6 lanes	6 lanes
Lindsay	**Baseline**	**Ray**	**4 lanes**	**6 lanes**	**4 lanes**
Lindsay	Ray	Queen Creek	4 lanes	4 lanes	4 lanes
Val Vista	Baseline	Germann	6 lanes	6 lanes	6 lanes
Val Vista	**Germann**	**Hunt Hwy**	**4 lanes**	**4 lanes**	**6 lanes**
Greenfield	**Baseline**	**Knox**	**4 lanes**	**6 lanes**	**4 lanes**
Santan Village	Knox	Pecos	6 lanes	6 lanes	6 lanes
Greenfield	Pecos	Chandler Heights	4 lanes	4 lanes	4 lanes
Higley	Baseline	Hunt Hwy	6 lanes	6 lanes	6 lanes
Recker	**Baseline**	**Williams Field**	**4 lanes**	**6 lanes**	**4 lanes**
Recker	Williams Field	Pecos	4 lanes	4 lanes	4 lanes
Recker	Pecos	Germann	4 lanes	4 lanes	NA
Power	Williams Field	Germann	6 lanes	6 lanes	6 lanes
Power	**Germann**	**Ocotillo**	**4 lanes**	**4 lanes**	**6 lanes**
Baseline	Lindsay	Power	6 lanes	6 lanes	6 lanes
Guadalupe	**Arizona**	**Gilbert**	**4 lanes**	**6 lanes**	**4 lanes**
Guadalupe	**Gilbert**	**Lindsay**	**6 lanes**	**6 lanes**	**4 lanes**
Guadalupe	**Lindsay**	**Power**	**4 lanes**	**6 lanes**	**4 lanes**
Elliot	**Town limit**	**Higley**	**4 lanes**	**6 lanes**	**4 lanes**
Elliot	**Higley**	**Power**	**6 lanes**	**6 lanes**	**4 lanes**
Warner	**McQueen**	**Cooper**	**6 lanes**	**6 lanes**	**4 lanes**
Warner	Cooper	Power	6 lanes	6 lanes	6 lanes
Ray	**Cooper**	**Val Vista**	**4 lanes**	**6 lanes**	**4 lanes**
Ray	Val Vista	Power	6 lanes	6 lanes	6 lanes
Williams Field	Gilbert	Higley	6 lanes	6 lanes	6 lanes
Williams Field	**Higley**	**¼ mile W of Recker**	**4 lanes**	**4 lanes**	**6 lanes**
Williams Field	¼ mile W of Recker	½ mile E of Recker	4 lanes	4 lanes	4 lanes
Williams Field	**½ mile E of Recker**	**Power**	**4 lanes**	**4 lanes**	**6 lanes**
Pecos	**Gilbert**	**Val Vista**	**4 lanes**	**6 lanes**	**4 lanes**
Pecos	Val Vista	Power	6 lanes	6 lanes	6 lanes
Germann	Gilbert	Power	6 lanes	6 lanes	6 lanes

TABLE 5-1: COMPARISON OF ARTERIAL STREET PLAN AND GENERAL PLAN (CONTINUED)

STREET	FROM STREET (North/West)	TO STREET (South/East)	ARTERIAL STREET PLAN (2005-2024)	ARTERIAL STREET PLAN (BEYOND 2024)	GENERAL PLAN
Queen Creek	**Town limit**	**Lindsay**	**6 lanes**	**6 lanes**	**4 lanes**
Queen Creek	Lindsay	Power	4 lanes	4 lanes	4 lanes
Ocotillo	**Town limit**	**Recker**	**2 lanes**	**4 lanes**	**4 lanes**
Ocotillo	**Recker**	**Power**	**2 lanes**	**4 lanes**	**NA**
Chandler Heights	**Town limit**	**Power**	**4 lanes**	**6 lanes**	**4 lanes**
Riggs	Val Vista	Town limit	6 lanes	6 lanes	6 lanes
Hunt Hwy	**Val Vista**	**Recker**	**4 lanes**	**6 lanes**	**6 lanes**

Table 5-2 presents a comparison of the locations where intersection improvements were recommended in the Arterial Street Plan and the Intersection Improvement Master Plan. Table 5-2 also indicates those intersection projects included in the 2035 RTP.

It should be noted that all these previous studies were based on MAG growth projections that were developed prior to the economic downturn in 2008. The June 2013 growth projections approved by MAG shows a slower growth rate than before. The growth projections used in these prior studies will still be attained, but in a later year. The development of the street plan for the Transportation Master Plan will include a review of these previous recommendations and incorporate them as appropriate in the transportation plan.

TABLE 5-2: COMPARISON OF INTERSECTION IMPROVEMENT LOCATIONS

Intersection	2012 Intersection Improvement Master Plan	2004 Arterial Street Plan	INCLUDED IN 2035 MAG RTP
McQueen & Guadalupe		X	
McQueen & Elliot		X	
Cooper & Guadalupe	X	X	X
Cooper & Elliot	X	X	X
Cooper & Warner	X	X	X
Cooper & Ray		X	
Gilbert & Guadalupe	X	X	X
Gilbert & Elliot		X	X
Gilbert & Ray		X	X
Lindsay & Guadalupe	X	X	
Lindsay & Elliot		X	
Lindsay & Warner		X	
Lindsay & Ray		X	
Lindsay & Germann	X		
Lindsay & Pecos	X		
Val Vista & Baseline	X		
Val Vista & Elliot	X	X	X
Val Vista & Warner	X		
Val Vista & Ray	X		
Val Vista & Ocotillo	X		
Greenfield & Baseline		X	
Greenfield & Guadalupe		X	X
Val Vista & Guadalupe	X	X	X
Greenfield & Elliot		X	X
Greenfield & Warner		X	X
Greenfield & Germann	X		
Higley & Baseline	X		
Higley & Guadalupe		X	
Higley & Elliot		X	X
Higley & Warner	X		
Higley & Williams Field	X		
Higley & Pecos	X		
Recker & Guadalupe		X	
Recker & Elliot		X	
Recker & Warner	X	X	
Power & Guadalupe		X	X

C. Goals

The Vision and Goals of the TMP identify several over-arching goals. The recommendations contained in the Street Plan directly support the vision and the following goals:

Vision: A comprehensive, integrated multimodal transportation system that promotes and enhances safety, mobility, efficiency, quality of life, and sustainability.

Goal 3: *Establish a safe, continuous network of arterial streets that accommodates all modes, minimizes congestion, and connects to street networks of neighboring communities.*

Goal 4: *Develop a safe, continuous network of collector and local streets that connects neighborhoods to the arterial street network, encourages bicycling and walking, and incorporates traffic calming strategies.*

Goal 5: *Promote bicycling as a viable transportation option through a safe, comprehensive network of bicycle facilities with access to employment, shopping, schools, parks, and neighborhoods.*

Goal 8: *Identify transportation projects that protect the existing system and address identified needs for expansion of the system in line with the Town's goals, priorities, design standards and available funds*

D. Regional Travel Forecasting Model

The TransCAD travel forecasting model is a mathematical representation of travel behavior used by MAG. The MAG region is subdivided into 29 municipal planning areas (MPAs), 153 regional analysis zones (RAZs) and 2,293 traffic analysis zones (TAZs). MPAs include the corporate limits of a municipality plus any adjacent areas that are anticipated to become a part of those corporate limits in the future. RAZs are subunits of MPAs. RAZs are further divided into TAZs. The TAZ is the smallest unit for which MAG prepares projections. TAZ boundaries are delineated utilizing existing and future highway corridors, transit networks, major arterials, waterways/canals, and other natural features such as mountains. TAZs are generally one square mile in size in developed areas, but can be larger in developing and rural areas or smaller in more dense areas. There are 79 traffic analysis zones and 5 regional analysis zones within

the Gilbert planning area.

The MAG Regional Travel Forecasting Model can provide traffic data to validate existing conditions as well as forecasts of future traffic volumes. The model process starts with two distinct sets of tasks. One set of tasks involves the compilation of land use data, including population and employment, and trip generation rates for the area. Using this information, the number of trips produced and attracted in each traffic analysis zone is calculated. The second set of tasks includes the identification of the street system to be modeled. The street system is simulated by a network of links (street segments) and nodes (intersections). Network data includes street segment lengths, travel speeds, roadway types, and street capacities. Generally, the section line arterial streets and freeways comprise the network.

Using these data, the minimum time paths between TAZs are calculated. The trips calculated in the first set of tasks are distributed between zones based on the relative attractiveness of one zone to another. The zone-to-zone trips are then assigned to the network to obtain traffic volumes. The transportation models perform capacity-restrained traffic assignments based on successive iterations of travel time between zones. The model-simulated volumes for the year 2013 are compared to the existing traffic volumes to determine how well existing conditions are being simulated. Based on the analysis of the 2013 model volumes, adjustment factors are developed and used to refine the 2035 traffic forecasts produced by the model.

Screenline Analysis

The 2013 model volumes are compared to the 2013 traffic counts using a technique known as "screenline comparison". A screenline is an imaginary line that bisects several streets and provides an indication of general travel demand in an east-west or north-south direction as opposed to analyzing just one street. A north-south screenline examines east-west demand and an east-west screenline examines north-south demand. For this study, there were three east-west and three north-south screenlines created. These screenlines are shown on Figure 5-1 along with the RAZ/TAZ boundaries. The east-west screenlines were between Baseline and Guadalupe Roads, Ray and Williams Field Roads, and Queen Creek and Ocotillo

Roads. The north-south screenlines were between Cooper and Gilbert Roads, Val Vista Drive and Greenfield Road, and Recker and Power Roads.

In the existing condition analysis, the 2013 model volume on the streets that cross the screenline are summed and compared with the actual traffic counts across the same screenline. The results of the existing screenline analysis show that the MAG model estimates the existing east-west volume through the Town with 84-93% accuracy. The north-south volume ranges from 82-104% accuracy compared to the MAG model. Less than 100% means that the collected traffic volumes are lower than the model and greater than 100% means the collected traffic volumes are higher. The individual screen analysis is shown in Table 5-3. When the existing model is over-estimating traffic demand, factors reduce the 2035 traffic forecasts across the screenline. Likewise, if the existing model is under-estimating, factors increase the 2035 traffic forecasts across the screenline.

TABLE 5-3: 2013 SCREENLINE ANALYSIS

Screenline	MAG Model Volume	Traffic Count Volume	2035 Screenline Factors
NS1	118,900	110,200	0.93
NS2	229,700	194,500	0.85
NS3	165,300	139,000	0.84
EW1	241,200	241,200	1.0
EW2	152,900	160,200	1.05
EW3	89,100	73,400	0.82

**source MAG model and count data*

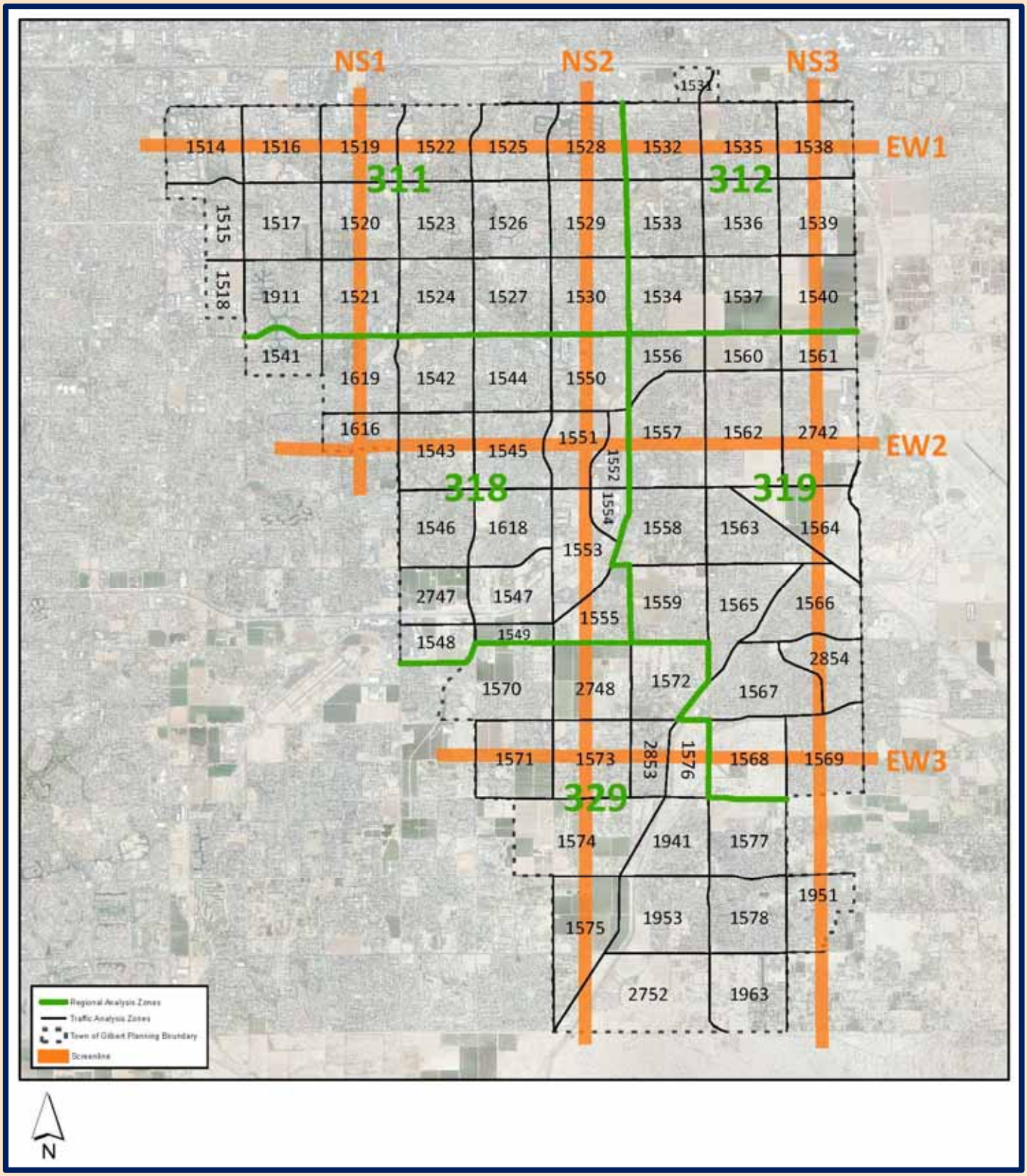


FIGURE 5-1: REGIONAL ANALYSIS ZONES WITH SCREENLINES

E. Future Conditions

The backbone of the Town's transportation system will continue to be the street network in the future. The street network provides the basis for the other modes including transit, pedestrian, and bicycle. The following sections present a discussion of several factors that impact the future street network conditions, examine previous studies, and review recommended projects.

Land Use

One purpose of the population and socioeconomic projections developed by MAG is for input into its transportation and air quality models. These projections are also used for a wide variety of regional planning programs such as human services, regional development and by MAG member agencies in developing long range plans. Some important objectives of the modeling process are to:

- establish a linkage between transportation, land use and air quality models.
- incorporate a geographic information system (GIS) into the process for better data sharing and review with member agencies and for maintaining an innovative approach to land use planning.
- establish a process by which MAG member agencies can contribute their local knowledge into the model results so they are well-suited for use by member agencies.
- test various policy alternatives and land use scenarios on an as-needed basis to assist in regional planning.

The existing land use database identifies the current land use pattern in the urban area. The database was created by MAG staff based on input from MAG member agencies and then circulated to the agencies for review and verification. Changes were made based on comments provided. The existing land use coverage is important to the projections process because it establishes areas that have already been developed or are not suitable for further development. The developed areas become ineligible for the allocation of population and employment growth, except where the area is planned for redevelopment.

The future land use database is based on the plans of MAG member agencies and identifies both the type of development that is anticipated to occur in the future and the density of that development. The database also uses the standard MAG land use categories which allows for a direct comparison between existing and planned land use. The difference between the existing and planned land use databases helps determine where development may take place. Since traffic demand in the Town of Gilbert is influenced by the surrounding communities, it is important to examine land use beyond the Town limits. With the update of the socioeconomic data in June 2013, the Cities of Mesa, Chandler, the Town of Queen Creek, and Pinal County confirmed that their growth forecasts in the MAG database were current.

The Town will experience a 36% increase in population and a 79% increase in employment by 2035

Population and Employment

MAG develops a set of build out population and employment datasets based on population control totals for the county and the General Plans of the member agencies. The 2035 population and employment estimates by RAZ are shown in Table 5-4.

TABLE 5-4: 2035 SOCIOECONOMIC DATA BY RAZ*

RAZ	Population	Employment
311	78,120	42,429
312	40,990	12,245
318	51,285	37,767
319	92,733	18,444
329	57,807	4,702
TOTAL	**320,935**	**115,587**

**source MAG*

A comparison of the 2035 data with the 2013 data for the Town of Gilbert shows the following:

- No RAZs show a decrease in population or employment
- A 36% increase in overall population
- A 79% increase in overall employment
- The largest population increase is in RAZ 319 (47% increase)
- The largest employment increase is in RAZ 318 (124% increase)

2013-2018 CIP Projects

Table 5-5 presents the projects included in the 2013-2014 to 2017-2018 timeframe. As can be seen from the table, except for the Elliot and Cooper intersection (ST 138) and the left-turn safety enhancements (ST 154), all of these projects are underway with estimated completion by the end of 2014.

Traffic Forecasts

Socioeconomic projections are crucial to sound regional planning. Projections of population and employment are used as inputs to forecast future vehicle trips and air quality emissions. The MAG socioeconomic models consider the transportation system accessibility in the allocation of population and employment to smaller geographic areas.

Growth in Pinal County is unpredictable

Using the 2035 socioeconomic data and incorporating CIP projects in the 2013-18 timeframe, MAG prepared a 2035 model run. The results of the model output were summarized for each of the screenlines. Using the screenline factors presented in Table 5-3, traffic forecasts are developed for each street segment. The resulting forecasts for 2035 are shown in Figure 5-2.

It should be noted that the MAG travel forecasting model includes portions of Pinal County southeast of Gilbert. Since Pinal County is still a relatively high growth area, the amount of growth included in the model is somewhat speculative. If growth occurs more rapidly or is higher than what is included in the model, the traffic forecasts particularly in the southeast portion of the planning area could be higher. Conversely, if growth occurs more slowly or is less intense than what is included in the model, the traffic forecasts particularly in the southeast portion of the planning area would be lower.

TABLE 5-5: CIP PROJECTS 2013-2014 TO 2017-2018 (COST IN THOUSANDS)

PROJECT	DESCRIPTION	PROJECT #	COST*	ESTIMATED COMPLETION
Germann Road - Val Vista to Higley	Widen to 6 lanes with median	ST058	$12,916	Dec 2014
Cooper and Guadalupe Intersection	Add third through lane at intersection in all directions	ST094	$9,511	May 2015
Power Road - Loop 202 to Pecos Road	Widen to 6 lanes with median	ST103	$8,749	April 2014
Bus Stop Passenger Improvements-Phase III	New bus stops-various locations	ST111	$1,400	July 2014
PM10 Paving	Pave various unpaved streets	ST119	$1,490	Ongoing
Gilbert Road Median Landscaping	Civic Center Drive to Frye Road	ST126	$389	Feb 2014
Guadalupe and Gilbert Intersection	Add dual left and right turn lanes	ST129	$8,865	Feb 2014
Elliot and Cooper Intersection	Add dual left and right turn lanes	ST138	$7,615	
Neighborhood Streetlight Rehabilitation	Upgrade street light poles	ST148	$2,440	July 2014
Higley Groves West Pavement Reconstruction	Pavement rehabilitation	ST150	$2,465	July 2014
McQueen Road Median Landscaping	Baseline Road to Town limit	ST151	$706	Feb 2014
Higley and Warner Improvements	Widen to 6 lanes at intersection with median-four lanes on Higley from Mesquite to Loop 202	ST152	$6,056	Dec 2014
Left-Turn Safety Enhancements	Improve left-turn sight distance at various intersections	ST154	$355	

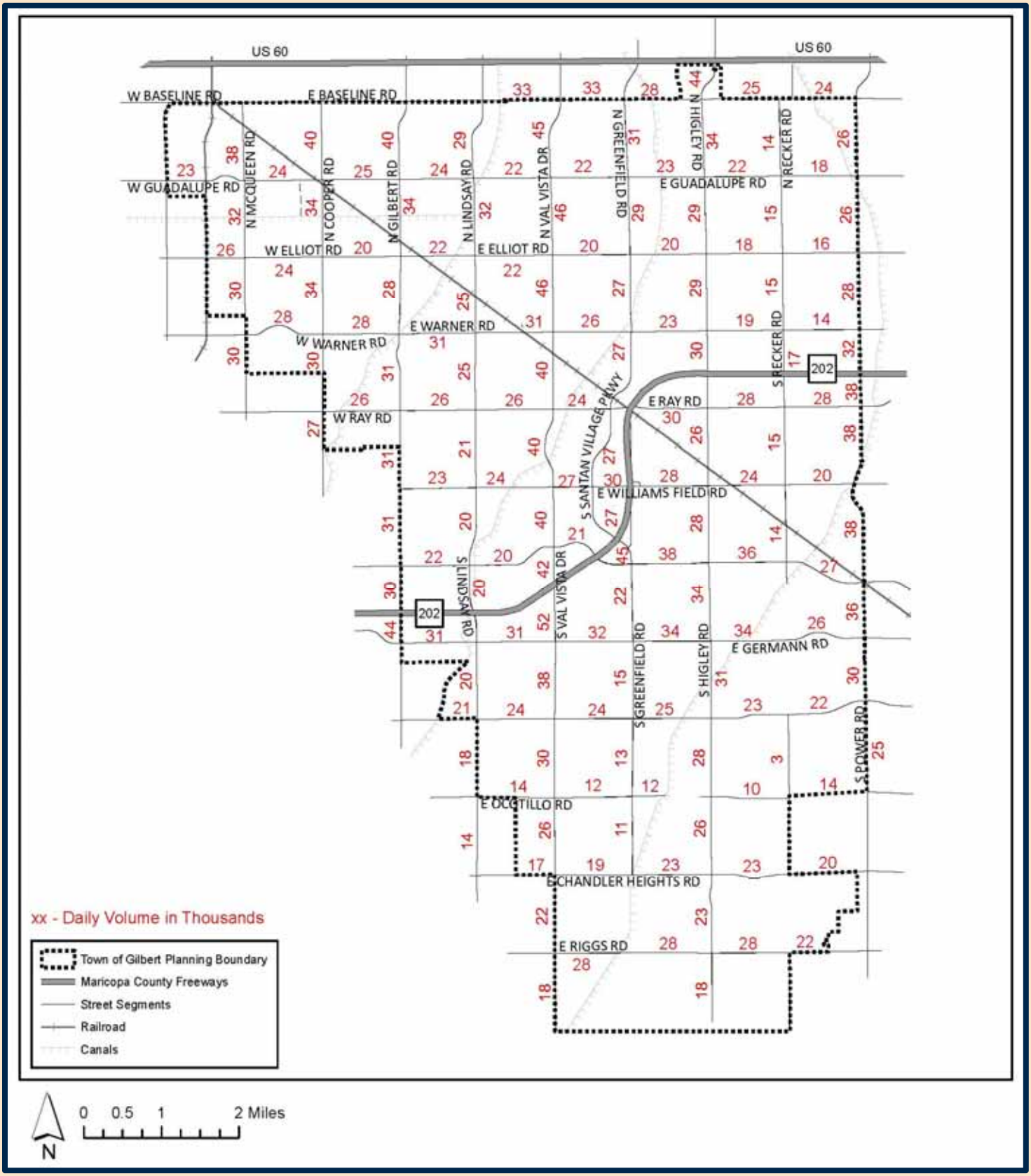


FIGURE 5-2: 2035 BASE TRAFFIC FORECASTS

F. 2035 Base Level of Service (LOS)

Using the 2035 traffic forecasts and the CIP projects included in the 2013-2018 timeframe, a future base LOS analysis was performed. The road segments with existing level of service E and F are summarized in Table 5-6 and existing level of service D, E, and F are shown in Figure 5-3. As expected, there are significantly more LOS D, E, and F segments in the 2035 base condition compared to 2013. There are projected to be:

- 17 segments with LOS F
- 12 with LOS E
- 36 with LOS D.

Right of way constraints may limit roadway widening

Of the 34 segments with LOS E or F, 21 are unimproved segments with only 2 through lanes. The majority of these are expected to be improved with future development.

Some street segments with level of service E and F are in the north section of the Town where the streets have been improved to four lanes and it will be difficult to add capacity along the segment due to existing right of way constraints.

TABLE 5-6: 2035 BASE LOS (INCLUDES 2013-2018 CIP PROJECTS)

Street	From Street	To Street	Base Condition Through Lanes	V/C	LOS
Elliot	Recker	Power	2	1.10	F
Warner	Higley	Recker	2	1.15	F
Ray	Higley	Recker	2	1.70	F
Pecos	Gilbert	Lindsay	2	1.33	F
Germann	Gilbert	Lindsay	2	1.88	F
Germann	Lindsay	Val Vista	2	1.88	F
Chandler Heights	Recker	Power	2	1.21	F
Cooper	Baseline	Guadalupe	4/6*	0.93	E
Cooper	Guadalupe	Elliot	4/6*	0.93	E
Cooper	Elliot	Warner	4/6*	0.93	E
Gilbert	Guadalupe	Elliot	4	1.06	F
Gilbert	Elliot	Warner	4	0.88	E
Lindsay	Baseline	Guadalupe	4	0.91	E
Lindsay	Guadalupe	Elliot	4	1.00	F
Lindsay	Pecos	Germann	2	1.21	F
Lindsay	Germann	Queen Creek	2	1.21	F
Lindsay	Queen Creek	Ocotillo	2	1.09	F
Val Vista	LOOP 202	Germann	6	0.96	E
Val Vista	Queen Creek	Ocotillo	2	1.82	F
Val Vista	Ocotillo	Chandler Heights	2	2.18	F
Val Vista	Chandler Heights	Riggs	2	1.33	F
Greenfield	Baseline	Guadalupe	4	0.97	E
Greenfield	Guadalupe	Elliot	4	0.91	E
Higley	Pecos	Germann	4	0.96	E
Higley	Ocotillo	Chandler Heights	2	1.00	E
Higley	Riggs	Hunt Hwy	2	1.09	F
Recker	Elliot	Warner	2	0.91	E
Recker	Loop 202	Ray	2	1.03	F
Recker	Ray	Williams Field	2	0.91	E

**4/6 indicates 4 lane segment with widening to six through lanes at one or both major intersections*

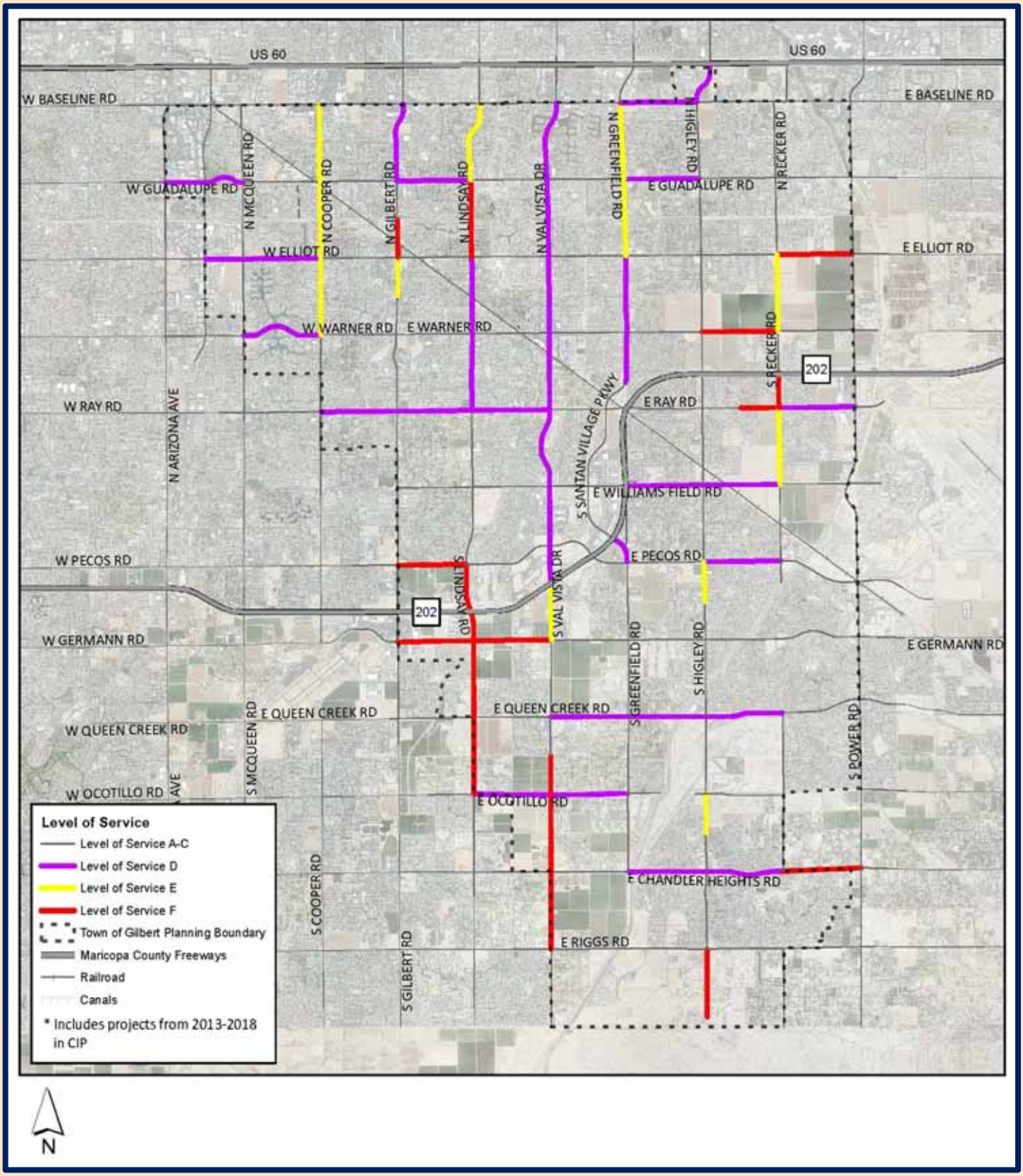


FIGURE 5-3: 2035 BASE LEVEL OF SERVICE

G. CIP Projects: 2018–2019 and Beyond

The next step in the process is to evaluate the projects included in the CIP for the years 2018-2019 and beyond. Using the 2035 base level of service analysis, these projects were reviewed to determine if the improvement included in the CIP should be retained and if so, what timeframe. Tables 5-7 and 5-8 present the results of the evaluation of the 2018-2019 to 2022-2023 and beyond 2023 projects respectively. The tables include comments regarding actions to be considered with respect to the type of improvement and timeframe.

The CIP also includes locations for future traffic signals. Although they are not included here, the Town should continue to monitor the locations and design and construct new traffic signals when an engineering study shows they are needed.

The completion of the 2013-2018 CIP projects listed in Tables 5-7 and 5-8 will improve the 2035 base levels of service. Once these projects are implemented, the remaining road segments with existing level of service D, E, and F are shown in Figure 5-4 and the existing level of service E and F are summarized in Table 5-9. With all the projects in the 2013-18 CIP implemented, there are projected to be:

- 6 segments with LOS F
- 13 with LOS E
- 31 with LOS D.

TABLE 5-7: CIP PROJECTS 2018-2019 TO 2022-2023 (COST IN THOUSANDS)

PROJECT	DESCRIPTION	PROJECT #	COST*	ACTION
Higley Road - Riggs to Hunt Highway	Widen to 6 lanes with median	ST098	$8,417	Future LOS does not warrant 6 lanes, evaluate 4 lanes
Val Vista Drive - Appleby to Riggs	Widen to 6 lanes with median	ST112	$21,527	Future LOS does not warrant 6 lanes from Chandler Heights to Riggs, evaluate 4 lanes
Lindsay Road - Queen Creek to Ocotillo	Widen to 4 lanes	ST114	$5,991	Continue as planned
Lindsay Road - Pecos to Germann	Widen to 4 lanes	ST117	$2,204	Evaluate 6 lanes from Pecos to Queen Creek to accommodate additional traffic if new TI added at Loop 202
Warner Road - Power to 1/4 Mile West	Construct south side to 6 lanes with median	ST118	$1,844	Continue as planned
Power Road - Guadalupe to Loop 202	Widen to 6 lanes with median	ST120	$7,427	Continue as planned
Warner and Greenfield Intersection	Add dual left and right turn lanes	ST130	$7,615	Continue as planned
Guadalupe and Val Vista Intersection	Add dual left and right turn lanes	ST133	$7,615	Future LOS is acceptable, consider delaying until after 2023
Elliot and Val Vista Intersection	Add dual left and right turn lanes	ST137	$7,615	Future LOS is acceptable, consider delaying until after 2023

TABLE 5-8: CIP PROJECTS BEYOND 2023 (COST IN THOUSANDS)

PROJECT	DESCRIPTION	PROJECT #	COST*	COMMENTS
Ocotillo Road - Greenfield to Higley	Widen to 4 lanes	ST054	20,957	Continue as planned for street continuity
Baseline Road - Burk to Consolidated Canal	Widen to 6 lanes with median	ST071	2,373	Continue as planned for street continuity
Baseline Road - Greenfield to Power	Widen to 6 lanes with median	ST078	17,019	Consider advancing as base LOS is E
Recker Road - Ocotillo to Chandler Heights	Widen to 2 lanes	ST080	5,308	Continue as planned for street continuity
Hunt Highway - Val Vista to 164th Street	Widen to 4 lanes	ST084	12,801	Re-evaluate need and purpose of Hunt Highway as major arterial
Recker Road - 660' North of Ray to 1,320' North	Improve to 4 lanes on the west side	ST096	1,846	Consider advancing as base LOS is F
Ocotillo Road - Val Vista to Greenfield	Widen to 4 lanes	ST099	10,506	Continue as planned for street continuity
Ocotillo Road - Recker to Power	Widen to 4 lanes	ST102	3,940	Continue as planned for street continuity
Elliot Road Improvements - Neely to Burk	Underground utilities	ST105	4,537	Continue as planned for street continuity
Hunt Highway - Higley to Recker	Widen to 6 lanes with median	ST115	14,681	Re-evaluate need and purpose of Hunt Highway as major arterial
Recker Road - Riggs to Hunt Highway	Widen to 4 lanes	ST116	7,951	Consider delaying because base LOS is C or better
Val Vista Drive - Riggs to Hunt Highway	Widen to 4 lanes	ST127	5,375	Continue as planned for street continuity
Ray Road - Val Vista to Power	Widen to 6 lanes with median	ST128	15,187	Consider advancing as base LOS is D and F
Ray and Gilbert Intersection	Add dual left and right turn lanes	ST131	7,615	Consider delaying because base LOS is only D
Elliot and Gilbert Intersection	Add dual left and right turn lanes	ST132	7,615	Consider advancing as base LOS is E and F
Guadalupe and Power Intersection	Add dual left and right turn lanes	ST134	7,428	Consider delaying because base LOS is C or better
Guadalupe and Greenfield Intersection	Add dual left and right turn lanes	ST135	7,615	Consider advancing as base LOS is D and E
Elliot and Greenfield Intersection	Add dual left and right turn lanes	ST136	7,615	Consider advancing as base LOS is D and E
Elliot and Higley Intersection	Add dual left and right turn lanes	ST139	7,615	Consider delaying because base LOS is C or better
Germann Road - Gilbert to Val Vista	Widen to 6 lanes with median	ST145	12,386	Consider advancing as base LOS is F

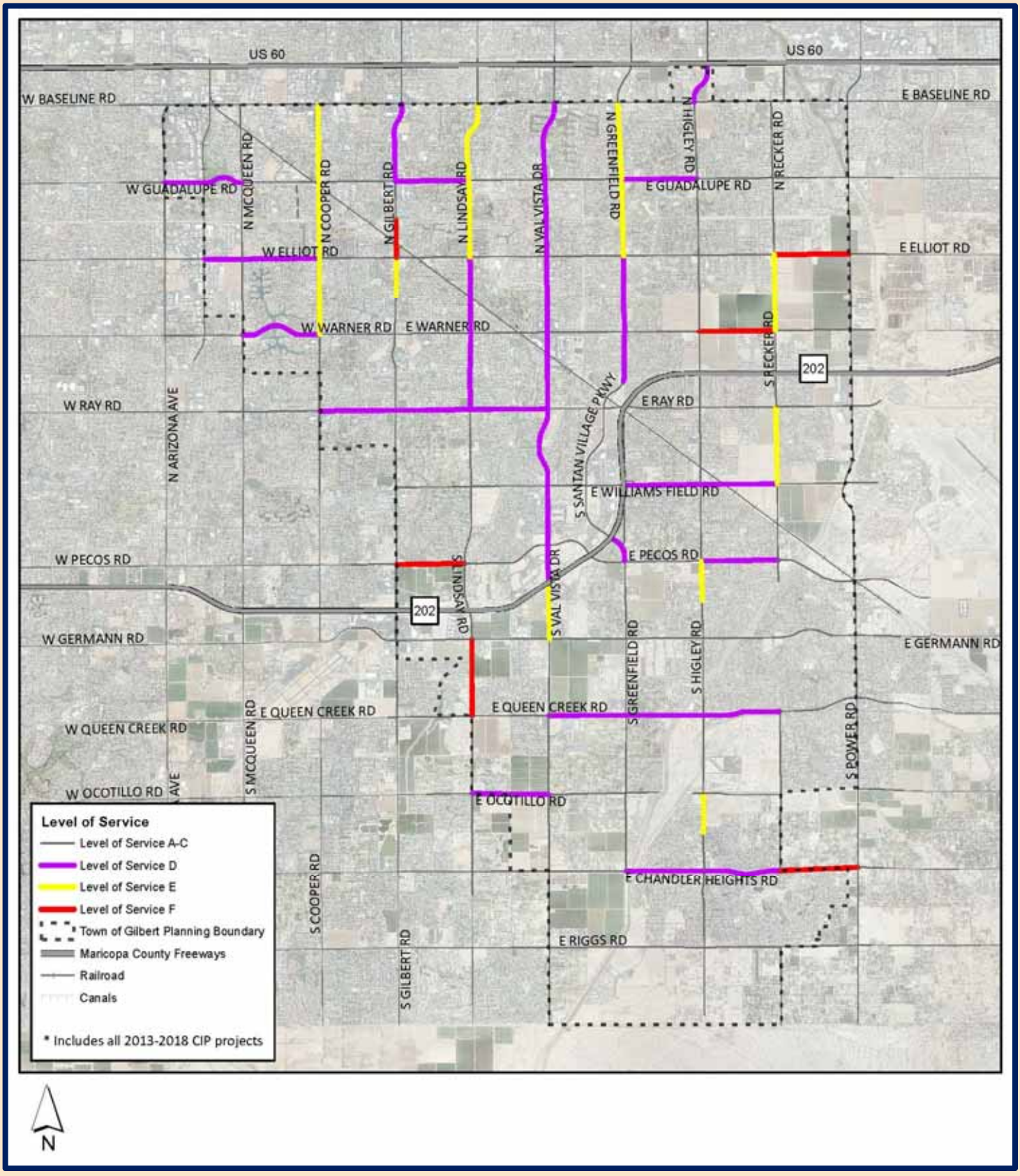


FIGURE 5-4: 2035 LOS WITH ALL CIP PROJECTS INCLUDED

TABLE 5-9: 2035 LEVEL OF SERVICE WITH ALL CIP PROJECTS

Street	From Street	To Street	Base Condition Through Lanes	V/C	LOS
Elliot	Recker	Power	2	1.10	F
Warner	Higley	Recker	2	1.15	F
Pecos	Gilbert	Lindsay	2	1.33	F
Chandler Heights	Recker	Power	2	1.21	F
Cooper	Baseline	Guadalupe	4/6*	0.93	E
Cooper	Guadalupe	Elliot	4/6*	0.93	E
Cooper	Elliot	Warner	4/6*	0.93	E
Gilbert	Guadalupe	Elliot	4	1.06	F
Gilbert	Elliot	Warner	4	0.88	E
Lindsay	Baseline	Guadalupe	4	0.91	E
Lindsay	Guadalupe	Elliot	4	1.00	E
Lindsay	Germann	Queen Creek	2	1.21	F
Val Vista	Loop 202	Germann	6	0.96	E
Greenfield	Baseline	Guadalupe	4	0.97	E
Greenfield	Guadalupe	Elliot	4	0.91	E
Higley	Pecos	Germann	4	0.96	E
Higley	Ocotillo	Chandler Heights	2	1.00	E
Recker	Elliot	Warner	2	0.91	E
Recker	Ray	Williams Field	2	0.91	E

**4/6 indicates 4 lane segment with widening to six through lanes at major intersection*

H. Additional Recommendations

In addition to the projects included in the 2013-2018 CIP, the plan includes additional projects to address capacity improvements, new freeway access, and supporting mobility and access provided by the collector street system.

New Capacity

As seen in Figure 5-4 and Table 5-9, even after all the CIP projects are implemented, there are still unacceptable levels of service remaining. The street segments with level of service D remaining in 2035 are considered acceptable and no further action is recommended. The street segments that still have level of service E or F are summarized in Table 5-10 for unimproved road segments and 5-11 for improved road segments. Both tables include comments that address the E and F level of

service. The unimproved road segments are expected to be completed as part of new development and may not be Town of Gilbert projects. The improved road segments are more difficult to identify cost effective projects without significant right of way acquisition. Intersection widening and added turn lanes at the major intersections will provide level of service improvement since these are generally the road segment constraint points.

TABLE 5-10: ADDITIONAL RECOMMENDATIONS FOR UNIMPROVED ROADS

Street	From	To	LOS	COMMENTS
Elliot Rd	Recker Rd	Power Rd	F	Complete 4-lane section and LOS will improve to A
Warner Rd	Greenfield Rd	Higley Rd	F	Complete 6-lane section and LOS will improve to A
Warner Rd	Higley Rd	Recker Rd	F	Complete 6-lane section and LOS will improve to A
Pecos Rd	Gilbert Rd	Lindsay Rd	F	Complete 4-lane section and LOS will improve to C
Chandler Heights Rd	Recker Rd	Power Rd	F	Complete 4-lane section and LOS will improve to C
Lindsay Rd	Germann Rd	Queen Creek Rd	F	Complete 4-lane section and LOS will improve to C
Higley Rd	Pecos Rd	Germann Rd	E	Complete 6-lane section and LOS will improve to C
Higley Rd	Ocotillo Rd	Chandler Heights Rd	F	Complete 6-lane section and LOS will improve to A
Recker Rd	Elliot Rd	Warner Rd	E	Complete 4-lane section and LOS will improve to A
Recker Rd	Ray Rd	Williams Field Rd	E	Complete 4-lane section and LOS will improve to A

TABLE 5-11: ADDITIONAL RECOMMENDATIONS FOR IMPROVED ROADS

Street	From Street	To Street	LOS	COMMENTS
Cooper	Baseline	Guadalupe	E	Widen Cooper to 6 lanes between Baseline to Guadalupe and LOS will improve to D
Cooper	Guadalupe	Elliot	E	Additional through lanes at Cooper/Elliot will improve LOS to D
Cooper	Elliot	Warner	E	Additional through lanes at Cooper/Elliot will improve LOS to D
Gilbert	Guadalupe	Elliot	F	Additional through lanes at Gilbert/Elliot will improve LOS to D
Gilbert	Elliot	Warner	E	Additional through lanes at Gilbert/Elliot will improve LOS to C
Lindsay	Baseline	Guadalupe	E	Additional through lanes at Lindsay/Guadalupe will improve LOS to D
Lindsay	Guadalupe	Elliot	F	Additional through lanes at Lindsay/Elliot will improve LOS to D
Val Vista	Loop 202	Germann	E	New TI at Lindsay will improve LOS
Greenfield	Baseline	Guadalupe	E	Additional through lanes at Greenfield/Guadalupe will improve LOS to D
Greenfield	Guadalupe	Elliot	E	Additional through lanes at Greenfield/Elliot will improve LOS to C
Higley	Elliot	Warner	F	Complete 6-lane section and LOS will improve to B

Street Plan

The recommended street plan is presented in Figure 5-5. It shows the recommended number of lanes and intersection improvements to meet the projected demand in 2035.

Freeway Access

The Town of Gilbert has initiated discussions with the Arizona Department of Transportation to evaluate the addition of a traffic interchange (TI) at Loop 202 and Lindsay Road. ADOT will be conducting a feasibility analysis in 2014/2015 to explore the geometry of this TI. There are several benefits associated with a new TI at Lindsay Road. Traffic volumes exiting/entering the Gilbert Road and Val Vista Drive traffic interchanges would be reduced. This would improve the LOS E and F on Val Vista Drive between Loop 202 and Queen Creek Road.

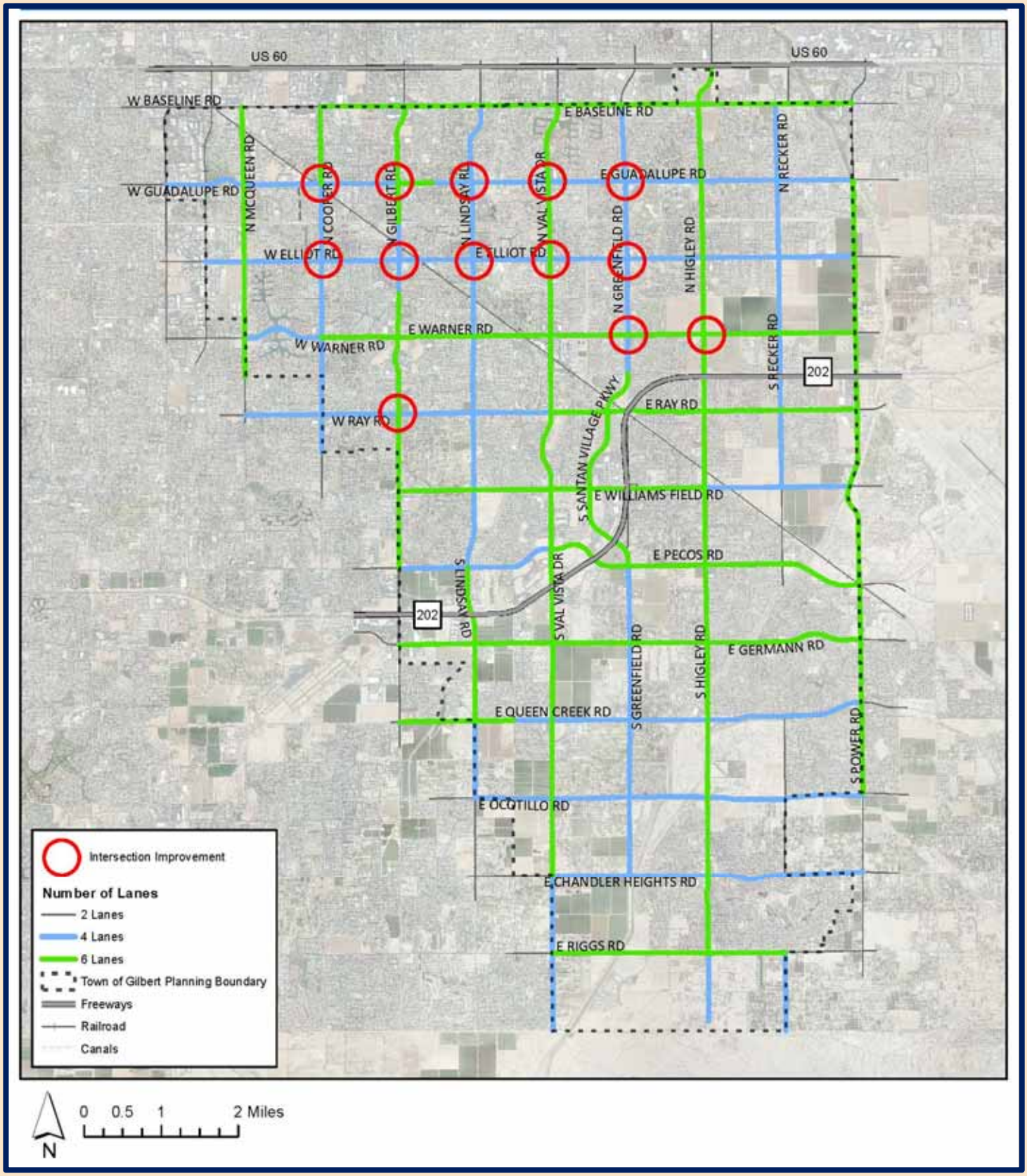


FIGURE 5-5: RECOMMENDED STREET PLAN

An initial traffic analysis was conducted to examine the impact of a new TI at Lindsay Road. MAG prepared a 2035 travel forecast assuming a new half interchange to/from the west at Lindsay Road. A review of those forecasts compared to the 2035 base forecasts indicate that volumes on Gilbert Road and Val Vista Drive would decrease by 5,000 and 8,000 vehicles respectively while volumes on Lindsay Road would increase by as much as 20,000 vehicles. If the Town moves forward with a new TI at Lindsay Road and Loop 202, then Lindsay Road should be improved to six lanes between Pecos Road and Queen Creek Road in conjunction with the TI. The MAG Regional Transportation Plan includes a new TI at US 60 and Lindsay Road in Mesa and that TI was included in this traffic forecast prepared by MAG. Although there are seven miles between US 60 and Loop 202 on Lindsay Road, it would be beneficial for the Town to coordinate with ADOT and Mesa regarding the timing of these improvements.

Collector Roads

Collector roads serve a critical role in the roadway network by gathering traffic from local roads and funneling it to the arterial network and can also provide land access. Collector roads provide an alternative for shorter trips by car, bike, or foot. As the Town continues to develop and improvements are evaluated, the Town needs to examine the benefit of including collector roads in new development and expanding existing collector roads. A well-developed collector road system provides relief to the arterial streets and in some cases can eliminate the need for arterial improvements.

I. Policy Considerations

As the Town of Gilbert continues to grow and urbanize, there are policy considerations that can affect land use and development. These are discussed below.

Complete Streets

Complete streets are safe, comfortable, and convenient for travel for everyone, including motorists, pedestrians, bicyclists, and public transportation riders regardless of age or ability. Street design must meet the needs of people walking, driving, cycling, and taking transit, all in a constrained space. The best street design


Bike, Pedestrian, & Transit Friendly Intersection

also adds to the value of businesses, offices, and schools located along the roadway.

According to the National Complete Streets Coalition, typical elements that make up a complete street include sidewalks, bicycle lanes (or wide, paved shoulders), shared-use paths, designated bus lanes, safe and accessible transit stops, and frequent and safe crossings for pedestrians, including median islands, accessible pedestrian signals, and curb extensions. Transit, including bus and fixed-rail services, can become a more attractive option when access points that comply with the requirements of the Americans with Disabilities Act (ADA) are integrated into roads, sidewalks, and parking areas to allow easier, safer access for all users.

The city of Scottsdale incorporated a complete streets policy in their 2008 Transportation Plan. The City of Phoenix recently developed a draft complete streets policy that is waiting for council action.

While the Town of Gilbert does not have a formal complete street policy, the current engineering standards and details for arterial and collector streets include sidewalks and bike lanes on all newly constructed streets and therefore achieve the benefits of complete streets. However, a formal complete streets policy and council adoption would define the Town as a complete streets advocate.

Phased Implementation

Several of the projects included in the 2013-2018 CIP as well as some of the additional recommendations in this plan are to construct six-lane streets. For funding reasons as well as consideration of “complete streets”, there may be a benefit to construct new roadways as four lanes initially with the ability to widen to six lanes. The key to implementing this strategy is to obtain the needed right of way for a six-lane street. The Town can consider two options for phased implementation. Table 5-12 presents a comparison of each method.

- 1) Ultimate Outside Curb - construct four lanes with a 40 foot wide median and then widen to six lanes in the future by narrowing the median to 16 feet
- 2) Ultimate Inside Curb - construct as a four-lane street and then add two lanes on the outside in the future.

TABLE 5-12: MAJOR ARTERIAL STREET PHASE CONSTRUCTION

Feature	Ultimate Outside Curb	Ultimate Inside Curb
Roadway	Construct curb, gutter, and sidewalk in the final location for a six-lane street – median and left turn access is temporary. Intersections and driveways are permanent.	Construct curb, gutter, and sidewalk for a four-lane street – median and left turn access is permanent. Intersections and driveways are temporary.
Drainage	Construct drainage facilities in the permanent location on the outside including catch basins, and trunk line.	Construct drainage facilities in a temporary location on the outside using catch basins or scuppers with temporary connection to trunk line.
Traffic	Construct signal poles in the permanent location with final mast arm lengths and temporary signal placement. Permanent median lighting constructed.	Construct signal poles in a temporary location with temporary mast arm lengths and signal placement. Permanent median lighting constructed.
Landscape median	Temporary landscape median area wider than ultimate. Ultimate landscaping back of curb.	Ultimate landscaping in median. Interim landscaping back of sidewalk.
Transit	Bus pull out in final location	Bus pull out in temporary location
Future construction	Remove curb on inside, construct additional through lane and new curb in final location.	Remove curb, gutter, sidewalk, and temporary drainage; construct additional through lanes, bike lanes, curb, gutter, and sidewalk, final location. Construct permanent drainage.
Ultimate construction	All work occurs in the median area with little disruption to traffic, but more difficult for contractor.	Work occurs on both sides of the road. There are access restrictions at driveways and disruptions at intersections.
Complete Streets	More conducive to complete streets	Less conducive to complete streets

Based on a review of the implementation options, the following guideline is suggested.

- Obtain 140 feet of right of way for major arterial street plus additional right of way at intersections.
- If a four lane street still results in level of service to ‘F’ in 2035, then construct the six-lane cross section with a 16-foot median.
- If a four lane street improves the level of service to ‘E’ in 2035, then construct the four-lane cross section with ultimate outside.

- If a four lane street improves the level of service to 'D' in 2035, then construct the four-lane cross section with ultimate inside.

Street Design and Access Control

Bus pull-outs should be provided at the mile intersections along four-lane arterial streets with existing or planned bus routes as construction occurs. At signalized intersections, far side bus pull-outs are preferred.

Left turn lanes should be provided on all approaches to major arterial-major arterial intersections. The need for dual left turn lanes and right turn lanes should be evaluated at the time of construction using the "Gilbert Intersection Improvement Master Plan" (2012) as a guide.

Left turn lanes and right turn lanes should be provided on all minor arterial street approaches to major arterial streets. Left-turn lanes should be designed such that the offset between left-turn lanes provides adequate sight distance for safe turning operations. The need for dual left turn lanes should be evaluated at the time of construction using the "Gilbert Intersection Improvement Master Plan" (2012) as a guide.

Raised medians should be installed on all new major arterial streets and evaluated for all new minor arterial streets. Median breaks that support U-turn movements should be provided at one-quarter mile intervals. Median breaks that do not conform to this spacing must be justified by a traffic study.

The Town has several standard details that provide guidance for access spacing on various street types. The Institute of Transportation Engineers (ITE) recommended practice, Guidelines for Driveway Location and Design, can provide supporting information.

Intersection Reconstruction

Capacity constraints most typically occur at signalized intersections and not along sections of roadway. Intersection reconstruction can provide a benefit at arterial street intersections where one or both streets have four through lanes. The intersection widening would provide three through lanes and dual left turn lanes in

each direction. Separate right turn lanes may be provided based on the “Intersection Improvement Master Plan” and a traffic study.

The benefit of intersection reconstruction along four-lane arterials is that additional street capacity is provided at key locations without widening an entire one-mile segment where right of way may be limited. The result is that arterial street widening to six lanes can be postponed or may not be needed. A potential candidate location for this strategy identified in the Intersection Improvement Master Plan is Elliot Road and Cooper Road.

6. . TRANSIT ELEMENT

Transit is a key component of a multimodal transportation plan and provides mobility for users that do not have access to a car, are unable to drive, or chose not to drive. This chapter presents guidelines for expanding transit service, a review of past and on-going relevant transit plans, identifies transit needs, and recommends two options for new and expanded transit service.

A. Trends in Travel Behavior

Recent trends in demographics and a change in travel behavior suggest that a more diverse transportation system for the future is warranted. These shifts can be attributed to several factors:

- **Aging Baby Boomers**. Baby Boomers, the generation born between 1946 and 1964, are reaching retirement age and are healthier and living longer than previous generations. Today, about one in eight people in the United States is over 65; by 2030, this age group will include one in five people. According to the American Association of Retired Persons (AARP), nearly 90% of seniors today want to live in their own homes and communities for as long as possible. In most cases, that will mean remaining in low-density, suburban locations that are not well-served by transit. The bulk of Baby Boomers in Arizona will not retire to dense cities and will require different transportation options in their own communities when they are no longer driving personal vehicles.
- **Rise of the Millennial Generation.** Recent data indicate that the generation of Americans born between the early 1980s and the early 2000s (referred to as “Millennials”) are now the largest group of Americans. They tend toward city living and less driving, as compared to other age groups. In 2009, Millennials drove 23% fewer miles on average than the same age group did in 2001. This was a greater decline than any other age group. While economic recession was partially responsible for the decline, evidence also points to a declining interest in driving among this age group: the percentage of 16-to-24-year-olds with driver's licenses has been declining for much longer than per capita vehicle-miles traveled (VMT). Millennials live in cities in greater numbers than previous generations and have a stronger preference for urban living.
- **Declining vehicle travel**. Vehicle-miles traveled (VMT); both per capita and in absolute terms, have historically risen steadily for decades in Arizona and in the United States as a whole. States have responded by steadily expanding the

vehicle capacity of roadway systems. However, the rise of the Millennials and the aging of Baby Boomers have corresponded with a recent unprecedented national dip in driving. Over the past decade, nationwide VMT has crested and declined for the first time. On a per capita basis, nationwide VMT has declined sharply since the mid-2000s, and has yet to increase again as the economy has recovered. Despite a growing population, total VMT in Arizona fell 0.4% between 2005 and 2011. VMT per capita fell 8% over the same period, compared to 6.5% nationally.

These societal trends result in the need for a diverse, multimodal, transportation system. The Transit Element recognizes these societal shifts.

B. Guidelines for New/Expanded Service

Valley Metro recently completed a report titled "Regional Transit Standards and Performance Measures-Phase 1". The document included transit service standards and performance measures by which the performance of the region's transit system may be evaluated, and decisions regarding transit investments may be prioritized and measured. In order to provide high level transit service that is affordable to passengers and taxpayers in the greater Phoenix metropolitan region, tradeoffs are required between the costs and the benefits of providing the service. Service Standards will provide a formal mechanism for making these tradeoffs in an objective and equitable way, and provide both decision-makers and the public with the necessary data and evidence when discussing routing, scheduling, and service change decisions.

Valley Metro identified five tangible goals related to values viewed as important for the region that were used in development of transit service standards and performance measures for Valley Metro funded and operated services. The five goals established through this process include:

- Implement services identified in the Regional Transportation Plan in consideration of a performance based system.
- Give high priority to services that focus on the transit-dependent population.

- Provide transit service that is desirable as an alternate mode to automobile travel.
- Improve Valley Metro's overall performance and promote the long-term financial stability of the agency.
- Promote expansion that builds existing services to meet standards and focuses new services in key areas, including higher population density areas, locations with limited auto availability, residential geographies with lower incomes, and the locations of major activity centers.

Multiple types of transit services can be applied to help meet objectives or serve a target market. It is important to identify transit service types due to differences in the expected level of service (service standards) and performance (performance measurement) of each service type. Valley Metro has identified fixed-route transit services that would be applicable to Gilbert as: Local Bus, Express Bus (commuter service), Bus Rapid Transit, Community Circulator, and Light Rail Transit. Descriptions of each service are summarized in Table 6-1.

Recommended transit service standards, including frequency, span of service, and days of operation were identified for each transit service type. Transit service standards assist in the general design of services but also provide for a more consistent and reliable regional transit system for passengers. The recommended service standards assigned to each service type are based on the anticipated demand (number of riders), markets served (e.g. all day travel market versus commuter market), and proven industry practices employed by peer regions. Recommended service standards for each service type are provided in Table 6-2.

In addition, recommended standards were prepared for bus stop spacing and are shown in Table 6-3. However, where development patterns are of higher or lower density than typical within the region, an exception to the recommended stop spacing standard may be warranted.

TABLE 6-1: TRANSIT SERVICE TYPES

Service Type	Description
Community Circulator	Generally operates in neighborhoods or activity centers (i.e. central business district, historic town center, etc.) providing connectivity to local area resources/amenities, providing area circulation, or connecting to fixed local route service.
Local Bus	Traditional fixed-route transit bus service that generally operates on arterial roadways and passenger stops are at frequent intervals to maximize passenger access.
Commuter Express	Transit service designed to serve commuter markets. Typically operates during peak periods with a limited number of passenger stops connecting residential areas regional employment centers.
Light Rail	A high capacity rail transit technology operating on a fixed or semi-exclusive guideway. Generally serves moderate to high density urban/suburban areas providing connections to regional employment centers and other major activity centers.
Bus Rapid Transit (BRT)	Characterized by limited stop, high frequency, all-day service and generally operates on arterial roadways.
Commuter Rail	Typically serves daily work trips between primary employment centers and outlying suburban areas using railroad passenger cars.

TABLE 6-2: RECOMMENDED SERVICE STANDARDS

Service Type	Minimum Headway or Daily Trips	Minimum Span Week/Sat/Sun	Minimum Operating Days
Dial-a-Ride (ADA)	NA	ADA service shall be available throughout the same hours and days as fixed route service	
Community Circulator	30 min	12 hrs/0 hrs/0 hrs	Mon – Fri
Local Bus	30 min*	16 hrs/14 hrs/12 hrs	Mon – Sun
Commuter Express	4 trips AM / 4 trips PM	NA	Mon – Fri
Light Rail Transit	12 min peak / 20 min base	18 hrs/14 hrs/12 hrs	Mon – Sun
Bus Rapid Transit	12 min peak / 20 min base	18 hrs/14 hrs/12 hrs	Mon – Sun

**60 min early morning and late night service*

TABLE 6-3: MINIMUM STOP SPACING

Service Type	Base*
Community/Circulator**	¼ Mile
Local Bus	¼ Mile
Commuter Express	4 Maximum Inbound Stops
Light Rail Transit	1 Mile

**Stops may be spaced at 1/8 of a mile for Local Bus, Key Local Bus, and Circulator routes, or ½ mile for limited stop routes in high density areas.*

***Some circulator routes have flag stops; stop spacing may therefore vary*

C. Goals

The Vision and Goals of the Transportation Master Plan identify several over-arching goals. The recommendations contained in the Transit Plan directly support the vision and the following goals:

Vision: A comprehensive, integrated multimodal transportation system that promotes and enhances safety, mobility, efficiency, quality of life, and sustainability.

Goal 1: Foster economic development through an integrated multimodal transportation system that connects major generators to the region, each other and to neighborhoods and facilitates the movement of people and goods between different modes of travel.

Goal 7: Work with regional transit partners to develop a transit network that meets the needs of Gilbert residents and serves local employment centers, shopping, schools, and neighborhoods and also connects to regional destinations.

Goal 9: Support public and private efforts to improve mobility in the region and reduce impacts on the environment.

D. Review of previous plans

Several other plans that affect transit in Gilbert have been completed or are in draft form. These include the Gilbert/East Valley Transit System Plan, Town of Gilbert General Plan, Maricopa Association of Governments (MAG) Regional Transportation Plan (RTP), Arizona Department of Transportation (ADOT) Intercity Rail Study, MAG Commuter Rail Study, the City of Chandler Transportation Master Plan, and the City of Mesa Transit Master Plan. Each of these is summarized in the following sections.

Gilbert/East Valley Transit System Plan

The Gilbert/East Valley Transit System Plan was prepared in 2003 for the Town of Gilbert and Salt River Project. The report included a final system plan for the Town and a regional system plan. These maps are included as Figure 6-1 and Figure 6-2. The recommendations included:

- Express service on Williams Field Road from ASU Polytechnic Campus continuing into Chandler with a park-and-ride at Greenfield
- Express service on Val Vista Drive: Williams Field Road to Chandler Heights Road connecting to Chandler Heights express service
- Park-and-ride lot at Germann and Val Vista – park-and-ride in MAG RTP serves Val Vista express
- Express service on Chandler Heights Road: Val Vista Drive to Greenfield Road connecting to proposed park-and-ride at Greenfield and Chandler Heights
- Extend express service on Gilbert Road to Civic Center Drive
- Local service on Baseline Road continuing from existing to Power Road
- Local service on Greenfield Road from Chandler Heights Road continuing into Mesa
- Freeway Bus Rapid Transit (BRT (bus rapid transit) on Loop 202
- BRT on Power Road
- Commuter rail on Union Pacific RR line
- Light Rail on Union Pacific RR/Arizona Avenue

Town of Gilbert General Plan

The Town of Gilbert General Plan adopted in 2011 included an alternative transportation modes map with the following improvements.

- Commuter rail along Union Pacific Railroad (UPRR) line with stations in Heritage District and between Williams Field Road and Recker Road
- BRT along Williams Field Road
- Light Rail along Arizona Avenue

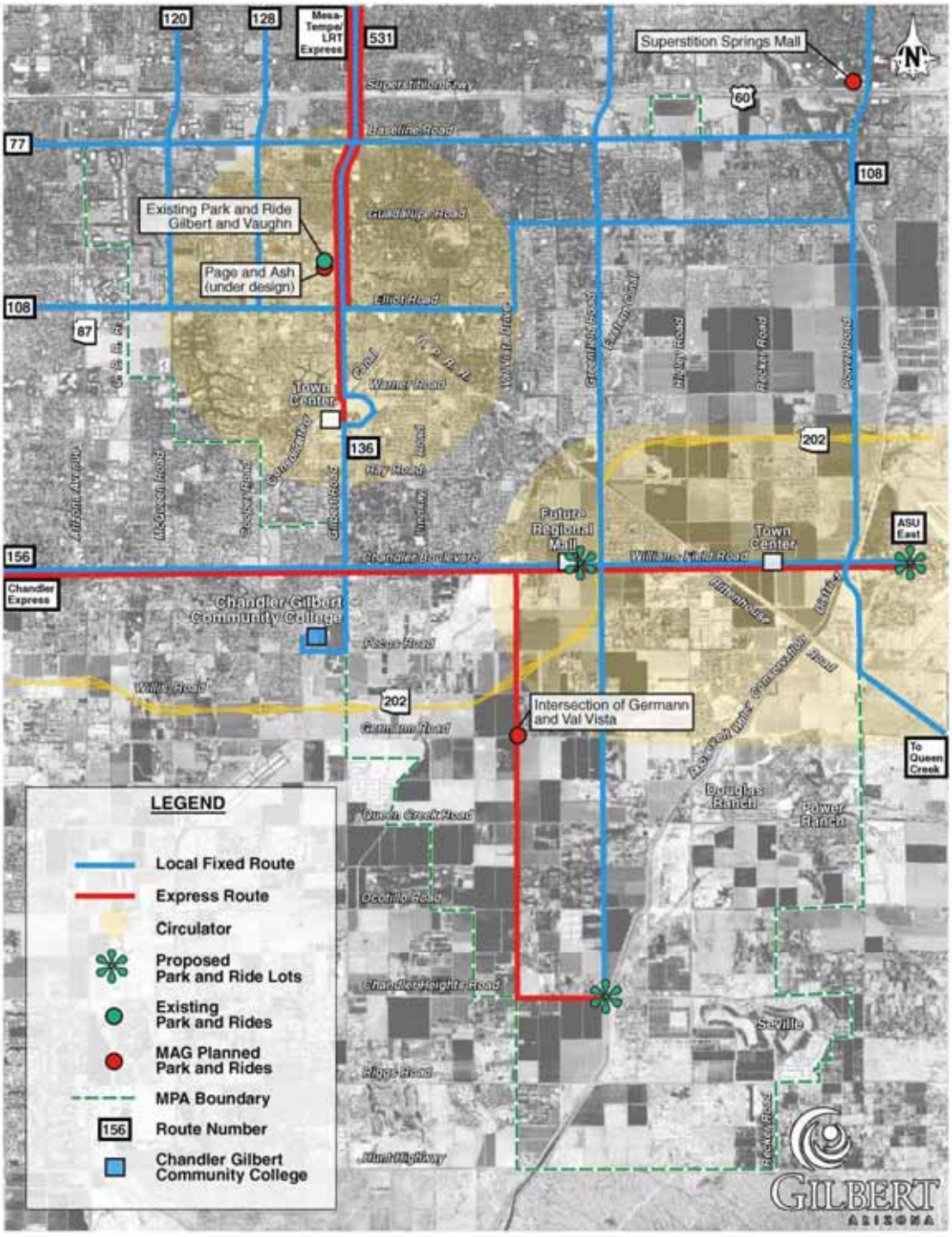


FIGURE 6-1: GILBERT-EAST VALLEY TRANSIT STUDY SYSTEM PLAN (2003)

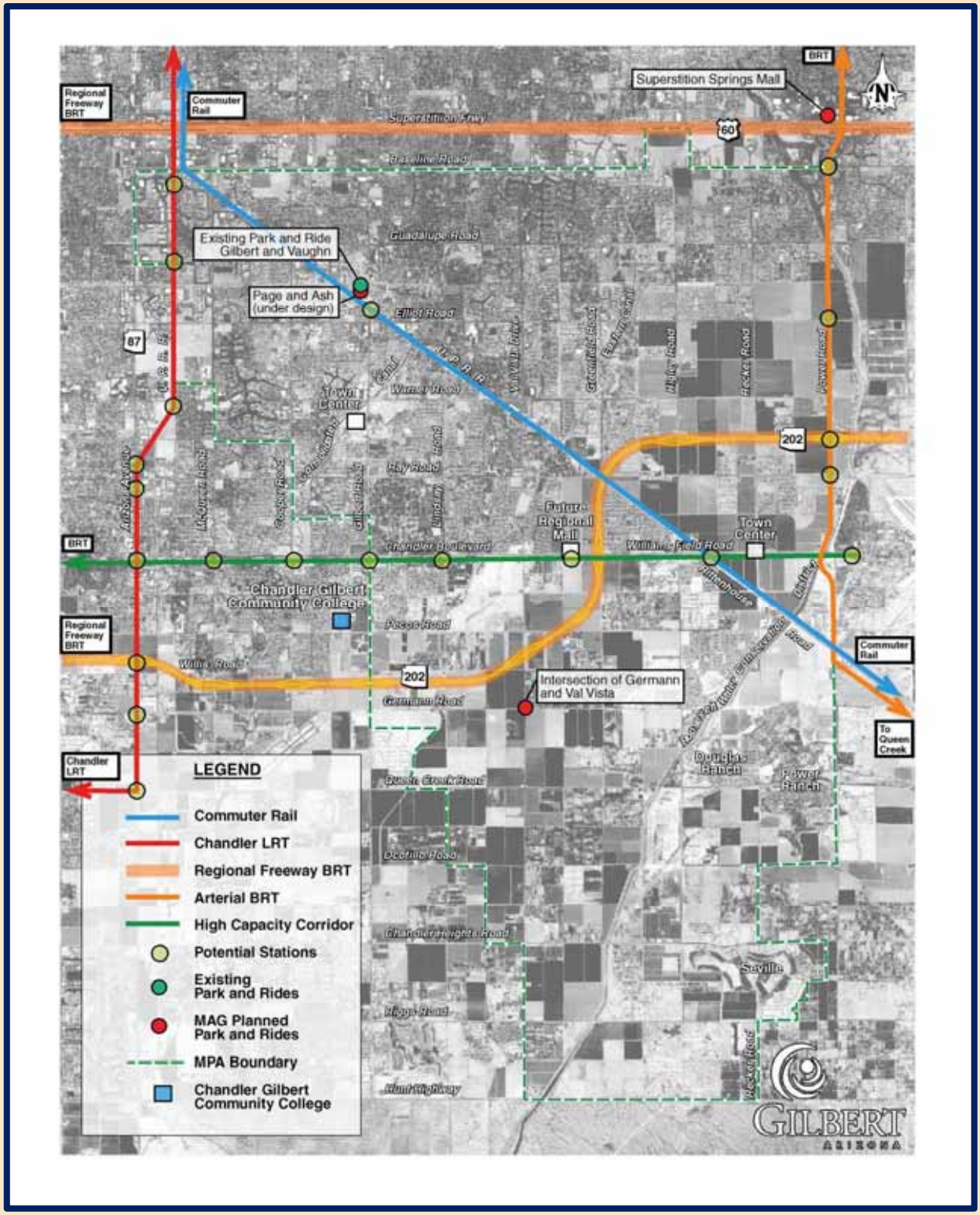


FIGURE 6-2: GILBERT-EAST VALLEY TRANSIT STUDY- REGIONAL PLAN (2003)

Regional Transportation Plan

The MAG 2035 RTP, updated August 2013, includes a variety of transit improvements that are funded by Proposition 400. The improvements that affect Gilbert are:

Local Bus improvements

- Baseline Road (FY 2019 – FY 2026)
- Ray Road (FY 2027 – 2035)
- Queen Creek Road (FY 2027 – 2035)
- Greenfield Road: north town limit to Loop 202 (FY 2027 – 2035)
- Power Road: Loop 202 to Phoenix Gateway (FY 2027 – 2035)

Express/BRT improvements

- Express service on Loop 202/Williams Field Road to Phoenix-Mesa Gateway Airport (FY 2027 – 2035)
- BRT service on Williams Field Road to Phoenix-Mesa Gateway Airport (FY 2027 – 2035)

Light Rail Transit

- Light Rail extension from Sycamore Street to Gilbert Road in Mesa (FY 2014 – 2018)

ADOT Intercity Rail Study (on-going)

This study will document the purpose and need for intercity passenger rail service between Phoenix and Tucson, identify and evaluate alternatives, select a preferred alternative, and identify funding. The current status of the study is that the initial alternatives have been narrowed to three and ADOT is accepting comments on those three alternatives until May 2014. The environmental document will then be completed and a Record of Decision obtained in 2015. One of the three alternatives (known as the Yellow Alternative) uses the UPRR right of way through Gilbert and includes two stations in the Town. Of the three remaining alternatives, the Yellow Alternative received the highest score for commuter demand, was equal to the other two alternatives for intercity demand, and had the lowest construction cost.

MAG Commuter Rail System Study (2010)

The purpose of the Commuter Rail System Study was to define an optimized network

of commuter rail corridors and the necessary elements needed to implement a regional commuter rail system. The System Study provided a detailed evaluation of potential commuter rail links to the East Valley including the Tempe, Chandler, and Southeast (SE) Corridors.

The study compared five stand-alone alternatives (single corridors) as well as combinations of corridors. Of the five single corridors, the Southeast Corridor which uses the UPRR line in Gilbert had the highest projected daily boardings in the year 2030. All the corridor combination alternatives included the Southeast Corridor. The Southeast Corridor ranked the highest in the overall evaluation.

City of Chandler Transportation Master Plan (2010)

The City of Chandler recommendations were grouped as near-term, mid-term, and long-term improvements. The City of Chandler recommendations that affect Gilbert are:

- Extend Gilbert Road local service south to Riggs Road, then turn east on Riggs Road (near-term)
- Local service enhancement on Chandler Boulevard (near-term)
- Local service enhancement on Ray Road (mid-term)
- Circulator area adjacent to Gilbert Road between Chandler Boulevard and Pecos Road (mid-term)
- Local service enhancement on Warner Road (long-term)
- Local service enhancement on Queen Creek Road (long-term)
- BRT service on Chandler Boulevard (long-term)
- Express service on Loop 202 (long-term)
- Circulator area adjacent to Gilbert Road between Chandler Boulevard and Queen Creek Road (long-term)

City of Mesa Transit Master Plan (2014)

The City of Mesa Transit Master Plan, expected to be finalized and adopted in summer 2014, includes mid-term and long-term recommendations for two different options. The recommendations that affect Gilbert are:

Option 1

- Local service on Baseline Road (mid and long-term)
- BRT on Power Road (mid-term)
- Passenger rail on US 60 to east of Power Road, then south to Phoenix Gateway (long-term)

Option 2

- Local service on Baseline Road (mid and long-term)
- BRT on Power Road (long-term)
- Light Rail on Gilbert Road (Main Street to US 60) and US 60 (Gilbert Road to Greenfield Road)(mid-term)
- Light Rail on US 60 (Greenfield Road to Power Road)(long-term)
- Passenger rail on the Union Pacific RR line through Gilbert (long-term)

E. Transit Service and Facilities

Like many metropolitan regions, cities and towns in the Valley coordinate transit operations through a regional authority. Transit service in Gilbert is provided by Valley Metro, the regional public transportation authority for Maricopa County, and a variety of social service agencies. However, the region is unique in that much of its transit service is supported by a combination of regional and local funds. This fiscal situation means that transit funding and service levels differ from city to city. Almost all transit service is operated by private contractors, but the contracting agency may be one of several cities or Valley Metro.

Valley Metro local fixed-route services generally operate on the major arterials, where development concentration tends to be the highest. Since the Valley's major arterial streets are on a mile grid, the walking distance to transit routes can be much greater than the typical quarter-mile optimum distance, making some residences and destinations beyond the reach of transit service. Several Valley cities have responded to this challenge by implementing neighborhood circulator routes that operate on collector streets and residential streets.

Proposition 400 improved the regionalization of transit service

The passage of Proposition 400 in November 2004 signaled increasing regionalization of transit service and funding in the Phoenix metropolitan area. Proposition 400 extended a county-wide, half-cent sales tax and dedicated one-third of the revenues to transit projects that were identified in the Maricopa Association of Governments (MAG) Regional Transportation Plan (RTP). The RTP enhances services

on existing routes, creates new routes, and supports transit operations with capital funding for vehicles and facilities. The development of the RTP and passing of Proposition 400 reflect an increased level of participation in transit planning. Cities and towns continue to play a major role in providing transit, service development, and in tailoring services to meet locally identified transit needs.

Proposition 400 funding was significantly affected by the 2009 economic downturn. The reduction in tax revenues collected did have an effect on the operation of existing bus routes, implementation of new routes and level of service of all fixed-route bus services. As a result, the recommended transit improvements detailed in the RTP may be changed at any time based on these funding challenges.

The types of transit services that are available in the region and appropriate for the Town of Gilbert are described below.

Regional Service Types and Facilities

Circulators/Shuttles

Circulator service operates within a specific locale, such as a neighborhood or downtown area, and connects to major traffic corridors and fixed route service. There are currently 17 circulator routes and one pilot route in the region, operating in Phoenix, Tempe, Avondale/Tolleson, Scottsdale, Mesa and Glendale. Gilbert does not currently have any circulator service.

Local Routes

Local routes follow the alignment of major roads of the regional arterial grid network. These routes provide a consistent level of service across multiple jurisdictions. Regional funding of bus operations on these routes ensures a degree of consistency in service levels across jurisdictions, which may not otherwise be possible due to varying funding limitations of each municipality. This service operates on a fixed route, involves frequent stops, and as a result overall travel speeds are lower than passenger vehicles. The purpose is to deliver and pick up transit passengers close to their

destinations or origins. There are five local routes operating within the Town.

Express Routes

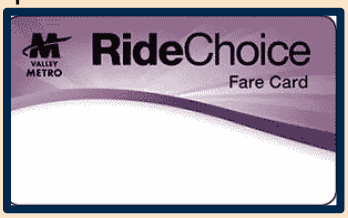
Express bus provides enhanced-speed, moderate-volume commuter or regional access in the MAG region and is designed to operate primarily on the region's freeway system, including the High Occupancy Vehicle (HOV) lanes. Express bus service typically operates from park-and-ride locations to employment centers throughout the region. These routes provide service Monday through Friday during the morning and evening peak time periods. While Express bus service usually operates one-way in the peak direction, two-way service may be warranted in reverse commute markets. There are currently 20 express routes that serve valley residents and one, Route 531, operates in the Town. Route 531, like most of the express routes has downtown Phoenix and the Capital complex as inbound destinations.

LINK Service

Valley Metro LINK is a state-of-the-art bus service in Mesa, Chandler and Gilbert that lets riders enjoy Light Rail-like comfort, speed and reliability. LINK service is similar to Bus Rapid Transit (BRT), but it does not operate in an exclusive right of way and the frequency is less than the current Light Rail transit (LRT) system. LINK service has elevated platforms, off board fare collection and offers Wi-Fi. LINK vehicles may have traffic signal priority at some intersections, meaning that traffic signals stay green until after the bus passes or the bus gets an advanced green. The service operates in mixed traffic. There are two LINK routes in service and one operates on Arizona Avenue on the Town's western border

Paratransit

Paratransit service includes various types of passenger transportation that is more flexible than conventional fixed-route transit but more structured than the use of private automobiles. Paratransit includes Dial-a-Ride (DAR) demand response (DR) transportation services and RideChoice. Americans with Disabilities Act (ADA) paratransit service is regionally funded by the RTP, while senior paratransit service continues to be locally funded. Complementary paratransit service is required by the ADA within ¾ mile of fixed-route service to accommodate persons whose disabilities prevent their use of, or access to, fixed-route services.



Vanpools

Commuter vanpools allow groups of employees to self-organize and lease a vehicle from Valley Metro to use to operate a carpool service, providing a flexible transit solution for those trips not well served by more conventional fixed route service. The vanpool program is managed by Valley Metro through its complementary rideshare program. The current fleet is comprised of 383 vehicles; seating capacity per vehicle varies from eight to fifteen passengers. Although the number of riders can vary from month to month, there are 17 vanpools registered in Gilbert with a total capacity of 164 passengers. Between March 2013 and February 2014, the average number of users was 146.

Light Rail Transit

The original Light Rail starter line extends approximately 20 miles from Phoenix to Mesa. Sunday through Thursday, service is provided approximately 20 hours a day. On Fridays and Saturdays, service is provided approximately 23 hours a day. Various extensions are currently under study. In Mesa, the extension on Main Street from Sycamore Street to Mesa Drive is currently under construction and expected to open in 2015. A second extension from Mesa Drive to Gilbert Road is currently in the project development stage and is expected to open in 2018.

Bus Stops

Bus stops are locations where bus passengers exit a route or wait to board a bus. The type of stop and amenities provided can range from a stop at a transit center which would have amenities like restroom facilities, ticket sales and bike lockers to a stop along a route that has only a bus stop sign. Valley Metro recently instituted a program called “NEXTRIDE” which allows users to call or text their station location to obtain information regarding the arrival of the next bus.

Park-and-Ride

Park-and-ride facilities provide opportunities for residents to access longer-distance express bus services. Park-and-ride facilities allow for faster transit trips by having passengers aggregate at a large parking lot. Park-and-ride lots may be

dedicated or shared-use. A dedicated lot is solely for the use of transit passengers and/or carpoolers. A shared-use lot most often provides parking for transit passengers during peak commute periods and functions as parking for other purposes during non-commute periods. Shared-use parking lots are commonly located at shopping centers and churches. Gilbert currently has one park-and-ride lot, a dedicated lot in the Heritage District that serves Express Route 531.

Transit Center

A transit center is a coordination point for multiple transit services and provides passengers with a focal point and convenient facility to transfer between services or routes. A transit center generally has limited passenger parking, but may be adjacent to a park-and-ride lot. Transit centers often provide passenger information and may provide additional transit amenities, such as ticket sales, restrooms, and operator layover locations.

F. Identifying Transit Needs

Transit users are generally of two categories: transit dependent persons with little or no other transportation options, and persons that chose transit because it is a competitive alternative. Transit dependent users are generally low income, disabled, youth, or elderly patrons. Riders that select transit as an alternative mode of travel do so because transit serves the growth areas and activity centers for the Town as well as the areas of high population and employment density. As shown in Figure 6-3, the growth areas/activity centers in Gilbert are:

- the Heritage District,
- the Baseline Road and Val Vista Drive medical complexes,
- the Loop 202 corridor, and
- the Power Road corridor.

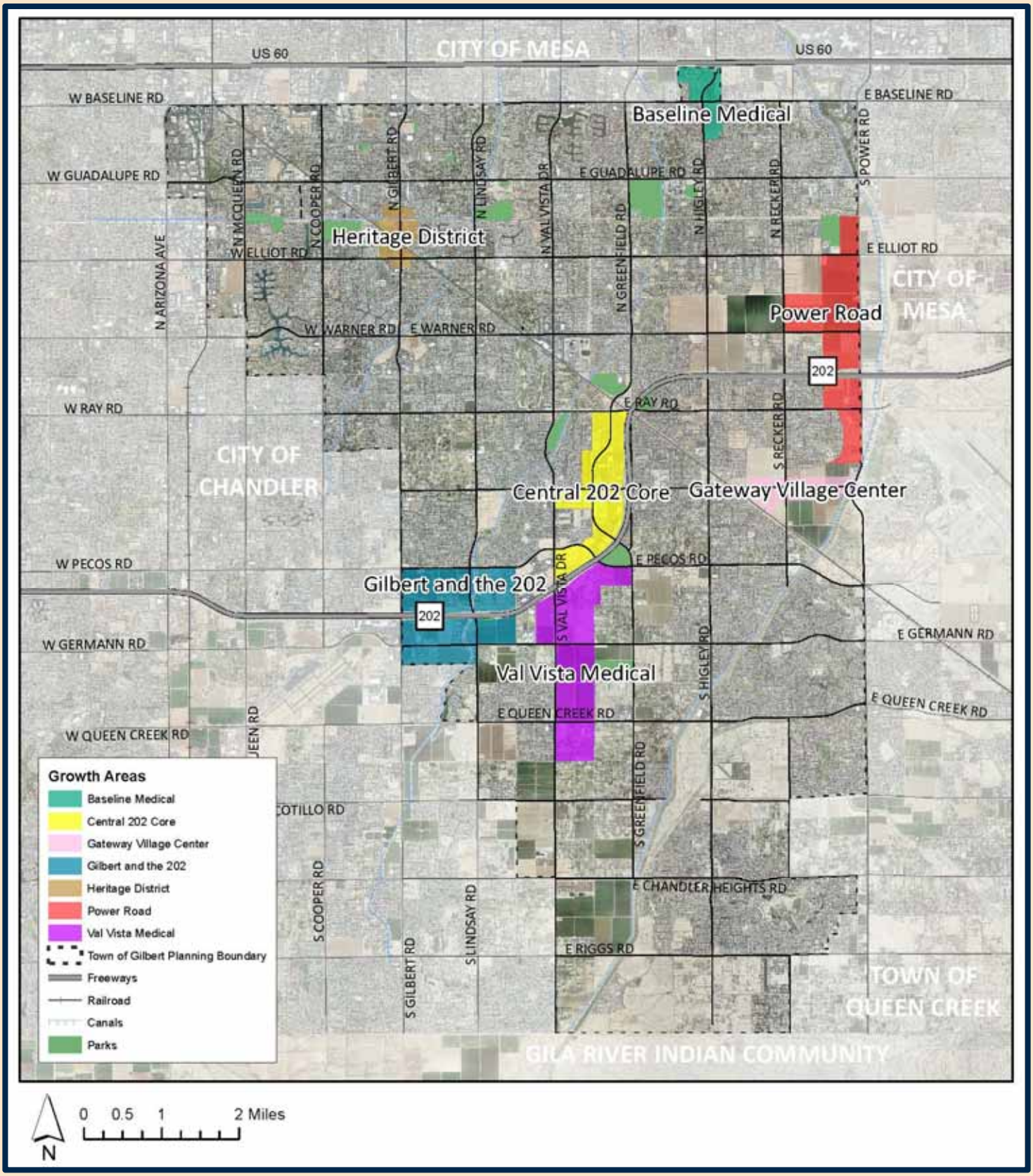


FIGURE 6-3: GROWTH AREAS/ACTIVITY CENTERS

As can be seen in Figure 6-4, the higher population density areas projected in 2035 are:

- along Higley Road between Warner Road and Queen Creek Road; and
- along Germann Road between Lindsay Road and Val Vista Drive, and
- between Higley Road and Power Road.

Figure 6-4 shows the higher employment density areas in 2035 to be in the northwest portion of the Town, Banner Medical Center in the northeast, and along Loop 202, reflecting the growth areas in Gilbert.

Additionally, according to Valley Metro guidelines, planned and expanded service in the region should satisfy the following criteria:

- Coordinating with neighboring cities and the regional network
- Meeting or exceeding regional service levels
- Expanding the network to support existing development and neighborhoods
- Expanding transit services into future growth areas
- Supporting all service with the appropriate level of capital and infrastructure
- Providing innovative new services

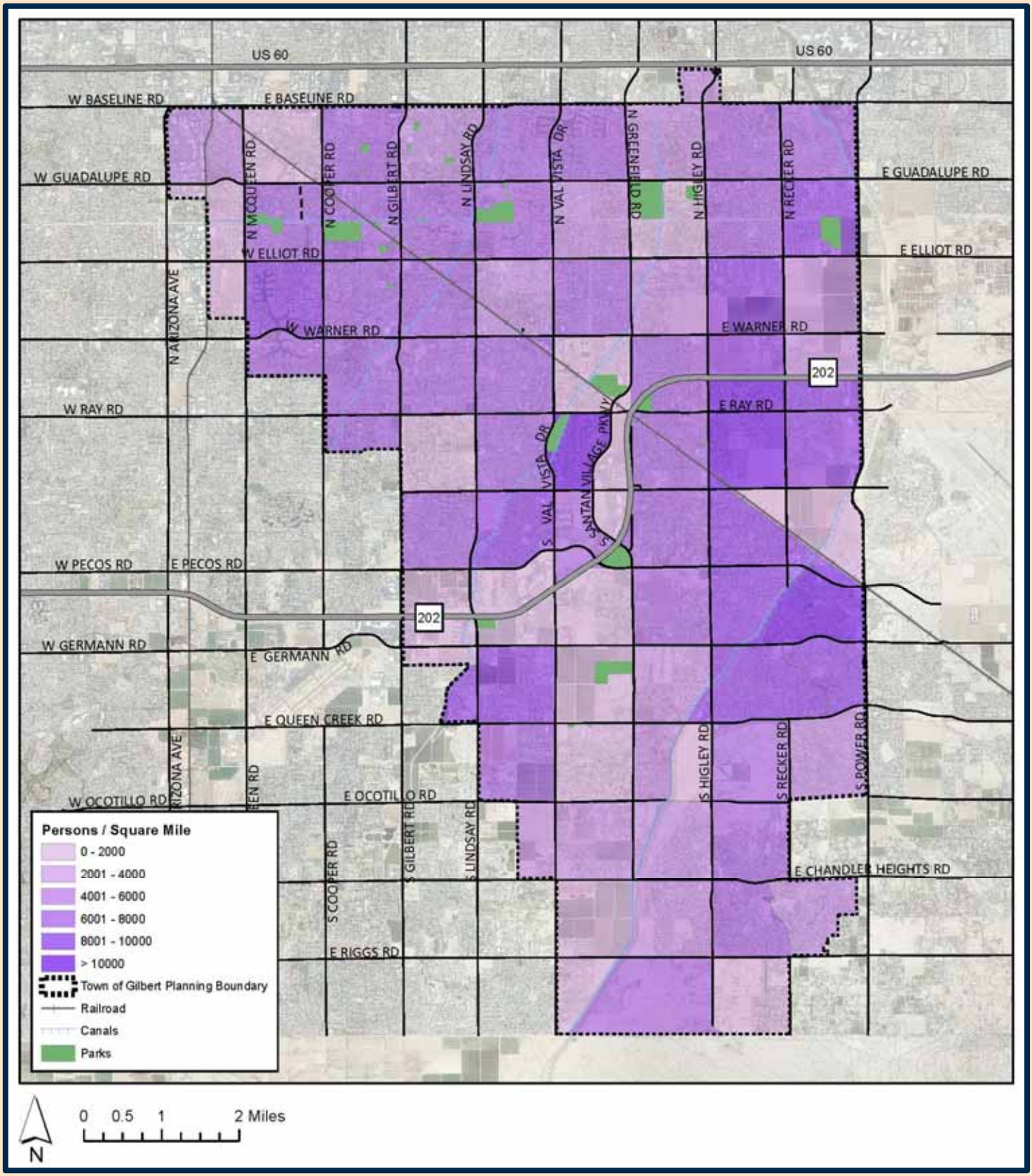


FIGURE 6-4: 2035 POPULATION DENSITY

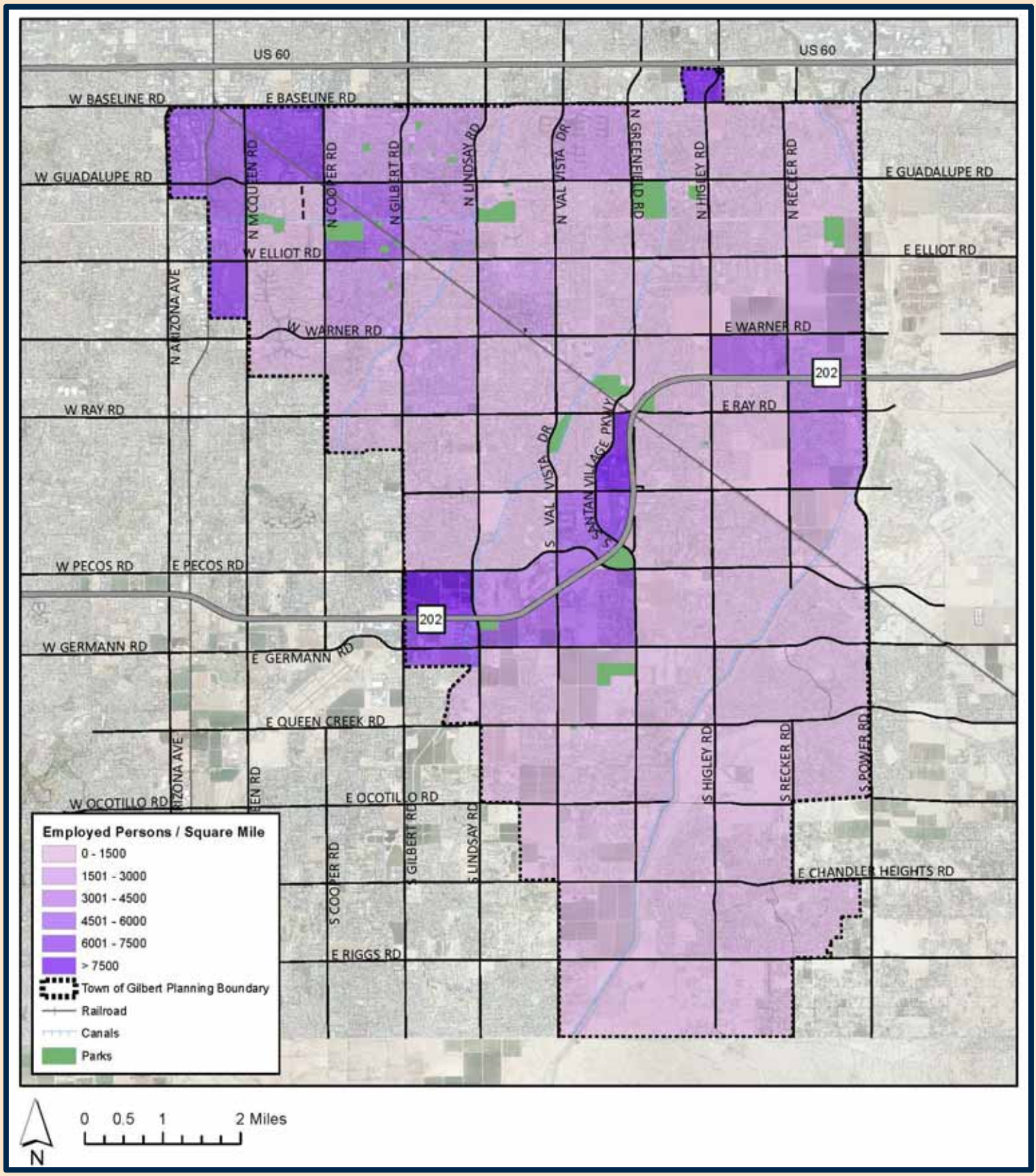


FIGURE 6-5: 2035 EMPLOYMENT DENSITY

G. Transit Service Options

As Gilbert continues to grow toward build-out, there is a need to expand the current transit system (See Chapter 4 for existing transit service discussion). The transit element is needed to connect activity centers which can serve as gateways to other destinations. Local destination examples include the Heritage District, SanTan Village, and Cooley Station while regional examples include Sky Harbor International Airport, Phoenix-Mesa Gateway Airport, downtown Phoenix, and the various Arizona State University (ASU) locations.

The options presented provide recommendations for transit service in priority corridors within Gilbert and connecting to neighboring cities. The transit element responds to changes in travel patterns as land use and travel opportunities continue to urbanize. Transit system expansion should support development to ensure mobility in all directions throughout the Town.

Service enhancements should be coordinated with adjacent cities to support regional travel. As the area southeast of Gilbert continues to grow, there will be opportunities to expand regional service to Queen Creek and Pinal County. A comprehensive system of interconnected transit services is critical to support Gilbert's economic vitality and meet the mobility needs of residents, visitors, and employees. In order to be successful, the transit network must provide high quality connections between the places that residents, visitors, and employees want to travel to and from, with service that is reliable, frequent, and available during the times of day when needed. Transit routes and stops must also be accessible, particularly because every transit trip starts and ends via another mode of travel, such as walking, biking, or driving.

The transit system in the East Valley has seen significant changes over the last decade. The Light Rail 20-mile starter line began operation in December 2009 and is currently being extended along Main Street in Mesa from Sycamore Street to Mesa Drive (open in 2015) and will be extended to Gilbert Road (open in 2018). LINK

service, a bus rapid transit operation, was established on Main Street in Mesa and on Arizona Avenue/Country Club Drive in Mesa, Chandler, and Gilbert subsequent to the start-up of light rail. Each of these new services provides significant opportunity for transit expansion in Gilbert.

For an expanded transit system to be successful in Gilbert, it must support the following policies:

- Focus on the customer
- Attract and retain passengers
- On-time performance
- Time competitive with other modes
- Optimize the spacing of stops
- Employ technology

Expanded transit service will help to achieve the overall TMP goals to:

- Promote neighborhoods
- Grow stable and diverse jobs
- Provide public space and cultural amenities
- Integrate transit with other modes

Based on input from the citizen survey, stakeholders, a review of the overall transportation system, and future needs, two transit options were developed. The options address the basic question – where is transit needed? Both options:

- are activity center-based and provide service on priority corridors.
- incorporate a variety of service types and facilities that are needed to support a multi-modal transportation system in Gilbert.
- retain the current services in the Town.

As previously discussed, both Chandler (final transit plan) and Mesa (draft transit plan) have recently updated their transit plans. As Gilbert develops its future transit system, it will be important for staff to coordinate with these cities to develop compatible transit service. In particular, Mesa has two options for their mid-range and long-range plans and Gilbert should coordinate and provide input regarding their preferences.

Option 1

Option 1 is a moderate level of new service that addresses growth areas and high density areas; and is compatible and consistent with neighboring cities. Transit option 1 is presented in Figure 6-6 and includes the following new services.

Local service

- **A - McQueen Road**– McQueen Road provides a continuation of service provided in Mesa and also provides a connection to the Light Rail line at Mesa Drive beginning in 2015.
- **B - Val Vista/SanTan Village Pkwy**– serves Central 202 Core Area, Val Vista Medical Area, and other high density commercial and population in the Town. Provides north/south service in an area of Gilbert that is not currently served.
- **C - Power Road Extension: Ray Road to Queen Creek Road** - serves high density employment and population area in the Town
- **D - Baseline Road** - serves Baseline Medical area, and other high density employment and population areas in the Town
- **E - Ray Road/Warner Road**– serves the Village area, Civic Center, Central 202 Core Area, and ASU Polytechnic. Is compatible with the Chandler plan that includes Ray Road
- **F - Queen Creek Road**– serves high population density, is compatible with Chandler plan that includes Queen Creek Road, and connects to recommended service on Power Road

Express service

- **I - Loop 202 to Santan Village Pkwy to Williams Field Road**– serves high employment density and multiple activity centers to downtown Phoenix

BRT/LRT

- **L - Williams Field Road** - serves high employment density and multiple activity centers, supports recommended express service on Loop 202, and compatible with Chandler plan which shows BRT on Chandler Boulevard/Williams Field Road

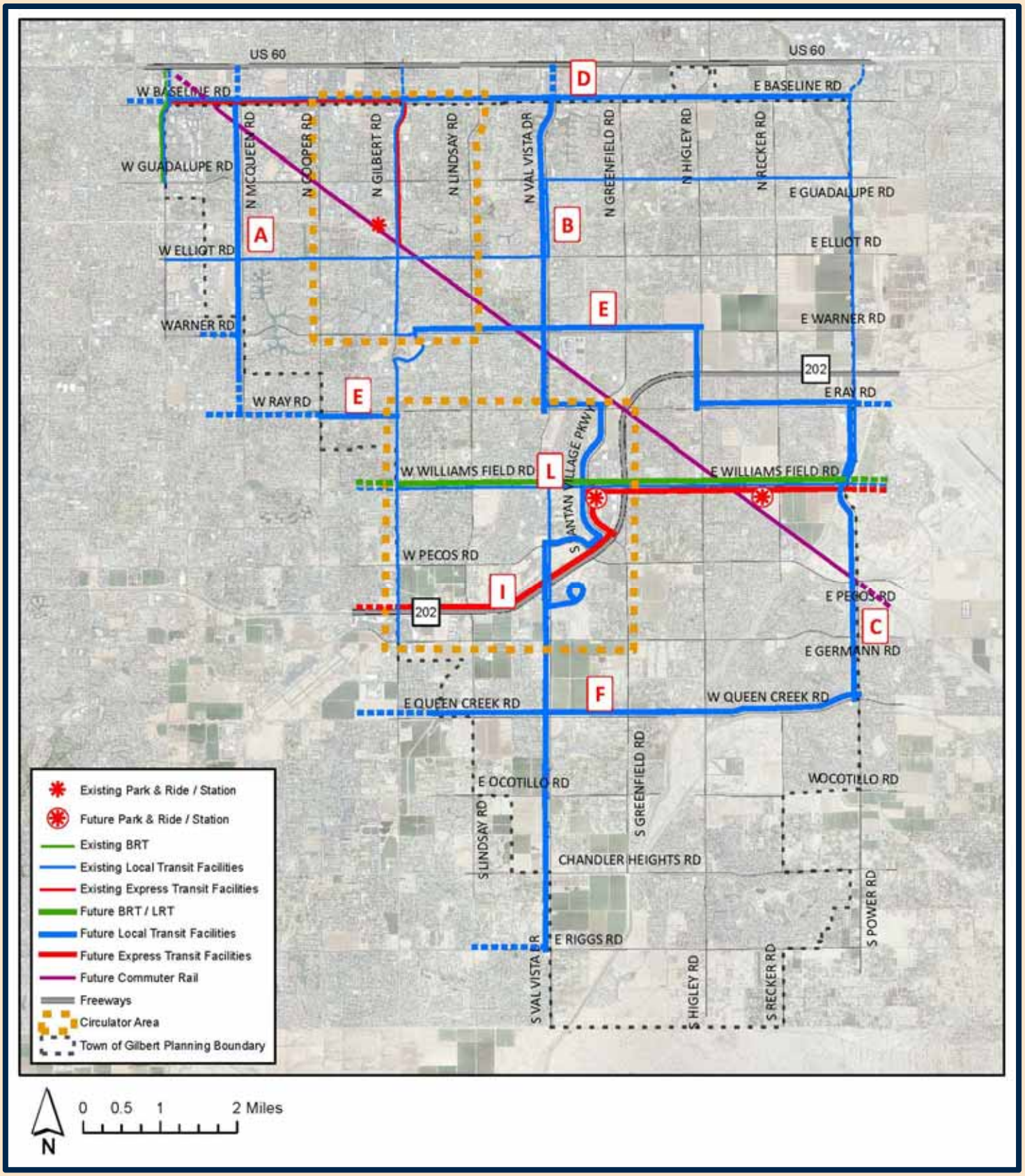


FIGURE 6-6: TRANSIT PLAN – OPTION 1

Circulators

- Serving **Heritage District** and bounded by Baseline, Lindsay, Warner, and Cooper – provides more local service to supplement the Gilbert Road and Elliot Road routes
- Serving **San Tan corridor** and bounded by Ray, Greenfield, Germann, and Gilbert - provides more local service to supplement the Williams Field Road BRT and express service and serves the San Tan commercial area, Gilbert Mercy Medical Center, and the 202 employment corridor.

Commuter Rail

- Existing UPRR line within Town limits – compatible with one of the final options being considered by ADOT for intercity rail and the MAG commuter rail station. Two stops are planned in Gilbert at the existing Gilbert park-and-ride and at Cooley Station between Williams Field and Recker Road.

Park-and-Ride /Rail Station

- Expansion of Gilbert park-and-ride for Commuter Rail service
- Vicinity of Santan Village Pkwy and Williams Field Road – serves recommended express services on Loop 202 and Williams Field Road and recommended BRT service on Williams Field Road
- Vicinity of Cooley Station – serves recommended express service on Williams Field Road and recommended BRT service on Williams Field Road and Commuter Rail

HOV Lanes

- Loop 202 within Town limits – consistent with the ADOT plan to add HOV lanes and supports express service on Loop 202

Option 2

Option 2 is a higher level of new service than Option 1. It also addresses growth areas and high density areas; and is compatible with neighboring cities. Transit option 2 is presented in Figure 6-7 and includes the following new services.

Local service

- **A - McQueen Road**– McQueen Road provides a continuation of service provided in Mesa and also provides a connection to the Light Rail line at Mesa Drive beginning in 2015.
- **B - Val Vista/SanTan Village Pkwy**– serves Central 202 Core Area, Val Vista Medical Area, and other high density commercial and population in the Town. Provides north/south service in an area of Gilbert that is not currently served.

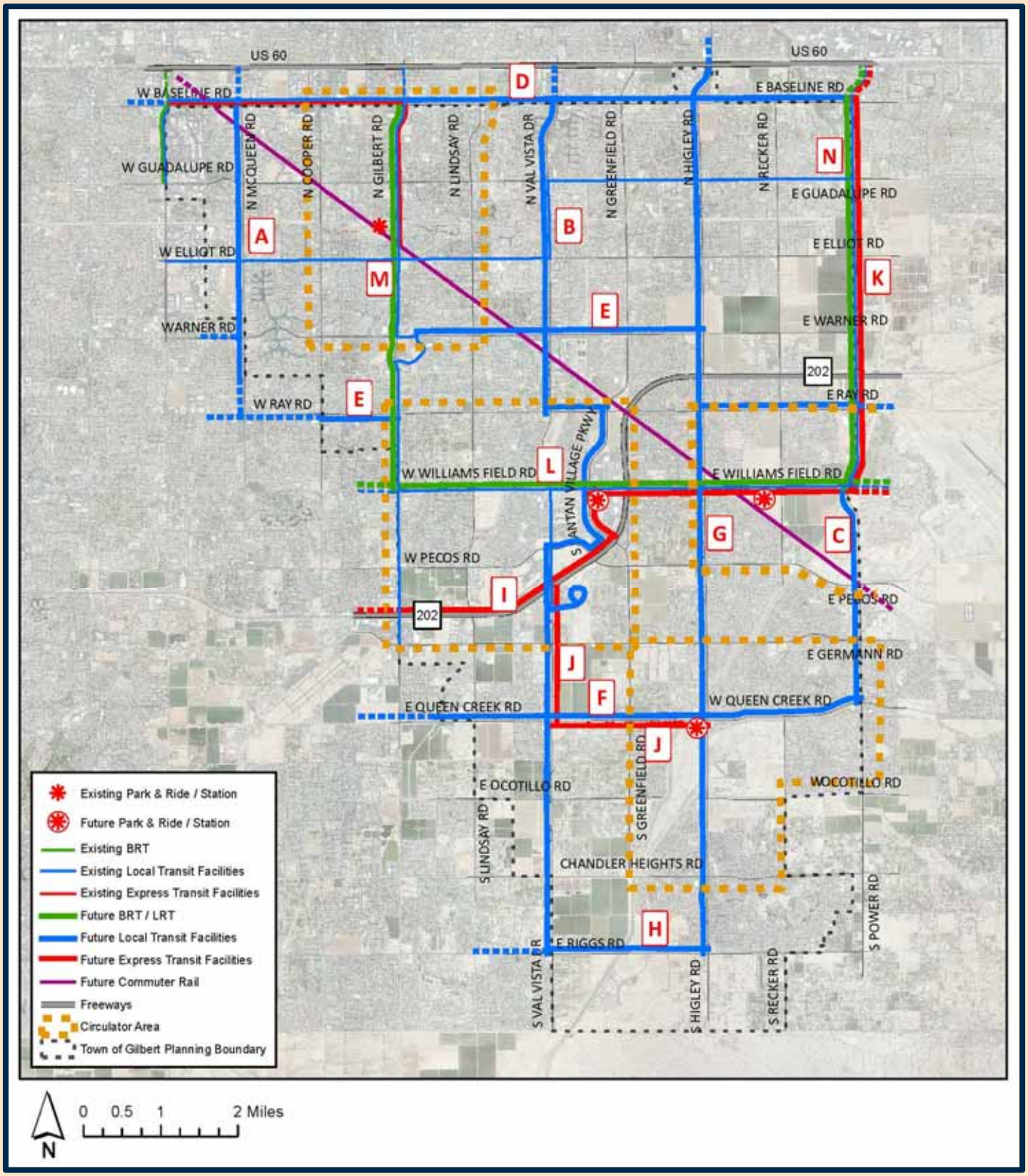


FIGURE 6-7: TRANSIT PLAN – OPTION 2

- **C - Power Road Extension: Ray Road to Queen Creek Road** - serves high density employment and population area in the Town
- **D - Baseline Road** - serves Baseline Medical area, and other high density employment and population areas in the Town
- **E - Ray Road/Warner Road**– serves the Village area, Civic Center, Central 202 Core Area, and ASU Polytechnic. Is compatible with the Chandler plan that includes Ray Road
- **F - Queen Creek Road**– serves high population density, is compatible with Chandler plan that includes Queen Creek Road, and connects to recommended service on Power Road
- **G - Higley Road: north Town limit to Riggs Road** – serves Baseline Medical area and a high population density along the corridor
- **H - Riggs Road: west Town limit to Higley Road** – serves Baseline Medical area and a high population density along the corridor

Express service

- **I - Williams Field Road to Santan Village Pkwy to Loop 202** – serves high employment density and multiple activity centers
- **J - Val Vista Drive/Queen Creek: Loop 202 to Higley** – serves high population density area and provides express service from southeast Gilbert to downtown Phoenix
- **K - Power Road: north Town limit to Williams Field Road** – serves Power Road growth area and connects high population and employment density areas to downtown Phoenix

BRT/LRT

- **L - Williams Field Road** - serves high employment density and multiple activity centers, supports recommended express Loop 202 service
- **M - Gilbert Road: north Town limit to Williams Field Road** – serves Heritage District, high population and employment density corridor and could connect to Light Rail service in Mesa
- **N - Power Road: north Town limit to Williams Field Road** - serves Power Road growth area and high population and employment density areas and could connect to Light Rail service

Circulators

- Serving **Heritage District** and bounded by Baseline, Lindsay, Warner, and Cooper – provides more local service to supplement the Gilbert Road and Elliot Road routes

- Serving **San Tan corridor** and bounded by Ray, Greenfield, Germann, and Gilbert - provides more local service to supplement the Williams Field Road BRT and express service and serves the San Tan commercial area, Gilbert Mercy medical center, and the 202 employment corridor.
- Serving **Cooley Station** and bounded by Ray, Power, Pecos, and Higley - provides more local service to supplement the Williams Field Road BRT and express service
- Serving **SE Gilbert** and bounded by Pecos, Power, Chandler Heights, and Greenfield - provides more local service to supplement the Queen Creek/Val Vista express service and the Queen Creek/Higley park-and-ride.

Commuter rail

- Existing UPRR line within Town limits – compatible with one of the final options being considered by ADOT. Two stops are planned for Gilbert at the existing Gilbert park-and-ride and at Cooley Station between Williams Field and Recker Road.

Park-and-ride /Station

- Expansion of Gilbert park-and-ride for Commuter Rail service
- Vicinity of Santan Village Pkwy and Williams Field Road – serves recommended express service on Loop 202 and Williams Field Road and recommended BRT service on Williams Field Road
- Vicinity of Cooley Station – serves recommended express service on Williams Field Road and recommended BRT service on Williams Field Road and Commuter Rail
- Vicinity of Queen Creek Road and Higley Road – serves recommended express service on Val Vista/Queen Creek

HOV Lanes

- Loop 202 within Town limits – consistent with the ADOT plan to add HOV lanes and supports express service on Loop 202

H. Transit Service Priorities

The recommended transit services presented in Option 1 and Option 2 were reviewed and priorities established. Table 6-4 lists each recommended service and its priority.

TABLE 6-4: TRANSIT SERVICE PRIORITIES

Service ID	Service Name	Included in Option 1	Included in Option 2	Priority
A	McQueen	X	X	High
B	Val Vista	X	X	Medium
C	Power	X	X	Low
D	Baseline	X	X	High
E	Ray/Warner	X	X	Medium
F	Queen Creek	X	X	Low
G	Higley		X	Medium
H	Riggs		X	Low
I	Williams Field Express	X	X	Medium
J	Val Vista Express		X	Low
K	Power Express		X	Medium
L	Williams Field BRT	X	X	Medium
M	Gilbert BRT		X	Medium
N	Power BRT		X	Low
Circulators	All			Low
Park-and -Ride	Heritage District	X	X	High
Park-and -Ride	San Tan Village	X	X	High
Park-and -Ride	Cooley Station	X	X	High
Park-and -Ride	Queen/Creek/Higley		X	Medium
	Commuter Rail			*
	HOV Lanes			*

**responsibility by others*

I. Policy Considerations

In conjunction with the preceding recommendations regarding new transit service and related facilities, there are policy considerations that will help shape how transit is expanded in the Town. As economic and environmental conditions continue to change, transportation investments must be cost-effective and contribute to a healthy environment. One key will be to provide transportation choices such as public transportation and non-motorized options. The concept of "complete streets" provides all users with safe, efficient travel along and across streets. Many municipalities are adopting complete streets policies to help guide growth. At the national level, the most recent transportation act places emphasis on economic vitality, transparency, livability, complete streets, mobility, safety, and freight movement.

Detailed Transit Plan

The recommendations set forth herein provide the framework for the Town to enhance transit service. Recently, MAG in conjunction with Valley Metro initiated a study titled "Southeast Valley Transit Study". The Town is a represented stakeholder. The study will analyze non-rail bus services and ridership demand in transit-established and transit-aspiring communities within the Southeast Valley. The study will identify efficiencies in current and planned transit services in the study area. The study will also identify an integrated, demand driven transit system that effectively and efficiently connects areas within the Southeast Valley of the MAG Region with existing and planned regional transit improvements such as high-capacity transit. Based on the results of that study and the recommendations in this plan, the Town should prepare a detailed transit plan that outlines service benefits and prioritizes the corridors with highest need.

Coordination with Valley Metro

Valley Metro is the provider of transit service in the Phoenix metropolitan area and any expansion of existing service or requests for new service will be coordinated with Valley Metro.

Coordination with Surrounding Communities

The Town should coordinate with surrounding jurisdictions regarding new or expanded service to ensure appropriate transit connections.

Park-and-Ride Sites

Suggested park-and-ride sites are included in the transit element based on recommended express, BRT, and commuter rail service. These are general locations that support the transit service, but additional study is needed to determine property availability. There may be locations where the Town could purchase land for a future park-and-ride or they may be opportunities to share parking with a development.

7. BICYCLE ELEMENT

The Bicycle Element summarizes bicycle-related goals, presents a toolbox of options for improving bicycling conditions, and makes recommendations for the expansion of the Town's on-street and off-street bicycle network based on a bicycle network gap analysis in order to promote bicycle travel as a safe, comfortable, and convenient travel option.

A. Trends in Travel Behavior

Recent trends in demographics and a change in travel behavior suggest that a more diverse transportation system for the future is warranted. These shifts can be attributed to several factors:

- **Aging Baby Boomers**. Baby Boomers, the generation born between 1946 and 1964, are reaching retirement age and are healthier and living longer than previous generations. Today, about one in eight people in the United States is over 65; by 2030, this age group will include one in five people. According to the American Association of Retired Persons (AARP), nearly 90% of seniors today want to live in their own homes and communities for as long as possible. In most cases, that will mean remaining in low-density, suburban locations that are not well-served by transit. The bulk of Baby Boomers in Arizona will not retire to dense cities and will require different transportation options in their own communities when they are no longer driving personal vehicles.
- **Rise of the Millennial Generation.** Recent data indicate that the generation of Americans born between the early 1980s and the early 2000s (referred to as "Millennials") are now the largest group of Americans. They tend toward city living and less driving, as compared to other age groups. In 2009, Millennials drove 23% fewer miles on average than the same age group did in 2001. This was a greater decline than any other age group. While economic recession was partially responsible for the decline, evidence also points to a declining interest in driving among this age group: the percentage of 16-to-24-year-olds with driver's licenses has been declining for much longer than per capita vehicle-miles traveled (VMT). Millennials live in cities in greater numbers than previous generations and have a stronger preference for urban living.
- **Declining vehicle travel**. Vehicle-miles traveled (VMT), both per capita and in absolute terms, have historically risen steadily for decades in Arizona and in the United States as a whole. States have responded by steadily expanding the

vehicle capacity of roadway systems. However, the rise of the Millennials and the aging of Baby Boomers have corresponded with a recent unprecedented national dip in driving. Over the past decade, nationwide VMT has crested and declined for the first time. On a per capita basis, nationwide VMT has declined sharply since the mid-2000s, and has yet to increase again as the economy has recovered. Despite a growing population, total VMT in Arizona fell 0.4% between 2005 and 2011. VMT per capita fell 8% over the same period, compared to 6.5% nationally.

These societal trends result in the need for a diverse, multimodal, transportation system. The Bicycle Element recognizes these societal shifts.

B. Goals

The Vision and Goals of the TMP identify several over-arching goals. The recommendations contained in the Bicycle Element directly support the vision and the following goals:

Vision: A comprehensive, integrated multimodal transportation system that promotes and enhances safety, mobility, efficiency, quality of life, and sustainability.

Goal 3: *Establish a safe, continuous network of arterial streets that accommodates all modes, minimizes congestion, and connects to street networks of neighboring communities.*

Goal 4: *Develop a safe, continuous network of collector and local streets that connects neighborhoods to the arterial street network, encourages bicycling and walking, and incorporates traffic calming strategies.*

Goal 5: *Promote bicycling as a viable transportation option through a safe, comprehensive network of bicycle facilities with access to employment, shopping, schools, parks, and neighborhoods.*

The Bicycle Element builds upon and supports the goal established in the *2005 Gilbert Bicycle and Pedestrian Plan*:

The primary goal of the Gilbert Bicycle and Pedestrian Plan is to provide bicycle and pedestrian facilities that efficiently connect the places to which people want to go.

The Bicycle Element also directly supports the *Gilbert Parks, Recreation, and Trails Master Plan* vision:

> *Exemplary parks, trails, open spaces, natural areas, arts and culture, leisure programs and facilities are safe and integral to Gilbert's unique identity, our quality of life and our economy.*

C. Types of Bicyclists

The Town of Gilbert recognizes that bicyclists vary widely in terms of their skill, physical ability, comfort level, and trip purpose. While people do not fit into a single category, and a bicyclist's profile may change even within a single day, a comprehensive bicycle network seeks to provide facilities that meet the needs of a wide variety of bicyclists.

Bicyclists can be profiled by their trip type. Utilitarian bicyclists, those who bicycle for everyday activities such as commuting to work or running errands, are typically better served by direct routes that are flat, well connected, and have access to facilities such as bicycle parking. A recreational bicyclist tends to be attracted to routes with visual interest and varied topography.

Similarly, bicyclists can be profiled based on their level of experience and skill. Experienced and confident bicyclists may be comfortable riding in on-street bike lanes next to vehicles on arterial and collector streets, travel at higher speeds for longer distances, and prefer more direct routes. In contrast, casual and less confident riders typically prefer to use off-street bicycle facilities such as shared use paths or to ride on neighborhood streets with low traffic volumes, travel at slower speeds for shorter distances, and take routes that may not be as direct.

League of American Bicyclists Designation[5]

In 2013, the League of American Bicyclists (LAB), a non-profit membership organization that promotes cycling for fun, fitness and transportation, formally recognized 291 communities across 48 states as bicycle-friendly communities for "providing safe accommodation and facilities for bicyclists and encouraging residents to bike for transportation and recreation". The LAB bicycle-friendly designation,

[5] (www.bikeleague.org

awarded from Honorable Mention (lowest designation) to Bronze, Silver, Gold, and Platinum (highest designation), is given to applicant communities that have demonstrated a commitment to improving and sustaining bicycling and bicycle safety through comprehensive programs, plans and policies. To reach the highest levels of award, entities must demonstrate commitment and progress toward the "5 E's". As defined by the LAB, these are:

- Engineering: Creating safe and convenient places to ride and park
- Education: Giving people of all ages and abilities the skills and confidence to ride
- Encouragement: Creating a strong bike culture that welcomes and celebrates bicycling
- Enforcement: Ensuring safe roads for all users
- Evaluation and Planning: Planning for bicycling as a safe and viable transportation option

Per LAB, Arizona is ranked 10th as a bicycle-friendly state and has 9 bicycle-friendly communities, 11 bicycle-friendly businesses and 2 bicycle-friendly universities. Scottsdale and Tucson are among the 18 communities awarded Gold status. Flagstaff and Tempe are among the 61 communities awarded Silver status. Gilbert, Chandler, Cottonwood, Mesa and Sedona are among the 206 communities awarded Bronze status. Phoenix and Glendale are among the 25 communities awarded Honorable Mention status.

D. Bicycle Travel Toolbox

This section provides a "toolbox" of potential treatments and strategies for the "5 E's" to improve the accommodation, comfort, and safety of bicyclists in Gilbert.

The physical environment is a key determinant whether people will ride their bicycles. A well-connected bicycle network consisting of neighborhood streets, bike lanes, shared use paths/trails, and crossings of roadways, along with policies to ensure connectivity and maintenance of these facilities, are critical to promoting bicycle travel.

Narrowing Vehicle Lanes to Accommodate Bike Lanes

A cost-effective way to add bike lanes to existing streets is to narrow the vehicle lanes, thereby freeing up space for bike lanes. Several older segments of the Town's

streets were built to earlier versions of the Town's standard cross-sections that did not include bike lanes. Some of these vehicle lane widths are 12 feet or greater.

Historically, there has been a perception that roadway travel lanes narrower than 12 feet are less safe and provide less capacity than 12-foot lanes. Recent research, however, has determined this perception is not accurate. Nationally recognized sources and manuals indicate travel lane widths as narrow as 10 feet are acceptable on arterial and collector streets, as evidenced by the following:

- Per the AASHTO A Policy on Geometric Design of Highways and Streets[6], lane widths as narrow as 10 feet are acceptable on low-speed (45 miles per hour (mph) or lower) facilities.
- The NACTO Urban Street Design Guide indicates that 10-foot lanes are appropriate in urban areas and have a positive impact on a street's safety without adversely impacting traffic operations.
- The AASHTO Guide for the Development of Bicycle Facilities states that research has found no general indication that 10-foot lanes increase crash rates compared to 11-foot or 12-foot lanes on urban arterials.
- The Pedestrian Bicycle Information Center (PBIC) [7]notes that safety evaluations of travel lane widths between 10 feet and 12 feet on arterial streets have found no statistical difference in crash rates or capacity within this range of lane widths.

Phoenix and Tempe are examples of Phoenix-area municipalities that have several arterial street segments with 10-foot through lanes, with no reported safety or operational issues associated with the narrower lanes. In Gilbert, portions of Gilbert Road through the Heritage District have 10-foot through lanes for short distances.

An example of how travel lanes could be narrowed in Gilbert to allow for the addition of bike lanes is Warner Road between McQueen Road and Cooper Road. Warner Road currently has two 13.5-foot lanes in each direction (including the gutter pans) separated by a raised median, or 27 feet between the curb faces in both directions. By moving the lane stripe over 3 feet, a 5.5-foot bike lane could be added, which would still leave enough space for one 11-foot travel lane and one 10.5-foot travel lane in each direction.

[6] 6th Edition, page 4-7
[7] http://www.walkinginfo.org/library/details.cfm?id=4348

Widening Bike Lanes

The 2012 AASHTO *Guide for the Development of Bicycle Facilities*, 4th Edition provides the following guidance on bike lane widths:

- The recommended minimum width for bike lanes is 5 feet with adjacent vertical obstructions like curbs or guardrail and 4 feet with no adjacent vertical obstructions.
- When a bike lane is between a through lane and a right-turn lane, the minimum bike lane width is 4 feet while the preferred bike lane width is 5 feet.
- Bike lanes of 6-8 feet may be desirable adjacent to on-street parking, in areas with high bicycle use to allow for bikes passing each other, on high-speed (greater than 45 mph) and high-volume roads, and on roads with a high number of trucks and buses.

Source: www.bikeleague.org

The Town's standard details for arterial and collector streets include bike lanes that are 5.5 feet wide (inclusive of the 1.5-foot gutter pan). The Town's 5.5-foot width exceeds the minimum recommended AASHTO bike lane width of 5 feet, but to further promote bicyclist safety and comfort, the Town could consider wider bike lanes. If wider bike lanes are desired as a future Town standard, the Town could potentially reduce the width of some of the travel lanes or medians by a corresponding amount to maintain the same total cross-section width

The Town's standard details for a major arterial street intersection and a minor arterial street intersection with dual lefts show a bike lane width of 4.5 feet between the through lane and right-turn lane. It is recommended that these details be updated to include a minimum bike lane width of 5 feet between the through lane and right-turn lane to match the preferred AASHTO width for this condition. This additional width for the bike lane could be obtained by reducing the width of the adjacent travel lane or right-turn lane.

Reducing the Number of Travel Lanes through a Road Diet

Road diets refer to reducing the number of travel lanes to improve safety and provide space to accommodate other modes of transportation. The reallocated space can be

used for bike lanes, turn lanes, pedestrian crossing islands, intersection bulb-outs, bus stops, and/or parking.

Road diets have multiple safety and operational benefits for vehicles, bicycles, and pedestrians. These benefits can include reducing vehicle speeds, providing additional turn lanes, decreasing the pedestrian's crossing distance and exposure, providing pedestrian refuge for two-stage crossings, or improving safety and convenience for bicyclists by providing a buffer space from vehicles. Mill Avenue in downtown Tempe, Grand Avenue in downtown Phoenix, and Arizona Avenue in downtown Chandler are examples of Phoenix-area streets that have had lanes reduced through a road diet to improve bicycle and pedestrian travel.

Reducing the number of travel lanes does reduce the vehicular capacity, so an understanding of traffic volumes and impacts on traffic operations of eliminating a travel lane is important. Most of the existing arterial streets in Gilbert without bike lanes are already at or near capacity so reducing the number of travel lanes could have adverse impacts on traffic operations. There are a few street segments without bike lanes currently operating under capacity such as McQueen Road south of Elliot Road where there are three through lanes in each direction.

Source: www.bikeleague.org

Shared Lane Markings

Shared lane markings, or 'sharrows', can be used on streets where the addition of bike lanes is not feasible and where speed limits are no greater than 35 mph. Shared lane markings indicate a shared lane for bicycles and vehicles. The benefits of shared lane markings are that they reinforce the legitimacy of bicycle traffic on the street, provide a visual cue to drivers to be on the look-out for and yield to bicyclists, recommend proper bicyclist positioning within a lane, don't require additional street space, and can be configured to offer wayfinding guidance. The FHWA *Manual on Uniform Traffic Control Devices* (MUTCD) outlines guidance for shared lane markings in Section 9C.07.

An example of a potential candidate street segment for shared lane markings is

Gilbert Road through the Heritage District, where there are two lanes in each direction with a 25 mph speed limit. The two lanes have a total width of 23-24 feet, which is not wide enough for the recommended minimum width of two 10-foot travel lanes and a 5-foot bike lane.

Green Colored Pavement

In 2011, FHWA issued an Interim Approval allowing for the optional use of green colored pavement in bike lanes and in extensions of bike lanes through intersections and other traffic conflict areas. Since that time, many communities across the country – including Phoenix and Tucson in Arizona – have utilized green colored pavement to make bike lanes or potential bicycle/motor vehicle crossing points more visible. Per the Interim Approval letter, research has found the green colored pavement gives drivers an increased awareness that bicyclists might be present and where they are likely to be positioned, thereby promoting bicycle safety.

The Town of Gilbert could consider applying the green colored pavement to select locations to improve the visibility of bike lanes. The green colored pavement could be applied to entire segments of bike lanes or only to potential conflict areas such as intersections or the beginning of right-turn lanes. Initial candidate segments for consideration of green colored pavement would include high bicycle/motor vehicle crash areas (e.g., Guadalupe Road from west of Recker Road to Power Road), high bicycle activity areas, and locations where shared lane markings are simultaneously being installed.

Roadway Widening to Accommodate Bike Lanes

On most Gilbert arterials and collectors, the space between the roadway curb and the edge of the roadway right-of-way typically contains sidewalk, a landscaped buffer, streetlights, and utilities. If bike lanes cannot be provided within the existing roadway width, the roadway can be widened to provide space for a bike lane. Roadway widening could require narrowing or eliminating the landscaped buffer, or relocating the sidewalk. Such actions should minimize adverse impacts to pedestrians and avoid costly utility relocations where possible. If there is not enough space within the existing right-of-way to widen the road, additional right-of-way would need to be

acquired.

In developed parts of Gilbert where streets have been improved to provide four or six travel lanes but not bike lanes, there is typically enough space between the roadway curb and the edge of the roadway right-of-way that a bike lane could be added if the roadway were widened. Roadway widening for the sole purpose of adding bike lanes is relatively expensive compared to many of the other options for how to add bike lanes and as such would likely not be the preferred way to add bike lanes if other less expensive options are viable.

Separated Bike Lanes

Separated bike lanes, also known as cycle tracks or buffered bike lanes, can be considered in areas with few controlled driveway openings and sufficient right-of-way to separate bike lanes from vehicles. The minimum desired bicycle-vehicle separation is 3 feet with a minimum bike lane width of 5-7 feet. Separated bike lanes can be one-way or two-way and can be at street level, sidewalk level, or at an intermediate level. Common separators are curbs, medians, pavement color/texture markings, on-street parking and flexible bollards. Maintenance of the bike lane and separator needs to be considered when selecting what type of separator to use. Separated bike lanes have been success fully implemented in cities such as Boulder, Colorado, Long Beach, California, and Portland, Oregon. The NACTO Urban Street Design Guide provides guidance and schematics on separated bike lanes.



Sources: www.bikeportland.org, http://livininthebikelane.blogspot, www.vimeo.com

Connectivity of Local and Collector Streets

Arterial streets accommodate higher-speed, higher-volume motor vehicle traffic and can be uncomfortable for some bicyclists. In addition, discontinuities in the bike lane network on some arterial streets may be difficult to eliminate due to cost or right-of-way constraints.

Local and collector streets serve an important role in the bicycle network because they provide more comfortable bicycle routes than arterial streets for casual and less confident riders, particularly for short trips from neighborhoods to local services and destinations. They are characterized by slower vehicle speeds and have lower traffic volumes than arterial streets.

As the Town continues to develop and evolve, the local and collector street network should be developed to provide sufficient connectivity through and to adjacent neighborhoods and destinations. Direct connections from local/collector streets to the off-street shared use network can provide safer bicycle access by bypassing arterial streets. Connectivity enables people to take shorter routes and travel on quieter streets, which are more conducive to bicycling. A well-connected street network can increase the number of people bicycling, which helps reduce vehicle miles traveled.

Because there are not many continuous collector and local streets that run parallel to the arterial street network in Gilbert, bike route signage and pavement markings can help bicyclists know where the designated bike routes are to minimize travel on arterial streets. Wayfinding is only effective if implemented systematically on key bicycle routes or pathways.

Off-Street Shared Use Paths and Trails

Off-street shared use paved paths and unpaved trails are considered a significant part of the Town's transportation circulation system that also provides recreational opportunities. Shared use facilities – particularly paved paths – provide opportunities for riding among user groups who are not comfortable using on-street bike lanes.

These may include casual cyclists, children, families, and the elderly. The Town should continue to develop its network of off-street shared use paths and trails, consistent with the *Gilbert Parks, Recreation, and Trails Master Plan*. It is recommended that the Town focus first on addressing gaps and deficiencies in the paved paths that are part of the Western Canal Powerline Trail, Heritage Trail, Santan Vista Trail, and Santan Freeway Trail and then focus on developing new shared use facilities such as the Rittenhouse Trail, Marathon Trail, Queen Creek Trail, and Sonoqui Wash Trail.

Shared Use Path and Trail Crossings

A critical component of the shared use path/trail network is where shared use facilities cross other transportation and utility facilities, particularly the arterial and collector street network and railroad tracks. These crossings represent potential conflict zones and as such need to be carefully planned and designed.

Potential crossing infrastructure treatments at arterial and collector streets include Pedestrian Hybrid Beacons (PHBs – also known as HAWKs), Bike HAWKs (similar to HAWKs but with additional features for bicyclists), rectangular rapid flashing beacons (RRFBs), mid-block bicycle/pedestrian traffic signals, and median refuge islands. Design of median refuge islands should include provisions for canal and utility maintenance vehicle access where applicable. The Town should determine which existing signalized shared use path crossings would operate more effectively as HAWK crossings and convert them to HAWK or Bike HAWK crossings. High-priority locations are the Western Canal Powerline Trail, Heritage Trail, Santan Vista Trail, and Santan Freeway Trail crossings of arterial streets where actuated crossings are not currently provided.

Potential crossing infrastructure treatments at railroad tracks consist of at-grade solutions (e.g., sidewalk, railroad gate arms and lights) and grade-separated solutions (e.g., bridges or tunnels). At-grade solutions are much less expensive than grade-separated solutions but grade-separated solutions provide for complete separation between the shared use facilities and the railroad tracks. The MAG Regional Bicycle and Pedestrian Pathway/Railroad Crossing Recommendation Final Report should be referenced in developing shared use/railroad crossing treatments. A high-priority for

shared use/railroad crossing treatment is where the Western Powerline Trail intersects the railroad.

Bicycle Sharing Program

The Cities of Mesa, Tempe, and Phoenix will launch a bicycle sharing program (branded as Grid Bike Share) in 2014 that will provide access to approximately 1,000 bicycles for short-term rental. The bicycle sharing program allows a bicyclist to pick up a bicycle at one hub station or public bike rack and drop it off at another for a small fee. The objective of the program is to provide an affordable and convenient alternative to the motor vehicle for short trips, thereby reducing congestion, noise, and air pollution. The bicycle sharing program in Mesa, Tempe, and Phoenix will be focused on the area within three miles of the Light Rail transit line. With the pending extension of the Light Rail line in Mesa along Main Street to Gilbert Road, portions of northern Gilbert will soon be within the focus area of the bicycle sharing program. There may also be opportunities to expand the bicycle sharing program throughout Gilbert, particularly around major activity centers.

Regional Connectivity and Coordination

The Town of Gilbert's bike lanes and shared use paths should connect to the adjacent facilities of Chandler, Queen Creek, and Mesa shown previously on the existing bicycle network graphic (Figure 4-7).

- The City of Chandler's trail system includes the Western Canal Powerline Trail, Santan Vista Trail, and Heritage Trail and there are three large Chandler parks near the Gilbert border.
- The Town of Queen Creek's trail system connects to regional parks, the Santan Mountains, and adjacent communities. Trails along Sonoqui Wash and Queen Creek are major equestrian, bicycle, and pedestrian trails through the Town of Queen Creek.
- The Santan Vista Trail and Heritage Trail extend into the City of Mesa and the Western Canal Powerline Trail and Santan Freeway Trail currently end at the Mesa/Gilbert border.

Portions of the Town's Western Canal Powerline Trail, Heritage Trail, and planned Marathon Trail are also part of Maricopa County's larger regional Maricopa Trail and Sun Circle Trail. The Maricopa Trail generally goes around the perimeter of the Phoenix metropolitan area while the Sun Circle Trail goes through many of the

communities within the area.

MAG has taken an active role in promoting improvements for bicycle and pedestrian travel opportunities throughout the Phoenix metropolitan area, including development of flexible region-wide performance guidelines to promote “complete streets”. The agency has developed a series of regional bicycle, pedestrian and multimodal corridor plans outlining design guidelines and design assistance programs for items such as signage, lighting, and materials.

Education and Encouragement Countermeasures

Improving education and awareness of all roadway users and proper travel behavior can lead to fewer bicycle crashes with motor vehicles. The Town of Gilbert can partner with regional agencies such as MAG and Valley Metro to develop and implement safety awareness campaigns. Public safety awareness campaigns can include fliers, hangtags, rack cards (in English and Spanish), and radio and television announcements. Public safety awareness campaigns could focus on the following messages:

- Explain the danger of wrong-way bicycling riding
- Show potential issues and hazards of bicyclists riding on the sidewalk
- Emphasize use of lights while riding at night and low-light conditions
- Encourage helmet use among all riders
- Emphasize motorist awareness of bicyclists, particularly for turning vehicles at intersections, driveways, trail crossings, and near bus stops
- Educate motorists on the three-foot safe passing distance law
- Health, environmental, and social benefits of bicycling

The campaign should include outreach efforts to engage children, teenagers, and young adults. These outreach efforts could include poster contests, coloring books, and messages on elementary, middle school, and high school marquees. Online campaigns and smartphone applications could also be developed.

The Town of Gilbert can partner with, and capitalize on, national resources. The League of American Bicyclists (LAB) “Smart Cycling” program is a set of curricula for adults and children taught by certified instructors. The Town of Gilbert can encourage

and partner with local agencies and bicycle advocacy organizations to offer the LAB courses to as many bicyclists as possible, including children in elementary and middle schools. The MAG *Strategic Transportation Safety Plan* [8] includes a goal to reduce the number of crashes that involve bicyclists or pedestrians through utilizing LAB materials. Stated goals of the *Strategic Transportation Safety Plan* include the following:

- Promote bicyclist training programs for youth and adults. Utilize programs such as those provided by the LAB to offer on-bike training opportunities.
- Co-sponsor safety and training programs with the Coalition of Arizona Bicyclists and/or other agencies for adults looking to improve their biking skills.

The Town of Gilbert can educate and encourage people to ride by providing them a variety of opportunities to get on their bikes. Examples include:

- celebrating National Bike Month and Bike to Work Day
- working with the school districts to promote bicycling
- producing community bike maps
- implementing route finding signage
- conducting other bicycle-themed celebrations and rides and commuter challenges. develop a free bike program similar to other communities where bikes are available to use for free
- providing a QR symbol along the shared use paths/trails to provide information on the path/trail, a cultural destination, or a map.

Enforcement Countermeasures

As a supplement to education of bicyclists, enforcement plays a critical role to improve bicyclist safety. The following behaviors should be targeted for enforcement:

- Bicyclists who are riding against traffic on the roadway can be warned of the dangers of this practice and that riding in the same direction as adjacent vehicle traffic is the law

[8] www.azmag.gov

- Bicyclists can be stopped to educate them about the potentially unsafe practices of riding at night without lights or violating traffic signals
- Motorists can be warned or cited for driving too close to bicyclists. Arizona law [9]requires a safe passing distance of three feet.

Formal training of police officers with respect to bicycle laws and safe practices is limited within the Arizona Peace Officer Standards and Training Board (POST). Town of Gilbert Public Works and Engineering Services staff should collaborate with the Town's Police Department to offer training to police officers of bicycle laws and safe practices so that they are better prepared to enforce them.

Bicycle safety training for public safety officers would raise awareness and lead to better enforcement of traffic laws, which can have a trickle-down effect of educating the general public. Examples of training resources [10]are provided at the website.

- Bicycle Traffic Enforcement Video [11]- This is an internal training video for the Portland Police Bureau available through the PBIC Video Library
- Traffic Enforcement for Bicyclist Safety - A training video for Chicago Police Officers created in partnership between the Chicago Police Department and The Chicago Department of Transportation available through the PBIC Video Library
- Law Enforcement's Roll Call Video: "Enforcing Law for Bicyclists" - This short video was developed by the National Highway Traffic Safety Administration (NHTSA)
- Enhancing Bicycle Safety: Law Enforcement's Role - This two-hour self-paced training for law enforcement officers was developed by the United States Department of Transportation and NHTSA
- NHTSA Community Oriented Bicycle Safety for Law Enforcement (2002)
- Law Officers Guide to Bicycle Safety (2002)
- NHTSA Resource Guide on Laws Related to Pedestrian and Bicycle Safety
- Florida Bicycle Law Enforcement Guide (2003)

The Town of Gilbert can continue to build relationships between the bicycle community and the Town Police Department. A Bicycle and Pedestrian Advisory Committee (BPAC) can be established to foster awareness on both sides. A BPAC

[9] www.azleg.gov
[10] www.bicyclinginfo.org
[11] www.bicyclinginfo.org

typically consists of citizens who advise engineering, planning, and public safety staff on bicycle and pedestrian issues within the community. Examples include the Tucson-Pima County Bicycle Advisory Committee [12](TPCBAC), which has an informative website that lists the committee's vision, goals, and membership information, and the City of Flagstaff Pedestrian Advisory Committee [13](PAC), which reports directly to the City's Transportation commission on issues related to planning and accommodation of pedestrians. Bicycle advocates can also be identified to advise Town staff when shared use facilities or crossings need maintenance.

Bicycle Data Collection Program

The Town should develop a bicycle data collection program to collect and analyze the number and locations of bicyclists utilizing the Town's infrastructure. A bicycle data collection program can provide meaningful data to the Town and be used to track trends and prioritize investments. The program could utilize automatic counters to provide counts of bicyclists in high crash segment locations, supporting expenditures on new bicycle facilities and bicycle policies and should be developed with the following objectives:

- Develop annual goals and performance metrics to assess progress toward improving conditions for bicyclists. Recommended performance measures include:
  - Reduction in bicycle/motor vehicle crashes – particularly fatal and injury crashes; this data is available from the ADOT SafetyDataMart.
  - Increase in the number of miles of bike lanes; this data is available from Town GIS staff.
  - Reduction in the number of miles of bicycle network gaps; gaps can be documented through GIS mapping.
  - Increase in the number of miles of shared use facilities; this data is available from Town GIS staff.
  - Increase in the number of signalized/HAWK shared use facility crossings on arterials and collectors; this information can be obtained from engineering staff.
  - Increase in the number of official railroad/shared use facility crossings; this information can be obtained from engineering staff.

[12] www.biketucson.pima.gov
[13] www.flagstaff.az.gov

  - Increase in bicycle travel education and enforcement campaigns.
- Establish an on-going data collection schedule and prioritization of locations to conduct bicycle counts or surveys that allow for long-term trend analysis of bicycle activity.
- Utilize the Pedestrian and Bicyclist Intersection Safety Indices [14] to identify intersection crossings and intersection approach legs that should be the greatest priority for undergoing pedestrian and bicycle safety improvements.

Advocacy organizations can contribute labor resources to a data collection effort. There are many bicycle advocacy organizations that work to further bicycle activities within the community, such as the Coalition of Arizona Bicyclists and LAB.

New technologies also provide opportunities to collect bicycle travel data. The San Francisco County Transportation Authority developed a Smartphone application, Cycle Tracks, which tracks routes used by volunteer bicyclists. CycleTracks uses the smartphone GPS support to record users' bicycle trip routes and times, and display maps of their rides. At the end of each trip, anonymous data representing the trip purpose, route, and the date and time are sent to the San Francisco County Transportation Authority for analysis. All personally identifiable data are kept confidential.

Austin, Texas also used the Cycle Tracks application to track the routes of 300 volunteer bicyclists to determine their preferred routes. These creative applications of smartphones allowed for a relatively inexpensive data collection effort. The amount of information provided by the use of smartphones exceeded what has typically been available using other data collection methods (http://tinyurl.com/avuvmbm).

The Town may consider developing a similar program for bicyclists to submit this data to the Town to use in a bicycle data collection program. Such data would help to identify popular bicycle corridors and prioritize where improvements are needed.

It is proposed that the Town of Gilbert develop a bicycle data collection program and participate in the National Bicycle and Pedestrian Documentation Project[15]. The

[14] www.fhwa.dot.gov
[15] http://bikepeddocumentation.org

National Bicycle & Pedestrian Documentation Project is sponsored by Alta Planning and Design and the Institute of Transportation Engineers (ITE) Pedestrian and Bicycle Council and is a website that retains, maintains and provides consistent models of data collection techniques and data for use by planners, governments, and bicycle and pedestrian professionals. The website provides a variety of documentation such as forms and materials for counts, surveys, and training materials.

Other Bicycle Strategies

Secure, convenient and readily available bike parking at locations such as parks, community centers, libraries, shopping centers, bus stops, and schools is also a key component of promoting bicycle travel. The Town Development Code requires new development to provide bike racks. Building codes could be modified to require showers and locker facilities to promote bicycling both in the workplace and the wider community.

To further promote bicycle-transit travel, bike racks or lockers could be installed at bus stops with high bicycle-transit usage and the Town of Gilbert could coordinate with Valley Metro to see if it is possible to expand the number of bike racks on buses to better accommodate bicycle-transit travel.

The Town of Gilbert could dedicate a portion of the Transportation Coordinator position to addressing issues and concerns related to bicycling in the Town, and improving their accommodation in the Town's transportation network.

The Town of Gilbert could develop and adopt a Complete Street ordinance or policy that indicates what defines a complete street and where complete streets will be provided.

Summary

Table 7-1 summarizes the tools within the aforementioned toolbox of treatments and strategies that are available to the Town of Gilbert. These tools are considered most feasible for the Town's implementation to improve the comfort, safety, and convenience of bicycling in Gilbert.

TABLE 7-1: RECOMMENDED BICYCLE TRAVEL TOOLS

Category	Tool
Engineering	Include bike lanes in new construction or major reconstruction of roadways
	Narrow vehicle lanes to accommodate bike lanes
	Widen bike lanes where there is enough roadway width to do so
	Conduct detailed crash analysis of higher-density bicycle crash locations
	Install shared lane markings where there is not enough width to add bike lanes
	Install green colored pavement in bike lanes, particularly at potential bicycle-vehicle conflict areas
	Provide separated bike lanes
	Designate local and collector streets as alternate bike routes and develop a bike route map
	Construct new shared use paved paths or pave existing shared use unpaved trails
	Install signals, HAWKs, or RRFBs where shared use paths cross major streets
	Construct at-grade or grade-separated shared use/railroad crossings
	Coordinate with regional partners to expand the regional bike network
	Modify development codes to require bike racks, showers, and lockers
Education	Implement a bicycle education and safety awareness campaign
	Conduct safe bicycling courses
Encouragement	Celebrate National Bike Month and Walk to Work Day
	Seek higher level LAB bicycle-friendly community status
	Participate in regional bicycle sharing program
	Distribute community bike maps
	Implement bike route signage, particularly on local and collector streets
	Develop a Complete Street ordinance or policy
	Conduct other bicycle-themed celebrations, rides, and commuter challenges
Enforcement	Conduct police department bicycle-oriented training
	Establish a Bicycle and Pedestrian Advisory Committee in the Town
Evaluation and Planning	Develop annual goals and performance metrics related to bicycles
	Implement a bicycle data collection program
	Dedicate a portion of the Transportation Coordinator position to bicycle travel

E. 2013-2018 CIP Bicycle-related Projects

The Town has plans to continue to expand and enhance the bicycle network. There are several programmed roadway improvement projects that include the addition of bike lanes as well as several shared use path projects in the Town's *2013-2018 Capital Improvement Plan* (CIP). Some of these projects are multi-jurisdictional – the Town of Gilbert is the lead agency on some of them and a contributing agency on others. Where there are joint projects, the Town of Gilbert will need to coordinate with the partnering jurisdiction.

Table 7-2 identifies the programmed bicycle-related projects in Gilbert that are not yet under construction, sorted by fiscal year and then project number. Proposed actions are included in the table where modifications to the project are recommended. The programmed projects are mapped in Figure 7-1.

The Town's CIP also contains several roadway improvement projects that include the addition of bike lanes and shared use paths beyond the 2018 timeframe for which funding has not yet been allocated. Table 7-3 identifies the 2018-2019 to 2022-2023 bicycle-related CIP projects in Gilbert that are not yet funded, sorted by project number. Table 7-4 similarly identifies the bicycle-related CIP projects scheduled beyond 2022-2023 that are not yet funded. Proposed actions are included in these tables where modifications to a project are recommended. The planned but unfunded CIP projects are also mapped in Figure 7-1.

TABLE 7-2: BICYCLE-RELATED CIP PROJECTS: 2013-2014 TO 2017-2018

Project #	Project Description	Project Details	Fiscal Year	Amount	Proposed Action
PR006	Heritage Trail Middle Segment – Western Canal to Warner Road	Construct paved concrete shared use path and associated amenities for approximately 1.5 miles along the Consolidated Canal.	2014	$1,616,000	Construct as planned.
PR011	Western Canal Powerline Trail – Chandler-Gilbert border to Cooper Road	Construct paved concrete shared use path and associated amenities for approximately 1.5 miles along the Western Canal.	2014	$1,173,000	Construct as planned.
PR095	Trail Crossing Signals – Phase II Initial Groups	Install HAWK pedestrian hybrid beacons at ten trail arterial street crossings, two of which are shared with Mesa. One crossing has been constructed, three crossings are under design with construction scheduled for 2016, and six crossings are to be designed and constructed later.	2014	$582,000	Construct as planned.

TABLE 7-2: BICYCLE-RELATED CIP PROJECTS: 2013-2014 TO 2017-2018 (CONTINUED)

Project #	Project Description	Project Details	Fiscal Year	Amount	Proposed Action
ST058	Germann Road – Val Vista Drive to Higley Road	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 2.0 miles.	2014	$10,504,000	Construct as planned.
ST129	Gilbert Road / Guadalupe Road Intersection Improvements	Improve to full major arterial intersection cross-section, including space for a bike lane in each direction at the intersection, although the bike lane will only be designated on the west and east legs. Bike lanes on the north and south legs will be provided if and when adjacent roadway segments are improved to include bike lanes.	2014	$8,050,000	Construct as planned.
ST152	Higley Road / Warner Road Intersection Improvements	Improve to full major arterial intersection cross-section, including space for a bike lane in each direction at the intersection, although the bike lane will only be designated on the west leg as part of this project. Roadway segments away from the intersection will be constructed to an interim four-lane condition with no bike lane – bike lanes on the other legs will be provided when adjacent roadway segments are ultimately widened to full arterial width.	2014	$5,876,000	Construct as planned.
PR101	Santan Freeway Trail – Val Vista Drive to Discovery Park	Construct paved concrete shared use path for approximately 0.8 miles along the Santan Freeway.	2015	$500,000	Construct as planned.
PR062	Western Canal Powerline Trail – SRP Powerline Trail to Greenfield Road	Construct paved concrete shared use path and associated amenities for approximately 0.5 miles along the Western Canal.	2016	$1,936,000	Construct as planned.
PR056	Parks and Trails Sign Program	Develop standards, themes, and details for directional, information, and interpretive signage and install signs as needed.	2018	$508,000	Construct as planned.

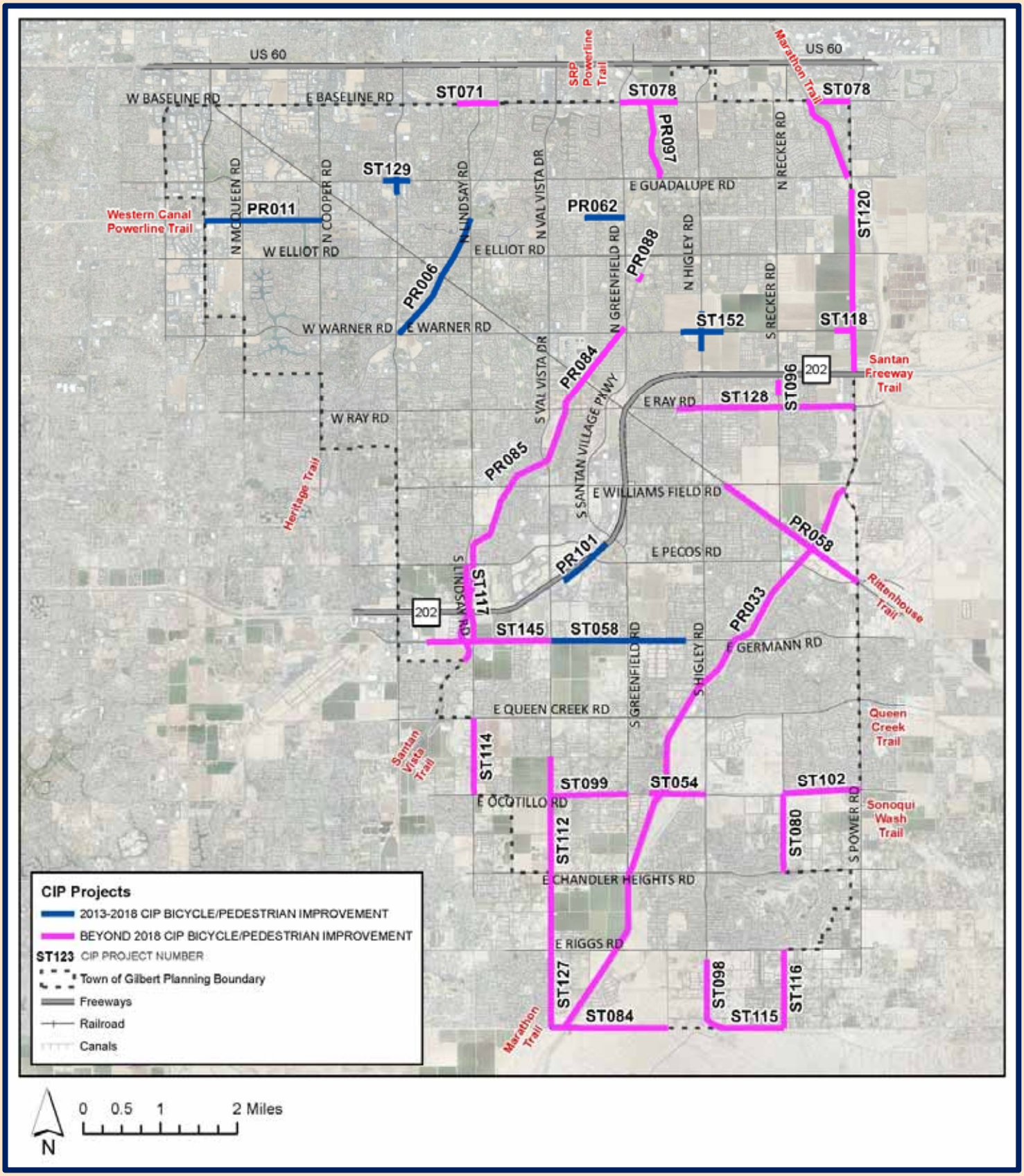


FIGURE 7-1: BICYCLE-RELATED CIP PROJECTS

TABLE 7-3: BICYCLE-RELATED CIP PROJECTS: 2018-2019 TO 2022-2023

Project #	Project Description	Project Details	Amount	Proposed Action
PR033	Marathon Trail - Williams Field Road to Hunt Highway	Construct paved concrete shared use path and associated amenities for approximately 8.0 miles along the East Maricopa Floodway. Partner with the Flood Control District of Maricopa County.	$8,409,000	Construct as planned.
PR058	Rittenhouse Trail – Williams Field Road to Power Road	Construct paved concrete shared use path and associated amenities for approximately 1.4 miles along the old Rittenhouse Road alignment.	$5,048,000	Construct as planned.
PR084	Santan Vista Trail – Phase II – Warner Road to Ray Road	Construct paved concrete shared use path and associated amenities for approximately 1.1 miles along the Eastern Canal. Coordinate with Union Pacific Railroad (UPRR) where trail crosses railroad.	$1,810,000	Construct as planned.
PR085	Santan Vista Trail – Phase II – Ray Road to Germann Road	Construct paved concrete shared use path and associated amenities for approximately 3.2 miles along the Eastern Canal.	$4,523,000	Construct as planned.
PR088	Roosevelt Water Conservation District (RWCD) Pedestrian Crossing	Construct crossing of the RWCD tail-water ditch adjacent to the existing Eastern Canal.	$110,000	Construct as planned.
PR095	Trail Crossing Signals – Phase II Later Groups	Install HAWK pedestrian hybrid beacons or traffic signals at various trail arterial street crossings. Refer to PR095 in Table 7-2	$2,355,000	Utilize recommended locations from the finalized *Parks, Recreation, and Trails Master Plan*.
PR097	Santan Vista Trail – Phase IV – Baseline Road to Guadalupe Road	Construct paved concrete shared use path and associated amenities for approximately 1.1 miles along the Eastern Canal.	$1,341,000	Construct as planned.
ST098	Higley Road – Riggs Road to Hunt Highway	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 1.0 mile.	$6,444,000	Construct as planned.

TABLE 7-3: BICYCLE-RELATED CIP PROJECTS: 2018-2019 TO 2022-2023 (CONTINUED)

Project #	Project Description	Project Details	Amount	Proposed Action
ST112	Val Vista Drive – Appleby Road to Riggs Road	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 2.2 miles. Joint project with Chandler – Gilbert is the lead agency.	$15,618,000	Construct as planned.
ST114	Lindsay Road – Queen Creek Road to Ocotillo Road	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 1.0 mile.	$5,991,000	Construct as planned.
ST117	Lindsay Road – Pecos Road to Germann Road	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 1.0 mile.	$2,204,000	Change southern limit in project title to Santan Freeway to better reflect actual project limits. Construct as planned.
ST118	Warner Road – Power Road to 0.25 miles west of Power Road	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 0.25 miles.	$1,844,000	Construct as planned.
ST120	Power Road – Guadalupe Road to Santan Freeway	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 2.3 miles. Joint project with Mesa and Maricopa County – Gilbert is the lead agency.	$7,427,000	Construct as planned.

TABLE 7-4: BICYCLE-RELATED CIP PROJECTS BEYOND 2022-2023

Project #	Project Description	Project Details	Amount	Proposed Action
ST054	Ocotillo Road – Greenfield Road to Higley Road	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 0.8 miles.	$20,711,000	Construct as planned.
ST071	Baseline Road – Burk Street to Consolidated Canal	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 0.9 miles. Joint project with Mesa – Mesa is the lead agency.	$2,373,000	Construct as planned.
ST078	Baseline Road – Greenfield Road to Power Road	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 1.7 miles. Joint project with Mesa – Gilbert is the lead agency.	$16,907,000	Construct as planned.
ST080	Recker Road – Ocotillo Road to Chandler Heights Road	Improve to full minor collector roadway cross-section, including bike lanes, for approximately 1.0 mile. Joint project with Queen Creek – Gilbert is the lead agency.	$5,308,000	Construct as planned.
ST084	Hunt Highway – Val Vista Drive to 164th Street	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 1.5 miles.	$12,801,000	Construct as planned.
ST096	Recker Road – 0.13 miles north of Ray Road to 0.25 miles north of Ray Road	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 0.12 miles.	$1,832,000	Construct as planned.
ST099	Ocotillo Road – Val Vista Drive to Greenfield Road	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 1.0 mile.	$10,506,000	Construct as planned.
ST102	Ocotillo Road – Recker Road to Power Road	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 1.0 mile. Joint project with Queen Creek – Queen Creek is the lead agency.	$1,543,000	Construct as planned.

TABLE 7-4: BICYCLE-RELATED CIP PROJECTS BEYOND 2022-2023 (CONTINUED)

Project #	Project Description	Project Details	Amount	Proposed Action
ST115	Hunt Highway – Higley Road to Recker Road	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 1.1 miles.	$14,681,000	Construct as planned.
ST116	Recker Road – Riggs Road to Hunt Highway	Improve to full major collector roadway cross-section, including bike lanes, for approximately 1.0 mile.	$7,951,000	Construct as planned.
ST127	Val Vista Drive – Riggs Road to Hunt Highway	Improve to full minor arterial roadway cross-section, including bike lanes, for approximately 1.0 mile.	$5,375,000	Construct as planned.
ST128	Ray Road - Val Vista Drive to Power Road	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 4.0 miles.	$15,187,000	Change western project limit to Banning Street and adjust budget as needed to account for segments already constructed.
ST145	Germann Road – Gilbert Road to Val Vista Drive	Improve to full major arterial roadway cross-section, including bike lanes, for approximately 2.0 miles. Also includes improving Lindsay Road to full minor arterial roadway cross-section, including bike lanes, from Germann Road to 0.13 miles north of Germann Road	$12,386,000	Consider advancing this project if funding becomes available due to traffic and development demands. Construct as planned.

F. Recommendations

A comparison of the aforementioned CIP projects to the existing bicycle network identified the remaining gaps in the bicycle network once all the CIP projects are implemented. Remaining bicycle network gaps consist primarily of:

- Missing bike lane segments on arterial streets in older developed parts of town
- Missing bike lane segments on arterial streets where the adjacent land is undeveloped
- Missing shared use path segments along the existing Western Canal Powerline Trail and Santan Freeway Trail
- Missing shared use path segments along the proposed Queen Creek Trail and Sonoqui Wash Trail

It is recommended that the Town of Gilbert put highest priority on eliminating any relatively inexpensive gaps in the on-street bike lane network, gaps in the shared use paved paths of the existing trail network, and gaps in areas of high bicycle activity such as the Heritage District. The elimination of multiple gaps could potentially be combined into a single project for cost-effectiveness.

Tables 7-5, 7-6 and 7-7 describe the remaining bicycle network gaps based on the nature of the gap. The gaps are sorted by the suggested priority for eliminating the gap and then alphabetically by gap location. Priorities are classified as high (ideally within the next 5 years), medium (ideally within the next 10 years), and low (ideally within the next 20 years). Proposed tools/comments regarding how to address the bicycle network gaps are provided. The bicycle network gaps are also shown graphically in Figure 7-2.

Table 7-5 describes the bike lane gaps in areas that are improved, meaning the adjacent land is generally developed already with infrastructure improvements in place, although there may be isolated vacant parcels. The Town of Gilbert will likely need to develop projects to address the gaps in Table 7-5. Table 7-6 describes the bike lane gaps in areas that are currently unimproved, meaning the areas where adjacent land is undeveloped with few infrastructure improvements in place but will likely be developed in the future. The gaps in Table 7-6 will likely be addressed as new development improves the adjacent street network per Town development requirements. Table 7-7 describes the gaps in the shared use path network. The Town of Gilbert will likely need to develop projects to address the gaps in Table 7-7.

TABLE 7-5 – REMAINING BICYCLE NETWORK GAPS: BIKE LANES IN IMPROVED AREAS

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Elliot Road	Neely Street	Gilbert Road	Install bike lanes by narrowing vehicle lanes and restriping street.	High
Gilbert Road	Baseline Road	0.15 miles south of Elliot Road	Install bike lanes by narrowing vehicle lanes and restriping street where feasible; space for bike lanes will be created on the north and south legs of the Gilbert Road/ Guadalupe Road intersection as part of ST129. Install shared lane markings in conjunction with green colored pavement in the Heritage District where there is not enough space for bike lanes. Conduct a Heritage District Bicycle and Pedestrian Plan to determine appropriate bicycle and pedestrian facilities on all streets in the Heritage District; may include designating local streets as alternate bike routes and developing a bike route map. Consider converting flush median to raised median to better control access and promote safety	High
Arizona Avenue	Baseline Road	Guadalupe Road	Install bike lanes by narrowing vehicle lanes and restriping street; joint project with Mesa – Mesa is the lead agency.	Medium
Baseline Road	Arizona Avenue	Horne Street	Install bike lanes by narrowing vehicle lanes and restriping street; existing paved striped shoulder is too narrow; joint project with Mesa – Mesa is the lead agency.	Medium
Cooper Road	Sherri Drive	Ray Road	Install bike lane on west side by narrowing vehicle lanes and restriping street; existing bike lane already on east side; joint project with Chandler – Chandler is the lead agency.	Medium

TABLE 7-5 – REMAINING BICYCLE NETWORK GAPS: BIKE LANES IN IMPROVED AREAS (CONTINUED)

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
McQueen Road	Elliot Road	Knox Road	Install bike lanes by narrowing vehicle lanes and restriping street; existing bike lane already on west side between Elliot Road and Mesquite High South Drive; joint project with Chandler – Gilbert is the lead agency north of Warner Road and Chandler is the lead agency south of Warner Road.	Medium
Val Vista Road	Guadalupe Road	Baseline Road	Install bike lanes by narrowing vehicle lanes and restriping street.	Medium
Warner Road	McQueen Road	Cooper Road	Install bike lanes by narrowing vehicle lanes and restriping street.	Medium
Chandler Heights Road	Recker Road	Power Road	Install bike lanes if and when street is widened and improved to add vehicle lanes; joint project with Queen Creek – Queen Creek is the lead agency.	Low
Hunt Highway/ Stacey Road	164th Street	Higley Road	Install bike lanes by narrowing vehicle lanes and restriping street if and when street is improved to provide continuity between adjacent Hunt Highway segments.	Low

TABLE 7-6 – REMAINING BICYCLE NETWORK GAPS: BIKE LANES IN UNIMPROVED AREAS

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Gilbert Road	Pecos Road	0.13 miles south of Santan Freeway	Install bike lane on east side when street is widened and improved as the adjacent land develops, which is imminent; existing bike lane already on west side; joint project with Chandler – Chandler is the lead agency.	High
Higley Road	0.13 miles north of Pecos Road	0.13 miles south of Pecos Road	Install bike lane on west side when street is widened and improved as the adjacent land develops, which is imminent; existing bike lane already on east side.	High
Pecos Road	Gilbert Road	Lindsay Road	Install bike lane on south side when street is widened and improved as the adjacent land develops, which is imminent; existing bike lane already on north side.	High
Elliot Road	0.25 miles east of Recker Road	Power Road	Install bike lanes when street is widened and improved as the adjacent land develops; existing bike lane already on north side for part of segment.	Medium
Higley Road	Mesquite Street	Santan Freeway	Install bike lanes when street is widened and improved as the adjacent land develops; space for bike lanes will be created on the north and south legs of the Higley Road/ Warner Road intersection as part of ST152.	Medium
Lindsay Road	0.13 miles south of Germann Road	Ryan Road	Install bike lanes when street is widened and improved as the adjacent land develops; existing bike lane already on west side for part of segment.	Medium
Recker Road	Mesquite Street	Warner Road	Install bike lanes when street is widened and improved as the adjacent land develops.	Medium
Recker Road	Ray Road	Vest Avenue	Install bike lanes when street is widened and improved as the adjacent land develops.	Medium

TABLE 7-6 – REMAINING BICYCLE NETWORK GAPS: BIKE LANES IN UNIMPROVED AREAS (CONTINUED)

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Warner Road	Higley Road	0.25 miles west of Power Road	Install bike lanes when street is widened and improved as the adjacent land develops; space for bike lanes will be created on the east leg of the Higley Road/Warner Road intersection as part of ST152.	Medium
Chandler Heights Road	148th Street	Val Vista Drive	Install bike lanes when street is widened and improved as the adjacent land develops; joint project with Chandler – Chandler is the lead agency.	Low
Ocotillo Road	Lindsay Road	Val Vista Drive	Install bike lanes when street is widened and improved as the adjacent land develops; existing bike lane already on north side for part of segment; joint project with Chandler – Gilbert is the lead agency.	Low

TABLE 7-7 – REMAINING BICYCLE NETWORK GAPS: SHARED USE PAVED PATHS

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Western Canal Powerline Trail	Lindsay Road	SRP Powerline Trail	Pave existing shared use unpaved trail and widen existing sidewalk to create a shared use paved path.	High
Western Canal Powerline Trail	Neely Street	0.1 miles east of UPRR railroad tracks	Install shared use paved path; consider grade separation over railroad.	High
Queen Creek Trail	Power Road	East Maricopa Floodway (EMF) (0.13 miles east of Greenfield Road	Install shared use paved path; connect to existing shared use paved path east of Power Road; consider locating path underneath Power Road and Higley Road or providing HAWK/signalized crossings.	Medium
Santan Freeway Trail	Gilbert Road	Lindsay Road	Install shared use paved path; should include bridge across Eastern Canal.	Medium
Santan Freeway Trail	Santan Village Parkway	0.25 miles east of Greenfield Road	Install shared use paved path; consider grade separating the path underneath UPRR railroad track and Ray Road bridges with a connection to Ray Road.	Medium
Western Canal Powerline Trail	0.25 miles west of Power Road	Power Road	Install shared use paved path; will require new right-of-way or easement; may be able to be incorporated into a development agreement if land develops; coordinate with Mesa to encourage extension of path between Power Road and EMF to connect to Marathon Trail.	Medium
Sonoqui Wash Trail	Queen Creek (0.13 miles west of Higley Road)	Power Road	Install shared use paved path; consider locating path underneath Higley Road and Ocotillo Road or providing HAWK/signalized crossings.	Low

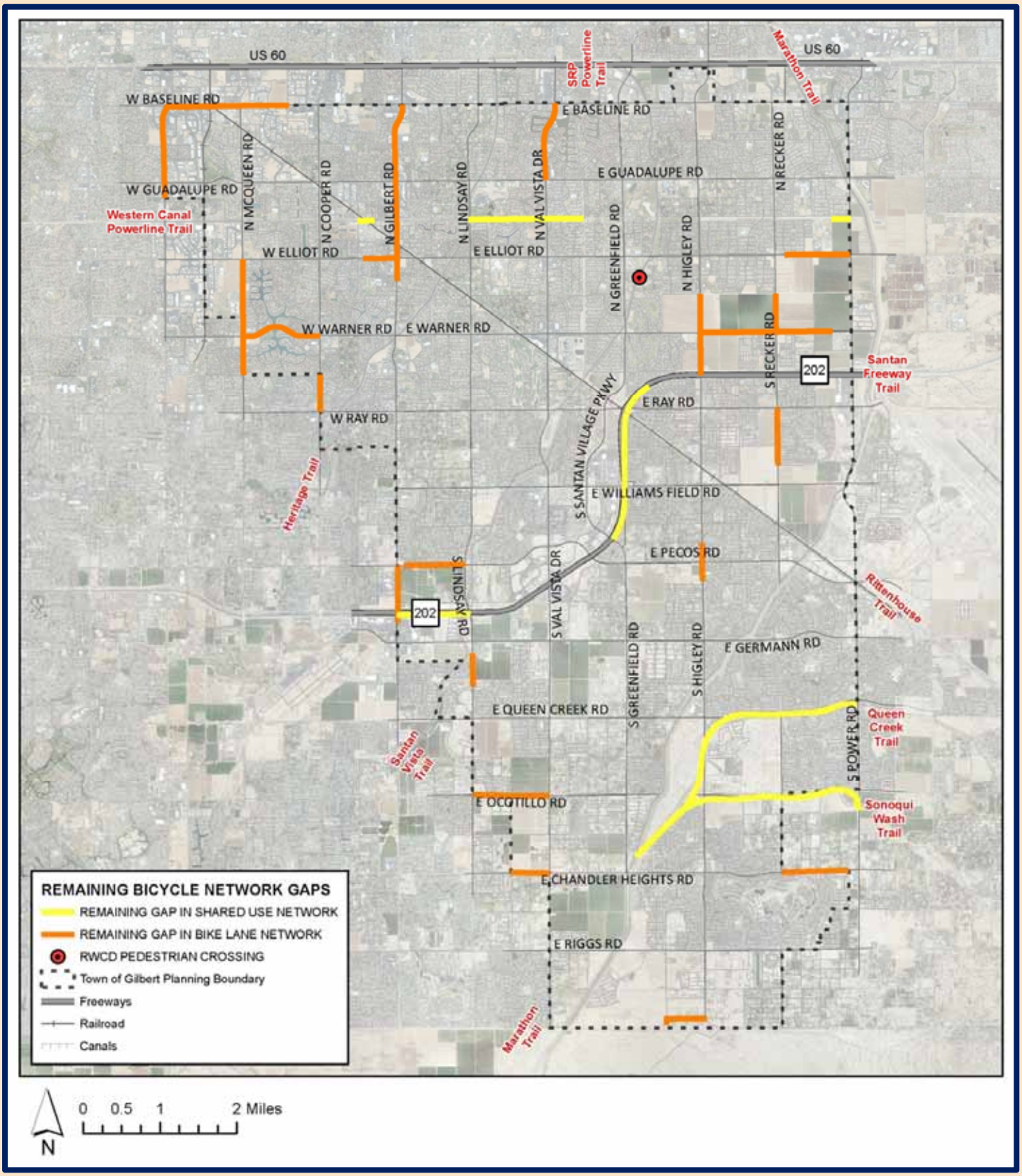


FIGURE 7-2 – REMAINING BICYCLE NETWORK GAPS

8. PEDESTRIAN ELEMENT

The Pedestrian Element summarizes pedestrian-related goals, presents a toolbox of options for improving pedestrian conditions, and makes recommendations for the expansion of the Town's pedestrian network of sidewalks, shared use paths, and crossings of roadways based on a pedestrian network gap analysis in order to promote walking as a safe, comfortable, and convenient travel option within the Town.

A. Trends in Travel Behavior

Recent trends in demographics and a change in travel behavior suggest that a more diverse transportation system for the future is warranted. These shifts can be attributed to several factors:

- **Aging Baby Boomers**. Baby Boomers, the generation born between 1946 and 1964, are reaching retirement age and are healthier and living longer than previous generations. Today, about one in eight people in the United States is over 65; by 2030, this age group will include one in five people. According to the American Association of Retired Persons (AARP), nearly 90% of seniors today want to live in their own homes and communities for as long as possible. In most cases, that will mean remaining in low-density, suburban locations that are not well-served by transit. The bulk of Baby Boomers in Arizona will not retire to dense cities and will require different transportation options in their own communities when they are no longer driving personal vehicles.
- **Rise of the Millennial Generation.** Recent data indicate that the generation of Americans born between the early 1980s and the early 2000s (referred to as "Millennials") are now the largest group of Americans. They tend toward city living and less driving, as compared to other age groups. In 2009, Millennials drove 23% fewer miles on average than the same age group did in 2001. This was a greater decline than any other age group. While economic recession was partially responsible for the decline, evidence also points to a declining interest in driving among this age group: the percentage of 16-to-24-year-olds with driver's licenses has been declining for much longer than per capita vehicle-miles traveled (VMT). Millennials live in cities in greater numbers than previous generations and have a stronger preference for urban living.
- **Declining vehicle travel**. Vehicle-miles traveled (VMT), both per capita and in absolute terms, have historically risen steadily for decades in Arizona and in

the United States as a whole. States have responded by steadily expanding the vehicle capacity of roadway systems. However, the rise of the Millennials and the aging of Baby Boomers have corresponded with a recent unprecedented national dip in driving. Over the past decade, nationwide VMT has crested and declined for the first time. On a per capita basis, nationwide VMT has declined sharply since the mid-2000s, and has yet to increase again as the economy has recovered. Despite a growing population, total VMT in Arizona fell 0.4% between 2005 and 2011. VMT per capita fell 8% over the same period, compared to 6.5% nationally.

These societal trends result in the need for a diverse, multimodal, transportation system. The Pedestrian Element recognizes these societal shifts.

B. Goals

The Vision and Goals of the TMP identify several over-arching goals. The recommendations contained in the Pedestrian Element directly support the vision and the following goals:

Vision: A comprehensive, integrated multimodal transportation system that promotes and enhances safety, mobility, efficiency, quality of life, and sustainability.

Goal 3: *Establish a safe, continuous network of arterial streets that accommodates all modes, minimizes congestion, and connects to street networks of neighboring communities.*

Goal 4: *Develop a safe, continuous network of collector and local streets that connects neighborhoods to the arterial street network, encourages bicycling and walking, and incorporates traffic calming strategies.*

Goal 6*: Provide a safe, comfortable, aesthetically pleasing, walkable Town that accommodates all types of pedestrians and promotes walking between shopping, schools, parks, and neighborhoods.*

The Pedestrian Element builds upon and supports the goal established in the *2005 Gilbert Bicycle and Pedestrian Plan:*

The primary goal of the Gilbert Bicycle and Pedestrian Plan is to provide bicycle and

pedestrian facilities that efficiently connect the places to which people want to go.

The Pedestrian Element also directly supports the *Gilbert Parks, Recreation, and Trails Master Plan* vision:

Exemplary parks, trails, open spaces, natural areas, arts and culture, leisure programs and facilities are safe and integral to Gilbert's unique identity, our quality of life and our economy.

C. Walk Friendly Community Designation[16]

Walk Friendly Communities (WFC) is a national recognition program developed to encourage towns and cities across the U.S. to establish a high priority for supporting safer walking environments. A community that has received WFC designation represents a community that values public health, livability, and the environment.

The WFC designation, awarded from Honorable Mention (lowest designation) to Bronze, Silver, Gold, and Platinum (highest designation), is given to applicant communities that have demonstrated a commitment to improving and sustaining walkability and pedestrian safety through comprehensive programs, plans and policies.

At the core of the WFC program is a comprehensive assessment tool that evaluates community walkability and pedestrian safety through questions related to the "5 E's" of engineering, education, encouragement, enforcement, and evaluation/planning. The assessment tool questions are intended to both evaluate conditions for walking and provide communities with feedback and ideas for promoting pedestrian safety and activity. There are 59 communities that have received the WFC designation. Seattle, Washington is the only Platinum-level WFC. Flagstaff is the only Arizona community that has received WFC designation (Bronze).

The Town of Gilbert has not previously submitted an application for WFC recognition. The WFC assessment tool can serve as a valuable framework for improving walking

[16] www.walkfriendly.org

conditions within the Town. The strategies recommended in the subsequent Pedestrian Toolbox are derived from the WFC assessment tool.

D. Pedestrian Travel Toolbox

This section provides a "toolbox" of potential treatments and strategies for the "5 E's" to improve the accommodation, comfort, and safety of pedestrians in Gilbert.

The physical environment is a key determinant in whether people will walk to their destinations. A well-connected pedestrian network consisting of sidewalks, shared use paths/trails, and crossings of roadways, along with policies to ensure connectivity and maintenance of these facilities, are critical to promoting pedestrian travel.

Engineering

- Include sidewalks that are a minimum of 6 feet wide on all new streets and a minimum of 10 feet wide in areas of high pedestrian activity such as in the Heritage District and the Cooley Station core. The Town's standard details for various types of streets already call for 6-foot minimum sidewalks except for the local street cross-section (Detail #27). To better promote pedestrian safety and comfort, it is recommended that the minimum sidewalk width on the local street cross-section be increased from the current 4-foot minimum to a new minimum of 6 feet. A 6-foot sidewalk enables two people in wheelchairs to pass one another and for a wheelchair to turn around. The photo below shows the potential pedestrian congestion issues with 4-foot wide sidewalks.
- Conduct detailed crash analysis of high pedestrian crash locations (Gilbert Road from Guadalupe Road to Elliot Road and Elliot Road near the Val Vista Drive intersection).
- Construct new sidewalks to close gaps in the sidewalk network, such as at the Gilbert Road/Elliot Road intersection and along Lindsay Road between Guadalupe Road and Elliot Road.
- Construct a landscape or hardscape buffer between the sidewalk and the street.
- Construct level and continuous sidewalks at driveways.
- Develop a program to repair or replace broken sidewalks and curb ramps.

- Develop a program to upgrade existing pedestrian ramps, driveway crossings and pedestrian push buttons to meet current Americans with Disabilities Act (ADA) and Manual on Uniform Traffic Control Devices (MUTCD) standards.
- Establish a method for citizens to report missing or broken sidewalks and curb ramps.
- Construct new shared use paved paths and/or pave existing shared use unpaved trails.
- Provide pedestrian overpasses at key locations over freeways and railroads.
- Provide pedestrian recall at traffic signals (pedestrians receive a walk signal during every phase without using a push button) in areas of high pedestrian activity.
- Consider traffic signal right-turn-on-red restrictions and Leading Pedestrian Intervals (LPI) in areas of high pedestrian activity.
- Implement measures to improve pedestrian access, safety, and convenience at crosswalks.
  - Consider use of Pedestrian Hybrid Beacons (also known as HAWKs) in close proximity to schools, bus stops, and at shared use path/trail crossings.
  - Consider use of Rectangular Rapid Flashing Beacons (RRFBs) at marked crosswalks to supplement standard pedestrian crossing warning signs and markings (Gilbert has FHWA Interim Approval for RRFBs), particularly at high pedestrian crash locations and at shared use path/trail crossings of roadways.
- Construct pedestrian refuge center median islands or two-stage crosswalks on multi-lane roadways. Center median islands allow pedestrians to stop partway across the street and wait for an adequate gap in traffic before crossing the second half of the street.
- Coordinate with regional partners to expand the regional sidewalk and shared use path/trail networks.

Education

- Implement a Safe Routes to School (SRTS) Program or expand an existing SRTS Program to more schools.
- Implement education and training programs related to pedestrian education, safety, or design. Training should be provided for law enforcement, public works, and community development staff, school staff, and public officials.
- Partner with regional agencies such as the Maricopa Association of Governments (MAG) and Valley Metro, the regional transit agency, to develop and implement public safety awareness campaigns.

Encouragement

- Submit an application for recognition as a Walk Friendly Community. (See Chapter 4)
- Implement public service announcements to encourage safe walking and driving.
- Develop and distribute pedestrian network maps (e.g., town-wide or regional maps of neighborhoods, activity centers, school routes, shared use paved paths, etc.).
- Celebrate National Walk to Work Day.
- Implement wayfinding along shared use path routes.
- Conduct other pedestrian-themed celebrations or challenges that engage the community to encourage walking. Examples include:
    - Walk to School Day: International Walk to School Day is held in October of each year. The event is promoted by the National Center for Safe Routes to School.
    - Walk to Work Day: National Walk to Work Day is held the first Friday of April in the United States. It began in 2004. The day is promoted by Prevention magazine and endorsed by the US Department of Health and Human Services and the American Podiatric Medical Association.
    - Open Streets Event: Open streets events temporarily close streets to automobile traffic so that people may use them for walking, bicycling, dancing, playing, and socializing. Additional information is available from the Alliance for Bicycling and Walking and The Streets Plans Collaborative.
    - Cyclovia: Cyclovia are scheduled closings of city streets to automobiles for the exclusive use, benefit, and enjoyment of bicyclists and pedestrians. An annual Cyclovia event is held in Tucson, Arizona each April in the downtown and surrounding area. A variety of activities is held along the route. The City of Mesa also holds an annual Cyclovia event as part of the Great Arizona Bicycle Festival.

Enforcement

- Collaborate with the Town's Police Department to offer training to police officers of pedestrian laws and safe practices (such as those related to pedestrians crossing the street) so that they are better prepared to enforce them.
- Develop targeted enforcement programs to improve the safety of pedestrians in crosswalks and on Town streets and shared use paths/trails. For example, the Town of Gilbert Police Department can work with public safety officers to conduct pedestrian "decoy" operations in which plainclothes police officers

cross at mark or unmarked crosswalks, with drivers being warned or cited if they fail to yield to a pedestrian in a crosswalk. Similarly, pedestrians can be stopped to educate them about the safest ways to cross a street, or to wear light-colored clothing at night.

- Establish a Bicycle and Pedestrian Advisory Committee (BPAC). A BPAC typically consists of citizens who advise engineering, planning, and public safety staff on bicycle and pedestrian issues within the community. Examples include the Tucson-Pima County Bicycle Advisory Committee [17](TPCBAC), which has an informative website that lists the committee's vision, goals, and membership information, and the City of Flagstaff Pedestrian Advisory Committee[18] (PAC), which reports directly to the City's Transportation commission on issues related to planning and accommodation of pedestrians. Pedestrian advocates can also be identified to advise Town staff when shared use facilities or crossings need maintenance.

Evaluation and Planning

- Develop annual goals and performance metrics to assess progress toward improving conditions for pedestrians. Recommended performance measures include:
  - Reduction in pedestrian/motor vehicle crashes – particularly fatal and injury crashes; this data is available from the ADOT SafetyDataMart.
  - Increase in the number of miles of shared use facilities; this data is available from Town GIS staff.
  - Reduction in the number of miles of sidewalk gaps; gaps can be documented through GIS mapping.
  - Increase in the number of signalized/HAWK shared use facility crossings on arterials and collectors; this information can be obtained from traffic operation staff.
- Increase in pedestrian travel education and enforcement campaigns.
- Establish an on-going data collection schedule and prioritization of locations to conduct pedestrian counts or surveys that allow for long-term trend analysis.
- Utilize the Pedestrian and Bicyclist Intersection Safety Indices [19] to identify intersection crossings and intersection approach legs that should be the greatest priority for undergoing pedestrian and bicycle safety improvements.

[17] http://biketucson.pima.gov
[18] www.flagstaff.az.gov
[19] www.fhwa.dot.gov

- Dedicate a portion of the Transportation Coordinator position to addressing issues and concerns related to pedestrian travel.
- Finalize and implement the ADA Transition Plan under development by the Town that addresses curb ramps, sidewalks, traffic signals, and crossings in the public right-of-way.
- Develop and adopt a Complete Street ordinance or policy that indicates what needs to be done to make a street a complete street.
- Establish policies or incentives for new development that promote convenient and safe pedestrian travel such as pedestrian/vehicle separation in parking lots, shaded walkways, and building entrance street orientation/location.
- Establish measures to encourage dense, mixed-use development.
- Encourage urban design features and pedestrian amenities to create a comfortable and attractive walking environment.

Summary

Table 8-1 summarizes the tools within the aforementioned toolbox of treatments and strategies that are available to the Town of Gilbert. These tools are considered most feasible for the Town's implementation to improve the comfort, safety, and convenience of pedestrians in Gilbert.

TABLE 8-1: RECOMMENDED PEDESTRIAN TRAVEL TOOLS

Category	Tool
Engineering	Include 6-foot minimum sidewalks on all new streets and wider sidewalks as needed
	Conduct detailed crash analysis of higher-density pedestrian crash locations
	Construct new sidewalks to close up gaps in sidewalk network
	Develop a program to repair or replace broken sidewalks and curb ramps
	Establish a method for citizens to report missing or broken sidewalks/curb ramps
	Construct new paved shared use paths or pave existing unpaved shared use trails
	Provide pedestrian recall signal functionality in areas of high pedestrian activity
	Consider right-turn-on red restrictions and leading pedestrian intervals as needed
	Install signals, HAWKs, or RRFBs where shared use paths cross arterials and collectors
	Construct at-grade or grade-separated shared use/railroad crossings
	Construct pedestrian refuge islands/two-stage crosswalks on multi-lane roadways
	Coordinate with regional partners to expand the regional pedestrian network
Education	Expand the Safe Routes to School program to more schools
	Implement a pedestrian education and safety awareness campaign
	Partner with regional agencies to develop and implement public safety campaigns
Encouragement	Submit an application for recognition as a Walk Friendly Community
	Implement public service announcements to encourage safe walking and driving
	Develop and distribute pedestrian network maps
	Celebrate National Walk to Work Day
	Develop a Complete Street ordinance or policy
	Implement shared use path route signage
	Conduct other pedestrian-themed celebrations or challenges
Enforcement	Conduct police department pedestrian-oriented training
	Develop targeted enforcement programs to improve the safety of pedestrians
	Establish a Bicycle and Pedestrian Advisory Committee in the Town
Evaluation and Planning	Develop annual goals and performance metrics related to pedestrians
	Implement a pedestrian data collection program
	Use Pedestrian and Bicyclist Intersection Safety Indices to prioritize improvements
	Dedicate a portion of the Transportation Coordinator position to pedestrian travel
	Finalize and implement ADA Transition Plan
	Adopt ordinances, policies, and measures that promote pedestrian travel
	Encourage dense, mixed-use development with pedestrian amenities

E. 2013-2018 CIP Pedestrian Projects

The Town has plans to continue to expand and enhance the pedestrian network. There are several programmed roadway improvement projects that include the addition of sidewalks as well as several shared use path projects in the Town's *2013-2018 Capital Improvement Plan* (CIP). Some of these projects are multi-jurisdictional – the Town of Gilbert is the lead agency on some of them and a contributing agency on others. Where there are joint projects, the Town of Gilbert will need to coordinate with the partnering jurisdiction.

Table 8-2 identifies the programmed pedestrian-related projects in Gilbert that are not yet under construction, sorted by fiscal year and then project number. Proposed actions are included in the table where modifications to the project are recommended. The programmed projects are mapped in Figure 8-1. The Town's CIP also contains several roadway improvement projects that include the addition of sidewalks and shared use paths beyond the 2018 timeframe for which funding has not yet been allocated. Table 8-3 identifies the planned 2018-2019 to 2022-2023 pedestrian-related CIP projects in Gilbert that are not yet funded, sorted by project number. Table 8-4 similarly identifies the pedestrian-related CIP projects scheduled beyond 2022-2023 that are not yet funded. Proposed actions are included in these tables where modifications to a project are recommended. The planned but unfunded CIP projects are also mapped in Figure 8-1.

TABLE 8-2 – PEDESTRIAN-RELATED CIP PROJECTS: 2013-2014 TO 2017-2018

Project #	Project Description	Project Details	Fiscal Year	Amount	Proposed Action
PR006	Heritage Trail Middle Segment – Western Canal to Warner Road	Construct paved concrete shared use path and associated amenities for approximately 1.5 miles along the Consolidated Canal.	2014	$1,616,000	Construct as planned.
PR011	Western Canal Powerline Trail – Chandler-Gilbert border to Cooper Road	Construct paved concrete shared use path and associated amenities for approximately 1.5 miles along the Western Canal.	2014	$1,173,000	Construct as planned.
PR095	Trail Crossing Signals – Phase II Initial Groups	Install HAWK pedestrian hybrid beacons at ten trail arterial street crossings, two of which are shared with Mesa. One crossing has been constructed, three crossings are under design with construction scheduled for 2016, and six crossings are to be designed later.	2014	$582,000	Construct as planned.
ST058	Germann Road – Val Vista Drive to Higley Road	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 2.0 miles.	2014	$10,504,000	Construct as planned.
ST129	Gilbert Road / Guadalupe Road Intersection Improvements	Improve to full major arterial intersection cross-section, including sidewalks in each direction at the intersection.	2014	$8,050,000	Construct as planned.
ST152	Higley Road / Warner Road Intersection Improvements	Improve to full major arterial intersection cross-section, including sidewalks at the intersection. Roadway segments away from the intersection will be constructed to an interim four-lane condition with no sidewalk – sidewalk will be added when these roadway segments are ultimately widened to full arterial width.	2014	$5,876,000	Construct as planned.

TABLE 8-1 – PEDESTRIAN-RELATED CIP PROJECTS: 2013-2014 TO 2017-2018 (CONTINUED)

Project #	Project Description	Project Details	Fiscal Year	Amount	Proposed Action
PR101	Santan Freeway Trail – Val Vista Drive to Discovery Park	Construct paved shared use path for approximately 0.8 miles along the Santan Freeway.	2015	$500,000	Construct as planned.
PR062	Western Canal Powerline Trail – SRP Powerline Trail to Greenfield Road	Construct paved shared use path and associated amenities for approximately 0.5 miles along the Western Canal.	2016	$1,936,000	Construct as planned.
PR056	Parks and Trails Sign Program	Develop standards, themes, and details for directional, information, and interpretive signage and install signs as needed.	2018	$508,000	Construct as planned.

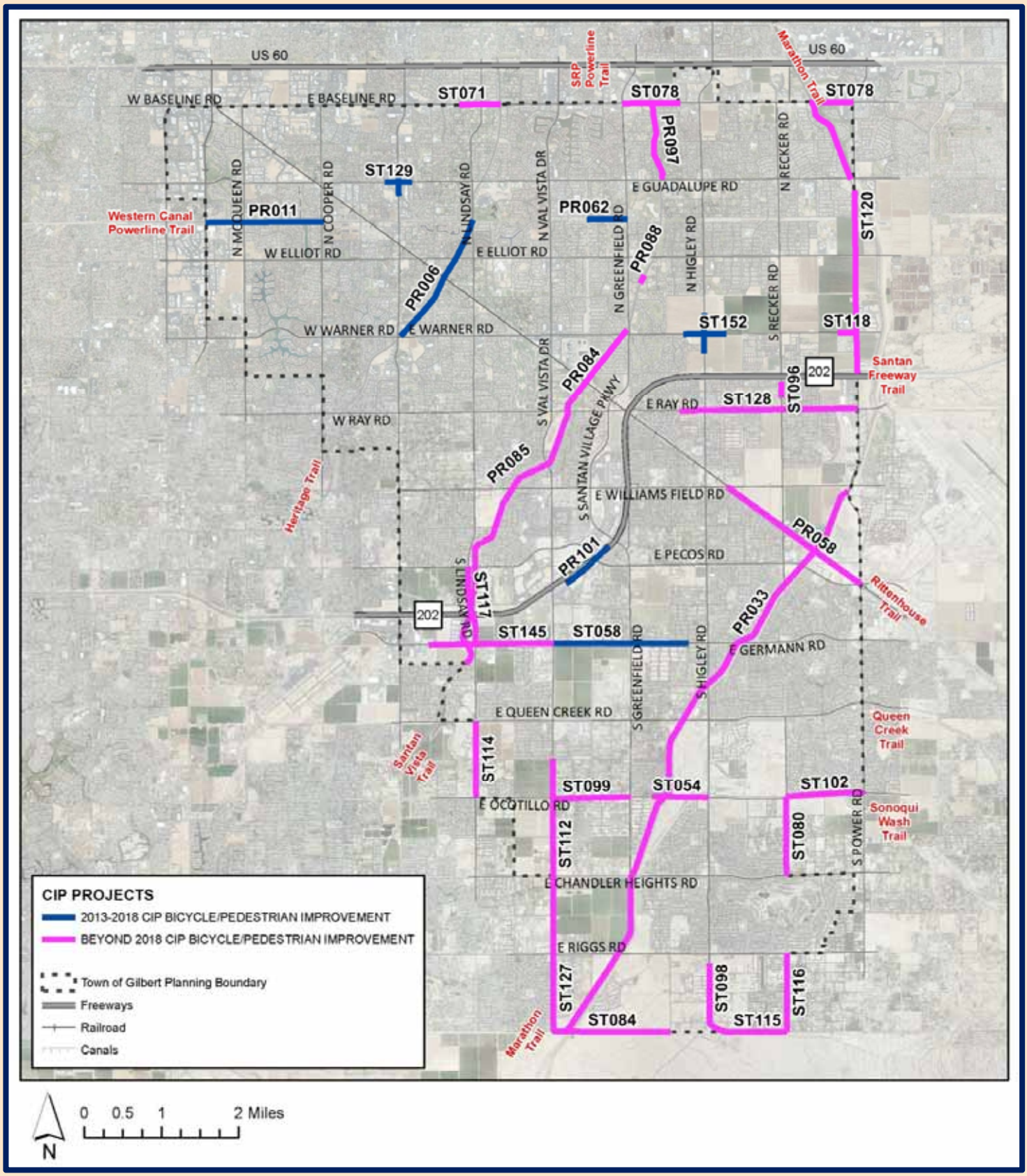


FIGURE 8-1: PEDESTRIAN-RELATED CIP PROJECTS

TABLE 8-3: PEDESTRIAN-RELATED CIP PROJECTS: 2018-2019 TO 2022-2023

Project #	Project Description	Project Details	Amount	Proposed Action
PR033	Marathon Trail - Williams Field Road to Hunt Highway	Construct paved concrete shared use path and associated amenities for approximately 8.0 miles along the East Maricopa Floodway. Partner with the Flood Control District of Maricopa County.	$8,409,000	Construct as planned.
PR058	Rittenhouse Trail – Williams Field Road to Power Road	Construct paved concrete shared use path and associated amenities for approximately 1.4 miles along the old Rittenhouse Road alignment.	$5,048,000	Construct as planned.
PR084	Santan Vista Trail – Phase II – Warner Road to Ray Road	Construct paved concrete shared use path and associated amenities for approximately 1.1 miles along the Eastern Canal. Coordinate with Union Pacific Railroad (UPRR) where trail crosses railroad.	$1,810,000	Construct as planned.
PR085	Santan Vista Trail – Phase II – Ray Road to Germann Road	Construct paved concrete shared use path and associated amenities for approximately 3.2 miles along the Eastern Canal.	$4,523,000	Construct as planned.
PR088	Roosevelt Water Conservation District (RWCD) Pedestrian Crossing	Construct crossing of the RWCD tail-water ditch adjacent to the existing Eastern Canal.	$110,000	Construct as planned.
PR095	Trail Crossing Signals – Phase II Later Groups	Install HAWK pedestrian hybrid beacons or traffic signals at various trail arterial street crossings.	$2,355,000	Utilize recommended locations from the finalized *Parks, Recreation, and Trails Master Plan*.
PR097	Santan Vista Trail – Phase IV – Baseline Road to Guadalupe Road	Construct paved concrete shared use path and associated amenities for approximately 1.1 miles along the Eastern Canal.	$1,341,000	Construct as planned.
ST098	Higley Road – Riggs Road to Hunt Highway	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 1.0 mile.	$6,444,000	Construct as planned.
ST112	Val Vista Drive – Appleby Road to Riggs Road	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 2.2 miles. Joint project with Chandler – Gilbert is the lead agency.	$15,618,000	Construct as planned.

TABLE 8-3: PEDESTRIAN-RELATED CIP PROJECTS: 2018-2019 TO 2022-2023 (CONTINUED)

Project #	Project Description	Project Details	Amount	Proposed Action
ST114	Lindsay Road – Queen Creek Road to Ocotillo Road	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 1.0 mile.	$5,991,000	Construct as planned.
ST117	Lindsay Road – Pecos Road to Germann Road	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 1.0 mile.	$2,204,000	Change southern limit in project title to Santan Freeway to better reflect actual project limits. Construct as planned.
ST118	Warner Road – Power Road to 0.25 miles west of Power Road	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 0.25 miles.	$1,844,000	Construct as planned.
ST120	Power Road – Guadalupe Road to Santan Freeway	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 2.3 miles. Joint project with Mesa and Maricopa County – Gilbert is the lead agency.	$7,427,000	Construct as planned.

TABLE 8-4: PEDESTRIAN-RELATED CIP PROJECTS BEYOND 2023-2024

Project #	Project Description	Project Details	Amount	Proposed Action
ST054	Ocotillo Road – Greenfield Road to Higley Road	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 0.8 miles.	$20,711,000	Construct as planned.
ST071	Baseline Road – Burk Street to Consolidated Canal	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 0.9 miles. Joint project with Mesa – Mesa is the lead agency.	$2,373,000	Construct as planned.
ST078	Baseline Road – Greenfield Road to Power Road	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 1.7 miles. Joint project with Mesa – Gilbert is the lead agency.	$16,907,000	Construct as planned.
ST080	Recker Road – Ocotillo Road to Chandler Heights Road	Improve to full minor collector roadway cross-section, including sidewalks, for approximately 1.0 mile. Joint project with Queen Creek – Gilbert is the lead agency.	$5,308,000	Construct as planned.
ST084	Hunt Highway – Val Vista Drive to 164th Street	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 1.5 miles.	$12,801,000	Construct as planned.
ST096	Recker Road – 0.13 miles north of Ray Road to 0.25 miles north of Ray Road	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 0.12 miles.	$1,832,000	Construct as planned.
ST099	Ocotillo Road – Val Vista Drive to Greenfield Road	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 1.0 mile.	$10,506,000	Construct as planned.
ST102	Ocotillo Road – Recker Road to Power Road	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 1.0 mile. Joint project with Queen Creek – Queen Creek is the lead agency.	$1,543,000	Construct as planned.

TABLE 8-4: PEDESTRIAN-RELATED CIP PROJECTS BEYOND 2023-2024 (CONTINUED)

Project #	Project Description	Project Details	Amount	Proposed Action
ST115	Hunt Highway – Higley Road to Recker Road	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 1.1 miles.	$14,681,000	Construct as planned.
ST116	Recker Road – Riggs Road to Hunt Highway	Improve to full major collector roadway cross-section, including sidewalks, for approximately 1.0 mile.	$7,951,000	Construct as planned.
ST127	Val Vista Drive – Riggs Road to Hunt Highway	Improve to full minor arterial roadway cross-section, including sidewalks, for approximately 1.0 mile.	$5,375,000	Construct as planned.
ST128	Ray Road - Val Vista Drive to Power Road	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 4.0 miles.	$15,187,000	Change western project limit to Banning Street and adjust budget as needed to account for segments already constructed.
ST145	Germann Road – Gilbert Road to Val Vista Drive	Improve to full major arterial roadway cross-section, including sidewalks, for approximately 2.0 miles. Also includes improving Lindsay Road to full minor arterial roadway cross-section, including sidewalks, from Germann Road to 0.13 miles north of Germann Road	$12,386,000	Consider advancing this project if funding becomes available due to traffic and development demands. Construct as planned.

F. Recommendations

A comparison of the aforementioned CIP projects to the existing pedestrian network identified the remaining gaps in the pedestrian network once all the CIP projects are implemented. Remaining pedestrian network gaps consist primarily of:

- Missing sidewalk segments on arterial streets where the adjacent land is undeveloped
- Missing shared use path segments along the existing Western Canal Powerline Trail and Santan Freeway Trail
- Missing shared use path segments along the proposed Queen Creek Trail and Sonoqui Wash Trail

It is recommended that the Town of Gilbert put highest priority on eliminating gaps in the sidewalk network that are relatively inexpensive to fix, in the shared use paved paths of the existing trail network, and in areas of high pedestrian activity such as the Heritage District. Cost information will need to be provided once projects are developed. The elimination of several gaps could potentially be combined into a single project for cost-effectiveness.

Tables 8-5, 8-6 and 8-7 describe the remaining pedestrian network gaps based on the nature of the gap. The gaps are sorted by the suggested priority for eliminating the gap and then alphabetically by gap location. Priorities are classified as high (ideally within the next 5 years), medium (ideally within the next 10 years), and low (ideally within the next 20 years). Proposed tools/comments regarding how to address the pedestrian network gaps are provided. The pedestrian network gaps are also shown graphically in Figure 8-2.

Table 8-5 describes the sidewalk gaps in areas that are improved, meaning the adjacent land is generally developed already with infrastructure improvements in place, although there may be isolated vacant parcels. The Town of Gilbert will likely need to develop projects to address the gaps in Table 8-5. Table 8-6 describes the sidewalk gaps in areas that are currently unimproved, meaning the areas where adjacent land is undeveloped with few infrastructure improvements in place but will likely be developed in the future. The gaps in Table 8-6 will likely be addressed as new development improves the adjacent street network per Town development requirements. Table 8-7 describes the gaps in the shared use path network. The Town of Gilbert will likely need to develop projects to address the gaps in Table 8-7.

TABLE 8-5: REMAINING PEDESTRIAN NETWORK GAPS: SIDEWALKS IN IMPROVED AREAS

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Gilbert Road	0.08 miles north of Ash Street	Ash Street	Install sidewalk on east side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on west side.	High
Gilbert Road	Elliot Road	0.08 miles south of Elliot Road	Install sidewalk on east side; affected vacant parcel is owned by the Town of Gilbert; existing sidewalk already on west side.	High
Chandler Heights Road	0.08 miles west of Higley Road	Higley Road	Install sidewalk on north side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on south side.	Medium
Gilbert Road	0.13 miles north of Pecos Road	Pecos Road	Install sidewalk on west side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on east side; joint project with Chandler – Gilbert is the lead agency.	Medium
Gilbert Road	Santan Freeway	0.13 miles south of Santan Freeway	Install sidewalk on east side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on west side; joint project with Chandler – Chandler is the lead agency.	Medium
Higley Road	0.08 miles north of Chandler Heights Boulevard	Chandler Heights Boulevard	Install sidewalk on west side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on east side.	Medium
Higley Road	Ray Road	0.08 miles south of Ray Road	Install sidewalk on west side; existing right-of-way can accommodate the sidewalk except where the bus bay is; some additional right-of-way will likely be needed; existing sidewalk already on east side.	Medium
Higley Road	US 60	Baseline Road	Install sidewalk on east side; existing right-of-way can accommodate the sidewalk except through the parcel at the northeast corner of Higley Road/ Inverness Avenue, where some additional right-of-way will likely be needed; existing sidewalk already on west side.	Medium
Lindsay Road	Orchid Lane	Ray Road	Install sidewalk on west side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on east side.	Medium

TABLE 8-5: REMAINING PEDESTRIAN NETWORK GAPS: SIDEWALKS IN IMPROVED AREAS (CONTINUED)

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Lindsay Road	Tremaine Avenue	Stonebridge Drive	Install sidewalk on west side; existing sidewalk already on east side; coordinate with Consolidated Canal owner Salt River Project (SRP); connect to Heritage Trail and Western Canal Powerline Trail.	Medium
McQueen Road	Warner Road	0.15 miles south of Warner Road	Install sidewalk on west side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on east side; joint project with Chandler – Chandler is the lead agency.	Medium
Old Greenfield Road	Canyon Creek Drive	Santan Village Parkway	Install sidewalks; existing sidewalk already on east side for part of segment; replace unpaved trail in easement on west side with sidewalk and connect to planned Santan Freeway Trail.	Medium
Queen Creek Road	Girard Street	Recker Road	Install sidewalk on south side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on north side.	Medium
Ray Road	0.13 miles west of Lindsay Road	Lindsay Road	Install sidewalk on north side; existing right-of-way can accommodate the sidewalk; existing sidewalk already on south side.	Medium
Chandler Heights Road	Recker Road	Power Road	Install sidewalk on north side if and when street is widened and improved; existing right-of-way can accommodate the sidewalk; existing sidewalk already on south side; joint project with Queen Creek – Queen Creek is the lead agency.	Low
Elliot Road	Gilbert Road	UPRR railroad tracks	Install sidewalk on north side; existing frontage road right-of-way can accommodate the sidewalk but will likely require shifting the ribbon curb south; sidewalk on south side will be installed in 2014 as part of ST111.	Low
Hunt Highway/ Stacey Road	164th Street	Higley Road	Install sidewalks if and when street is improved to provide continuity between adjacent Hunt Highway segments; existing right-of-way can accommodate the sidewalks for most of the segment; some additional right-of-way will likely be needed.	Low

TABLE 8-6: REMAINING PEDESTRIAN NETWORK GAPS: SIDEWALKS IN UNIMPROVED AREAS

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Gilbert Road	Pecos Road	Santan Freeway	Install sidewalk on east side when street is widened and improved as the adjacent land develops, which is imminent; existing sidewalk already on west side; joint project with Chandler – Chandler is the lead agency.	High
Higley Road	Ocotillo Road	Marbella Boulevard	Install sidewalks when street is widened and improved as the adjacent land develops, which is imminent;; existing sidewalk already on west side for part of segment.	High
Higley Road	Pecos Road	0.13 miles south of Pecos Road	Install sidewalk on west side when street is widened and improved as the adjacent land develops, which is imminent; existing sidewalk already on east side.	High
Higley Road	Queen Creek Canal	Bridges Boulevard	Install sidewalk on east side when adjacent land develops, which is imminent; existing sidewalk already on west side.	High
Pecos Road	Gilbert Road	Lindsay Road	Install sidewalk on south side when street is widened and improved as the adjacent land develops, which is imminent; existing sidewalk already on north side.	High
Queen Creek Road	Lindsay Road	0.25 miles east of Lindsay Road	Install sidewalk on south side when adjacent land develops, which is imminent; existing sidewalk already on north side.	High
Elliot Road	0.25 miles east of Recker Road	Power Road	Install sidewalks when street is widened and improved as the adjacent land develops; existing sidewalk already on north side for part of segment.	Medium
Higley Road	0.25 miles south of Warner Road	Santan Freeway	Install sidewalks when street is widened and improved as the adjacent land develops.	Medium
Higley Road	Mesquite Street	0.25 miles north of Warner Road	Install sidewalks when street is widened and improved as the adjacent land develops.	Medium
Lindsay Road	0.13 miles south of Germann Road	Ryan Road	Install sidewalk on east side when street is widened and improved as the adjacent land develops; existing sidewalk already on west side.	Medium
Pecos Road	0.01 miles west of Rome Street	Rome Street	Install sidewalk ramp on south side when adjacent land develops.	Medium
Recker Road	Mesquite Street	Warner Road	Install sidewalks when street is widened and improved as the adjacent land develops.	Medium

TABLE 8-6: REMAINING PEDESTRIAN NETWORK GAPS: SIDEWALKS IN UNIMPROVED AREAS (CONTINUED)

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Recker Road	Windsor Drive	Vest Avenue	Install sidewalk on west side when street is widened and improved as the adjacent land develops; existing sidewalk already on west side.	Medium
Warner Road	0.25 miles east of Higley Road	0.25 miles west of Power Road	Install sidewalks when street is widened and improved as the adjacent land develops; existing sidewalk already on south side for part of segment.	Medium
Warner Road	0.5 miles west of Higley Road	0.25 miles west of Higley Road	Install sidewalk on north side when street is widened and improved as the adjacent land develops; existing sidewalk already on south side.	Medium
Chandler Heights Road	148th Street	Val Vista Drive	Install sidewalks when street is widened and improved as the adjacent land develops; joint project with Chandler – Chandler is the lead agency.	Low
Ocotillo Road	Lindsay Road	Val Vista Drive	Install sidewalks when street is widened and improved as adjacent land develops; existing sidewalk already on north side for part of segment; joint project with Chandler – Gilbert is the lead agency.	Low

TABLE 8-7: REMAINING PEDESTRIAN NETWORK GAPS: SHARED USE PAVED PATHS

Gap Location	From	To	Proposed Tool/Comments	Implementation Priority
Western Canal Powerline Trail	Lindsay Road	SRP Powerline Trail	Pave existing shared use unpaved trail and widen existing sidewalk to create a shared use paved path.	High
Western Canal Powerline Trail	Neely Street	0.1 miles east of UPRR railroad tracks	Install shared use paved path; consider grade separation over railroad.	High
Queen Creek Trail	Power Road	East Maricopa Floodway (EMF) – 0.13 miles east of Greenfield Road	Install shared use paved path; connect to existing shared use paved path east of Power Road; consider locating path underneath Power Road and Higley Road or providing HAWK/signalized crossings.	Medium
Santan Freeway Trail	Gilbert Road	Lindsay Road	Install shared use paved path; should include bridge across Eastern Canal.	Medium
Santan Freeway Trail	Santan Village Parkway	0.25 miles east of Greenfield Road	Install shared use paved path; consider locating path underneath UPRR railroad track and Ray Road bridges.	Medium
Western Canal Powerline Trail	0.25 miles west of Power Road	Power Road	Install shared use paved path; will require new right-of-way or easement; may be able to be incorporated into a development agreement if land develops; coordinate with Mesa to encourage extension of path between Power Road and EMF to connect to Marathon Trail.	Medium
Sonoqui Wash Trail	Queen Creek (0.13 miles west of Higley Road)	Power Road	Install shared use paved path; consider locating path underneath Higley Road and Ocotillo Road or providing HAWK/signalized crossings.	Low

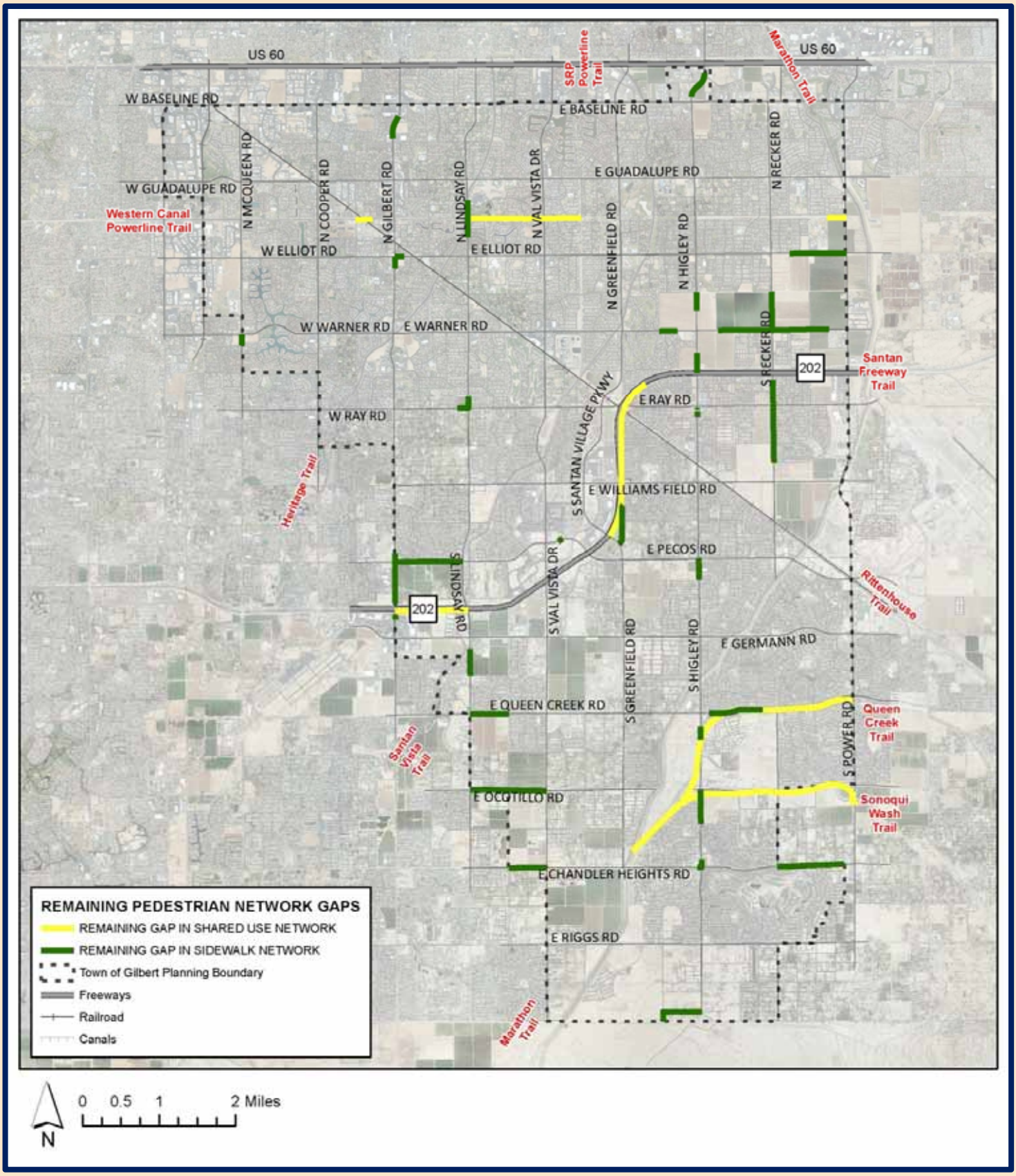


FIGURE 8-2: REMAINING PEDESTRIAN NETWORK GAPS

9. ITS ELEMENT

A. Fiber Optic Communications Network

The planned Town's fiber optic communications network is comprised of four backbone rings of fiber optic cable: one existing core ring and three partially built outlying rings. Fiber optic branch cables extend from those four rings at several locations to connect to nearby traffic signals and Town facilities. The fiber optic cables (typically containing 48 or 96 strands) are installed in conduits of various sizes, with the Town's current standard conduit size being four inches.

When development occurs in Gilbert, the Town typically requires the developer to provide the adjacent public infrastructure, which includes half-street improvements for the adjacent roadway and two four-inch conduits for future use by the Town. The Town then typically installs fiber optic cable into the existing conduit infrastructure if there are traffic signals or Town facilities nearby that can be directly connected via fiber optic cable. When roadway widening projects are constructed by the Town, new conduit and fiber optic cable are typically installed as part of those projects.

Wherever existing traffic signals are not connected to the Town's communications network via fiber optic cable, wireless radios are installed that link the traffic signals to the communications network. While wireless radios do not generally have as much capacity as fiber optic cable and are not as reliable, they provide a low-cost solution that allows the Town to communicate to traffic signals that otherwise are not yet connected to the communications network. Currently, some CCTV video feeds are being streamed to the TOC via wireless radios.

The Town's Traffic Operations staff maintains the fiber optic communications network as well as the field devices that connect to that network such as traffic signals, wireless radios, and CCTV cameras. The Town's IT department is responsible for maintaining the fiber optic cable connections inside Town facilities.

The Town developed a Fiber Optic Strategic Plan in 2012 with input from Town departments that either use the fiber optic network or may have an interest in the network. This Plan updated the Advanced Traffic Management System (ATMS) Design Memorandum developed in 2007 and outlines the unified strategic plan for the Town's fiber optic communications network, with long-term goals to expand the fiber optic communications network to connect all Town facilities, traffic signals, well sites and pump stations to the fiber network – either directly through fiber optic cable or indirectly through wireless radios – and to provide redundant communications to fire and police facilities.

Program Support

The Town's Traffic Operations staff manages the operation of the Town's traffic signals using a traffic signal system that communicates to all of the Town's traffic signals, centralized at the Traffic Operations Center (TOC).

From the TOC, staff can respond to real-time events (such as special events, construction or traffic crashes) by monitoring live camera images on the video wall and by listening to the police radio scanner, and then actively managing the situation by updating signal timings as needed. The video wall is monitored by town staff Monday through Thursday from 7am-8am and 5pm-6pm, although there are numerous benefits to providing staff available to manage the transportation network during the entire business day as crashes rarely occur only in peak periods. In addition, the Town's Traffic Engineer and Assistant Traffic Engineer have video screens in their offices from which they can monitor traffic conditions and access the traffic signal system via the TOC computer network. Traffic signal timing at intersections are regularly reviewed and adjusted as needed to meet traffic demands. While Traffic Operations staff are currently the only Town staff monitoring the video camera images at intersections, the capability exists for other Town departments, such as police or fire, to view camera images also.

Staff at the TOC can respond to real-time traffic events

There are currently three technicians and one-half full-time (FTE) traffic engineer that are responsible for TOC operations of the Town's transportation network. Those staff personnel are supported by representatives from the Public Works Department for traffic maintenance. Information
TOC operations of the Town's transportation network are covered by one traffic

engineer (approximately 50% of time) and three technicians (approximately 25% of time each). The three technicians spend approximately another 25% of their time maintaining ITS devices while the remaining 50% is spent involved in construction activities and inspection and non-ITS field technician responsibilities. These personnel are supported by representatives from the Town's Public Works Department for traffic maintenance as well as Information Technology (IT) staff within the Town.

The staff available to monitor/manage the TOC and maintain ITS devices for the Town's transportation network is only partially dedicated to ITS operations and maintenance. TOC operations require real-time decision-making by trained staff in how to utilize the central control systems to mitigate congestion and make an impact on the safety of travelers. Based on the total number of ITS devices (traffic signals, CCTV cameras, and DMS) and not including the number of miles of fiber for each jurisdiction, Gilbert is currently operating at a ratio of 296 devices to one staff person (296:1). Comparable jurisdictions in both population and number of devices include the City of Mesa operating at 223:1, the City of Chandler at 77:1, and the City of Scottsdale at 144:1. In terms of maintenance/technician staff, Gilbert is operating at 713:1 (including devices, miles of fiber, and number of wireless devices) whereas Mesa is operating at 132:1, Chandler is 299:1, and Scottsdale is 152:1. Based on these comparisons, Gilbert is currently understaffed in terms of operational support of the TOC as well as for maintenance/technician support of an already robust network of ITS devices and miles of fiber optic communications. Table 9-1 presents a peer city comparison of ITS features and staff.

TABLE 9-1: COMPARISON OF ITS FEATURES AND STAFF

Devices/Staffing	Mesa	Chandler	Scottsdale	Gilbert
# of signals	405	199	301	174
# of CCTV	157	20	82	60
# of DMS	2	3	35	2
# miles of fiber	150	57	85	29
# of wireless devices	106	10	15	135
# of manager/operator/analyst (FTE)	3	3	3	1.25
# of technicians (FTE)	14	1	3.5	0.75

Considering the growth of ITS already programmed and the benefits seen both regionally and nationally for more support of ITS operations, it is recommended that

the Town consider identifying additional support for TOC operations and field maintenance/technician support dedicated to the ITS network.

Regional Connectivity

The Town has recognized the importance of regional connectivity since the inception of its TOC and first installations of segments of the fiber optic communications network. The Town has partnered with the Cities of Mesa and Chandler on projects aimed at reducing congestion and improving air quality through ITS and coordinated with various regional partners during the establishment of the Regional Community Network (RCN) regional fiber optic network.

Gilbert's fiber optic network connects to the Regional Community Network

The Town of Gilbert's fiber optic network is connected to the City of Chandler's fiber optic network at the Gilbert Road/Williams Field Road intersection. The Town of Gilbert TOC and the City of Chandler Traffic Management Center (TMC) are sharing traffic video feeds.

Fiber optic cable will be installed in 2013 along Gilbert Road from Civic Center Drive to Baseline Road. At the Baseline Road/Gilbert Road intersection, the Gilbert fiber optic network will then be connected to the Mesa fiber optic network, giving the Town the opportunity to connect Gilbert's TOC to Mesa's TMC to share video data and other information. The Town of Gilbert also has plans to connect to the Town of Queen Creek fiber optic network at the Power Road/Germann Road intersection in the future.

A congestion management project for Gilbert, Chandler, and Mesa has been identified that would utilize technology to determine travel times along selected arterial roadways. The data would feed into a public website that shows travel times and areas of congestion. Implementation is anticipated for late 2015 and would include the area within the Town north of Warner Road and west of Val Vista Drive. A connection to the Regional Archived Data System (RADS) network, which centralizes the Phoenix metropolitan area real-time and archived transportation system data, is also part of the contract for the travel time project.

B. Goals

The Vision and Goals of the TMP identify several over-arching goals. The recommendations contained in the ITS Element directly support the vision and the following goals:

Vision: A comprehensive, integrated multimodal transportation system that promotes and enhances safety, mobility, efficiency, quality of life, and sustainability.

Goal 1 – Economic Development: *Foster economic development through an integrated multimodal transportation system that connects major generators to the region, each other and to neighborhoods and facilitates the movement of people and goods between different modes of travel.*

Goal 3 – Arterial Roadways: *Establish a safe, continuous arterial street network that can accommodate all modes, minimize congestion, and connect to arterial street networks of neighboring communities.*

Goal 4 – Collector and Local Roadways: *Develop a safe, continuous network of collector and local streets that connects neighborhoods to the arterial street network, encourages bicycling and walking, and incorporates traffic calming strategies.*

Goal 7 - Transit: *Work with regional transit partners to develop a transit network that meets the needs of Gilbert residents and serves local employment centers, shopping, schools, and neighborhoods and also connects to regional destinations.*

C. ITS Toolbox

Intelligent Transportation System (ITS) infrastructure and processes are generally utilized to manage traffic, to reduce congestion and promote safety as well as to provide real-time traveler information. ITS infrastructure and processes are used by public agencies to share information with the public and with neighboring agencies, monitoring traffic on corridors and at key intersections, collecting and disseminating information that affects reliability (event closures, construction limits, restrictions, others), and using central systems to measure effectiveness of operations.

ITS infrastructure and processes can be used in multiple ways to improve the management of traffic, incidents, special events, and work zones. Implementing ITS can provide the following benefits for the Town, and the traveling public:

- Increase the capacity of roadways by 10 percent to 15 percent;
- Provide real-time traveler information;
- Reduce delays, vehicle emissions, and energy consumption;
- Reduce impacts of incidents on the roadway and improve incident clearance times;
- Improve the response time of emergency services;
- Be implemented within existing right-of-way – minimizing time for approvals/clearances and travel lane restrictions;
- Provide a cost-effective alternative to road widening or new roadway infrastructure;
- Leverage data and situational awareness of the transportation system to support multiple agencies' objectives; and
- Support other agency functions with operational data.

Table 9-2 provides an ITS "toolbox" that identifies multiple ITS technologies or methods that can be used for monitoring, traffic control, work zone management, lane management, information dissemination, parking management, and central system management. Where infrastructure is required for a particular ITS function, a general lifecycle is provided based on applications throughout the country where the technology is typically rendered obsolete, the manufacturer replaces or upgrades the technology, or where the technology still may be effective but becomes more expensive to maintain than replace.

TABLE 9-2: ITS TOOLBOX

ITS Function	Example	Purpose	Lifecycle of Applicable Technology	Benefits (Pros)	Considerations (Cons)
Monitoring	Video Image Detection (VIDs) and Closed Circuit Television Cameras (CCTV)	To monitor traffic on corridors and at key intersections in real-time	VID – 10 years CCTV – 10 years	Situational awareness Cost-effective capacity enhancement by operations without adding lanes Roadway efficiency improvement	Requires maintenance and upgrades Additional training needed to support operations and maintenance
Traffic Control	Traffic signals, pedestrian-activated crosswalks (HAWK signals), transit signal priority, off-site TOC operation of signals, emergency vehicle preemption, school flashers, and adaptive signal control	To support the movement of traffic on the roadway network	Traffic signals – 10 years for electronics and 30 years for infrastructure HAWK signals – 15 years Signal priority – 10 years Adaptive control – 5 years Detection – 10-15 years School zone flashers – 10 years	Enhancements that are very visible to the traveling public Warrants and safety considerations drive investments, which provide good justification	Integration (if not a priority in deployment) can be challenging Upfront capital cost and ongoing operations and maintenance Potential lack of public understanding or acceptance Staff training and expertise required for effective operation and maintenance Staff training and expertise required for effective operation and maintenance
Work Zone Management	Portable traffic control devices (CCTV, dynamic message signs [DMS]), permitting system reporting, restriction notifications	To effectively manage/monitor work zone sites for traffic control and safety	Portable CCTV cameras – 10 years Portable DMS – 10 years	Improves safety of work zones Visible to traveling public Coordination with public safety for improved management of work zone	Determining when, where, how, and why to deploy System sharing / control permissions Increased maintenance responsibilities

TABLE 9-2: ITS TOOLBOX (CONTINUED)

ITS Function	Example	Purpose	Lifecycle of Applicable Technology	Benefits (Pros)	Considerations (Cons)
Information Dissemination	DMS, in-vehicle systems, websites, mobile applications, or other information dissemination services	To provide real-time information about road conditions, incidents or closures	Permanent DMS – 10 years Portable DMS – 10 years Website – 5 years List Serv Accounts – 2 years	Visible benefit to traveling public Public expectation to receive information provided in these formats	Upfront capital or development cost and ongoing operations and maintenance Visible information creates accountability for jurisdiction Data collection and management costs
Parking Management	Data collection and/or parking information dissemination	To provide parking availability, access, or restrictions	Parking management devices – 10 years	Partnering with parking providers can prove to be a bi-directional benefit	Can be a costly system to deploy if publically operated Potential lack of public understanding or acceptance
Signal Central Systems	Fiber optic network, wireless network, traffic management software, processing data to measure effectiveness for operations, Town intranet, regional systems, lane use, construction permitting system, and other system types	To collect, store or use data to support operational, situational, or planning decision for the transportation network	Fiber optic cable – 20 years Wireless devices – 10 years System servers – 10 years System Software – 7-10 years	Cost-effective for the public agency when strategically implemented Serves multiple agency purposes Reduces personnel time needed to go into field if can be monitored and operated via a central system	Sometimes costly to deploy if trying to implement “after the fact” Requires regular maintenance and knowledge base to operate and keep system functioning at a high level

D. Programmed ITS Projects

The Town has plans to continue to expand and enhance the ITS infrastructure in Gilbert. Several ITS-related projects are included in the Town's 2013-2018 Capital Improvement Plan (CIP). Based on recent discussions with Town staff about their vision for ITS in Gilbert, adjustments may need to be made to some of the CIP projects due to recently implemented ITS infrastructure, changes in technology, or shifts in the Town's priorities and goals. Table 9-3 identifies the Town's ITS-related CIP projects (excluding the traffic signal installation projects, which will be implemented as warranted) and indicates what adjustments to those projects should be considered to better align the projects with the Town's ITS vision. There is also a project identified in the MAG Transportation Improvement Program (Project # MES16-401) which will install 91 Bluetooth devices focused in west Mesa in 2016. An extension to this project will be a partnership between the City of Mesa, the Town of Gilbert, and the City of Tempe to deploy additional sensors for broad East Valley coverage.

TABLE 9-3: REVIEW OF CIP ITS PROJECTS

Project #	Description	Fiscal Year	Amount	Proposed Action
TS131	Advanced Traffic Management System – Phase III	2022	$2,007,000	Adjust project limits to Val Vista Drive: Warner Road to Baseline Road to connect to the TS165 project at Val Vista Drive/Guadalupe Road. Adjust budget required for project to match new project limits.
TS132	Advanced Traffic Management System – Phase IV	2015-2016	$1,437,000	Construct as planned to complete Northwest Ring.
TS133	Advanced Traffic Management System – Phase V	2022	$4,178,000	Adjust Northeast Ring project limits to Baseline Road: Greenfield Road to Higley Road, and Higley Road: Baseline Road to Williams Field Road. Adjust budget required for project to match new project limits. Per Town input, the alignment may shift from Higley Road to Recker Road depending on future development in the area.
TS134	Advanced Traffic Management System – Phase VI	2022	$7,307,000	Adjust project limits to Queen Creek Road: Power Road to Higley Road, and Higley Road: Queen Creek Road to Riggs Road. Adjust budget required for project to match new project limits.

TABLE 9-3: REVIEW OF CIP ITS PROJECTS (CONTINUED)

Project #	Description	Fiscal Year	Amount	Proposed Action
TS135	Advanced Traffic Management System – Network CCTV Cameras	2014-2016	$406,000	Project is ongoing.
TS152	Gilbert – Queen Creek Interconnect	2015	$195,000	Construct as planned to complete Gilbert-Queen Creek Interconnect. Will utilize connection listed in TS169 to complete project.
TS165	Baseline Fiber Optic Infrastructure	2014-2015	$569,000	Project is ongoing.
TS166	Fiber Optic Communications Infrastructure Replacement	2020	$444,000	Construct as planned to replace 48-fiber cable with 96-fiber cable along northern part of the Core ring.
TS167	Traffic Operations Center Signal Subsystem Replacement	2014	$523,000	Project is ongoing.
TS168	Traffic Operations Center Video Wall Replacement	2015	$339,000	Consider adjusting this project to make video feed multicast and to provide more screens in individual offices rather than to replace the video wall.
TS169	Pecos Road Conduit Installation – EMF & RWCD Crossing	2014	$129,000	Already completed – verify conduit during TS152 project implementation.
TS170	Adaptive Signal Control System – San Tan Village Mall	2014	$385,000	Delay project to fiscal year 2016 to give time for new central signal system (TS167) to be implemented and then evaluate if adaptive system is still needed.

E. Emerging Trends

The need for personnel support, integration, and interagency and interdepartmental coordination will not diminish with the introduction of emerging technology. TOC staffing and skills will need to be bolstered to support actively operating more infrastructure, more interconnectivity, and facilitate new relationships with other departments or other agencies not already happening.

Specific technologies that will be available for use by the Town in the future are difficult to identify beyond a five year horizon based on the continually evolving

nature of the technology industry. Examples of technology applications or uses that the Town may find value in for the future include (list is intended to be technology-neutral):

- Variable speed limits;
- Adaptive signal timing;
- Detector-based activation or preemption to signal timing plans at signalized intersections;
- Transit queue jumping or priority;
- Shared control/permissions with other agencies for regional corridor operations;
- Automated vehicle location for transit, emergency services, police/fire vehicles, and maintenance vehicles to be viewable by TOC to help manage corridors for response;
- Dedicated safety or traffic calming systems for school zones, hospitals, fire station locations, libraries, downtown, and other areas of the Town that experience heavy mixing of vehicular, pedestrian, bicyclist, and transit travelers; and
- Intelligent integration with infrastructure at, near, or related to the freeway/highway/arterial interchanges with Loop 202, SR-87 (Arizona Avenue), or Hunt Highway through the Town.

Newer initiatives like Connected Vehicles (vehicle-to-vehicle and vehicle-to-infrastructure real-time communications on status of road conditions and congestion conditions) and Integrated Corridor Management (ICM) are supported on a federal level and are in constant development in terms of what those initiatives mean to the state, county, and local agencies. ICM specifically is an important concept that the Phoenix metropolitan region is pursuing through a few efforts and the Town of Gilbert could benefit from preparation for implementation strategies that will relate to enhanced arterial-freeway-transit-incident management coordination. ICM can be used to support more effective traffic management during incidents and other non-recurring events, but also can be used to better balance freeway/arterial capacity during typical recurring traffic conditions. Multi-jurisdictional projects will continue to be important for the Town to be involved in where the Town and another neighboring agency collaborate on a joint goal to acquire funding or leverage infrastructure/assets to better all agencies involved.

While the Town could leverage federal, state or local support for investing in enhancement to systems and integration, it is important to not forget how accessible private sector applications are to Gilbert's traveling public. Agencies are allocating portions of server-space dedicated to allowing data to be used by private companies to be able to develop applications to support mobility, accessibility, and most importantly safety. Real-time road conditions or historical data could be of benefit to provide more accurate private sector use of that data. Public-private partnerships are also being leveraged in some areas of the country to support specific-application development for special event parking availability, or detour routing during incidents.

F. Recommendations

Below is a listing of recommended future projects or activities that the Town should consider to further help the Town achieve the vision for how ITS can benefit traffic operations for the traveling public and enhance communications capabilities between and within the various Town departments (ordered in terms of priority within each grouping):

- Town ITS Strategic Plan:
  - Develop an ITS Strategic Plan that includes device-specific and technology-specific master plans (CCTV, DMS, detection, wireless and fiber communications, bike/ped applications, central systems, traveler information dissemination systems, etc.);
  - Concepts/plans for use and sharing of the ITS components, data, and information; and
  - Communications master design (including outlining internet protocol (IP) addressing, fiber strand/splice mapping, wireless backhaul, and redundant ring connection layout mapping).
- Fiber Optic Communications Network:
  - Upgrade 48-fiber cables to 96-fiber cables in backbone rings to eliminate bottleneck in fiber capacity; and
  - Connect all Town buildings, well sites, and pump stations, as well as all ITS devices either directly or wirelessly, that are not connected as part of the aforementioned CIP projects.

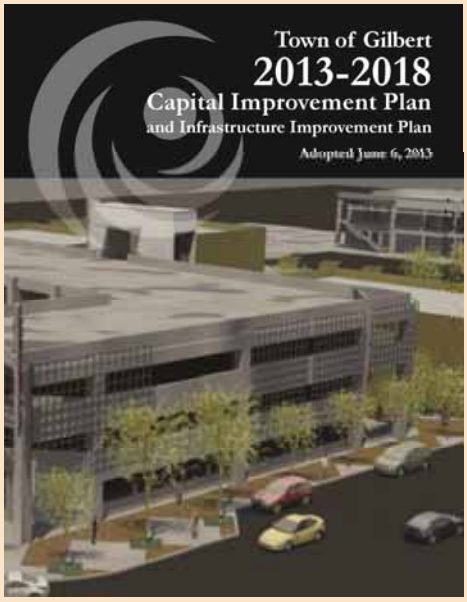
- Traffic Signals:
  - Develop corridor and intersection operating guidelines and objectives
  - Connect traffic signals to the fiber network
  - Upgrade traffic signal controllers to newer versions for more operating options and to report performance measures
  - Provide advance detection at identified intersections for safety and operational benefits
  - Determine which signalized pedestrian crossings would operate more effectively as Pedestrian Hybrid Beacon crossings and convert them
  - Explore adaptive signal control and transit signal priority where a need is identified
- CCTV Cameras:
  - Coordinate with other Town departments to share video images as needed; and
  - Install a CCTV camera at every major intersection (arterial to arterial) in the Town that does not currently have one, as well as at high interest and congested areas such as downtown Gilbert, commercial corridors, hospitals, and high schools.
- Dynamic Message Sign:
  - Relocate existing DMS to face incoming traffic toward downtown area and connect DMS to fiber optic network so the DMS can be centrally controlled; and
  - Invest in Town-owned portable DMS that can be moved around for seasonal, incident, or event purposes.
- Regional Connectivity:
  - Share and request data from other agencies that may be beneficial to the Town's operations such as:
  - Freeway incident notifications from the Arizona Department of Transportation (ADOT);
  - Arterial incident notifications from emergency responders;
  - Event coordination meetings and management with neighboring jurisdictions;
  - Arterial traveler information dissemination methods through social media, Town website, ADOT's 511 system, or other outlets;
  - Support regional efforts to increase connectivity and redundancy in the regional communications network;
  - Continue participation in the MAG ITS Committee, AZTech, RADS and other regional initiatives to stay apprised of activities and potential funding/integration opportunities.

- Performance Measures:
  - Define and implement ITS performance metrics for the Town's ITS program. Ultimate metrics that are chosen should be tied directly to the Transportation Master Plan goals and should have data sets that can be queried to supply information, rather than needing to implement new methods of collecting data to support metrics. Examples of performance metrics that the Town could utilize include:
  - Limiting the percent increase in average arterial travel time to less than the percent increase in traffic volume – for arterials with ITS infrastructure only
  - Number of system or device failures reported and repaired
  - Percentage of uptime for ITS devices and fiber communications
  - Percent of unscheduled signal, CCTV, and fiber communications failures repaired within two business days after diagnosis
  - Number of incidents for which traffic signal timing changes occurred versus number of incidents
  - Number of notifications received from other agencies and other departments directly alerting to incidents, road conditions, or construction activities
  - Develop performance reporting methods (dashboard, report, newsletter, etc.) to display successes/challenges with the Town's TOC
- Traffic Operations Center:
  - Improve remote accessibility to TOC systems and provide large monitors within existing workspaces of personnel that manage TOC systems to reduce the dependency on the TOC space.
  - Provide more staff coverage during work hours
  - Expand hours per day and/or days per week of coverage
- Programming:
  - Educate staff and elected officials on the benefits of ITS to gain support and recognition for ITS;
  - Develop CIP projects that implement the recommendations proposed herein;
  - Submit eligible projects to the MAG ITS Committee for potential inclusion in the MAG Transportation Improvement Program (TIP); and
  - Identify potential additional funding sources to support ITS capital, operations and maintenance.

10. FUNDING AND PRIORITIZATION

A. CIP Organization and Content

The Town of Gilbert Capital Improvement Plan (CIP) is a public document that communicates timing and costs associated with constructing, staffing, maintaining, and operating publicly financed facilities and improvements that have a total cost over $100,000. The CIP is designed to identify and prioritize future capital needs of the Town that are to be constructed using public resources. The CIP presents project implementation for three timeframes: Years 0-5, shown by individual fiscal year; Years 6-10, shown as a total for the five-year period; and Beyond 10 years, shown as a total for the period.



Placement of a project in the CIP generally indicates that it is an improvement that the community desires at some point in the future. Projects included in the Years 0-5 timeframe indicate the highest priority and have identified funding sources reasonably expected to be available for construction funding, as well as sufficient operating and maintenance funding for the future. The CIP goes through an internal and external Stakeholder process before it is reviewed and approved by the Town Council on an annual basis.

The commitment of financial resources and the construction of publicly owned, operated, and maintained facilities do not occur until specific projects are authorized by the Town Council. It is beneficial to have the capital planning process completed in conjunction with the annual budget process, in order to assure that funding and operational needs are included in the subsequent annual budget. The process, however, remains flexible regarding timing and inclusion of information in the CIP, in order to take advantage of opportunities, or respond to issues, as they arise.

Transportation-related projects in the Town's CIP are typically included within one of the following classification groups:

- Streets (e.g., roadway widening, intersection improvements)
- Traffic Control (e.g., traffic signal, fiber network infrastructure)
- Redevelopment (e.g., pedestrian ramp upgrades, transit stops)
- Parks, Recreation, and Open Spaces (e.g., shared use path, trail crossings)

B. Funding Sources

The CIP blends multiple sources of funds to construct public improvements. It also requires that the sources of maintaining and operating additional facilities be clearly identified prior to placement in the CIP. Gilbert has planned and followed a course of making sure that growth pays its own way.

In the 2013 – 2018 CIP, funding sources for transportation-related projects include:

- MAG Regional Transportation Plan funds (arterial, transit)
- Bonds (general obligation, future)
- System development fee (signal, fire, park)
- Town general fund and Town enterprise funds (streets, water, wastewater)
- Adjacent communities (Mesa, Chandler, Queen Creek)
- Grants (federal, state)
- Other Town sources (investment income, outside sources, miscellaneous)
- Developer contributions

These funding sources are described in more detail below.

Regional Transportation Plan (RTP)

The Maricopa Association of Governments (MAG) is the designated planning organization for the Phoenix metropolitan area. MAG prepared the Regional Transportation Plan (RTP) in 2003 and has updated it periodically. The major regional funding sources for the RTP include:

- Maricopa County Half-cent Sales Tax (Proposition 400)
- Arizona Department of Transportation (ADOT) Funds
- MAG Area Federal Transportation Funds

On November 2, 2004, the voters of Maricopa County passed Proposition 400, which authorized the continuation of the existing half-cent sales tax for transportation in the region. The revenues collected from the half-cent sales tax are deposited into the Regional Area Road Fund (RARF) for freeway/highway and arterial street projects and

into the Public Transportation Fund (PTF) for public transit programs and projects. These monies must be applied to projects and programs consistent with the MAG RTP. A local match of 30 percent is required for RTP-funded projects unless the projects involve federal funds, in which the federal match requirements apply.

ADOT relies on funding from two primary sources: the Highway User Revenue Fund (HURF) and federal transportation funds. The HURF is comprised of funds from the gasoline and use fuel taxes, a portion of the vehicle license tax, registration fees and other miscellaneous sources.

In addition to the half-cent sales tax revenues and ADOT funding, federal transportation funding from the Federal Highway Administration and the Federal Transit Administration are available for use in implementing projects in the MAG RTP.

Bonds

Bonds are issued in several forms. State law requires voters to authorize general obligation and revenue bonds through an election. General Obligation (GO) Bonds must be approved by the voters and are backed by the full faith and credit of the Town of Gilbert. The Town Council then must approve the selling, or issuing, of the authorized bonds. State law also permits other forms of bonds to be issued without voter approval such as Public Facility Municipal Property Corporation (PFMPC) and Water Resource Municipal Property Corporation (WRMPC) bonds, which must be used within defined geographic boundaries (e.g., facilities or improvement districts).

Bonds are secured by the property tax of Gilbert and are limited in size based on the secondary assessed valuation as determined annually by the Maricopa County Assessor. There is a limit of 20% of secondary assessed valuation for projects involving water, sewer, lighting, parks, public safety, open space, recreational purpose and streets and safety projects. There is a limit of 6% of secondary assessed valuation for any other general municipal purpose projects. As of the 2011/2012 secondary assessment, the Town has an unused 20% debt capacity of approximately $172 million and an unused 6% debt capacity of just over $100 million.

For transportation-related projects, the 2013-2018 CIP includes $30 million in existing bonds that have been authorized but not sold. The decision to sell additional bonds or ask voters to authorize additional bonds will be contingent on both the ability to

support additional bonds within the current tax rate and the ability to have sufficient operating resources to maintain and operate the facilities without compromising established Town service standards. Transportation-related projects in the CIP funded by bonds are primarily projects in the Streets classification group.

System Development Fees (SDFs)

SDFs (also known as development impact fees) are limited to financing new construction created by growth. SDFs can only provide for capital costs, so it is important to establish and incorporate all additional operating and maintenance expenses as part of the total ongoing cost of the project. There are SDFs for the following categories:

- Police
- Fire
- General government
- Traffic signal system
- Parks and recreation
- Water system
- Water resources
- Wastewater system

The SDF most commonly applied to transportation-related projects in the 2013-2018 CIP is the traffic signal SDF.

General Fund

The Town's general fund is primarily comprised of the Town's portion of revenues from state income taxes, state/local sales taxes, and franchise fees as well as user fees generated by Town-owned facilities.

Streets Fund

The Town's streets fund is primarily made up of the Town's portion of revenue from the Highway User Revenue Fund (HURF), which comes from gasoline and vehicle license taxes. The revenues from these taxes are distributed via a fixed formula 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 over 300,000 population receive an additional 3 percent, and counties receive 19 percent. The local distribution is based on population and gasoline sales.

Adjacent Communities

Adjacent communities (i.e., Mesa, Chandler, and Queen Creek) contribute funding for joint projects with the Town of Gilbert along Gilbert's boundaries. This sharing of funding is governed by intergovernmental agreements.

Water/Wastewater Funds

The Town's enterprise water and wastewater funds are primarily derived from revenues associated with customer usage bills for water and wastewater. The water/wastewater funds support projects being in the Streets classification group.

Federal/State Grants

Grants are available for various types of projects through different federal and state sources and governmental agencies. Congestion Mitigation/Air Quality (CMAQ), Highway Safety Improvement Program (HSIP), Transportation Alternatives (TA), and Community Development Block Grant (CDBG) are examples of commonly used grant programs for transportation projects. If grants are listed as one of the funding sources, the project will likely not proceed until the grant is awarded. A grant-funded project may also require Town of Gilbert matching funds.

Developer (Private) Contributions

Developers contribute toward costs of capital projects when the construction is of direct benefit to their development. In some cases, funds are contributed toward a project from private sources as well. These sources are described as developer (if required) and private (if voluntary).

Other Town Sources

Other Town sources of funding can include miscellaneous sources such as investment income or other outside public sources.

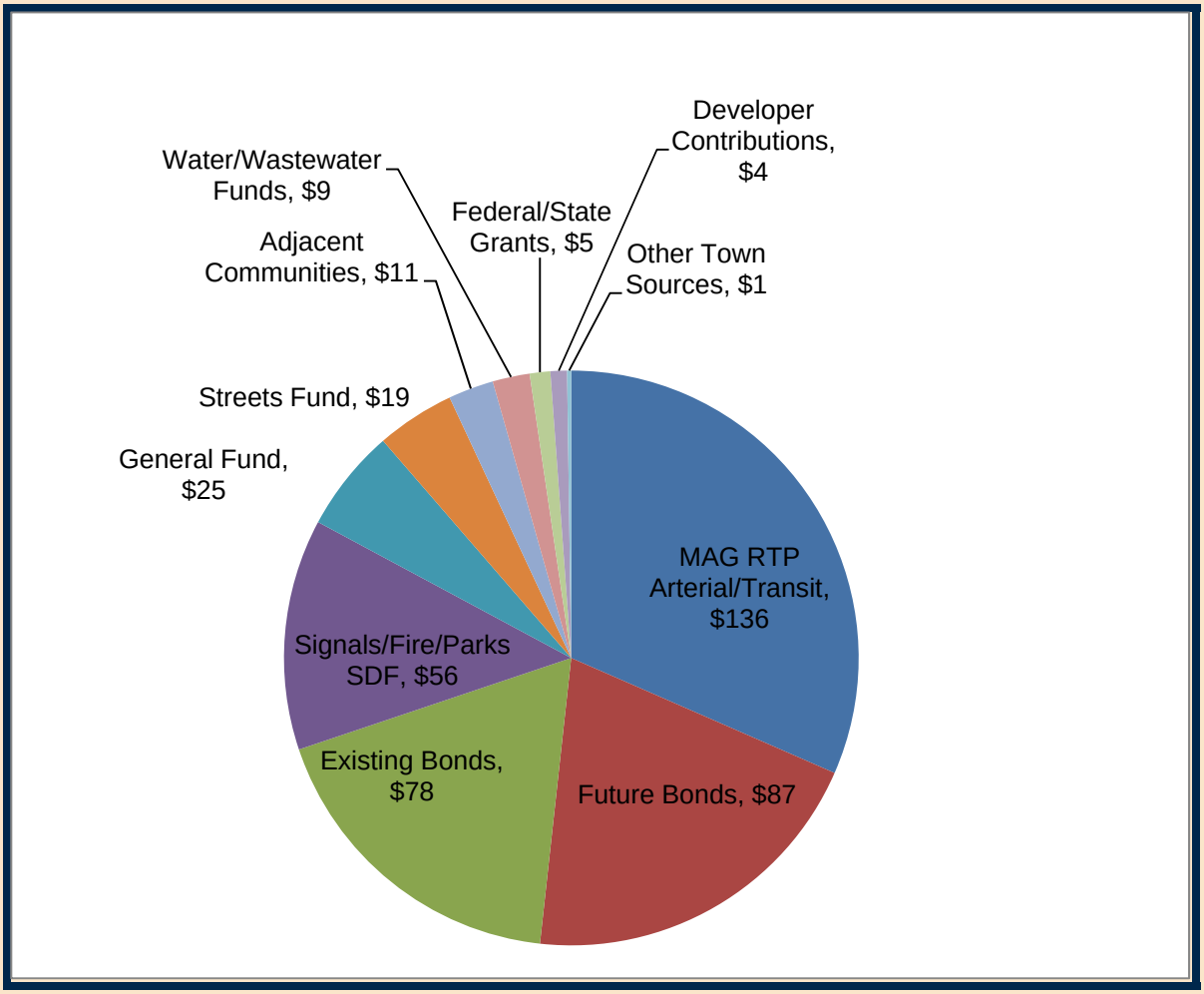
C. Summary of Current Funding Sources for Transportation-related Projects

Table 10-1 summarizes the funding sources identified in the 2013-2018 CIP for transportation-related projects (listed in decreasing order of total funding amount). Figure 10-1 shows the CIP allocation graphically.

TABLE 10-1: 2013-2018 CIP FUNDING SOURCES FOR TRANSPORTATION-RELATED PROJECTS (COST IN MILLIONS)

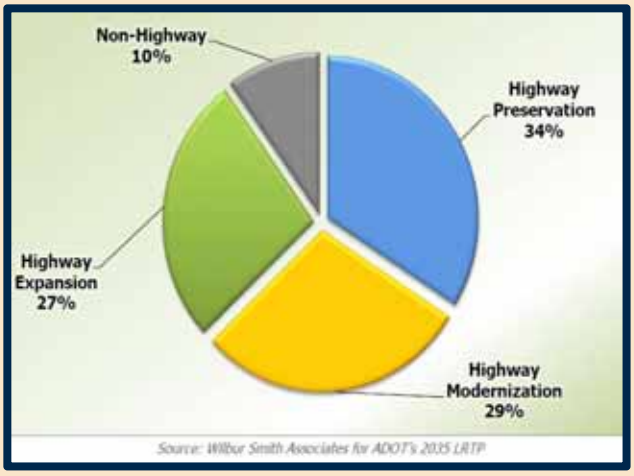
Source	Total	Years 0-5	Years 6-10	Beyond 10 years
MAG RTP Arterial/Transit	136	33	30	73
Future Bonds	87	0	0	87
Existing Bonds	78	57	30	0
Signals/Fire/Parks SDF	56	10	16	30
General Fund	25	7	18	0
Streets Fund	19	9	4	6
Adjacent Communities	11	1	0	10
Water/Wastewater Funds	9	5	1	3
Federal/State Grants	5	5	0	0
Developer Contributions	4	4	0	0
Other Town Sources	1	1	0	0
Total by Timeframe	**431**	**132**	**99**	**209**

FIGURE 10-1: CIP FUNDING SOURCES FOR STREETS (COST IN MILLIONS)



D. Future Allocation of Funding

As the Town matures, maintenance and renovation projects will require a higher percentage of the available funding compared to new or expanded capital facilities. This means the funding available for CIP capital projects could potentially decrease over time. Other agencies have experienced a similar shift in the allocation of their resources. For example, as seen in the graphic to the right, ADOT in its recent long-range transportation plan recommended allocating 34% of its available funding to preservation, 29% to modernization, and only 27% to expansion.



E. Other Potential Future Funding Sources

Other potential future funding sources that could provide additional revenue include:

- Restoration of HURF revenue allocation per State statute
- Increase in statewide gas tax rate or vehicle license tax
- New local sales tax dedicated to transportation
- New local property tax dedicated to transportation
- New or increased user fees
- On-street or off-street parking fees
- Public-private partnerships (P3)
- Future Voter Bond Authorization

F. Project Prioritization

It is likely that the cost of the Transportation Master Plan improvement needs will exceed the available funding for the foreseeable future. Opportunities to generate additional revenue from new funding sources should be pursued where feasible to reduce this funding imbalance.

Projects in the CIP should be prioritized to ensure the most efficient use of Town funds and to ensure that the most important projects can be implemented given the current and anticipated funding constraints. Town staff currently prioritizes all CIP projects based on several criteria.

However, in order to provide a ranking that considers all modes equally, the current scoring system and criteria were reviewed to determine if refinements would improve the evaluation process for future transportation projects proposed in this plan as well as other plans. The criteria described below should be used to prioritize future transportation projects competing for funding to maximize the investment made in infrastructure and to consider all modes. The recommended criteria are:

- **Safety** – a measure of the safety benefit associated with the project such as improving an identified crash pattern or generally improving safety based on similar projects
- **Economic development** – the project has a positive impact on the economy because it is located in a growth area or employment center and provides new development opportunities
- **Intergovernmental agreements and regulatory compliance** – the purpose of this criteria is to determine if joint projects with other agencies have intergovernmental agreements and that projects are in compliance with all applicable regulations
- **Funding** – this criteria will examine if the project meets a known funding category
- **Congestion reduction through added capacity or modes** – the project reduces congestion, delay, or travel time with added capacity or alternate mode options that reduce single occupant vehicles
- **Promotes travel choices/enhances the environment and sustainability** – this criteria considers if the project improve non-vehicular travel
- **Compatible with and/or supported by existing plans** – this criteria determines if the project is a recommendation in a Town or other approved plan
- **Project complexity** – this criteria considers the complexity of the project including engineering challenges and other stakeholders
- **More efficient/effective use of previous investments and technology** – this criteria considers if the project improves and/or enhances previous investments and the use of technology

With the updated scoring system, a project is initially assigned 30, 20, 10, or 0 points, depending on how effectively it addresses the intent of the criteria. To help in assigning the score, statements generally outlining the effectiveness are included with each criterion. The criteria were weighted based on their relative importance when evaluating a project. The first four criteria were weighted high in relative importance,

the next three medium, and the last two low. High importance criteria received a 20 percent increase in score, medium importance criteria generally received a 10 percent increase in score, and low importance criteria generally received no increase in score. If a criterion does not impact a particular project, a zero score would be assigned. Table 10-2 presents the updated project evaluation criteria and scoring system.

TABLE 10-2: PRIORITIZATION CRITERIA

WEIGHTED SCORE*	CRITERIA
	Safety
36	Addresses specific identified crash pattern
24	Expected to promote safety
12	Secondary benefit of project may enhance safety
	Economic development
36	Improves infrastructure or access in designated growth area
24	Improves infrastructure or access near commercial or office zoned land
12	Improves infrastructure or access in built out or redevelopment area of Gilbert
	Intergovernmental agreements and regulatory compliance
36	Eliminates existing non-compliant regulatory feature or fulfills obligation in existing intergovernmental agreement
24	Generally consistent with objectives of existing intergovernmental agreements or regulations
12	Addresses anticipated future regulatory compliance feature
	Funding
36	Project can be funded with an existing CIP source
22	Project can be funded with future bonds or joint funding
10	Project has no identified funding source
	Congestion reduction through added capacity or modes
33	Addresses known congestion (delay/queue) area
22	Expected to provide congestion (delay/queue) relief
11	Secondary benefit of project may reduce delay or queue
	Promotes travel choices/enhances the environment and sustainability
33	Directly improves travel for more than one alternate mode (bicycle, pedestrian, or transit)
22	Directly improves travel for only one alternate mode
11	Little or no improvement for alternate modes
	Compatible with and/or supported by existing plans
33	Specifically referenced in approved Town of Gilbert plan
22	Specifically referenced in other agency approved plan
11	Generally compatible with approved plan
	Project complexity
30	Low project complexity
20	Moderate project complexity
10	High project complexity
	More efficient/effective use of previous investments and technology
30	Improves efficiency or extends life of investment by more than 20%
20	Improves efficiency or extends life of investment by 10%-20%
10	Improves efficiency or extends life of investment by 0%-10%

*If criteria do not apply to a particular project, a ‘0’ score should be assigned for those criteria