



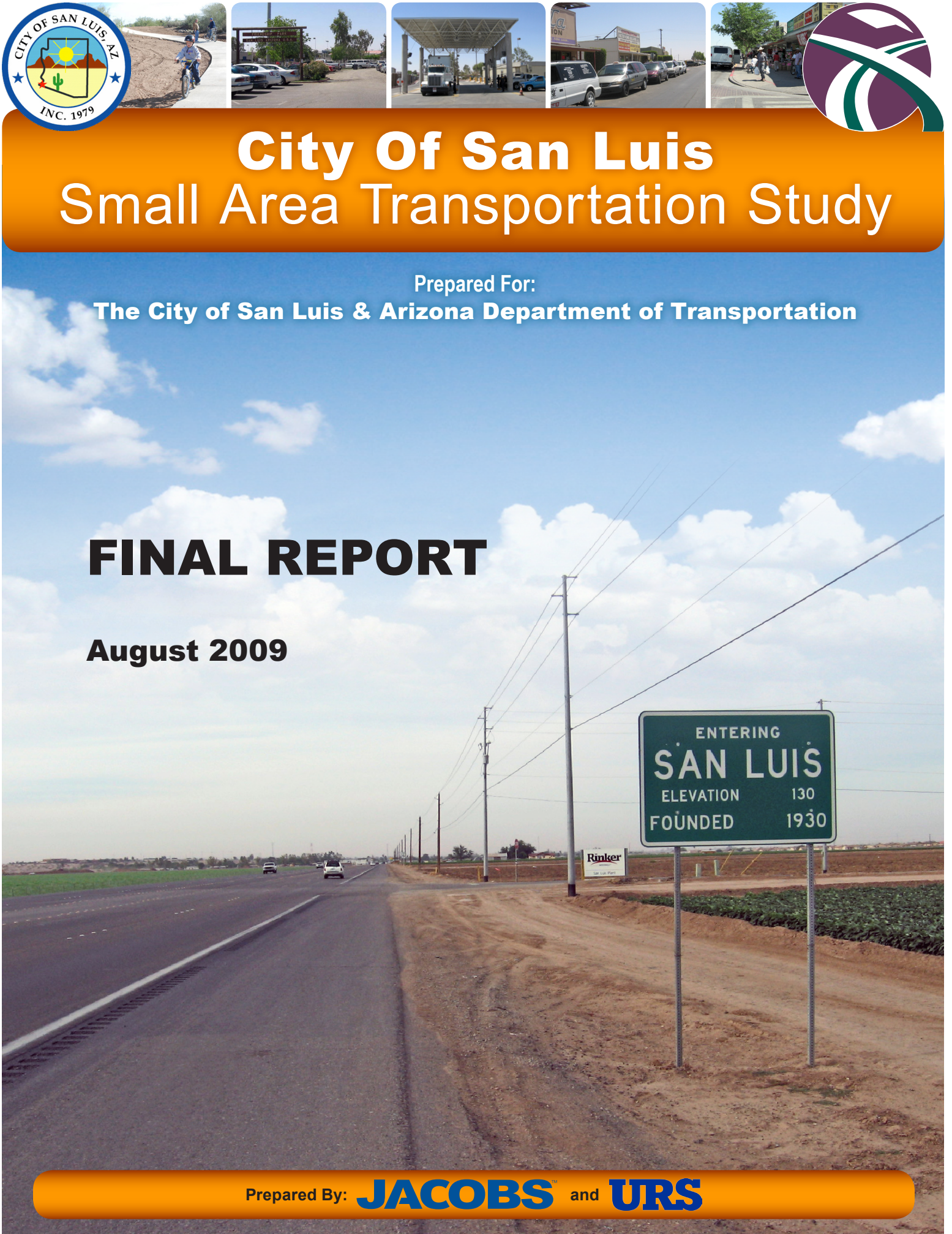
# City Of San Luis

## Small Area Transportation Study

Prepared For:  
The City of San Luis & Arizona Department of Transportation

# FINAL REPORT

August 2009



Prepared By: **JACOBS** and **URS**

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## 1. INTRODUCTION

The purpose of the study was to develop a multimodal transportation plan that outlines the City's transportation priority projects. The transportation plan created a path to help the City achieve its vision and goals for a future transportation system in a manner that is closely aligned with the lifestyle and the values of the community. Additionally, it will address the City of San Luis mobility needs for the future population, commercial growth, the transportation needs due to the opening of the new San Luis commercial Port of Entry, and the reconfiguration of the original San Luis Port of Entry I. The City of San Luis Small Area Transportation Study (SATS) is a joint effort of the City of San Luis and Arizona Department of Transportation (ADOT).

This chapter presents the background information; the study area and study process, and finishes with the summaries of findings and recommendations. Chapters 2 and 3 identify the current socioeconomic and transportation conditions, while chapters 5 and 6 depict the future socioeconomic growth, the resulting transportation conditions, and the recommended multimodal transportation plan. Chapter 7 outlines the implementation plan and presents a variety of funding sources available to the City for the realization of the improvements. Chapter 8 presents an access management evaluation and guideline for the future.

### BACKGROUND

The City of San Luis, Arizona is located in the Southwest corner of the state immediately adjacent to both Mexico and California. It was established in 1930 with the opening of the U.S. San Luis Port of Entry to its sister city of San Luis Rio Colorado, Sonora, Mexico, which today has an estimated population of over 250,000 inhabitants. Since its incorporation in 1979, it has experienced tremendous growth making it one of the fastest growing communities in Yuma County.

San Luis is approximately twenty miles from the City of Yuma, which offers a large shopping center, regional medical facilities, the regional airport and all the amenities of modern living. It is approximately 190 miles from San Diego, CA, and 75 miles from El Golfo de Santa Clara, Sonora, Mexico that offers recreational driving, sailing, swimming, and a variety of restaurants, and sun and sea along the pristine Sonoran Gold Coast.

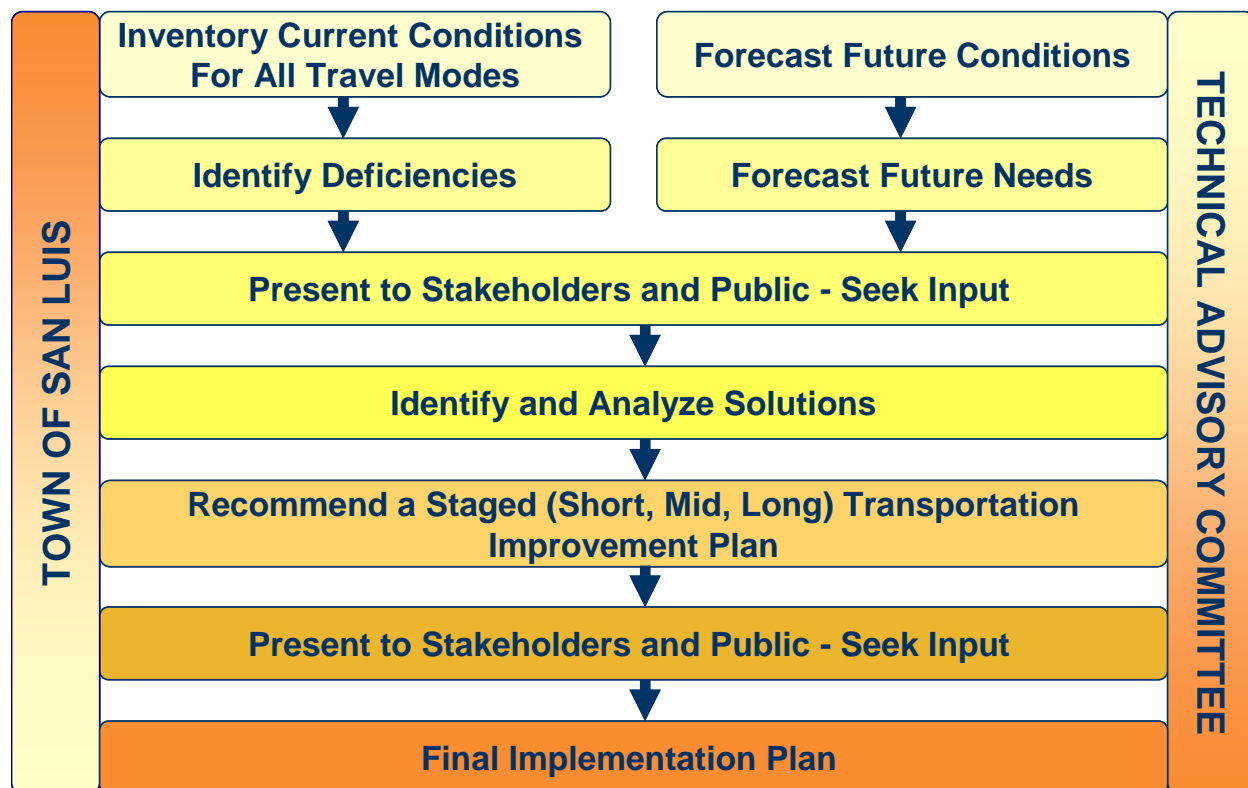


## STUDY PROCESS

The study was guided by a Technical Advisory Committee (TAC) that included representatives from the City of San Luis, ADOT, Yuma County, General Service Administration (GSA), Custom and Border Protection (CBP), Department of Homeland Security (DHS), Greater Yuma Port Authority (GYPA), Yuma Metropolitan Planning Organization (YMPO), Federal Highway Administration (FHWA), and Greater Yuma Economic Development Corporation (GYEDC). The role of the TAC was to provide technical guidance, support, advice, suggestions, recommendations, and to perform document reviews and provide input throughout the study process.

The study process is illustrated in Figure 1.1. For the future growth condition, the City of San Luis Adopted 2002 General Plan was used as the primary guiding tool.

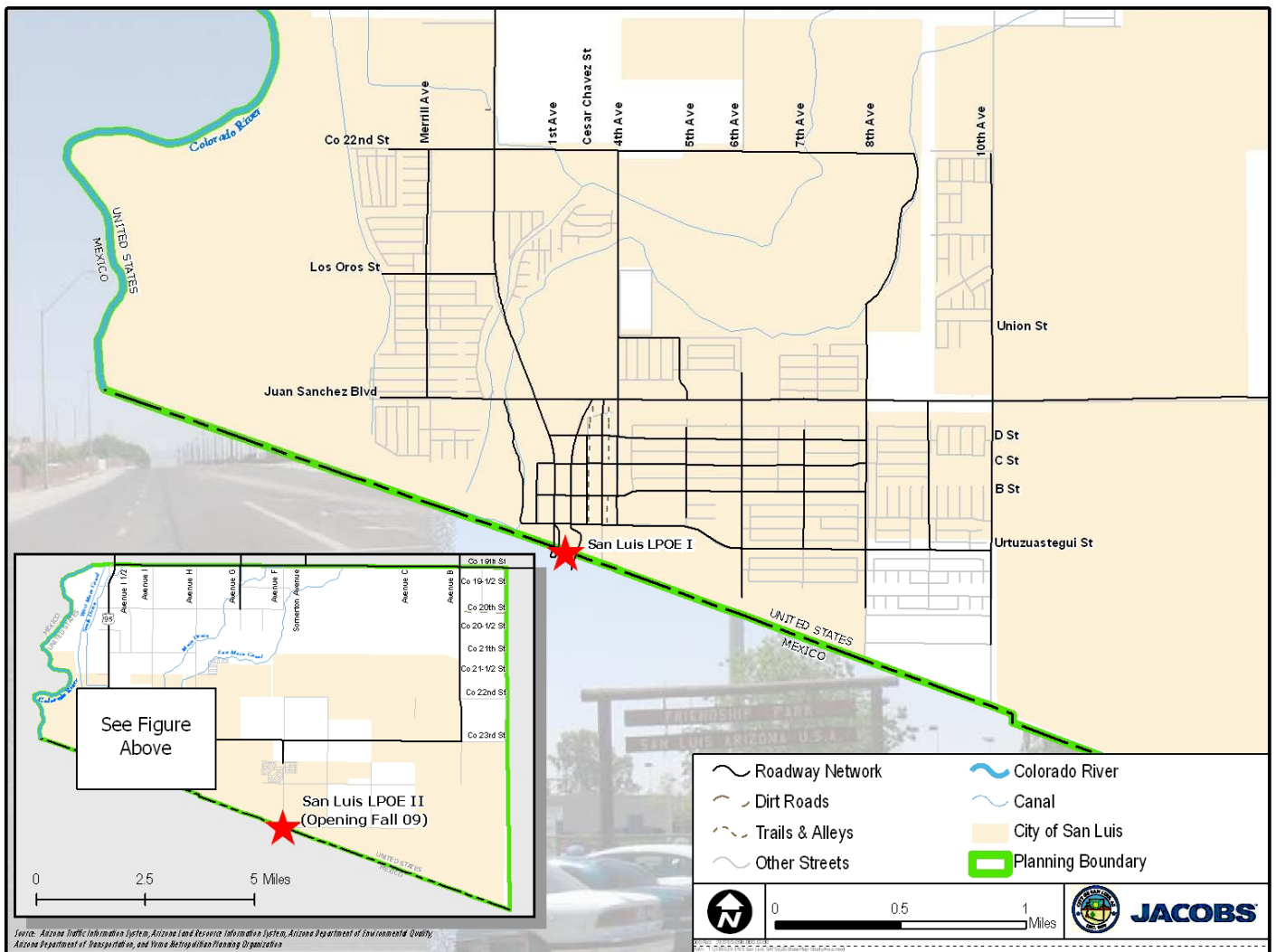
FIGURE 1.1: STUDY PROCESS



## STUDY AREA

The City planning area was considered the study area for this study. It encompasses the current incorporated boundaries, areas of future anticipated annexation, and areas of influence. The planning area is approximately 60 square miles and is depicted in Figure 1.2. It is bounded by county 19<sup>th</sup> to the north, Avenue B to the east, and the US/Mexico border to the south and the west.

FIGURE 1.2: STUDY AREA



## PUBLIC INVOLVEMENT

As the study process showed, two set of public meetings were held during the study. The first public meeting was held at the City of San Luis City Hall on February 25, 2009. The current and future conditions were presented to the public. Representative from the City, ADOT Engineering District, ADOT Multimodal Planning Division (MPD), ADOT CCP, and the general public attended. Concerns were voiced regarding the “turn-back” of SR 95 to the City and the County at the completion of SR 195. In particular, how the road will be maintained to the current standards. Also the public was interested in the effect of the port of entry reconfiguration on the local streets.

The second public meeting was held on June 25, 2009 at the City of San Luis City Hall to present the draft multimodal transportation plan. Representative from the City, ADOT district, ADOT MPD, ADOT CCP, and the general public attended. No particular comments were made by the public, just requests for clarifications of the improvements effects on the overall system performance.

Coordination also occurred with the City of San Luis Rio Colorado, Mexico and the State of Sonora, with two meetings one on each side of the border. The first meeting was held in July 2008 to collect information regarding the forecasted growth, both in population and employment, envisioned by the City of San Luis Rio Colorado. The second meeting, held on March 11, 2009, was a bi-national stakeholder meeting where the project status and findings were presented to the representatives from Mexico at the jurisdiction and State level.

## SUMMARY OF FINDINGS

- The current roadway system functions at a level of service C and above for an average day with Juan Sanchez Boulevard and US 95 carrying the largest volume of traffic.
- Currently, weekend traffic creates queue on US 95 southbound.
- Currently, pedestrians do not have a safe crossing location to access Main Street from the land port of entry.
- Currently, there is poor access management along Main Street.
- No parking facility is available for people who would like to walk across the border from the US.
- The study area is projected to grow to an estimated 60,900 people by 2030 from the 2008 estimated population of 26,200.
- The largest employment sectors will be government and industrial with a less aggressive increase in the commercial/retail sector.
- Most of the industrial growth will be concentrated along Avenue E and the new commercial land port of entry.
- San Luis Rio Colorado will grow to approximately 1, 000, 000 inhabitants by 2030.
- The new port of entry configuration will increase congestion on City local streets, primarily 1<sup>st</sup> and 2<sup>nd</sup> Avenue.
- The added pedestrian and vehicular traffic will also degrade the downtown circulation.
- Several segments of Juan Sanchez Blvd west of SR 195 are forecasted to reach LOS E and F.
- There is a need for an alternate emergency route to Juan Sanchez Blvd to connect the two land ports of entry.
- Improvement to the current regional transit services, as well as establishing a local circulator will be needed by 2030.
- Aggressive access management techniques will help maintain acceptable levels of service as traffic increases.
- A bi-national study is needed to address the future recreational traffic using the San Luis POE to reach the Mexican coast using the newly open costal highway in Mexico.

## RECOMMENDATIONS

### Summary of Multimodal Recommendations

Upon review of the study findings, the following summary for short-, mid-, and long-term improvements by travel mode is presented in Tables 1.1 to 1.3 respectively, while Figure 1.3 provides a pictorial representation of the study recommendations in its entirety.

**TABLE 1.1 SHORT-TERM RECOMMENDATIONS BY MODE**

SHORT-TERM RECOMMENDATIONS			
Roadway Name	Action	Transit	Bicycle & Pedestrian
Co 22nd	Construct 2 lanes from 9th Ave to 10th Avenue	Organize a transit advisory committee	Improve side walks
	Conduct downtown circulation study	Designate a city transportation Coordinator	Review and research bicycle users travel patterns
	Conduct bi-national study for Southbound traffic on US 95	Implement transit oriented development policies	
	Conduct a parking structure location feasibility study		

**TABLE 1.2 MID-TERM RECOMMENDATIONS BY MODE**

MID-TERM RECOMMENDATIONS			
Roadway		Transit	Bicycle & Pedestrian
Juan Sanchez Blvd	Widen to 5 lanes from US 95 to 10th Ave	Develop a transportation demand management program	Study the feasibility to install bicycle lane on Main Street
New Roadway	Construct 2 lanes from 8th Avenue to Avenue F	Review ridership on YCAT and request increase in service frequency	Study feasibility of pedestrian signal crossing locations and devices
6th Avenue	Construct 2 lanes from Union Street to County 22nd Street		Study feasibility for bicycle and pedestrian amenities such as landscaping for shade

TABLE 1.3 LONG-TERM RECOMMENDATIONS BY MODE

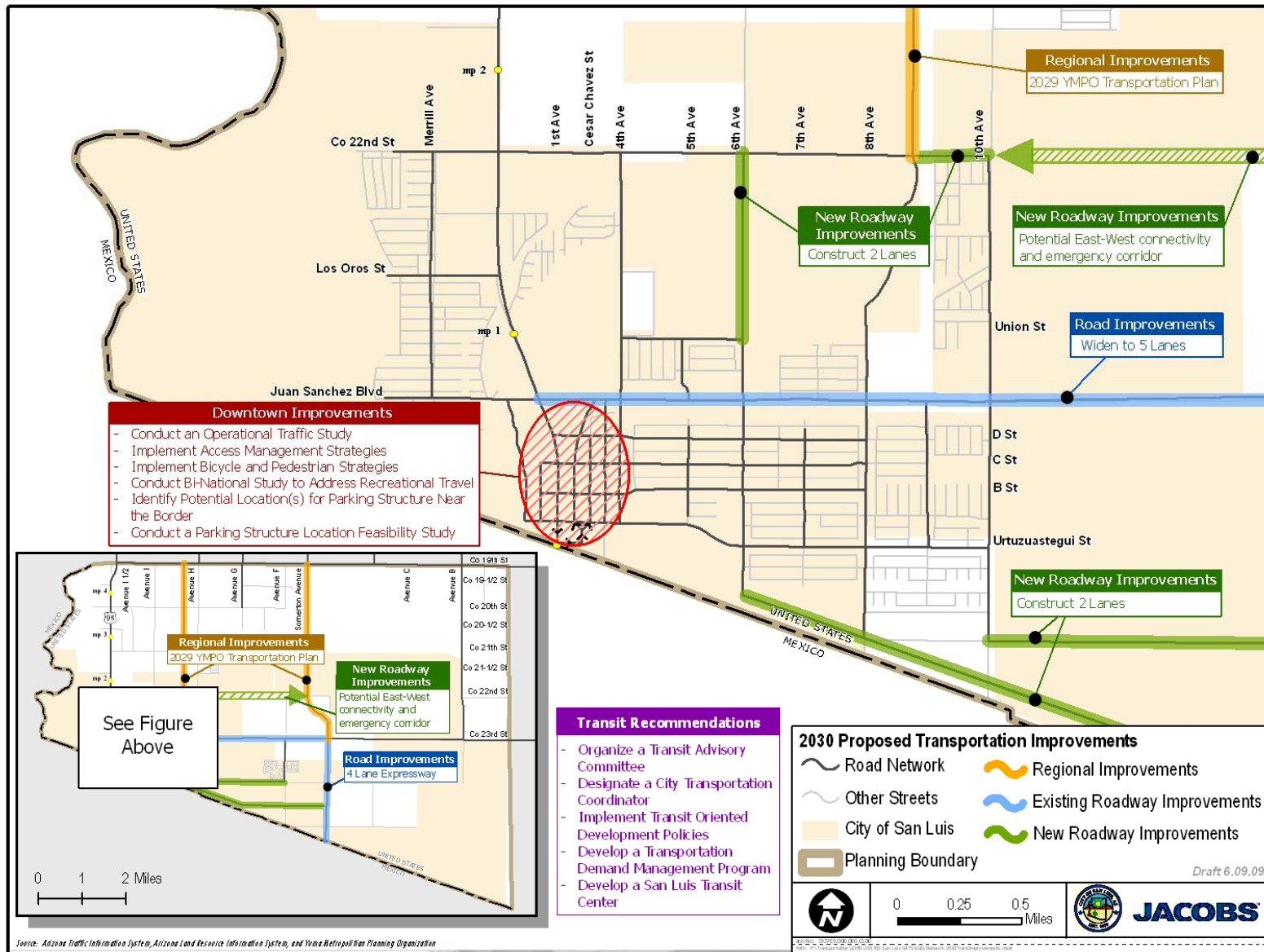
LONG-TERM RECOMMENDATIONS			
Roadway		Transit	Bicycle & Pedestrian
Juan Sanchez Blvd	Widen to 5 lanes from 10th Avenue to Avenue E	Develop a San Luis transit Center	Implement studies findings
9th Avenue **	Construct 2 lanes from Co 19th to SR 195		
New Roadway	Construct 2 lanes from 6th Avenue to Avenue E		
Avenue E	Widen to a 4 lanes parkway		
Avenue E **	Construct 2 lanes from SR 195 to Co. 19th Street		
County 22nd Street	Construct 2 lanes from 10th Avenue to Avenue E1/2		
Archibald Street and First Avenue	Convert Archibald Street and First Avenue to one-way couplet from C Street to Urtuzuastegui St		

\*\* Project identified in the 2006-2029 YMPO Regional Transportation Plan

### Summary of Access Management Recommendations

- **Policies**
  - Develop an access management plan
  - Implement access management ordinance for access to land uses
- **Roadway Improvements**
  - Implement access management improvements recommended for the downtown core area
  - Consolidate driveways opening
  - Create share access points
  - Install right and left turn bays at major intersections
  - Install continuous landscape median on major roadways
  - Conduct sight distance, turn radius, and driveway length evaluation

FIGURE 1.3 MULTIMODAL RECOMMENDATIONS MAP



## 2. EXISTING LAND USE AND SOCIOECONOMIC CONDITIONS

### LAND USE

Medium Density Residential land uses make-up the largest current residential land use classification in the study area. Low Density Residential areas are located within the urban areas of San Luis as well as areas adjacent to developed areas of the city.

Retail trade, agriculture, and manufacturing form a large portion of the local economy. Another significant segment is the light industry located on both sides of the U.S./Mexico border. A new 40 acre privately owned industrial park and 40 acre commercial area are currently under construction in north San Luis along Highway 95. The retail land uses in the urban area are located along the major transportation corridors as well as key intersections, including areas along US Hwy 95, Juan Sanchez Blvd and within the downtown areas. However, agriculture is still the predominant industry in San Luis and surrounding areas.

The planning boundary covers an area of approximately 60 square miles, owned mostly by the Bureau of Reclamation and private landowners. Figure 2.1 displays the land use ownership allocation in the study area. The City of San Luis Adopted 2002 General Plan was used as the primary guiding tool.

### SOCIOECONOMIC CONDITIONS

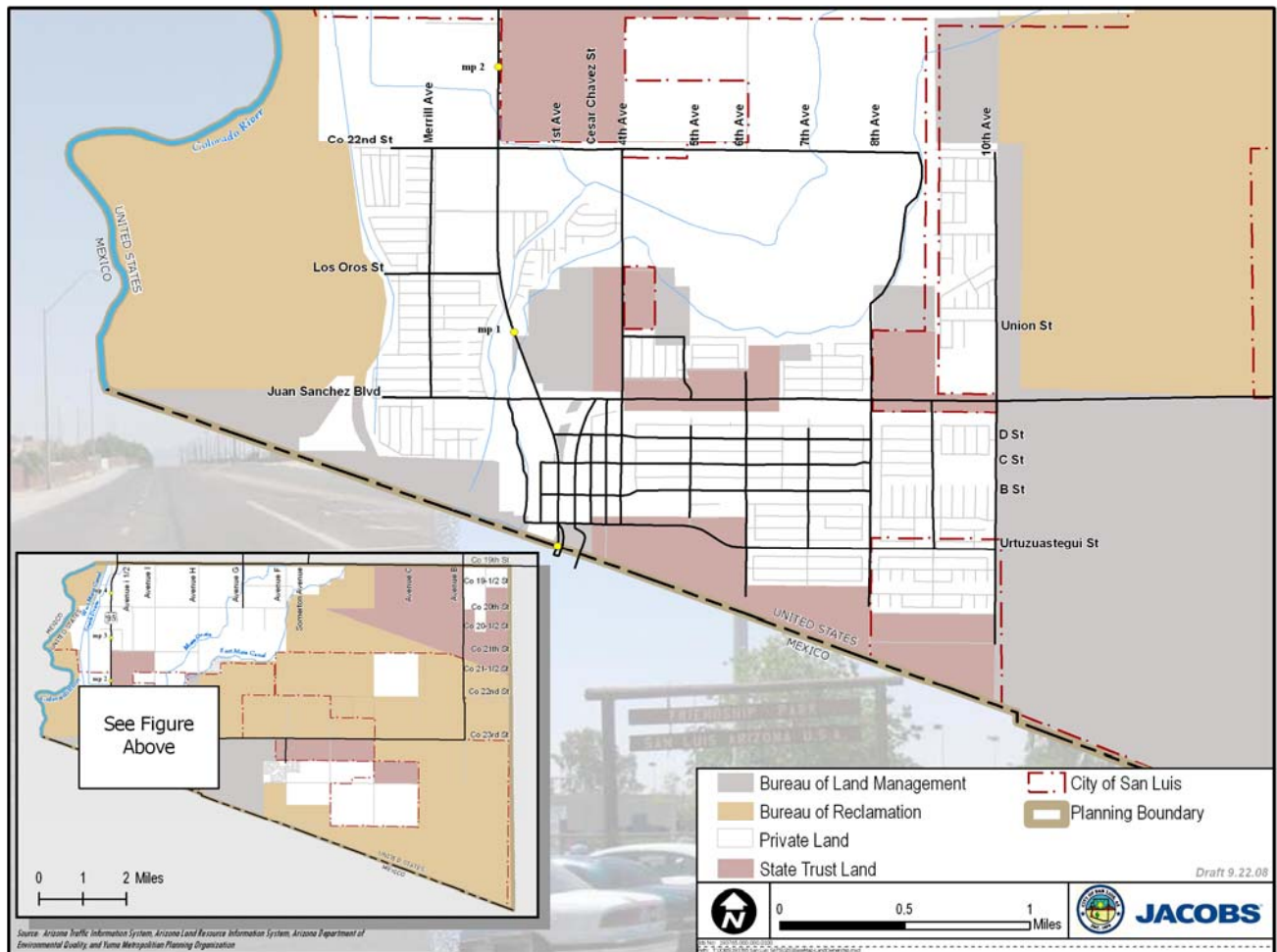
Socioeconomic data is the primary input for the travel demand modeling process. Travel demand models are used to estimate current traffic volumes and forecast future traffic volumes on roadways throughout the study area. In the travel model, socioeconomic data is inventoried for each Traffic Analysis Zone (TAZ). TAZs are geographic subdivisions of the study area bounded by roads, political boundaries, natural and man-made geographical constraints (rivers, washes etc.). For the YMPO model used in this study, the inventory includes population, housing units, and various types of commercial land use categories.

The 2008 population was estimated at 26,154 inhabitants a 70.7% increase from the Census 2000 population of 15,322. Table 2.1 shows the population growth trend. The



study area has approximately 6,050 housing units a ratio of 4.32 people per housing unit, well above the statewide average of 2.64 people per housing unit.

**FIGURE 2.1: LAND OWNERSHIP**

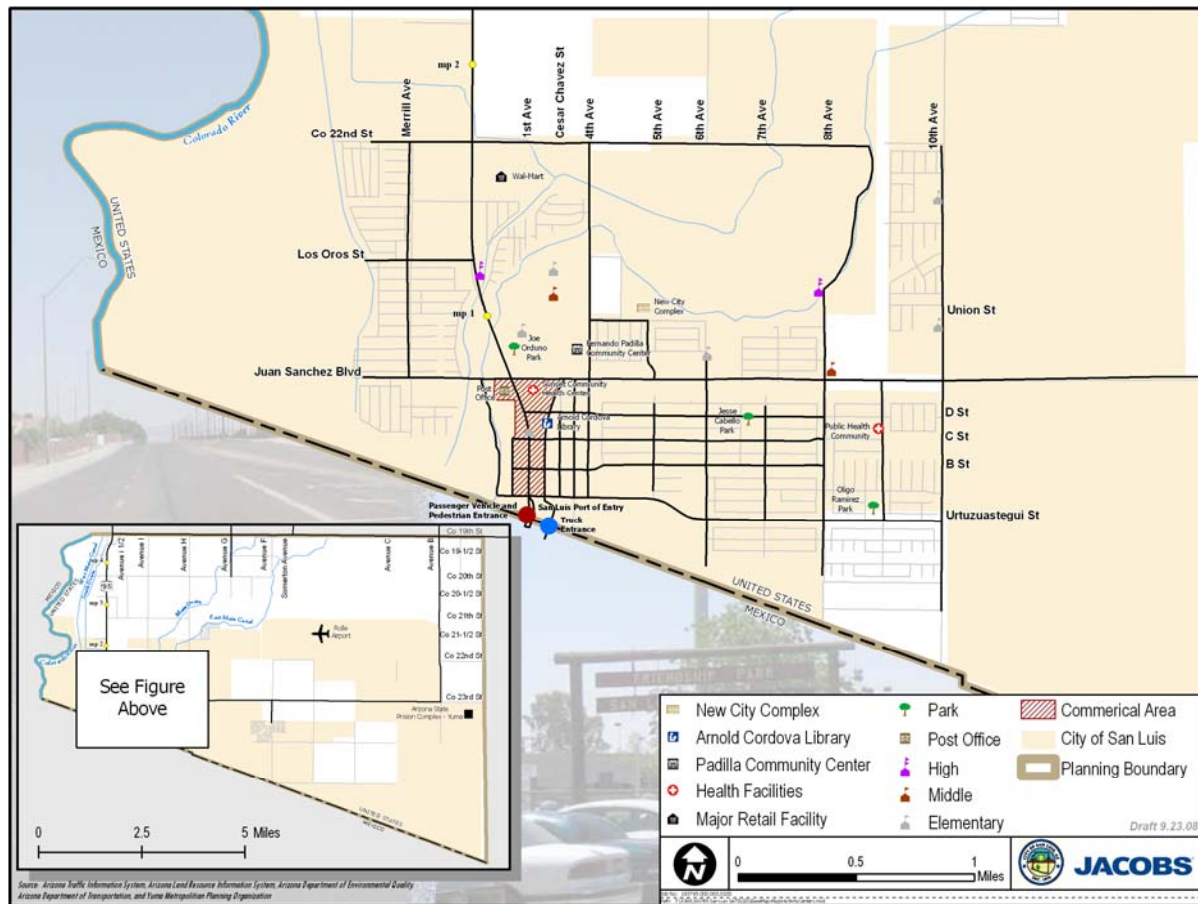


**TABLE 2.1: POPULATION GROWTH**

	POPULATION		GROWTH RATE PER YEAR
	2000	2008	
City of San Luis	15,322	26,157	8.84%
Arizona	5,130,632	6,629,455	3.65%

Source: US Census 2000 (includes prison population), Arizona Department of Economic Security 2008, University of Arizona

FIGURE 2.2: MAJOR ACTIVITY CENTERS



Although employment data was not used for the modeling effort, Table 2.2 lists the major employers in the area and an inventory of the major economic activity centers is shown in Figure 2.2. No employment data was available for the agricultural sector.

TABLE 2.2: MAJOR EMPLOYERS

MAJOR EMPLOYERS	EMPLOYEES
ACT Call Center	700
Arizona State Prison	653
Gadsden Unified School District	448
Wal-Mart	270
City of San Luis	230
Bashas	85
San Luis Detention Facility Development Corp.	80

## ENVIRONMENTAL JUSTICE REVIEW (TITLE VI)

This section presents information on specific population segments including minorities, age, sex, mobility-limited, and below poverty level. Title VI of the Civil Rights Act of 1964 and related statutes ensure that individuals are not discriminated against based on race, color, national origin, age, sex, or disability. Executive Order 12898 on Environmental Justice dictates that any programs, policies, or activities to be implemented are not to have disproportionately high adverse human health and environmental effects on minority populations.

Thus, in relation to this study, transportation improvements should not adversely impact such groups disproportionately. In addition to assuring that these policies are adhered to, a variety of possible alternatives should be developed and considered in order to make sure all groups are fairly represented in the amount and type of transportation services provided.

### Population Density

According to Census 2000 the City of San Luis population, not including prison population, within the planning boundary was 13,126 which was slightly higher than the City's population, as display in Table 2.3.

Figure 2.3 displays population densities for the planning boundary. It was observed that the higher population densities occur with the City limits in two locations, as shown in Figure 2.3. The first area enclosed by Los Oros St, Avenue J, Sality Canal (borders the west and southern portion) while the second area is within Juan Sanchez Blvd, Avenue H ½, Urtuzuastegui St, and US 95.

**TABLE 2.3: MINORITY, AGE 65 AND OLDER, MOBILITY LIMITED, AND BELOW POVERTY POPULATION**

	<b>CITY OF SAN LUIS</b>	<b>PLANNING BOUNDARY</b>	<b>YUMA COUNTY</b>
<b>Census 2000 Population</b>	<b>13,050</b>	<b>13,126</b>	<b>160,026</b>
<b>Minority Population</b>	<b>12,913</b>	<b>12,977</b>	<b>89,070</b>
<i>Hispanic or Latino</i>	12,870	12,933	80,772
<i>Black or African American</i>	1	1	3,136
<i>American Indian and Alaska Native</i>	15	15	1,819
<i>Asian</i>	11	11	1,362
<i>Native Hawaiian and Other Pacific Islander</i>	2	2	132
<i>Some Other Race</i>	0	0	131
<i>2 or More Race</i>	14	15	1,718
<b>Age 65 and Over Population</b>	<b>603</b>	<b>609</b>	<b>26,456</b>
<b>Mobility Limited Population (Age 16-64)</b>	<b>1,231</b>	<b>1,324</b>	<b>18,942</b>
<b>Population in Poverty</b>	<b>4,503</b>	<b>4,645</b>	<b>29,670</b>

Source: U.S. Census Bureau (2000)

Note: 1) Analysis was conducted using the San Luis City boundary as of 2008.

2) Table does not include Prison Population.

### Minority Population

Minorities accounted for 98.9% of the planning boundary's population which is in contrast to the Yuma County 50%. Hispanics represent the highest minority population group in San Luis, as presented in Table 2.3.

Similar to the population densities, higher concentration of minorities occurred in two locations as displayed in Figure 2.4:

- The area enclosed by Los Oros St, Avenue J, Salinity Canal (borders the west and southern portion)
- The area within Juan Sanchez Blvd, Avenue H ½, Urtuzuastegui St, and US 95.

### Population Age 65 and Older

The population aged 65 and older in planning boundary was less than 700 people in the year 2000, which is approximately 5% of the population. Figure 2.5 displays the Age 65 and older population densities for the planning boundary. It was observed that the higher concentration of the elderly population occurs in same two locations as the population and minority densities

### Mobility Limited Population Density

Of the planning boundary's total population, 1,324 or roughly 10% were mobility limited which is slightly below the statewide average of 11.6%. Mobility limited population densities are presented in Figure 2.6. It was observed that the highest density occurs west of US 95 between Los Oros St and Juan Sanchez Blvd.

### Below Poverty Population Density

According to Census 2000, 4,645 individuals were living below the poverty level in the study area, which represents 35% of the population. When compared to the statewide average of 13.6%, below poverty population in San Luis is over two times higher. Figure 2.7 displays the below poverty population densities for the planning boundary. It was observed that the highest concentration is west of US 95 between Los Oros St and Juan Sanchez Blvd.

**FIGURE 2.3: TOTAL POPULATION DENSITY**

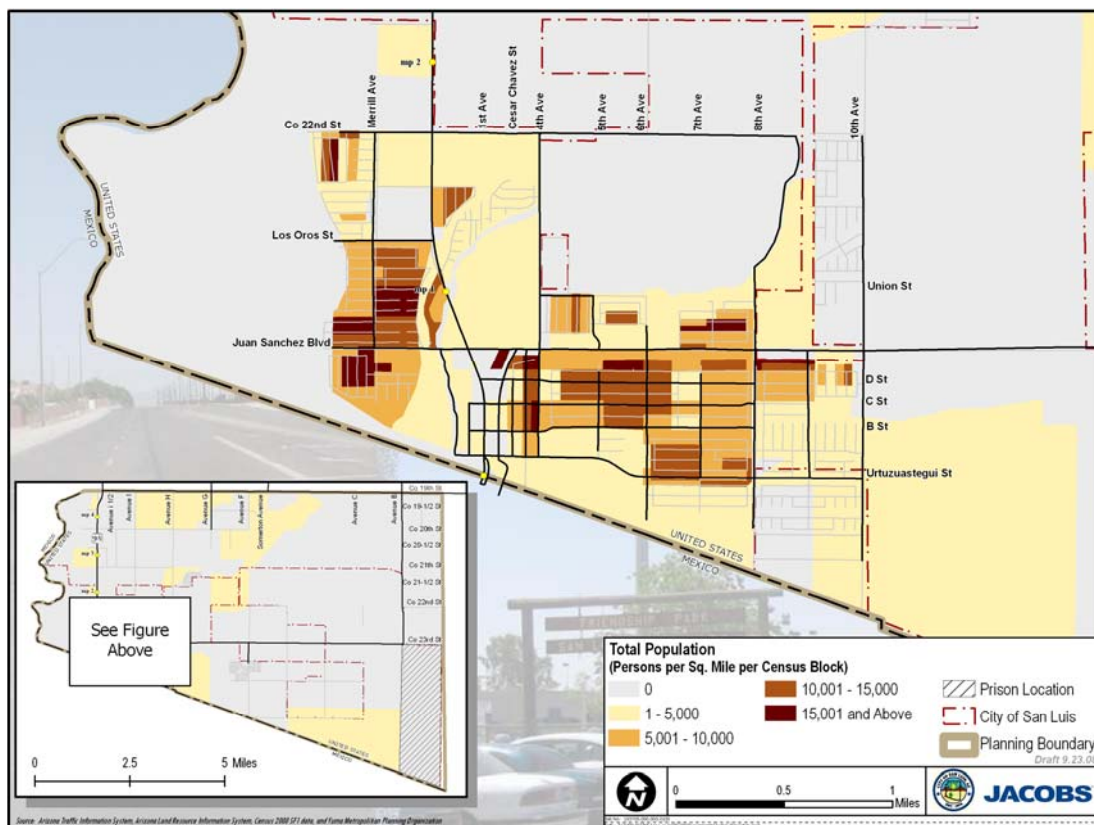


FIGURE 2.4: MINORITY POPULATION DENSITY

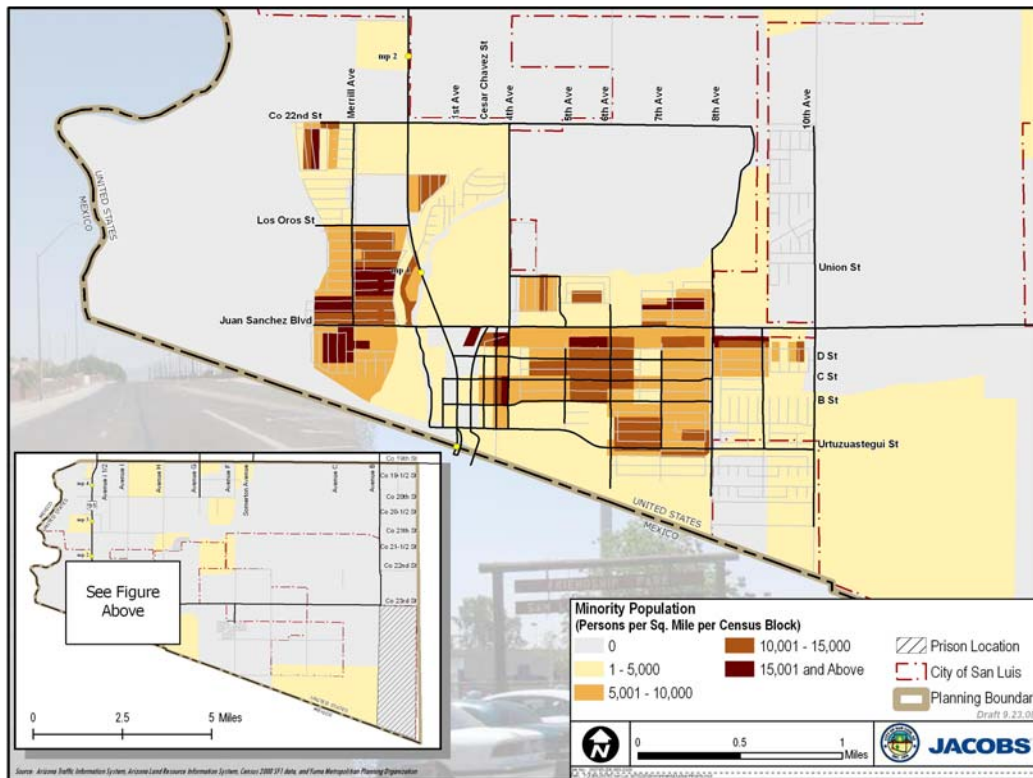


FIGURE 2.5: AGE 65 AND OLDER POPULATION DENSITY

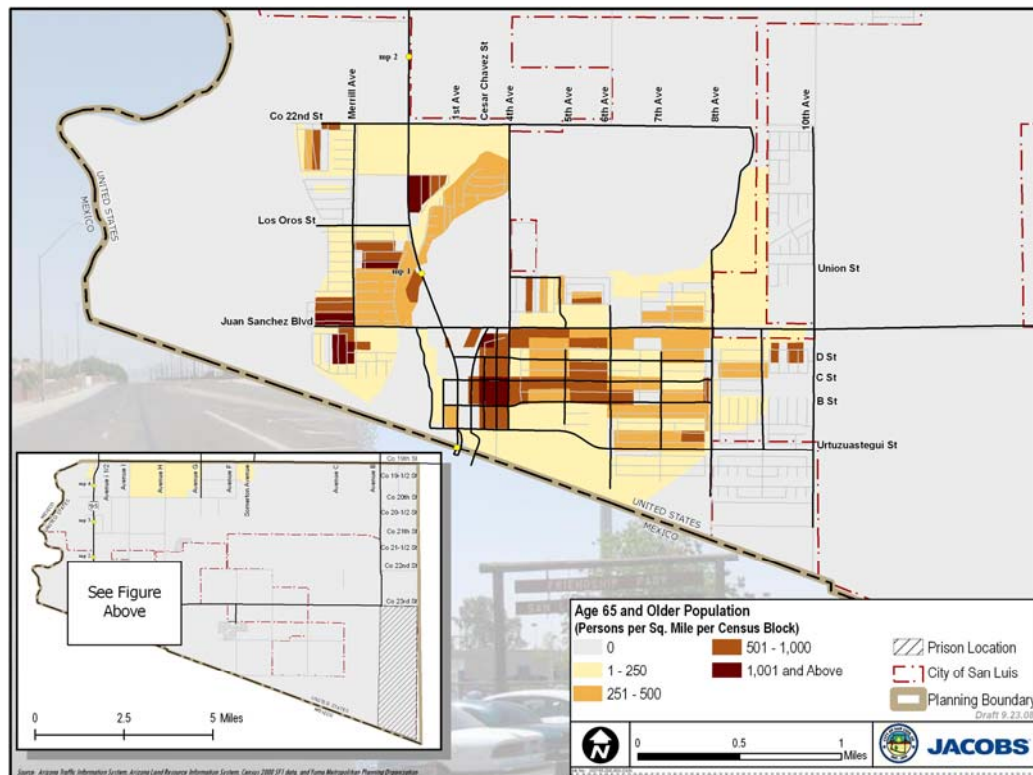


FIGURE 2.6: MOBILITY LIMITED POPULATION DENSITY AGE 16-64

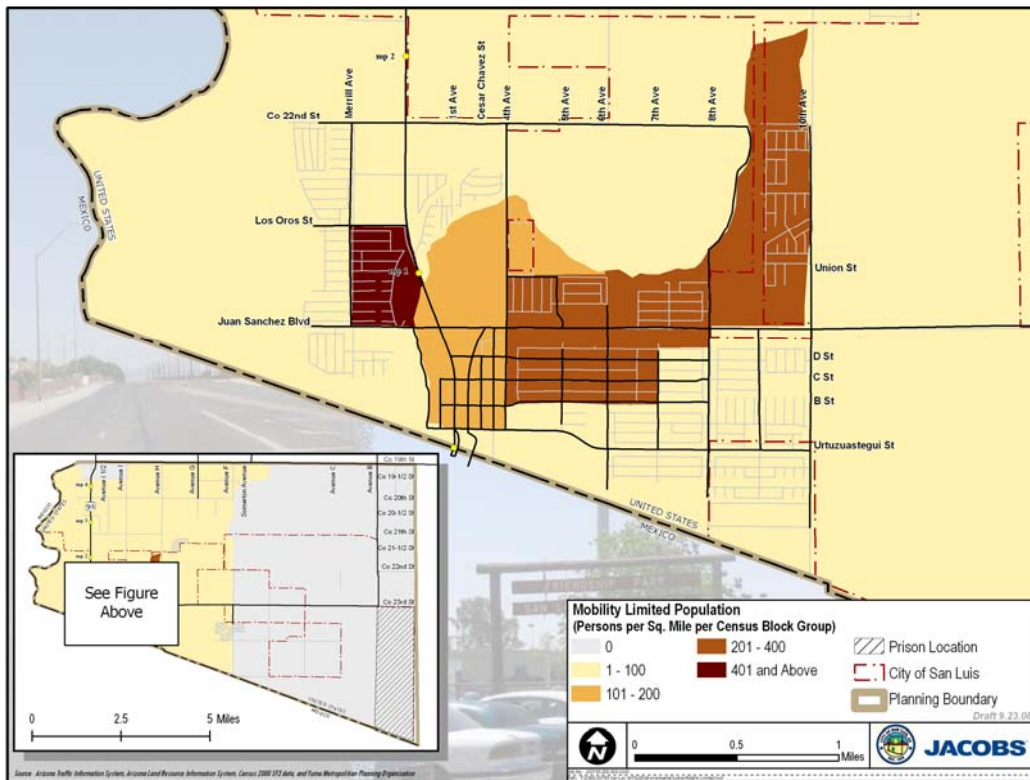
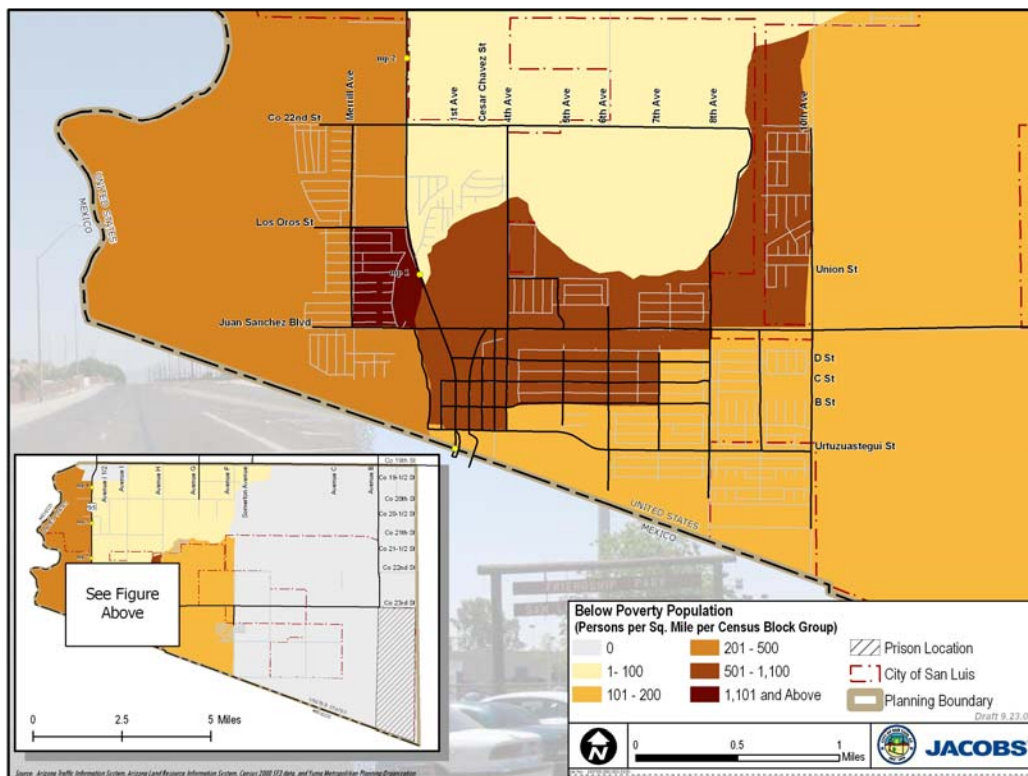


FIGURE 2.7: BELOW POVERTY POPULATION DENSITY



## ENVIRONMENTAL AND CULTURAL RESOURCES OVERVIEW

### Natural Environmental Overview

The City of San Luis is situated on the western edge of the Yuma Mesa, at an average elevation of 140 feet above sea level. It is approximately 60 feet above the Yuma Valley which consists of windblown sand, and is fairly flat with little topographic relief. Recent expansion has taken the community to the north and west, which includes areas of the Colorado River's Yuma Valley.

The planning area encompasses a distinct habitat type and supports many species of desert animals, both indigenous and migratory. Wildlife species that inhabit the area primarily are Coyote, Kit Fox, Desert Cottontail Rabbit, Collard Lizard, Desert Iguana, Western Whiptail, Western Banded Gecko, Gila Monster, Sidewinder, Kangaroo Rat, Desert Tortoise, Gambel's Quail, Burrowing Owl, Turkey Vulture, and wild dogs. In addition, the Pacific flyway for migrating birds, ducks, geese, and predator species bisects the area. These migrating birds utilize the agricultural fields and citrus groves in the region for resting and grazing.

The planning area lies within the Lower Colorado River Subdivision of the Sonoran Desert and is composed of sandy plains containing micro-dunes. The vegetation cover consists of Big Galleta Grass (*hilaria rigida*), Creosote Bush (*larrea tridentata*), and White Bursage (*ambrosia dumosa*). Figure 2.8 depicts the general vegetation family locations within in the study area.

### Areas of Concern

Leaking underground storage tanks are located near US 95 and D Street and near the border as shown in Figure 2.9. Non-leaking underground storage tanks are located near the intersection of US 95 with C Street and B Street, and along 1<sup>st</sup> Avenue near B and C Street. These locations require periodic monitoring.



FIGURE 2.8: NATURAL ENVIRONMENT OVERVIEW

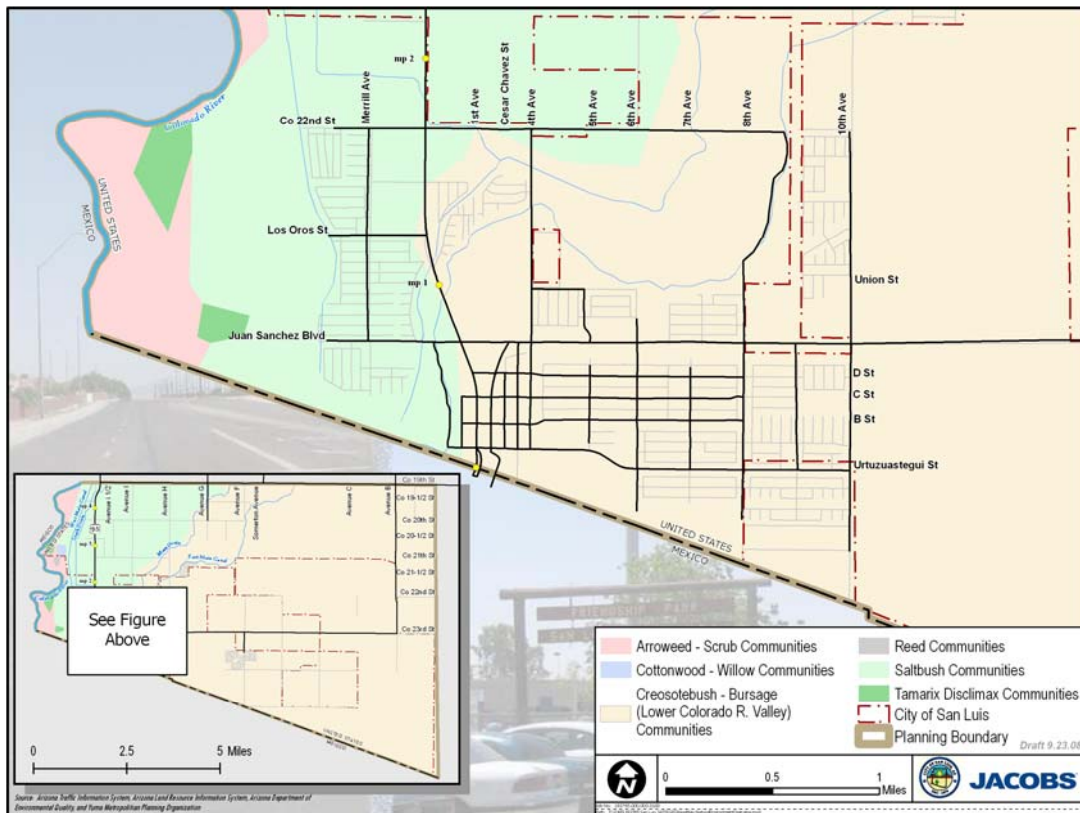
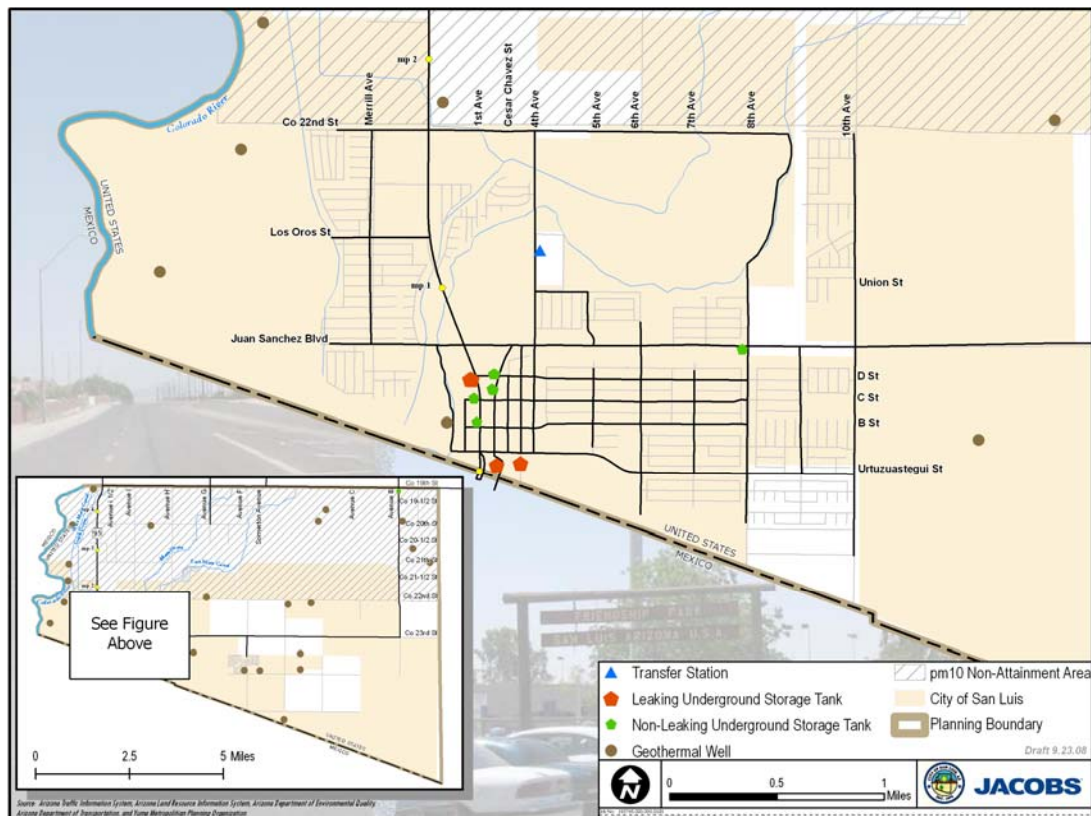


FIGURE 2.9: ENVIRONMENTAL CONCERNS



### San Luis Land Port of Entry (LPOE) I

An integral part of the City of San Luis landscape is the Port of Entry to its sister city San Luis Rio Colorado, with a population of approximately 250,000 inhabitants and a growing maquiladoras industry. Commercial activities are abundant on either side of the border creating mobility challenges for both communities. During peak periods and weekends the traffic along US 95 is very substantial creating long delays and backups on US 95 with a continuing long line of mixed POV, Freight, and buses backed up at times to the City boundary. The local traffic and pedestrians compete for access to the local businesses and turns into existing roads causing even greater problems.

Pedestrian activity is intense on the border for both commerce and employment. During the peak periods, pedestrians often have to wait approximately two hours to be processed. Additionally, the agricultural labor force to support the agricultural industry in Yuma County is predominantly from Mexico, hence transportation to and from the work sites impact San Luis transportation infrastructures.

Truck traffic at the port of entry for 2007 was approximately 170 trucks per day carrying all types of goods. Table 2.4 summarized the border crossing activities for the year 2000 through 2007 for different travel modes.

**TABLE 2.4: BORDER CROSSING ACTIVITIES**

Year	Trucks	Loaded Truck Containers	Empty Truck Containers	Buses	Bus Passengers	Personal Vehicles	Passengers Personal Vehicles	Pedestrians
2000	40,348	18,924	11,379	38	1,039	2,597,835	7,068,111	2,824,562
2001	40,032	20,753	17,314	35	912	2,596,180	6,446,175	3,170,259
2002	37,671	20,766	16,715	102	1,149	3,306,378	7,879,970	2,968,278
2003	37,975	19,859	17,504	38	829	3,189,867	6,836,544	2,625,907
2004	41,184	22,613	17,413	74	836	3,755,829	7,356,431	2,316,812
2005	45,898	24,061	20,659	83	1,256	3,472,277	6,690,613	2,227,807
2006	45,851	23,967	20,218	96	1,838	2,703,263	5,206,664	2,669,311
2007	42,716	21,081	20,910	53	1,758	2,481,013	4,712,950	2,939,684

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Border Crossing/Entry Data; based on data from U.S. Department of Homeland Security, Customs and Border Protection, OMR database.

### 3. EXISTING TRANSPORTATION CONDITIONS

#### MAJOR ROADWAYS

##### *US 95*

US 95 is an ADOT owned four-lane divided facility and is the major regional facility connecting the City with the rest of Yuma County jurisdictions. It is the designated truck route in the study area and is the most traveled road in the transportation system

##### *Juan Sanchez Boulevard*

Juan Sanchez Boulevard is the next most traveled facility. It is a two-lane road with the exception of the portion from 8th Avenue to 10th Avenue. Currently, the facility is the main access to the Arizona State Prison Complex located at Avenue B and County 23rd.

#### **Roadway Number of Lanes, Functional Classification, and Posted Speeds**

The major east-west facilities are County 22nd and Urtuzuastegui Street and are both two-lane roadways. The major north-south facilities serving the community are 4th Avenue, 8th Avenue and 10th Avenue. Figure 3.1 displays the 2008 number of lanes for the roadway system.

Functional Classification is the grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. Streets and highways do not operate independently. They are part of an interconnected network, and each one performs a service in moving traffic throughout the system. The roadway functional classification used in the study was taken from the general plan circulation element and is shown in Figure 3.2, while Figure 3.3 displays the roadway posted speeds. The majority of the local roadways have a speed of 25 mph, while the major traveled road show a speed of 35 mph in the urbanized area and between 50 mph and 65 mph in the rural areas.

#### **Others Roadway Characteristics**

Only US 95 had pavement condition rating available and are shown in Figure 3.4. However, most of the local streets are paved and a cursory field review showed the facilities to have a rating of adequate for their functional classification. For this study, an inventory of sidewalks and available on-street parking in the down town area was performed and is displayed in Figure 3.5 and Figure 3.6 respectively.

FIGURE 3.1: 2008 NUMBER OF LANES

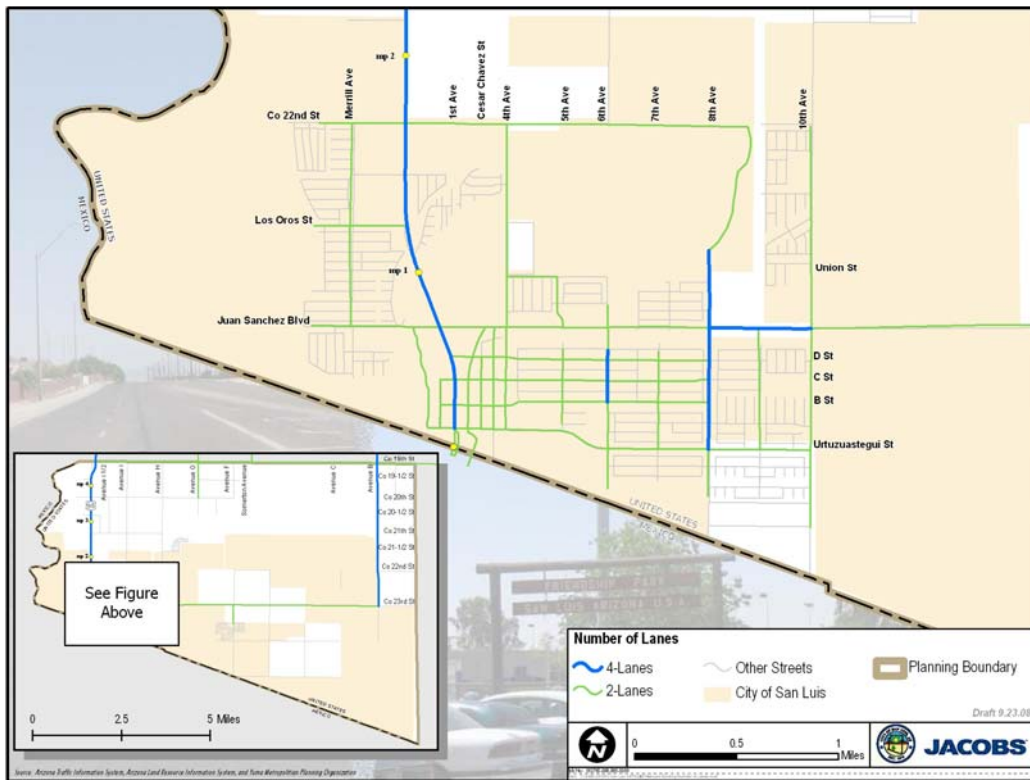


FIGURE 3.2: 2008 FUNCTIONAL CLASSIFICATIONS

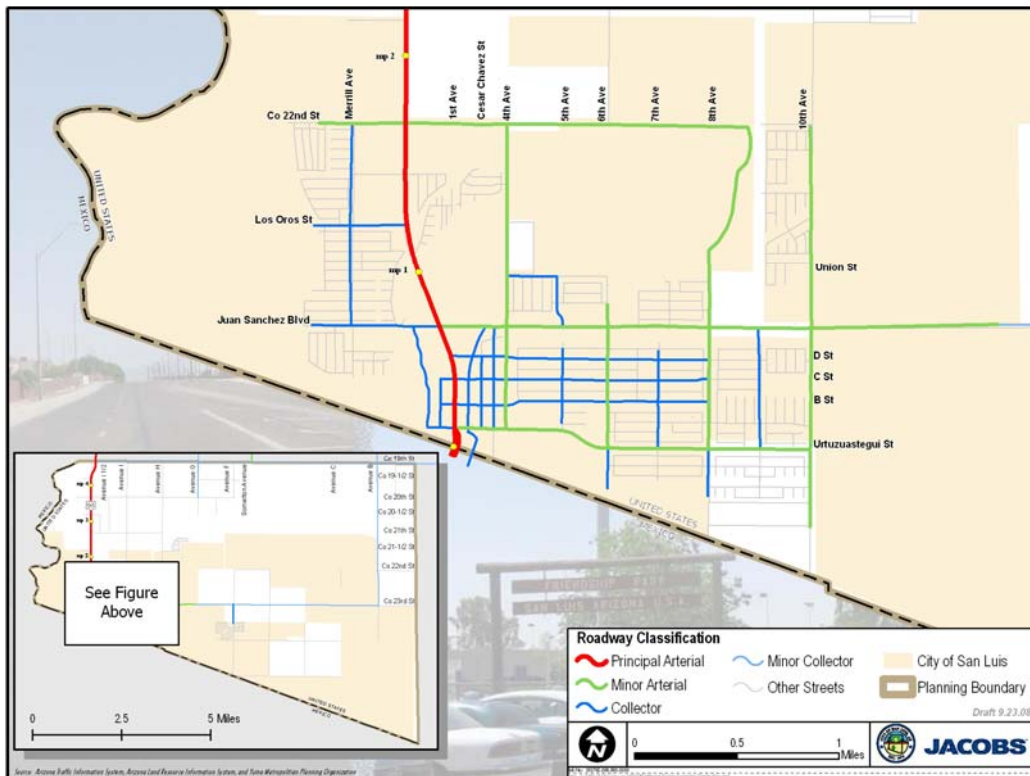


FIGURE 3.3: 2008 POSTED SPEED

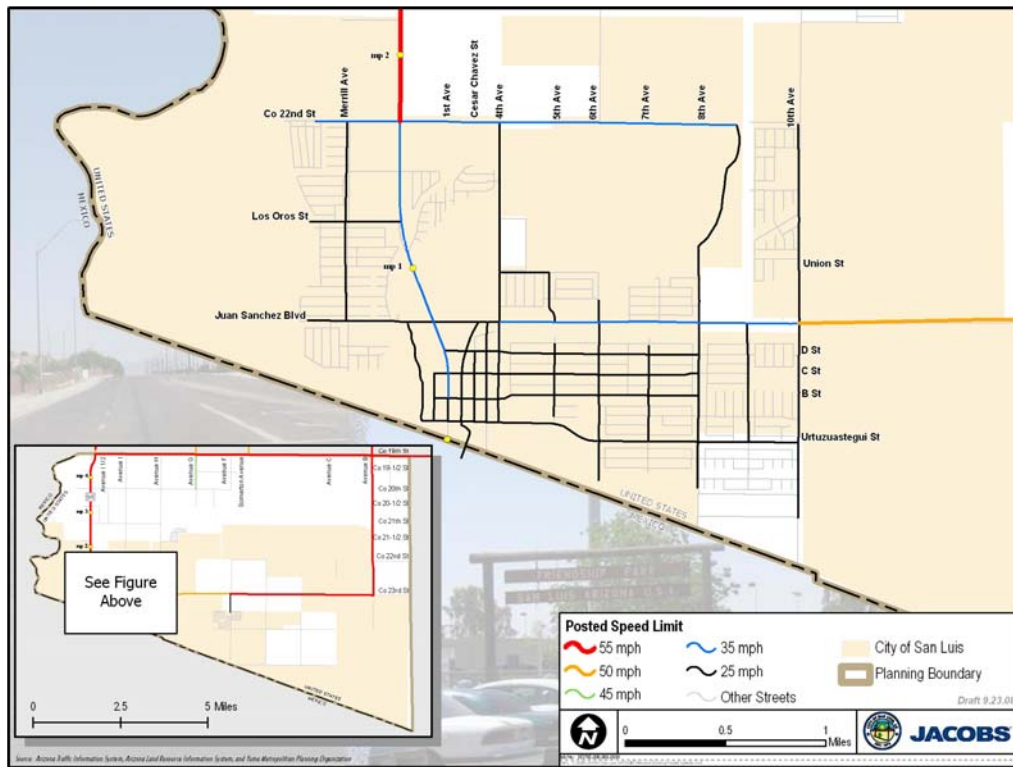


FIGURE 3.4: 2008 PAVEMENT CONDITIONS

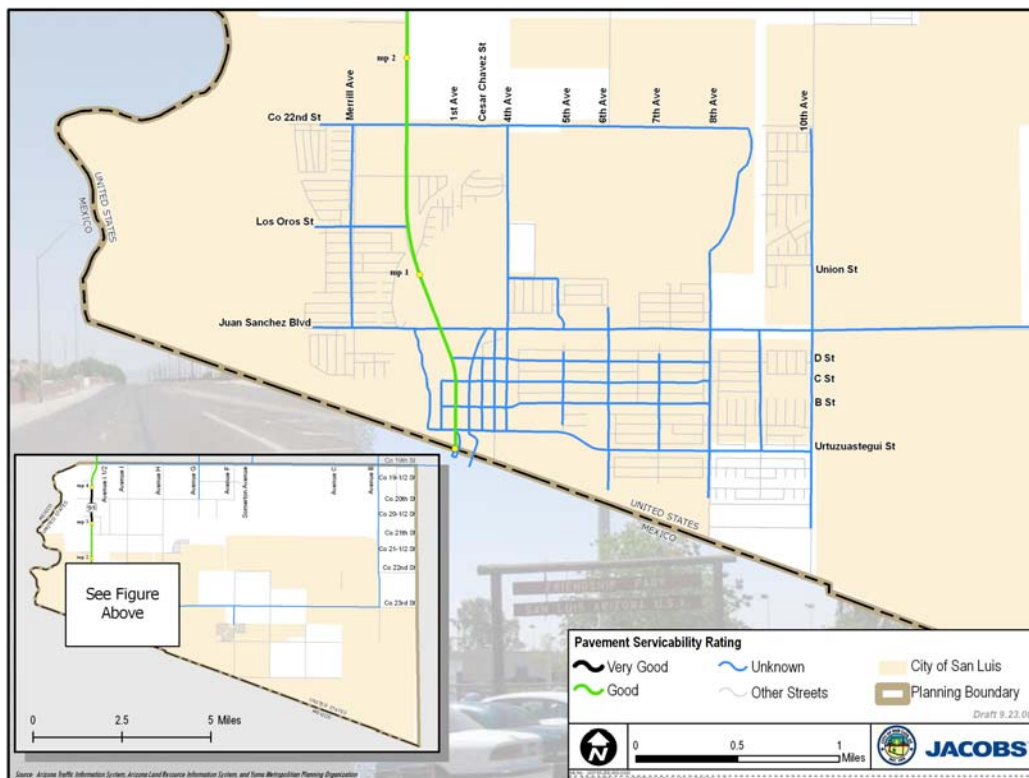


FIGURE 3.5: 2008 PEDESTRIAN SIDEWALKS

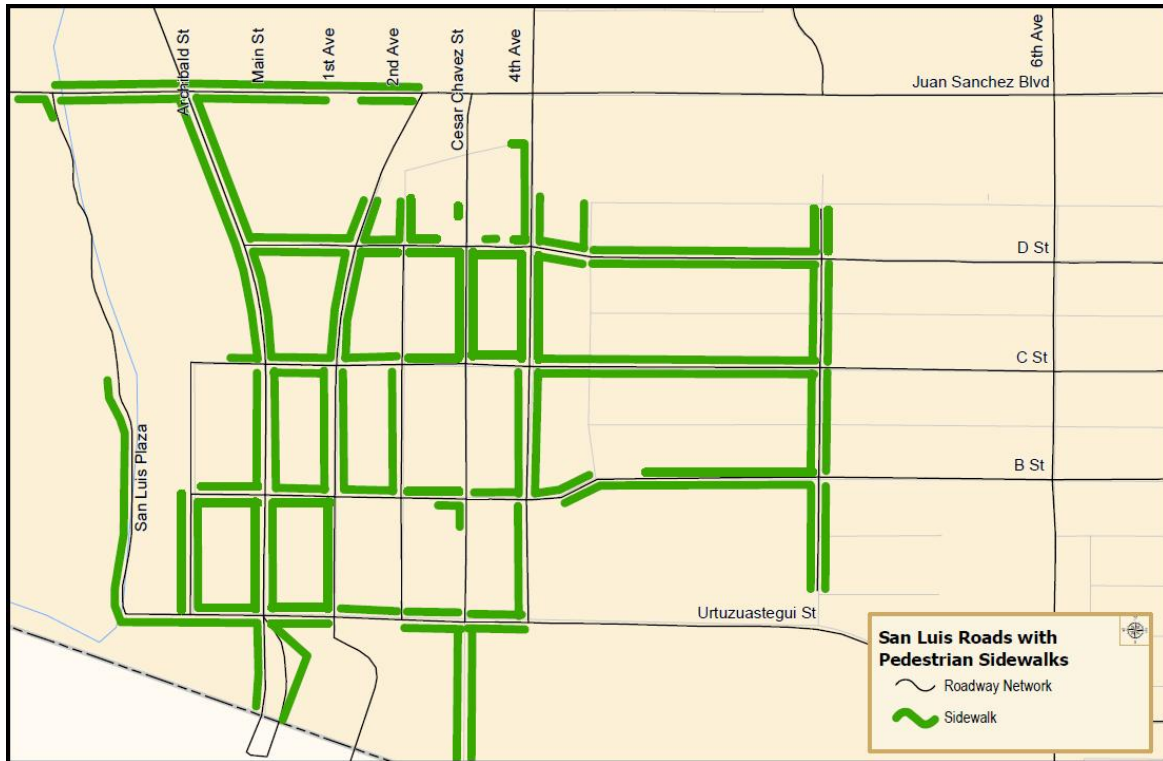
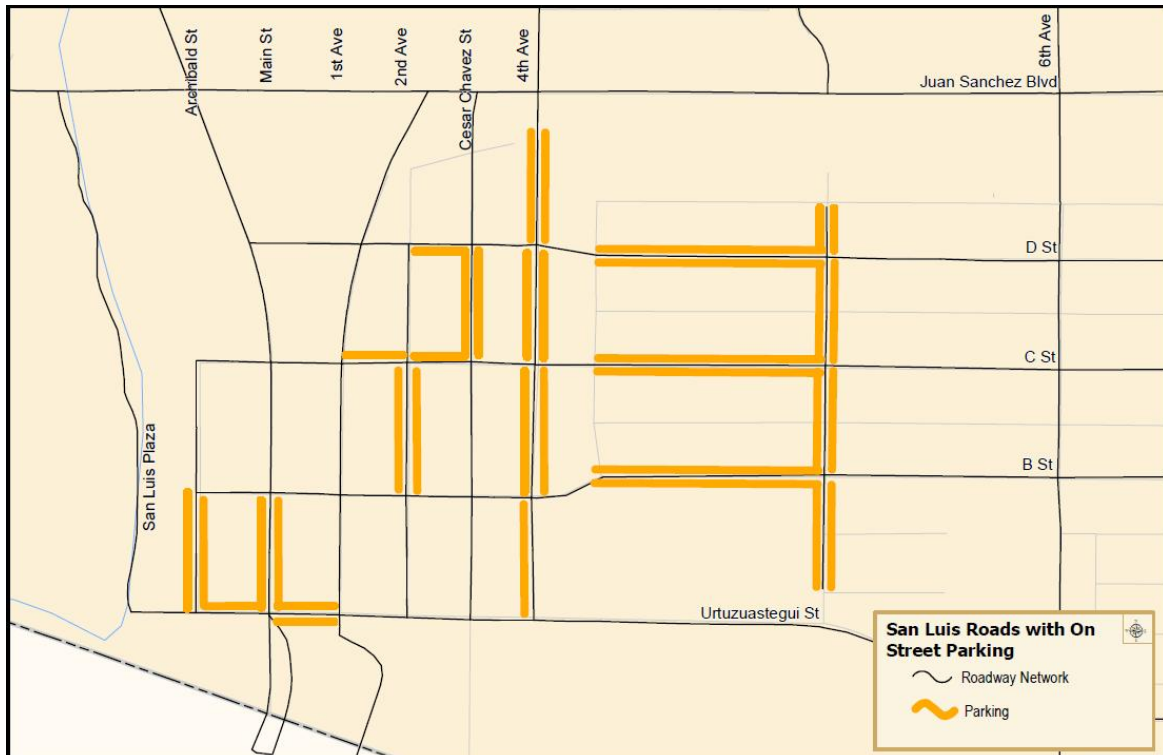


FIGURE 3.6: 2008 ON STREET PARKING



## CRASH DATA

Crash analysis was conducted for major roadways in the study area to identify high accident locations, trends, patterns, and predominant crash reasons. All accidents in the area between January 2002 and December 2007 were obtained from ADOT's ALISS (Accident Location Identification Surveillance System) accident database. A total of 332 crashes occurred in the study area over the five year period and are summarized by year in Table 3.1. Figure 3.7 shows a breakdown of accidents by intersection type, first harmful definition, collision manner, and injury severity.

Figure 3.8 displays the crash locations and Figure 3.9 displays the fatal accident locations based on ADOT ALISS crash database. Table 3.2 summarizes the predominant violation types for the crashes obtained from ADOT ALISS crash database.

Failing to yield the right-of-way, speeding, and inattention were the major causes for the crashes in the study area which resulted in a total of 9 fatalities for the 5 years period. The year 2006 had the highest number of crashes with a total of 137, while 2007 had the lowest count of 16.

County 19<sup>th</sup> and US 95 are the two major roadways in the study area with the highest number of crashes in particular at the intersection of County 19<sup>th</sup> and Avenue B.

The majority of the crashes were intersection related, involving another vehicle, with no injuries. The predominant collision manners were: single vehicle, angle, and rear-end. However, it is worth noting that 27 percent of the crashes in the study area were with pedestrians.

FIGURE 3.7: CRASH SUMMARY

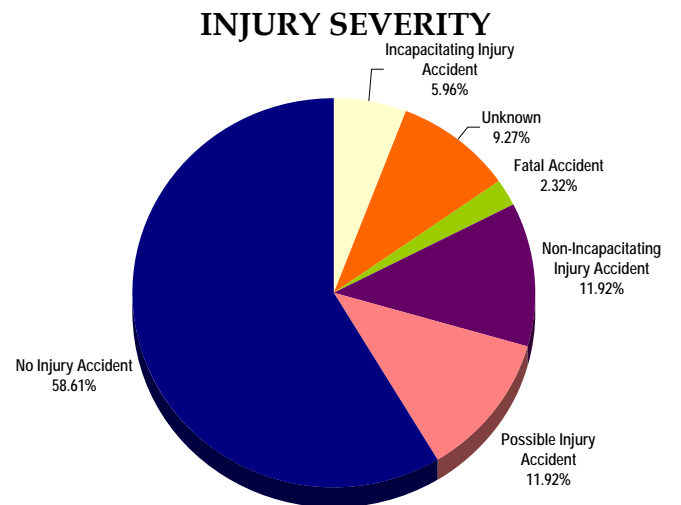
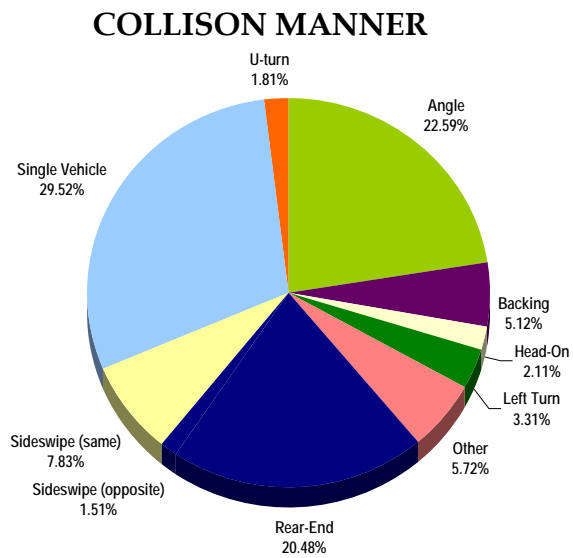
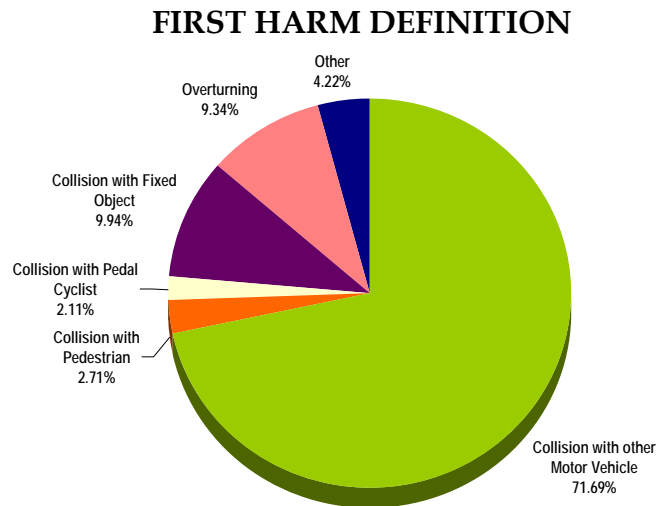
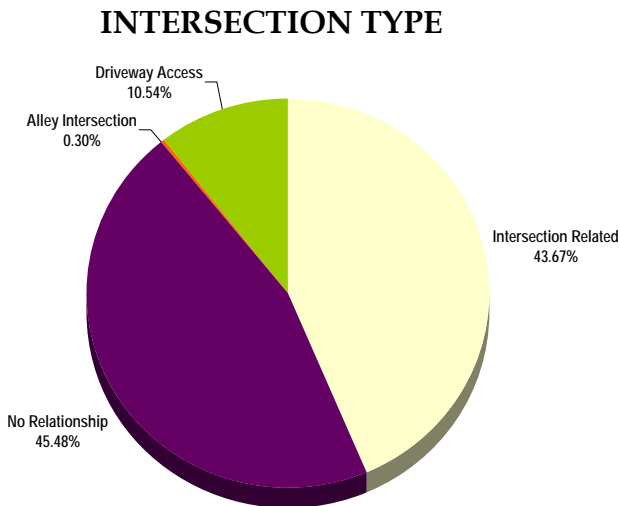




TABLE 3.1: CRASH SUMMARY (ADOT ALISS CRASH DATABASE)

YEAR	NO INJURY	WITH INJURY	FATALITY	TOTAL
2002	28	25	4	57
2003	5	20	1	26
2004	7	34	1	42
2005	5	48	1	54
2006	80	56	1	137
2007	3	12	1	16
<b>TOTAL</b>	<b>128</b>	<b>195</b>	<b>9</b>	<b>332</b>

TABLE 3.2: CRASHES - PREDOMINANT VIOLATION TYPE (ADOT ALISS CRASH DATABASE)

VIOLATION TYPE	CRASHES	PERCENTAGE
Failed to Yield Right-Of-Way	57	17.17%
Speed Too Fast for Conditions	48	14.46%
Inattention	46	13.86%
Other	41	12.35%
Unknown	36	10.84%
No Improper Driving	19	5.72%
Followed Too Closely	18	5.42%
Made Improper Turn	17	5.12%
Drove in Opposing Traffic Lane	11	3.31%
Exceeded Lawful Speed	11	3.31%
Other Unsafe Passing	8	2.41%
Ran Stop Sign	9	2.71%
Disregarded Traffic Signal	5	1.51%
Unsafe Lane Change	5	1.51%
Knowingly Operated with Faulty or Missing Equipment	1	0.30%
<b>Total</b>	<b>332</b>	<b>100.00%</b>

FIGURE 3.8: CRASHES PER LOCATION

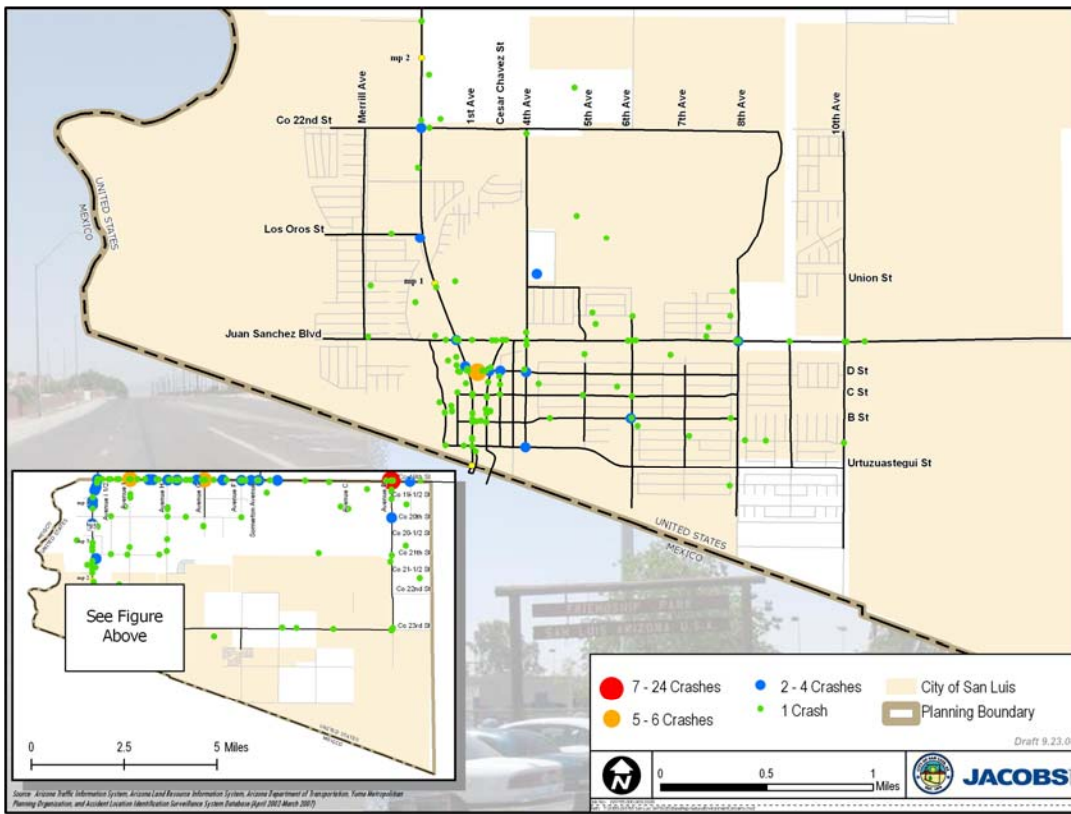
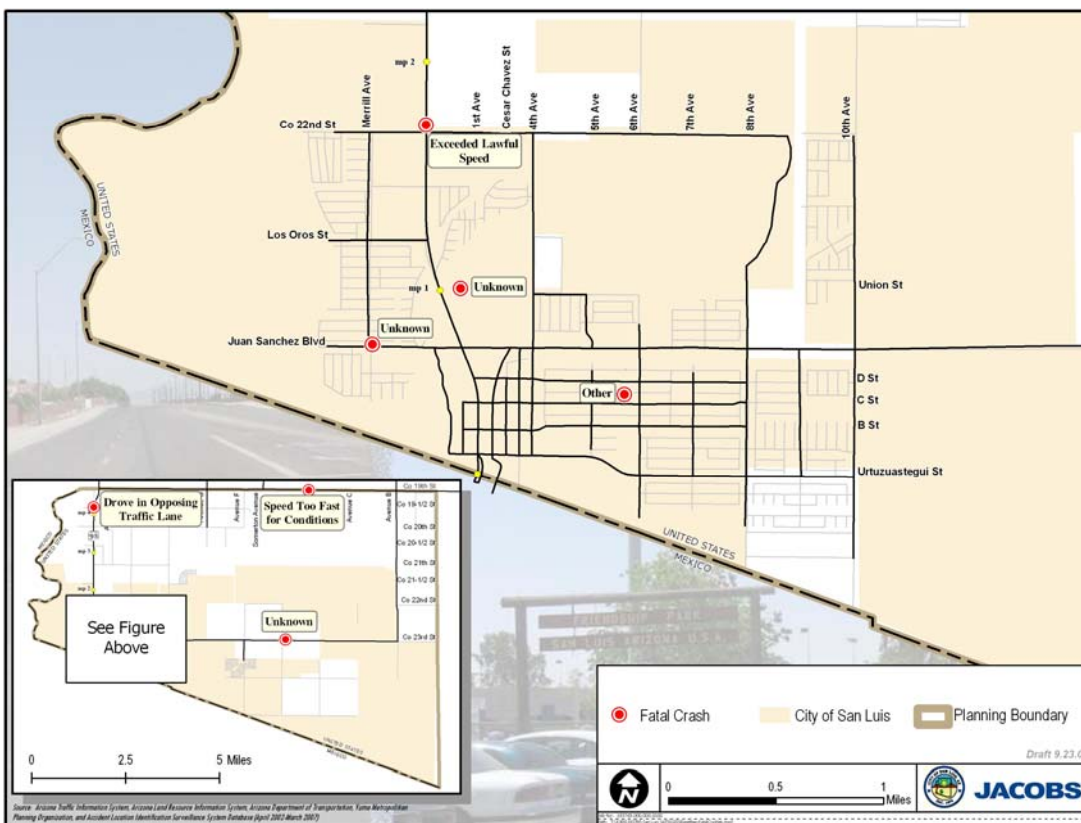


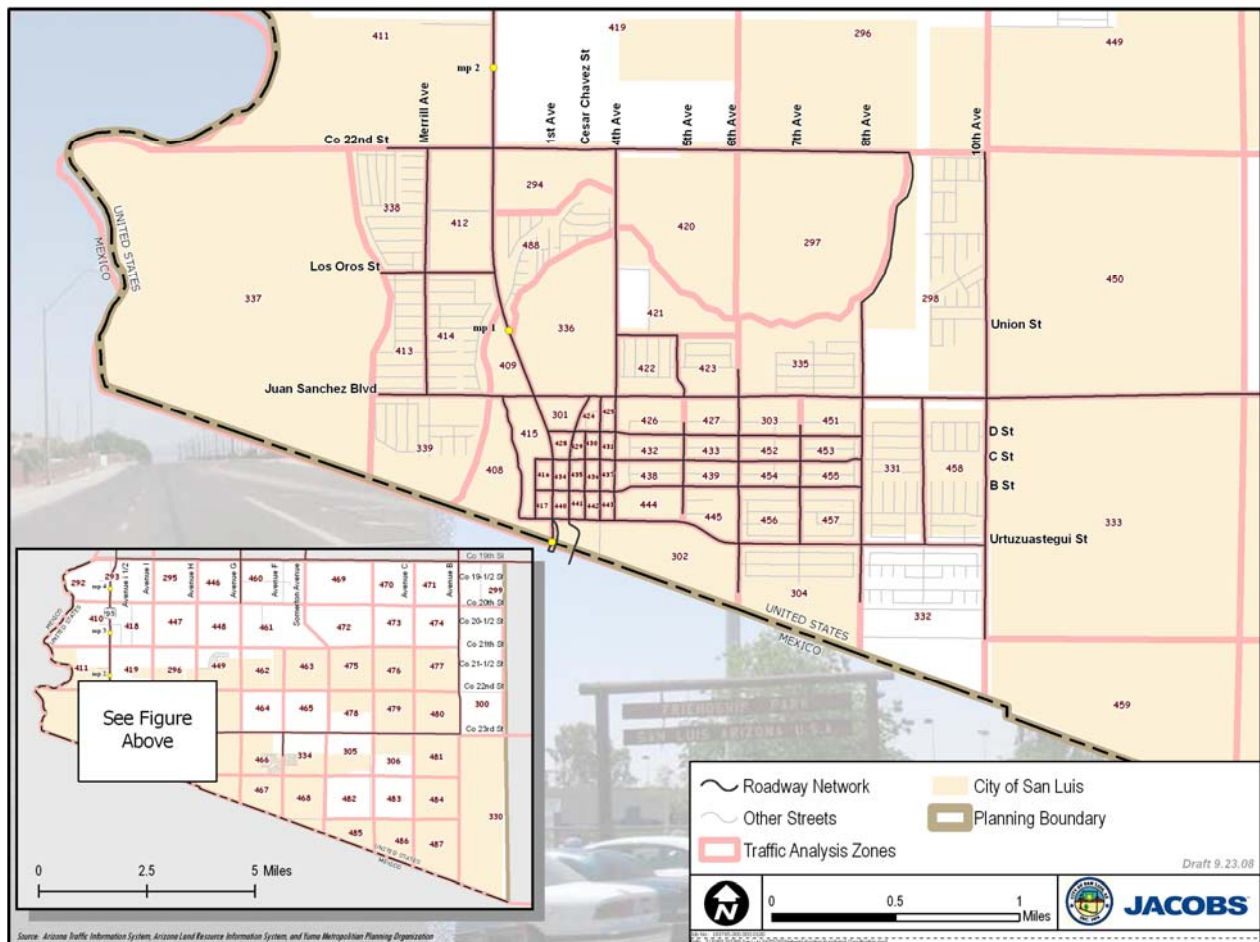
FIGURE 3.9: FATAL CRASH LOCATIONS



## EXISTING ROADWAY TRAFFIC AND PERFORMANCE CONDITIONS

To evaluate the traffic conditions on all the roadways in the study area, the YMPO regional travel demand model was refined to include additional traffic analysis zones (TAZ) and roadway network. Figure 3.10 displays the TAZ structure and the 2008 model network.

FIGURE 3.10: 2008 SAN LUIS TAZ AND NETWORK



### Traffic Counts

Traffic counts were obtained from the YMPO for the winter 2008 time frame, were adjusted to annual average condition and were used to validate the travel demand model results. Table 3.3 summarizes the results by roadway and location. The highest traffic volumes were on US 95 from the border to the study area boundaries with a range from 20,200 to 14, 200 vehicles per day. Juan Sanchez Blvd. followed second with

volumes ranging from 8,900 to 12, 800 vehicles per day with the highest volume occurring between 1<sup>st</sup> and 4<sup>th</sup> Avenue.

**TABLE 3.3: 2008 TRAFFIC COUNTS**

<b>ROAD</b>	<b>LOCATION</b>	<b>COUNT</b>
US 95	North of Los Oros Street	14,700
US 95	North of Juan Sanchez Boulevard	20,200
US 95	South of Juan Sanchez Boulevard	18,200
US 95	North of B Street	16,200
US 95	At the border	14,200
Urtuzuastegui Street	West of 1st Avenue	1,500
Urtuzuastegui Street	East of 1st Avenue	3,900
Urtuzuastegui Street	West of 8th Avenue	3,400
Urtuzuastegui Street	East of 9th Avenue	1,100
Juan Sanchez Boulevard	West of US 95	5,700
Juan Sanchez Boulevard	East of US 95	11,300
Juan Sanchez Boulevard	West of 1st Avenue	12,600
Juan Sanchez Boulevard	East of 4th Avenue	12,800
Juan Sanchez Boulevard	West of 8th Avenue	10,800
Juan Sanchez Boulevard	West of 10th Avenue	8,900
B Street	East of 7th Avenue	1,300
C Street	West of 1st Avenue	3,100
D Street	West of US 95	10,100
Los Oros Street	West of US 95	2,400
1st Avenue	North of Urtuzuastegui Street	5,000
2nd Avenue	North of Urtuzuastegui Street	1,000
4th Avenue	North of Juan Sanchez Boulevard	3,400
6th Avenue	South of Juan Sanchez Boulevard	4,300
7th Avenue	North of Avenue B	500
8th Avenue	North of Juan Sanchez Boulevard	5,600
8th Avenue	South of Juan Sanchez Boulevard	7,100
8th Avenue	South of B Street	2,200
9h Avenue	South of Juan Sanchez Boulevard	1,100
10th Avenue	North of Juan Sanchez Boulevard	6,000
10th Avenue	South of Juan Sanchez Boulevard	3,900
10th Avenue	North of Urtuzuastegui Street	1,900

## Level of Service (LOS)

Roadway performance is measured in terms of Level of Service. For a planning level analysis, the level of service is determined based on the range of the ratio of traffic volume on the road to the capacity of the road. Capacity of the road is the function of the number of lanes, functional classification, speed, and roadway geometrics. Level of Service (LOS) of a road segment can range from LOS A to LOS F. Highway Capacity Manual characterizes LOS as:

**LOS A:** Best, free flow operations (on uninterrupted flow facilities) and very low delay (on interrupted flow facilities). Freedom to select desired speeds and to maneuver within traffic is extremely high.

**LOS B:** Flow is stable, but presence of other users is noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within traffic.

**LOS C:** Flow is stable, but the operation of users is becoming affected by the presence of other users. Maneuvering within traffic requires substantial vigilance on the part of the user.

**LOS D:** High density but stable flow. Speed and freedom to maneuver are severely restricted. The driver is experiencing a generally poor level of comfort and convenience.

**LOS E:** Flow is at or near capacity. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within traffic is extremely difficult. Comfort and convenience levels are extremely poor.

**LOS F:** Worse, facility has failed, or a breakdown has occurred.

Figure 3.11 is a pictorial representation of LOS A thru F. Figure 3.12 illustrates the current Level of Service for roadways for the San Luis study area. As the figure shows most roads are functioning at an acceptable level of service, with the exception of US 95 near the border and 1<sup>st</sup> Avenue near D Street.

FIGURE 3.11: ILLUSTRATION OF LOS A THRU LOS F

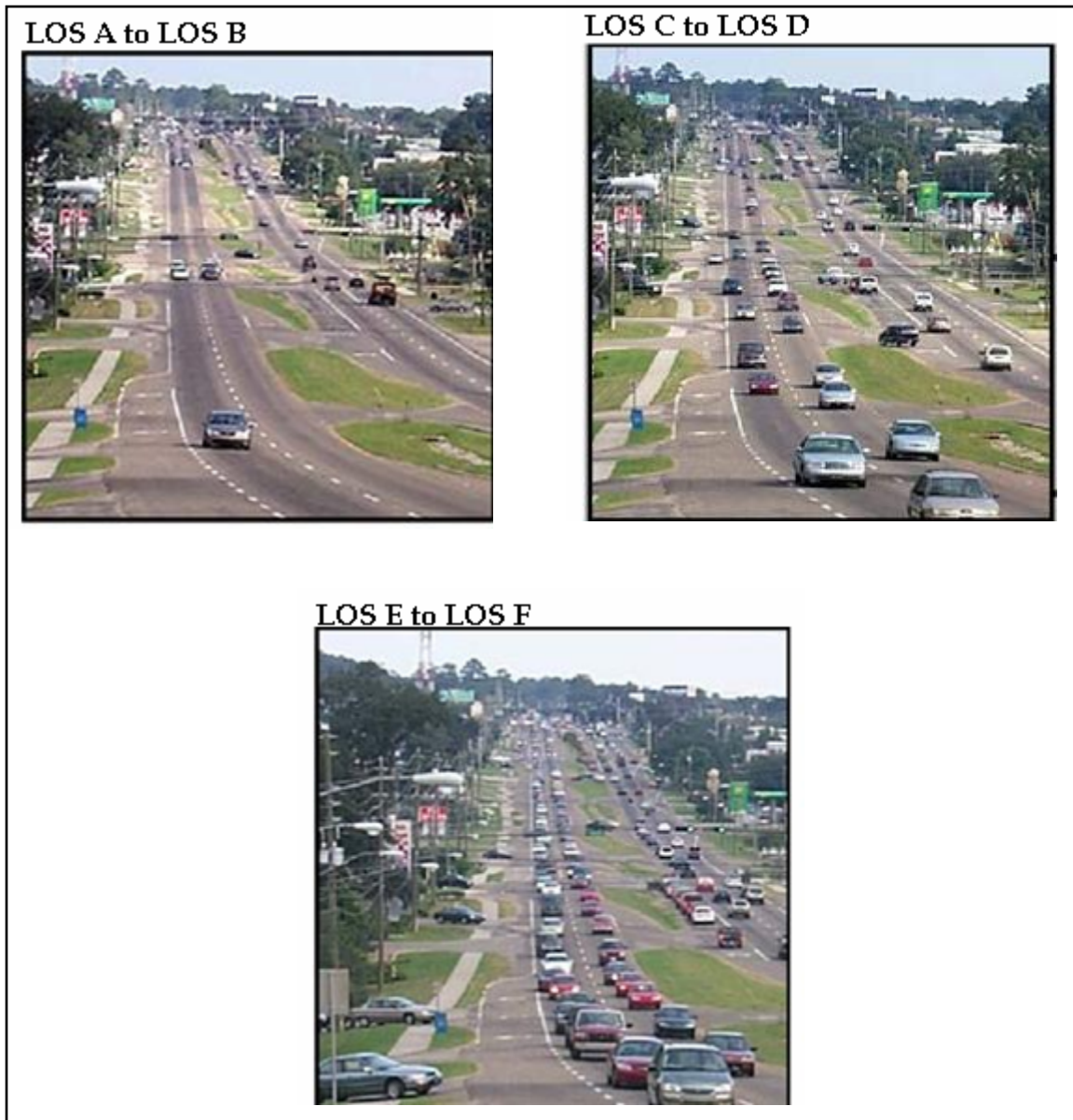
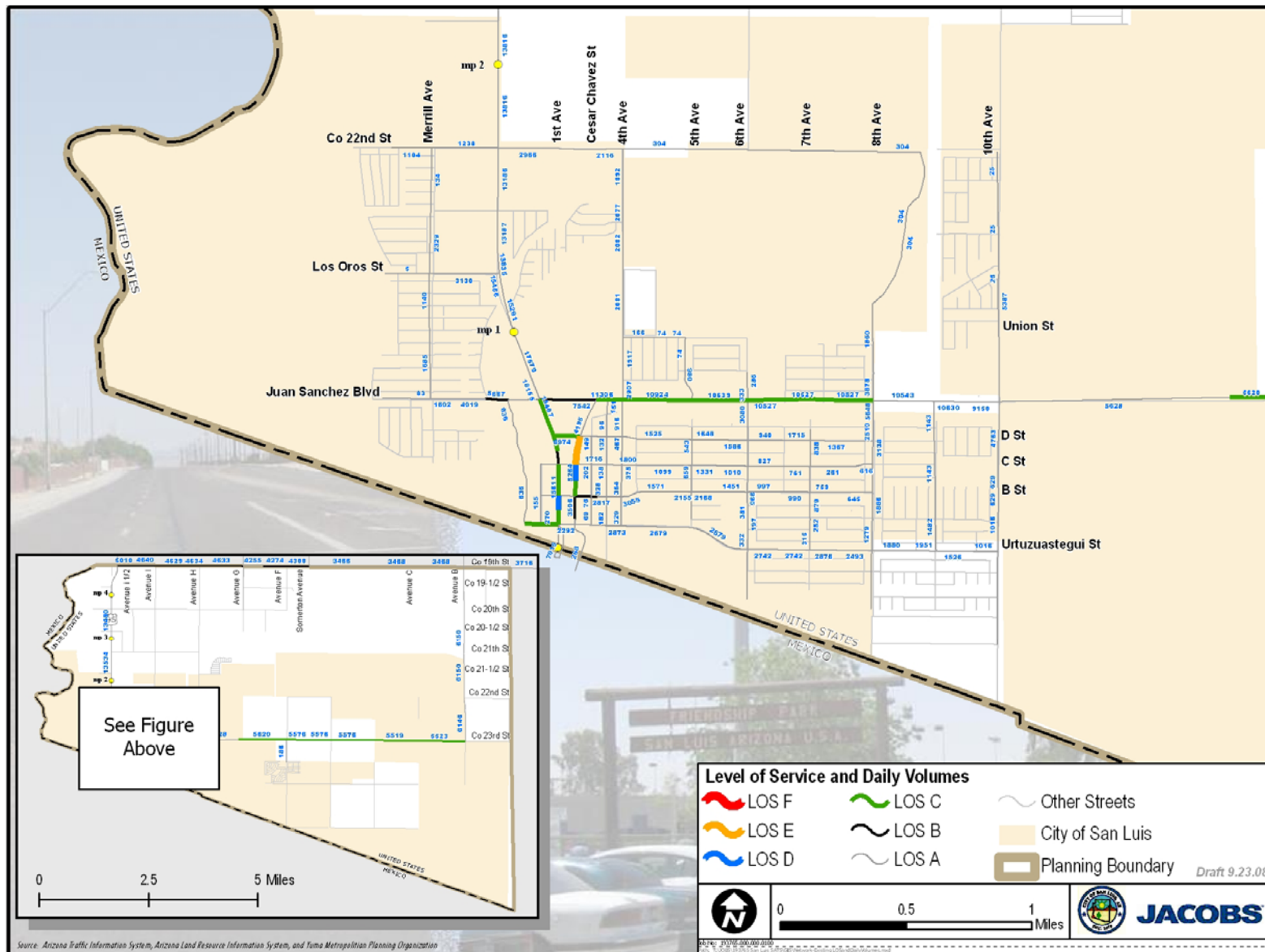


FIGURE 3.12: 2008 DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE (LOS)



## MULTIMODAL INVENTORY

### Existing Transit Services

The City of San Luis has one public transit agency providing one fixed route service line to the City for the general public and half a dozen specialized nonprofit providers serving eligible clients in San Luis.

#### *Yuma County Area Transit (YCAT)*

Yuma County Area Transit (YCAT) is the largest public transit provider for the Yuma Region, including the City of San Luis. YCAT is a public transit service operating a fixed route transit service and a dial-a-ride ADA Para transit service for elderly and disabled persons. YCAT is was established by the Yuma Metropolitan Organization (YMPO) which is the regional organizational agency providing multimodal transportation planning and public transportation services for the City of San Luis and neighboring areas within Yuma County. Besides the City of San Luis, YMPO's jurisdictional coverage includes other cities in the region including the cities of Yuma and Somerton, the Town of Wellton, the Cocopah Indian Tribe, Yuma County, and the Winterhaven, California urbanized area (YMPO non-voting member).

#### *Fixed Route Service*

In February 2004, YMPO took over Valley Transit, which was a fixed route service for the City of Yuma, and changed its name to Yuma County Area Transit (YCAT). Since then, YCAT has expanded transportation opportunities for residents in the YMPO planning area by expanding the service area to include service to San Luis, Somerton and Wellton. YCAT's ridership has increased from an average of 9,100 passengers per month to an average of 29,000 passengers per month. Currently, YCAT's fixed route system includes six routes: three circular one-way routes; a center-city route; two long distance routes (Yuma-San Luis and Yuma-Wellton); and two short-distance routes serving the Cocopah Indian Tribe. Of the six YCAT routes, the Yellow Line is the only line that connects San Luis to the rest of Yuma. The Yellow Line runs from 6 AM to 8 PM for a total service span of fourteen hours or thirteen trips per day with each round trip traversing a distance of about 50 miles. The frequency of service is about one bus per hour.



Fares for the fixed route system are \$1.50 for the in-town routes and \$2.50 to \$3.50 for the longer routes. Ridership on the fixed route system averaged 21,303 people per month in 2008. According to the Rural Transit Needs Study, Somerton and San Luis in Yuma County have Section 5307 urbanized area service, but not local Section 5311 service.

Actual total ridership for YCAT from October 2007 to October 2008 was 348,000 total trips. YCAT provided monthly Yellow Line ridership counts for the period from November 2008 to January 2009 as well as average monthly ridership for the entire YCAT system for 2008. As shown in Table 3.4, the Yellow Line is the most heavily utilized route in the entire system. Averaging 13,755 passenger trips per month, the Yellow Line ridership is about 47% of the entire YCAT average monthly ridership of 29,000 riders.

**TABLE 3.4: YCAT YELLOW LINE (SAN LUIS - YUMA)  
TOTAL MONTHLY RIDERSHIP**

<b>MONTH</b>	<b>NORTHBOUND</b>	<b>SOUTHBOUND</b>	<b>TOTAL</b>
November 2008	6,908	6,320	13,228
December 2008	6,447	7,592	14,039
January 2009	5,970	8,028	13,998
Yellow Average	6,442	7,313	13,755
YCAT Average			29,000

### *Dial-A-Ride Service*

YMPO's dial-a-ride service operates throughout Yuma County, including the City of Yuma, San Luis, Somerton, Gadsden, Foothills, and Wellton. Service operates Monday through Saturday, from 5 a.m. to 7 p.m. The service is provided for Yuma County residents who are 60 years and older; or those of any age who are disabled. Dial-a-ride riders must have an identification card indicating that they qualify for the service. Although reservations are required 24 hours in advance of the desired trip, the popularity of the service means that trips are often booked more than a day in advance. It serves seniors and persons with disabilities. Currently, fares for Dial-A-Ride service are \$4 within the City area and \$15 in outlying areas. According to the 2006-2029 Regional Transportation plan, ridership on the Para transit system ranges from 4,300-5,000 rides per month, and the FY2007 operating budget for Para transit service is \$483,000.

## **Client-Oriented Transportation Providers**

In addition to YCAT's ADA accessible Para transit service providing public transportation for mobility limited persons, several other nonprofit agencies also provide specialized client-oriented services that supplement the specialized public transportation needs in the San Luis area. Below is a description of the major providers.

### ***Saguaro Foundation***

Saguaro Foundation is a nonprofit human services organization serving clients in Yuma County. Saguaro Transportation Services is the transportation arm of the Foundation. Saguaro Transportation provides transportation to its own clients and provides transportation under contract to other organizations. Service contracts include: several contracts with the Department of Economic Security (DES), including Vocational Rehabilitation, Family Services, Developmental Disabilities; Arizona Health Cost Containment System (AHCCCS) for Medicaid transportation; the United Way; and the Arizona Department of Corrections for transportation for prison visitors.

### ***City of San Luis***

The City of San Luis provides transportation services for seniors in the San Luis area. Service is provided five hours a day, five days a week. San Luis has also started its own taxi-transit service, which provides seniors with vouchers that pay for 80% of the cost of a taxi trip. The taxi-transit program does not require a reservation, which makes the program very attractive to seniors.

### ***The EXCEL Group***

The EXCEL Group provides transportation based on medical necessity for the elderly and disabled adult customers who are diagnosed as Seriously Mentally Ill (SMI), and/or have physical disability and are eligible for Title XIX services under the Arizona Health Care Cost Containment System (AHCCCS). They provide this service for all SMI consumers in Yuma and La Paz County, Monday - Friday 5:00 am to 7:00 pm and Saturdays from 5:00 am to 9:00 pm. They also work closely with several other mental health providers in the Yuma metropolitan area, providing transportation for children, adults and seniors with mental illness and physical disabilities.

### ***Catholic Community Services in Western Arizona (CCSWA)***

The Catholic Community Services of Western Arizona (CCSWA) is a non-profit organization that has provided Yuma County residents with a variety of transportation services over the last forty years. Their operations covers five different transportation needs which are transport clients to adult day health care centers, to counseling centers particularly for substance abuse groups, to the Safe House domestic violence shelter, and to provide meals on wheels.

### ***Regional Center for Border Health***

The Regional Center for Border Health, Inc. (RCBH) offers medical transportation services to residents of Yuma County. RCBH has three trained and certified drivers that work Monday through Saturday. The hours worked differ depending on scheduled runs, but services start as early as 3:00 am and as late as 11:00 pm.

### ***Yuma WORC Center***

The Yuma WORC (Work, Opportunity, Responsibility, and Confidence) Center, Inc. is a nonprofit agency that has been servicing the needs of individuals with disabilities within the Yuma Community since 1973. They provide employment and work training opportunities such as custodial contracts, bulk mailing services, and confidential document destruction.

Participating individuals work in locations that are spread throughout Yuma County, Wellton, San Luis, El Centro, and even Blythe California. Most clients cannot drive and find it difficult to get transportation. The Center provides transportation to some job sites on a daily basis.

### ***Comité de Bien Estar (Comite)***

In 1991, Comité de Bienestar, Inc. (Comité) launched a public transportation service to meet the transportation needs of specific subsets of their membership. These subsets include the following:

- Senior Citizens and the Disabled
- Local youth enrolled in JTPA and educational programs
- Participants of city-sponsored recreation programs
- Youth development programs
- Head Start programs

- Girls Scouts
- Police Explorers
- Community legal services
- Performing arts and dance groups

Comité is a membership organization, specifically a land development cooperative founded by farm workers in 1977 and incorporated in 1981, Comité is a non-profit membership that focuses on helping members build assets and strengthen the whole community. Comité's transportation services are funded in part by the Western Arizona Council of Governments (WACOG) and are only available to members of Comité.

### **Nation-wide Service Providers**

#### ***Greyhound***

Greyhound is the only national charter bus line available to the residents of San Luis. It is located 20 miles away in the City of Yuma. Passengers may obtain direct service to Phoenix and El Centro, California, with continuing or connecting services to many other destinations. Daily departures occur early in the morning and evening. The station is open almost every day of the year mostly during day light and early evening but hours are subject to change without notice.

#### ***Amtrak***

Intercity rail passenger service is provided by Amtrak. The nearest Amtrak station is located 20 miles away in the City of Yuma. Amtrak's Sunset Limited route stops at Yuma three times a week, connecting San Antonio and Los Angeles. From Yuma, the next stop to the east is Maricopa, and to the west is Palm Springs, California. The Yuma Amtrak station offers limited services including partial wheelchair accessibility, an enclosed waiting area, public restrooms, and public payphones, free short-term parking, free long-term parking, and a means to call for taxi service.

#### ***Yuma International Airport***

The nearest airport to San Luis is the Yuma International Airport (YIA), which operates in conjunction with the United States Marine Corps Air Station (US MCAS). The commercial air activity through the airport includes two airlines and provides service to Phoenix and Los Angeles. There are four runways, with two being used primarily for

military aircraft and two being used primarily for civilian operations. The current taxiway system at the airport includes full-length parallel taxiways, runway exit/entrance taxiways, and stub taxiways providing access to landside facilities (passenger terminal facilities, aircraft storage facilities, aircraft parking aprons, and support facilities). The passenger terminal building provides five air carrier gate positions, expanded ticketing, baggage claim, and departure areas, as well as a mechanized baggage claim system. Besides YIA, the other nearest airports are in Phoenix, Arizona; Palm Springs, California; and San Diego, California, with San Diego having the closest proximity of at least 150 miles in distance

### **Taxi Service**

San Luis has several private taxi/van services that operate between the border and the City of Yuma. One-way trip is approximately \$7.00 per person. No statistical data is available for this service.

## 4. FUTURE LAND USE AND SOCIOECONOMIC CONDITIONS

The future horizon years for the San Luis Small Area Transportation Study were Year 2015, Year 2020 and Year 2030, which were considered the short-, mid-, and long range time frames respectively.

### FUTURE LAND USE CHARACTERISTICS

The City of San Luis General Plan shows an expansion to the east of the study area particularly with the establishment of the second border crossing. Low Density residential land uses will constitute the largest land use classification and will be located within the urban areas of San Luis as well as areas adjacent to developed areas of the city. Medium Density residential land uses are generally located in three areas; along US Hwy 95, west of 10<sup>th</sup> Avenue and south of County 22<sup>nd</sup> Street, and near the intersection of County 24<sup>th</sup> Street and Avenue F. High Density residential land uses are generally located within the urban areas of San Luis as well as on either side of US Hwy 95 north of County 20<sup>th</sup> Street.

Commercial land uses will continue to expand along the major transportation corridors as well at key intersections. Commercial corridors include urban areas along US Hwy 95, Juan Sanchez Blvd, and Avenue E.

Employment land uses are primarily located to the east of the city of San Luis near the new San Luis LPOE II, the Rolle Airfield and the State Prison. Office land use occurs in two locations: to the northwest of County 22<sup>nd</sup> Street and US Hwy 95 and west of the Rolle Airfield. Agricultural land uses will remain for areas along the northern boundary of the planning area north of County 21<sup>st</sup> Street and east of Avenue C.

In the year 2008, the San Luis Future Land Use Plan was amended to include a revised land use plan for the lands adjacent to San Luis LPOE II. The amended areas are generally bounded to the north by County 19<sup>th</sup> Street, to the south by the international border, to the east by Avenue F, and to the west by Avenue D. The amended land use plan also includes a number of new land use classifications, including; Airport Compatible Mixed Use, Master Plan Community, Mixed Use Activity Center, and Open Space Conservation/Management Area. Airport Compatible Mixed Use land use is

located east of Rolle Airfield. Master Plan Community land use is generally located north of County 24<sup>th</sup> Street and south of Juan Sanchez Blvd. Mixed Use Activity Center land use is located only in areas adjacent to transportation intersections along both County 24<sup>th</sup> Street and Avenue E south of Rolle Airfield. The San Luis LPOE II area is heavily surrounded by industrial land use.

The character and magnitude of future development in the San Luis planning area is dependent upon the local and world economy, tourism, the possible development of San Luis as a winter residential area, and expansion of existing infrastructure.

### Population and Housing Units

Based on the land use plans described above, DES population projections for the years 2015, 2020, and 2030, and the City of San Luis staff input, the future population and housing units were developed. Table 4.1 summarizes the population and housing unit trends from Year 2000 to Year 2030. Figure 4.1 graphically displays the population and housing unit growth trends. As can be observed, the percent growth rate shows a peak between 2000 and 2008, due to the economic boom of the past few years, then declines and maintains a healthy 5.5 to 6 percent yearly growth rate. Figures 4.2-4.4 depict the housing unit densities by TAZ by horizon year.

San Luis is projected to have approximately 60,900 inhabitants by 2030 a population increase of 138%, followed by the 131% increase in housing units for the same time period.

**TABLE 4.1: POPULATION & HOUSING UNITS COMPARISON**

	Y2000	Y2008	Y2015	Y2020	Y2030	GROWTH RATE			
						Y2008-2000	Y2015-2008	Y2020-2008	Y2030-2008
Population	15,322	26,157	37,261	46,527	60,902	8.84%	5.31%	5.99%	5.78%
Dwelling Units	3,018	6,084	8,673	10,835	14,068	12.70%	5.32%	6.01%	5.71%

FIGURE 4.1: POPULATION & HOUSING UNITS - Y2008, Y2015, Y2020, & Y2030

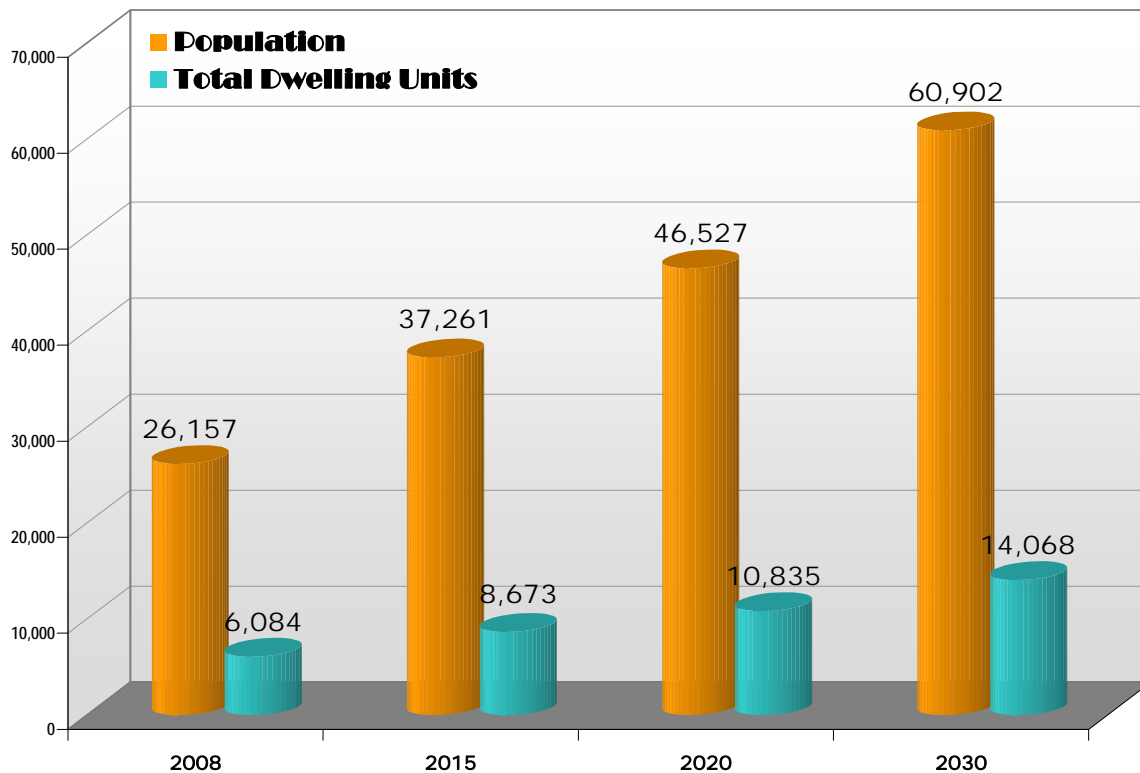


FIGURE 4.2: YEAR 2015 DWELLING UNITS BY TAZ

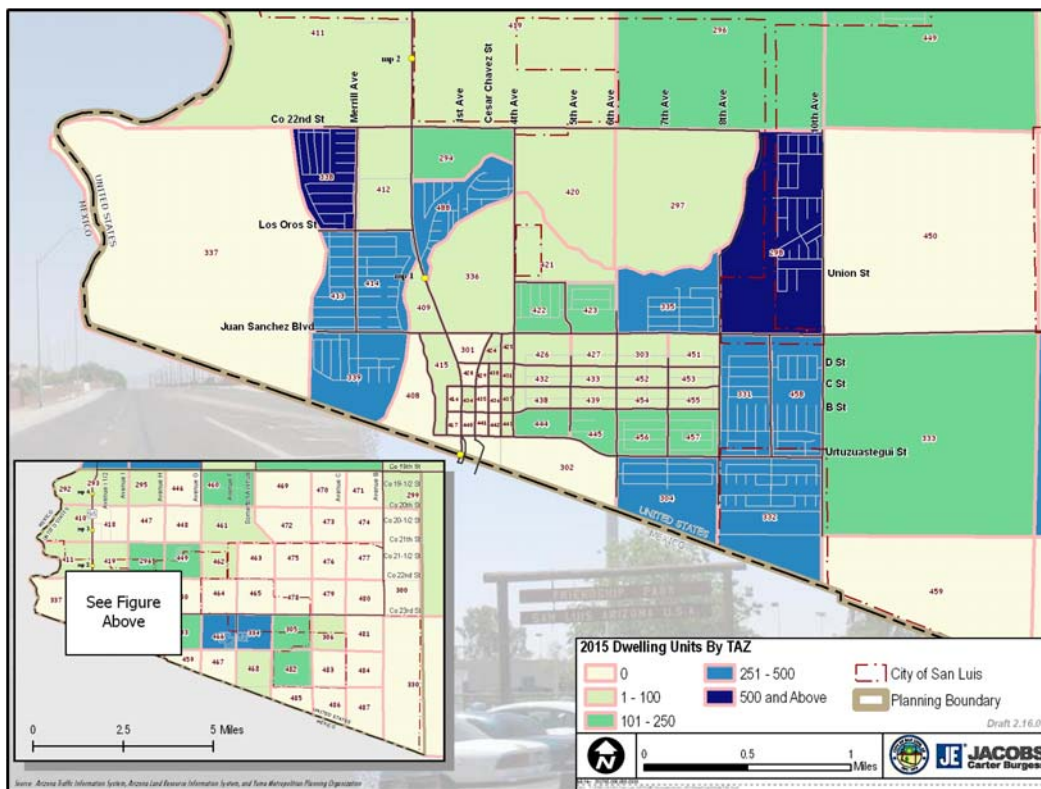




FIGURE 4.3: YEAR 2020 DWELLING UNITS BY TAZ

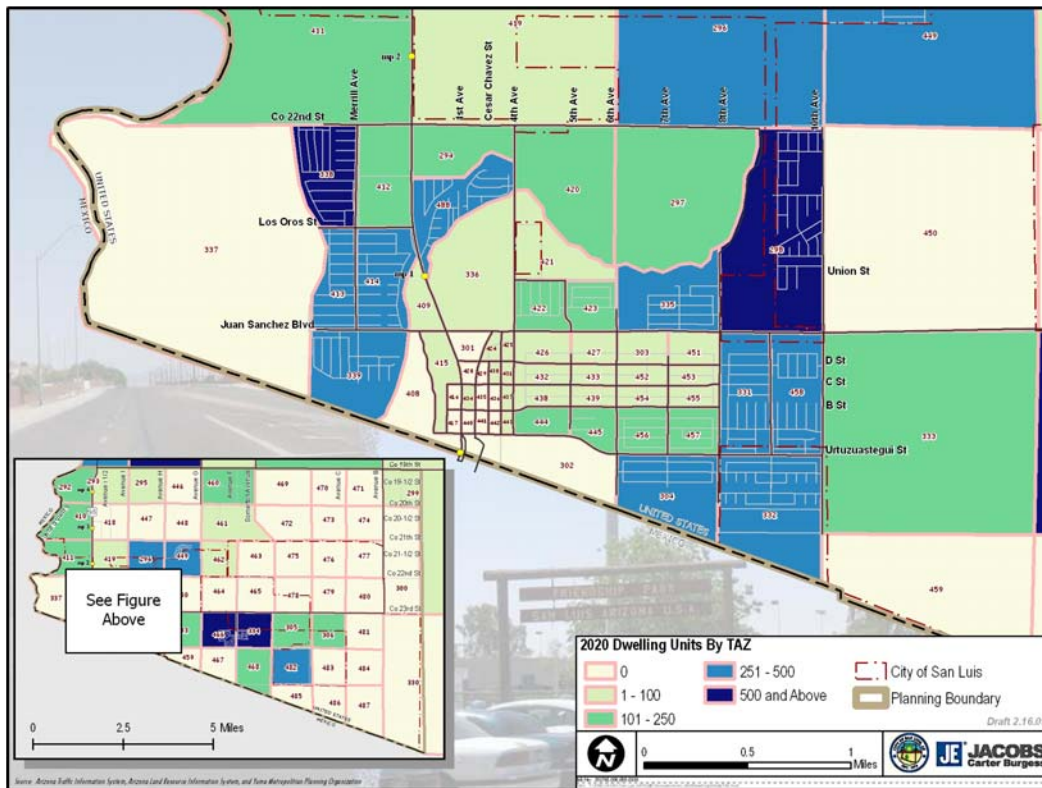
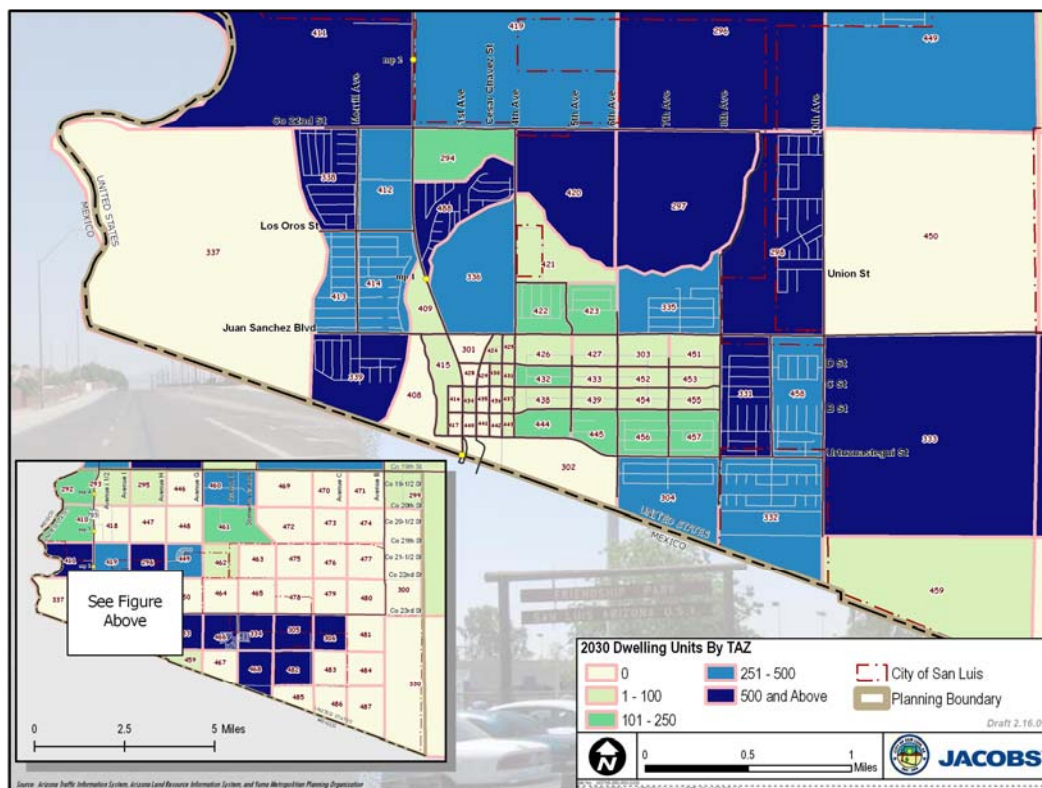


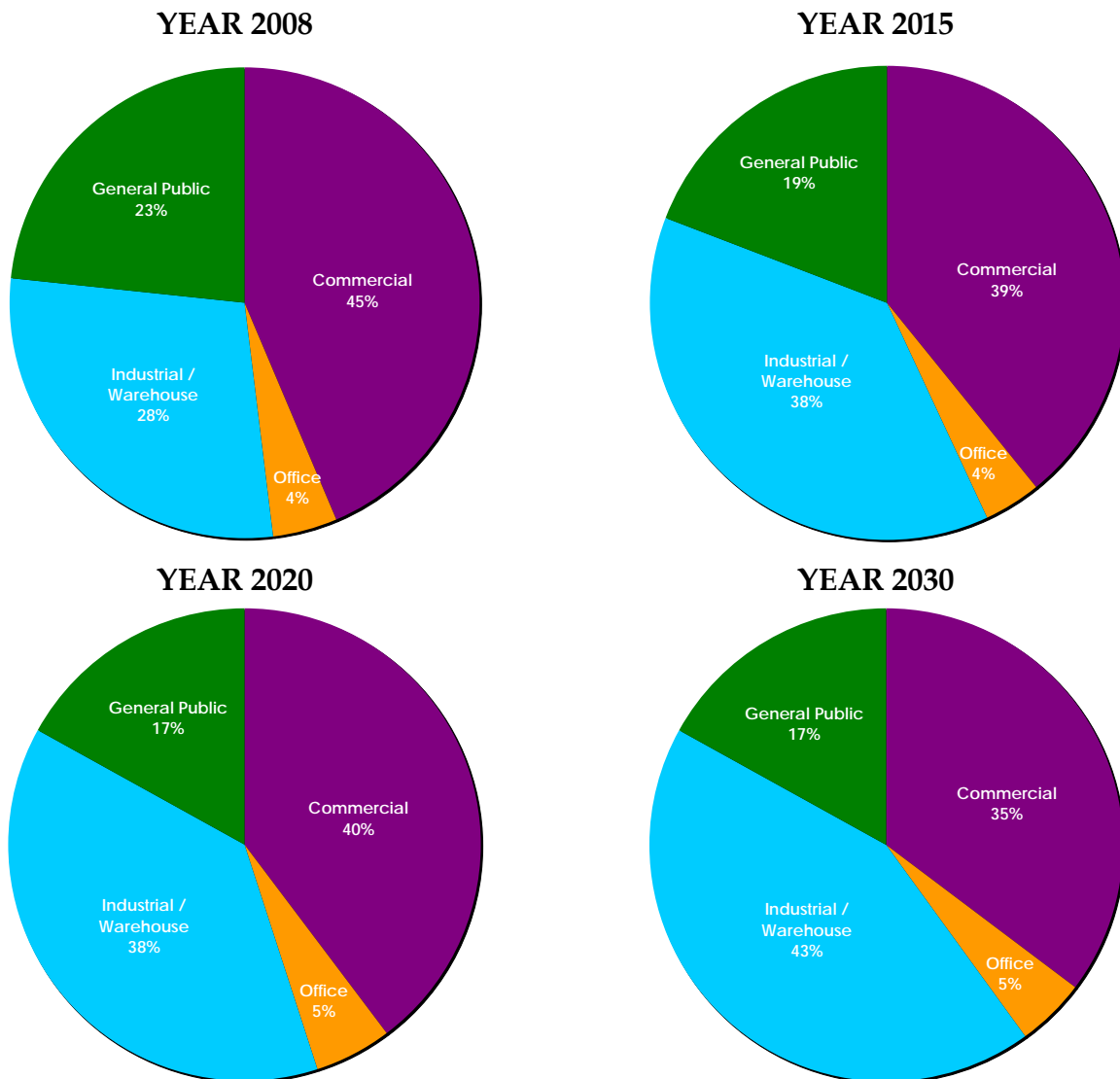
FIGURE 4.4: YEAR 2030 DWELLING UNITS BY TAZ



### Future Commercial Land Uses

The San Luis socioeconomic data included commercial land uses by square footage or acreage. In consultation with the City staff and using the adopted general plan as guidelines, the commercial land uses estimates were developed for the 2015, 2020, and 2030 time frames. Figure 4.5 displays the summary of the lands use categories for the various horizon years. The Commercial and Industrial land use categories will be the dominant economic force in the study area.

**FIGURE 4.5: Y2008, Y2015, Y2020, & Y2030 LAND USE BREAKDOWN**



## 5. FUTURE TRANSPORTATION CONDITIONS

### EVALUATION OF ROADWAY DEFICIENCIES AND NEEDS

To plan for future capacity and other transportation improvements, it was necessary to evaluate the performance of current roadway system under future socioeconomic or growth conditions. However, three modifications were made to the 2008 roadway network to evaluate the future horizon years:

- The addition of San Luis LPOE II and Avenue E to SR 195
- The addition of SR 195 from Avenue E to I-8
- The reconfiguration of San Luis I with the traffic accessing 1<sup>st</sup> and 2<sup>nd</sup> Avenue from the LPOE to travel north bound.

It was also assumed that by 2015 San Luis LPOE II will allow passenger vehicles. The revised and refined YMPO model developed for the current conditions was utilized to accomplish this goal. The system performance was conducted for daily conditions, for an average week day. Figures 5.1- 5.3 display the estimated traffic volumes and LOS for horizon year 2015, 2020, and 2030 respectively.

#### 2015

- In this horizon year, most of San Luis roadway system performs at LOS C.
- Juan Sanchez Blvd begins to show signs of congestion from 2<sup>nd</sup> Ave. to 10<sup>th</sup> Ave.
- Avenue E from San Luis LPOE II to SR 195 is already showing congestion signs.
- 1<sup>st</sup> and 2<sup>nd</sup> Ave are displaying signs of moderate congestion north of the border

#### 2020

- Juan Sanchez Blvd is very highly congested east of 10<sup>th</sup> Ave. and highly congested west of 10<sup>th</sup> Ave.
- US 95 begins to display moderate congestion from B Street to Juan Sanchez Blvd.
- Avenue E from San Luis LPOE II to SR 195 is highly congested in its entirety.
- Avenue B is displaying signs of congestion north of SR 195.
- 1<sup>st</sup> and 2<sup>nd</sup> Ave are displaying signs of moderate congestion north of the border

#### 2030

- Juan Sanchez Blvd is very highly congested from US 95 to SR 195
- US 95 is congested from Urtuzuastegui Street to Juan Sanchez.
- Avenue E from San Luis LPOE II to SR 195 is very highly congested in its entirety
- Avenue B is highly congested from SR 195 to County 19<sup>th</sup>
- County 19<sup>th</sup> is also highly congested from Avenue B to Avenue F
- 1<sup>st</sup> and 2<sup>nd</sup> Ave displaying signs of heavy congestion north of the border

FIGURE 5.1: YEAR 2015 DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE (LOS)

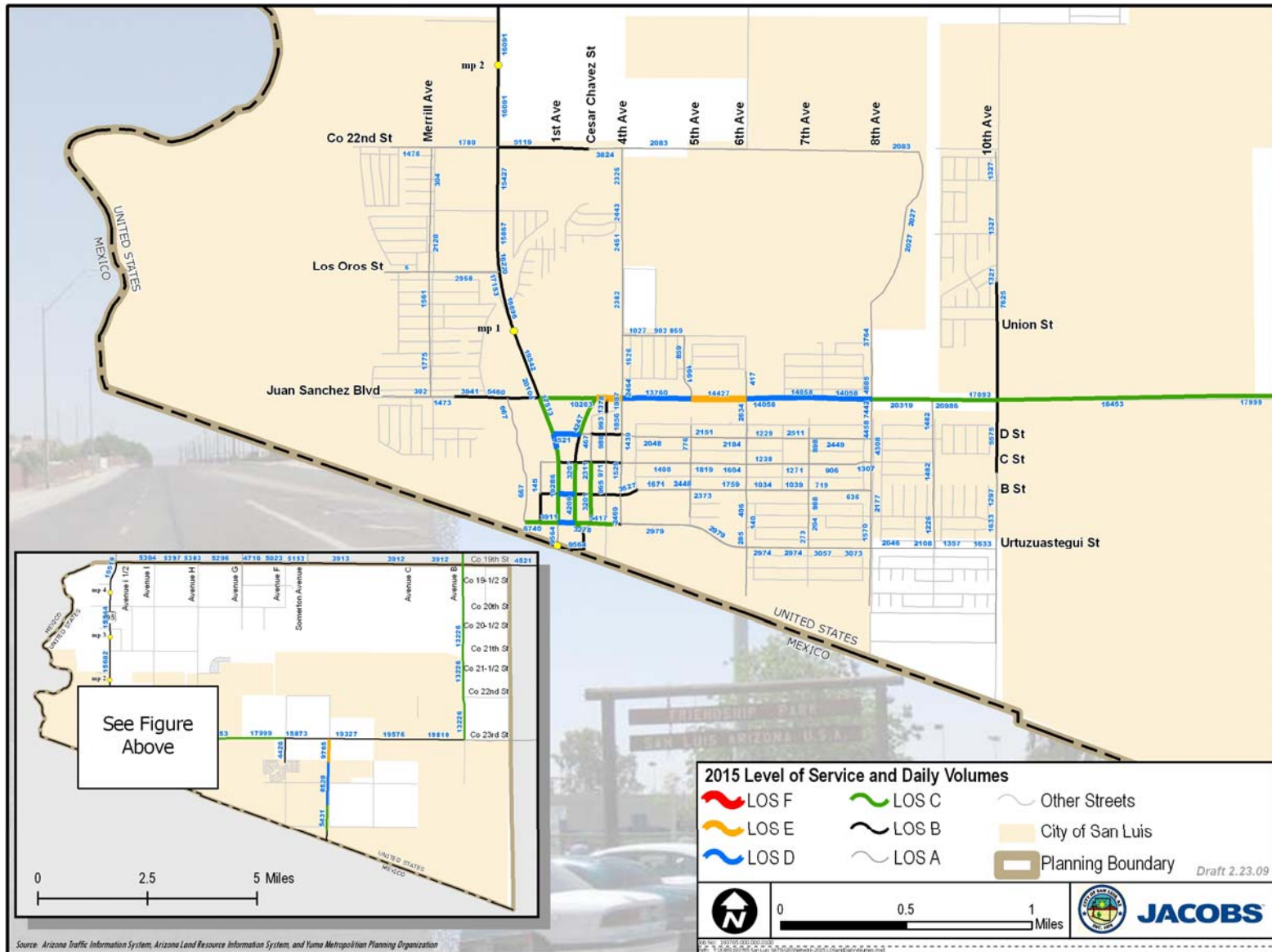


FIGURE 5.2: YEAR 2020 DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE (LOS)

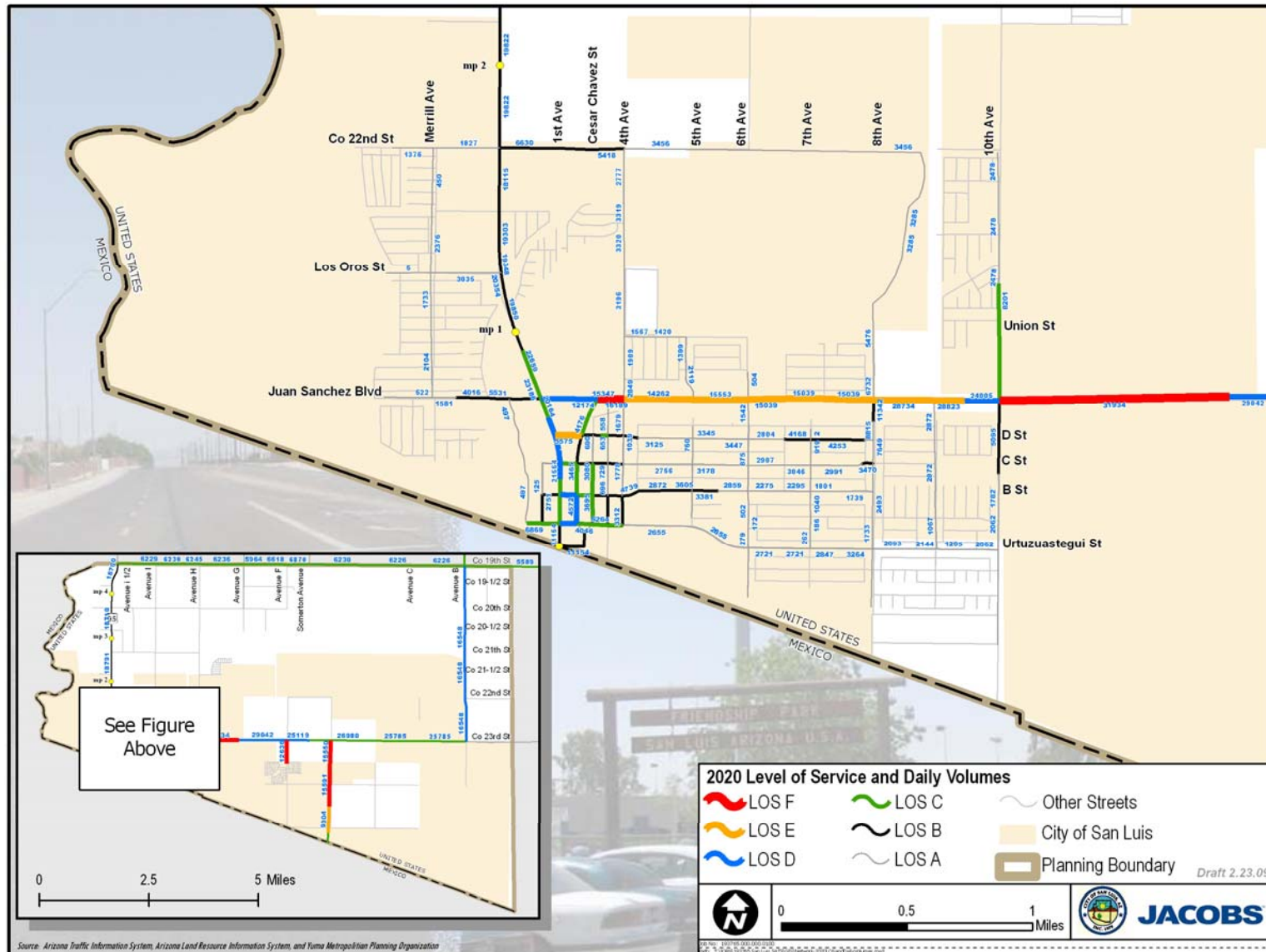
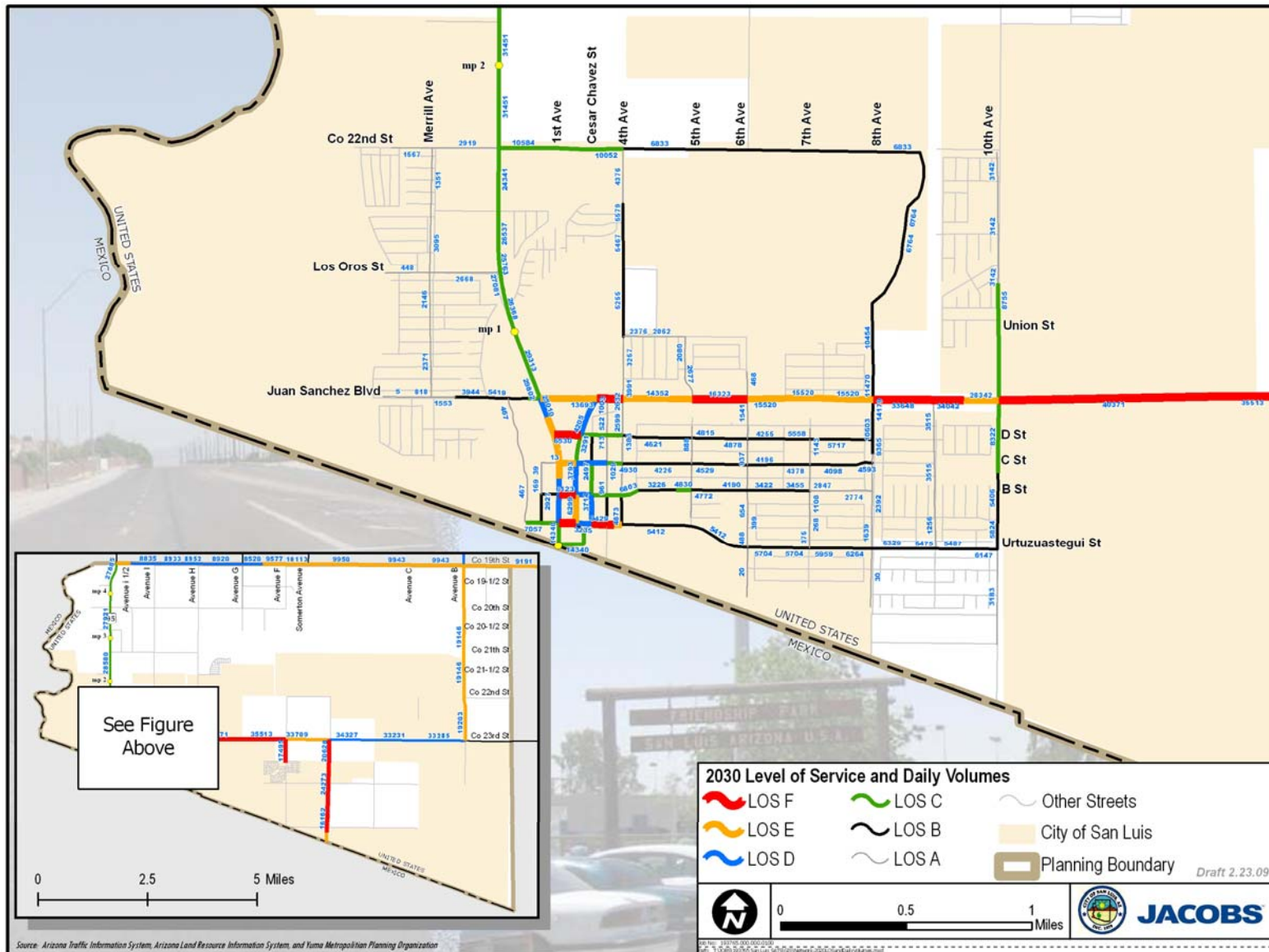


FIGURE 5.3 YEAR 2030 DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE (LOS)



## EVALUATION OF TRANSIT DEFICIENCIES AND NEEDS

### Potential Transit Dependent Population

The potential transit dependent population of an area generally include persons 65 years of age and older, persons with mobility limitation, and persons considered below the poverty level. According to the American Community Survey, among people at least five years old from 2005-2007 in the City of San Luis, 15 percent reported a disability and 8 percent were considered mobility limited.

Table 5.1 shows the break down and percentages of these population subsets in comparison to the entire population within San Luis as reported in the 2000 Census Data. In addition, Table 5.1 shows a side by side comparison San Luis's demographical statistics with state and national statistics reported by the 2000 Census. A comparison shows that San Luis has a disproportionately larger share of these population subsets than most areas in the nation. In comparison to statewide levels, San Luis has a very low proportion of elderly (65 years of age and older) and significantly higher proportions of below poverty and disabled individuals (under 65 years of ages).

**TABLE 5.1 CURRENT TRANSIT DEPENDENT SUBSETS IN SAN LUIS**

DEMOGRAPHIC	2000 CENSUS	PERCENT OF TOTAL		
		SAN LUIS	ARIZONA	US
Total Population	15,442			
Elderly (Over 65)	613	4.0 %	23.0 %	12.4 %
Below Poverty (Under 65)	4,645	30.1 %	15.0 %	12.4 %
Disabled (Under 65)	1,755	15.1 %	10.0 %	19.3 %

Sources: Arizona Department of Economic Security, 2005 and U.S. Census, 2000.

Cities with higher poverty and higher disability levels tend to have higher public transportation usage and ride sharing. Indeed, Table 5.1 compares the travel mode to work statistics of San Luis to the state and to the nation and shows that San Luis residents are 9 times more likely to take public transit than the state and twice more likely than the US as a nation. Unfortunately, higher transit usage and carpooling does not buy San Luis residents shorter commutes. As Table 5.2 shows, even with significantly higher commuter vehicle occupancy, the average commute time for San

Luis residents is 10 minutes or 40 percent longer than the average state or national commute time. This anomaly of higher vehicle occupancy and higher commute times in a small, low density area is a very strong indicator of the presence of high existing demand for transit and a tremendous need for public transportation improvements to reduce commute times and traffic congestion, and to improve air quality and quality of life.

**TABLE 5.2: SAN LUIS TRAVEL MODE TO WORK STATISTICS**

TRAVEL MODE	SAN LUIS		AZ	US
	PERSONS	PERCENT	PERCENT	PERCENT
Drove alone	1,778	61.9 %	74.1 %	75.7 %
Carpooled	607	21.1 %	15.4 %	12.2 %
Public transportation	303	10.5 %	1.9 %	4.7 %
Bicycle	13	0.5 %	1.0 %	0.4 %
Walk	101	3.5 %	2.6 %	2.9 %
Other means	28	1.0 %	0.9 %	0.7 %
Work at home	43	1.5 %	3.7 %	3.3 %
Total Workers (Age 16+)	2,873			

Sources: U.S. Census Bureau, 2000 Census

**TABLE 5.3 AVERAGE TRAVEL TIME TO WORK AND AVERAGE COMMUTER VEHICLE OCCUPANCY**

AVERAGE TRAVEL TIME TO WORK	UNIT	SAN LUIS	AZ	US
All Travel Modes	Minutes	35	25	26
Public Transportation	Minutes	54	45	48
Other Transportation	Minutes	32	24	24
Commuter Vehicle Occupancy	Workers per Vehicle	1.18	1.10	1.08

Sources: U.S. Census Bureau, 2000 Census

As an area's population grows, so does the population of potential transit dependent persons. Yuma County remains one of the fastest growing areas in the country and a highly significant portion of the County's growth is concentrated in the City of San Luis.



In addition, the Yuma region has unique seasonal fluctuations in population that can potentially create a significant strain to the public transportation systems during peak periods if unprepared. During the height of the Yuma harvesting season, 30,000 to 40,000 Mexican farm workers cross the border each day. During the winter seasons, “snow birds” or people who normally reside in much colder northern regions of US and Canada migrate to the Yuma region for a warmer abode.

### **Current Unmet Needs**

The City of San Luis has a few main areas of unmet transportation needs which include lack of access to jobs, tourism, education and medical services, especially for the general public. As mentioned in the previous section, the population grew almost 300 % in the last decade alone. A significant portion of the growth is attributed to the passage of the North American Free Trade Agreement (NAFTA) agreement between the two countries which greatly accelerated both population and employment growth in the 1990's and is expected to continue into the next decade. However, transportation service provisions for the City of San Luis had very little growth in the same time period. If the lack of public transportation services continues to persist, then the growing congestion can cripple the City and curtail the City's potential.

### **Access to Jobs**

The area in greatest need of improvement is the lack of public transportation access to jobs. Originally founded in 1930 with the opening of the International Land Border Crossing, the City of San Luis was to support the expansion opportunities for border commerce. Today, the City's economy continues to diversify and expand due to its close link with that of its Mexican sister city San Luis Rio Colorado, Sonora, located contiguous to San Luis, Arizona across the border.

The City promotes itself as an excellent site for labor intensive manufacturing and assembly plants. The agricultural business industry cluster in San Luis includes activities ranging from research and development to growing and harvesting, to processing, packaging, and distribution. Currently, at least 64 acres of industrial parks space are already 100% reserved. Existing San Luis industrial parks are undergoing expansion and several new industrial parks and commercial areas totaling at least 250 brand new acres are currently under construction. These industrial parks provide manufacturing, warehousing, and distribution facilities to companies utilizing the \$110

million super Commercial Port of Entry currently under development and some will be linked to Interstate 8 by the proposed controlled-access Area Service Highway (SR - 195) scheduled to open by September 2009.

In preparation for expected future growth in border commerce, federal and state agencies are constructing a new Port of Entry facility 5 miles to the east of the existing port. The new entry is being developed simultaneously on both sides of the border. A new Area Service Highway (ASH) connecting Mexico to Interstate 8 will be a four-lane, 23 mile controlled-access roadway will alleviate local congestion due to the increased port traffic. The expressway will be a major facilitator in international commercial trade and provide direct, un-congested access to Interstate 8 for truck traffic. With the opening of the new port, the existing San Luis Port of Entry will be altered and upgraded to exclusively handle non-commercial entries. All of the renovation and new facilities at the existing San Luis Port of Entry are expected to be in operation by 2012. The Greater Yuma Economic Development Corporation reported that more than \$200 million is currently being invested in infrastructure improvements to the area so that San Luis can position itself to be a logistical hub for the region.

In addition, due to the presence of the border crossing, the San Luis Detention Facility Development Corporation, a subsidiary of the City, opened the San Luis Detention Facility in 2007 to hold detainees, primarily for violations of immigration laws, from local federal authorities. The detention facility employs approximately 80 full-time employees.

Besides the economic influence of the border crossing, the City's economy is also influenced by prison needs of the state and the defense needs of the federal government. The Arizona State Prison Complex - Yuma (ASPC-Yuma) is located in the City of San Luis, housing an average of 2,279 convicted male felons, and employs about 755 full-time employees.

In terms of the defense industry, two military complexes are housed near the City of San Luis. One complex is the Marine Corps Air Station (MCAS), Yuma, which is said to be the busiest air station in the Marine Corps and the third busiest in the Naval Service. The other complex is the U.S. Army's Yuma Proving Ground (YPG), which is one of the

largest military installations in the world. The Yuma Proving Ground facilities are about 45 miles to the north of the City of San Luis with workers commuting from the San Luis-Yuma area. Of all the government organizations in the county, YPG is the single largest employer of civilians in the area and one of the largest consumers of local goods and services.

### **Access to Tourism**

Tourism is a major industry for San Luis and Yuma County, generating more than \$450 million for Yuma County's economy. Yuma County itself is well known for tourism, due to its mild weather, beautiful desert canyons, and close proximity to the beaches at the Gulf of Mexico. During the winter, the area experiences an influx of seasonal visitors and international shoppers that increases the county's population to over 200,000, positively impacting the entire economy. Many of these tourists will travel through San Luis in order to cross the border to neighboring attractions in Mexico adding extra burden and congestion to the City's transportation infrastructure.

### **Access to Medical Care Facilities and Education Campuses**

Access to medical care facilities and education campuses via public transportation is limited and sometimes at great distance and inconvenience. There are no medical facilities available in San Luis. The nearest medical care facility is the Yuma Regional Medical Center which is about 17 miles San Luis. The next closest facility is 23 miles away at the PHS Indian Health Service Hospital in Winterhaven, California. The next nearest facility after that is the El Centro Regional Medical Center which is about 58 miles and also in California.

Four higher education institutions, Arizona Western College (AWC), Northern Arizona University, The University of Arizona, and University of Phoenix, have established campuses in Yuma County. Arizona Western College is Yuma County's primary higher education institution one main campus in the City of Yuma and eight branch campuses scattered throughout the County including a branch campus in the City of San Luis. AWC's total enrollment is almost 13,000 students with over 4,300 full time student equivalents. The other three universities have their main campuses elsewhere in the state but have opened branch campuses to serve the educational needs of Yuma County residents. Currently, YCAT offers monthly passes to students at discount rates.

## TRANSPORTATION ISSUES

Based on inventory and analysis of existing and future conditions, transportation system deficiencies and issues were identified. These issues and deficiencies formed the basis for the development of the long range transportation plan.

Table 5.4 lists deficiencies and issues based on the existing and future conditions analysis, while Figure 5.4 displays the major transportation issues founded in the study area.

TABLE 5.4 TRANSPORTATION ISSUES

ISSUE TYPE	LOCATION	FROM	TO	DESCRIPTION
Safety - Crashes Existing	County 19th St	Avenue I	Avenue G	Number of crashes - high
	US 95	US Border	Juan Sanchez Blvd	Number of crashes - high
	County 19th St at Avenue G			Number of crashes - high
	County 19th St at Avenue B			Number of crashes - high
	US 95 at B St			Number of crashes - high
Safety - Roadway/Intersection Geometric Existing	Main St	US Border	Juan Sanchez Blvd	Street Parking
	Downtown			Lack of continuous sidewalk
	Downtown			Lack of traffic signals
	Downtown			Narrow roadway and lack of pavement striping
Congestion - Year 2008	1st Avenue	C St	D St	Severe congestion
	1st Avenue	B St	C St	Moderate congestion
	US 95	Urtuzuastegui St	Juan Sanchez Blvd	Moderate congestion
	Juan Sanchez	1st Avenue	8th Avenue	Moderate congestion
	Juan Sanchez	Avenue G	Avenue B	Moderate congestion
	D St	US 95	1st Ave	Moderate congestion
	Urtuzuastegui St	San Luis Plaza Dr	US 95	Moderate congestion
Congestion - Year 2015	US 95	Urtuzuastegui St	Juan Sanchez Blvd	Moderate congestion
	Juan Sanchez	US 95	Avenue F	Severe to Moderate congestion
	Avenue B	Juan Sanchez Blvd	County 19 St	Moderate congestion
	B St	US 95	1st Avenue	Moderate congestion
	D St	US 95	1st Avenue	Moderate congestion
	Urtuzuastegui St	San Luis Plaza Dr	1st Avenue	Moderate congestion
	Urtuzuastegui St	2nd Avenue	4th Avenue	Moderate congestion
	Avenue E	Juan Sanchez Blvd	US Border	Severe to Moderate congestion
	1st Avenue	Urtuzuastegui St	B St	Moderate congestion
1st Avenue	D St	Juan Sanchez Blvd	Moderate congestion	
Congestion - Year 2020	US 95	Urtuzuastegui St	MP 1	Moderate congestion
	Juan Sanchez	US 95	Avenue B	Severe to Moderate congestion
	Avenue B	Juan Sanchez Blvd	County 19 St	Moderate congestion
	County 19th St	US 95	Avenue B	Moderate congestion

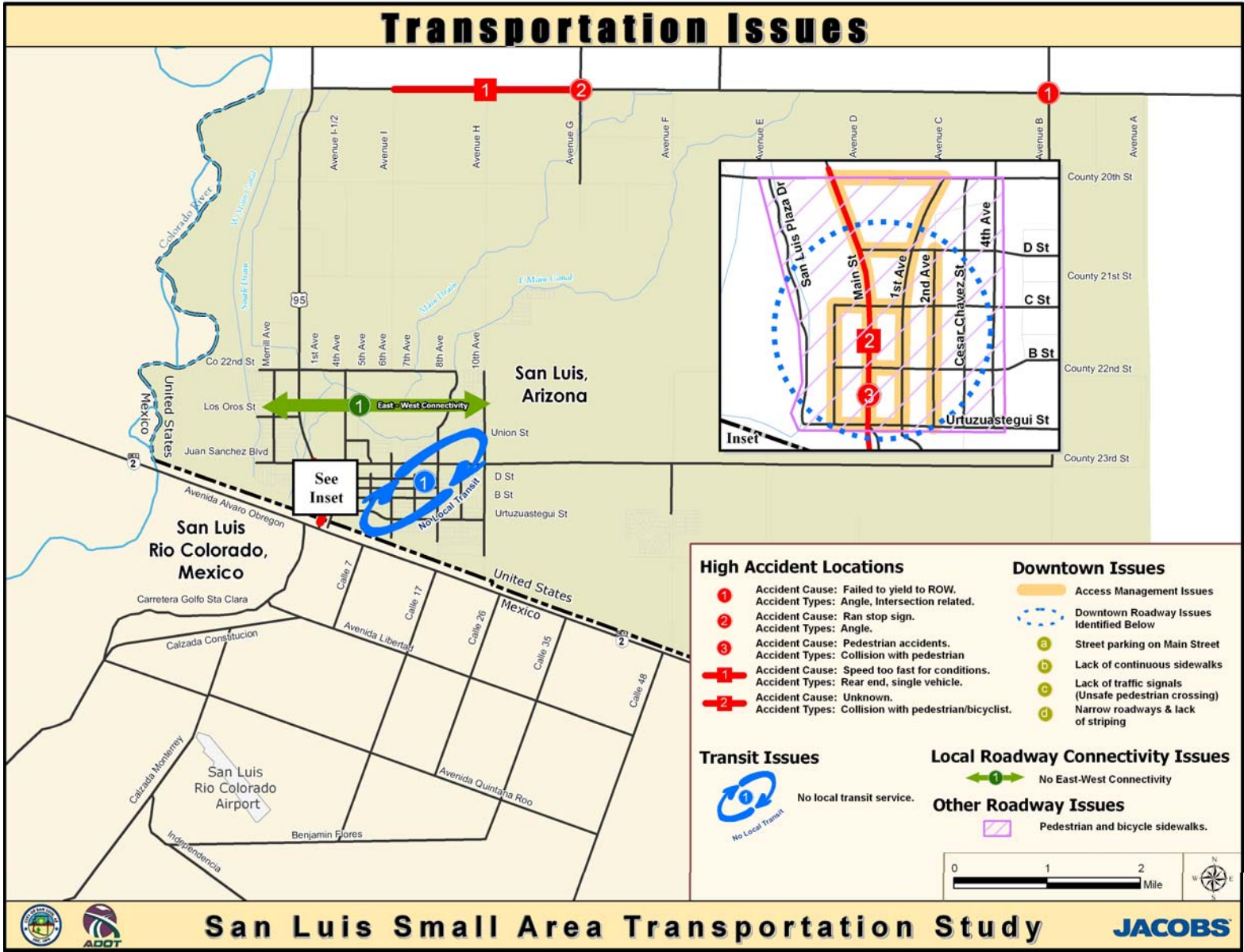
TABLE 5.4 TRANSPORTATION ISSUES (CONTINUED)

ISSUE TYPE	LOCATION	FROM	TO	DESCRIPTION
Congestion - Year 2020 (continued)	B St	US 95	2nd Avenue	Moderate congestion
	C St	US 95	1st Avenue	Moderate congestion
	D St	US 95	1st Avenue	Severe congestion
	Urtuzuastegui St	San Luis Plaza Dr	1st Avenue	Moderate congestion
	Urtuzuastegui St	2nd Avenue	4th Avenue	Moderate congestion
	Avenue E	Juan Sanchez Blvd	US Border	Severe congestion
	1st Avenue	Urtuzuastegui St	B St	Moderate congestion
	1st Avenue	D St	Juan Sanchez Blvd	Moderate congestion
	Union St	Juan Sanchez Blvd	Black Street	Moderate congestion
	Avenue F	Juan Sanchez Blvd	County 23 1/2 St	Moderate congestion
Congestion - Year 2030	US 95	US Border	County 19 St	Moderate congestion
	Juan Sanchez	US 95	Avenue B	Severe to Moderate congestion
	Avenue B	Juan Sanchez Blvd	County 19 St	Severe congestion
	County 19th St	US 95	Avenue B	Severe to Moderate congestion
	B St	US 95	4th Dr	Severe to Moderate congestion
	C St	US 95	4th Avenue	Severe to Moderate congestion
	D St	US 95	4th Avenue	Severe congestion
	Urtuzuastegui St	San Luis Plaza Dr	1st Avenue	Severe to Moderate congestion
	Urtuzuastegui St	2nd Avenue	4th Avenue	Severe congestion
	Avenue E	Juan Sanchez Blvd (SR 195)	US Border	Severe congestion
	1st Avenue	Urtuzuastegui St	Juan Sanchez Blvd	Moderate congestion
	2nd Avenue	Urtuzuastegui St	B St	Moderate congestion
	Union St	Babbitt Ln	Black Street	Moderate congestion
	Avenue F	Juan Sanchez Blvd	County 23 1/2 St	Severe congestion
	County 22nd St	US 95	4th Avenue	Moderate congestion
Juan Sanchez Blvd (SR 195)	Avenue E	Avenue B	Moderate congestion	
Pavement Condition	System wide			Pave remaining unpaved roads
Access Management	Downtown			Develop access management standards and plan

TABLE 5.4 TRANSPORTATION ISSUES (CONTINUED)

ISSUE TYPE	LOCATION	FROM	TO	DESCRIPTION
Transit	System wide			Improve region wide transit and develop internal transit facilities
Parking	Downtown			Provide parking for visitors who wants to walk to Mexico
Pedestrian, Bicycle, & Sidewalk	System wide			Develop pedestrian, bicycle, and sidewalk plan
	System wide			Provide pedestrian crossings
Regional Connectivity	System wide			Improve regional connectivity
Emergency Evacuation Routes	System wide			Develop emergency evacuation route plan
Local Roads Circulation	System wide			No East-West Connectivity

FIGURE 5.4: TRANSPORTATION ISSUES





## 6. MULTIMODAL TRANSPORTATION PLAN

### BASE FUTURE ROADWAY NETWORK

The study identified transportation issues based on the modified no-build scenario (inclusion of SR 195 and the new land port of entry on Avenue E), which provided a starting point for the development of future potential alternatives. The transportation analysis was performed considering roadways that are planned in the study area. A “Base Future” network is defined as the roadway network resulting from the approved and/or planned improvements that have received strong support and are scheduled to be realized. For the San Luis area, Avenue E is ultimately classified as a four-lanes parkway, Juan Sanchez Blvd is strongly considered to be widened to 5 lanes from US 95 to Avenue E. Figure 6.1 and 6.2 depict the number of lanes and the functional classification respectively for the base future network for the San Luis Study.

FIGURE 6.1 2030 BASE FUTURE NETWORK - NUMBER OF LANES

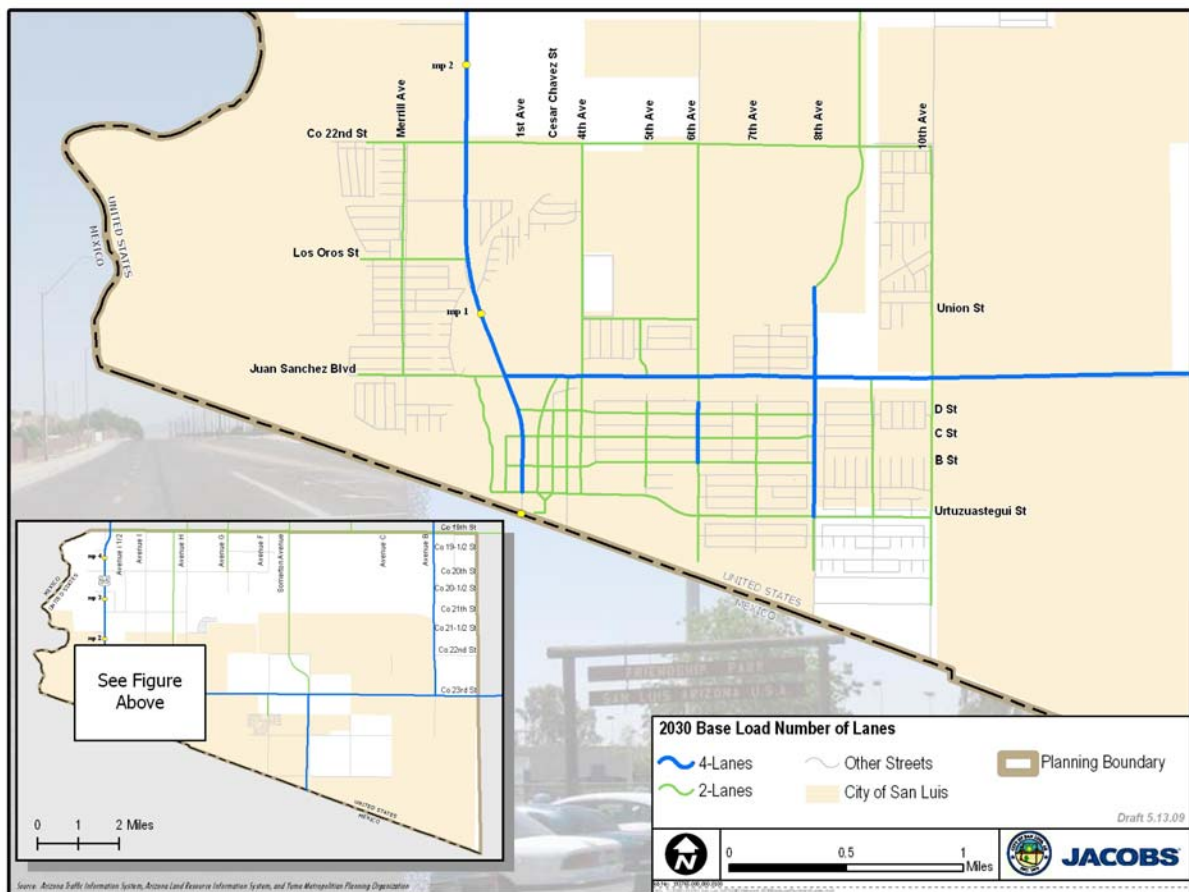
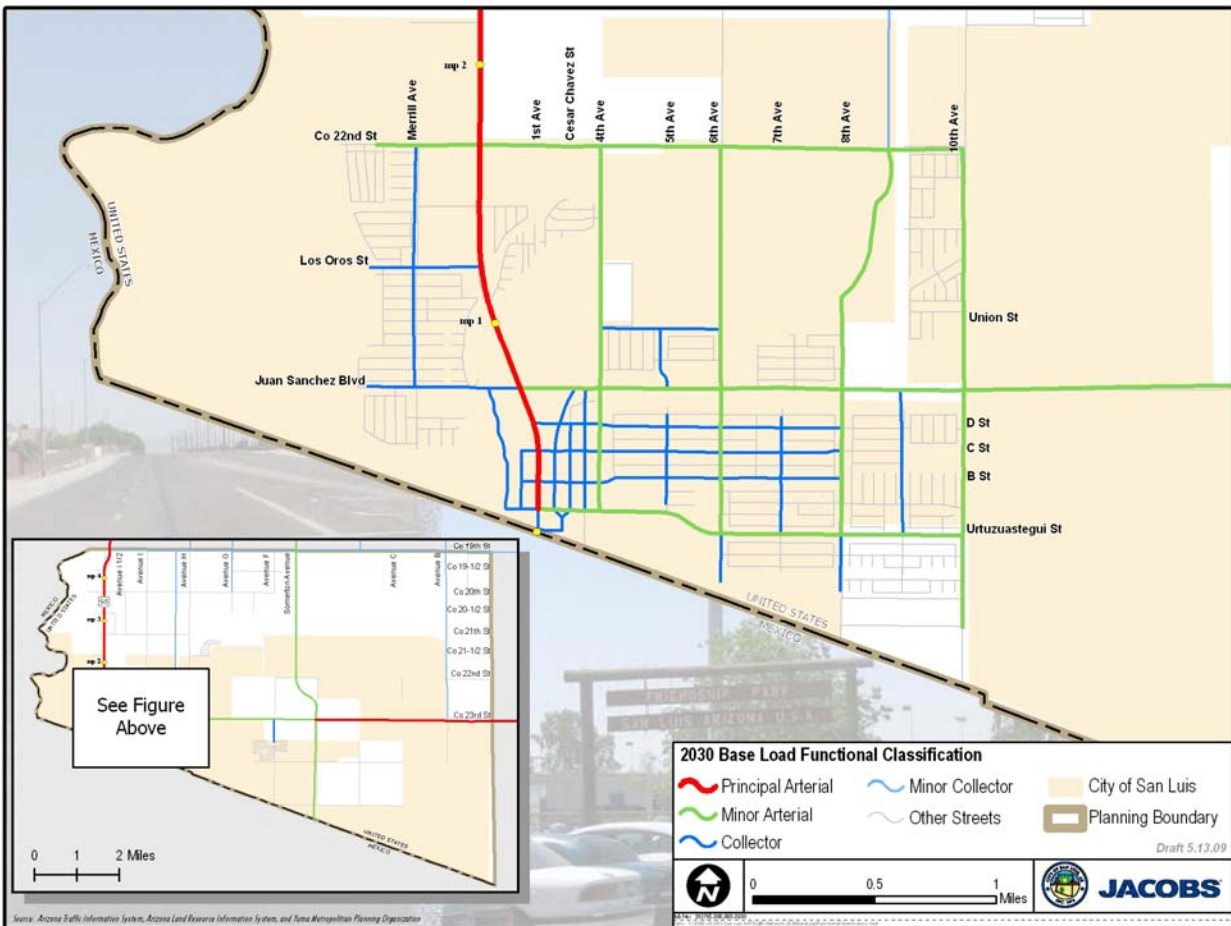


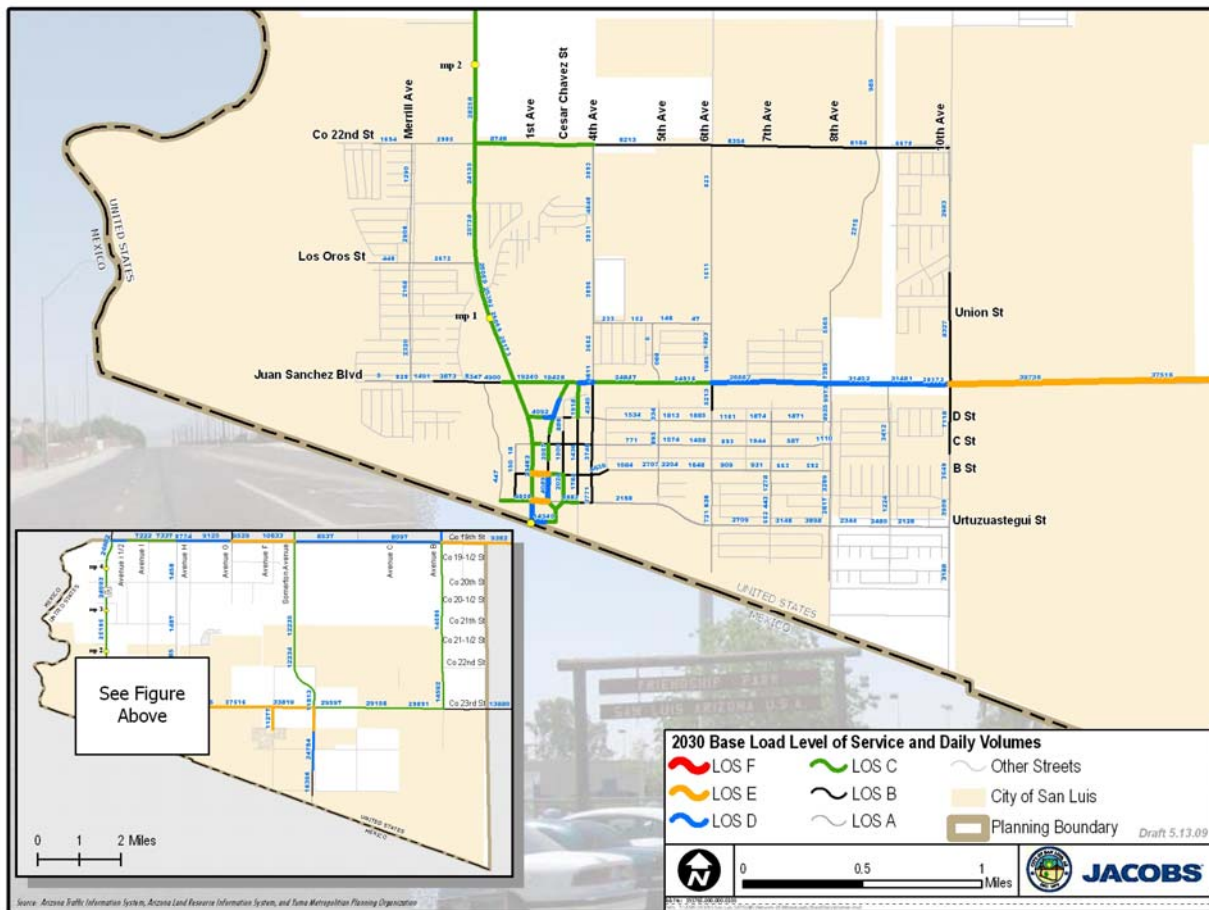
FIGURE 6.2 2030 BASE FUTURE NETWORK - FUNCTIONAL CLASSIFICATION



Using the base future network and the 2030 socioeconomic data, a new model run was conducted to ascertain the performance of the system compared to the no-build scenario. Figure 6.3 depicts the results. As can be noticed, the widening of Juan Sanchez improved the facility to a LOS of E from Avenue E to 10<sup>th</sup> Avenue and Avenue E has improved almost in its entirety to LOS C and D, except for a small portion south of SR 195.

However, congestion remains in the downtown area especially on Urtuzuastegui Street, B Street west of US 95, and on First and Second Avenue north of Urtuzuastegui Street.

**FIGURE 6.3 2030 BASE FUTURE NETWORK – DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE (LOS)**



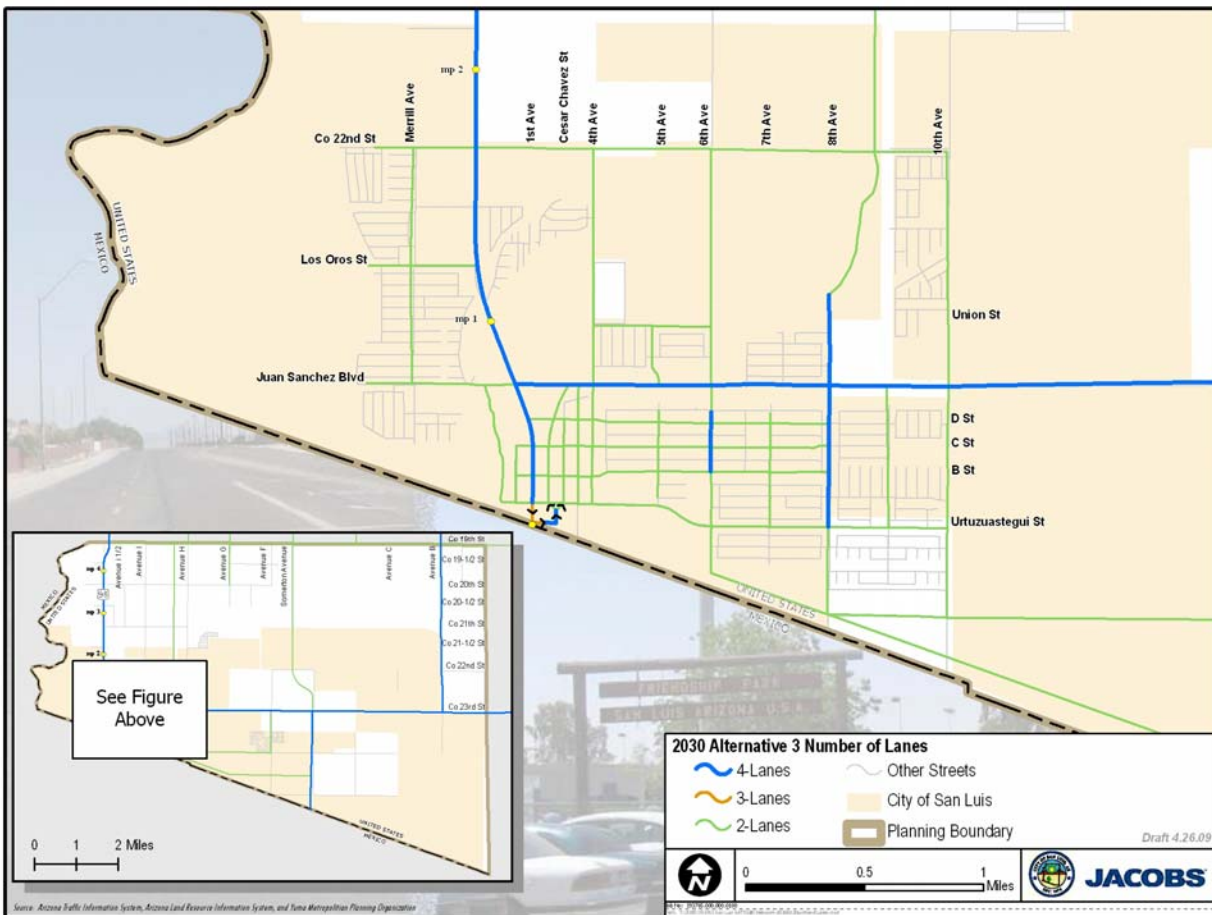
## ALTERNATIVE NETWORKS ANALYSIS

To address the remaining mobility issues still present, two roadway alternatives were formulated: Alternative 1 and Alternative 2.

### Alternative 1

Alternative 1 network, shown in figure 6.4, is comprised of the base future network and the addition of a 2 lane collector road from Avenue F to 10<sup>th</sup> Avenue along the Co. 24<sup>th</sup> street alignment and the continuation of 6<sup>th</sup> Avenue along the border with Mexico to Co. 24<sup>th</sup> ½ alignment, then eastward to Avenue E. These new facilities were thought of as potential traffic relievers for Juan Sanchez Blvd from the border traffic using the two land ports of entry as well as potential safety routes in case Juan Sanchez Blvd is temporarily closed, for the southern portion of the study area.

FIGURE 6.4 ALTERNATIVE 1 - NUMBER OF LANES

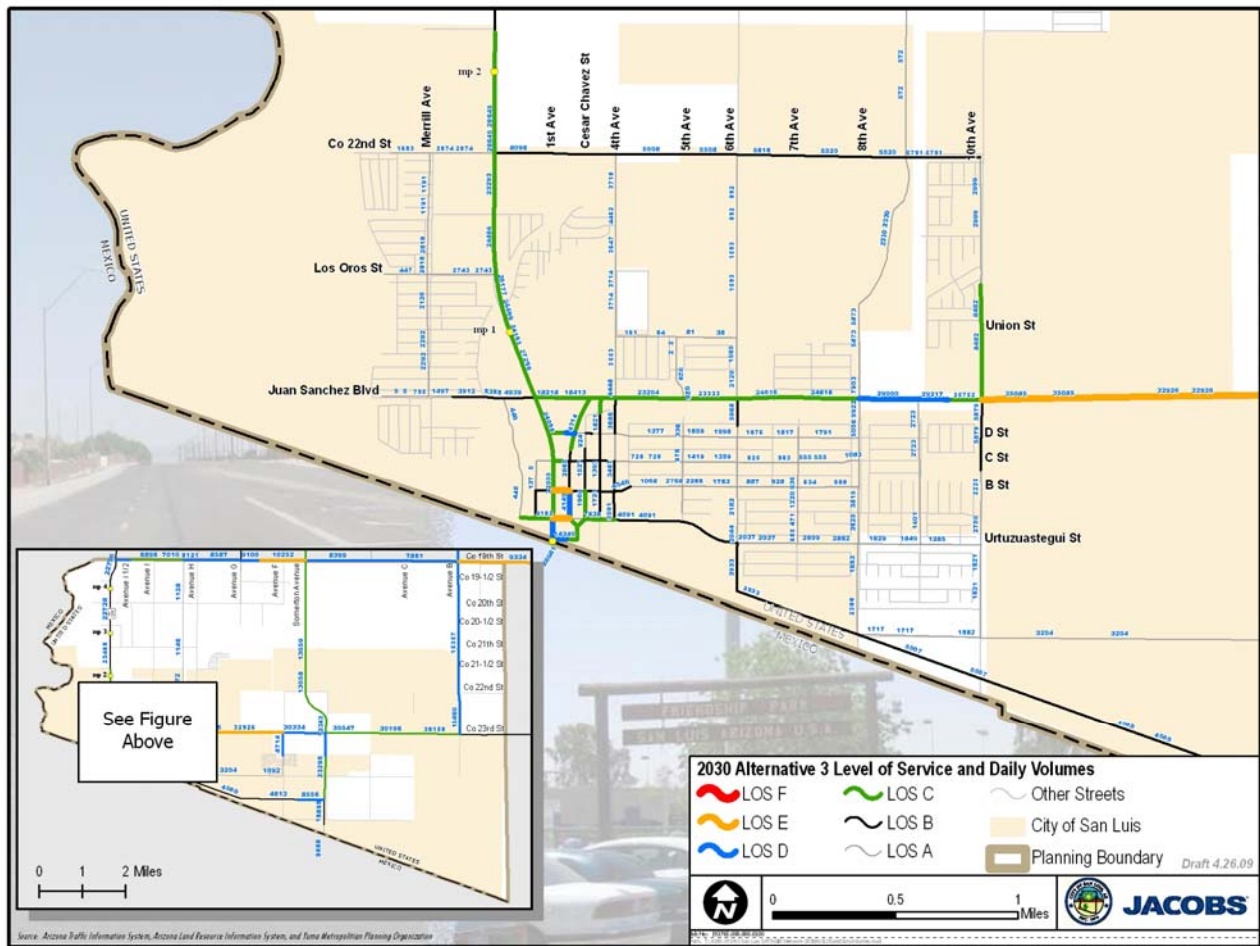


## Results

As Figure 6.5 shows LOS on Juan Sanchez Boulevard improves in various sections with a corresponding decrease in traffic volume. Avenue E also shows a better level of service. However, in the downtown area, Urtuzuastegui Street and B Street between US 95 and First Avenue, and First Avenue north of the border, display signs of congestion.

It is important to note that the two new facilities are classified as urban collectors with an average speed of 35 mph. If a different facility type with higher speed is used, a decrease in traffic on Juan Sanchez Boulevard can be expected.

**FIGURE 6.5 ALTERNATIVE 1 - DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE (LOS)**



**Alternative 2**

Alternative two network, shown in Figure 6.6, is comprised of Alternative 1 with one-way roadways in the downtown area. Archibald Street southbound and First Avenue northbound form a one-way couplet to address the traffic flow generated by the border activities. In addition, Urtuzuastegui Street, B Street, and C Street are converted into one-way facilities.

**Results**

Figure 6.7 displays Alternative 2 forecasted volumes and LOS, with improved downtown circulation based on the preliminary one-way configuration. It is also worth noticing that Juan Sanchez Blvd from 10<sup>th</sup> Avenue to Avenue F is between LOS D and LOS E.

FIGURE 6.6 ALTERNATIVE 2 - NUMBER OF LANES

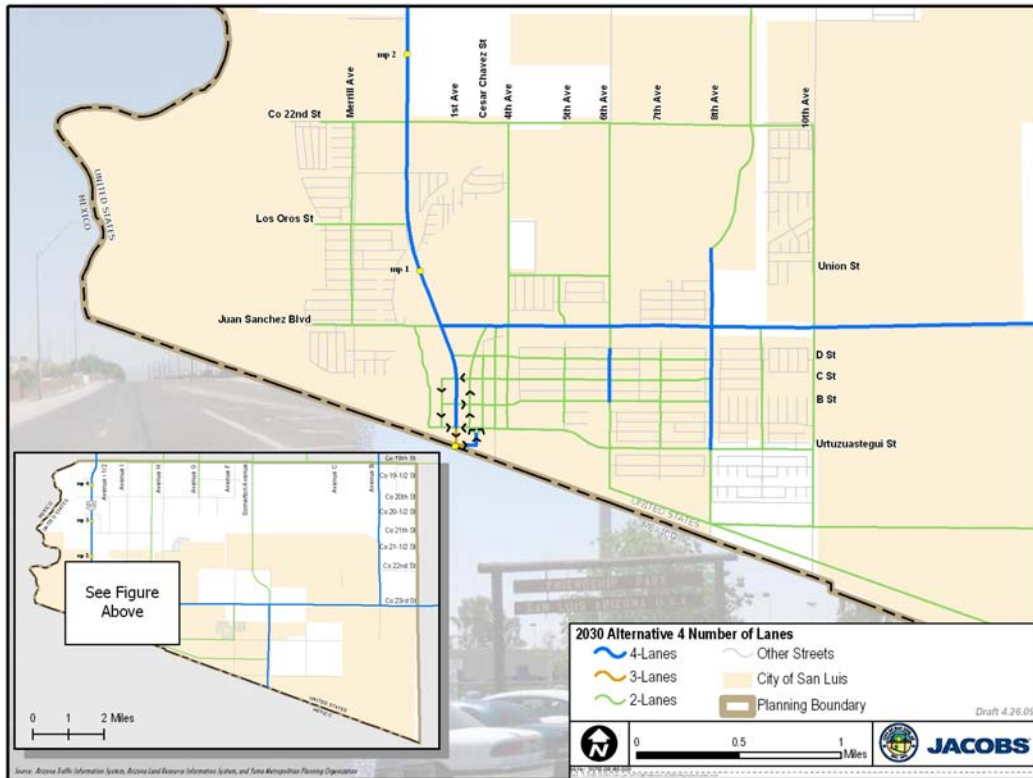
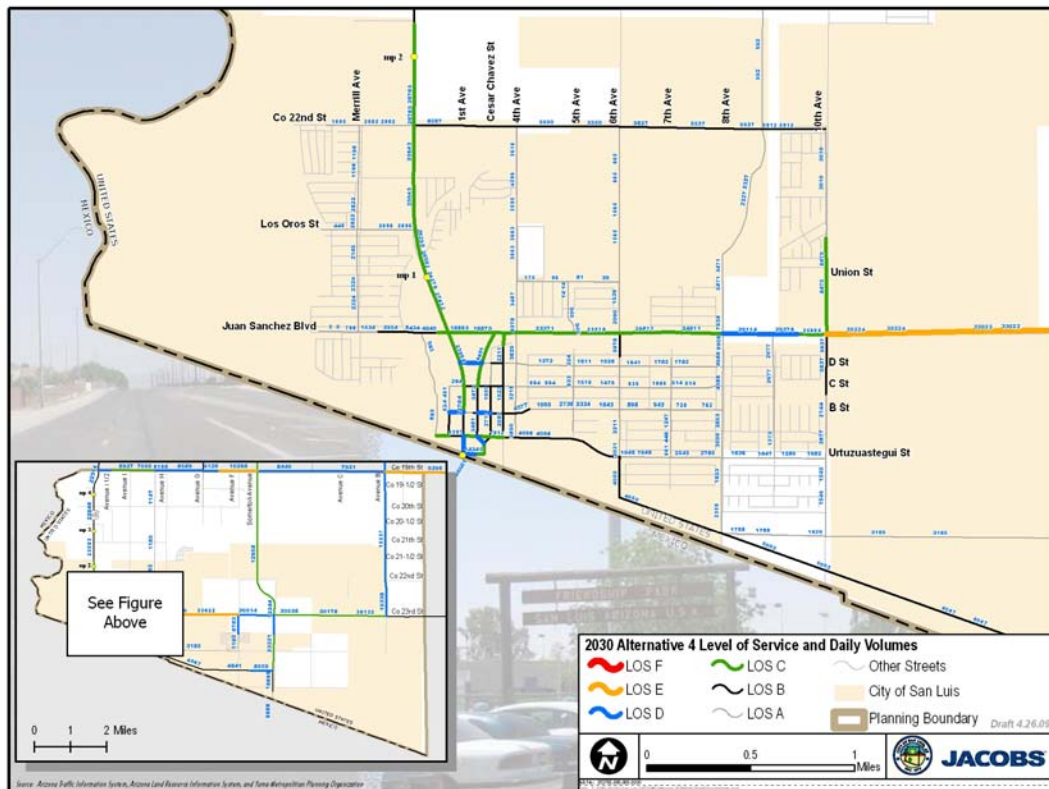


FIGURE 6.7 ALTERNATIVE 2 - DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE (LOS)



## ALTERNATIVE NETWORKS COMPARISON

Traffic volumes comparisons, shown in Table 6.1, vehicles-miles-traveled (VMT), vehicles-hours-traveled (VHT), and average network speed are the criteria used in this study to compare the alternative networks and to evaluate their performance.

**TABLE 6.1 TRAFFIC VOLUMES COMPARISON**

ROAD	LOCATION	2030 BASE	ALT 1	ALT 2
US 95	North of Los Oros Street	25,738	24,884	25,045
US 95	North of Juan Sanchez Boulevard	28,658	27,781	27,917
US 95	South of Juan Sanchez Boulevard	22,880	22,097	21,700
US 95	North of B Street	23,462	22,550	22,784
US 95	At the border	14,340	14,340	14,340
Urtuzuastegui Street	West of 1st Avenue	8,000	8,351	9,919
Urtuzuastegui Street	East of 1st Avenue	1,835	2,693	4,752
Juan Sanchez Boulevard	West of US 95	5,945	5,698	5,820
Juan Sanchez Boulevard	East of US 95	19,240	18,218	18,665
Juan Sanchez Boulevard	West of 1st Avenue	19,426	18,413	18,870
Juan Sanchez Boulevard	East of 4th Avenue	24,847	23,204	23,371
Juan Sanchez Boulevard	West of 8th Avenue	26,667	24,616	24,811
Juan Sanchez Boulevard	West of 10th Avenue	28,172	25,752	25,886
C Street	West of 1st Avenue	2,077	2,770	2,989
D Street	East of US 95	3,092	3,953	4,330
1st Avenue	North of Urtuzuastegui Street	3,316	3,599	3,481
2nd Avenue	North of Urtuzuastegui Street	2,153	2,598	2,862
6th Avenue	South of Juan Sanchez Boulevard	5,213	5,968	5,978
8th Avenue	North of Juan Sanchez Boulevard	7,350	7,903	7,934
10th Avenue	North of Juan Sanchez Boulevard	8,327	8,482	8,475
Avenue B	North of SR 195	14,592	15,460	15,338
Co 22 <sup>nd</sup> Street	East of US 95	8,746	8,096	8,267
SR 195	East of Avenue E	13,880	14,085	14,183

As can be observed from the table above, a traffic flow decrease is occurring along Juan Sanchez Blvd as well as on US 95 between the 2030 Base scenario and Alternative 1 and Alternative 2. Table 6.2 and Table 6.3 display the VMT and VHT comparison and the average network speed respectively for each scenario.

TABLE 6.2 VMT AND VHT COMPARISON

FUNCTIONAL CLASSIFICATION	2030 NO BUILD		2030 BASE		ALTERNATIVE 1		ALTERNATIVE 2	
	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
TOTAL	673,638	42,492	674,685	18,334	677,987	17,291	680,400	17,378

TABLE 6.3 AVERAGE NETWORK SPEED COMPARISON

SCENARIO	AVERAGE SPEED
2030 No-Build	15.85
2030 Base	36.78
Alternative 1	39.21
Alternative 2	39.23

The typical trend when evaluating alternatives is to observe an increase in the total VMT and at the same time a decrease in the total VHT. This pattern usually yields an increase in the average network speed, which translates in improved mobility for the particular roadway system. For the scenarios tested in this study, the VMT shows a slight increase between the 2030 No-Build and either of the alternatives scenarios, but the VHT shows a substantial decrease between the two scenarios. This is also confirmed by the increase of the average network speed from approximately 16 mph to 39 mph. Hence, the roadway improvements presented in the alternative scenarios address the majority of the identified LOS issues presented in working paper 1. It must also be mentioned that this level of analysis is for planning purposes and not for operational purposes, and more refined roadway details could yield better system performance.



## ROADWAY AND MULTIMODAL RECOMMENDATIONS

### ROADWAY RECOMMENDATIONS

Upon review of the analysis performed above the proposed roadway plan includes the improvements detailed in Table 6.4. The extension of County 22<sup>nd</sup> to Avenue E ½ is in response to the lack of alternate routes north of Juan Sanchez Blvd in case of its closure due to accident or security reasons. Additionally, the City of Somerton has recently expressed the desire to move the extension of Avenue E north of SR 195 from the Avenue E ½ alignments to the Avenue D ½ or Avenue D alignment. Since no official decision has been made at this time, this study will use the adopted YMPO alignment for the recommendations. It is foreseen that the forecasted traffic in the study area will be minimally affected if the alignment is changed in the future.

**TABLE 6.4 2030 ROADWAY IMPROVEMENTS**

ROADWAY	FROM	TO	ACTION
Juan Sanchez Boulevard	US 95	Avenue E	Widen to 4 lanes with a center left turn lane
6th Avenue	Union Street	County 22nd Street	Construct 2 lanes
9th Avenue **	County 22nd Street	County 19th Street	Construct 2 lanes
Co. 22 <sup>nd</sup> Street	9 <sup>th</sup> Avenue	10 <sup>th</sup> Avenue	Construct 2 lanes
New Roadway	8th Avenue	Avenue F	Construct 2 lanes on County 24th Street alignment
New Roadway	6th Avenue	Avenue E	Construct 2 lanes along the border then use County 24th ½ Street alignment to Avenue E
Avenue E **	SR 195	County 19th Street	Construct 2 lanes along Avenue D alignment
Avenue E	San Luis PO II	SR 195	Widen to 4 lanes expressway
County 22 <sup>nd</sup>	10 <sup>th</sup> Avenue	Avenue E ½	Construct 2 lanes (potential east-west safety route connection north of Juan Sanchez Blvd )

\*\* Project identified in the 2006-2029 YMPO Regional Transportation Plan

Figure 6.8 depicts the proposed roadway plan number of lanes, while Figure 6.9 shows the resulting daily traffic volumes and roadway LOS. As can be observed the LOS for all roadways is LOS D or above, improving mobility when compared with the no-build scenario, with the exception of some segments of County 19, at the northern boundary of the study area, where the roadway is functioning at LOS E.

**FIGURE 6.8 2030 ROADWAY PLAN - NUMBER OF LANES**

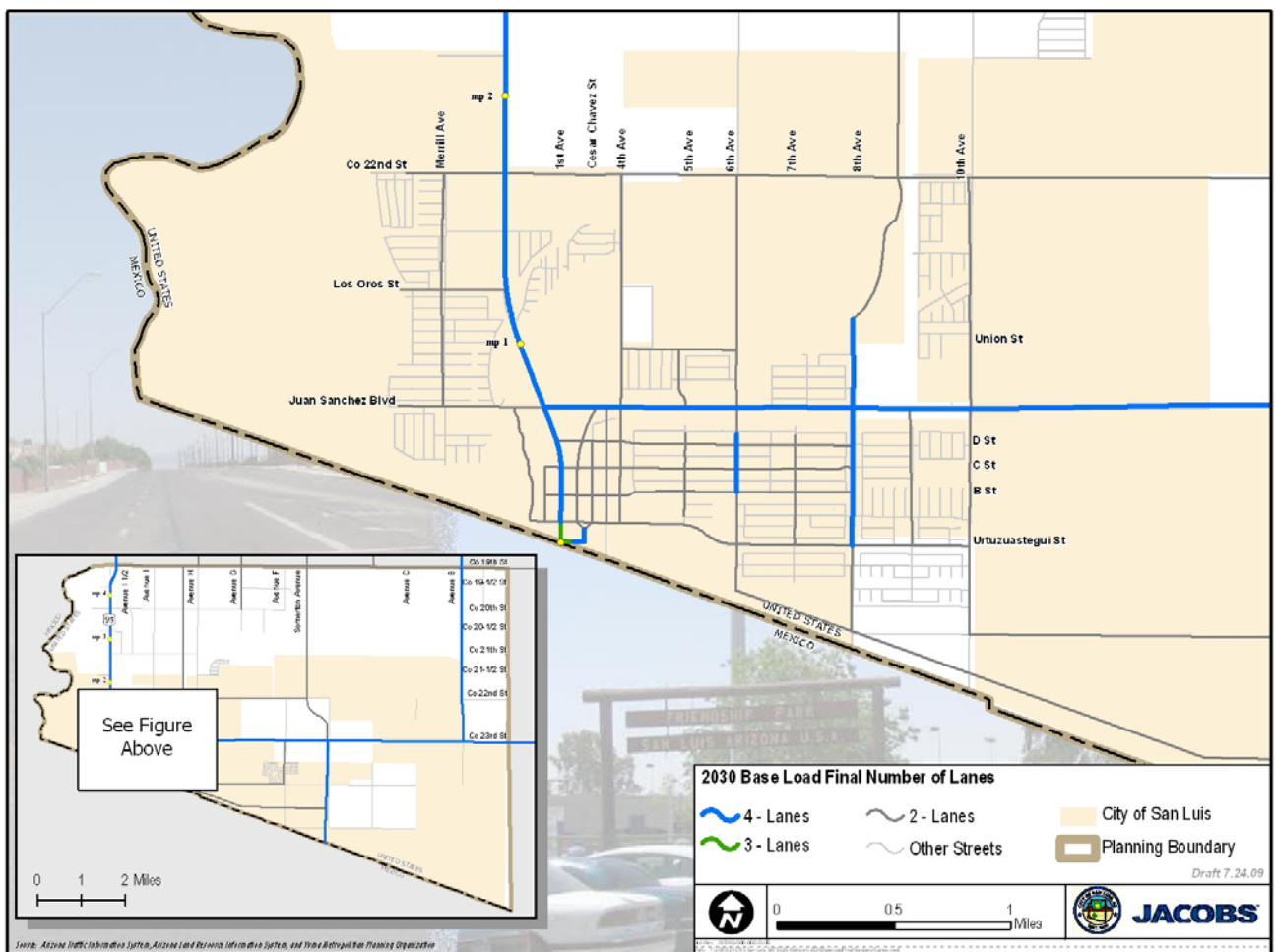
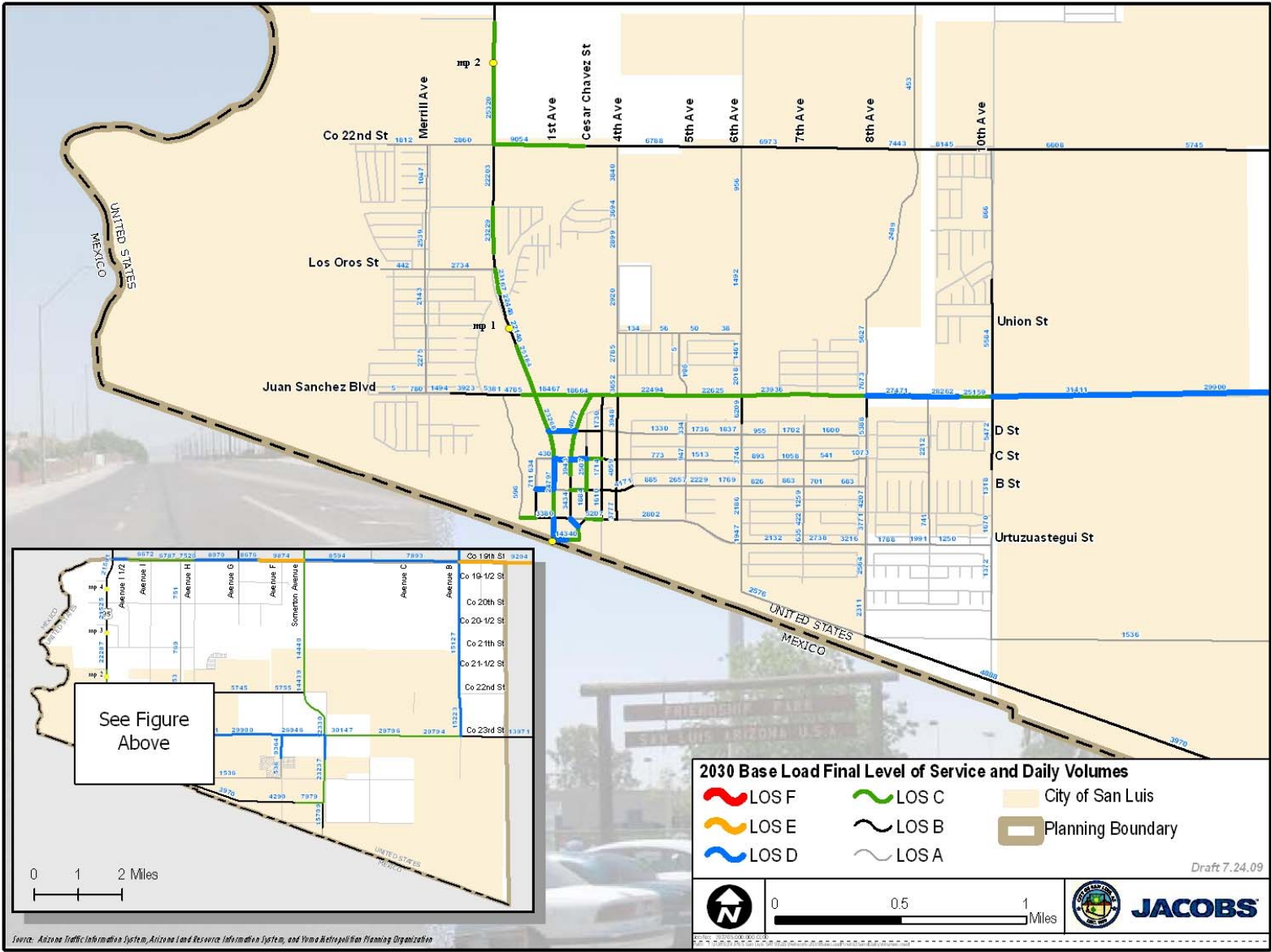


FIGURE 6.9 2030 ROADWAY PLAN - FORECASTED VOLUMES AND LOS



## Functional Classification System

San Luis has a very well defined roadway classification guidelines and roadway characteristics specifications included into the circulation element of the City's General Plan. Eligibility for federal funding to maintain the roadways is dependent upon meeting the FHWA functional classification standards. Often, jurisdictional roadways functional classification does not reflect the criteria set by FHWA. Currently in San Luis, the federally functional classified roads are: US 95 as principal arterial; Juan Sanchez as minor arterial; 4<sup>th</sup>, 6<sup>th</sup>; 8<sup>th</sup>; 10<sup>th</sup>, and Urtuzuastegui Street as collectors.

It is recommended, as growth occurs, to monitor the traffic volumes on the various facilities as an indicator of potential roadway upgrade to reflect its functionality. Table 6.5 displays volumes thresholds by roadway classification used in Maricopa County as general guidelines. However, traffic volumes are not sufficient to determine a change in roadway functional classification, which should also include a traffic analysis indicating the desired LOS.

**TABLE 6.5 TRAFFIC VOLUME THRESHOLDS BY ROADWAY  
FUNCTIONAL CLASSIFICATION**

Urban Roadway Planning Level Traffic			
Road Classification	ADT / Lane	No Thru Lanes	2-Way ADT Range
Local	350	2	50 - 1,500
Minor Collector	2,500	2	500 - 5,000
Major Collector	3,500	2	600 - 8,500
Minor Arterial	5,500	4	5,000 - 35,000
Principal Arterial	7,500	6	30,000 - 60,000
Rural Roadway Planning Level Traffic			
Road Classification	ADT / Lane	No Thru Lanes	2-Way ADT Range
Local	500	2	50 - 1,500
Minor Collector	3,000	2	800 - 5,000
Major Collector	4,000	2	1,000 - 8,500
Minor Arterial	9,000	4	5,000 - 35,000
Principal Arterial	10,000	4	10,000 - 40,000

The facility upgrade should be driven by the area development whenever possible. Also very important is the paving of local roadways to improve mobility.

### **Regional Connections**

The significance of the completion of SR 195 and the widening of Juan Sanchez Boulevard, not only affects San Luis, but the regional travel as well. Also the connection of Avenue E to County 19<sup>th</sup>, and 9<sup>th</sup> Avenue along the Avenue H ½ alignment, as per the YMPO regional plan, helps redistribute the traffic otherwise overloading Avenue B and US 95 respectively. It is worth mentioning that often travelers prefer to travel a longer route if there is a perceived travel time saving. Such an example would be the route from San Luis to Yuma Palms shopping center via SR 195/I-8 instead of US 95. It is quite impossible at this level of analysis to quantify such trips, but local empirical knowledge suggests that maybe there would be more trips than the ones forecasted by the travel demand model.

### **Down Town Circulation**

Due to the particular nature of San Luis downtown, which serves a land port of entry and the thriving business community, this study recommends a detailed operational circulation study to identify the optimum roadway configurations to accommodate all interests.

### **Recreational Travel**

San Luis currently experiences long delays along US 95 during the weekend due to the trips exchanged between the U.S. and the recreational areas in Baja California, Mexico. The long-awaited Coastal Highway connecting Puerto Peñasco to El Golfo officially opened on December 17, 2008, so the travel time from Puerto Peñasco to Yuma is 2.5 hours and from El Centro to Yuma is approximately 1 hour. Other less known recreational destinations are now available to US visitors and travel between the two countries is projected to increase in the future. Hence, a bi-national study is recommended to identify potential transportation improvements on both sides of the border to address future travel demand.

### **Parking**

To address the current daily parking needs of people arriving in San Luis and crossing the border on foot, the City should consider a parking structure near the port of entry to facilitate pedestrian border crossing.

## TRANSIT FUTURE DEMAND ANALYSIS

In discussing current and potential transit demand forecasts, there are two caveats to note. One, the potential demand forecast cannot be expected to represent actual expected ridership. Two, there are many different methods available for transit demand forecasting and no one method can truly claim accuracy, each has its own errors. However, forecasts with these methods can be relied upon since passenger revenues make up a small part of a transit system's total budget (10-25%), making the cost of an error in demand estimates even smaller. Most large errors in estimating revenue have a relatively small impact on overall finances. If ridership is underestimated, additional resources may be acquired to respond to demand. Thus, the impact of the degree of uncertainty is low enough that the projections in this report can be relied upon to show the level of need for local and regional transit service in San Luis.

With that said, three transit demand forecasting models were used in this study to estimate the future transit demand. The first model is the Arkansas Public Transportation Needs Assessment (APTNA) model, which was recently used by the State of Arizona in the Arizona Rural Transit Needs Study (RTNS). The APTNA method projects transit demand using the following trip rates (i.e., one-way passenger trips per year): 6.79 trips for elderly persons age 60 and over; 4.49 trips for persons with disabilities under age 60; and 20.50 trips for persons living in poverty under age 60.

The other two models are commonly used by many agencies to estimate the potential high point of transit demand given the sheer amount of certain transit dependent populations, regardless of realistic barriers in choosing to use public transportation. The first of these two models is the Peterson and Smith Regression Model, which is based on observing correlations of ridership on existing transit systems with the number of two "target" population groups, elderly persons aged 65 and over, and non-elderly low-income populations with disabilities. These two population groups typically generate approximately 80 percent of the total transit demand.

.6Peterson and Smith Transit Demand =

$$[12*(Elderly Pop) + 19*(Non-Elderly Low Income Pop)] / 0.8 * 0.77$$

The second of these two models is the Elderly and Disabled Transit Trip Factors Model. These rates were developed based on research done in rural areas regarding the frequency of transit ridership among the elderly and disabled.

Elderly and Disabled Transit Demand =

$$[(0.03 \text{ trips/day} * \text{Elderly Pop}) + (0.26 \text{ trips/day} * \text{DISABLED POP})] * 260 \text{ days}$$

Table 6 shows the published transit demand projections of the RTNS model and the calculated transit demand after applying the other two models with the same population inputs from RTNS. According to RTNS, the unmet transit needs of San Luis will go from 166,000 annual trips in 2005 to 226,800 annual trips in 2015. These predictions are very close to the actual ridership counts reported for the YCAT Yellow line from October 2007 to October 2008 is 156,000. Note that the actual ridership listed in Table 6.6 is only the annual ridership for the fixed route Yellow Line serving San Luis. It does not include the paratransit ridership of YCAT or any other client oriented transit provider, which is a large component of total transit demand. Therefore, the published RTNS estimated transit demand prediction for San Luis might be too low.

**TABLE 6.6 POPULATION GROWTH AND TRANSIT DEMAND FORECAST**

	2005	2015
<b>Population</b>		
Elderly (Above Age 60)	26,471	37,994
Disabled (Below Age 60)	8,077	10,105
Poverty (Below Age 60)	20,618	25,793
<b>Annual Trip Demand</b>		
Actual Ridership in 2008	156,000	-
RTNS Model	166,000	226,800
Peterson & Smith Model	682,792	910,520
Elderly & Disabled Model	752,479	979,451

## TRANSIT RECOMMENDATIONS

This study has found that current fixed route and supplemental client-oriented transportation services offered are insufficient in serving a population with a rather high transit mode share and a current and growing unmet need for transportation access to jobs. This section recommends five main actions to help improve the public transportation system. These actions are:

- Organize a Transit Advisory Committee
- Designate a City Transportation Coordinator
- Implement Transit Oriented Development Policies
- Develop a Transportation Demand Management Program
- Develop a San Luis Transit Center

The section below outlines these actions by realistic timeframes and provides descriptions that are more detailed.

### **Near-Term Actions**

The City should take the following near-term steps to be better prepared to respond to the needs of a rapidly growing area.

#### ***Organize a Transit Advisory Committee***

The City should consider appointing a volunteer Transit Advisory Committee to assist the City in identifying and responding to San Luis's transit-related issues and concerns. The Transit Advisory Committee, which could be a subcommittee of a Transportation Advisory Committee, if there is one, and could act as a liaison for transit issues between the City and the business community, and could also provide input for future transit actions such as equipment selection, route selections and additions, and transit center concept and site selection.

One of most crucial roles for the Transit Advisory Committee would be to work closely with YCAT and YMPO to advise them of needed investments and provide appropriate feedback. They should monitor the YMPO's implementation of the 2006-2029 Regional



Transportation Plan and the development of the next RTP expected to be completed in 2010.

### *Designate a City Transportation Coordinator*

The consultant recommends that the City hire or designate a city transportation coordinator to develop a rideshare program and serve as a clearinghouse for local and regional public transportation information. For example, the coordinator can track changes in area demographics and employment, track the number of citizens requesting dial-a-ride and/or transit service, and the number of commuters traveling outside the area. The coordinator can then use this information to keep regional operators of special needs transit services up to date on the City's rapidly changing demographics so that operators will make informed decisions about beginning or increasing service to the area. The Transit Advisory Committee could assist the City in identifying the desirable attributes of the coordinator position and work with the coordinator after his or her selection.

### *Implement Transit Oriented Development Policies*

Since the City is rather young with a lot of space to grow, the City has an opportunity to encourage more transit-oriented designs in new residential developments, or in developing commercial corridors, by means of zoning overlays and other methods.

For example, the Town of Oro Valley, north of Tucson, requires that at least half the parking spaces in a commercial development be located on the side of or behind the buildings. This requirement reduces the distance that a transit rider must walk across a parking area after exiting a bus. New residential developments could be required to adhere to a grid of local and collector streets, with fewer cul-de-sacs, internal loop roads, and other non-contiguous roadways.

Mixed-use development—buildings two or more stories in height with commercial space on the ground floor and residential space above—could be permitted or encouraged in commercial corridors. Such actions increase future transit ridership, improve transit operating economics, and thus make the provision of transit service more politically and economically feasible. The City should also identify candidate

sites for a future transit center and park-and-ride lots and take steps to preserve the land needed for their use.

## **Mid-Term Actions**

### *Develop a Transportation Demand Management Program*

In the mid-term, developing a Transportation Demand Management Program is probably the most efficient and most inexpensive way to address San Luis's high demand for transportation access to employment and promote further economic growth. Transportation Demand Management consists of a wide range of programs and services that enable people to get around without driving alone. Included are alternative transportation modes such as carpooling, vanpooling, transit, bicycling, and walking, as well as programs that alleviate traffic and parking problems such as telecommuting, variable work hours, and parking management.

One way the City can jump start this program is to collaborate with the YMPO to establish a community ridesharing program, such as vanpools and carpools that would serve the region. Organized ridesharing can address the needs of those who travel long distances to work on a regular basis with minimal startup and operational costs. Enlisting the support of major employers by offering economic incentives to employers and employees would further create a mutual benefit for the community and the businesses. As vanpool ridership between San Luis and specific destinations or areas in the Yuma metropolitan area increases, some vanpools could evolve into commuter bus service. Concurrent with the implementation of ride-sharing programs, the City should construct initial park-and-ride facilities for use by the car pools and vanpools.

This TDM program should apply for Section 5316, Job Access Reverse Commute (JARC). JARC is an FTA program with the purpose of assisting states and localities to develop new or expanded transportation services that connect welfare recipients and other low-income persons to jobs and other employment-related services. Job Access projects are targeted at developing new or expanded transportation services, such as shuttles, vanpools, new bus routes, connector services to mass transit, and guaranteed ride home programs for welfare recipients and low-income persons. The Yuma area is designated by the State of Arizona as one of four mid-sized areas in need of JARC funding.

## Long-Term Actions

### *Develop a San Luis Transit Center*

In the long-term, the community transit center for which a site has been preserved should be constructed for use by express bus and shuttle operators, the local bus system when warranted, and park-and-ride lot for ride sharing. Some new riders to the area may not be clear on whom they should call. Some type of expanded information sharing system would be beneficial.

## BICYCLE AND PEDESTRIAN FACILITY RECOMMENDATIONS

As a small community, San Luis is by nature well suited to walking and bicycling as part of everyday trip making. One unique aspect of San Luis is that there is a large number of daily border crossings made by pedestrians and bicyclist. As a result, the downtown core and Main Street are prime locations for improving conditions for bicycling and walking utilizing “Complete Streets” principles.

The Complete Streets movement is the continuation and evolution of decades of effort aimed at creating multi-modal transportation conditions through the inclusion of facilities for bicyclist and pedestrians. Complete Streets integrate infrastructure improvements and provide bicycle- and pedestrian-scaled environments. Typically, these street improvements offer physical separation to minimize conflicts. Complete Streets also offer community benefits such as traffic calming through street design, and minimizing environmental impacts through more comprehensive design processes.

Retrofitting Complete Streets in areas can improve conditions for existing business, and can attract new businesses within the corridor. Often property values increase, since land owners are willing to pay a premium to live in communities that are walkable. Communities throughout the nation are finding that creating human-scaled environments allows people to safely connect and can lead to the revitalization of a community.

### **Downtown San Luis / Main Street**

Downtown San Luis is the commercial core of the community and has significant traffic, both motorized and non-motorized. One of the main concerns is improving safety for all modes within the downtown area. To achieve this, it will require the development of bicycle and pedestrian facilities.

### **Pedestrian Facilities**

Downtown San Luis currently has a good network of sidewalks. The following enhancements would further improve walking conditions:

- Improved crosswalks
- Pedestrian signals at major intersections
- Improved curb cuts at crosswalk locations
- Pedestrian amenities such as landscaping for shade
- Bulb outs or pedestrian refuge areas in appropriate locations

The border crossing currently experiences a large number of daily pedestrian crossings. These pedestrians currently walk into (and out of) downtown San Luis, across Urtuzuastegui Street, with little to no separation or safety features between car traffic and foot traffic. The development of a pedestrian crossing between Main Street and 1<sup>st</sup> Avenue would improve the conditions for those crossing the border daily on foot. With the future implementation of the 1<sup>st</sup> Avenue and Archibald Street one-way couplet, consideration could be made to develop the section of Urtuzuastegui Street between Main and 1<sup>st</sup> Avenue as a pedestrian only area, with accommodations for the numerous taxi and bus services.

### **Bicycle Facilities**

The opportunity exists to improve conditions for bicyclist with the focus of border traffic being moved to 1<sup>st</sup> Avenue and Archibald Street. Installing bicycle lanes on Main Street provides accommodation for bicyclist wanting to access downtown as well as to utilize the border crossing. It is recommended that bicycle lanes be installed as part of

an overall revitalization of Main Street through downtown, utilizing “complete streets” concepts.

### **San Luis Study Area**

Improving conditions for bicycling and walking throughout the San Luis study area should be an ongoing effort as development occurs and roadways are improved. It is recommended that improvements to Main Street / US 95 (from the border to Co 22<sup>nd</sup> Street) and Juan Sanchez Boulevard (from US 95 to 10<sup>th</sup> Avenue) be implemented proactively through the addition of bicycle lanes. Bicycle lanes will improve safety conditions for bicycling and provide access to the major destinations within the study area. The remainder of the roadways within San Luis are low volume, low speed facilities that can be used as shared facilities.

## 7. IMPLEMENTATION PLAN AND FUNDING SOURCES

### IMPLEMENTATION PLAN

Upon review of the of the transportation issues presented in chapter five and in coordination with the City Project Manager and the ADOT Project Manager, a summary by short-, mid-, and long-term improvements by travel mode was determined and is presented in Tables 7.1 to 7.3 respectively. Additionally an estimated planning level construction cost for the improvements was calculated using a per units cost shown in Table 7.4, and is displayed in parenthesis under each item in the tables.

**TABLE 7.1 SHORT-TERM RECOMMENDATIONS BY MODE**

SHORT-TERM RECOMMENDATIONS			
Roadway Name	Action	Transit	Bicycle & Pedestrian
Co 22nd	Construct 2 lanes from 9th Ave to 10th Avenue (\$ 840,000.00)	Organize a transit advisory committee	Improve side walks
	Conduct downtown traffic operational study	Designate a city transportation Coordinator	Review and research bicycle users travel patterns
	Conduct bi-national study	Implement transit oriented development policies	
	Conduct a parking structure location feasibility study		

**TABLE 7.2 MID-TERM RECOMMENDATIONS BY MODE**

MID-TERM RECOMMENDATIONS			
Roadway		Transit	Bicycle & Pedestrian
Juan Sanchez Blvd	Widen to 5 lanes from US 95 to 10th Ave (\$ 18,117,000.00)	Develop a transportation demand management program	Study the feasibility to install bicycle lane on Main Street
New Roadway	Construct 2 lanes from 8th Avenue to Avenue F (\$ 5,600,000.00)	Review ridership on YCAT and request increase in service frequency	Study feasibility of pedestrian signal crossing locations and devices
6th Avenue	Construct 2 lanes from Union Street to County 22nd Street (\$ 1,050,000.00)		Study feasibility for bicycle and pedestrian amenities such as landscaping for shade

TABLE 7.3 LONG-TERM RECOMMENDATIONS BY MODE

LONG-TERM RECOMMENDATIONS			
Roadway		Transit	Bicycle & Pedestrian
Juan Sanchez Blvd	Widen to 5 lanes from 10th Avenue to Avenue E (\$ 29,700,000.00)	Develop a San Luis transit Center	Implement studies findings
9th Avenue **	Construct 2 lanes from Co 19th to SR 195		
New Roadway	Construct 2 lanes from 6th Avenue to Avenue E (\$ 11,200,000.00)		
Avenue E	Widen to a 4 lanes parkway (\$ 18,640,000.00)		
Avenue E **	Construct 2 lanes from SR 195 to Co. 19th Street		
County 22nd Street	Construct 2 lanes from 10th Avenue to Avenue E1/2 (\$ 7,000,000.00)		
Archibald Street and First Avenue ****	Convert Archibald Street and First Avenue to one-way couplet from C Street to Urtuzuastegui Street (\$ 10,000.00)		

\*\* Project identified in the 2006-2029 YMPO Regional Transportation Plan

\*\*\*\* The conversion assumes only fog seal, stripping, and signage.

TABLE 7.4 CONSTRUCTION COSTS BY UNIT

IMPROVEMENTS	UNIT	COST (2008 Dollars)
New construction	Lane mile	\$3,300,000
Reconstruction	Lane mile	\$ 5, 800,000
Signal		\$300,000
Bridge (2 lanes)	1000 ft	\$7,500,000
Convert 2-way road to one-way road	Lane mile	\$20,000
Construction (Collector Rd)	Lane mile	\$1,400,000
Construction (Local Rd)	Lane mile	\$700,000
Paving (Unpaved road)	Lane mile	\$500,000

## FUNDING SOURCES

Funding is vital to ensure successful implementation of transportation projects. This section will detail the current transportation funding situation for the San Luis study area and discuss potential revenue sources for future projects.

### SAN LUIS EXISTING TRANSPORTATION FUNDING

Transportation improvements within the San Luis study area are currently funded through a few primary sources, which include the following:

- Highway User Revenue Fund (HURF), \$2,093,903 allocation to San Luis in 2008.  
*HURF is the funding source for most local projects. HURF funds are derived from fuel taxes, vehicle license tax, registration fees and other miscellaneous fees. HURF funds are restricted to highway purposes.*
- Local Transportation Assistance Funds (LTAF), \$37,979 allocated to San Luis in 2008.  
*Local Transportation Assistance Funds are generated by a legislated maximum of \$23 million from the State Lottery, which is distributed on a population basis directly to cities and counties for the purposes of implementing local transportation programs. LTAF (I) funds can be used for any transportation purpose.*
- Surface Transportation Program (STP), \$5,000,000 allocated for the new Port of Entry in year 2012  
*The Surface Transportation Program provides States and localities with flexible funding for projects on any Federal-aid highway, including the National Highway System, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities.*

### FUNDING OPPORTUNITIES TO CONSIDER IN THE SHORT-TERM

Some short-term funding opportunities were identified that may be applicable to the San Luis region. In fact, submittals for 2009 funds are due this summer and this fall. However, these programs may be available in the future as well depending on results of federal budgeting.

*Increasing Seat Belt Use among Recent Hispanic Immigrants* is a grant opportunity that is due July 16, 2009. The City is eligible for grant funding and there are no match



requirements. The objective of the grant is to examine the “attitudes, beliefs, and perceptions about seat belt use among newly-arrived Hispanic immigrants.”

**Contact: Vincent Lynch 202-366-3339 vincent.lynch@dot.gov**

*The Performance and Registration Information Systems Management (PRISM) FY2009* is a grant opportunity that is due *September 25, 2009*. Since the state is eligible, this

could be a potential partnering effort, and no matching funds are required. “The PRISM enables states to link Federal motor carrier safety information systems with state commercial registration and licensing systems....The clearinghouse and repository may include information on the safety fitness of each of the motor carriers and registrants...and other information about driver safety performance.”

**Contact: Suzanne Cotty 202-493-0804 suzanne.cotty@dot.gov**

## FUNDING OPPORTUNITIES TO CONSIDER IN THE LONGER-TERM

### LOCAL

*Development Impact Fees* can be realized for transportation projects through impact fees or development requirements for targeted projects or areas. The amount of the assessment needs to be in direct proportion to the magnitude of the need created by the project. Developer Agreements can also be used as a tool to collect revenue for capturing the off-site impacts to the community.

*Hotel Bed Tax* is traditionally a percent sales tax added to the hotel room charge. It is collected by the hotel, paid to the state with their other sales tax returns, and refunded to the local jurisdiction by the state of Arizona.

*Sales Tax* for transportation improvements is another viable funding source. A number of jurisdictions throughout Arizona have successfully implemented Sales Tax specifically for transportation. This tax should be regional in nature and could be used for both motorized and non-motorized improvements.

*Gas Tax* is an increase in the gasoline tax, initiated and assessed at the County level, including incorporated cities and towns. Currently, counties are not enabled under existing legislation to increase the gas tax.

*Developer Exactions* require developers to construct off-site facilities necessary to serve their development. Improvements to roadways and intersections can be exacted from developers, for example. This method is often used with developer impact fees.

*Improvement or Road Districts* can be established in designated areas under Arizona Revised Statutes Title 48. These types of districts can be used to undertake a variety of improvements, including roadway widening and paving, but come with certain restrictions on creation and implementation of the district. The improvement costs are shared on a fair and equitable basis, and are usually supported by residents and property owners within the district.

Yuma County operates over 200 improvement districts (ID) of various types. The vast majority of these ID's are for water delivery or irrigation water purposes. ID's for road improvements are for County roads only. The county does not participate financially but does provide support services, and the costs for these services are allocated to each district.

## STATE

*Vehicle License Tax (VLT)* is based on the assessed value of a vehicle and is paid yearly. The revenue from this tax is distributed to local jurisdictions via the HURF. Arizona charges a Vehicle License Tax (VLT) in lieu of a personal property tax on vehicles. The VLT is based on an assessed value of 60% of the manufacturer's base retail price reduced by 16.25% for each year since the vehicle was first registered in Arizona.

*Safety Enforcement and Transportation Infrastructure Fund* provides revenue for enforcement and maintenance within twenty-five miles of the Arizona/Mexico border. Arizona Mexico Border Agreements. According to the Arizona Executive Budget Summary for fiscal years 2010 and 2011, "the Recommendation continues for FY 2010 the same \$600,000 funding amount from the Safety Enforcement and Transportation Infrastructure Fund that the Legislature approved in FY 2008 to enable the Department to enter into agreements with and provide funding to the Arizona-Mexico Commission, Department of Homeland Security, and Arizona International Development Authority."

*Local Transportation Assistance Fund LTAF, and LTAF II* are distributed to local jurisdictions based on population for use on transit and transportation purposes. LTAF (II) was intended to augment LTAF (I) with a maximum of \$18 million statewide from the Vehicle License Tax (VLT) and excess Powerball monies.

## FEDERAL

### *Coordinated Border Infrastructure Program (SAFETEA-LU)*

The Coordinated Border Infrastructure Program (CBI) is a formula grant program whose purpose is to improve the safe movement of motor vehicles at and across our Nation's borders with Canada and Mexico. Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), a total of \$833 million (\$210 million for 2009) is authorized in the program to be distributed by formula to states. This program replaces the Coordinated Border Infrastructure Program (CBI program) in the previous transportation authorization, the Transportation Equity Act for the 21st Century (TEA-21). More information can be found at the FHWA website (<http://www.fhwa.dot.gov/planning/cbipintro.htm>). The current contact person for Guidance on the Coordinated Border Infrastructure Program is Roger Petzold (roger.petzold@dot.gov).

*Surface Transportation Program (STP)* are federal funds used for a variety of roadway improvements and operations. Specifically, the Metropolitan Planning Program (MPP) provides financial assistance, through the states, to MPOs to support the costs of preparing long-range transportation plans and financially feasible transit improvement projects. MPP assistance should be used to conduct balanced and comprehensive intermodal transportation planning and technical studies for the movement of people and goods in the metropolitan area. STP funds are programmed through the YMPO.

*Transportation Enhancement* funds provide funding for bicycle, pedestrian, historic and beautification projects. The program was developed to enhance surface transportation activities by developing projects that go beyond what transportation departments typically do. All projects must be surface transportation-related. Eligibility requirements are screened through the program application process and validated by ADOT staff and the Transportation Enhancement Review Committee (TERC). Applications are considered yearly under this program through the YMPO.

**2009 Border Enforcement Grants** ensure motor carriers operating commercial motor vehicles entering the United States from a foreign country are in compliance with commercial vehicle safety standards and regulations, financial responsibility regulations and registration requirements of the United States, and to ensure drivers of those vehicles are qualified and properly licensed to operate the commercial motor vehicle. If funds remain available after all applications received by November 1, 2008 have been processed, additional applications will be accepted through August 31, 2009, and considered for funding. This grant opportunity should be considered for future fiscal years, if it is included as part of the future federal budgets.

**Freight Rail Security Grant Program (FRSGP) Total Funding Available in FY 2009: \$15,000,000** will fund security training for frontline employees, the completion of vulnerability assessments, the development of security plans within the freight rail industry and GPS tracking systems for railroad cars transporting toxic inhalation materials (TIH).

Eligible applicants are divided into groups based on the types of projects they can apply for: Class I, II and III railroad carriers, and owners of railroad cars transporting TIH. Eligible railroad carriers may ONLY request funding for security awareness, emergency response training for railroad frontline, employees and the completion of vulnerability assessments and security plans. Applications for these programs were due January 13, 2009. This grant opportunity should be considered for future fiscal years, if it is included as part of the future federal budgets.

**Port Security Grant Program (PSGP) Total Funding Available in FY 2009: \$388,600,000** provides grant funding to port areas for the protection of critical port infrastructure from terrorism. PSGP funds are primarily intended to assist ports in enhancing maritime domain awareness, enhancing risk management capabilities to prevent, detect, respond to, and recover from attacks involving improvised explosive devices (IEDs), weapons of mass destruction (WMDs) and other non-conventional weapons, as well as training and exercises and Transportation Worker Identification Credential (TWIC) implementation. The Port of Entry for San Luis is not identified in Group I or II for eligibility; however an application could be filed under Group III "All Other Port Areas" status. Applications for these programs were due January 13, 2009. This grant opportunity should be considered for future fiscal years, if it is included as part of the future federal budgets.

*Trucking Security Program (TSP) Total Funding Available in FY 2009: \$7,772,000* provides funding to eligible applicants to implement security improvement measures and policies deemed valuable by the Department of Homeland Security (DHS) as indicated in the Security Action Items publication of June 26, 2008. These items are primarily focused on the purchase and installation or enhancement of equipment and systems related to tractor and trailer tracking systems. Additionally, the TSP will provide funding to develop a system for DHS to monitor, collect, and analyze tracking information; and develop plans to improve the effectiveness of transportation and distribution of supplies and commodities during catastrophic events. Eligibility for funding under the Security Action Item Implementation priority is limited to applicants who have a current security plan subject to Title 49 CFR 172.800 Transport Tier I Commodities as defined by TSA through the issuance of Highway Security-Sensitive Materials (HSSM) Security Action Items. Eligible applicants will be placed into one of two tiers: Tier I consisting of eligible applicants that have 11 or more tractors or Tier II, consisting of eligible applicants that have 10 or less tractors. There are no restrictions on the eligibility for the monitoring and planning priority of TSP. These applicants must demonstrate that they have the financial and resource capabilities to successfully address the Security Action Implementation and Monitoring and Planning priorities. Applications for these programs were due January 13, 2009. This grant opportunity should be considered for future fiscal years, if it is included as part of the future federal budgets.

*Coordinated Border Infrastructure Program* provides funds to improve safe vehicle movement across the border between the U.S. and Mexico. This program was not continued for FY 2006-2009 under SAFETEA-LU. New projects for future funding are not being identified, according to the Federal Highway Administration's website.

*Federal Lands Highway Program (FLHP)* provides funding for a consolidated program of transportation improvements that are not a state or local responsibility. Funds can be used for recreational travel and tourism-related travel. Funds are accessed in concert with the applicable state agency (ADOT in this case), with project selection made by the FHWA Administrator.

*Transportation and Community and System Preservation Pilot Program (TCSP)* funds projects that address the link between land use, community quality of life, and transportation. The program favors projects that partner with private sector interests to make transportation and land use connections. Cities are eligible recipients of these grant funds, and there is no maximum on the dollar amount of the award. Authorized funding for the TCSP Program is \$25 million in FY 2005 and \$61.25 million per year for FY 2006 through 2009.

*Transit Funds - Section 5310, 5311* provide funding for local transit. The 5310 program funds transit programs for elderly and disabled and the 5311 program funds local transit systems in non-urbanized areas. Applications for funds are generally made available in January through the Arizona Department of Transportation (ADOT).

*Statewide Local Governments Economic Stimulus Program* is the ADOT program to expedite the delivery of transportation projects as part of the American Recovery and Reinvestment Act (ARRA).

*Highway Expansion and Extension Loan Program (HELP)* provides loans and financial assistance for highway programs in Arizona and is often used to help accelerate projects. Eligible projects are highway projects meeting both of the following requirements: the project must be on the Federal Aid System, National Highway System, State Highway System, or be designated as a state route; and the project must be included in the State Highway Construction Program, State Transportation Improvement Plan or the City's Transportation Improvement Plan of the Yuma Metropolitan Planning Organization (YMPO). Minimum award is \$250,000. Applications for funds are generally made available twice a year through ADOT.

*Job Access and Reverse Commute (Section 5316) Grants (JARC)* provides financing for capital projects and operating costs of equipment, facilities and maintenance related to providing access to jobs, promoting use of transit and transit vouchers for welfare recipients and eligible low income individuals, and promoting use of employer-provided transportation. Applications for funds are generally made available through YMPO and ADOT, depending upon the size of the urban population.

*New Freedom Program (Section 5317) Grants* provide competitive grants for improved public transportation services and alternatives for people with disabilities beyond those required by the Americans with Disabilities Act (ADA) of 1990. Applications for funds are generally made available through YMPO and ADOT, depending upon the size of the urban population.

*Rural Business Enterprise Grants* enhances economic development through grants for developing, constructing or acquiring land, buildings...streets and roads. Funds must be used to assist small and emerging private businesses that will employ 0-50 employees and have less than \$1 Million in projected gross revenue.

*Economic Strength Project (ESP) Grants* provide funding to communities for highway or road projects to assist businesses creating or retaining jobs and making capital investment. Eligible projects include new road construction, upgrading of existing roads, access management techniques, reconstruction and paving. A 10% match would be required of the City or through business assistance. Notification of available funds occurs in January and July.

#### **OTHER REVENUE-GENERATING RESOURCES FOR TRANSPORTATION**

- Advertising fees generated from rental space at bus stops, shelters and on the inside and outside of transit vehicles, could be devoted to other transit investments.
- Creating or implementation of public and/or private toll roads. Variable toll pricing strategies allow for increasing the fare during the peak hours.

Parking revenue implemented through parking meters or restrictions could provide an important income-generating opportunity from collections and permit violations (after payment of maintenance, enforcement, and administration costs) that could be devoted to transportation investments.

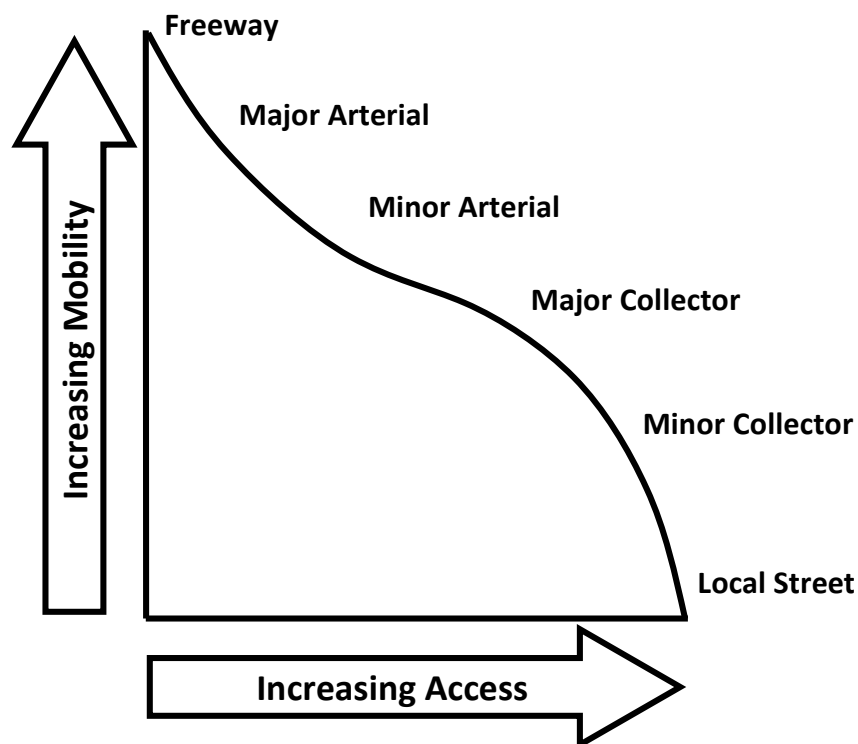
## 8. ACCESS MANAGEMENT

### ACCESS MANAGEMENT OVERVIEW

Access management enhances the flow of traffic on a corridor or roadway system by improving safety, capacity, and speed. Effective access management programs control the number of driveways and vehicular curb cuts, remove slower turning vehicles, and reduce the number of vehicular conflict points. It is important to implement these controls without overly restricting reasonable access to property.

Controlling access improves mobility and is linked to the function of a particular roadway. Low volume, low speed facilities such as local roads serve to provide direct and frequent access to properties. Roadways with higher speeds and higher traffic volumes serve to provide mobility and should restrict direct access to adjacent land uses, such as freeways, which are completely access controlled. The amount of appropriate access is related to the level of mobility and specific function of a road as illustrated in Figure 8.1.

FIGURE 8.1 ACCESS VS MOBILITY





The challenge of managing access is establishing a program of legal, administrative, and technical strategies with the appropriate balance between private property access rights and need to control access to serve public need. Ideally, these strategies will be implemented through planning practices, rules, engineering standards, and procedures resulting in access decisions that successfully, fairly and consistently, determine access management for each unique situation.

## **BENEFITS OF ACCESS MANAGEMENT**

Improved traffic flow is one of the many benefits of applying access management techniques. Roadways utilizing access management techniques are likely to be safer and provide for better circulation while improving travel times. These techniques include, increasing driveway spacing, utilizing turning lanes, grade-separating intersections, and installing medians.

The frequency of intersections greatly influences the capacity and function of roadways. Roadways with more access points and intersections have more opportunities for conflicts, and significant friction to through traffic that contributes to congestion and crashes.

Applying access management techniques can enhance the livability of a community. Access management has been shown to reduce crashes while also improving pedestrian/bicycle safety. The mobility benefits to a community include increases in roadway capacity and reductions in travel time. The economic benefits of access management include reserving market area for businesses, improving customer safety and convenience, more efficient freight movement, and a positive effect on property values.

Communities that have implemented access management have more area for landscaping, while preserving community/scenic character and promoting more efficient land and site design. Additionally, access management can reduce emissions and fuel consumption due to improved traffic progression and can help avoid substandard access to lot splits.

## CURRENT ACCESS MANAGEMENT CONDITIONS

Currently, the main arterial corridors in the study area have little or no access control. US 95, Juan Sanchez Boulevard, 4<sup>th</sup> Avenue, 6<sup>th</sup> Avenue, 8<sup>th</sup> Avenue, 10<sup>th</sup> Avenue, Co. 22<sup>nd</sup> Street and Urtuzuastegui Street function as the arterial system for San Luis. Of critical importance for access management are the roadways serving the downtown and commercial areas.

### US 95

US 95 is the most heavily traveled roadway in the study area. Additionally, US 95 is the main route to the San Luis Port of Entry, and provides primary access to the downtown commercial core. US 95 also provides the main regional connection north to Yuma and I-8. US 95 serves conflicting roles for San Luis, as a major regional connector, but also as the main access to commercial activity. As part of the State System, US 95 has several access category assignments, as identified in the draft State Access Management Program, depending on where the roadway is located. Within the study area, this includes the following categories:

- U1 (Urban Principal) - From International Border (in San Luis) to B Street
- U2 (Urban Mixed) - From B St to Juan Sanchez Blvd
- U3 (Urban Secondary) - From Juan Sanchez Blvd to County 19<sup>th</sup> Street

These categories are detailed in the draft Access Management Category Requirements in Appendix A from ADOT.

US 95, as it travels through San Luis, has numerous driveways and curb cuts. The roadway includes a left turn lane along various sections and no dedicated right turn lanes at driveways or intersections with the exception at the intersection of US 95 with County 22<sup>nd</sup> Street. There are approximately 40 driveway openings for the 1.25 mile section between Piceno Drive and Urtuzuastegui Street. The frequency of openings increases through the downtown area. Figure 8.2 below shows the number of openings between C Street and Urtuzuastegui Street.

FIGURE 8.2 DOWNTOWN EXISTING ACCESS POINTS  
MAIN ST., 1<sup>ST</sup> AVE., 2<sup>ND</sup> AVE.



Source: Image, Google Earth

### **Juan Sanchez Boulevard**

Juan Sanchez Boulevard has very few direct access driveway cuts. Large portions of land adjacent to the roadway are currently undeveloped. This roadway is a two-lane road and features left turn lanes and right turn lanes at most intersections.

### **Other Major Roadways**

There is little or no access control for other roadways like 1<sup>st</sup> Avenue, 4<sup>th</sup> Avenue, and Urtuzuastegui Street. These secondary roadways provide important connections to downtown and across the study area.

## **ACCESS MANAGEMENT GUIDELINES**

To develop a comprehensive access management program for San Luis requires development of access guidelines and careful regulation of land use development and redevelopment. Guidelines are derived from creating a system based on functional classification that defines acceptable levels of access, which includes criteria for the access point spacing. This also includes defining appropriate geometric and roadway design. These may include features, such as medians, median openings, turn lanes, driveway design, and intersection channelization. These guidelines need to be supported through policy and regulations.

There are two primary guideline categories: limiting driveways and removing slower moving traffic. The elements of these guidelines are detailed below.

### **Limiting Driveway Spacing and Access**

One of the key concepts in access management is control the number, location, and design of driveways to reduce conflicts and improve traffic flow. There are a number of specific elements that can be addressed to limit driveway impacts, including:

- Improve sight distance to increase safety and function of driveways.
- Implement a minimum distance between driveways to reduce conflict points and friction for through traffic. This is based on roadway function and typically can be defined follows: Major Arterials 300-500 feet, Minor Arterials 100-300 feet and Collectors 100-200 feet.

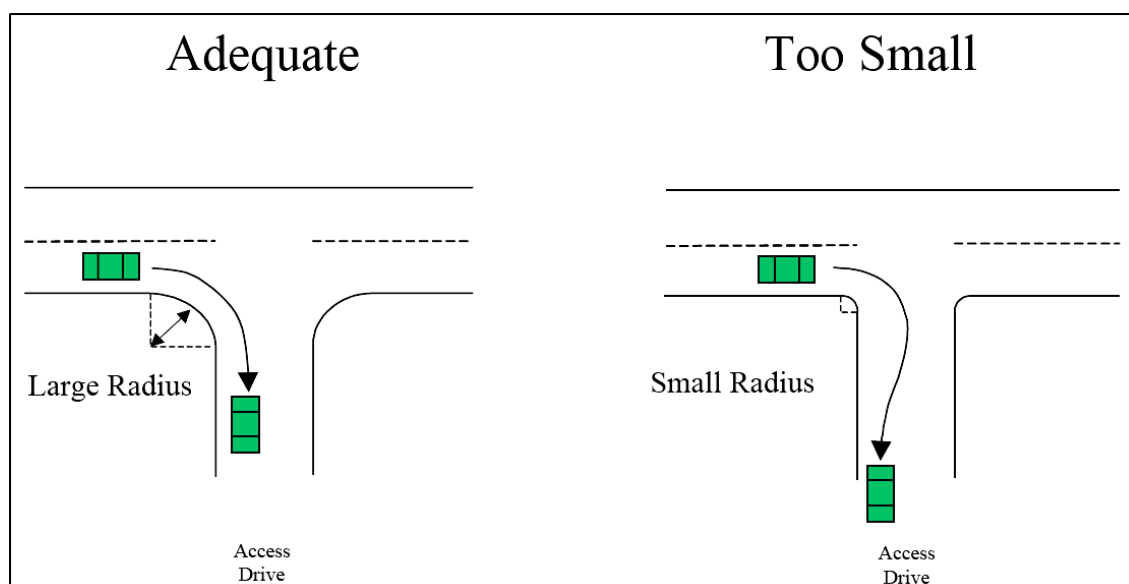
- Regulate the maximum number of driveways for each lot.
- Establish corner clearance guidelines to keep driveways from being too close to intersections.
- Consolidate or require shared access to minimize the number of driveways and to reduce conflict points.
- Install continuous raised medians to limit driveway access to specific points.

### Remove Slower-Moving Traffic

A second key concept in access management is to remove slower moving traffic from the main flow of traffic. Slower moving traffic include vehicles slowing down to turn. Improving the ability to turn quickly off the main road or providing a dedicated lane to facilitate that turn, keeps traffic flowing and improves safety. Techniques to manage turn movements include the following:

- Improve the geometrics of driveways or intersections with adequate turn radius, proper driveway widths, and safe driveway slopes. This allows traffic to leave and enter the traffic flow more efficiently. An example of proper turn radius is shown in Figure 8.3.

FIGURE 8.3 TURN RADIUS



Source: Iowa Access Management Handbook

- Design commercial driveway entrances with adequate throat length to avoid vehicles backing up on the main roadway waiting to enter.
- Install right turn and left turn lanes to move turning traffic out of the main flow of traffic. Turn bay lengths will vary depending on roadway type and traffic volumes. Left turn lanes can be accommodated either in continuous left turn lanes or as left turn bays in median breaks.

## RECOMMENDATIONS

Implementing an access management program will help maintain and improve traffic circulation within the San Luis study area. It is recommended the implementation of access management be approached from a policy and regulatory perspective as well as identification of specific improvements for key corridors.

### Policy Recommendations

- Encourage the City of San Luis to develop an Access Management Program. This program should comprehensively categorize the roadway system by access management categories, provide specific guidelines for each category, and define the design criteria for each category.
- Implement an Access Management Ordinance that provides the specific guidance for access to land uses.

### Downtown Commercial Core Recommendations

Implementing access management techniques in the downtown commercial core is recommended to improve traffic flow, safety, and economic vitality. Main Street (US 95), 1<sup>st</sup> Avenue, and 2<sup>nd</sup> Avenue from Urtuzuastegui Street to Juan Sanchez Boulevard provide access to the commercial downtown core. Main Street also serves as the primary route to and from the San Luis Port of Entry; as such this roadway carries significant through traffic. This through traffic is important to local businesses, but can also cause congestion in the downtown area. Figure 8.4 shows the location for recommended access management improvements.

FIGURE 8.4 DOWNTOWN ACCESS MANAGEMENT RECOMMENDATIONS



Source: Image, Google Earth



Implementing access management techniques in the downtown core on these main corridors will improve traffic flow and create a safer environment for all travel modes. For all three corridors, and throughout the downtown core, some general recommendations include the following:

- Consolidate driveway openings.
- Created shared access points.
- Install right and left turn bays at major intersections and driveways.
- Install continuous landscaped median with left turn bays at major driveways on Main Street.
- Conduct sight distance and turn radius and driveway length evaluations to determine problem situations.

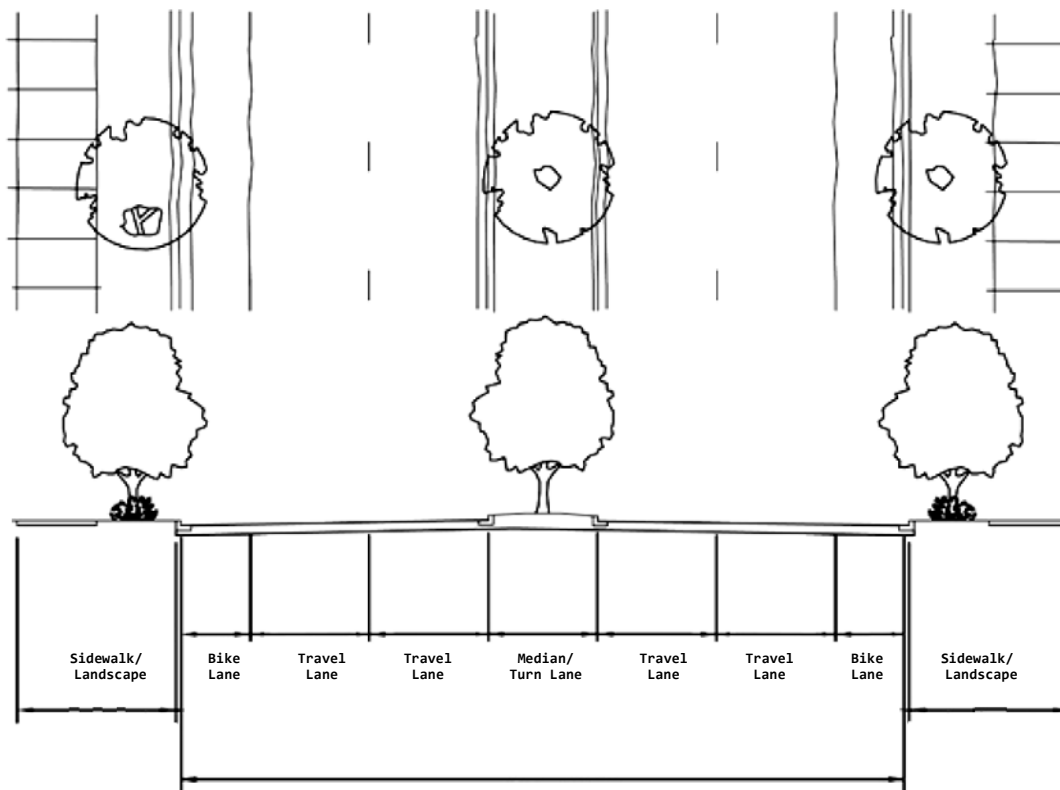
### **Main Street / US 95**

Main Street / US 95 serves dual purposes by providing access to and from the border crossing as well as serving local businesses. It is recommended that Main Street be improved to include many “complete street” concepts as part of improving access management. The main feature would be the installation of a continuous landscaped median from Urtuzuastegui Street to Juan Sanchez Boulevard. Left turn bays should be included at major or shared driveway locations consolidating driveways when feasible. Some driveways may become right in/right out only with the installation of the median.

It is also recommended that Main Street include bike lanes. This provides for bicycle traffic, provides a greater buffer for pedestrians from traffic, and provides turnout space for right turns and entering traffic, where exclusive right turn lanes are not provided. The main intersections at A, B, C, and D Streets, as well as Juan Sanchez Boulevard, are recommended to be improved with the appropriate left turn and right turn capacity as warranted.

The concept for Main Street is to facilitate through traffic by reducing conflicts from turning traffic at driveways and intersections. Figure 8.5 shows a conceptual cross-section for Main Street.

FIGURE 8.5 CONCEPTUAL MAIN STREET CROSS-SECTIONS

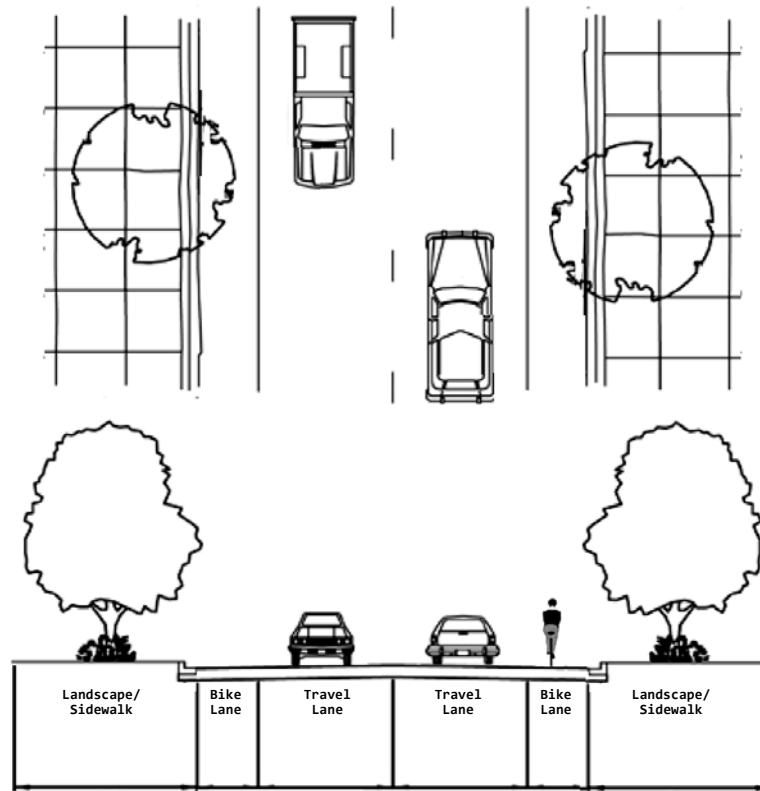


Source: Adapted from "Best Practices for Complete Streets", Sacramento Transportation and Air Quality Collaborative, 2005

### 1<sup>st</sup> Avenue and 2<sup>nd</sup> Avenue

First and Second Avenues provide additional north/south capacity for access to and from the border crossing, and provide local access to the downtown businesses. Driveway spacing should be assessed for both corridors and shared access points are recommended when feasible. 1<sup>st</sup> Avenue provides secondary access to many of the businesses along Main Street, particularly between Urtuzuastegui Street and C Street. It is recommended that these corridors, as well as the connecting east/west streets be improved to include bicycle lanes and sidewalk landscaping as shown in Figure 8.6. This improves the travel conditions for bicyclist and pedestrians and improves sight distance for entering traffic. Turn lanes should be implemented at major intersections, as warranted. Ensuring intersections have appropriate capacity is critical to the overall function of these corridors.

FIGURE 8.6 CONCEPTUAL COMMERCIAL CORE CROSS-SECTIONS



Source: Adapted from "Best Practices for Complete Streets", Sacramento Transportation and Air Quality Collaborative, 2005

## Other Corridor Recommendations

### *Juan Sanchez Boulevard*

- Current access conditions are good on Juan Sanchez Boulevard, it will be important to preserve these conditions.
- As the corridor develops, limit the number of driveways by developing shared access points.
- Provide turn bays at major driveways and intersections.
- Install a continuous landscaped median as the roadway is improved.

### *Other Major Roadways (4<sup>th</sup> Avenue, 8<sup>th</sup> Avenue, 10<sup>th</sup> Avenue, Urtuzuastegui Street, County 22<sup>nd</sup> Street)*

- Improve major intersections by installing right turn and left turn bays as warranted.
- Encourage shared driveway access when appropriate, and consolidate driveways whenever possible.