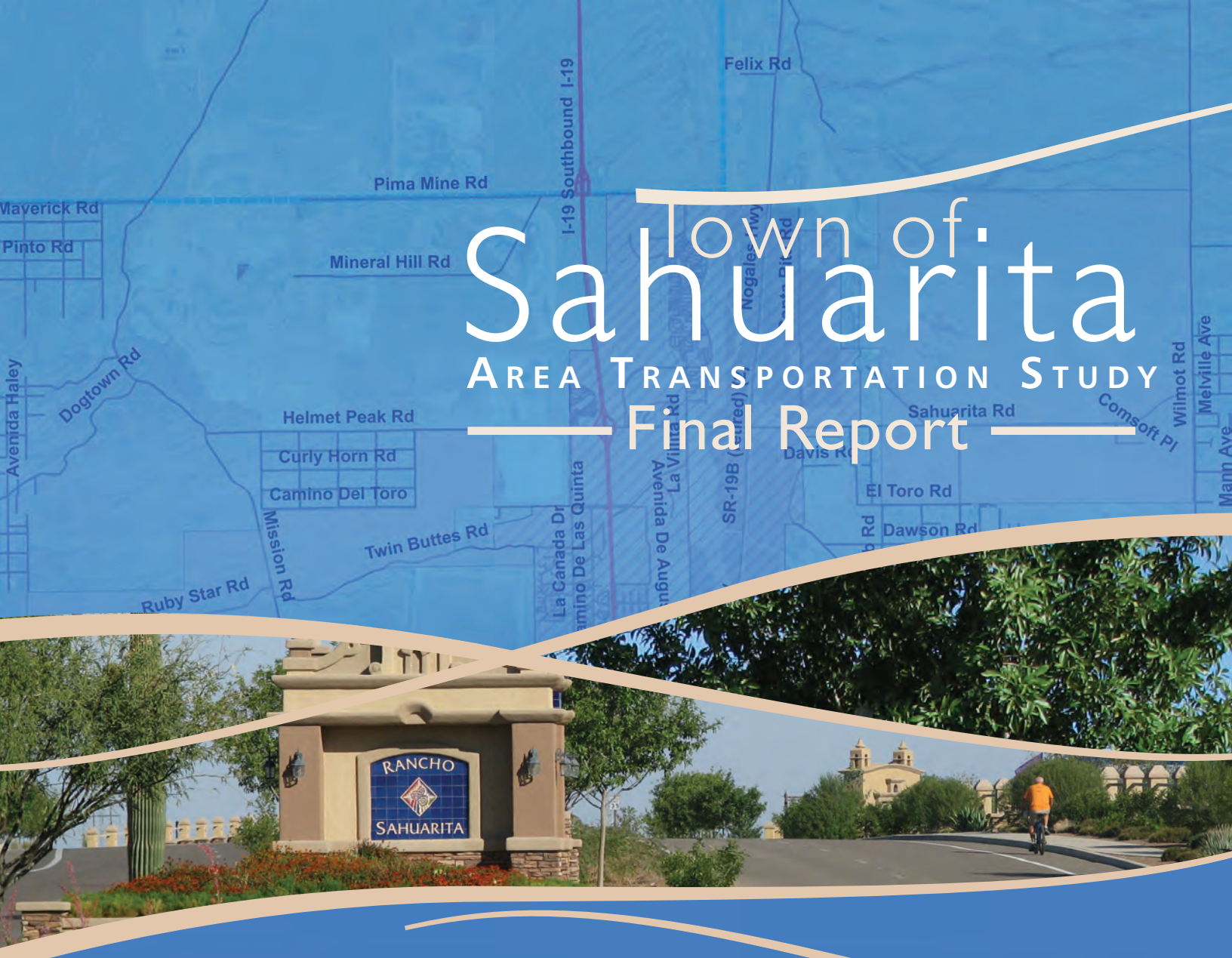
Town of Sahuarita

Area Transportation Study

Final Report



Kimley-Horn and Associates, In

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Planning Assistance for Rural Areas

Sahuarita Area Transportation Study

Task Assignment MPD 15-09

PG TD0250
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Final Report

Prepared by:

Kimley-Horn and Associates, Inc.

Prepared for:
ARIZONA DEPARTMENT OF TRANSPORTATION

August 2010
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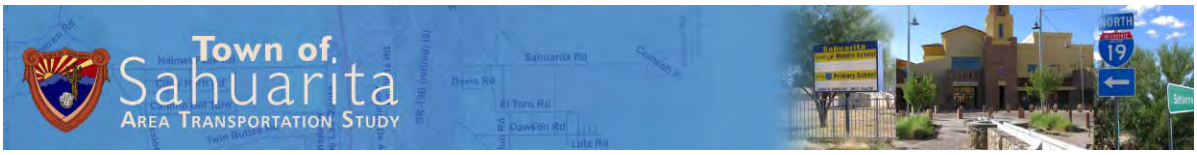

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1. INTRODUCTION

The Arizona Department of Transportation (ADOT) awarded funding for the Town of Sahuarita Area Transportation Study through the Planning Assistance for Rural Areas (PARA) program. The purpose of the PARA program is to assist counties, cities, towns, and tribal communities in addressing a broad range of multimodal transportation planning issues including roadway and non-motorized modes of travel.

The Town of Sahuarita lies in the southern portion of Pima County along Interstate 19, and was incorporated in 1994. While the Town is technically part of the Tucson metropolitan area, it is largely separated by almost 9 miles of Tohono O'odham lands on the north, mining tailings to the west, and the Santa Cruz River to the east. These barriers result in a challenged transportation system that relies heavily on the few corridors that cross these barriers.

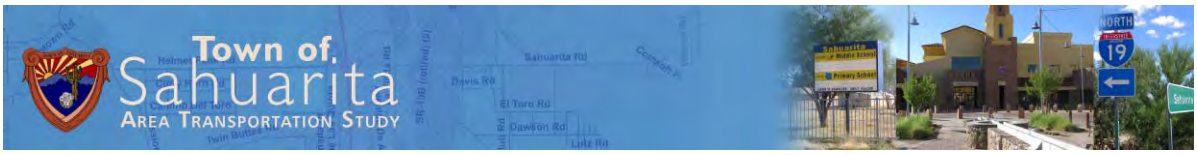
Currently, the primary roadways within the Town of Sahuarita planning area include: Sahuarita Road, Pima Mine Road, Duval Mine Road, Nogales Highway, Old Nogales Highway, and La Canada Drive. These roadways have historically provided sufficient capacity for the jurisdiction. However, increased development within and outside the Town's boundaries are creating the need for roadway widening and new alignments to provide increased connections and mobility. Potential new connections of El Toro Road, La Villita Road, Quail Crossing Boulevard, and others have been discussed in various venues but not in a comprehensive plan. The last comprehensive transportation plan prepared for the Town was a 1999 Small Area Transportation Study. It is the intent of this study to update the Town's planning efforts to incorporate the latest understanding of development trends and roadway concepts.

Of primary concern are several large master-planned communities within the Town's existing and proposed boundaries as well as regional impacts to the arterial connections to I-19. Commercial development is also increasing with the planning of a new Town Center. Regionally, there is a desire to connect I-19 with I-10 via an east-west route that could traverse through the Town of Sahuarita. It is the Town's desire to compile these studies and refine the regional modeling efforts to evaluate the immediate impacts to the local arterials resulting from the previously recommended studies.

The principal purpose of the Town of Sahuarita Area Transportation Study is to evaluate existing transportation deficiencies, recommend needed improvements, and develop a transportation plan to accommodate and guide future growth. The study will result in a Major Streets and Routes Plan that will serve as a guide to the development of the Town's roadway network that will be constructed to meet anticipated development in the Town.

Objectives of the Town of Sahuarita Area Transportation Study are:

- Document current and future conditions relating to multimodal access and mobility throughout the Town of Sahuarita planning area,
- Identify mobility and access needs and deficiencies,
- Recommend a program of improvements organized into short-term (5 years), mid-term (10 years), and long-term improvements (30 years),
- Develop a Major Streets and Routes Plan that will provide the Town with a tool as they improve land use and transportation plans, and
- Identify funding opportunities for implementation of the 5, 10, and 30-year improvements.



1.2 Project Area Description

While Town boundaries currently encompass approximately 30 square miles, the Town's planning area (as illustrated in **Exhibit 1-1)** encompasses more than 55 square miles. The Town of Sahuarita Area Transportation Study identifies transportation improvements and infrastructure within the larger planning area that is needed to accommodate the Town's growing population.

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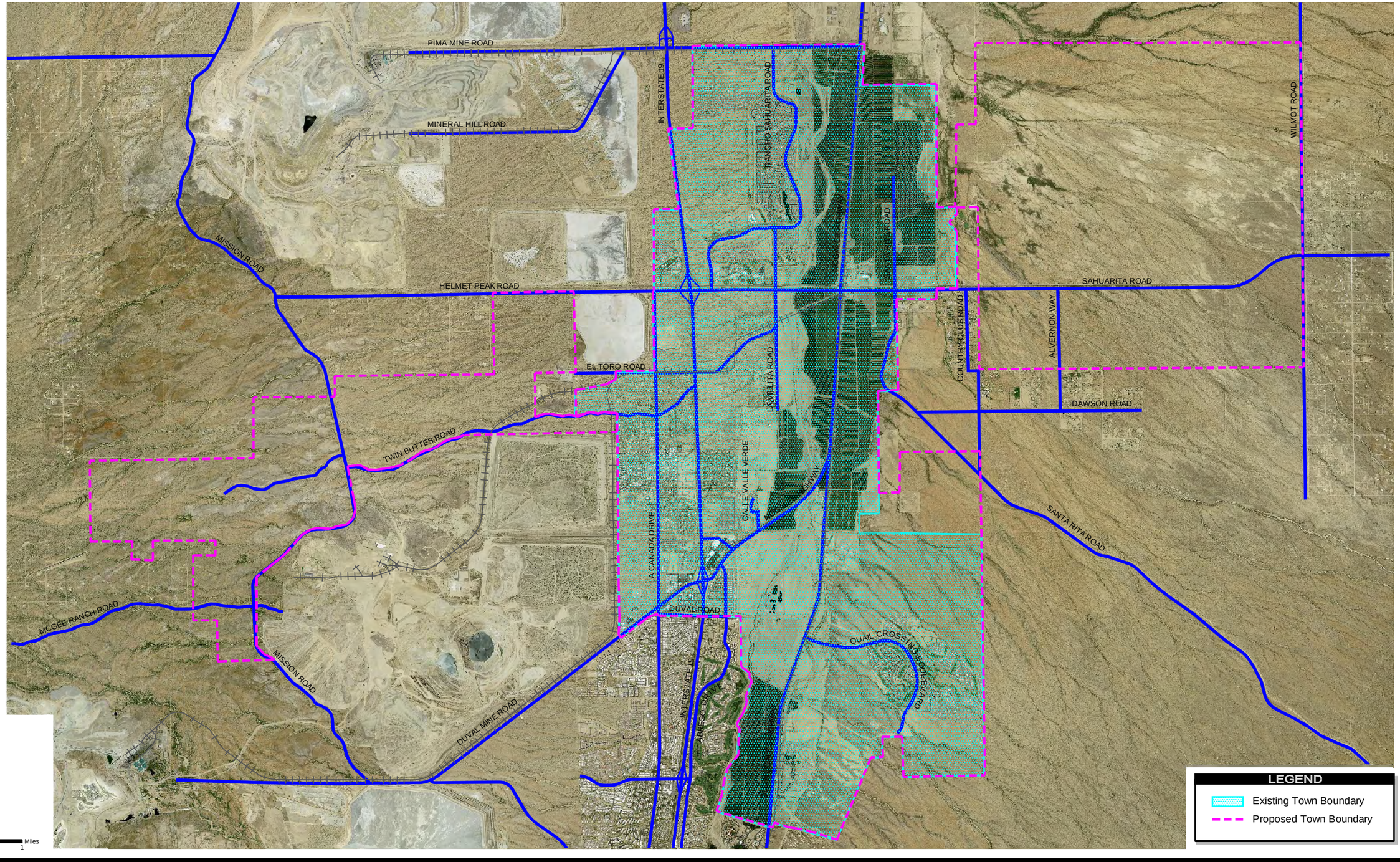
Study Area Map



Sahuarita Transportation Study

Exhibit 1-1

2. EXISTING TRANSPORTATION CONDITIONS

2.1 Roadway Functional Classifications

Functional classification is the process by which streets and highways are grouped according to the character of traffic service they are intended to provide. These classifications are used in transportation planning, roadway design, and to allocate federal roadway improvement funds.

The primary functional classifications are freeways, highways, arterials, collectors, and local roadways. These FHWA classifications are listed in high to low order of speed limit, vehicular capacity, and access restrictions. Based on information provided by the Federal Highway Administration (FHWA) and Pima County Geographic Information System (GIS) data, **Exhibit 2-1** summarizes the study area roadways which are designated above a local roadway classification (local roadways are typically residential streets). These street classifications are shown graphically in **Exhibit 2-2**.

Exhibit 2-1 – Functional Classifications for Sahuarita Area Roads

FHWA Functional Classification	Roads
Rural Principal Arterial	▪ Sahuarita Road, I-19 to Sonoita Highway
Rural Minor Arterial	▪ Calle Arroyo, I-19 Frontage Road to Nogales Highway ▪ Continental Road, Duval Mine Road to west of Camino del Portillo
Rural Major Collector	▪ Nogales Highway, Felix Road to Old Nogales Highway ▪ Helmet Peak Road, Mission Road to I-19 ▪ La Canada Drive, Helmet Peak Road to El Toro Road ▪ Duval Mine Road, Mission Road to Rio Altar
Rural Minor Collector	▪ Pima Mine Road, west of Mineral Hill Road to Nogales Highway ▪ Rancho Sahuarita Boulevard, Pima Mine Road to La Villita Road ▪ La Villita Road, Rancho Sahuarita Road to Twin Buttes Road ▪ Mission Road, Tohono O'odham Nation to Duval Mine Road ▪ Twin Buttes Road, Mission Road to Placita Palmilla ▪ Duval Mine Road, west of Mission Road ▪ Country Club Road, Sahuarita Road to south of Santa Rita Road ▪ Santa Rita Road, Country Club Road to Helvetia Road
Urban Minor Arterial	▪ Duval Mine Road, La Canada to I-19 ▪ La Canada, Duval Mine Road to Mission Twin Buttes Road ▪ Abrego Drive, Nogales Highway to Calle Torres Blancas
Urban Collector	▪ Twin Buttes Road, Placita Palmilla to La Canada Drive and El Toro Road to La Villita Road ▪ El Toro Road, La Canada Drive to Twin Buttes Road ▪ La Canada Drive, El Toro Road to Duval Road ▪ Duval Mine Road, Rio Altar to La Canada Drive ▪ Nogales Highway, I-19 to Old Nogales Highway ▪ Old Nogales Highway, Nogales Highway to Abrego Drive ▪ Quail Crossing Boulevard, Old Nogales Highway to Quail View Loop

Source: Pima County Geographic Information System (GIS)

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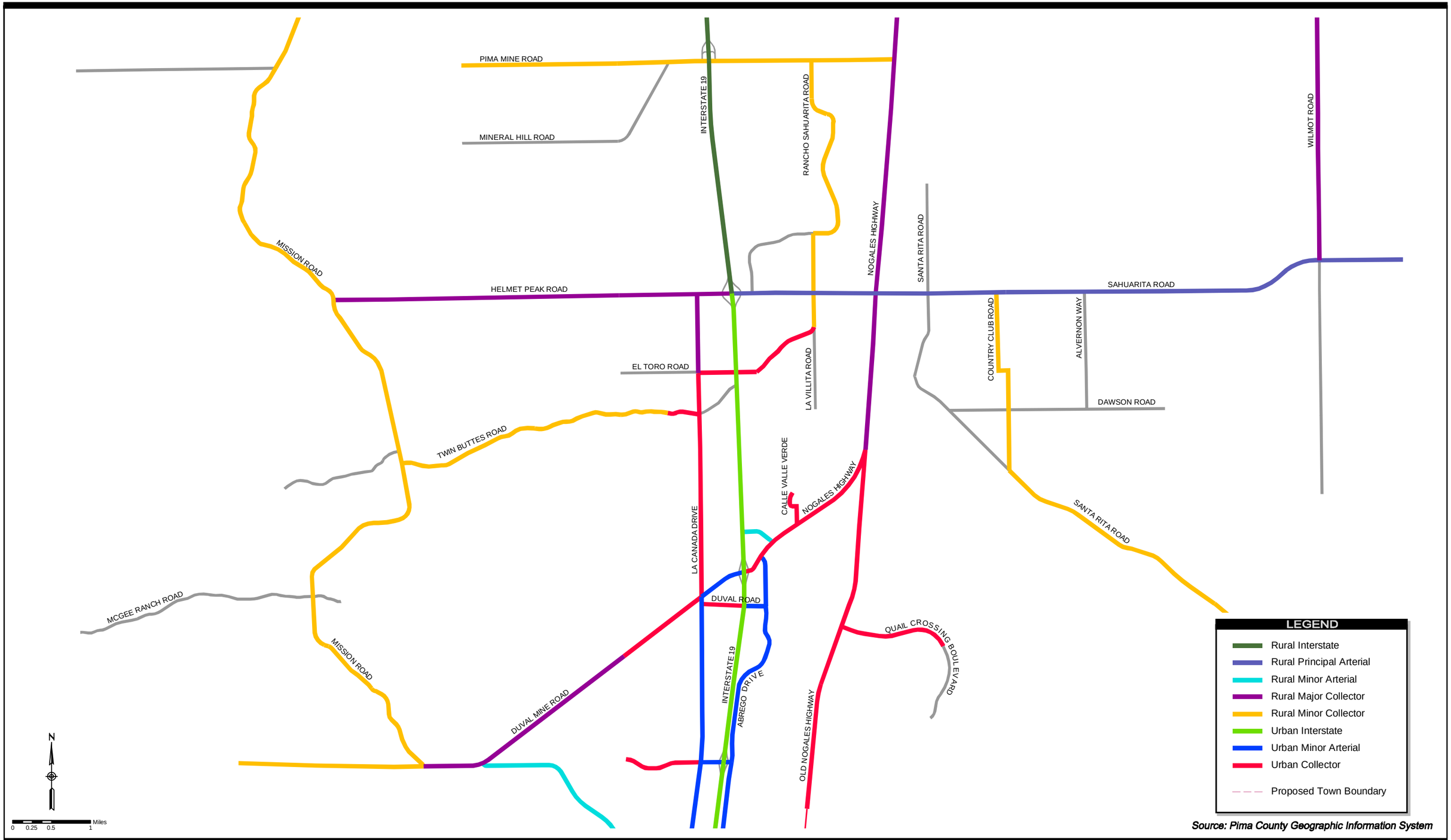
FHWA Functional Classification Map



Source: Pima County Geographic Information System

2.2 Roadway Laneage

Exhibit 2-3 shows the number of lanes of the study area roadways. The majority of the roadways within the Sahuarita area are 2-lane undivided facilities. The exceptions are listed below.

Road	Segment	Laneage
Abrego Drive	Nogales Highway to 350 feet north of Calle Nacrita	3-lane undivided
Abrego Drive	350 feet north of Calle Nacrita to Duval Road	2-lane divided
Calle Arroyo Sur	1300 feet west of Nogales Highway to Nogales Highway	2-lane divided
Duval Mine Road	I-19 to 500 feet west of La Canada Drive	4-lane divided /undivided
Duval Mine Road	La Canada Drive to Rio Altar	3-lane undivided
I-19	Entire length through study area	4-lane divided
La Canada Drive	Sahuarita Road to El Toro Road	4-lane divided
La Canada Drive	El Toro to Camino Antigua	3-lane undivided
La Canada Drive	Camino Antigua to Camino Suenos de Sahuarita	2-lane divided
La Canada Drive	Camino Suenos de Sahuarita to Duval Road	4-lane divided
Nogales Highway	I-19 to Calle Valle Verde	4-lane divided
Quail Crossing Boulevard	Entire length	4-lane divided
Rancho Sahuarita Boulevard	El Toro Road to Calle Vista Larga	4-lane divided
Rancho Sahuarita Boulevard	Calle Vista Larga to approximately 1000 feet south	2-lane divided
Rancho Sahuarita Boulevard	La Villita to Sahuarita Road	4-lane divided
Sahuarita Road	I-19 to La Villita Road	This road is currently (2010) under construction to 4-lane divided roadway

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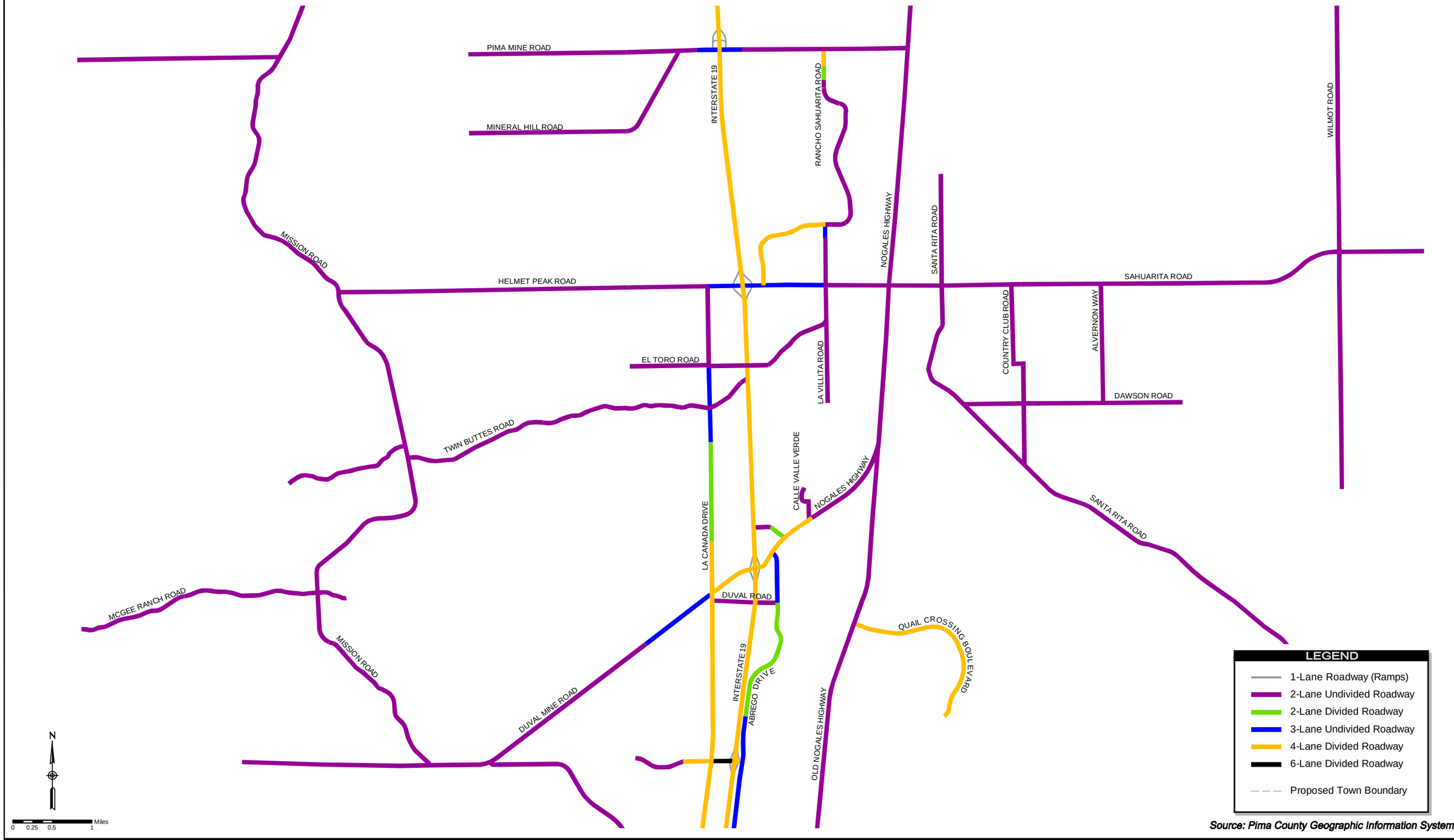
Existing Roadway Laneage



Source: Pima County Geographic Information System

Sahuarita Transportation Study

Exhibit 2-3

2.3 Traffic Control

Intersection traffic control is presented in **Exhibit 2-4**. Traffic signals currently exist at the following intersections:

- Sahuarita Road / La Canada Drive / Rancho Resort Boulevard
- Sahuarita Road / I-19 Interchange (both the east and west side of the interchange)
- Sahuarita Road / Rancho Sahuarita Road(currently being re-installed during construction of Sahuarita Road)
- Sahuarita Road / Salome Loop Road (installed, but not activated until Sahuarita Road construction completed)
- Sahuarita Road / Desert Gem Road (installed, but not activated until Sahuarita Road construction completed)
- Sahuarita Road / La Villita Road (installed, but not activated until Sahuarita Road construction completed)
- Sahuarita Road / Nogales Highway
- Rancho Sahuarita Road / Rancho Sahuarita Marketplace (installed but not activated as of July 22, 2010)
- Duval Mine Road / La Canada Drive
- Duval Mine Road / I-19 Interchange (both sides)
- Abrego Road / Nogales Highway
- Nogales Highway / Old Nogales Highway
- Nogales Highway / Calle Arroyo Sur
- Duval Mine Road / Alpha Avenue
- Nogales Highway / Calle Valle Verde

A school flasher was installed at Great Expectations Academy, 1466 W Camino Antigua, as part of the Regional Transportation Authority program. Camino Antigua is located west of La Canada Drive. This signal, which is solar powered, operates while the school crossing guards are on duty.

Other traffic signal locations that the Town indicated may be installed in the future are:

- Rancho Sahuarita Boulevard / Pima Mine Road – Currently awaiting approval from the Union Pacific Railroad for the at-grade railroad crossing arm design.
- Old Nogales Highway / Quail Crossing Boulevard
- Pima Mine Road /Nogales Highway
- Rancho Sahuarita/ Calle Vista Larga
- Rancho Sahuarita/ Camino Rancheria

2.4 Speed Limits

Posted speed limits in the study area range from 25 miles per hour (mph) to 55 mph on local arterials and collectors, and from 65 mph to 75 mph on Interstate 19. Existing speed limits are shown graphically in **Exhibit 2-4**. A speed monitor station has been installed on Nogales Highway as part of the RTA program.

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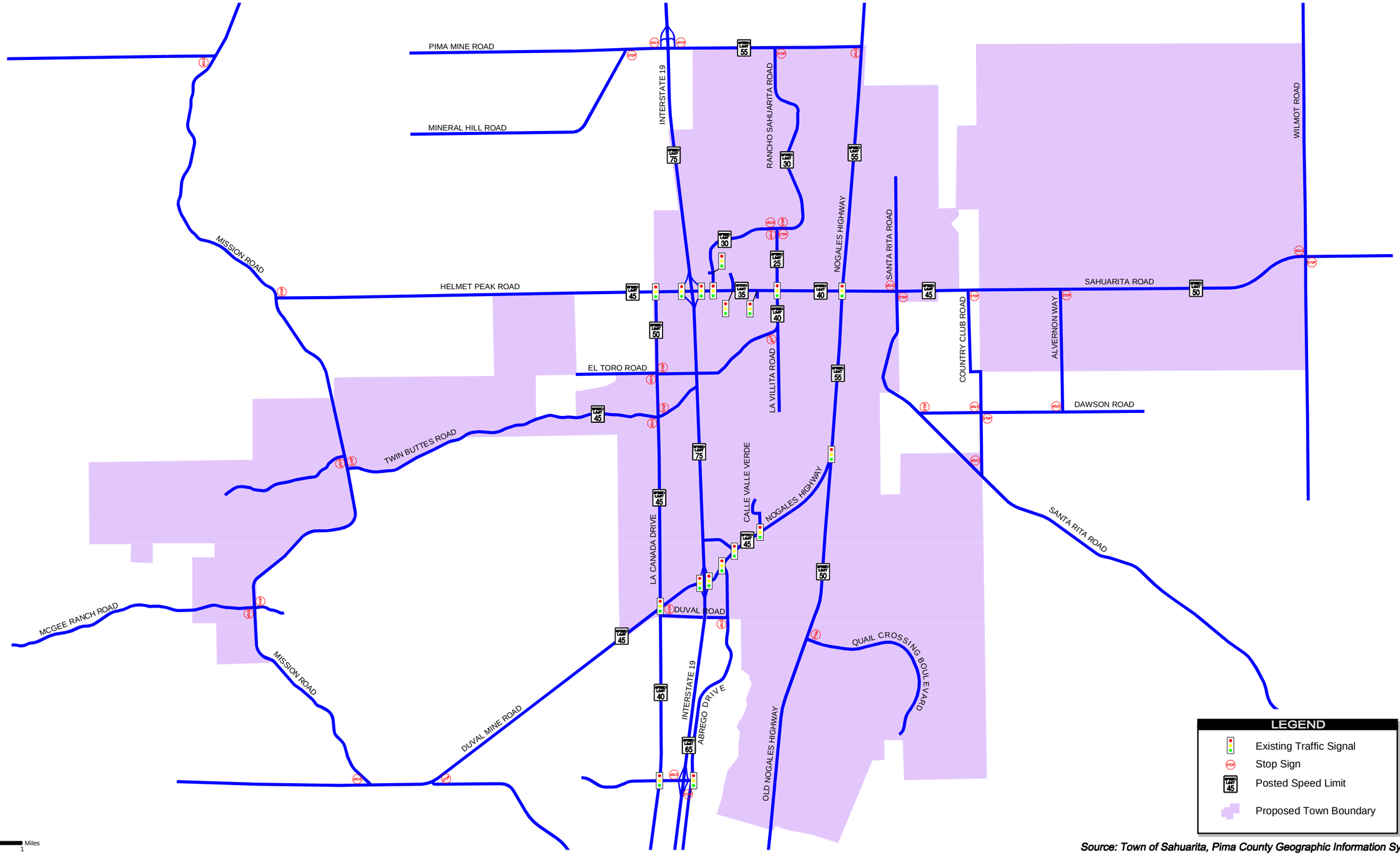
Existing Traffic Control



Source: Town of Sahuarita, Pima County Geographic Information System

2.5 Existing Traffic Volumes

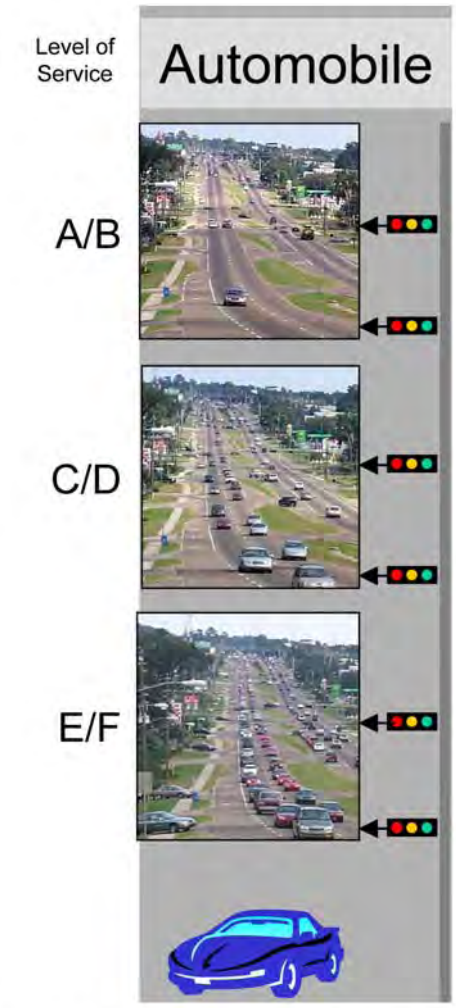
Existing average daily traffic (ADT) data was obtained from the Town of Sahuarita and the Pima Association of Governments. Historical ADT volumes on road segments are summarized in **Exhibit 2-5**. Analysis of historical traffic volumes on Sahuarita area roads demonstrates that traffic volumes over the past 5 to 7 years have increased approximately 8% per year.

2008 traffic volumes were calculated through application of an 8% growth rate. The 2008 volumes are listed in **Exhibit 2-6**.

2.6 Capacity and Level of Service Analysis

2.6.1 Description of Concept of Level of Service

Roadway traffic operations are defined and categorized by the delay experienced by an average driver. The operations are categorized by a grading system called level of service (LOS) which is a letter designation ranging from A (no delay) to F (severe congestion). These levels are depicted below.



Source: Florida DOT Quality of Service Handbook, 2002

2.6.2 Town of Sahuarita LOS Requirements

The Town of Sahuarita *Access Management Guidelines* reference *ADOT Traffic Engineering Policies, Guidelines and Procedures*. These guidelines state that traffic impacts are typically mitigated to LOS C, and mitigation to LOS D may be acceptable in urban areas over 50,000 population. Although the Town of Sahuarita population is less than 50,000 persons, it is a rapidly urbanizing and growing area and is expected to exceed the 50,000 population within the planning horizons of this study. As such, identification of traffic-related roadway improvements in this study will be based upon the LOS D threshold.

2.6.3 Level of Service Analysis

Highway Capacity Software (HCS) was utilized to develop traffic service volume thresholds for each LOS grade (A – E) for Sahuarita area roadways. The underlying methodologies in HCS are based on HCM 2000 procedures and other research.

The traffic service volume thresholds are summarized in **Exhibit 2-7.**

The traffic service volume thresholds listed in **Exhibit 2-7** were used to estimate the LOS for Sahuarita area roadways. The existing LOS on study area roadway segments is shown in **Exhibit 2-8**. The LOS analysis indicates that, in general, the road system in the Sahuarita area is operating at Level of Service D or better. There were no road segments that operated at LOS E or F, based on the available traffic volume data.

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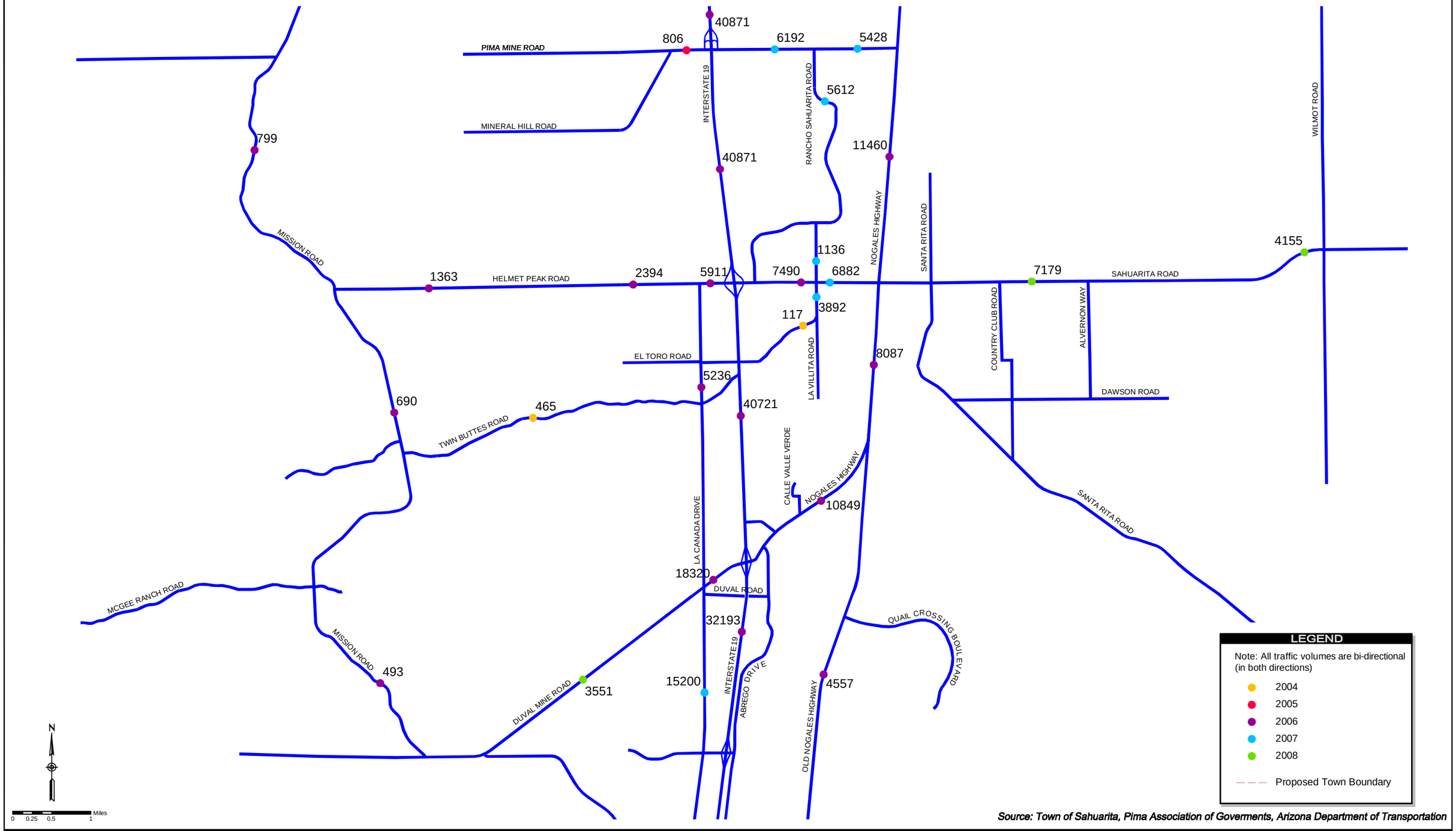
Historical Average Daily Traffic Volumes



Source: Town of Sahuarita, Pima Association of Governments, Arizona Department of Transportation

Exhibit 2-6 – Historical and 2008 Traffic Volumes

Road	Road Segment	HISTORICAL DATA AVERAGE DAILY TRAFFIC								Segment Annual Compound Growth Rate	Calculated 2008 Volumes
		2001	2002	2003	2004	2005	2006	2007	2008		
Pima Mine Rd.	West of Nogales Hwy.			2,200			4,700	5,400		25.2%	5,835
Sahuarita Rd.	West of La Canada Dr.			1,900			2,400			8.1%	2,803
Sahuarita Rd.	East of La Canada Dr.			5,100			5,900			5.0%	6,890
Sahuarita Rd.	West of Nogales Hwy.			5,800			7,500	6,900		4.4%	8,057
Sahuarita Rd.	East of Nogales Hwy.	3,400		4,700			6,800		7,200	8.9%	7,200
El Toro Rd.	East of La Canada Dr.			100						-	147
Twin Buttes Rd.	West of La Canada Dr.	100			500					71.0%	682
Twin Buttes Rd.	East of El Toro Rd.	200			100					-20.6%	136
Duval Mine Rd.	West of La Canada Dr.	1,800					4,000		3,600	10.4%	3,600
Duval Mine Rd.	East of La Canada Dr.			13,000			18,300			12.1%	21,369
Mission Rd.	North of Helmet Peak Rd.									-	-
Mission Rd.	South of Helmet Peak Rd.						1,000			-	1,168
Mission Rd.	North of Duval Mine Rd.									-	-
La Canada Dr.	South of Sahuarita Rd.		5,000							-	7,961
La Canada Dr.	North of Twin Buttes Rd.			5,500			5,200			-1.9%	6,072
La Canada Dr.	South of Duval Mine Rd.		12,800	14,200	15,000	16,400	15,200			4.4%	17,749
La Canada Dr.	South of Esperanza Blvd.		12,100	10,700	12,200	12,600	11,200			-1.9%	13,078
Rancho Sahuarita Blvd.	South of Pima Mine Rd.							5,612		-	6,064
La Villita Rd.	North of Sahuarita Rd.	1,000			4,900			1,100		1.6%	1,189

Source: PAG, Town of Sahuarita, Analysis by Kimley-Horn and Associates

Exhibit 2-6 – Historical and 2008 Adjusted Traffic Volumes (continued)

Road	Road Segment	HISTORICAL DATA AVERAGE DAILY TRAFFIC									Calculated 2008 Volumes
		2001	2002	2003	2004	2005	2006	2007	2008	Segment Annual Compound Growth Rate	
La Villita Rd.	South of Sahuarita Rd.		900		1,100			3,900		34.1%	4,214
Nogales Hwy.	North of Sahuarita Rd.						11,000			-	12,845
Nogales Hwy.	South of Sahuarita Rd.						8,000			-	9,342
Nogales Hwy.	West of Old Nogales Hwy.						11,000			-	12,845
Old Nogales Hwy.	South of Nogales Hwy.			3,700			4,600			7.5%	5,372
Santa Rita Rd.	South of Sahuarita Rd.	200			300					14.5%	409

Source: PAG, Town of Sahuarita, Analysis by Kimley-Horn and Associates

Exhibit 2-7 – HCS Analysis Service Volume Thresholds

Roadway Category	LOS A	LOS B	LOS C	LOS D	LOS E
	Annual Average Daily Traffic				
2 Lane Undivided	--	2900	8600	10800	11500
2 Lane with a Center Left Turn Lane / 2 Lane Divided		3800	11000	13400	14100
4 Lane Divided		8300	23700	27000	28400
6 Lane Divided		13100	36200	40600	42600
2-Lane Highway	2300	5500	11300	16600	21500

Source: Kimley-Horn and Associates, Highway Capacity Software Analysis

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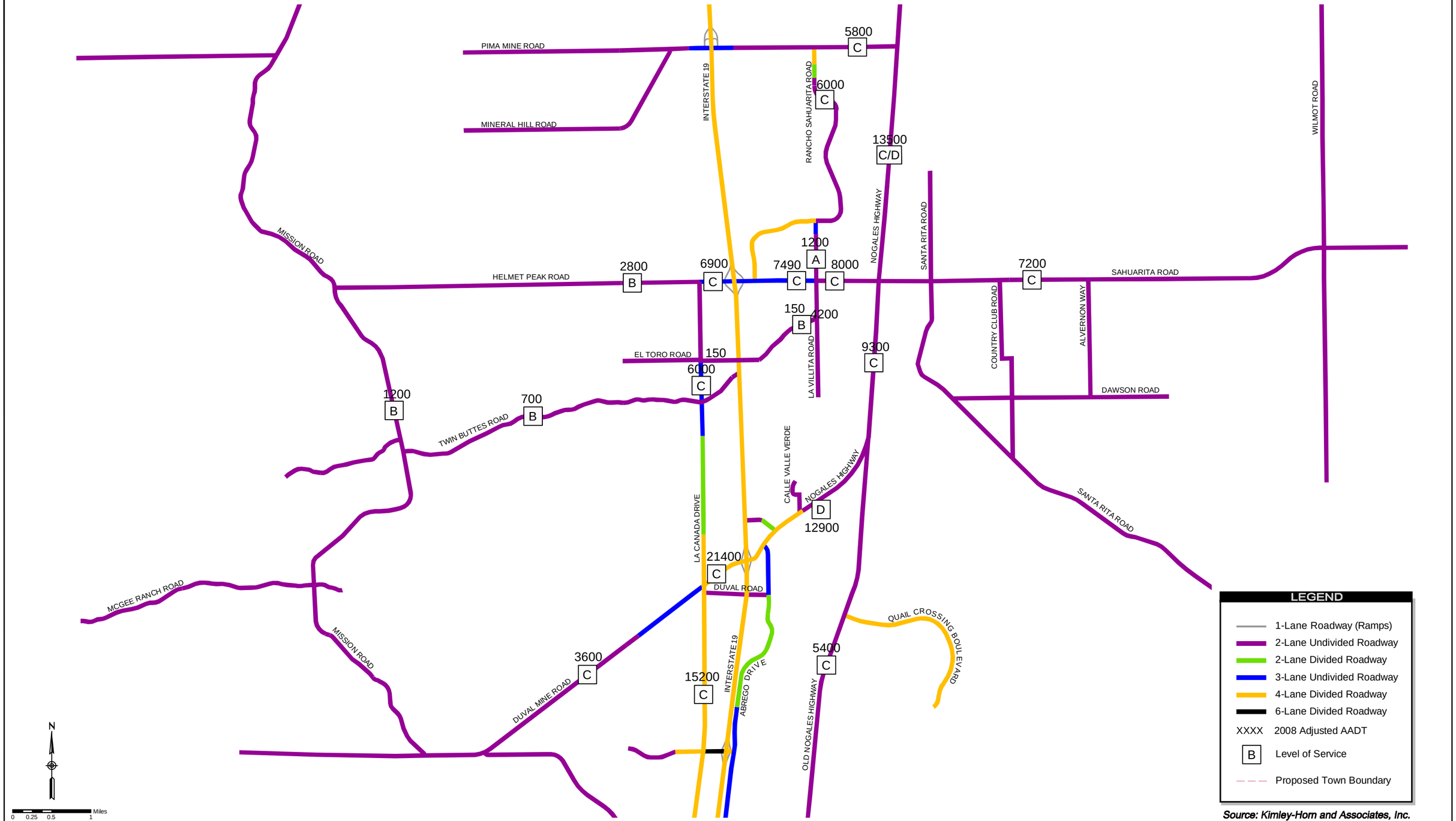
2008 Adjusted Volumes and Level of Service



Source: Kimley-Horn and Associates, Inc.

Sahuarita Transportation Study

Exhibit 2-8

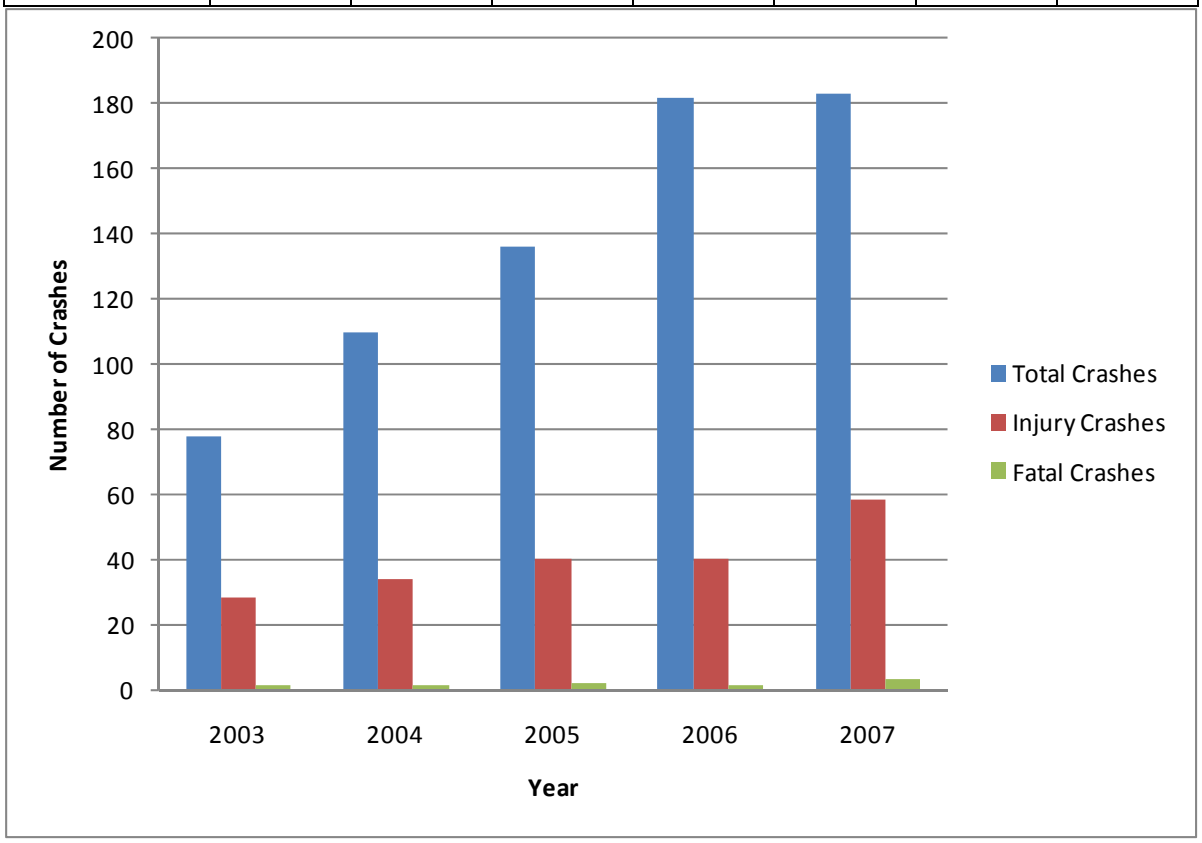
2.7 Crash Data

2.7.1 Overview

Crash data was obtained from ADOT Traffic Records Section for the period 2003 to 2007. The number of crashes for each year during the 5-year history is shown in **Exhibit 2-9** along with the number of injury and fatal crashes. As the Town of Sahuarita has grown significantly between 2003 and 2007, the number of crashes has also increased. In 2006 and 2007, the total number of crashes was similar; however there are a higher number of crashes involving injuries and fatalities in 2007.

Exhibit 2-9 – Sahuarita Area Crash Data Summary, 2003 to 2007

	2003	2004	2005	2006	2007	Total	Average/ year
Total Crashes	78	110	136	182	183	689	138
Injury Crashes	28	34	40	40	58	200	40
Fatal Crashes	1	1	2	1	3	8	2



Source: ADOT Traffic Records Section

2.7.1 Crash Severity

As listed in **Exhibit 2-9,** there were 8 fatal crashes on Sahuarita area roads during the analysis period (2003 to 2007). Each of these fatal crashes is depicted in **Exhibit 2-10**. Also shown in **Exhibit 2-10** are incapacitating crashes. The locations of each of the fatal crashes are listed on **Exhibit 2-10**. As demonstrated in **Exhibit 2-10**, four of the fatal crashes are associated with I-19. Three fatal crashes occurred on the I-19 mainline, and one fatal crash occurred on the I-19 exit ramp at Sahuarita Road.

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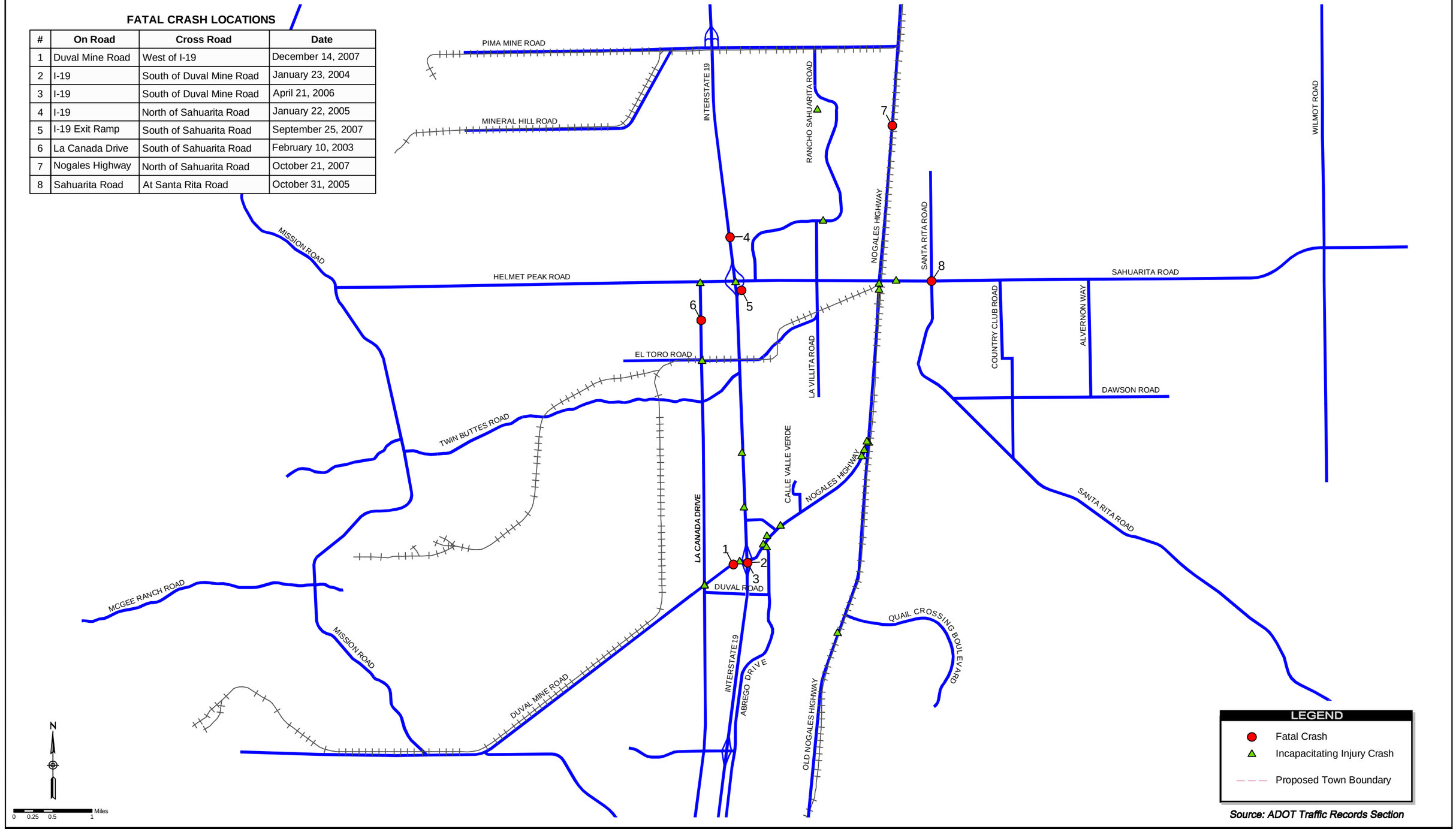
Fatal and Incapacitating Injury Crashes, 2003-2007

FATAL CRASH LOCATIONS

#	On Road	Cross Road	Date
1	Duval Mine Road	West of I-19	December 14, 2007
2	I-19	South of Duval Mine Road	January 23, 2004
3	I-19	South of Duval Mine Road	April 21, 2006
4	I-19	North of Sahuarita Road	January 22, 2005
5	I-19 Exit Ramp	South of Sahuarita Road	September 25, 2007
6	La Canada Drive	South of Sahuarita Road	February 10, 2003
7	Nogales Highway	North of Sahuarita Road	October 21, 2007
8	Sahuarita Road	At Santa Rita Road	October 31, 2005



2.7.2 Intersection Crashes

Exhibit 2-11 summarizes intersections which exceeded more than five crashes in the five year period from 2003 to 2007. As noted in the table, several intersections have been improved or are planned to be improved which may reduce crash potential. The number of crashes at intersections within the study area for the 5-year period is shown in **Exhibit 2-12**.

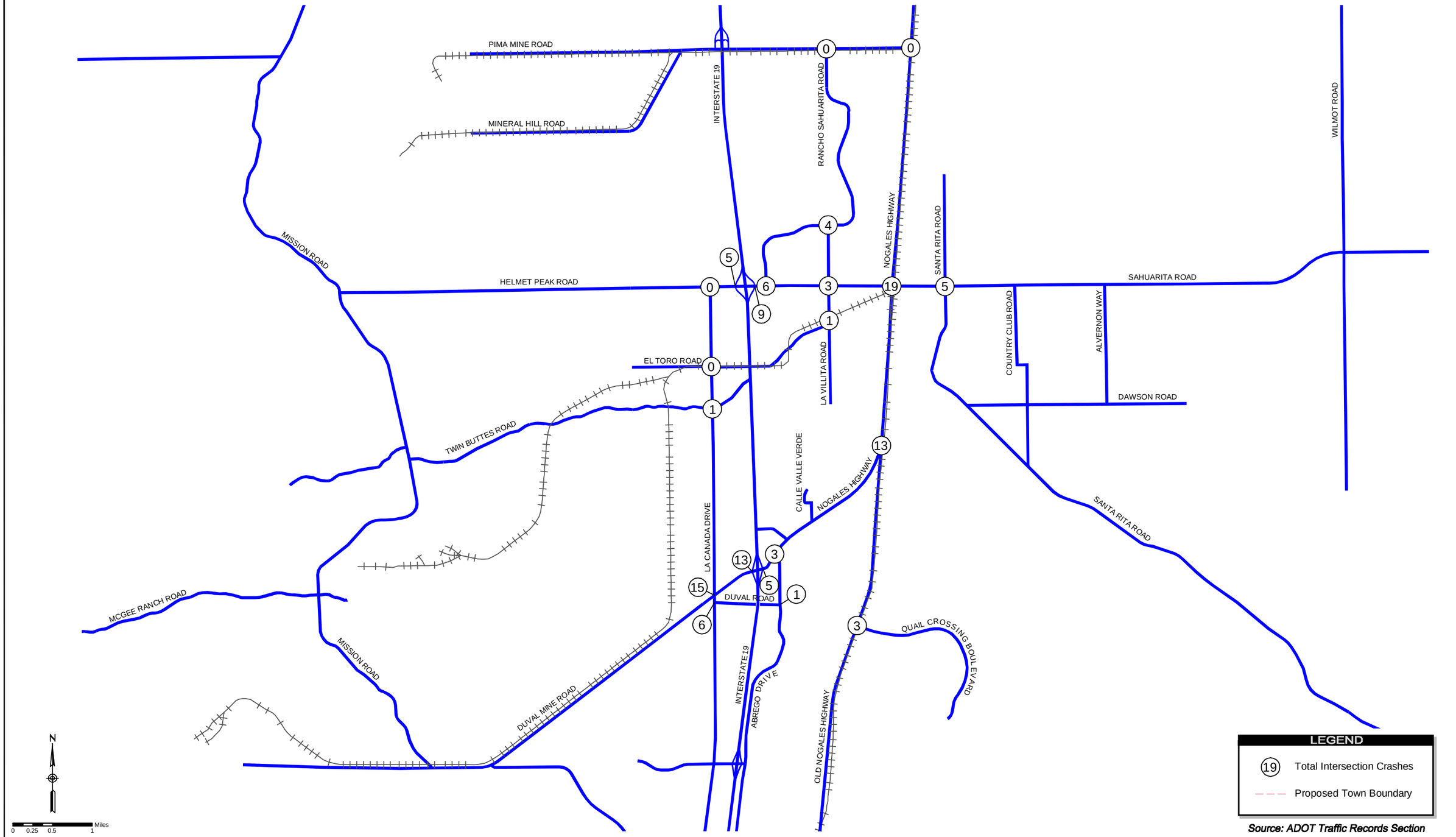
Exhibit 2-11 – Intersection Crash Analysis, Intersections with 5 or More Crashes, 2003-2007

Intersection Location	Number of Crashes	Predominate Crash Types	Predominate Light Conditions	Comments
Sahuarita Road / S I-19 Ramp	5	Angle (3 crashes)	Daylight (4 crashes)	Signalization of this interchange was recently completed.
Sahuarita Road / N I-19 Ramp	9	Rear-End (7 crashes)	Daylight (7 crashes)	Signalization of this interchange was recently completed.
Sahuarita Road/ Rancho Sahuarita Boulevard	6	Angle (3 crashes) Rear-End (2 crashes)	Daylight (4 crashes)	This intersection is currently under reconstruction as part of Sahuarita Road widening.
Sahuarita Road / Nogales Highway	19	Rear-End (7 crashes) Angle (6 crashes)	Daylight (16 crashes)	This intersection is planned to be widened and improved (DCR underway).
Sahuarita Road / Santa Rita Road	5	Angle (3 crashes)	Darkness (2 crashes)	This intersection is planned to be widened and improved As part of the Sahuarita Road widening (La Villita Road to Country Club Road)
Nogales Highway / Old Nogales Highway	13	Angle (5 crashes) Rear-End (5 crashes)	Daylight (9 crashes)	Signalization of this intersection was completed in 2009.
Duval Mine Road / S I-19 Ramp	13	Angle (6 crashes) Left-Turn (4 crashes)	Daylight (11 crashes)	This intersection was signalized and reconstructed with new ramps in October 2005. All 13 crashes occurred from January 2003 to October 2005..
Duval Mine Road / N I-19 Ramp	5	Angle (2 crashes) Rear-End (2 crashes)	Daylight (5 crashes)	This intersection is signalized and has been improved. Three crashes occurred from January 2003 to October 2005. Crash frequency has been reduced.
Duval Mine Road / La Canada Drive	15	Angle (3 crashes) Left-Turn (3 crashes) Rear-End (3 crashes) U-Turn (3 crashes)	Daylight (11 crashes)	An intersection improvement project was completed in 2006.
Duval Road / La Canada Drive	6	Angle (2 crashes)	Daylight (3 crashes)	

Source: ADOT Traffic Records Section,
Analysis by Kimley-Horn and Associates

Kimley-Horn and Associates, Inc.

Intersection Crashes, 2003-2007



Source: ADOT Traffic Records Section

2.7.3 Road Segment Crashes

Exhibit 2-13 summarizes road segments that have more than five crashes over a five-year period. Crashes on I-19 are not included in this analysis. The number of crashes on road segments is shown graphically in **Exhibit 2-14.** The road segments with the highest number of crashes in the 5 year period are:

- Nogales Highway, Sahuarita Road to Old Nogales Highway (21 crashes),
- La Canada Drive, Duval Mine Road to Duval Road (20 crashes), and
- Duval Mine Road, La Canada Drive to I-19 (18 crashes).

As noted in the table below, several roadways are planned to be improved in the near future which may reduce accident potential.

Exhibit 2-13 – Road Segment Crash Analysis, Intersections with 5 or More Crashes, 2003-2007

Road Segment	Number of Crashes	Predominant Crash Types	Predominant Light Conditions	Comments
North- South Segments				
Rancho Sahuarita Road: Pima Mine Road to La Villita Road	13	Rear-End (5 crashes)	Daylight (11 crashes)	
Nogales Highway: Northern Town Limits to Sahuarita Road	9	Single Vehicle (5 crashes)	Daylight (5 crashes)	
Nogales Highway: Sahuarita Road to Old Nogales Highway	21	Rear-End (10 crashes) Single Vehicle (4 crashes)	Daylight (18 crashes)	
La Canada Drive: Twin Buttes Road to Duval Mine Road	15	Single Vehicle (5 crashes) Angle (4 crashes)	Daylight (10 crashes)	Anamax Mine Road to El Toro Road improved to three lane section in 2005. Anamax Mine Road to Duval Mine Road has also been improved to a four –lane section.
La Canada Drive: Duval Mine Road to Duval Road	20	Rear-End (7 crashes) Left-Turn (5 crashes)	Daylight (18 crashes)	Lane changing may contribute to crashes in this short (450 foot) segment
Old Nogales Highway: Nogales Highway to Quail Crossing Blvd.	7	Single Vehicle (6 crashes)	Daylight (5 crashes)	
Old Nogales Highway: Quail Crossing Blvd to Sahuarita Town Limits	10	Single Vehicle (3 crashes) Sideswipe-same (2 crashes) Left-Turn (2 crashes)	Daylight (8 crashes)	
East-West Segments				
Sahuarita Road: Rancho Sahuarita Road to La Villita Road	10	Single Vehicle (3 crashes) Angle (3 crashes)	Daylight (7 crashes)	This segment is planned to be widened and improved (design plans have been completed).

Source: ADOT Traffic Records Section,
Analysis by Kimley-Horn and Associates

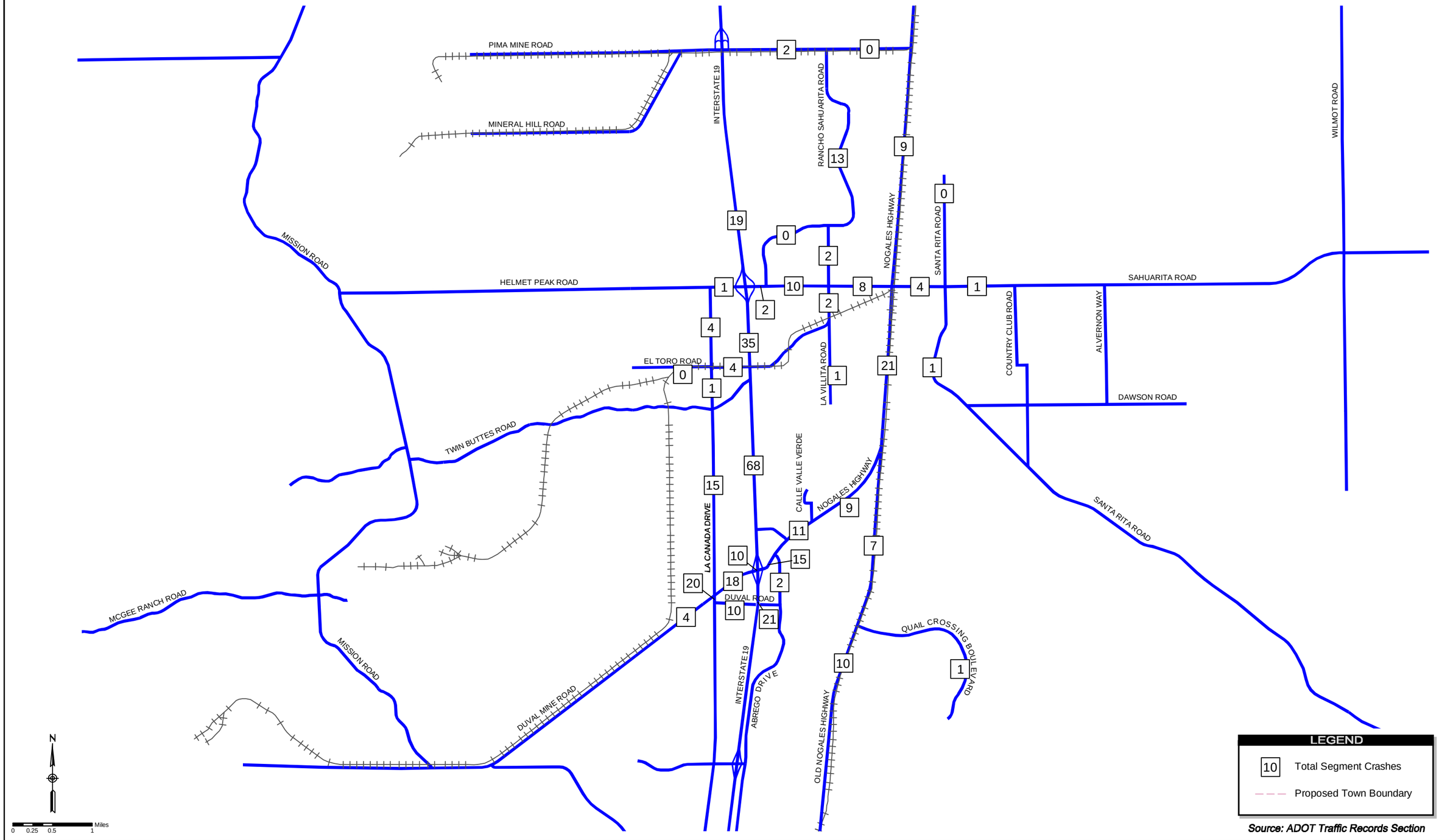
Exhibit 2-13 – Road Segment Crash Analysis, Intersections with 5 or More Crashes, 2003-2007 (continued)

Road Segment	Number of Crashes	Predominant Crash Types	Predominant Light Conditions	Comments
Sahuarita Road: La Villita Road to Nogales Highway	8	Angle (3 crashes) Backing (2 crashes)	Daylight (8 crashes)	This segment is planned to be widened and improved as part of the Sahuarita Road widening (La Villita Road to Country Club Road)
Duval Mine Road: La Canada Drive to I-19	18	Rear-End (6 crashes) Angle (4 crashes) Left-Turn (4 crashes)	Daylight (14 crashes)	
Duval Mine Road: I-19 Interchange Area	10	Rear-End (4 crashes) Single Vehicle (2 crashes) Sideswipe-same (2 crashes)	Daylight (8 crashes)	The interchange area has been improved.
Nogales Highway: I-19 to Abrego Drive	15	Angle (4 crashes) Left-Turn (4 crashes) Rear-End (4 crashes)	Daylight (11 crashes)	
Nogales Highway: Abrego Drive to Valle Verde	11	Sideswipe-same (3 crashes) Single Vehicle (2 crashes) Rear-End (2 crashes)	Daylight (7 crashes)	This road segment was widened and improved in 2005. Three crashes occurred in 2004, one crash occurred in 2005, six crashes occurred in 2006, and one crash occurred in 2007.
Nogales Highway: Valle Verde to Old Nogales Highway	9	Single Vehicle (4 crashes) Rear-End (3 crashes)	Daylight (4 crashes) Darkness (3 crashes)	
Duval Road: La Canada Drive to I-19	10	Angle (2 crashes) Rear-End (2 crashes) Backing (2 crashes)	Daylight (8 crashes)	

Source: ADOT Traffic Records Section,
Analysis by Kimley-Horn and Associates

Kimley-Horn and Associates, Inc.

Segment Crashes, 2003-2007



Sahuarita Transportation Study

Exhibit 2-14

2.8 Bicycle Facilities

2.8.1 Existing Bicycle Facilities

The existing bicycle system in the Sahuarita and Green Valley area is shown in **Exhibit 2-15** per the Regional Bicycle Map, prepared by Pima County. This map categorizes bicycle routes into a number of categories, as summarized below:

Bike Route with Striped Shoulder (major street with bike route sign and white edge line, 4-10' paved shoulder,)

- La Canada Drive (El Toro Road to Sahuarita Road)

Paved Shoulder (major street with white edge line and 3-10 foot paved shoulder, speed limit 30 mph or more)

- Nogales Highway (I-19 to north Town limit)
- Duval Mine Road (west town limit to I-19)

Major Streets (may be appropriate for experienced riders because of more traffic, higher speeds, less width)

- Abrego Road (Nogales Highway to Continental Road)
- Duval Mine Road (west Town Limit to Continental Road)
- Helmet Peak Road (La Canada Drive to Continental Road)
- Continental Road, between Duval Mine Road and Camino Del Sol in Green Valley was also categorized as being suitable for more experienced riders.

2.8.2 Planned Capital Improvements

The Town of Sahuarita typically includes bike lanes on all of their new or reconstructed arterials and collectors. As such, dedicated bike lanes will be included in the following projects in the 2011 -2015 Transportation Improvement Program:

- La Villita Bike Lane Project (Sahuarita Road to Paseo Celestia)
- Quail Creek Connection, Old Nogales Highway to Nogales Highway
- Sahuarita Road, I-19 to Country Club Road (segment from I-19 to La Villita Road is currently under construction). The segment from La Villita Road to Country Club Road is under design, but the design concept includes paved shoulders for bike lanes.

Exhibit 2-15 – Bicycle System, Existing and Proposed

Shared-use Path
Paved 8 ft. to 12 ft. wide path, separated from street.

Bike Route
On lower volume street, with "Bike Route" signs. Max. speed limit of 30 mph.

Bus/Bike Lane
On major streets, 12 ft. wide bus and right turn lane, shared use with bicycles.

Bike Route with Striped Shoulder
On major street, with "Bike Route" signs and white edge line, approx. 4 ft. to 10 ft. wide paved shoulder, speed limits 25 mph or more.

Paved Shoulder
On major street, with white edge line, approximately 3 ft. to 10 ft. wide paved shoulder, speed limits 30 mph or more.

Residential Streets
Selected bikeable streets with maximum speed limit of 30 mph.

Major Streets
May be appropriate for experienced riders (more traffic, higher speeds, less width)

Overpass/Underpass

Railroads

Planned improvement
Roadway or bikeway planned for improvement, 2007-2009. Consider alternate routes during construction. Call 243-BIKE for more information.

Park & Ride Lots

High Schools

Mountain bike Trailheads & BMX Tracks

Cyclists are urged to utilize facilities that are suitable for their individual cycling skills and to be aware that, during certain times of the day, traffic volumes may be unsuitable for their cycling abilities. See safety tips on back side of this map. Visit www.dot.pima.gov/tpcbac for the latest version of this map.

BIKE ROUTE

Bike Route Sign
Used on major and minor streets to indicate popular recreational and commuting bicycle routes.

Dan Yersavich Memorial BIKEWAY

Bikeway Sign
- Mountain Avenue
- 3rd Street
- Liberty Avenue
- Arroyo Chico

Dan Yersavich Memorial Bikeway
Brad P. Gorman Memorial Bikeway

Source: Pima County

2.8.3 Other Plans

Draft Pima Association of Governments Regional Bike Plan Project List

The following projects are listed in the current draft PAG Regional Bike Plan project list:

Exhibit 2-16 – Draft PAG Regional Bike Plan Projects

Road	From	To	Description	Estimated Cost ($1,000)	Other information
La Villita Road	Sahuarita Road	Rancho Sahuarita Blvd	Construct Bike Lanes (0.7 miles)	$420	Listed in Plan Phase 1
Quail Connector Trail	Quail Crossing	Abrego Drive	Construct shared use path	$750	Joint project with Pima County Listed in Plan Phase 1
Sahuarita Road #5 (was Town limits to Alvernon)	Santa Rita Road	Alvernon	Construct bike lanes (1.2 miles)	$420	Joint project with Pima County Listed in Plan Phase 1 Plan status is Reserve Project
Santa Cruz River Park	Sahuarita Road	Continental Road	Construct shared use path	$4,978	Listed in Plan Phase 2 Plan status is RTA Shared –Use Reserve
Sahuarita Road Trail	Mission Road	SR83	Construct shared use path	$3,600	Joint project with Pima County Listed in Plan Phase 3
Santa Cruz River Park	Pima Mine Road	Sahuarita Road	Construct shared use path	$1,780	Listed in Plan Phase 3 Plan status is RTA project
Sahuarita Road	La Villita	Country Club Road	Bike lanes /shoulders part of roadway improvement	$40,785	RTA roadway project

Source: PAG Draft Regional Bike Plan (2009)

Santa Cruz Valley Bicycle Advisory Committee Master Plan

The Santa Cruz Valley Bicycle Advocate Committee (SCVBAC) is a volunteer organization that is dedicated to improvements in bicycling safety and enjoyment, and the promotion of bicycling. This group has developed a *Master Plan* of bicycle facility improvements that is listed at their website at http://www.scvbac.org/. Improvements that are recommended in the Sahuarita area are shown in **Exhibit 2-17**.

Exhibit 2-17 – Recommendations from the SCVBAC Master Plan

Location	Distance (miles)	Project Description	Comment / Status
Sahuarita Rd., Nogales Highway to Alvernon	2.8	Add paved shoulders	A DCR is currently being prepared for the La Villita to Country Club Rd segment of Sahuarita Rd. This project will include shoulders.
La Canada Dr., Helmet Peak Rd. to El Toro Rd.	1.2	Add paved shoulders	A road widening project, including shoulders, is planned to be bid in 2009
Duval Mine Rd., La Canada Dr. to Mission Rd.	4.1	Add paved shoulders	
Sahuarita Rd., La Canada Dr. to I-19	0.5	Add paved shoulders	A road widening project, including shoulders, is planned to be bid in 2009
Helmet Peak Rd., Mission Rd. to La Canada Dr.	4.2	Add paved shoulders	
La Villita Rd., Sahuarita Rd. to Rancho Sahuarita Rd.	0.7	Add paved shoulders	

Source: SCVBAC Master Plan, Update 11/21/08

Draft Parks, Recreation, Trails, and Open Space Master Plan (2007)

The *Draft Parks, Recreation, Trails and Open Space Master Plan* shows a planned system of bicycle routes. The bike routes are categorized as town- wide connectors, which are shown on the De Anza Trail, La Canada Drive, and Pima Mine Road, and as local road segments, which are shown on most of the collectors and arterial roads in the town.

2.9 Pedestrian Facilities and Sidewalks

2.9.1 Existing Sidewalks

Exhibit 2-18 shows the existing sidewalks in the Town of Sahuarita and the surrounding areas. As shown, most major arterials lack sidewalks, although they are provided on Rancho Sahuarita Boulevard, La Canada Drive (south of El Toro Road), Abrego Drive, La Villita Road (Rancho Sahuarita Boulevard to Sahuarita Road), Calle Arroyo Sur (Nogales Highway to Wal-Mart access), Quail Crossing Boulevard, and a small segment of Sahuarita Road. As part of the Sahuarita Road widening project from I-19 to La Villita Road, sidewalks will be constructed. Details of the road widening project on Sahuarita Road (La Villita to Country Club Road) are under design, but the design concept includes sidewalks.

2.9.2 Planned Capital Improvements

Sidewalks were recently installed on Via de Santo Tomas, from La Canada Drive and Camino De Las Quintas. A discussion with Town staff indicated that it is the desire of the town to extend the multipurpose path along Camino De Las Quintas north to provide a connection to Anamax Park.

Another phase could extend this sidewalk to Camino Antigua. The sidewalk could be extended from the south side of Camino Antigua to the school crosswalk and then transition to the north side of Camino Antigua to serve a charter school.

A number of sidewalk projects are planned in the next five years. These include a bike/pedestrian neighborhood path program that will install paved shoulders and sidewalks throughout the Town and a Santo Tomas Sidewalk and Street Lighting Project which will install sidewalks from La Canada to Camino De Las Quintas.

Another project that is planned to be included in the Town's Capital Improvement Program is a project to extend a sidewalk along the north side of Duval Mine Road from the traffic signal at Alpha Avenue to the Green Valley RV Park and to commercial land uses to the east.

2.9.3 Other Planned Pedestrian / Trail Improvements

Recommendations from Draft Parks, Recreation, Trails and Open Space Master Plan (2007)

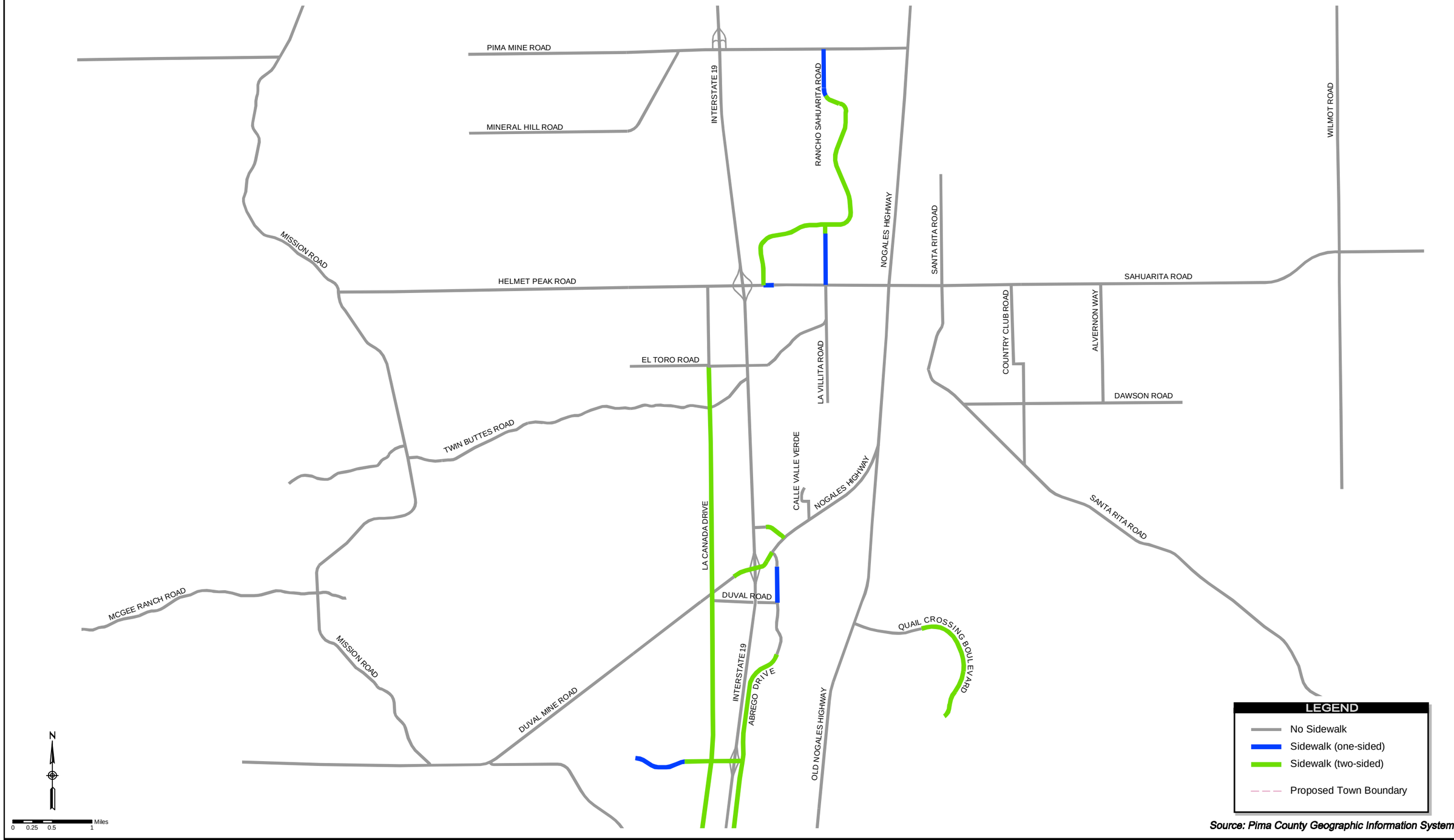
The *Draft Parks, Recreation, Trails and Open Space Master Plan* states that the Town's Pedestrian Plan is a system of multi-use trails that links communities to parks, schools, and the Santa Cruz River by using existing and proposed roadways, easements, and open space. The *Draft Parks, Recreation, Trails and Open Space Master Plan recommends* a central greenway/ riverwalk along both sides of the Santa Cruz River, as further described in the section on the Juan Baptista De Anza Trail, below. The Draft plan also shows a system of pedestrian routes encompassing most of the Town collectors and arterials, and a system of townwide connectors on La Canada Drive, Pima Mine Road, Nogales Highway, Old Nogales Highway and Duval Mine Road, Abrego Drive, Duval Road, and Sahuarita Road.

Sahuarita Road Pedestrian Underpass

In August 2007, a pedestrian study entitled *Sahuarita Road Pedestrian Study* was conducted by Kimley-Horn to analyze pedestrian crossing options across Sahuarita Road. This study documented pedestrian characteristics, alternative types of crossings, and an evaluation of each alternative and potential impacts on vehicular traffic along Sahuarita Road. Partially as a result of this work, the Sahuarita Town Council voted to construct a pedestrian underpass as part of the Sahuarita Road widening. This pedestrian underpass will connect the Sahuarita School district Main Campus with the planned Library and Town Center facilities.

Kimley-Horn and Associates, Inc.

Existing Sidewalks



Source: Pima County Geographic Information System

Juan Baptista De Anza Trail

The Juan Baptista De Anza Trail is a national historic trail that is over 1200 miles long and extends from the United States /Mexico border in Nogales to San Francisco, California. The Juan Bautista de Anza National Historic Trail commemorates the route taken by Anza in 1775-1776 when he led a group of colonists from Sonora, Mexico to the San Francisco Bay. The trail includes both an auto route and a continuous multi-use trail. The automobile portion of the route in the Sahuarita area traverses Mission Road and then links to I-19 at Continental Road.

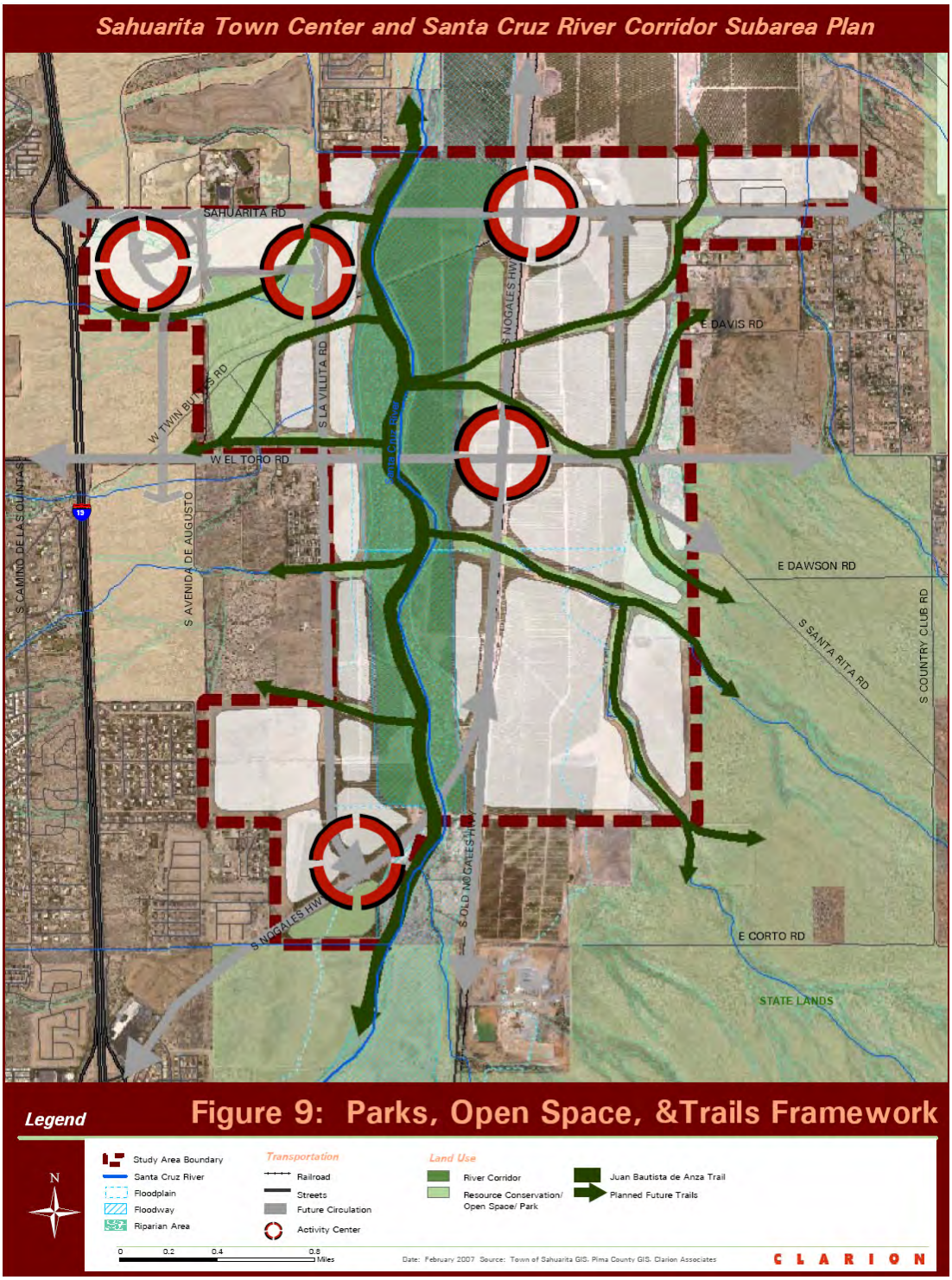
According to the *Sahuarita Town Center and Santa Cruz River Corridor, Adoption Draft Subarea Plan,* adopted February 9, 2007, the plan's open space and trails network will be focused on the Santa Cruz River Corridor, but will encompass and link surrounding development areas and the community. As shown in the Parks, Open Space and Trails Framework Map, the Juan Bautista de Anza Trail forms a focal point in the area, and planned future trails will provide connectivity to the Trail.

Part of the vision in the *Sahuarita Town Center and Santa Cruz River Corridor Adoption Draft Subarea Plan* (February 9, 2007) states:

"Strong linkages to the Santa Cruz River, the De Anza Trail, and the region's connected system of trails and open space will serve as an important part of our community's identity."

In addition the plan calls for a Santa Cruz River greenway / riverwalk to be established along the western bank of the Santa Cruz River. The greenway / riverwalk will consist of a series of terraced outdoor dining spaces, pedestrian walkways, and landscape gardens that highlight the river as an amenity and serve as a major community and regional attraction. Uses along the river will be designed to promote pedestrian activity. An illustration of this concept is provided in **Exhibit 2-19.**

Exhibit 2-19 – Sahuarita Area Parks, Open Space, and Trails Concept



Source: Sahuarita Town Center and Santa Cruz River Corridor Adoption Draft Subarea Plan

2.10 Transit Services

2.10.1 Existing Transit Services

Fixed Route Service

Route 421, the Green Valley / Sahuarita Connector, serves the Sahuarita area, and provides service between and locations in Sahuarita (Sahuarita Town Hall, Fry's, and Wal-Mart) and the Ronstadt and Laos Transit Centers, Bombardier, Raytheon Guard Shack, the Desert Diamond Casino, and Green Valley Village and Casa de Esperanza in Green Valley. There is a park and ride lot located at the Sahuarita Town Hall. A route map and schedule for the service is provided in **Exhibit 2-20.** The service operates Monday through Friday from 6 a.m. to 6 p.m. and on Saturday between 9 a.m. and 3 p.m. Fares are $1.25 for one-way curb to curb service. Discounted fares of $0.40 are available for seniors, persons with disabilities, low-income persons, and Medicare cardholders.

Dial-A Ride Service

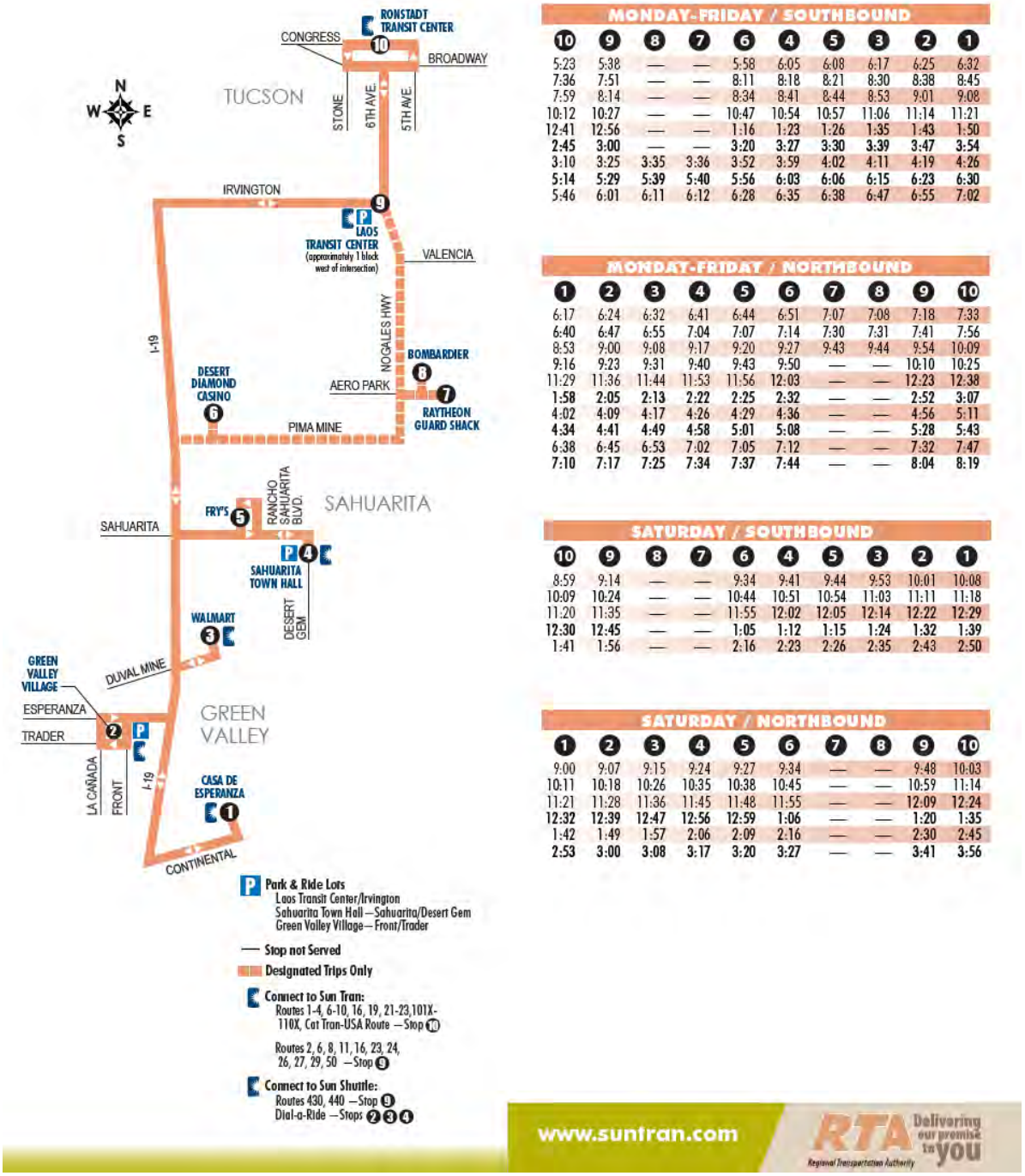
Sun Shuttle provides curb to curb dial-a-ride service in the Green Valley/Sahuarita-area indicated by the blue zone on the map in **Exhibit 2-21**. All trips require a reservation at least the day before the trip, and service is on a first-come, first –served basis. Fares vary depending on where one starts and ends the trip. Lower fares are also available if one boards at scheduled or optional stops (shown in **Exhibit 2-21** in red or yellow). The dial-a-ride hours of service are weekdays from 6 a.m. to 7 p.m. and Saturdays from 9 a.m. to 3 p.m.

2.11 Airports and Airparks

Two airparks are located in or near Sahuarita: the Flying Diamond Airpark and Ruby Star Airpark. The Flying Diamond Airpark located west of Mission Road and north of Ruby Star Ranch Road, has 100 home sites (minimum four acre) which surround a 2,800 foot paved runway. Ruby Star Airpark, located west of Magee Ranch Road, is a 640 acre site with large home sites that provide access to a 4,300 foot runway.

The closest airport, Tucson International Airport, is located approximately 20 miles north of Sahuarita and is accessible via I-19 and Nogales Highway.

Exhibit 2-20 – Route 421 – Green Valley / Sahuarita Connector



MONDAY-FRIDAY / SOUTHBOUND

10	9	8	7	6	4	5	3	2	1
5:23	5:38	—	—	5:58	6:05	6:08	6:17	6:25	6:32
7:36	7:51	—	—	8:11	8:18	8:21	8:30	8:38	8:45
7:59	8:14	—	—	8:34	8:41	8:44	8:53	9:01	9:08
10:12	10:27	—	—	10:47	10:54	10:57	11:06	11:14	11:21
12:41	12:56	—	—	1:16	1:23	1:26	1:35	1:43	1:50
2:45	3:00	—	—	3:20	3:27	3:30	3:39	3:47	3:54
3:10	3:25	3:35	3:36	3:52	3:59	4:02	4:11	4:19	4:26
5:14	5:29	5:39	5:40	5:56	6:03	6:06	6:15	6:23	6:30
5:46	6:01	6:11	6:12	6:28	6:35	6:38	6:47	6:55	7:02

MONDAY-FRIDAY / NORTHBOUND

1	2	3	4	5	6	7	8	9	10
6:17	6:24	6:32	6:41	6:44	6:51	7:07	7:08	7:18	7:33
6:40	6:47	6:55	7:04	7:07	7:14	7:30	7:31	7:41	7:56
8:53	9:00	9:08	9:17	9:20	9:27	9:43	9:44	9:54	10:09
9:16	9:23	9:31	9:40	9:43	9:50	—	—	10:10	10:25
11:29	11:36	11:44	11:53	11:56	12:03	—	—	12:23	12:38
1:58	2:05	2:13	2:22	2:25	2:32	—	—	2:52	3:07
4:02	4:09	4:17	4:26	4:29	4:36	—	—	4:56	5:11
4:34	4:41	4:49	4:58	5:01	5:08	—	—	5:28	5:43
6:38	6:45	6:53	7:02	7:05	7:12	—	—	7:32	7:47
7:10	7:17	7:25	7:34	7:37	7:44	—	—	8:04	8:19

SATURDAY / SOUTHBOUND

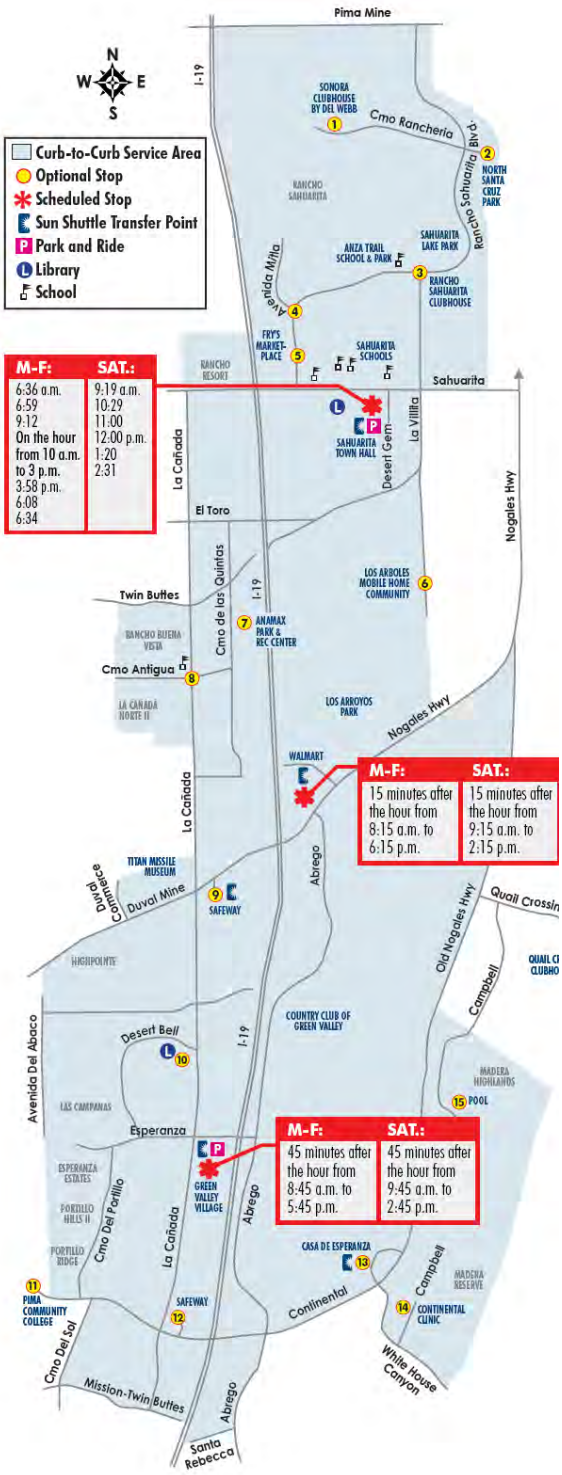
10	9	8	7	6	4	5	3	2	1
8:59	9:14	—	—	9:34	9:41	9:44	9:53	10:01	10:08
10:09	10:24	—	—	10:44	10:51	10:54	11:03	11:11	11:18
11:20	11:35	—	—	11:55	12:02	12:05	12:14	12:22	12:29
12:30	12:45	—	—	1:05	1:12	1:15	1:24	1:32	1:39
1:41	1:56	—	—	2:16	2:23	2:26	2:35	2:43	2:50

SATURDAY / NORTHBOUND

1	2	3	4	5	6	7	8	9	10
9:00	9:07	9:15	9:24	9:27	9:34	—	—	9:48	10:03
10:11	10:18	10:26	10:35	10:38	10:45	—	—	10:59	11:14
11:21	11:28	11:36	11:45	11:48	11:55	—	—	12:09	12:24
12:32	12:39	12:47	12:56	12:59	1:06	—	—	1:20	1:35
1:42	1:49	1:57	2:06	2:09	2:16	—	—	2:30	2:45
2:53	3:00	3:08	3:17	3:20	3:27	—	—	3:41	3:56

Source: Sun Tran

Exhibit 2-21 – Green Valley / Sahuarita Dial-a-Ride Service Area



Source: Sun Tran

2.12 Rail

2.12.1 Existing Rail Service

Union Pacific Railroad tracks cross the Town of Sahuarita, as well as railroad spurs that service the mining industry, as shown in **Exhibit 2-22**. Information on rail crossing and rail service was obtained from the ADOT *2007 Railroad Inventory and Assessment Report*, the Pima Association of Governments *Technical Memorandum #2 Final Report, Highway/Rail Road Crossings-A Toolbox of Strategies* (June 2006), and from the Union Pacific Railroad. Based on information obtained from the Union Pacific Railroad staff in March 2009, the following train volumes were reported:

- Number of trains and cars currently running on the UPRR lines through Sahuarita – There are 3 to 7 trains per day and 150 to 800 cars per day.
- Number of trains and cars currently running on the spur lines through Sahuarita – The rail service runs 6 days per week, with 25 to 50 cars per day. Discussion with ASARCO indicated there is one train per day.

The Union Pacific Railroad indicated that at this time there are no plans for double-tracking or other rail improvements in the Sahuarita area.

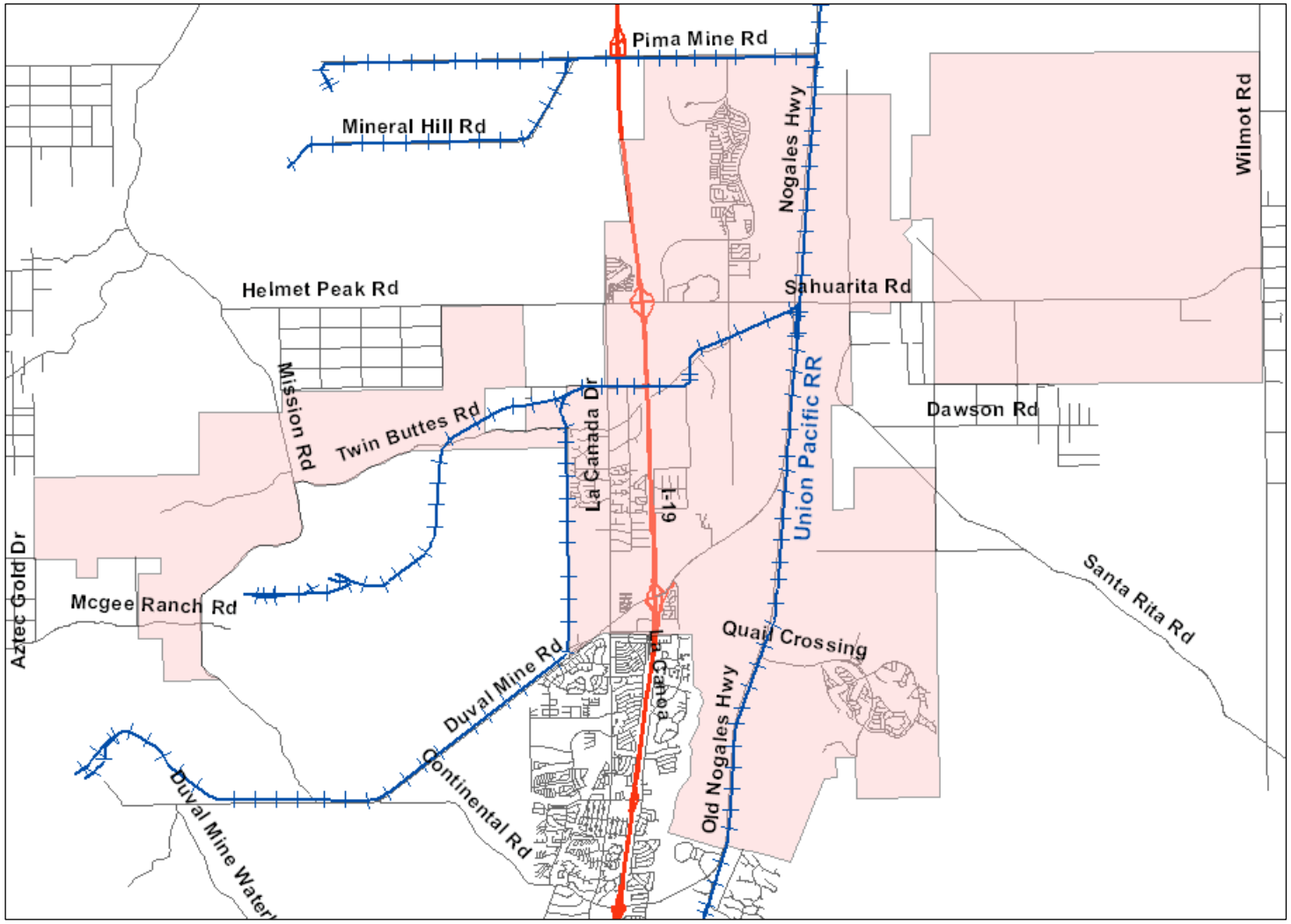
A summary of characteristics of at-grade crossings was prepared as part of the PAG *Technical Memorandum #2 Final Report, Highway/Rail Road Crossings-A Toolbox of Strategies* and these are excerpted for the Sahuarita area crossings in **Exhibit 2-23**. The locations of at-grade railroad crossings are shown in **Exhibit 2-24**.

2.12.2 Future Improvements

A draft summary of railroad crossing needs prepared by the Pima Association of Governments (October 7, 2007) noted that a railroad grade-separation on Sahuarita Road was a railroad crossing project need. A grade separated crossing of Sahuarita Road over the Nogales Highway and Union Pacific Railroad is a project on the *PAG 2011-2015 Transportation Improvement Plan*.

The *Arizona Multimodal Freight Analysis Study Technical Memorandum 2* (2008) recommended separating or eliminating at-grade rail crossings.

Exhibit 2-22 – Rail Lines in the Sahuarita Area



Source: 2007 State of Arizona Railroad Inventory and Assessment

Exhibit 2-23 – Railroad Crossing Characteristics in Sahuarita

Location	Railroad	Trains	Traffic Lanes	Speed	School Buses	Passive Devices	Flashers	Flashing Lights – Over Traffic (OV) / Not Over Traffic (NOV)	Bells	Crossbuck	Advance Signs	Markings	Other Signing / Markings	Devices
Sahuarita Rd.	UP Nogales	3-6 scheduled	2	40	20	DO NOT STOP ON TRACKS Sign (E) / 3 Track Sign (W)	1	1 (OV) / 1 (NOV)	2	2	W/E	RRXing Symbol (2E)	Stop Line (E/W)	Gates(2)
Tucson-Nogales Hwy.	UP Spur	2/day (ADOT #)	2	20	8	DO NOT STOP ON TRACKS Sign (N/S)	2		2	2	N/S	RRXing Symbol (N/S)	Stop Lines (N/S)	Gates(2)
La Villita Rd.	UP Spur	2/day (ADOT #)	2	20	10		2		2	2	S/N	RRXing Symbol (S/N)	Stop Lines (S/N)	Gates(2)
Twin Buttes Rd.	UP Spur	2/day (ADOT #)	2	20	0	Stop Signs (E/W)				2	E/W	RRXing (E/W)	Stop Lines (E/W)	Passive
El Toro/Twin Buttes	UP Spur	2/day (ADOT #)	2	20	0	Stop Signs (W/E)				2	W/E	RRXing Symb (W/E)	Stop Lines (W/E)	Passive
Camino De Las Quintas	UP Spur	2/day (ADOT #)	2	20	0					2				Passive
La Canada Dr.	UP Spur	2/day (ADOT #)	2	20	0	Parallel Tracks Sign - La Canada (N/S)	2		2	2	S/N	RRXing Symb (S/N)	Stop Lines (S/N)	Gates(2)
Twin Buttes Rd.	UP Spur	2/day (ADOT #)	2	20	0		2		2	2	W/E	RRXing Symb (W/E)	Stop Lines (W/E)	Gates(2)
Tucson-Nogales Hwy/Pima Mine	UP Spur	2/day (ADOT #)	2	10	8		1	1 (OV) / 1 (NOV)	2	2	N/S	RRXing Symb (N/S)	Stop Line (N/S/W)	Gates(2)
Quail Crossing Blvd.	UP Nogales	3-6 scheduled	4	40	0	Parallel Tracks Sign on Tucson/Nogales Hwy (S/N)	4		2	4	W	RRXing Symb (W/E)	Stop Line (W/E)	Gates(4)
Rancho Sahuarita Blvd, south of Pima Mine Road	UP Spur	2/day (ADOT #)	4	30	unknown	DO NOT STOP ON TRACKS Sign(2 signs) (S), 40 FEET BETWEEN TRACKS AND HIGHWAY Sign(S), Stop Signs (S), RAILROAD CROSSING SIGN (S), YIELD (S facing N),Highway-Rail Advance Warning sign(E/W)				1	S/E/W	RRXing Symb (S)	Stop Line (south)	Passive

Source: PAG Technical Memorandum #2 Final Report, Highway/Rail Road Crossings-A Toolbox of Strategies (June 2006)

Exhibit 2-24 – At-Grade Railroad Crossings

Source: Pima Association of Governments, 2007

2.13 Freight

Discussions with Town staff have indicated that Sahuarita Road is increasingly used by trucks as a bypass route between I-19 and I-10. Sahuarita Road intersects with SR 83, just south of I-10. Reasons for increased truck traffic on Sahuarita Road include avoiding congestion at the I-10/ I-19 traffic interchange and avoiding the United States Customs and Border Protection checkpoint on SR 83. Trucks also avoid these areas by using SR 82 and SR 83 (used for wide truck loads).

In the Arizona Multimodal Freight Analysis Study, *Technical Memorandum #1*, *Analysis of Freight Dependent Industries* (November, 2007), the study reports that nationally, truck traffic is projected to increase by 40% over the next 10 years, and some forecasts have suggested that freight volumes could double by the year 2035.

Exhibit 2-25 displays truck traffic volumes on Arizona highways resulting from commodity movements terminating within the PAG region. The graphic shows heavy truck traffic on I-10. Much of the freight moving across I-10 is to or from water ports, such as the ports of Los Angeles or Long Beach, or international border gateways.

There is also significant truck traffic on I-19, which is part of the Canamex Corridor, which links five U.S. states, a Canadian province, and four Mexican states. According to the *Mariposa / I-19 Connector Route Study* (December 2008) The Mariposa Port of Entry has experienced dramatic growth in traffic volumes, which will continue to increase, particularly after the planned expansion and upgrade of the Port of Entry occurs. Upon full build-out, the Port will be able to handle approximately three times the traffic volumes it handles at this time. The project to improve the Port of Entry, the Reconfiguration Project, was funded for construction in March 2009.

2.14 Access Management

The benefits of effective access management are:

- Lower overall crash rates
- Reduction of collisions involving pedestrians and bicyclists
- Improved roadway efficiency
- Better access to developments
- Elimination of cut-through traffic in residential areas
- Shorter traffic delays

The Town of Sahuarita adopted Access Management Guidelines in May 2004 to “provide access to land development while simultaneously preserving the flow of traffic on the surrounding street system in terms of safety, capacity and speed.” The Town access management guidelines include the following subject areas:

- Functional classification - The following roads are classified as principal arterials in the town: Nogales Highway, Old Nogales Highway, Sahuarita Road, Duval Mine Road, Pima Mine Road, and La Canada Drive.

Exhibit 2-25 – Highway Volumes for Truck Tons Terminating in the PAG Region, 2005

Source: Wilbur Smith Associates, Arizona Multimodal Freight Analysis Study, Technical Memorandum 1

- Objectives of access management in the Town - This section discusses spacing of access points and their impacts on the operational efficiency and safety performance of the roadway. In general, signalized intersections and full-access median openings should be spaced approximately every 2,640 feet (1/2 mile), but no less than 1,320 feet (1/4 mile). Guidelines for the spacing of unsignalized intersections and other access points are also provided.

- Traffic impact analysis (TIA) - For TIAs the Town has adopted ADOT's policy which requires a TIA for any development that generates over 100 gross trips during the peak hour.

- Turn lane warrants - Turning lanes expedite the movement of through traffic, increase the intersection capacity and promote the safety of all traffic. The warrants for turning lanes are based on through volumes, turning volumes and posted speeds.

3. FUTURE ROADWAY CONDITIONS

3.1 2040 Base Roadway Network

A 2040 base transportation network was developed considering input from the public, stakeholders, technical advisory committee members, and socioeconomic and roadway information in available plans and studies. The 2040 base transportation network represents the existing transportation network, improvements identified in the PAG 2030 Long Range Transportation Plan, and a basic representation of roadways that will likely be constructed to provide access to future development. Key inputs to the 2040 base transportation network are:

- PAG 2030 Regional Transportation Plan (RTP) Projects, amended list of 7/18/2006
- PAG 2040 Regional Transportation Plan (RTP), Fiscally Constrained Project List – Local Jurisdiction Projects, 2040 RTP Roadways Reserve Project List: Pima Association of Governments is nearing the final stages of developing the 2040 RTP. The preliminary project list and reserve project list were reviewed and projects applicable to the Town of Sahuarita were identified and included in the recommended roadway improvements.
- Roadway improvements as identified in traffic studies for major planned developments, including Verano, Rancho Sahuarita, Town Center, and other planned developments.
- Limited roadway projects to support major planned developments or development in areas that currently have no roadways:
  - Extension of Camino Rancheria to Pima Mine Road
  - Extension of Country Club Road from Sahuarita Road to Pima Mine Road
  - A new two-lane roadway on the alignment extension of Swan Road between Sahuarita Road and Pima Mine Road
  - A new east-west two-lane roadway (“New Road A”) in between Pima Mine Road and Sahuarita Road to connect Santa Rita Road and Wilmot Road

Exhibit 3-1 depicts the assumed base roadway laneage for Sahuarita area roadways. The 2040 base transportation network was analyzed to identify future roadway deficiencies and to form a basis for the development of projects to address the identified deficiencies.

Exhibit 3-2 shows 2040 traffic volumes on existing roadways as projected by travel demand modeling of the 2040 base transportation network. Also identified on **Exhibit 3-2** are congestion levels based on the following volume-to-capacity ratios:

- Severe congestion: Volume to capacity ratio (V/C) greater than 1.0 (LOS E-F)
- Heavy congestion: V/C ratio greater than 0.75 and less than 1.0 (0.75 < V/C <= 1.0) (LOS D)
- Moderate/low congestion: V/C ratio less than or equal to 0.75 (V/C <= 0.75) (LOS A-C)

Existing roadway segments for which 2040 traffic volumes are projected to exceed roadway existing capacity are depicted in **Exhibit 3-2**. These are summarized below.

<u>East-West Road Segments</u>

- Pima Mine Road, I-19 to Nogales Highway
- Sahuarita Road, La Canada Drive to east of Wilmot Road
- Duval Mine Road, La Canada Drive to I-19
- Nogales Highway, I-19 to Old Nogales Highway

North-South Road Segments

- Nogales Highway, I-19 to Pima Mine Road
- Wilmot Road, Sahuarita Road to I-10 (outside of the study area)
- Rancho Sahuarita Boulevard, La Villita Road to Pima Mine Road
- La Villita Road, Sahuarita Road to Rancho Sahuarita Boulevard.
- La Canada Drive, El Toro Road to Sahuarita Road
- I-19, throughout the study area

3.2 Recommended 2040 Roadway Network

A 2040 recommended roadway network was developed to address deficiencies identified in the 2040 base transportation network. The recommended network considers stakeholder input, and was developed collaboratively with the Town of Sahuarita staff. The 2040 recommended road network is shown in **Exhibit 3-3**. **Exhibit 3-3** displays the recommended number of lanes and street width. Resulting 2040 congestion levels are shown in **Exhibit 3-4**. Similar to **Exhibit 3-2**, these congestion levels are based on the following volume to capacity ratios:

- Severe congestion: Volume to capacity ratio (V/C) greater than 1.0 (LOS E-F)
- Heavy congestion: V/C ratio greater than 0.75 and less than 1.0 (0.75 < V/C <= 1.0) (LOS D)
- Moderate/low congestion: V/C ratio less than or equal to 0.75 (V/C <= 0.75) (LOS A-C)

The 2040 recommended roadway network provides adequate capacity for anticipated development with the exception of the following areas:

Interstate 19 – Interstate 19 is projected to operate with congestion based on 2040 projected traffic volumes. Interstate 19 is modeled as a six lane facility which is consistent with the Draft 2040 Regional Transportation Plan, which lists I-19 widening projects between Continental Road and Valencia Road (these are broken into two segments - Continental Road to El Toro Road and El Toro Road to Valencia Road).

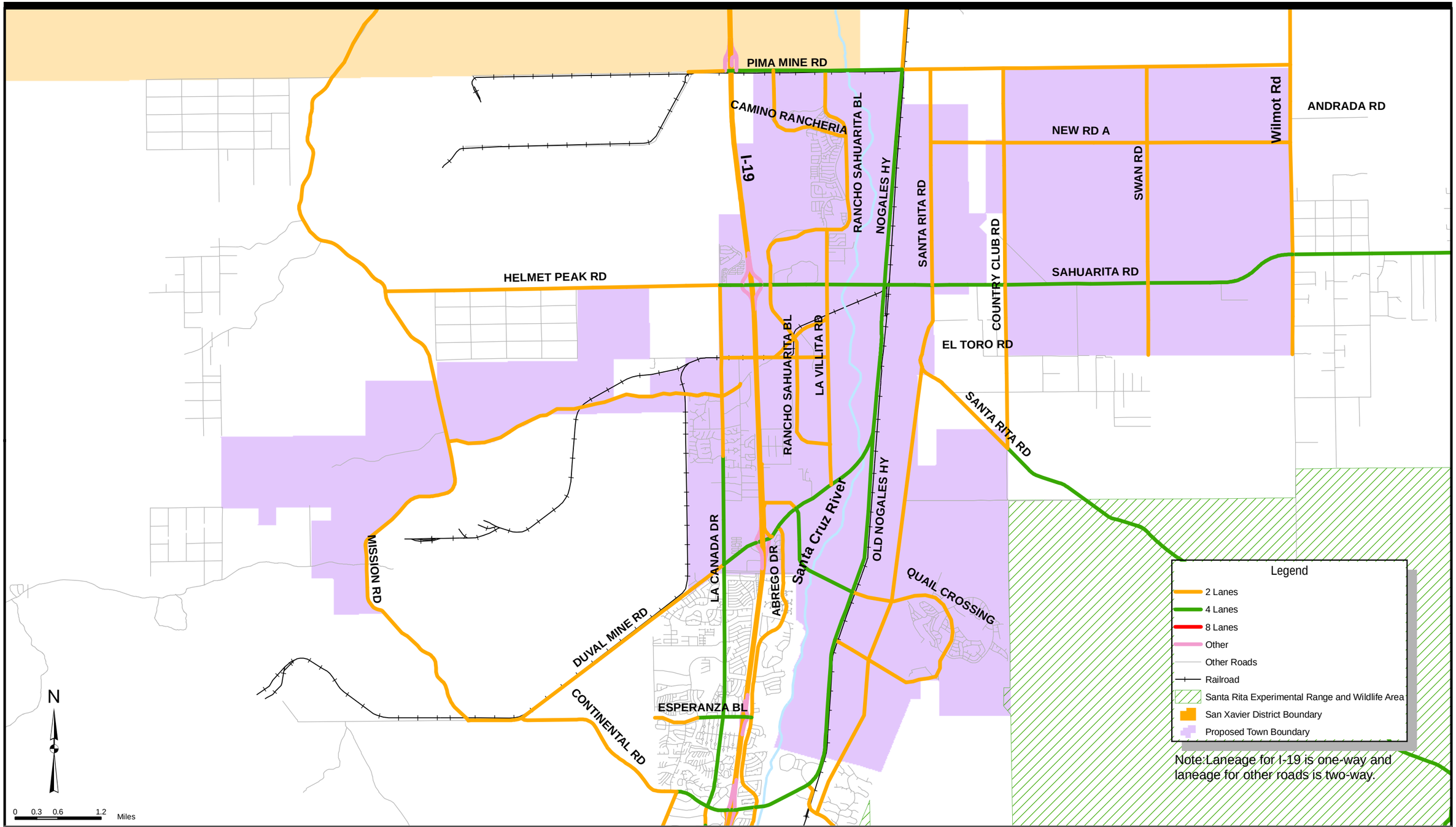
Sahuarita Road – Sahuarita Road, proposed as a six lane facility between I-19 and Wilmot Road, shows congestion between Swan Road and beyond the project limits at Wilmot Road.

Pima Mine Road – Pima Mine Road, proposed as a six-lane facility between I-19 and Wilmot Road, attracts high volumes of traffic and exhibits congestion between I-19 and beyond the project limits at Wilmot Road. It is anticipated that some of this traffic will shift to parallel southern routes (e.g. Roads A and B) as congestion increases.

Nogales Highway – Nogales Highway, proposed as a six-lane facility between Sahuarita Road and Pima Mine Road, is congested between Sahuarita Road and Pima Mine Road within the study area. It is anticipated that some of this traffic will shift to Santa Rita Road in the future**.**

Kimley-Horn and Associates, Inc.

2040 KHA Basic Model Number of Lanes

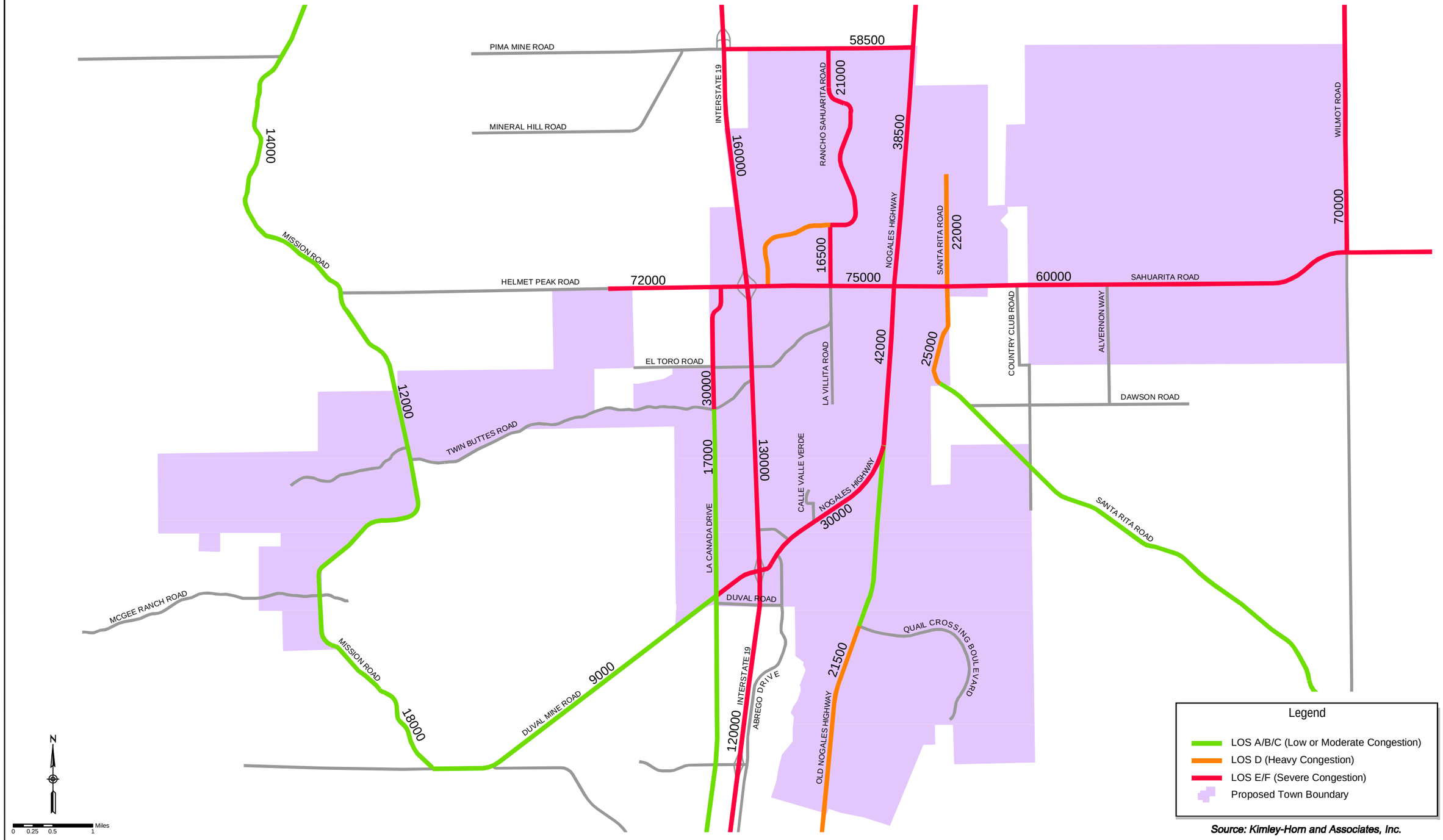


Sahuarita Transportation Study

Exhibit 3-1

Kimley-Horn and Associates, Inc.

2040 Forecast Traffic Volumes and Congested Roadway Segments on Existing Streets



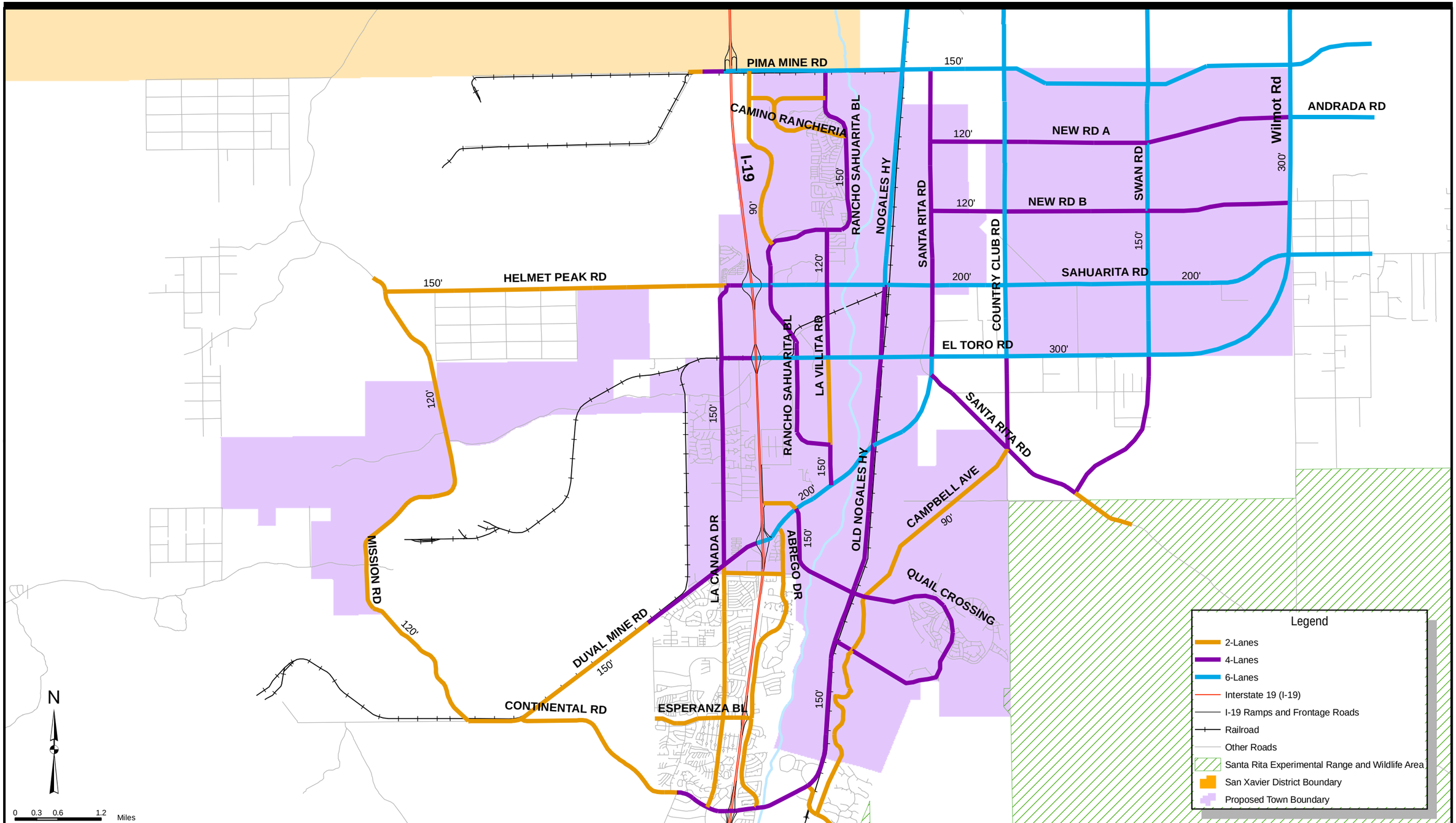
Source: Kimley-Horn and Associates, Inc.

Sahuarita Transportation Study

Exhibit 3-2

Kimley-Horn and Associates, Inc.

2040 Recommended Roadway Network Number of Lanes

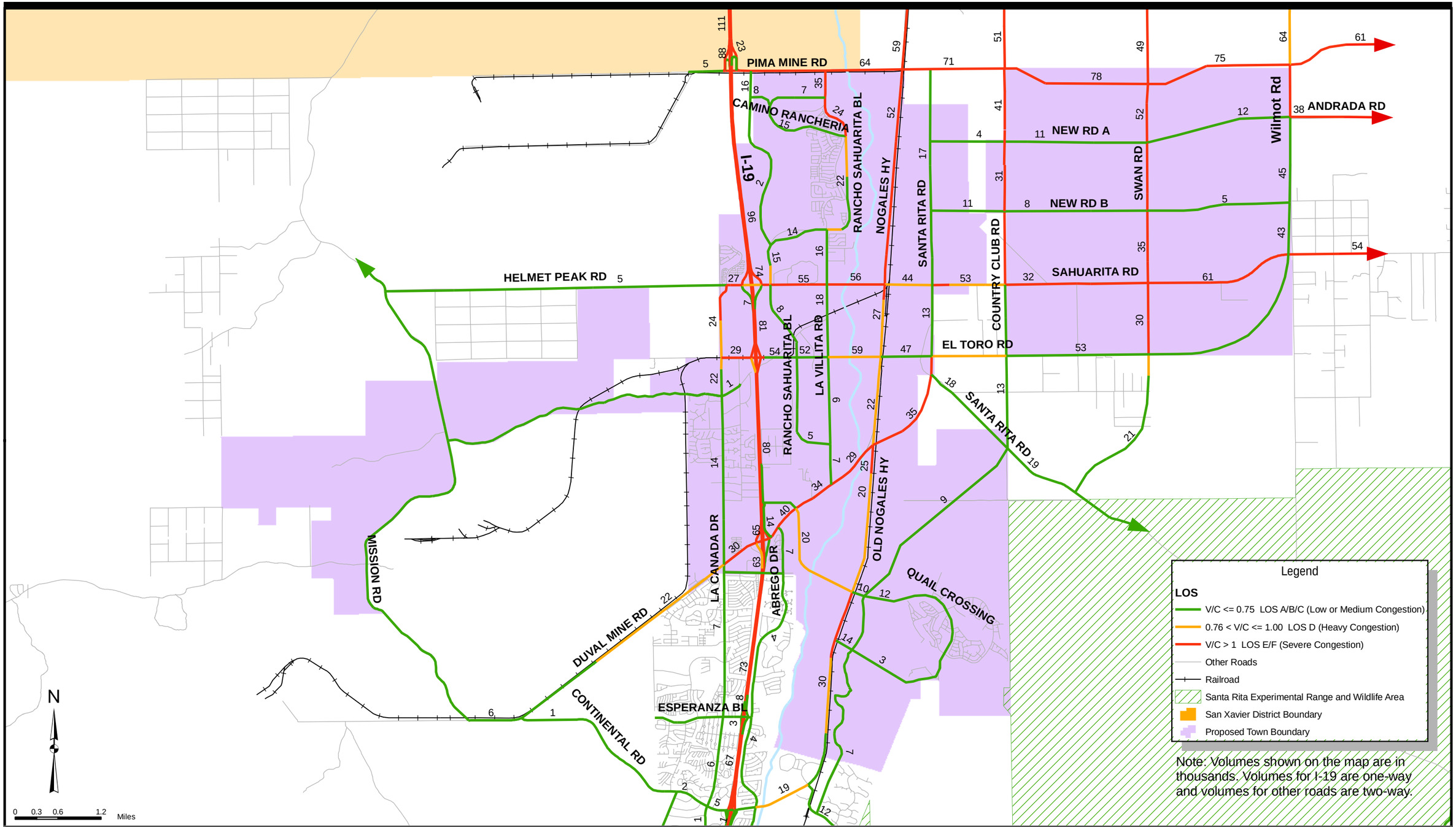


Sahuarita Transportation Study

Exhibit 3-3

Kimley-Horn and Associates, Inc.

2040 Recommended Roadway Network Forecast Traffic Volumes and Congested Roadway Segments



4. ROADWAY PLAN

Roadway improvement projects were developed based on the 2040 recommended transportation network, and identified safety needs on streets and intersections. The proposed road improvements projects provide connectivity to existing and planned land uses within the Town, provide improved regional connectivity, and address future capacity needs.

4.1 Recommended Roadway Projects

Exhibit 4-1 lists recommended roadway improvement projects. These projects were developed from the needs indicated from the 2040 travel demand modeling, and from the stakeholder and public input.

A number of these projects are part of the current *Draft Pima Association of Governments 2040 Regional Transportation Plan*. The status of these projects are noted in the plan (e.g. whether the project is listed in the early, middle or late timeframe), and costs shown in the RTP are noted.

Exhibit 4-1 includes estimated project costs. Costs as contained in the *Draft Pima Association of Governments 2040 Regional Transportation Plan* are provided where available. Construction costs for projects not included in the *Draft Pima Association of Governments 2040 Regional Transportation Plan* were assumed at $2,000,000 per lane mile, based on recent analysis completed for the Southwest Infrastructure Study (Final Draft, Technical Memorandum #1, December 22, 2008).

Exhibit 4-1 – Recommended Roadway Projects

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Draft 2040 RTP Status (1)
New Road A	New 4-lane road	Santa Rita Road Extension to Wilmot Road	5.07	$41,000	Capacity need	Not included
New Road B	New 4-lane road	Santa Rita Road extension to Wilmot Road	5.02	$40,000	Capacity need	Not included
Campbell Avenue	New 2-lane roadway	Quail Crossing Boulevard to Santa Rita Road extension	2.93	$18,000 (Quail Crossing Boulevard - Sahuarita Rd.) (RTP)	Capacity need	Early Timeframe
Country Club Road extension	New 6-lane roadway	Sahuarita Road to Pima Mine Road	3.02	$36,000	Capacity need	Not included
Country Club Road extension	Widen from 2 to 6-lanes	Sahuarita Road to El Toro Road	0.99	$11,845	Capacity need	Listed as Reserve project segment from Camino Aurelia to Pima Mine Road
Country Club Road extension	Widen from 2 to 4-lanes	El Toro Road to Santa Rita Road	1.29	$5,000	Capacity need	Not included
Duval Mine Road	Widen from 3 to 4-lanes	West Town Boundary to La Canada Drive	0.62	$1,250	Capacity need	Not included

Exhibit 4-1 - Recommended Roadway Projects (continued)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Draft 2040 RTP Status [1]
New Road C (Santa Rita Road Extension)	New 6-lane roadway	Old Nogales Highway to Santa Rita Road	1.37	$16,500	Capacity need	Not included
Duval Road/ Duval Mine Road/La Canada Drive Safety Assessment	Duval Road (La Canada Drive to I-19), and Duval Mine Road (La Canada Drive to I-19)	Duval Road/ Duval Mine Road/La Canada Drive area	N/A	$ 30	Safety and access need	Not Included
El Toro Road	Part 1 Sahuarita, new 2-lane roadway with sidewalks and multi-use lanes	La Canada to La Villita	1.50	$5,014 (RTP)	Capacity need	Middle timeframe
El Toro Road	Widen from 2 to 6-lanes	La Canada to La Villita Road	1.49	$17,900	Capacity need	Not included
El Toro Road	New 6-lane roadway	La Villita Road to Wilmot Road	7.22	$86,600	Capacity need	Not included
I-19 East Frontage Road	Realign and reconstruct	S ¼ corner of Sec 26,T17S,R13E to Nogales Highway	0.50	$1,100 (RTP)	Capacity need	Early timeframe
La Canada Drive	Widen to 4 lanes	Camino Sueno de Sahuarita to north of El Toro Road	2.87	$12,162 (RTP)	Capacity need	Middle timeframe
La Villita Road	Construct new 2–lane roadway with bike lanes, curb and gutter and sidewalks	Sahuarita Rd. to Nogales Highway	2.80	$6,004 (RTP)	Capacity need	Middle timeframe
La Villita Road	Widen from 2 to 4 lanes	El Toro Road to Rancho Sahuarita Road	1.78	$7,000	Capacity need	Not included
Nogales Highway	Road safety assessment	Calle Valle Verde to Old Nogales Highway	N/A	$ 30	Safety need	See Note 1
Nogales Highway	Widen to 6 – lanes	I-19 to Old Nogales Highway	2.17	$26,011	Capacity need	See Note 1
Nogales Highway	Widen from 2 to 6-lanes	Sahuarita Road to Pima Mine Road	3.01	$36,157	Capacity need	See Note 1
Nogales Highway	Widen from 2 to 4 lanes	Sahuarita Road to Old Nogales Highway	2.24	$8,975	Capacity need	See Note 1
Old Tucson Nogales Highway corridor	Widen to 4 lanes, including new Santa Cruz Bridge	Continental Road to Nogales Highway	4.90	$49,000 (RTP)	Capacity need	Middle timeframe

Exhibit 4-1 - Recommended Roadway Projects (continued)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Draft 2040 RTP Status (1)
Old Nogales Highway	Install center reflectors	Nogales Highway to Quail Crossing Boulevard	2.25	To Be Determined	Safety need	Not Included
Pima Mine Road #1	Widen from 2 to 4 lanes	I-19 to Nogales Highway	2.40	$22,000 (RTP)	Capacity need	Middle timeframe
Pima Mine Road	Widen from 4 to 6 lanes	I-19 to Nogales Highway	2.41	$9,600	Capacity need	Not included
Pima Mine Road	New 6-lane road	Nogales Highway to Wilmot Road	5.52	$66,300	Capacity need	New 4-lane road from Nogales Highway to Wentworth Road listed as late period project. Pima County listed as sponsor
Quail Creek Boulevard extension	New 4-lane roadway with new Santa Cruz River Bridge	Old Nogales Highway to Nogales Highway	1.61	$11,500 (RTP)	Access need -in 2030 RTP	Late timeframe
Rancho Sahuarita Boulevard	Signal warrant studies		N/A	$ 30	Traffic control need	Not included
Rancho Sahuarita Boulevard	Widen from 2 to 4 lanes	La Villita Road to 4-lane section at Calle Vista Larga	2.41	$9,600	Capacity need	Not included
Rancho Sahuarita Boulevard	New 4 lane roadway	Sahuarita Road to El Toro Rd	1.2	$7,000	Capacity need	Early timeframe
Rancho Sahuarita North-South connector	New 2-lane Road	Rancho Sahuarita Boulevard to Pima Mine Road	2.62	$10,500	Capacity need	Not included
RR grade separation @ Sahuarita Road	Construct grade separation	East of Nogales Highway	N/A	$25,000 (RTP)	Safety need	Late timeframe
Sahuarita Road #1	Widen from 4 to 6 lanes	La Canada Drive to La Villita Road	1.50	$15,000 (RTP)	Capacity need	Middle timeframe
Sahuarita Road #2	Widen from 2 lanes to 4-lane divided arterial	La Villita Road to Country Club Road	2.40	$ 56,500 (RTP)	Capacity need	Early timeframe
Sahuarita Road #3	Widen from 2 to 4 lanes	Country Club Road to SR 83	15.25	$155,000 (RTP)	Capacity need	Middle timeframe (Pima County sponsor)
Sahuarita Road	Widen from 4 to 6 lanes	La Villita Road to Wilmot Road	6.55	$26,000	Capacity need	Not Included
Santa Rita Road	Widen from 2 to 4-lane roadway	New Road C to Swan Road extension	2.63	$10.500	Capacity need	Not included (see note 4)

Exhibit 4-1 - Recommended Roadway Projects (continued)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Draft 2040 RTP Status (1)
Santa Rita Road	Widen existing section and construct new 4-lane section	Pima Mine Road to New Road C	4.26	$17,000	Capacity need	Not included
Speed limit study	Study to set speed limits	La Canada Drive (El Toro Rd to Sahuarita Rd) and Sahuarita Rd(La Canada to La Villita Rd) and Nogales Highway (Pima Mine Rd to Sahuarita Rd)	N/A	$ 30	Safety need	Not included
Swan Road extension	New road - 6 lanes from Pima Mine Road to El Toro Road, 4 lanes from El Toro Road to Santa Rita Road	Pima Mine Road to Santa Rita Road	6.13	$64,205	Capacity need	See Note 3
Wilmot Road	Widen from 2 to 6-lanes	Pima Mine Road to El Toro Road connection at Sahuarita Road	2.64	$31,630	Capacity need	See Note 2

Source: Draft 2040 PAG Regional Transportation Plan
Note 2: 2040 Draft RTP includes Wilmot Road #2, new 2 lane roadway from Sahuarita Road to 6 miles north, cost - $9.8 M, no timeframe listed. The sponsor for this project is listed as Pima County.
Note 3: 2040 Draft RTP includes Swan Road, new 4 lane divided parkway from Santa Rita Road to Valencia Road, $146 M, Late timeframe. The sponsor for this project is listed as Pima County.
Note 4: 2040 Draft RTP includes Santa Rita Road improvements from Swan Road to Sahuarita Road; cost $5M, late timeframe. The sponsor for this project is listed as Pima County.

The Draft PAG 2040 Regional Transportation Plan also included a number of Interstate 19 projects that were included in the 2040 travel demand modeling for the Sahuarita area. These projects are:

- I-19, Continental Road to El Toro Road – widen to 6-lanes
- I-19, El Toro Road to Valencia Road – widen to 6-lanes
- I-19 / Sahuarita Road interchange – reconstruct traffic interchange
- I-19 /Pima Mine Road interchange – reconstruct interchange and widen Pima Mine Road to 4-lanes east of north ramp to casino entrance (the 2040 travel demand model includes 6-lanes on Pima Mine Road between I-19 and Wilmot Road).

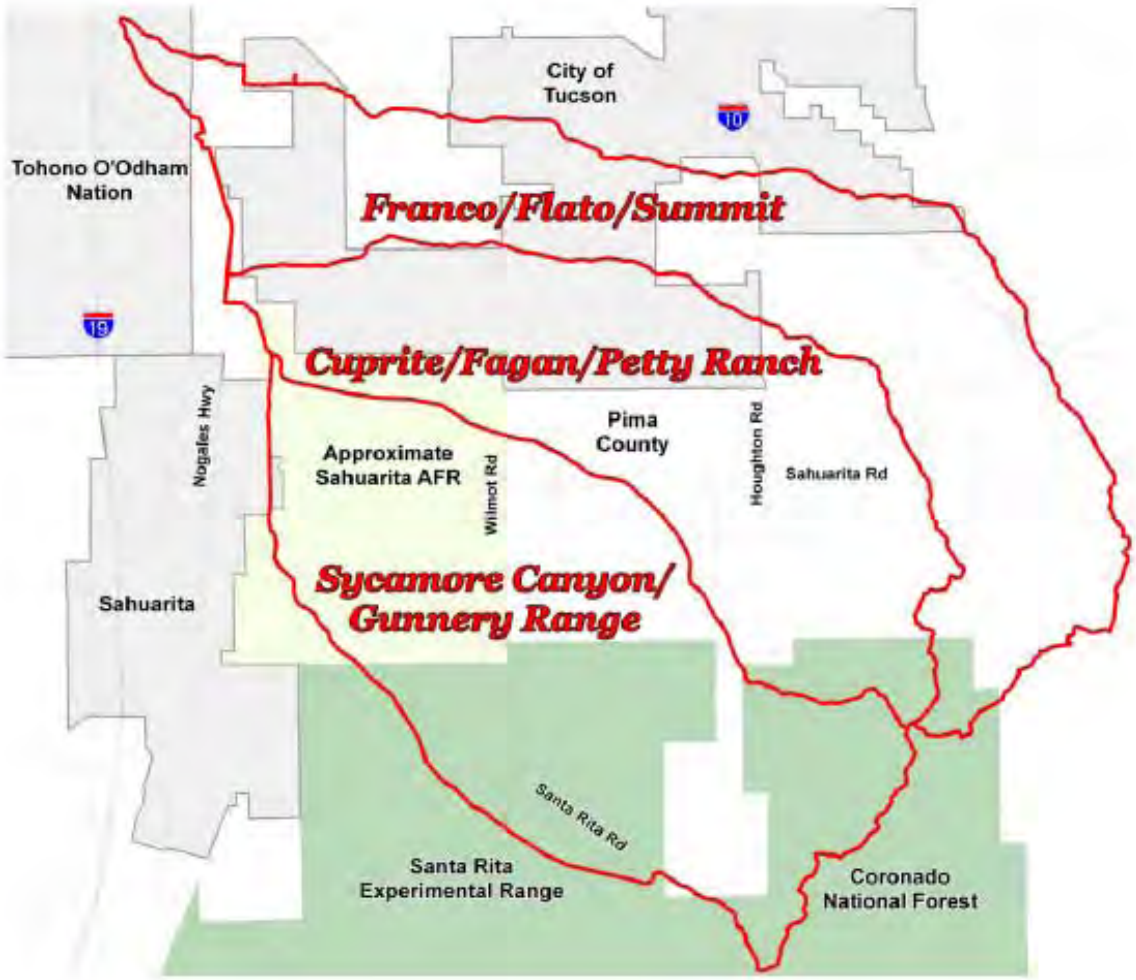
There are currently no programmed projects to construct a new traffic interchange at El Toro Road. As El Toro Road is eventually constructed, the feasibility of an El Toro Road interchange at I-19 should be investigated. An interchange at this location would be approximately one mile south of Sahuarita Road and 2.5 miles north of the I-19 /Duval Mine Road exit.

4.2 Lee Moore Wash Basin Management Study Implications

The Lee Moore Wash study area is located in the southeast portion of Pima County and includes a portion of the City of Tucson and the Town of Sahuarita. All watercourses within the study watershed ultimately

discharge to the Lee Moore Wash or the Santa Cruz River. The watershed for the study area consists of eight tributaries, generally known as Gunnery Range Wash, Sycamore Canyon Wash, Fagin Wash, Cuprite Wash, Petty Ranch Wash, Flato Wash, Summit Wash and Franco Wash, as shown in **Exhibit 4-2**.

Exhibit 4-2 – Lee Moore Wash Area and Major Watersheds



Source: Lee Moore Wash Basin Management Study- Summary Report, Stantec, September 2009

The Lee Moore Wash Basin Management Study was completed in September, 2009, and is intended to provide guidance and regulatory authority to discourage development in floodprone areas by minimizing encroachments into regional floodplains and establishing a watershed wide "backbone" drainage system, primarily by employing a natural flow corridor concept.

The Sahuarita Transportation Study project team coordinated with Pima County staff to determine constraints on development of new roads in the Lee Moore Wash area. In particular, the Lee Moore Wash Basin Management Study had recommended that Swan Road not be constructed between Pima Mine Road and Sahuarita Road, because of the costs to construct drainage improvements in this area. However, discussions with Pima County and Sahuarita staff have indicated that it is acceptable to recommend a road connection in this area to address anticipated transportation demands. However, it should be noted that it will be expensive to build this road.

The Lee Moore Wash study established development criteria for roadway crossings, which are:

"3.1.1 Criteria

a. Roadway alignments shall be designed so that runoff collected by the roadway is conveyed to its historic flow path to the maximum extent possible. Roadways shall be designed so as not to divert flows, unless it can be shown that the diversion will have minimum impact on the natural functioning of the subject watercourse.

b. Roadway crossings should be designed so that the road alignment is perpendicular to the watercourse in order to minimize disruption to the floodplain. New roads shall be aligned to minimize placement of pavement within designated flow corridors.

c. Roadway crossings are discouraged at locations where the watercourse is braided. Where braided watercourses must be crossed, wide or multiple crossings that minimize flow contraction and disruption of sediment balance are recommended.

d. Roadway crossings should be designed to minimize downstream scour, minimize the risk of erosion of roadway approaches, and maintain sediment balance up to the bank-full discharge. Scour protection is required to assure structural stability.

e. All crossings, regardless of type, should be designed to minimize the disruption of sediment – transport balance upstream and downstream of the crossing."

5. PUBLIC TRANSPORTATION PLAN

5.1 PAG High Capacity Transit System Plan Recommendations

Recommendations for transit and rail improvements are based on input from the *PAG High Capacity Transit System Plan* (September 2009), which has been integrated into the PAG Draft 2040 Regional Transportation Plan.

The Statewide Rail Framework Study will make recommendations for statewide rail passenger improvements. Results from this study were not available during report preparation.

A high-capacity transit (HCT) system carries a greater volume of passengers than a standard bus system by using larger vehicles and/or more frequent service. The main goal of high capacity transit is to provide faster, more convenient and more reliable service for a larger number of passengers. With rising gas prices and increased awareness about global climate change, high capacity transit services are gaining popularity.

The Pima Association of Governments developed the *PAG High Capacity Transit System Plan* (September, 2009). Recommendations from this study relating to the Sahuarita area are summarized below.

Commuter Rail Transit

Commuter rail transit is proposed as a long-term high capacity transit service connecting the Towns of Marana, Sahuarita, and Vail with Tucson. Characteristics of this service are high operating speeds with few stops. Planning for this service is being carried out by ADOT as part of a larger rail planning effort that is looking at commuter rail between Tucson, Phoenix, and Flagstaff. As a precursor to rail, implementation of a Bus Rapid Transit line between Sahuarita, Raytheon, and downtown Tucson would likely be implemented before rail. This service is described in **Exhibit 5-1**.

Exhibit 5-1 – Commuter Rail Transit Example

Source: PAG High Capacity Transit System Study, 2009

Bus Rapid Transit Service

Bus rapid transit (BRT) service features include modern low-floor buses, signal priority at intersections, maximum off-vehicle fare collection, reduced headways, real-time information displays, and modern stations. This service typically provides fewer stops, more frequent service, and longer trips compared to local bus service. It has significantly lower implementation and operations cost compared to Light Rail transit and it encourages transit-oriented development. A Sahuarita/Tucson Bus Rapid Transit line would likely begin at Continental Road in Green Valley and could either run on I-19 or Old Nogales Highway. An Old Nogales Highway route would have a longer travel time but would allow for better service to

Raytheon, the Tucson International Airport, and downtown Tucson. Bus rapid transit service along Old Nogales Highway will likely run in general purpose lanes with transit signal priority provided. If service is provided on I-19, then park - and - ride facilities would likely be located near Sahuarita Road. This service is described in **Exhibit 5-2**.

Exhibit 5-2 – Bus Rapid Transit Example

Source: PAG High Capacity Transit System Study, 2009

Implementation Plan

The implementation plan for transit and rail can be summarized as follows:

- Continuation of the new circulator and connector transit service. The deviated ride feature support use of this service as a paratransit service.
- Provide amenities to support the new transit service, such as bus shelters, and park and ride lots.
- Provide express bus service, per the RTA Plan.
- Provide bus rapid transit service and commuter rail services as a long term projects.

A general recommendation is to provide bus pullouts during the design of new projects.

Exhibit 5-3 summarizes the proposed implementation plan for high capacity transit for the Sahuarita area. The time frames used are Near-Term (0-10 years), Mid-Term (10-20 years), and Long-Term (>20 years).

Exhibit 5-3 – Proposed Implementation of High Capacity Transit Plan

Route	High Capacity Transit Mode	Near term (0-10 years)	Mid-Term (10-20 years)	Long-Term (greater than 20 years)
I-19, Sahuarita to Downtown	Express Bus	√		
	Bus Rapid Transit		√	
	Commuter Rail Transit			√

Source: PAG High Capacity Transit System Plan – Final Report, June 2009 Kittelson and Associates

Recommended transit and rail projects are summarized in **Exhibit 5-4**.

Exhibit 5-4 – Recommended Transit and Rail Projects

Project Name	Location	Cost (in 000s)	Justification	Draft 2040 RTP Status
Short Range And Medium Range Projects (1-10 years)				
Improve Circulator System	Sahuarita / Green Valley	To Be Determined; 197,600 (region-wide)	Part of RTA Plan	Committed- all timeframes; assumed part of paratransit service expansion
Sun Tran Existing Operations and Maintenance	Sahuarita / Green Valley	To Be Determined; $ 1,952,000 (region-wide)		Committed; Assumed part of Sun Tran existing operations and maintenance
Bus shelters	Sahuarita	To Be Determined; $2,850 (region-wide)	Locations to be determined	Committed- all timeframes
Commuter Rail Study	Downtown Tucson to Sahuarita / Green Valley	5,000 (RTP)	Determine feasibility and implementation of commuter rail service	Committed– listed in Middle timeframe
Sun Tran Express Bus Service Expansion	Green Valley / Sahuarita to Raytheon/downtown	To Be Determined; $78,420 (RTP) allocated region-wide	Part of RTA Plan	Committed- all timeframes; assumed part of express bus service expansion
Long-Range (10-30 years)				
High Capacity Transit Enhancements (Bus Rapid Transit)	To be determined	To Be Determined; $10,000 (region-wide)	Supports high capacity enhancements may be predecessor to a commuter rail service	Committed –all timeframes
Park and Ride Lots (I-19/ Sahuarita Road)	Depending on the High Capacity Transit Corridor, this could be at I-19 / Sahuarita Road or on Old Nogales Highway	To Be Determined; $6,000 (region-wide)	Part of PAG High Capacity Transit Study Infrastructure Planning Recommendations	Reserve Project
Commuter Rail to Sahuarita / Green Valley	Sahuarita / Green Valley to Downtown	$ 345,250	Provide high capacity service between city centers	Not included
Regional Component of Tucson/Nogales Passenger Rail	Southern border of Pima County to downtown Tucson , using existing UP Rail Line	$ 604,188	Provide high capacity service between city centers	Reserve Project; ADOT sponsor

6. BICYCLE AND PEDESTRIAN PLAN

As arterial and collector road projects are constructed through the road program, they will include provisions for bike lanes and sidewalks if designed to an urban cross section. Over time, this transportation plan will provide the Town with an extensive and interconnected system of bike routes, multiuse paths, and sidewalks.

During the initial stage of the project there were needs expressed for a well-connected system of trails, sidewalks, and bicycle facilities in the Town. In particular, providing connections to the Juan Baptista de Anza Trail and the Town Center area were important goals.

An important RTA funded project that will benefit bicyclists and pedestrians is a shared-use path for the Santa-Cruz River Park, from Pima Mine Road to Sahuarita Road. This shared use path will be part of a larger shared use path along the Santa Cruz River.

Recommended bicycle and pedestrian projects (**Exhibit 6-1**) were developed based on conformance with the *PAG Regional Plan for Bicycling* (approved September 2009), the Town Center Plan, and Town of Sahuarita Draft Parks, Recreation, Trails and Open Space Plan. In addition, new roadway facilities are assumed to incorporate bike lanes and sidewalks if designed to an urban cross section.

Exhibit 6-1 – Recommended Bicycle and Pedestrian Projects

Project Name	Description	Location	Cost Cost (in 000s)	Justification	Draft 2040 RTP Status
Short–Range and Medium Range Projects (1-10 years)					
La Villita Road bike lanes	Construct bike lanes	Sahuarita Road to Rancho Sahuarita Boulevard	$420 (RTP)	Connects large residential area to commercial and government land uses. Recommended as part of PAG Regional Bike Plan	Proposed
Quail Connector Trail	Construct shared use path	Quail Crossing to Abrego Drive	$750 (RTP)	Connect Quail Creek and Stone Canyon residential areas to commercial land uses. Recommended as part of PAG Regional Bike Plan	Proposed
Sahuarita Road #5 bike lanes (1.2 miles)	Construct bike lanes	Santa Rita Road to Alvernon	$420 (RTP)	Joint project with Pima County Plan status in PAG Bike Plan is a Reserve Project	Proposed
Sahuarita Bikeways	Construct bikeways	To be determined	$420 (RTP)	fill in gaps in the system	Reserve Project
Sahuarita non-urban shared use path	Construct shared use paths	To be determined	$ 6,758 (RTP)	Create more shared use paths in non-urban areas	Reserve Project

Exhibit 6-3 – Recommended Bicycle and Pedestrian Projects (continued)

Project Name	Description	Location	Cost	Justification	Draft 2040 RTP Status
Long-Range Projects (10-30 years)					
Sahuarita Road #1 bike lanes	Construct bike lanes	Mission Road to La Canada	$1,645 (RTP)		Proposed
Santa Cruz River Park Shared use paths	Construct Shared use Path	Sahuarita Road to Continental Road	$4,978 (RTP)	RTA funded project	Reserve Project
Santa Cruz River Park Shared Use Path	Construct Shared use Path	Pima Mine Road to Sahuarita Road (3.5 Miles)	$1,780 (RTP)	Provides multimodal connectivity for the De Anza Trail. Recommended as part of the PAG Regional Bike Plan	Reserve Project
Sahuarita Road Trail – Shared Use Path	Construct Shared use path	Mission Road to SR 83 (24 miles)	3,600 (RTP)	Joint project with Pima County	Reserve Project

There are also a number of regional projects planned that have benefit to the Town. These are:

- **Bicycle encouragement and safety outreach programs** – Develop and distribute materials such as PSAs, billboards, and stickers to educate cyclists and drivers on bicycle safety. Expand programs and campaigns to encourage walking and bicycling such as Cyclovia, an event that closes streets to cat traffic. Another example is the "one-mile solution," a campaign to encourage the public to bicycle or walk to destinations within one mile.
- **Bicycle and pedestrian signage and stenciling** – placing wayfinding, wrong-way signage, and /or stenciling along all shared use paths, bicycle routes, bicycle lanes and bicycle boulevards.
- **Adult bicycle and safety education** – Continue free adult bicycle safety education courses using League of American Bicyclists certified instructors. Expand the number of classes offered to reach more participants.
- **Safe Routes to School (SRTS)** – Expand the region's SRTS program that focuses on getting kids to walk or bicycle safely to school.
- **Signalized pedestrian and bicycle crossings** – install more pedestrian and bicycle signals to facilitate safe crossings. Retrofit existing pedestrian lights to accommodate bicyclists in locations with high bicycle volumes.
- **Sidewalk continuity and maintenance** – Fill gaps in the regional sidewalk network and maintain system. Retrofit existing sidewalks to be ADA compliant.

7. MAJOR STREETS AND ROUTES PLAN

The Major Streets and Routes Plan was developed to fulfill the following needs:

- Identify street classifications
- Identify future laneage
- Identify associated public right of way widths
- Identify street sections
- Help to guide land use decisions

The Major Streets and Routes plan map will serve as a guide for future street improvements. The map identifies which streets serve as primary traffic corridors. It serves as a guide for future street improvements, since each right-of-way allows for the needed number of lanes and features such as sidewalks, bike lanes, and medians. It will provide guidance as to how much right-of-way will need to be dedicated on new developments.

The Major Streets and Routes map establishes the overall framework to guide future development of the road system to a 2040 planning horizon. Local streets are not included in the plan, since they serve primarily individual, rather than through access.

The roads in the Major Streets and Routes (MS&R) map are classified consistent with their function. The classification process groups street into classes, or systems, according to the character of service they are intended to provide. The categories used in the Plan are:

Collector Streets – Collector roads are used as a connection between local roads and arterial roads. They provide a balance between access and mobility. The MS&R map shows two-lane and four-lane collector streets.

Arterial Streets – Arterial roads generally provide the fastest method of travel and typically have low accessibility from neighboring roads. They are usually designed with long-distance travel in mind and are not as common as the other two functional classes of roads. The MS&R Plan shows four–lane and six–lane arterial streets.

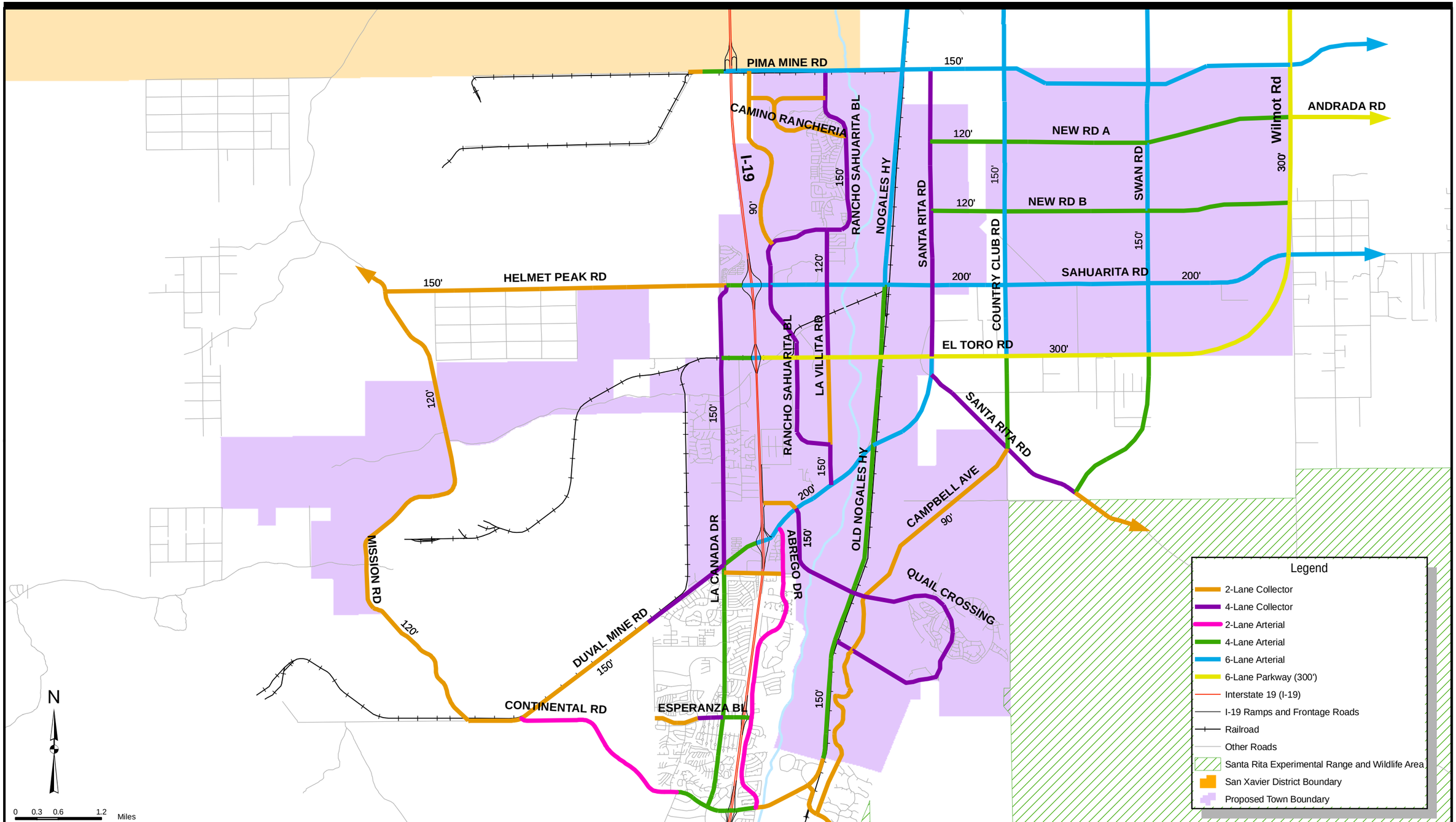
Parkway – A parkway is a restricted access controlled facility which may include a combination of at-grade intersections, grade-separated intersections, or interchanges. Opposing travel directions will be physically separated by either a barrier or a median. The major difference between a parkway and a major arterial is that a parkway facility has a wider paved shoulder, and pedestrian facilities (multi-use paths) are adjacent to the right of way line, and not the roadway.

Access management along parkways would limit signalized intersections to 1-mile spacing. Grade separation may be required with other major arterials or parkways. Land-use and set-back controls along parkways should also be limited as appropriate. Frontage roads could be accommodated within recommended right-of-way if future development requires them.

The Major Streets and Routes map is shown in **Exhibit 7-1**. A summary of cross sections and associated design criteria, right-of-way widths and design features are summarized in **Exhibit 7-2**.

Kimley-Horn and Associates, Inc.

Major Streets and Routes Plan



Sahuarita Transportation Study

Exhibit 7-1

Exhibit 7-2 – Roadway Design and Access Criteria

	Six-Lane Parkway	Six-Lane Arterial	Four-Lane Arterial	Four-Lane Collector	Two-Lane Collector
Road Purpose	Mobility	Mobility	Mobility/Access	Access	Access
Approximate Planning Average Daily Traffic	Greater than 50,000	~ 40,000 – 50,000	~15,000 – 30,000	10,000 – 20,000	5,000 – 10,000
Design Standards					
Design Speed	55 mph	35 mph - 45 mph	35 mph – 45 mph	25 mph - 35 mph	25 mph – 35 mph
Right of Way Width	300’	150’ – 200’	120’ – 150’	120’ – 150’	90’- 120’
Median	Variable - Minimum 24-foot landscape median	24-foot landscape median	24-foot landscape median	24-foot landscape median	Center turn lane, if warranted
Left Turn Lanes	Limited to 1-mile spacing, at locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	At locations where permitted and warranted
Right Turn Lanes	Limited to 1-mile spacing, at locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	At locations where permitted and warranted
Access Management Guidelines					
Signalized Intersections Spacing	1-mile minimum spacing, at mile locations, fully coordinated and progressed.	½ mile locations	½ mile locations, ¼ mile where warranted	½ mile locations, ¼ mile where warranted	Not Applicable
Non-Signalized Intersections Spacing	Right-in/right-out only at ¼ mile and ½ mile locations	Right-in/right-out only	Right-in/right-out only, full access where approved	Not restricted	Not restricted
Driveway Access	Not permitted	Right-in/right-out	Full Access where approved	Full Access where approved	Full Access where approved
Parking	Prohibited	Prohibited	Prohibited	Restricted	Allowed

Exhibit 7-2 – Roadway Design and Access Criteria (continued)

	Six-Lane Parkway	Six-Lane Arterial	Four-Lane Arterial	Four-Lane Collector	Two-Lane Collector
Bicycle, Pedestrian, and Transit Accommodation					
Transit	Bus Pullouts and Queue Jumpers where warranted	Bus Pullouts	Bus Pullouts	Bus Pullouts	N/A
Bicycle Lanes	Wide shoulder; No on-street bicycle lanes; separated multi-use path may be provided where warranted	6' Bicycle Lanes; separated multi-use path may be provided where warranted	6' Bicycle Lanes	4 - 6' Bicycle Lanes	4- 6' Bicycle Lanes
Pedestrian Facilities	Separated multi-use path may be provided where warranted	Sidewalks; separated multi-use path may be provided where warranted	Sidewalks; separated multi-use path may be provided where warranted	Sidewalks; separated multi-use path may be provided where warranted	Sidewalks; separated multi-use path may be provided where warranted

8. PROJECT PHASING

Project phasing was accomplished through a process which initially involved organizing projects into four categories:

1. Projects within Current Town Boundaries that resolve current deficiencies
2. Projects within Town Boundaries Based on Future Need
3. Projects within Potential Annexed Town Boundaries
4. Other Projects important to the Town, yet outside of Existing or Potential Annexed Town Boundaries

The next step was to identify when the proposed projects could be implemented. Projects have been assigned to four time frames:

1. 0-5 Years (short-term)
2. 5-10 Years (mid-term)
3. 10-20 Years (long term)
4. >20 Years (very long term)

In general, projects in the first category were deemed to be short term projects, as they resolved current needs. The Project team coordinated with Town staff to identify realistic timeframes for the remaining projects. In general, roadway infrastructure projects are constructed following a planning and programming process which is done to evaluate need, determine feasible improvements based on need and identify project funding. Although there are several projects that may be needed within the next few years, the constraint of available and potential funding limits the construction of these projects. In addition to this, the projects may be necessary due to projected regional growth based on new developments within the existing or potential jurisdictional limits, or based on future growth associated with the expanding population base outside of the Town limits.

8.1 Short Term Projects (0-5 Years)

Short term projects are those identified for implementation within the next five years. These projects are already in the Town's Capital Improvement Program (CIP), or those that could reasonably be funded through existing sources. Short term projects are summarized in **Exhibit 8-1**.

Exhibit 8-1 – Short Term (0-5 Years) Projects

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Champion
Sahuarita Road #3	Widen from 2 lanes to 4-lane divided arterial	La Villita Road to Country Club Road	2.49	$ 56,515 (RTP)	Capacity need	Sahuarita
RR grade separation @ Sahuarita Road	Construct grade separation	East of Nogales Highway	N/A	$25,000 (RTP)	Safety need	Sahuarita

Exhibit 8-1 – Short Term (0-5 Years) Projects (continued)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Champion
Duval Road/ Duval Mine Road/La Canada Drive Safety Assessment	Duval Road (La Canada Drive to I-19), and Duval Mine Road (La Canada Drive to I-19)	Duval Road/ Duval Mine Road/La Canada Drive area	N/A	$30	Safety and access need	Sahuarita
Nogales Highway	Road safety assessment	Calle Valle Verde to Old Nogales Highway	N/A	$30	Safety need	Sahuarita
Old Nogales Highway	Install center reflectors	Nogales Highway to Quail Crossing Blvd	2.25	To Be Determined	Safety need	Sahuarita
Rancho Sahuarita Blvd	Signal warrant studies		N/A	$30	Traffic control need	Sahuarita
Speed limit study	Study to set speed limits	Sahuarita Road (La Canada to La Villita Road) and Nogales Highway (Pima Mine Road to Sahuarita Road)	N/A	$30	Safety need	Sahuarita
Quail Crossing Blvd Extension	New 2-lane roadway with new Santa Cruz River Bridge	Old Nogales Highway to Nogales Highway	1.61	To Be Determined	Access/ Connectivity	Sahuarita
Rancho Sahuarita Blvd	Widen from 2 to 4 lanes	Sahuarita Road to El Toro Road	1.00	To Be Determined	Capacity need	Developer

The Quail Creek Boulevard is shown to be funded by the Capital Fund and the Highway Users Revenue Fund (HURF) in the Town's CIP. The Sahuarita Road project is defined between I-19 and Country Club Road in the CIP and if funded by the Capital Fund, State Grants, the HURF, Pima County Bonds and the RTA Transportation Tax.

8.2 Mid Term Projects (5-10 Years)

Mid-term projects are those that can be implemented within the next ten years, but may not be within the current 5-year CIP. Many of these projects are identified in the 2040 RTP as projects that have been determined for need based on projected regional growth and the forecast travel demand on the roadway network. Some of these projects are roadway lane widening projects, while others are new or extended roadways. Potential funding has likely been determined for these projects.

Exhibit 8-2 – Mid Term Projects (5-10 Years)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Champion
Rancho Sahuarita Blvd	Widen from 2 to 3 lanes	El Toro Road to La Villita Road		To Be Determined	Capacity need	Developer
Duval Mine Road	Widen from 3 to 4-lanes	West Town Boundary to La Canada Drive	0.62	$1,246	Capacity need	Sahuarita
La Villita Road	Widen from 2 to 4 lanes	El Toro Road to Rancho Sahuarita Road	1.78	$7,129	Capacity need	Sahuarita
Rancho Sahuarita North-South Connector	New 2-lane Road	Rancho Sahuarita Blvd to Pima Mine Road	2.62	$10,473	Capacity need	Developer

8.3 Long Term Projects (10-20 Years)

Long-term projects are those that can be implemented within the next twenty years. These projects may be identified in the 2040 RTP, or may be determined to be beneficial to the Town and region as growth occurs.

Exhibit 8-3 – Long Term Projects (10-20 Years)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Champion
El Toro Road	Part 1 Sahuarita, new 2-lane roadway with sidewalks and multi-use lanes	La Canada to La Villita	1.49	$5,014(RTP)	Capacity need/ Connectivity	Sahuarita
La Villita Rd.	Construct new 2 – lane roadway with bike lanes, curb and gutter and sidewalks	Sahuarita Rd. to Nogales Hwy.	2.8	$6,004 (RTP)	Capacity need	Sahuarita
Old Tucson Nogales Highway Corridor	Widen to 4 lanes, including new Santa Cruz Bridge	Continental Rd. to Nogales Highway	4.9	$49,000	Capacity need	Sahuarita
Pima Mine Road # 1	Widen from 2 to 4 lanes	I-19 to Nogales Highway	2.41	$22,000 (RTP)	Capacity need	Sahuarita
Nogales Highway	Widen from 2 to 6-lanes	Pima Mine Rd. to Sahuarita Rd.	3.01	$36,157	Capacity need	Sahuarita
Nogales Highway	Widen from 2 to 4 lanes	Sahuarita Rd. to Old Nogales Highway	2.34	$8,975	Capacity need	Sahuarita

8.4 Very Long Term Projects (20+ Years)

Very long-term projects are those that would likely be implemented twenty years or more from now. These projects may be identified in the 2040 RTP, or may be determined to be beneficial to the Town and region as growth occurs.

Exhibit 8-4 – Very Long Term Projects (20+ Years)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Champion
Pima Mine Road	Widen from 4 to 6 lanes	I-19 to Nogales Highway	2.41	$9,627	Capacity need	Sahuarita
Santa Rita Road North-South Extension	Widen existing section and construct new 4-lane section	Pima Mine Road to Nogales Highway	4.26	$17,057	Capacity need	Sahuarita
Rancho Sahuarita Blvd	Widen from 2 to 4 lanes	La Villita Road to 4-lane section south of Pima Mine Road	2.62	$10,461	Capacity need	Developer
Sahuarita Road # 2	Widen from 4 to 6 lanes	La Canada Drive to La Villita Road	1.41	$15,000 (RTP)	Capacity need	Sahuarita
Nogales Highway	Widen to 6 –lanes	I-19 to Nogales Highway	2.17	$26,011	Capacity need	Sahuarita
El Toro Road	Widen from 2 to 6-lanes	La Canada to La Villita Road	1.49	$17,880	Capacity need	Developer
Campbell Avenue	Extend 2 lane roadway	Quail Crossing Blvd. to Sahuarita Road	6	$18,000 (RTP)	Capacity need/ Connectivity	Developer
Quail Crossing Blvd Extension	New 4-lane roadway with new Santa Cruz River Bridge	Old Nogales Highway to Nogales Highway	1.61	To Be Deter-mined	Access/ Connectivity	Sahuarita
El Toro Road	New 6-lane roadway	La Villita Road to Wilmot Road	7.22	$86,602	Capacity need	Developer
Sahuarita Road	Widen from 4 to 6 lanes	La Villita Road to Wilmot Road	6.55	$26,211	Capacity need	Sahuarita
Country Club Road extension	Widen from 2 to 6-lanes	Sahuarita Road to El Toro Road	0.99	$11,845	Capacity need	Developer
Road A	New 4-lane road	Santa Rita Road Extension to Wilmot Road	5.07	$40,589	Capacity need	Developer
Road B	New 4-lane road	Santa Rita Road Extension to Wilmot Road	5.02	$10,150	Capacity need	Developer
Country Club Road extension	New 6-lane roadway	Sahuarita Road to Pima Mine Road	3.02	$36,239	Capacity need	Developer
Country Club Road extension	Widen from 2 to 4-lanes	El Toro Road to Santa Rita Road	1.29	$5,155	Capacity need	Developer

Exhibit 8-4 – Very Long Term Projects (20+ Years) (continued)

Project Name	Description	Location	Project Length (miles)	Cost (in 000s)	Justification	Champion
Wilmot Road	Widen from 2 to 6-lanes	Pima Mine Road to El Toro Road connection at Sahuarita Road	2.64	$31,630	Capacity need	Developer
Swan Road extension	New road - 6 lanes from Pima Mine Road to El Toro Road, 4 lanes from El Toro Road to Santa Rita Road	Pima Mine Road to Santa Rita Road	6.13	$64,205	Capacity need	Developer
Sahuarita Road #4	Widen from 2 to 4 lanes	Country Club Road to SR 83	15.06	$155,000 (RTP)	Capacity need	Sahuarita
Pima Mine Road	New 6-lane road	Nogales Highway to Wilmot Road	5.52	$66,266	Capacity need	Sahuarita
Santa Rita Road extension	New 4-lane roadway	Duval Mine Road extension to Swan Road extension	2.63	$21,065	Capacity need	Sahuarita

8.3 Policy Considerations and Strategies for Transportation Funding

A series of reports paints a grim picture for transportation funding today and in the future: costs of necessary capital improvements and operations/maintenance vastly exceed available and expected revenue. The shortfall may result in increasing congestion, a stifled Town economy, compromised traffic safety, and an unhappy traveling public.

On a broad-brush level, there are four options for addressing this gap:

- Raise revenue to more fully cover costs;
- Substitute lower-cost alternatives--such as travel demand management, transportation system management, and Intelligent Transportation Systems for more costly capacity solutions;
- Accept lower performance standards to bring revenue and needs into balance; or,
- Some blend of these three strategies.

It is apparent that no single option will close the gap between needs and revenue. The need exists to investigate an array of revenue sources, including both current sources and new or enhanced sources.

An effective roadway system is critical to the Town's current and future economy. Additional action to expand the revenue base can be taken at the state, municipal and county levels. Successful local revenue sources have included development impact fees, construction sales taxes, and special districts. The state could authorize regional impact fees, impact fees for transit, and impact fees for state highways; it could further empower local government with more local options to raise revenue.

The estimated cost of arterial roadway capacity consumed by each new home built in urban and suburban Arizona is approximately $15,000. The cost of local and collector roadway capacity is rolled into the construction of new development projects and passed on to the end user (the homeowner and motorist). The cost of high-capacity roadways (freeways and Interstate highways), which can add another $5,000 to $10,000 per dwelling unit, is frequently funded by the state or federal government with local matching

funds. Therefore, the total cost of required new freeway and arterial capacity is about $20,000 to $25,000 per new home. However, impact fees and other existing sources typically raise less than $5,000 per home, leaving a large shortfall and funding conundrum. In addition, the cost of long-term maintenance is roughly equal to the capital cost of initial construction, when the latter is amortized over the useful life of the roadway.

For the Town of Sahuarita, the following list offers strategies for raising revenue to meet the needs of a rapidly growing population:

- Use improvement districts, revenue bonds, innovative financing, and construction sales taxes to help resolve as many as possible of today's capacity and maintenance deficiencies. No new legislation is needed.
- To accommodate new growth, establish a roadway impact fee program for the projects identified in the study, possibly including state routes. New legislation would be needed, however, to enable the state to collect impact fees for improvements to the ADOT highway system.
- Consider the use of additional community facilities districts to fund offsite improvements for new developments in the FICO development, Town Center and other large area developments.
- Implement a concurrency program, in which new development cannot proceed into construction until needed roadways are funded, permitted, and fully programmed for implementation. No new legislation is needed. This can be incorporated into the Town's general plan pursuant to ARS Title 9.
- Seek legislative approval for local revenue options such as a local gasoline tax, a local sales tax on fuel, and local vehicle registration fees. This requires a simple majority vote at the legislature followed by local adoption.
- Seek an increase in the state gasoline tax.
- Seek an increase in the federal gasoline tax.
- Strive for a balanced transportation system, with due consideration of land use patterns, that incorporates transit and alternative modes of travel. This will require investigation of additional sources of funding for public transportation in the study area, such as a ¼ to ½ percent sales tax, a property tax, or a new transit district with taxation authority. These options may require new legislation, but some may be achievable under current statutes.

9. PUBLIC INVOLVEMENT

Public involvement was an important aspect of the project. Public involvement involved three elements:

- Public Open Houses
- Stakeholder Interviews
- Technical Advisory Committee Meetings

9.1 Public Open Houses

Two public open houses were held for the project. The first public meeting for the Town of Sahuarita Transportation Study was held on April 29, 2009, from 6 p.m. to 7:30 p.m., with a brief presentation at 6:15 p.m., at the Town of Sahuarita Council Chambers, 375 W. Sahuarita Center Way, Sahuarita, AZ 85629. The purpose of the meeting was to present information on the study progress to date, information on current and future conditions, next steps and project schedule. Fourteen members of the public attended. Comments relating to needs and deficiencies were provided and were used in the development of needs.

The second public meeting for the Town of Sahuarita Transportation Study was held on April 15, 2010, from 6 p.m. to 7:30 p.m., with a brief presentation at 6:15 p.m., at the Town of Sahuarita Council Chambers, 375 W. Sahuarita Center Way, Sahuarita, AZ 85629. The purpose of the meeting was to present the draft future roadway network and implementation plan and receive public input on the presented information. Fact sheets and 17 display boards gave detailed information on the study progress to date. Fifteen members of the public attended, including two Town Council Members. No written comments were received on the plan.

9.2 Stakeholder Interviews

Stakeholder interviews were conducted in February, 2009. The purpose of the stakeholder meetings was to:

- Make stakeholders aware of the study.
- Identify transportation needs and deficiencies.
- Find out information about future development plan in order to further refine the input to the travel demand forecasting model.

Representatives of following agencies and organizations were interviewed:

Agency / Organization	Name
Town of Sahuarita	▪ Sahuarita Town Manager ▪ Sahuarita Planning Director ▪ Sahuarita Public Works Department
Emergency Service Providers	▪ Sahuarita Police Department ▪ Green Valley Fire Department
Developers	▪ FICO ▪ Twin Buttes Properties ▪ Diamond Ventures ▪ Robson Communities ▪ American Nevada Corporation ▪ Rancho Sahuarita

Schools	▪ Sahuarita School District ▪ Sahuarita Christian Academy
Mining Operations	▪ Asarco ▪ Freeport McMoran
Other Organizations	▪ Arizona State Land Department ▪ Pima County Department of Transportation ▪ Union Pacific Railroad (via email)

A representative of the Green Valley Community Coordinating Council was also invited to the meeting with Pima County, but declined to attend.

9.3 Technical Advisory Committee

Technical Advisory Committee meetings were held during the course of the project. The technical Advisory Committee was comprised of members from the following agencies:

- Town of Sahuarita
- ADOT Multimodal Planning Division
- ADOT Multimodal Planning Division Transit
- Pima Association of Governments
- ADOT District Traffic Engineer
- Pima County
- ADOT Tucson District
- Arizona State Land Department (they participated in the early stages of the project, then asked to be considered as stakeholders)
- ADOT Communication and Community Partnerships Division

A summary of the discussion topics at each of the Technical Advisory Committee meetings is summarized below. Stakeholder meeting summaries are included in the final project documentation CD.

Date	Topics Discussed
December 10, 2008	▪ Work Plan refinement ▪ Stakeholder Participation Plan ▪ Data Collection Needs
January 13, 2009	▪ Overview of Work Plan ▪ Study Schedule ▪ Review of Data Collection ▪ Travel Demand Modeling Process
April 14, 2009	▪ Review of Existing and Future Conditions Working Paper ▪ Preview of Open House 1 Meeting Materials ▪ Review of Next Steps
February 4, 2010	▪ Review of 2040 Traffic Projections and Proposed Roadway Improvements ▪ Review of Major Streets and Routes Plan
March 23, 2010	▪ Review of Draft Implementation Plan ▪ Preview of Open House 2 Meeting Materials