

Executive Summary

Unified Nogales Santa Cruz County
Transportation Plan 2010



Prepared for:
ADOT Multimodal Planning Division



City of Nogales



Santa Cruz County



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WilburSmith
ASSOCIATES



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1. Introduction

1.1 Background Information

The *Unified Nogales Santa Cruz County Transportation Plan 2010* was initiated by the Arizona Department of Transportation in cooperation with the City of Nogales and Santa Cruz County. This plan is funded through ADOT's Planning Assistance for Rural Areas (PARA) program. ADOT, the City of Nogales, and Santa Cruz County have retained the consultant team of Wilbur Smith Associates to conduct the study under the direction of a Technical Advisory Committee (TAC).

The Nogales/Santa Cruz County region is part of the Ambos Nogales urbanized area. This area is bi-national with most of the region located in Sonora, Mexico, and a small piece extending into Arizona in Nogales and Santa Cruz County. Nogales and Santa Cruz County are home to three ports of entry between the United States and Mexico: DeConcini, Morley Gate pedestrian, and the Mariposa commercial ports of entry. The Mariposa port of entry is one of the ten busiest cargo ports along the entire US-Mexico border.

Another mode of transportation that has a significant impact on the Nogales/Santa Cruz County area is the Union Pacific Railroad line. This rail line runs directly through downtown Nogales and bisects the town and the county along its north-south line. With long trains, local traffic on any roads in the vicinity of the railroad tracks are extremely congested since there is only one grade separated crossing in the entire county. It is located at SR-82 north of the downtown Nogales area. This situation presents a major traffic circulation and public safety issue for the communities.

1.2 Study Area Overview

The project study area encompasses the majority of Santa Cruz County and is more or less centered along I-19 for the full north-south length of the county. The study area can be generally described as:

- Bounded on the north by the Santa Cruz County/Pima County boundary line
- Bounded on the east by a line extending north and south from milepost 10 on SR-82, the Patagonia Highway
- Bounded on the south by the US-Mexico International Border
- Bounded on the west by a line extending north and south from milepost 10 on SR-289, Ruby Road

The study area is shown in *Figure 1 – Study Area* on the following page.

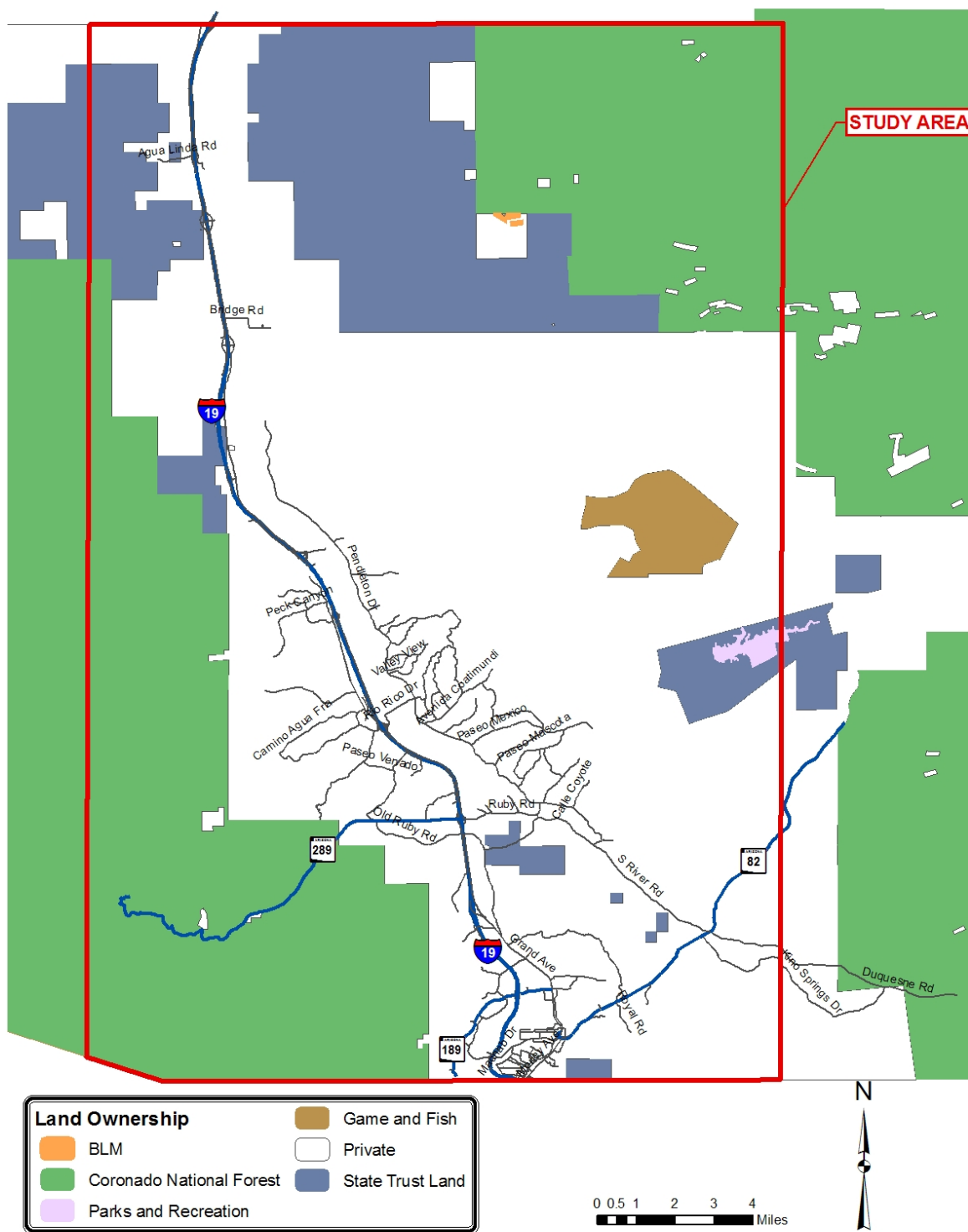


Figure 1 – Study Area / Public & Private Land Ownership

1.3 Purpose and Need Statements

This study updates the current plan entitled *Unified Nogales/Santa Cruz County Transportation 2000 Plan*. The local governments need a fresh look and new approach to developing their transportation plan.

Purpose: The purpose of this study is to create a useful, workable transportation system planning document that contains a realistic and achievable program for implementing transportation system improvements throughout the city and the county.

Need: There is a critical need for effective transportation planning to provide improved and safer traffic circulation throughout the City of Nogales and Santa Cruz County given limited resources that takes into account, not only the special cases of traffic movements through and around the US-Mexico border, but also the local development schemes and plans throughout the county, and the discontinuity situation created by the presence of the Nogales Wash/Santa Cruz River and the UP Railroad tracks.

2. Inventory of Current Conditions

2.1 Roadway System Inventory and Traffic Analysis

The majority of streets and roads in the Nogales and Santa Cruz County study area are 2-lane undivided facilities. Of course, some of the major traffic routes like I-19 and SR 189 have four lanes; two in each direction.

Crash data was obtained from the ADOT Traffic Records Section for the period 2003 through 2007. The crash data was analyzed to determine areas of particular concern regarding traffic safety and to identify and program needed safety improvements and enhancements.

In terms of total traffic, the Mariposa Road interchange is almost 50% busier than the next busiest interchanges at Ruby Road and at Rio Rico Road. The Mariposa Road interchange also carries the most heavy truck traffic. However, it should be noted that these counts were taken in July, which is outside of the peak produce season and thus is a low month for heavy truck traffic overall.

The I-19 frontage roads currently, and will continue to, play an important role in the Santa Cruz County transportation system. The West Frontage Roads between Ruby Road and Peck Canyon are the busiest. For the East Frontage Roads, the section between Ruby Road and Rio Rico Road is the busiest, but it carries less than half what the busiest west side sections carry.

The DeConcini and Mariposa Ports of Entry generate a significant amount of daily auto, truck, and pedestrian traffic. The heavy truck (18-wheeler) traffic to and from the Mariposa POE has a very significant impact on a number of roads within Santa Cruz County, particularly during the peak January through May produce season.

The Santa Cruz River and UPRR tracks are major physical barriers to east-west travel in Nogales and Santa Cruz County. The few river crossings north of Rio Rico Drive are unpaved. According to the Rail Crossings Study, approximately seven trains use the UPRR line daily.

The West Frontage Road north of Rio Rico Road is the only section of frontage road operating at Level of Service (LOS) D to E (congested). The remainder of the existing frontage road system operates at LOS A to LOS C (not congested). Most of Grand Avenue and significant portions of SR-189 (Mariposa Rd) are operating at LOS D to F. There are also a significant number of 2 lane arterials, 2 lane collectors, and one local street operating at LOS D to F. Most, but not all, of the potential problem areas are located in the City of Nogales. Those outside the city include the I-19 interchange areas at Ruby Road, Rio Rico Drive, and Yavapai Drive, and additionally the Palo Parado Road river crossing.

2.2 Multi-Modal Transportation

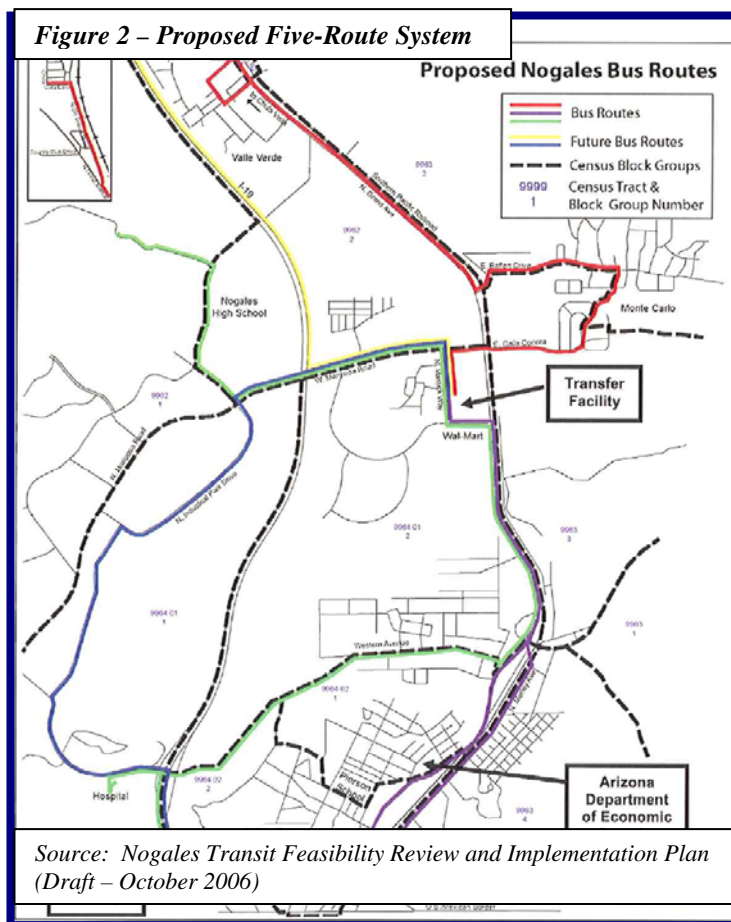
The pedestrian, bicycle, and transit assessment was based on review of current documents in the Santa Cruz County/Nogales area. These documents included past transportation, comprehensive, and general plans in the area.

Existing Pedestrian and Bicycle Facilities

Sidewalks are limited within the I-19 corridor with most located in the City of Nogales. There are significant pedestrian border crossings at the DeConcini and Morley Avenue ports of entry in downtown Nogales, yet sidewalks are only found along approximately 40 percent of the arterials and collectors surveyed for that study. No designated bicycle routes exist within Santa Cruz County. Bicycles are allowed on all roadways within the I-19 corridor including the limited-access freeway when alternative access is not available.

Transit

Transit is an important service providing mobility for those that do not have a car, are not able to drive, or simply choose not to drive, and is especially important to the senior and disabled communities.

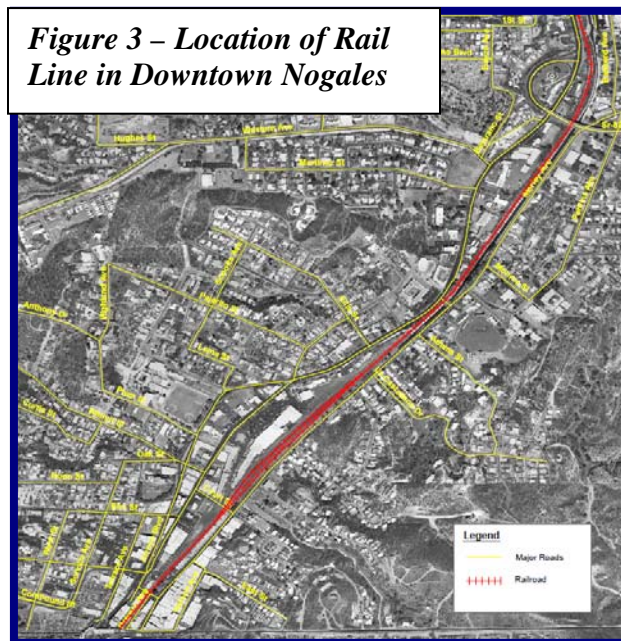


The Nogales Transit Feasibility Review and Implementation Plan was prepared to determine the viability of a publicly sponsored, fixed-route transit service within the City of Nogales. The implementation plan included a system operating plan; system budget; marketing strategy; and implementation schedule.

Rail

Currently, the Union Pacific has chosen to permit a public at-grade crossing of its tracks and right of way where it intersects with Palo Parado Road. There are 33 crossings in the UP database with an estimated 16 public and 16 private crossings and one international boundary crossing. There is only one grade separated crossing in the county located on SR 82 in Nogales. See Figure 3 for an aerial view of the downtown Nogales area.

Figure 3 – Location of Rail Line in Downtown Nogales



Freight

In 2007, Nogales handled over 87% of US exports leaving through Arizona POEs. In the same time period, Nogales handled over 88% of all imports coming through Arizona POEs. The value of goods and freight imported and exported through Arizona POEs is expected to grow significantly over the next 20 years (2030). Note that Nogales currently has the only rail crossing of the international border in Arizona.

Airports

There are three airports within the study area in Santa Cruz County. The Nogales International Airport is the most significant of the three and is included in the recently completed Arizona State Airports System Plan. The two other airports in the study area are much smaller and not used or used very sparsely. They are the Rio Rico Airstrip and the Tubac Ultralight Flightpark.

2.3 Environmental Conditions

Nogales and Santa Cruz County are located in the Sonoran Desert, which covers 120,000 square miles and has a minimum elevation of 2,500 feet. The mean elevation in the City of Nogales is 3,865 feet. The terrain in the study area is rugged with numerous washes and ridges generally aligned from the southwest to the northeast. Much of the development in the area has occurred in the flatter sloped areas adjacent to major drainage ways and floodplains. These include the Nogales Wash that flows from Nogales, Sonora, Mexico northerly through the heart of the City of Nogales along the east side of Grand Avenue to its confluence with the Santa Cruz River.

A significant portion of Santa Cruz County is part of the Coronado National Forest. Both the eastern and western edges of the study area are bordered by the National Forest land. With the

rich biodiversity the area has to offer, there are many groups involved in its land and wildlife conservation including the Audubon Society of Arizona, the Nature Conservancy, the Sky Island Alliance, the Wild Lands Project, and the Sonoran Institute. The Arizona Game and Fish Department would like to see greater emphasis on determining and avoiding or mitigating impacts on wildlife for transportation and development projects. They have wildlife friendly guidelines that can be followed by both public agencies and private developers.

The study area encompasses a number of cultural resources and parks in the City of Nogales and Santa Cruz County. According to the National Register and the State Historic Preservation Office (SHPO), there are 44 protected historic places and/or buildings in the study area. Of these forty-four, nearly three-quarters are in the Nogales area. The majority of the sites are buildings with many of them being historic homes that were built in the late nineteenth and early twentieth centuries.

3. Forecast of Future Conditions

3.1 Population Growth

Table P1 presents estimates of 2007 population and forecasts of 2010-2050 population prepared by the Arizona Department of Employment Security (DES).

Table P1: DES Population Estimates & Forecasts							
AREA	2000	2007	2010	2020	2030	2040	2050
Santa Cruz County	38,381	46,545	50,210	61,658	71,033	78,526	84,708
Nogales CCD (Study Area)	35,600	43,293	46,746	57,534	66,368	73,428	79,254
Nogales City	20,878	22,248	22,863	24,783	26,356	27,614	28,651

For this project, the DES estimates and forecasts are being used. This is because DES also produced a companion set of sub-county estimates and forecasts. These sub-county areas are based upon census geography. Santa Cruz County is divided into two major census divisions: the Nogales CCD (western Santa Cruz County), and the Patagonia CCD (eastern Santa Cruz County). The study area for this project falls entirely within the Nogales CCD. The 2007 DES estimates indicate that:

- 93% of the total County population is located within western Santa Cruz County;
- 51% of the western Santa Cruz population is located within the City of Nogales;
- 38% of the western Santa Cruz population is located within the combined Rio Rico CDPs.

Given the current economic climate, the population forecasts for 2010 and 2020 might be viewed as somewhat optimistic. Even so, the 2030 numbers appear achievable and reasonable. The 2030 DES forecasts indicate that:

- The total Santa Cruz County population will be 71,000 and the western County population will be 66,400, both of which represent 53% increases from 2007;

- 51% of the western Santa Cruz population will be located within the Rio Rico CDPs;
- 40% of the western Santa Cruz population will be located within the City of Nogales.

3.2 Housing Growth

The 2000 Census also counts the number of housing units. This is important because traffic forecasting models use housing units to estimate traffic generation. DES has not published housing unit estimates and forecasts to go with their population estimates and forecasts. However, estimates and forecasts of housing units have been imputed from the DES population data. Table H1 presents the counted housing units for 2000, the estimated housing units for 2007, and the forecast housing units for 2020 and 2030. Overall, the distribution and increases in housing units largely parallels the distribution and increases in population. However, the percentage increase in housing units is somewhat higher than the percentage increase in population because the number of persons per housing unit decreases over time. Between 2007 and 2030, the number of housing units in Western Santa Cruz County increases by 9,831 (70%). The City of Nogales has the largest absolute increase in housing units (2,191), but the smallest percentage increase (32%). The individual Rio Rico CDPs have somewhat smaller absolute increases, but the largest percentage increases. Combined, the number of housing units in the Rio Rico area increase by 6,328 (130%) to almost 11,200.

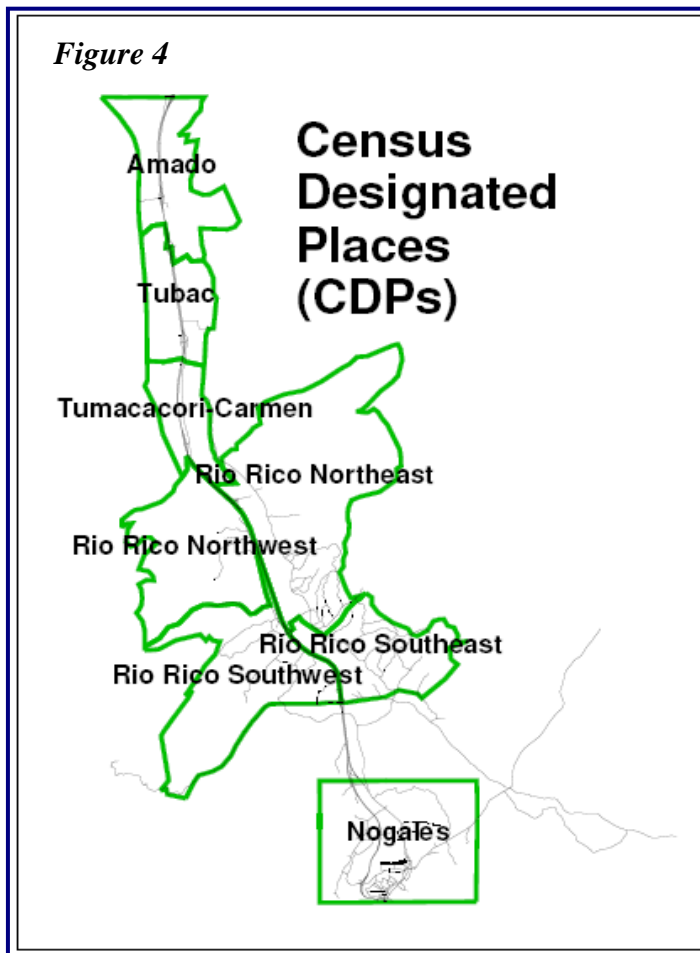
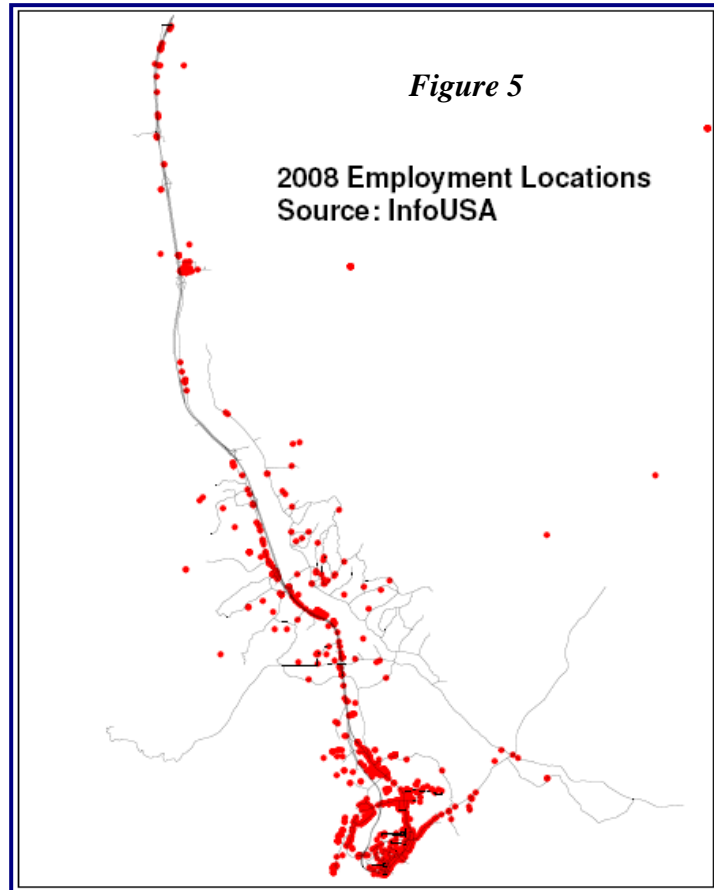


Table H1: Counted, Estimated & Forecast Housing Units						
AREA	2000	2007	2020	2030	2007-30 Increase	
Nogales CCD (Study Area)	11,494	13,978	20,640	23,809	9,831	70%
Nogales City	6,501	6,928	8,575	9,119	2,191	32%
Rio Rico Northeast CDP	1,115	1,530	2,572	3,113	1,583	103%
Rio Rico Northwest CDP	837	1,335	2,517	3,159	1,825	137%
Rio Rico Southeast CDP	452	793	1,608	2,059	1,265	160%
Rio Rico Southwest CDP	749	1,205	2,278	2,860	1,655	137%
Sources: 2000=Census Data, 2007-2030 imputed by WSA from DES population data						

3.3 Employment Growth

Like housing units, existing and future employment by location is a critical input to the traffic forecasting process. To support the Unified Nogales Santa Cruz Transportation Plan, 2008 employment data from was purchased from InfoUSA. For Santa Cruz County, the InfoUSA data identifies 1,758 employee work locations (*Figure 5*). Most employers having more than one work location are listed once for each location.

Arizona Department of Commerce data was used to estimate the average number of employees in each of the eight size categories used to report employment in the InfoUSA data. Based on these averages, the InfoUSA data estimates Santa Cruz County employment to be approximately 15,600, which is very consistent with published Department of Commerce estimates.



The InfoUSA data shows that of the 1,758 employment locations in Santa Cruz County, there are 4 employment locations with 250 or more employees, 16 with 100 or more, and 53 with 50 or more. These 53 locations alone account for about 40% of total employment, while the 165 employment locations with 20 or more employees account for more than 60% of total employment. Of the 1,743 employment locations:

- 565 are retail establishments. Altogether, retail establishments account for 5,400 employees, or 35% of total employment. The 132 retail employee locations reporting more than 10 employees account for 78% of retail employment and 27% of total employment.
- 105 are government employers. Altogether, government facilities account for almost 1,700 employees, or 11% of total employment.
- Of the 1,758 employer locations, 38 are educational facilities. These account for 1,225 employees, or 8% of total employment.
- Together, the government and educational employment locations account for 19% of total employment in Santa Cruz County.

- 1,557 (89%) employment locations are found in the project study area (western Santa Cruz County).

The vast majority (77%) of all employees within the study area work within the City of Nogales while 16% work in Rio Rico and 3% work in Amado, Tubac, or Tumacacori. Most of the remaining 4% of employees work in the unincorporated areas just north and east of the City of Nogales.

The land use designations presented in the 2004 Santa Cruz Comprehensive Plan were used to guide the distribution of future employment throughout the study area. The Comprehensive Plan Land Use Map (*Figure 6*) designates large areas north and east of Nogales as mixed use (commercial). Additional areas adjacent to I-19 within Rio Rico, Tubac and Amado are also designated as mixed use. While not reflected in the County's Comprehensive Plan, there are significant opportunities for commercial development within the City of Nogales as well.

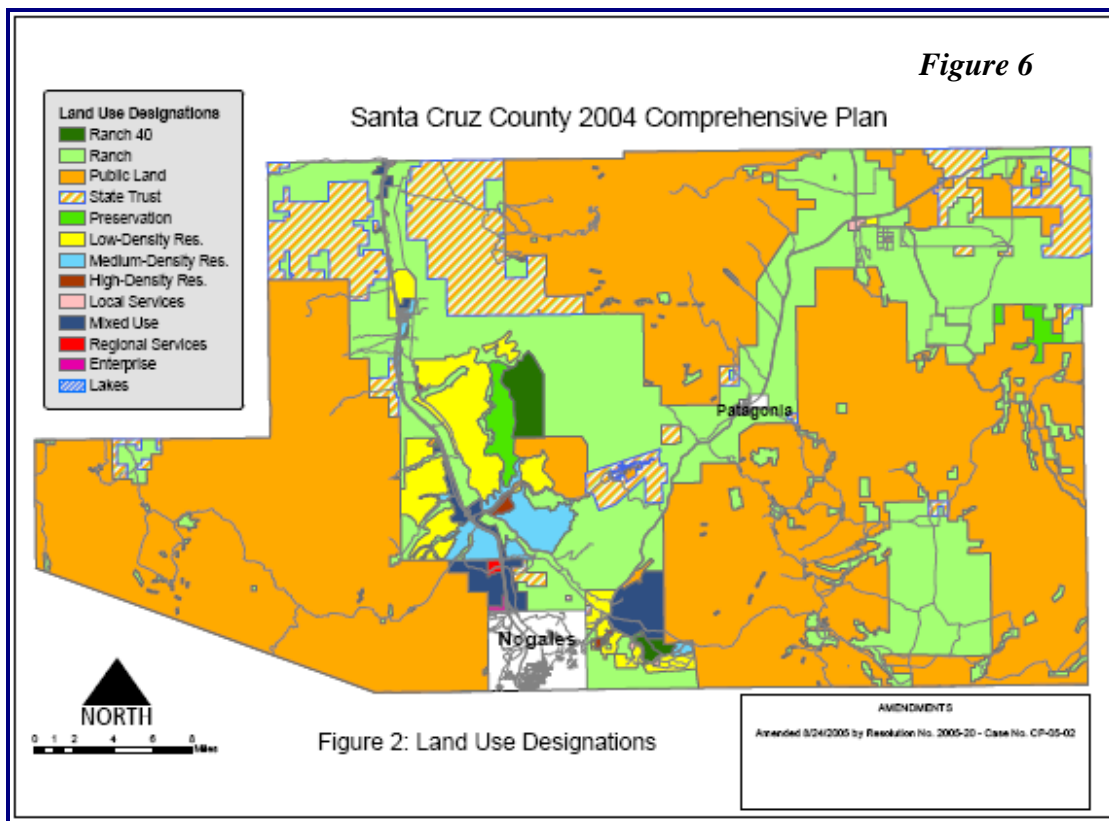


Table E1 presents the forecast distribution of 2030 employees. The vast majority (96%) of the additional employment is divided between the City of Nogales, Rio Rico, and the “remainder” area. Most of the employment allocated to the “Remainder” area was assigned to the mixed use area between Nogales and Rio Rico. Under this distribution, 58% of total 2030 employment will be located in Nogales compared to 77% in 2008, 19% would be located in Rio Rico compared to 16% in 2008, and 15% would be located in the remainder area, compared to 4% in 2008.

Table E1: 2030 Western Santa Cruz County Employees By Location

Area	2008-30 Increase In Employees				2030 Employees			
	Non-Retail	Retail	Total	Pct	Non-Retail	Retail	Total	Pct5
Nogales CCD (<i>Study Area</i>)	6,587	3,631	10,218	100%	15,953	8,793	24,746	100%
Amado CDP	66	36	102	1%	119	51	169	1%
Nogales City	2,108	1,162	3,270	32%	9,508	4,951	14,459	58%
Rio Rico CCD	2,108	1,162	3,270	32%	3,423	2,152	5,575	23%
Tubac CDP	132	73	204	2%	354	210	564	2%
Tumacacori-Carmen CDP	66	36	102	1%	91	39	130	1%
Remainder of Nogales CCD	2,108	1,162	3,270	32%	2,458	1,391	3,849	16%
<i>Source: Wilbur Smith Associates</i>								

3.4 Future Traffic & Level of Service

The major factors generating traffic in the City of Nogales and Santa Cruz County are:

- The magnitude and location of future housing and employment within the study area;
- The magnitude and nature of traffic at the Ports of Entry (POE) to and from Mexico (Mariposa POE, DeConcini POE, and the Morley Gate); and
- The magnitude of traffic to and from Pima County and points beyond.

Traffic projections are made using the magnitude and location of 2007 and 2030 housing and employment within the region to estimate the number and location of vehicle trips that are produced from housing, as well as the number of vehicle trips that are attracted to retail and non-retail employment. Table T1 summarizes the 2007 counts and forecast 2030 traffic volumes and the resultant levels of service for all arterials within the study area. In addition, several collector roads and one local road are included in the list because they had been identified as existing roads of concern with traffic problems. Based on the 2030 forecast, approximately 22 locations that were LOS A-C in 2007 moved into the LOS D-F category. These include several sections of Grand/Arroyo and SR 189, and are denoted with **bold font** in the table.

Table T1: 2030 Traffic & Resultant Level of Service

Location	Road Type	LOS C Capacity	Current ADT	LOS	2030 ADT	LOS
Compound St	4Ln Urban Arterial	13,600	14,673	D-F	19,000	D-F
Grand, N of Morley	4Ln Urban Arterial	13,600	24,625	D-F	32,000	D-F
Grand, N of Western	4Ln Urban Arterial	13,600	23,531	D-F	31,000	D-F
Grand, S of Morley	4Ln Urban Arterial	13,600	23,711	D-F	31,000	D-F
Grand, S of Western	4Ln Urban Arterial	13,600	23,129	D-F	30,000	D-F

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Location	Road Type	LOS C Capacity	Current ADT	LOS	2030 ADT	LOS
Sonoita Ave, Compound to Crawford	4Ln Urban Arterial	13,600	14,673	D-F	19,000	D-F
Arroyo SB, N of Crawford	2Ln 1Way Arterial	7,000	8,943	D-F	12,000	D-F
Arroyo SB, N of Walnut/Oak	2Ln 1Way Arterial	7,000	9,024	D-F	12,000	D-F
Grand NB, N of Crawford	2Ln 1Way Arterial	7,000	8,975	D-F	12,000	D-F
Grand NB, S of Court	2Ln 1Way Arterial	7,000	11,438	D-F	15,000	D-F
Grand NB, S of Walnut/Oak	2Ln 1Way Arterial	7,000	11,820	D-F	15,000	D-F
Grand, N of Baffert	4Ln Suburban Arterial	23,700	19,815	A-C	26,000	D-F
Grand, N of Frank Reed	4Ln Suburban Arterial	23,700	25,987	D-F	34,000	D-F
Grand, N of Gold Hills	4Ln Suburban Arterial	23,700	23,540	A-C	31,000	D-F
Grand, N of SR-189	4Ln Suburban Arterial	23,700	22,594	A-C	29,000	D-F
Grand, S of Baffert	4Ln Suburban Arterial	23,700	23,164	A-C	30,000	D-F
Grand, S of Country Club	4Ln Suburban Arterial	23,700	22,807	A-C	30,000	D-F
Grand, S of Frank Reed	4Ln Suburban Arterial	23,700	23,570	A-C	31,000	D-F
Grand, S of Gold Hills	4Ln Suburban Arterial	23,700	25,713	D-F	33,000	D-F
Grand, S of SR-189	4Ln Suburban Arterial	23,700	21,572	A-C	28,000	D-F
SR-189, E of Frank Reed	4Ln Suburban Arterial	23,700	21,955	A-C	29,000	D-F
SR-189, E of I-19	4Ln Suburban Arterial	23,700	25,353	D-F	33,000	D-F
SR-189, W of Grand	4Ln Suburban Arterial	23,700	19,800	A-C	26,000	D-F
SR-189, W of I-19	4Ln Suburban Arterial	23,700	23,585	A-C	31,000	D-F
Bankerd Ave, Morley Ave to Doe St	2Ln Urban Arterial	7,000	7,712	D-F	10,000	D-F
Banks Bridge, E of Grand	2Ln Urban Arterial	7,000	5,730	A-C	7,000	D-F
Calle Sonora, E of Grand	2Ln Urban Arterial	7,000	6,993	A-C	9,000	D-F
Calle Sonora, W of Hohokam	2Ln Urban Arterial	7,000	5,519	A-C	7,000	D-F
Crawford, W of Grand	2Ln Urban Arterial	7,000	11,750	D-F	15,000	D-F
Doe Street, E of Grand	2Ln Urban Arterial	7,000	5,730	A-C	7,000	D-F
Frank Reed, N of SR-189	2Ln Urban Arterial	7,000	8,194	D-F	11,000	D-F
Monroe St, Morley Ave to Perkins Ave	2Ln Urban Arterial	7,000	6,240	A-C	8,000	D-F
Morley Ave, Park St to Park St +0.90	2Ln Urban Arterial	7,000	7,199	D-F	9,000	D-F
Perkins Ave, Monroe St +0.09 to SR-82	2Ln Urban Arterial	7,000	6,304	A-C	8,000	D-F
Rio Rico Dr, E from Exit 17 to Pendleton Dr	2Ln Urban Arterial	7,000	9,950	D-F	24,000	D-F
Rio Rico Dr, Rail Crossing	2Ln Urban Arterial	7,000	9,571	D-F	23,000	D-F
Ruby Rd, Potrero Creek	2Ln Urban Arterial	7,000	7,518	D-F	18,000	D-F
Ruby Rd, Rail Crossing	2Ln Urban Arterial	7,000	7,793	D-F	19,000	D-F
Ruby Rd, Santa Cruz River	2Ln Urban Arterial	7,000	4,214	A-C	11,000	D-F
Santa Cruz St, Bejarano St to Grand Ave	2Ln Urban Arterial	7,000	7,550	D-F	10,000	D-F
SR-82 W of Morley	2Ln Urban Arterial	7,000	6,671	A-C	9,000	D-F
Western, E of McNab	2Ln Urban Arterial	7,000	6,957	A-C	9,000	D-F
Western, W of Grand	2Ln Urban Arterial	7,000	6,066	A-C	8,000	D-F
Western, W of McNab	2Ln Urban Arterial	7,000	7,344	D-F	10,000	D-F

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Location	Road Type	LOS C Capacity	Current ADT	LOS	2030 ADT	LOS
Yavapai Dr, I-19 to Camino Caralampi	2Ln Urban Arterial	7,000	11,748	D-F	33,000	D-F
Old Tucson Rd, Nogales TB to I-19 Front	2Ln Suburban Arterial	11,900	4,867	A-C	13,000	D-F
SR-82, E of Morley	2Ln Suburban Arterial	11,900	9,064	A-C	12,000	D-F
Grand, N of POE	4Ln Urban Arterial	13,600	10,062	A-C	13,000	A-C
Grand, N of Country Club	4Ln Suburban Arterial	23,700	16,168	A-C	21,000	A-C
SR-189, E of Industrial Park Dr W	4Ln Suburban Arterial	23,700	14,453	A-C	19,000	A-C
SR-189, N of Target Range	4Ln Suburban Arterial	23,700	13,598	A-C	18,000	A-C
SR-189, S of Target Range	4Ln Suburban Arterial	23,700	13,750	A-C	18,000	A-C
SR-189, W of Frank Reed	4Ln Suburban Arterial	23,700	15,829	A-C	21,000	A-C
SR-189, W of Industrial Park Dr W	4Ln Suburban Arterial	23,700	14,323	A-C	19,000	A-C
Arivaca Rd, W Frontage Rd to W Frontage Rd	2Ln Urban Arterial	7,000	1,813	A-C	4,000	A-C
Court, E of Grand	2Ln Urban Arterial	7,000	4,668	A-C	6,000	A-C
Hohokam Dr, Calle Sonora approach	2Ln Urban Arterial	7,000	3,095	A-C	4,000	A-C
Horse Shoe Bend, Crawford St to MacNab Dr	2Ln Urban Arterial	7,000	1,112	A-C	1,000	A-C
Macnab, S of Western	2Ln Urban Arterial	7,000	4,115	A-C	5,000	A-C
Morley Ave, Park St +0.90 to Bankerd Ave	2Ln Urban Arterial	7,000	4,120	A-C	5,000	A-C
Morley, N of SR-82	2Ln Urban Arterial	7,000	2,496	A-C	3,000	A-C
Nelson Ave, International St to East St	2Ln Urban Arterial	7,000	1,552	A-C	2,000	A-C
Park, E of Grand	2Ln Urban Arterial	7,000	3,388	A-C	4,000	A-C
Target Range, E of SR-189	2Ln Urban Arterial	7,000	4,253	A-C	6,000	A-C
Walnut/Oak W of Arroyo	2Ln Urban Arterial	7,000	4,413	A-C	6,000	A-C
Walnut/Oak, E of Arroyo	2Ln Urban Arterial	7,000	3,656	A-C	5,000	A-C
Walnut/Oak, W of Grand	2Ln Urban Arterial	7,000	4,179	A-C	5,000	A-C
Country Club, W of Grand	2Ln Suburban Arterial	11,900	7,908	A-C	10,000	A-C
Frank Reed, W of Grand	2Ln Suburban Arterial	11,900	5,409	A-C	7,000	A-C
Old Tucson Rd, Grand Ave to Nogales TB	2Ln Suburban Arterial	11,900	5,862	A-C	8,000	A-C
Pendleton Dr, 1/4 miles N of Paseo Mexico	2Ln Suburban Arterial	11,900	2,745	A-C	7,000	A-C
Pendleton Dr, 1/4 miles S of Paseo Mexico	2Ln Suburban Arterial	11,900	1,934	A-C	5,000	A-C
Pendleton Dr, N of Just Ct	2Ln Suburban Arterial	11,900	1,781	A-C	4,000	A-C
Pendleton Dr, N of Rio Rico Dr	2Ln Suburban Arterial	11,900	3,490	A-C	7,000	A-C
Pendleton Dr, S of Calle Coyote	2Ln Suburban Arterial	11,900	122	A-C	-	A-C
Pendleton Dr, S of Rio Rico Dr	2Ln Suburban Arterial	11,900	5,317	A-C	11,000	A-C
Yavapai Dr, N of Camino Providencia	2Ln Suburban Arterial	11,900	1,313	A-C	4,000	A-C
Yavapai Dr, S of Camino Providencia	2Ln Suburban Arterial	11,900	2,154	A-C	6,000	A-C
Yavapai Dr, W of Camino Caralampi	2Ln Suburban Arterial	11,900	2,626	A-C	7,000	A-C

The Mariposa and DeConcini Ports of Entry with Mexico have a significant influence on traffic within the region. Because of physical constraints at the DeConcini POE, a modest 30% increase has been asserted. The existing and Mariposa POE is operating at or near capacity

during peak months. Given that the planned improvements will almost triple its capacity, a 150% increase has been asserted for the Mariposa POE. The additional Mariposa POE traffic is not reflected in the 2030 volumes presented in Table T1. As shown in Table T2, including the additional 11,000 vehicles per day (including 3,000 additional heavy trucks) would result in LOS D-F on SR 189 from the POE to Grand Ave.

Table T2: SR-189 2030 Traffic & Level of Service with Mariposa POE Traffic

Location	Road Type	Capacity	Current PCE	LOS	2030 PCE	LOS2
SR-189, S of Target Range	4Ln Suburban Arterial	23,700	18,678	A-C	41,000	D-F
SR-189, N of Target Range	4Ln Suburban Arterial	23,700	18,462	A-C	41,000	D-F
SR-189, W of Industrial Park Dr W	4Ln Suburban Arterial	23,700	20,425	A-C	44,000	D-F
SR-189, E of Industrial Park Dr W	4Ln Suburban Arterial	23,700	20,117	A-C	43,000	D-F
SR-189, W of Frank Reed	4Ln Suburban Arterial	23,700	21,047	A-C	44,000	D-F
SR-189, E of Frank Reed	4Ln Suburban Arterial	23,700	27,173	D-F	52,000	D-F
SR-189, W of I-19	4Ln Suburban Arterial	23,700	30,313	D-F	56,000	D-F
SR-189, E of I-19	4Ln Suburban Arterial	23,700	29,151	D-F	45,000	D-F
SR-189, W of Grand	4Ln Suburban Arterial	23,700	23,066	A-C	37,000	D-F

The I-19 frontage roads function as major, but discontinuous, north-south arterials. The frontage roads begin just south of Rio Rico and terminate at the Pima County line. The West Frontage Road north of Rio Rico Rd is the only section of frontage road currently operating at LOS D-F, while the rest operate at LOS A-C. As shown in Table T3, all but two sections of the West Frontage Road system within Rio Rico will be operating at LOS A-C in 2030. However, this assumes that the frontage roads continue to function as relatively high speed suburban arterials. If the frontage roads are allowed to become more urban in nature (slower speeds with more signals and access driveways), the LOS C capacity will be reduced and LOS D-F congestion could be experienced on additional sections of the East and West Frontage roads.

Table T3: I-19 Frontage Road 2030 Traffic & Level of Service

From	To/At	LOS C Capacity	E Frontage Rd 2030 ADT	2030 LOS	W Frontage Rd 2030 ADT	2030 LOS2
Exit 8 Grand Ave	Exit 12 SR 289 / Ruby Rd	11,900	8,000	A-C	4,000	A-C
Exit 12 SR 289 / Ruby Rd	Exit 17 Rio Rico Rd	11,900	9,000	A-C	8,000	A-C
Exit 17 Rio Rico Rd	Exit 22 Peck Canyon Rd	11,900	n/a	n/a	16,000	D-F
Exit 22 Peck Canyon Rd	Exit 25 Palo Parado Rd	11,900	n/a	n/a	12,000	D-F
Exit 25 Palo Parado Rd	Exit 29 Tumacacori Rd	11,900	3,000	A-C	n/a	n/a
Exit 29 Tumacacori Rd	Exit 34 Tubac Rd	11,900	4,000	A-C	1,000	A-C
Exit 34 Tubac Rd	Exit 40 Chavez Rd	11,900	9,000	A-C	2,000	A-C
Exit 40 Chavez Rd	Exit 42 Agua Linda Rd	11,900	100	A-C	n/a	n/a
Exit 42 Agua Linda Rd	Exit 48 Arivaca Rd	11,900	2,000	A-C	1,000	A-C

Historic traffic data on I-19 between Santa Cruz and Pima Counties is somewhat inconsistent, but average daily traffic appears to have almost doubled in the past 10 years and tripled in the past 20 years. Both Santa Cruz and Pima Counties experienced significant growth during those periods. Similar growth is expected between 2007 and 2030. As discussed earlier, the population of western Santa Cruz County will increase by 53% by 2030, while the population of Pima County to the north will increase by more than 40% (from 1 million to 1.4 million).

Traffic projections indicate that local travel (travel beginning and ending within Santa Cruz County) on I-19 from Rio Rico south will double between 2007 and 2030. Together with the increase in POE traffic, there is little question that traffic on most of I-19 within Nogales and Santa Cruz County, and between Santa Cruz and Pima Counties will at least double by 2030. Table T4 presents the 2030 traffic forecast and resulting level of service for I-19. The forecast 2030 traffic exceeds the level of service C volume from Exit 8 (Grand Ave) to Exit 29 (Tumacacori Rd). Taking into account the exceptionally high percentage of heavy trucks going to and from the Mariposa POE, I-19 between Exit 4 (Mariposa Rd) and Exit 8 (Grand Ave) most likely will be operating at LOS D-E as well.

Table T4: 2030 Traffic & Level of Service on I-19

Route	BMP	From	EMP	To	LOS C Capacity	2030 ADT	LOS
I 19	0	SB 19 (1) - Nogales	1.18	Exit 1 Western Ave	54,000	22,050	A-C
I 19	1.18	Exit 1 Western Ave	2.95	Exit 4 SR 189 / Mariposa Rd	54,000	23,250	A-C
I 19	2.95	Exit 4 SR 189 / Mariposa Rd	5.31	Exit 8 SB 19 (1)	54,000	49,000	A-C
I 19	5.31	Exit 8 SB 19 (1)	7.72	Exit 12 SR 289 / Ruby Rd	54,000	77,200	D-F
I 19	7.72	Exit 12 SR 289 / Ruby Rd	10.88	Exit 17 Rio Rico Rd	54,000	59,400	D-F
I 19	10.88	Exit 17 Rio Rico Rd	13.96	Exit 22 Peck Canyon Rd	54,000	58,200	D-F
I 19	13.96	Exit 22 Peck Canyon Rd	15.63	Exit 25 Palo Parado Rd	54,000	56,800	D-F
I 19	15.63	Exit 25 Palo Parado Rd	18.13	Exit 29 Tumacacori Rd	54,000	54,200	D-F
I 19	18.13	Exit 29 Tumacacori Rd	21.62	Exit 34 Tubac Rd	54,000	48,800	A-C
I 19	21.62	Exit 34 Tubac Rd	24.82	Exit 40 Chavez Rd	54,000	43,600	A-C
I 19	24.82	Exit 40 Chavez Rd	26.54	Exit 42 Agua Linda Rd	54,000	40,800	A-C
I 19	26.54	Exit 42 Agua Linda Rd	29.98	Exit 48 Arivaca Rd	54,000	38,200	A-C

3.5 Multimodal Conditions

3.5.1 Pedestrian and Bicycle Circulation

Regardless of the size of a community, it can benefit by increasing the share of non-motorized transportation among its residents. Walking and bicycling expand mobility for non-drivers, reduce motor vehicle demands on the street system, do not impact the environment with noise, air pollution or consumption of valuable oil resources, and provides a venue for healthy exercise. Currently, the infrastructure to support walking and bicycling in the study area is limited. The few sidewalks that do exist are mostly found within the City of Nogales, while there are no designated bikeways in the study area at all. Pathways include two unpaved sections of the Anza Trail and a paved pathway in the village of Rio Rico.

Even with the limited infrastructure, there is significant existing demand for these modes, most notably at the ports of entry at the US/Mexico border and along Grand Avenue in downtown Nogales. Key issues for non-motorized modes of transportation include:

- Need for walking and bicycling connections to schools.
- Need for new paved shoulders for walking and bicycling and repairs to existing shoulders on all roadways for safe pedestrian and bicyclist use.
- Need for pedestrian and bicycle access on bridges across I-19.
- Need for pedestrian and bicycle access on I-19 frontage roads including new frontage roads to provide connection to locations north of the study area.
- Need for pedestrian bridges for safe railroad crossing.
- Need for better pedestrian facilities (sidewalks and crosswalks) in downtown Nogales, particularly to connect the ports of entry with Mexico to retail establishments along Grand Avenue.
- Need for pedestrian facilities that connect to the Mariposa Port of Entry west of downtown, including a possible multi-use path connection to downtown Nogales and adding sidewalks along Mariposa Road.
- Need for a developed pick-up/drop-off area for pedestrians crossing at Mariposa Port of Entry
- Need for pedestrian/bicycle facilities in Rio Rico with connections to Tubac and north to Green Valley.
- Need for effective wayfinding and signage, particularly for tourists and visitors.

Currently, pedestrians and bicyclists in the study area are finding it difficult to make their trips safely and conveniently, especially across highways and railroads with the lack of marked pathways and roadway crossings. With today's pressures to reduce our carbon footprint, walking and bicycling provide an inexpensive, environmentally-friendly, and healthy alternative. The following recommendations are suggested to build on existing efforts towards pedestrian- and bicycle-friendly communities.

- Develop pedestrian and bicycle master plans for the study area.
- Make minor and major improvements as funding and resources become available.
- Develop guidelines and standards to provide for pedestrian and bicycle facilities.
- Piggyback on other development or redevelopment projects, such as street repaving projects, to improve walking and bicycling networks.
- Include other elements important to pedestrians and bicyclists such as bicycle parking, education (directed at pedestrians, bicyclists, drivers, adults, and children), enforcement, facility maintenance, wayfinding/signage, and ADA accessibility.

3.5.2 Transit Circulation

Transit is a beneficial element for any community providing access for those who cannot or choose not to drive. In addition, transit can replace trips currently made by the automobile, thereby reducing our contribution to roadway congestion, consumption of oil resources, and

noise and air pollution. Transit, in conjunction with walking and bicycling, extends the range of trips made by the individual modes. As the population in the study area grows older, transit will become even more necessary to support mobility for seniors who can no longer drive. Currently there is no fixed route transit in the study area. On-demand transit for trips to the doctor, shopping and community events is provided to seniors, the disabled, and clients of provider organizations; the largest of which is *Nogales Rides*. The demand for these services is obvious based on the almost 50 percent increase in ridership that *Nogales Rides* has experienced in 2009 over the previous year.

The City of Nogales can consider expanding transit to include service to the general public. The City can apply for funding for a 5311 (rural transit) grant in the next funding cycle to provide this service. The design of this system is currently being studied (*Nogales Transit Study* - Draft 12/31/08) and would most likely include a combination of call-and-ride, flexible route, and fixed-route services.

Although there is interest in transit services along the I-19 corridor to Rio Rico and Tubac, with possible connections to Tucson, no public agency has stepped forward with an interest in spearheading this effort. While the population densities along the I-19 corridor are not adequate to support service at this time, future transit service along the I-19 corridor should be considered.

Considerations for future transit service in the study area include:

- Work trips provide a good basis for transit service with repeat trips to/from fixed locations.
- A system of park-and-ride lots and vanpools can offer a low cost startup for future transit focused on commuter trips.
- Building on the existing demand-responsive service provided by *Nogales Rides* is a practical way to expand service to the general public while refining the fixed-routes based on usage.
- Bus stops and transfer facilities should be accessible, safe and convenient for users as well as for transit operators.
- Good pedestrian and bicycle connections to transit are important with these modes serving as an extension of, and access to, the transit routes. Bicycle parking at bus stops or transfer stations should be provided along with the ability to carry bicycles on board transit.
- Education and promotion are key factors to encouraging potential users to use transit.

4. Existing and Future Condition Findings

Some of the more important findings from the existing and future conditions analysis and assessment are set forth as follows:

1. SR 189, Mariposa Road, will need to be widened and improved to handle the future traffic particularly when the new Mariposa port of entry becomes operational.
2. The I-19 frontage roads serve as major north-south arterial roads, but the system is incomplete. The frontage road system needs to be made continuous from Mariposa Road

to the north county line, and should be planned and programmed for expansion and widening when traffic volumes warrant.

3. I-19 will need to be widened to accommodate the future traffic from SR 189, Mariposa Road (Exit 4), north to at least Tumacacori Road (Exit 29).
4. Grand Avenue through Nogales needs to be improved to more effectively handle traffic volumes, both under existing and future conditions, within the constrained rights of way that exist. This can include traffic signalization improvements, continuous sidewalks, intersection improvements, widening where possible, and provision of alternate routes.
5. Pendleton Drive is the only north-south roadway corridor of any significant length outside the I-19 corridor area. As such, the Pendleton Drive corridor is vitally important as an alternative route to I-19 and its frontage road system, and its existing and future corridor needs to be protected and preserved. Pendleton Drive needs to be extended north and south with adequate right of way width for at least four lanes. An extension of Pendleton Drive north to at least Tubac, and possibly to the county line will be critically important for the future transportation system of Santa Cruz County.
6. The Nogales Wash and Santa Cruz River, along with the UP railroad tracks, present major safety concerns and barriers to effective traffic circulation in an east-west direction throughout the county. Additional bridges and railroad overpass structures are needed at other locations to handle existing and future traffic conditions. Pedestrian crossings of the railroad tracks are needed in the downtown Nogales area.
7. Alternate non-motorized modes of transportation are needed to enhance the quality of life for the citizens of Santa Cruz County. Bicycle and pedestrian master plans should be developed and the identified bicycle and pedestrian transportation facilities should be constructed concurrently with the future development of all transportation facilities.
8. A public transit system, initially in Nogales and expanded along the I-19 corridor within the county in the future, is another needed transportation system improvement.
9. The means for funding transportation system improvements need to be developed and implemented to adequately serve the public and deliver necessary improvements when warranted. This will become increasingly important to maintain a good quality of life for the citizenry, and needs to be accomplished without compromising the necessary maintenance of the system.
10. The future mixed-use growth area between Nogales and Rio Rico is not effectively served by existing transportation infrastructure. A network of roads and improved access to I-19 would be needed to encourage and support future growth in this area.
11. The Ruby Road interchange area is extremely congested and of concern to all stakeholders. The situation should be carefully examined and addressed to find a workable solution.
12. There is a potential need for improved east-west connectivity across I-19 in Nogales to support future growth. Connecting western Nogales and the Mariposa Road area to Grand Avenue and eastern Nogales, including SR 82, would be beneficial to the overall traffic circulation within the community.

5. Transportation Improvement Program

5.1 Environmental Justice

The Environmental Justice analysis of the study area showed there is a majority of Hispanic residents across western Santa Cruz County and within the City of Nogales. In addition, a significant percentage of the population in western Santa Cruz County and the City of Nogales is classified as low income. The transportation improvements identified and described herein will greatly contribute toward improving quality of life. The proposed transportation improvements will be balanced across populations, thus satisfying the intent of the regulations.

5.2 Implementation Plan

Project stakeholders identified issues at 57 sites located throughout Santa Cruz County. In addition, travel demand forecasting identified an additional 23 sites that need additional capacity to serve the forecasted traffic demands at an acceptable level of service. The recommended solutions cover all modes of transportation, including roadway improvements, safety and operations enrichment, pedestrian and bicycle enhancements, and new and expanded transit systems. These projects were identified based on forecasts of future traffic volumes, determinations of the capacities of existing transportation facilities, analysis of crash data, review of previous studies and reports, and input from key stakeholders and the public. The recommended improvements include planning level cost estimates that can be used for budgeting purposes and capital improvement programming.

The *Implementation Plan* focuses on the prioritization of the projects. The projects were aligned into short term (five year), medium term (ten year), and long term (twenty year) project categories and listed separately for the City of Nogales and for Santa Cruz County due to separate funding accounts. Options are provided for additional revenue sources, along with an order of magnitude approximation of how much the revenue source may be on an annualized basis, for consideration and possible adoption by the Nogales City Council and the Santa Cruz County Board of Supervisors and implementation by the local jurisdiction public works department staff. The following sections include all of the identified transportation system improvement projects in one of four different categories. These categories are listed and described as follows:

- 1. Short Term Priority Program (FY2011 through FY2015)**

The projects receiving the highest ranking by the local agencies are included in this category. The number of projects is constrained by an estimated funding level that includes both current revenue sources and several suggested additional revenue sources.

- 2. Medium Term Implementation Program (FY2016 through FY2020)**

The projects of the next level of magnitude of priority to the local agencies are included in this category. The number of projects in this listing is also constrained by an estimated funding level that includes current and suggested additional revenue sources.

3. **Long Term Implementation Program** (FY2021 through FY2030)

The projects of the next lower magnitude of priority to the local agencies are included in this category. The number of projects in this listing is also constrained by an estimated funding level that includes current and suggested additional revenue sources.

4. **Needed Projects Beyond the 20 Year Program**

All identified projects that were not included in the short, medium or long term improvement programs are included in this listing of needed projects that may not be implementable within this 20 year program due to fiscal constraints.

5.2.1A Short Term Priority Program – Santa Cruz County

Based on the rankings and prioritization by Santa Cruz County in coordination with Wilbur Smith Associates, the following projects are suggested for short term priority for the five year capital improvement program – FY2011 through FY2015.

Short Term Priority Program Roadway Projects - Eligible for Federal Aid			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	6A	Palo Parado Road at UP Railroad and Santa Cruz River, Rio Rico	\$7,750,000
		Bridge crossing for vehicular and pedestrian traffic - Alternative A - Preferred Alignment 1	
2	16	W Frontage Rd, Calle Calabasas to Yavapai Dr, Rio Rico	\$4,900,000
		Frontage Road Extension	
Total: Short Term Priority Program - Federal Aid Eligible			\$12,650,000



Short Term Priority Program Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	58	Yavapai Drive from Rio Rico Drive to W Frontage Rd, Rio Rico	\$5,300,000
		Roadway improvements for future capacity needs	
Total: Short Term Priority Program - Local Funding			\$5,300,000

Note: Reclassifying this Project #58 to a rural minor collector will make the project eligible to apply for federal funding.

Short Term Priority Program Transit Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	41A	Santa Cruz County - Park and Ride Lot at Rio Rico	\$870,000
		Park and Ride Lot(s)	
Total: Short Term Priority Program - Transit Projects			\$870,000

Short Term Priority Program Bicycle & Pedestrian Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	80	Coatimundi Trail Extension, Avenida Coatimundi, Rio Rico	\$400,000
		Multipurpose trail	
2	78	Santa Cruz County (Countywide)	\$200,000
		Pedestrian Master Plan	
3	79	Santa Cruz County (Countywide)	\$200,000
		Bicycle Master Plan	
Total: Short Term Priority Program - Bicycle/Pedestrian Projects			\$800,000

Note: Project No. 80 is eligible for funding under the Transportation Enhancement Program and/or the Safe Route to Schools Program.

Note: Projects #78 and #79 are eligible for ADOT MPD PARA Program funding.

5.2.1B Short Term Priority Program – City of Nogales

Based on the rankings and prioritization by City of Nogales in coordination with Wilbur Smith Associates, the following projects are suggested for short term priority for the five year capital improvement program – FY2011 through FY2015.

Short Term Priority Program Roadway Projects - Eligible for Federal Aid			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	3	Public Library Vicinity, Nogales	\$10,300,000
		Vehicular overpass of UP railroad	
2	45D	Frank Reed Road/Masonic Street Intersection, Nogales	\$1,260,000
		Intersection improvement, Alternative D, roundabout	
Total: Short Term Priority Program - Federal Aid Eligible			\$11,560,000

Note: Cost for Project #3 was taken from the City's TIGER Grant Application.

Short Term Priority Program Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	8	Calle Sonora & North Hohokam Drive, Nogales	\$5,300,000
		Widen roadway and bridge; improve intersection	
Total: Short Term Priority Program - Local Funding			\$5,300,000

Note: Reclassifying this Project #8 to an urban minor arterial will make the project eligible to apply for federal funding.

Short Term Priority Program Transit Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1A	39A	City Public Transit System, Nogales	\$195,000
		City public transit system, Phase One, Expand the "Nogales Rides" system - capital costs	
1B	39A	City Public Transit System, Nogales	\$650,000
		City public transit system, Phase One, Expand the "Nogales Rides" system - annualized operating costs @ \$650,000/year	
Total: Short Term Priority Program - Transit Projects			\$845,000

Short Term Priority Program Bicycle & Pedestrian Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	1	Crawford Street Overpass of the UPRR, Nogales	\$5,000,000
		Pedestrian overpass over the railroad tracks	
2	78	Nogales (Citywide)	\$200,000
		Pedestrian circulation master plan	
3	79	Nogales (Citywide)	\$200,000
		Bicycle circulation master plan	
Total: Short Term Priority Program - Bicycle/Pedestrian Projects			\$5,400,000

Note: Projects #78 and #79 are eligible for ADOT MPD PARA Program funding.

Short Term Priority Program Enhancement Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	31	DeConcini POE Area at Grand Avenue & Crawford St, Nogales	\$870,000
		Gateway enhancements, monument signs, public art, roundabout, landscaping, etc.	
Total: Short Term Priority Program - Enhancement Projects			\$870,000

5.2.2A Medium Term Implementation Program – Santa Cruz County

Based on the rankings and prioritization by Santa Cruz County in coordination with Wilbur Smith Associates, the following projects are suggested for medium term priority for the five year program from FY2016 through FY2020.

Medium Term Implementation Program Roadway Projects - Eligible for Federal Aid			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
3A	27B	Pendleton Drive, Rio Rico Drive to Palo Parado Drive, Rio Rico	\$14,000,000
		Roadway reconstruction, Alternative B, roadway reconstruction with paved shoulders (Note: Due to the size of this project, the construction should be phased into affordable component projects - this is Phase 1 of 3)	
4	19A	W Frontage Rd/Camino Lito Galindo Intersection, Rio Rico	\$50,000
		Intersection improvement, Phase One, turn lanes, signing, striping, SRTS improvements	
Total: Medium Term Impl. Program - Federal Aid Eligible			\$14,050,000

Medium Term Implementation Program Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
2	51	Bridge Road, I-19 Frontage Rd to Calle Iglesia, Tubac	\$3,300,000
		Roadway and intersection improvements	
3	54	Bridge Rd, Calle Iglesia to Prop. Pendleton Dr Extension, Tubac	\$4,600,000
		Roadway improvements, bridge construction, and at-grade railroad crossing improvements	
Total: Medium Term Implementation Program - Local Funding			\$7,900,000

Note: Reclassifying these Projects #51 & #54 to rural minor collectors will make the projects eligible to apply for federal funding.

Medium Term Implementation Program Transit Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
2	41B	Santa Cruz County - Park and Ride Lot at Tubac	\$870,000
		Park and ride lot(s)	
Total: Medium Term Implementation Program - Transit Projects			\$870,000

Note: There are no bike/pedestrian projects identified for the medium term program for Santa Cruz County.

5.2.2B Medium Term Implementation Program – City of Nogales

Based on the rankings and prioritization by the City of Nogales in coordination with Wilbur Smith Associates, the following projects are suggested for medium term priority for the five year program from FY2016 through FY2020.

Medium Term Implementation Program Roadway Projects - Eligible for Federal Aid			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
3	66	Bankert Avenue, Doe Street to Morley Avenue, Nogales	\$1,800,000
		Roadway improvements	
4	73	Morley Avenue, Banks Bridge to Park Street, Nogales	\$3,570,000
		Roadway improvements	
5	65	Doe Street, Grand Avenue to Bankert Avenue, Nogales	\$1,130,000
		Roadway improvements	
6	69	Western Avenue, Grand Avenue to I-19, Nogales	\$3,800,000
		Roadway improvements	
Total: Medium Term Impl. Program - Federal Aid Eligible			\$10,300,000

Medium Term Implementation Program Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
* Site No. refers to site location numbers in exhibits shown in Working Paper #2			
2	38	Monte Carlo Neighborhood Connection to SR-82	\$2,850,000
		New connector road	
3	44B	White Park Drive Extension west to Mariposa Road	\$36,425,000
		New connector route to extend roadway to improve circulation; two lane road with I-19 underpass (Note: Due to the size of the project, it may need to be divided into phases for affordable implementation)	
4	61	Gold Hill Road, Grand Avenue to Edith Place, Nogales	\$1,380,000
		Roadway improvements	
5	71	Monroe Street, Morley Avenue to Tyler Avenue, Nogales	\$870,000
		Roadway improvements	
Total: Medium Term Implementation Program - Local Funding			\$41,525,000

Note: Reclassifying these Projects (#38, #61, #44, & #71) to urban collector will make the projects eligible to apply for federal funding.

Medium Term Implementation Program Transit Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
2A	39B	City Public Transit System, Nogales	\$860,000
		City public transit system, Phase Two - capital costs	
2B	39B	City Public Transit System, Nogales	\$580,000
		City public transit system, Phase Two, citywide fixed route transit system - annualized operating costs @ \$580K per year plus Phase I on-going operating costs (see Project #39A)	
Total: Medium Term Implementation Program - Transit Projects			\$1,440,000



Medium Term Implementation Program Bicycle & Pedestrian Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
4	2	Court Street Overpass of the UPRR, Nogales	\$5,000,000
		Pedestrian overpass of UP railroad tracks	
Total: Medium Term Impl. Program - Bicycle/Pedestrian Projects			\$5,000,000

Medium Term Implementation Program Enhancement Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
2	32	Mariposa POE Area, Mariposa Rd & Target Range Rd, Nogales	\$870,000
		Gateway enhancements, monument signs, public art, roundabout, landscaping, etc.	
Total: Medium Term Impl. Program - Enhancement Projects			\$870,000

5.2.3A Long Term Implementation Program – Santa Cruz County

Based on the rankings and prioritization by Santa Cruz County in coordination with Wilbur Smith Associates, the following projects are suggested for long term priority for the ten year program from FY2021 through FY2030.

Long Term Implementation Program Roadway Projects - Eligible for Federal Aid			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
3B	27B	Pendleton Drive, Rio Rico Drive to Palo Parado Drive, Rio Rico	\$14,000,000
		Roadway reconstruction, Alternative B, roadway reconstruction with paved shoulders (Note: Due to the size fo this project, the construction should be phased into affordable component projects - this is Phase 2 of 3)	
5	17C	W Frontage Rd, Rio Rico Dr to Peck Canyon Rd, Rio Rico	\$16,445,000
		Roadway overlay & shoulder improvements for bike/ped use, Alternative C, overlay both existing roadway & new shoulders	
Total: Long Term Impl. Program - Federal Aid Eligible			\$30,445,000

Long Term Implementation Program Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
4	55	Chavez Siding Rd, I-19 Frontage Road to Proposed Pendleton Drive Extension, Tubac	\$10,030,000
		Roadway improvements, bridge construction, and at-grade railroad crossing improvements	
Total: Long Term Implementation Program - Local Funding			\$10,030,000

Note: Reclassifying this Project #55 to a rural minor collector will make the project eligible to apply for federal funding.



Long Term Implementation Program Transit Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
3	40A	Santa Cruz County	\$402,000
		Expanded transit system, Phase One, daily express service to Rio Rico, capital costs	
4	40A	Santa Cruz County	\$123,000
		Expanded transit system, Phase One, daily express service to Rio Rico, annualized operating costs	
5	40B	Santa Cruz County	\$802,000
		Expanded transit system, Phase Two, daily express service extension to Tubac - capital costs	
6	40B	Santa Cruz County	\$243,000
		Expanded transit system, Phase Two, daily express service extension to Tubac - annualized operation costs	
Total: Long Term Implementation Program - Transit Projects			\$1,570,000

Long Term Implementation Program Bicycle & Pedestrian Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
* Site No. refers to site location numbers in exhibits shown in Working Paper #2			
4	43	Rio Rico Area	\$2,200,000
		Sidewalk improvements - annual program - annual funding level @ \$220,000 per year	
Total: Long Term Impl. Program - Bicycle/Pedestrian Projects			\$2,200,000

5.2.3B Long Term Implementation Program – City of Nogales

Based on the rankings and prioritization by the City of Nogales in coordination with Wilbur Smith Associates, the following projects are suggested for long term priority for the ten year program from FY2021 through FY2030.

Long Term Implementation Program Roadway Projects - Eligible for Federal Aid			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
7	72	Banks Bridge, Grand Avenue to Morley Avenue, Nogales	\$820,000
		Roadway improvements	
8	70	Perkins Avenue, Morley Avenue to Jackson Street, Nogales	\$1,450,000
		Roadway improvements	
9	68	North Santa Cruz Street, Grand Ave to Bejarano St, Nogales	\$115,000
		Roadway improvements	
10	63	Industrial Park Drive Loop, Nogales	\$7,000,000
		Roadway improvements	
11	59	Old Tucson Road, Nogales	\$17,250,000
		Roadway improvements	
12	4	Gold Hill Road Overpass of the UPRR, Nogales	\$9,600,000
		Bridge overpass of the railroad	
Total: Long Term Impl. Program - Federal Aid Eligible			\$36,235,000

Note: Project Site #4 was moved from the Roper Road Alignment to the Gold Hill Road alignment as directed by the City of Nogales.

Long Term Implementation Program Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
6	64	Baffert Drive, Grand Avenue to Monte Carlo Place, Nogales	\$1,570,000
		Roadway improvements	
7	62	Apache Boulevard, Grand Ave to Mariposa Hills Drive, Nogales	\$4,550,000
		Roadway improvements	
8	60	West Country Club Drive, Grand Avenue to I-19, Nogales	\$5,750,000
		Roadway improvements	
Total: Long Term Implementation Program - Local Funding			\$11,870,000

Note: Reclassifying these Projects (#64, #62, & #60) to urban collector will make the projects eligible to apply for federal funding.

Long Term Implementation Program Transit Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
3A	41A	Downtown Transit Center & Short Term Parking, Nogales	\$870,000
		Facility to accommodate transit and shared ride users	
3B	41A	Walmart Area Transit Center & Short Term Parking	\$870,000
		Facility to accommodate transit and shared ride users	
3C	41A	Mariposa POE Area Transit Center & Short Term Parking	\$870,000
		Facility to accommodate transit and shared ride users	
Total: Long Term Implementation Program - Transit Projects			\$2,610,000

Long Term Implementation Program Bicycle & Pedestrian Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
5	42	Nogales (Citywide)	\$2,200,000
		Annual sidewalk installation and improvement program; funding at \$220,000 per year	
6	10A	Western Avenue, I-19 to Grand Avenue, Nogales	\$120,000
		Sidewalk improvments	
7	11	Target Range Road, Mariposa Road to I-19, Nogales	\$450,000
		Sidewalk improvments	
Total: Long Term Impl. Program - Bicycle/Pedestrian Projects			\$2,770,000

Long Term Implementation Program Enhancement Projects - Eligible for Federal Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
3	33	I-19 at Grand Avenue Area, Nogales	\$295,000
		Gateway enhancements, monument signs, public art, landscaping, etc.	
Total: Long Term Impl. Program - Enhancement Projects			\$295,000

5.2.4A Needed Projects Beyond the 20 Year Program – Santa Cruz County

Needed Projects Beyond the 20 Year Program Roadway Projects - Eligible for Federal Aid			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
3C	27B	Pendleton Drive, Rio Rico Drive to Palo Parado Drive, Rio Rico	\$14,500,000
		Roadway reconstruction, Alternative B, roadway reconstruction with paved shoulders (Note: Due to the size fo this project, the construction should be phased into affordable component projects - this is Phase 3 of 3)	
6	19B	W Frontage Rd/Camino Lito Galindo Intersection, Rio Rico	\$750,000
		Intersection improvement, Phase Two, approach roadway improvements	
7	28	Pendleton Drive, North Terminus to Bridge Rd, Tubac	\$29,720,000
		Roadway Construction	
8	5	Ruby Road at the UP Railroad, Rio Rico	\$7,800,000
		Vehicular overpass of railroad	
Total: Needed Projects Beyond the 20 Years - Federal Aid Eligible			\$52,770,000

Need Projects Beyond the 20 Year Program			
Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
* Site No. refers to site location numbers in exhibits shown in Working Paper #2			
5	52B	Pendleton Drive, Bridge Road to Pima County Line, Amado	\$77,200,000
		Roadway construction, Alternative B, two lane roadway with a center turn lane and shoulders (Note: Due to the size of this project, it may warrant splitting into logical phases for funding and implementation)	
Total: Needed Projects Beyond The 20 Years - Local Funding			\$77,200,000

Note: Reclassifying this Project #52B to a rural major collector will make the project eligible to apply for federal funding.

5.2.4B Needed Projects Beyond the 20 Year Program – City of Nogales

Need Projects Beyond the 20 Year Program Roadway Projects - Local Funding			
Ranking	Site No.*	Project Location	Project Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
9	37	Citywide Traffic Signal System Upgrades	\$50,000
		Traffic signal timing plan upgrades and progression improvements	
10	57	New Collector Streets in Western Nogales	\$23,750,000
		Two lane roadways to serve development needs; cost at \$9,500,000/mile	
Total: Needed Projects Beyond The 20 Years - Local Funding			\$23,800,000

Note: Project No. 57 cost estimate in the above table is based on the average cost for minor and major collector streets (57A & 57B) in the master planned Western Nogales development.

5.2.5 Local Priorities for Federal/State Transportation System Projects

Local Priorities for Federal/State System Projects			
Ranking	Site No.*	Project Location	Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	13A	Mariposa Rd/I-19 Interchange, Nogales	\$8,600,000
		Traffic Interchange Improvements - Alternative A - Diverging Diamond Interchange	
1	13B	Mariposa Rd/I-19 Interchange, Nogales	\$25,100,000
		Traffic Interchange Improvements - Alternative B - Flyover	
1	13C	Mariposa Rd/I-19 Interchange, Nogales	\$33,700,000
		Traffic Interchange Improvements - Alternative C - Diverging Diamond/Flyover Combination	
2	30A	Ruby Road/SR 289, W Frontage Rd to Santa Cruz River, Rio Rico	\$400,000
		Interchange Improvements - Alternative A - Minor Improvements	
2	30B	Ruby Road/SR 289, W Frontage Rd to Santa Cruz River, Rio Rico	\$3,000,000
		Interchange Improvements - Alternative B - Roundabout	
3	14A	Mariposa Rd & Frank Reed Rd, Nogales	\$28,450,000
		Intersection Improvement - Alternative A - Grade Separation	
3	14B	Mariposa Rd & Frank Reed Rd, Nogales	\$10,450,000
		Intersection Improvement - Alternative B - Arizona Parkway	
4	15A	Mariposa Rd/SR 189, POE to I-19	\$31,450,000
		Roadway Widening and Improvement - Alternative A - Traditional Roadway Widening	
4	15B	Mariposa Rd/SR 189, POE to I-19	\$53,650,000
		Roadway Widening and Improvement - Alternative B - Arizona Parkway	
4	15C	Mariposa Rd/SR 189, POE to I-19	\$46,750,000
		Roadway Widening and Improvement - Alternative C - Enhanced Arterial Roadway with Jughandle Intersections	
5	9	Mariposa Rd & Grand Avenue, Nogales	\$3,640,000
		Intersection Improvement	

Local Priorities for Federal/State System Projects			
Ranking	Site No.*	Project Location	Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
6	12	Target Range Rd & Mariposa Rd, Nogales	\$2,500,000
		Intersection Improvement	
7	16	W Frontage Rd, Calle Calabazas to Yavapai Dr, Rio Rico	\$4,900,000
		Frontage Road Extension	
7	17A	W Frontage Rd, Rio Rico Dr to Peck Canyon Rd, Rio Rico	\$1,380,000
		Roadway Overlay & Shoulder Improvement for Bike - Alternative A - Overlay existing road with shoulder stabilization	
7	17B	W Frontage Rd, Rio Rico Dr to Peck Canyon Rd, Rio Rico	\$15,180,000
		Roadway Overlay & Shoulder Improvement for Bike - Alternative B - Widen existing road with new shoulders	
7	17C	W Frontage Rd, Rio Rico Dr to Peck Canyon Rd, Rio Rico	\$16,445,000
		Roadway Overlay & Shoulder Improvement for Bike - Alternative C - Overlay both existing roadway and new shoulders.	
7	19A	W Frontage Rd/Camino Lito Galindo Intersection, Rio Rico	\$50,000
		Intersection Improvement - Phase One - Turn Lanes, signing, striping, SRTS improvements	
7	19B	W Frontage Rd/Camino Lito Galindo Intersection, Rio Rico	\$750,000
		Intersection Improvement - Phase Two - Approach Roadway Improvements	
7	20	W Frontage Rd, W Chavez Siding Rd to Agua Linda Rd, Amado	\$3,500,000
		Frontage Road Improvement	
8	35A	I-19/Grand Avenue Partial Interchange, Nogales	\$5,400,000
		Interchange Improvement - Alternative A - Underpass	
8	35B	I-19/Grand Avenue Partial Interchange, Nogales	\$22,550,000
		Interchange Improvement - Alternative B - Overpass	
8	35C	I-19/Grand Avenue Partial Interchange, Nogales	\$35,000,000
		Interchange Improvement - Alternative C - Reconstruct to a full movement interchange	
9	21	E Frontage Rd, W Chavez Siding Rd to Agua Linda Rd, Amado	\$4,500,000
		Frontage Road Improvement	
9	22A	E Frontage Rd & Tumacacori Rd, Tubac	\$460,000
		Intersection Improvement - Alternative A - Northbound Turn Lane	

Local Priorities for Federal/State System Projects			
Ranking	Site No.*	Project Location	Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
9	22B	E Frontage Rd & Tumacacori Rd, Tubac	\$285,000
		Intersection Improvement - Alternative B - Future Traffic Signal	
9	23A	E Frontage Rd & Tubac Rd, Tubac	\$575,000
		Intersection Improvement - Alternative A - Northbound and Southbound Left Turn Lanes	
9	23B	E Frontage Rd & Tubac Rd, Tubac	\$285,000
		Intersection Improvement - Alternative B - Future Traffic Signal	
9	24	E Frontage Rd, Avenida Goya to Bridge Rd, Tubac	\$2,030,000
		Roadway and Intersection Improvements	
9	25	E Frontage Rd & Avenida de Otero, Tubac	\$245,000
		Intersection Improvement	
10	26	Connector Road, Mariposa Rd to Country Club Rd, Nogales	\$250,000
		Frontage Road Connection	
11	18A	Peck Canyon Rd, W Frontage Rd to E Frontage Rd, Rio Rico	\$1,750,000
		Widen I-19 Overpass and Approach Roads - Alternative A - Widen bridge for turn lanes with intersection improvements	
11	18B	Peck Canyon Rd, W Frontage Rd to E Frontage Rd, Rio Rico	\$3,700,000
		Widen I-19 Overpass and Approach Roads - Alternative B - Widen bridge for turn lanes plus sidewalks and bike lanes with intersection improvements	
12	34	I-19 “The Curve” area between Ruby Rd & Rio Rico Dr, Rio Rico	\$375,000
		Safety Corridor Improvement	
13	47	New Route, Mariposa Rd TI to Grand Ave, Nogales	\$6,200,000
		Connector Route	
14	53	I-19, Exit 22 (Peck Canyon Rd) to Exit 48 (Arivaca Rd), Santa Cruz County	\$23,500,000 (each)
		Interchange Improvements	

Local Priorities for Federal/State System Projects			
Ranking	Site No.*	Project Location	Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
15	74A	Grand Avenue & Arroyo Blvd, I-19 to DeConcini Point of Entry, Nogales	\$3,000,000
		Roadway Improvements for Future Capacity - Alternative A - Signal Upgrades and Interconnect	
15	74B	Grand Avenue & Arroyo Blvd, I-19 to DeConcini Point of Entry, Nogales	\$15,850,000
		Roadway Improvements for Future Capacity - Alternative B - Roadway and Intersection Improvements	
15	74C	Grand Avenue & Arroyo Blvd, I-19 to DeConcini Point of Entry, Nogales	\$18,850,000
		Roadway Improvements for Future Capacity - Alternative C - Both Signal and Roadway Improvements	
16	56	I-19 East Frontage Road, Ruby Road to Rio Rico Dr, Rio Rico	\$150,000
		Traffic Study and Evaluation	
17	48A	Grand Ave/Mesa Verde Dr Intersection, Nogales	\$125,000
		Intersection Improvement - Alternative A - Upgrade Traffic Signal	
17	48B	Grand Ave/Mesa Verde Dr Intersection, Nogales	\$690,000
		Intersection Improvement - Alternative B - Intersection Capacity and Traffic Signal Improvements	
17	48C	Grand Ave/Mesa Verde Dr Intersection, Nogales	\$1,165,000
		Intersection Improvement - Alternative C - Widen Bridge, Intersection Capacity and Traffic Signal Improvments	
18	49	Grand Ave/Old Tucson Rd Intersection, Nogales	\$525,000
		Intersection Improvement	
19	50A	Grand Ave/Country Club Rd Intersection, Nogales	\$400,000
		Intersection Improvement - Alternative A - Widen Western Leg and Signal Improvements	
19	50B	Grand Ave/Country Club Rd Intersection, Nogales	\$1,050,000
		Intersection Improvement - Alternative B - Widen Western Leg Improve Intersection Capacity and Signal	
20	67A	SR 82, Grand Avenue Terminus to Thelma Street, Nogales	\$3,400,000
		Roadway Improvements for Future Capacity - Alternative A - Widening with no bridge improvements	
20	67B	SR 82, Grand Avenue Terminus to Thelma Street, Nogales	\$12,150,000
		Roadway Improvements for Future Capacity - Alternative B - Widening with bridge improvements	



Local Priorities for Federal/State System Projects			
Ranking	Site No.*	Project Location	Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
21	36A	Connector Road, I-19 to SR 82, Nogales	\$36,550,000
		Roadway Corridor Improvements - Alternative A -Use South River Road Alignment	
21	36B	Connector Road, I-19 to SR 82, Nogales	\$59,000,000
		Roadway Corridor Improvements - Alternative B - Create New Alignment	
22	75A	Interstate 19, Interstate 19 B Terminus to West Street, Nogales	\$375,000
		Roadway Improvements for Future Capacity - Alternative A - Access Management and One-Way Routes	
22	75B	Interstate 19, Interstate 19 B Terminus to West Street, Nogales	\$1,170,000
		Roadway Improvements for Future Capacity - Alternative B - Route Widening and Intersection Improvements	
23	76	Interstate 19, Tumacacori Interchange to SR 189/Mariposa Road Interchange, Santa Cruz County	\$529,000
		Roadway Improvements for Future Capacity	
24	77	East and West Interstate 19 Frontage Roads, Rio Rico Drive Traffic Interchange to Grand Avenue Traffic Interchange, Rio Rico	\$29,375,000
		Roadway Improvements for Future Capacity	

Local Priorities for Federal/State System Bike/Ped Projects			
Ranking	Site No.*	Project Location	Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	7	Grand Avenue, Park St to Arroyo Blvd, Nogales	\$1,020,000
		Crosswalk Installation	
2	46A	Ruby Road (SR 289), Ranger Station to Pina Blanca Lake, Rio Rico	\$3,115,000
		Bike Lane Improvement - Alternative A - Overlay Existing Roadway with Stabilized Earthen Shoulder	
2	46B	Ruby Road (SR 289), Ranger Station to Pina Blanca Lake, Rio Rico	\$32,950,000
		Bike Lane Improvement - Alternative B - Widen Existing Roadway with New Paved Shoulders	
2	46C	Ruby Road (SR 289), Ranger Station to Pina Blanca Lake, Rio Rico	\$35,720,000
		Bike Lane Improvement - Alternative C - Overlay Existing Roadway with New Paved Shoulders	

Local Priorities for Federal/State System Enhancement Projects			
Ranking	Site No.*	Project Location	Cost
		Project Description	
	* Site No. refers to site location numbers in exhibits shown in Working Paper #2		
1	29	I-19 Tumacacori to Tubac	\$1,250,000 (each)
		Wildlife Preservation Crossings	

Note: The maximum transportation enhancement grant for state system project is \$943,000; the balance of the project cost will need to be made up with state matching funds.

6. Suggested New Revenue Approaches

6.1 Additional Sales Tax Revenues

Imposition of a **one half cent sales tax** dedicated to transportation has been estimated to generate around **\$3.4 million annually** (2009 dollars) if imposed on all of Santa Cruz County including the City of Nogales. A one half cent sales tax could be imposed exclusively within the City of Nogales through an increase in their sales tax rate. This would generate around **\$2.4 million annually** (2009 dollars).

6.2 Development Impact Fees

Imposition of a *three thousand dollar per dwelling unit (\$3,000/du) impact fee* dedicated to transportation has been estimated to generate around *\$2.2 million annually* (2009 dollars) if imposed on all of Santa Cruz County including the City of Nogales. Such fees are used to offset the cost of public infrastructure, including transportation improvements.

6.3 Public-Private Partnerships

ADOT recently completed a study entitled “Public-Private Partnership Potential for Arizona-Mexico Border Infrastructure Projects.” The purpose of the study was to explore the potential for utilizing public-private partnerships to deliver infrastructure serving the seven ports of entry along the Arizona-Mexico Border. Based on the work done by the Wilbur Smith Associates study team, one specific project was identified as having the potential to be at least partially self-funding as a public-private partnership: the SR 189/Mariposa Road project connecting the Mariposa POE with I-19 in Nogales, Arizona. The next step would be to conduct a conceptual level evaluation of the project.

6.4 Districts as a New Revenue Source for Transportation Infrastructure

The city and the county consider using improvement districts and community facilities districts, as applicable, to provide an additional revenue source (assessments against benefited properties in the district) and funding means for delivering needed transportation infrastructure. Those who benefit from the improvement are asked to pay for the improvement. The majority of the property owners should support the need for the project and be willing to be assessed for the cost of the improvement. Improvement districts are normally used to address deficiencies in existing transportation systems. Community facilities districts are typically used to advance infrastructure for new developments such as many of the identified project needs in the I-19 corridor due to the expected growth in the Santa Cruz county portion of the study area.

6.4.1 Improvement Districts

Improvement Districts are typically established to address deficiencies in the infrastructure in established areas. Infrastructure deficiencies may include roadway width, drainage, pavement, or enhancements such as sidewalks, streetlights, utility undergrounding, or installing sanitary sewers in areas with current septic systems. Improvement Districts are created to provide specific facilities for specific geographical areas, and use the sale of obligation bonds to fund the improvements. Districts use a secondary property tax to retire the bonds. Sometimes a neighborhood area approaches a local government to create such a district to provide needed improvements. A vote of the property owners of the impacted area is required to authorize a district. Improvement districts can be used for roadway improvements within cities or in county

areas. The creation of an improvement district requires the concurrence of 51% of the property owners, and costs are imposed on properties based on calculated benefits which may include parcel size, roadway frontage, or some other value. Special assessments are then levied against the benefited property for the apportioned cost of the improvements.

6.4.2 Community Facilities Districts (CFDs)

The Arizona Community Facilities District Act provides mechanisms for funding of infrastructure improvements for both municipalities and developers. The law authorizes tax exempt bonds to be issued and repaid by assessing only the lands directly benefiting by the new infrastructure. CFD bonds can fund a number of public infrastructure needs including transportation. Developers prefer this funding approach, since their cost exposure is less than with conventional financing, and no security needs to be pledged against the bond other than the projected assessment revenue stream. CFDs allow developers to create separate political subdivisions distinct from the jurisdiction they are located in for the purpose of issuing tax exempt bonds to finance public improvements. CFDs are permitted to finance public roadways, utilities, and public facilities such as police and fire stations, parks, and libraries. The responsibility to repay the bonds is placed on the end users of the property who retire the bonds over a twenty-five year period.

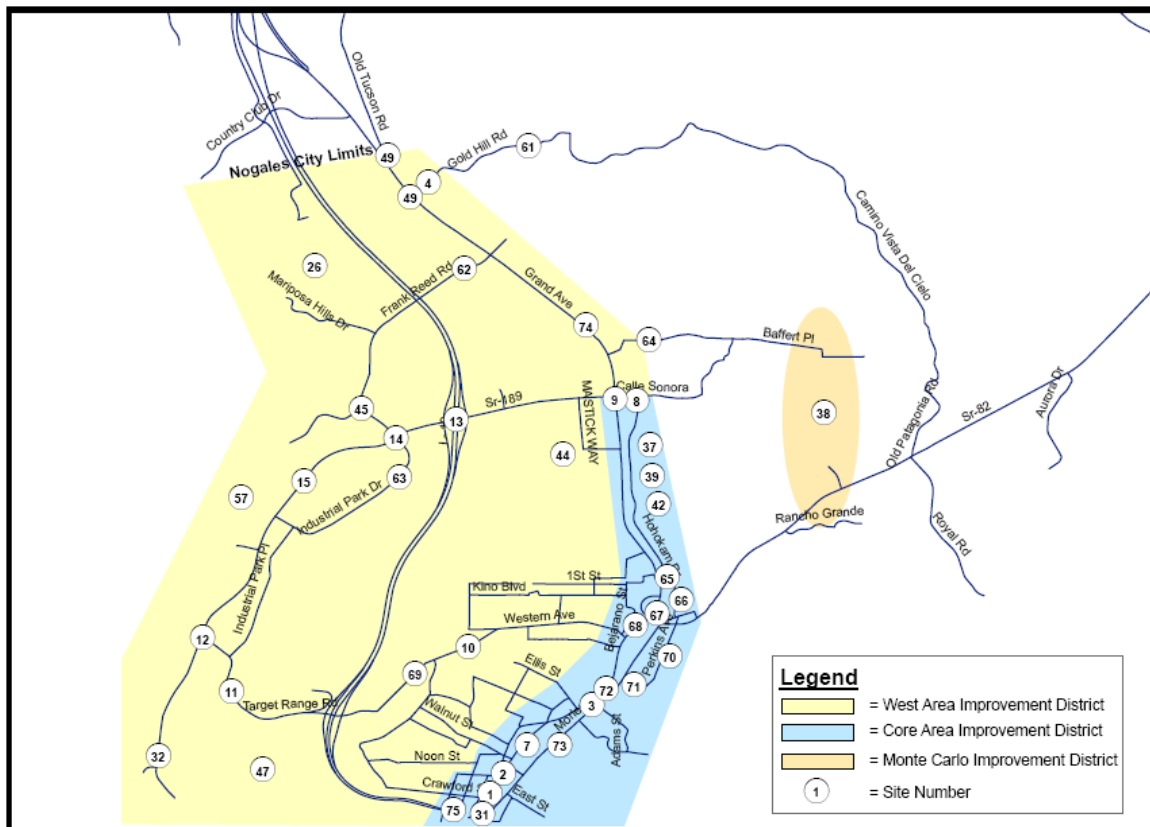


Figure 7 - Possible Nogales Improvement Districts & Project Site Locations

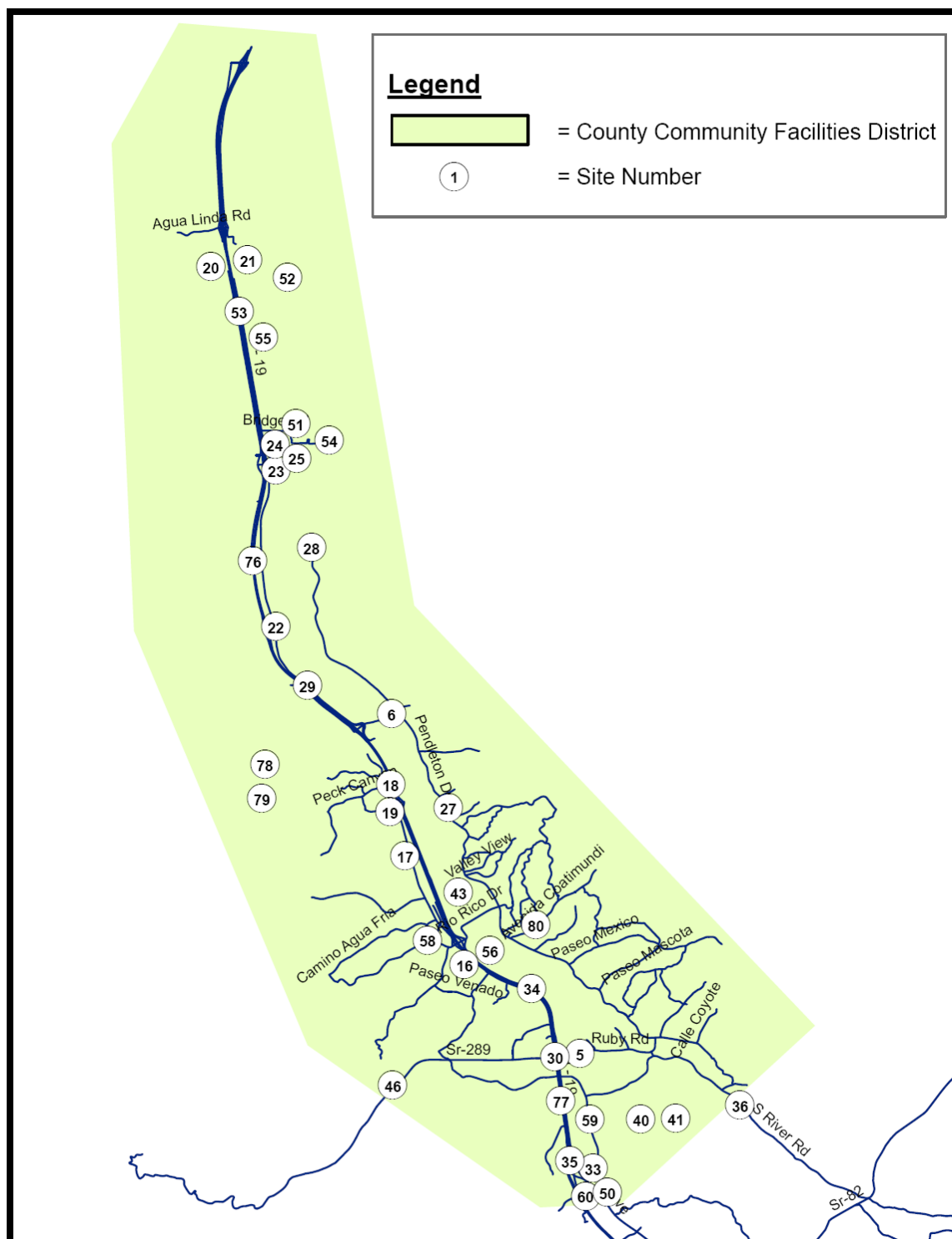


Figure 8 – Possible Santa Cruz Community Facilities District & Project Site Locations

7. Functional Classification Recommendations

Functional classification is a system of classifying roadways according to the character of service they are intended to provide. This results in a hierarchy from higher volume roadways of a regional nature to lower volume roadways of a more local nature. Classifications begin at the principal arterial level and track downward to minor arterials, major and minor collectors, and local roadway classifications. The process of classifying roadways in Arizona is led by ADOT in cooperation with the regional councils of governments; in this case, the *SouthEastern Arizona Council of Governments* (SEAGO). All roads that are part of the public roadway network are to be classified. The roads on the state system are classified by ADOT and the roads on federal lands are classified by the respective federal agencies. Functional classification is done in combination with establishing boundaries for urban areas, which result in roadways being classified as rural or urban facilities. In high growth areas such as Arizona, urban boundaries warrant periodic review.

For a project to be eligible for federal funding and to be included in the State Transportation Improvement Plan (STIP), the roadway in question must be functionally classified as a rural major collector or above or as an urban collector or above. In order for the maximum number of the improvement projects recommended in this study to be eligible for federal funding, these projects were reviewed to determine if any of the roadways contained therein could potentially be reclassified to qualify for federal funding. The following tables show the current and/or recommended functional classifications for roadway segments included in the recommended projects section of this study for both the City of Nogales and Santa Cruz County. Projects on the State Highway System are not included as the functional classification of those roads is the responsibility of ADOT.

Existing and Recommended Functional Classification for Santa Cruz County Projects					
Site No.	Roadway	From	To	Current Classification	Recommended Classification
6A	Palo Parado Drive	I-19	Pendleton Drive	Rural Major Collector	Rural Major Collector
58	Yavapai Drive	Rio Rico Drive	West Frontage Rd.	None	Rural Major Collector
27B	Pendleton Drive	Rio Rico Drive	Palo Parado Drive	Rural Major Collector	Rural Major Collector
51	Bridge Road	I-19	Calle Iglesia	None	Rural Major Collector
54	Bridge Road	Calle Iglesia	Pendleton Drive Ext.	None	Rural Major Collector
17C	W. Frontage Rd.	Rio Rico Drive	Palo Parado Drive	Interstate Frontage	Interstate Frontage
55	Chavez Siding Rd.	I-19	Pendleton Drive Ext.	None	Rural Major Collector
28	Pendleton Drive	N, Terminus	Bridge Road	None	Rural Major Collector
5	Ruby Road	UPRR	UPRR	Urban Collector	Urban Collector
52B	Pendleton Drive	Bridge Road	Pima County Line	None	Rural Major Collector
Note: Yellowed lines represent roadway segments that are proposed for an upgrade to their current functional classification.					

Existing and Recommended Functional Classification for City of Nogales Projects					
Site No.	Roadway	From	To	Current Classification	Recommended Classification
3	Public Library Area	UPRR	UPRR	None	Urban Collector
45D	Frank Reed Rd.	Masonic St.		None	Urban Collector
8	Calle Sonora	Grand Avenue	Hohokam Drive	None	Urban Minor Arterial
66	Bankert Avenue	Doe St.	Morley Ave.	Urban Minor Arterial	Urban Minor Arterial
73	Morley Avenue	Banks Bridge	Park St.	Urban Minor Arterial	Urban Minor Arterial
65	Doe Street	Grand Avenue	Bankert Avenue	Urban Minor Arterial	Urban Minor Arterial
69	Western Avenue	Grand Avenue	I-19	Urban Minor Arterial	Urban Minor Arterial
38	Monte Carlo	neighborhood	SR 82	None	Urban Collector
61	Gold Hill Road	Grand Avenue	Edith Place	None	Urban Collector
44	White Park Drive	Grand Avenue	Mariposa Rd.	None	Urban Collector
71	Monroe Street	Morley Avenue	Tyler Avenue	None	Urban Collector
72	Banks Bridge	Grand Avenue	Morley Ave.	Urban Minor Arterial	Urban Minor Arterial
70	Perkins Avenue	Morley Avenue	Jackson St.	Urban Minor Arterial	Urban Minor Arterial
68	North Santa Cruz St.	Grand Avenue	Bejarano Street	None	Urban Collector
63	Industrial Park Dr.	Loop		Urban Collector	Urban Collector
59	Old Tucson Road	Grand Avenue	I-19	Urban Collector	Urban Collector
4	Gold Hill Road	UPRR	UPRR	None	Urban Collector
64	Baffert Drive	Grand Avenue	Monte Carlo Dr.	None	Urban Collector
62	Apache Blvd	Grand Avenue	Mariposa Hills Dr.	None	Urban Collector
60	W. Country Club Dr.	Grand Avenue	I-19	None	Urban Collector

Note: Yellowed lines represent street segments that are proposed for an upgrade to their current functional classification

8. Implementation Plan Recommendations

1. Accept and approve the transportation plan and adopt the improvement program.
2. Apply for federal funding for eligible short-term projects and apply for any available and applicable grants to fund eligible short-term projects.
3. As funding becomes available, the City of Nogales and Santa Cruz County should pursue predesign work for short term priority projects.
4. Create new revenue sources including a dedicated ½ cent sales tax for the entire county, adopt and impose a development impact fee of \$3,000 per dwelling unit, and use improvement districts and community facility districts to help fund needed projects.
5. To maximize the use of potential federal funding, the city and county should work aggressively with the *SouthEastern Arizona Governments Organization* (SEAGO) to functionally reclassify roadways as recommended in this report to make them eligible for federal funding.
6. The pedestrian and bicycle plans for the study area, including both the county and the city, should be pursued as soon as possible, funded through an ADOT PARA Study grant, so that the respective pedestrian and bicycle master plans can provide the basis for applications for funding through the transportation enhancement program and the Safe Routes to School program leading to as many project designs and construction as possible.
7. When new roadways are planned and designed, it is advisable to incorporate multimodal facilities for bicycle and pedestrian traffic as appropriate for the facility.
8. Some private developments in the study area appear to have occurred without these developments contributing to or building adjacent roadway improvements. It is recommended that all new developments be required to bring contiguous roadways up to current standards for right of way, number of traffic lanes, sidewalks, bike lanes, and other appurtenant improvements. Both the county and the city should require Traffic Impact Analyses (TIAs) to be done for all significant new developments. These reports will then dictate the extent of traffic impacts and suggest improvements to mitigate these impacts. These measures may include the improvements noted above and also turn lanes, deceleration lanes, and installation of all manner of traffic control devices. TIA standards from other public agencies can be obtained and provided for this purpose.
9. The county and the city should continue to work with SEAGO and ADOT to investigate all options for development of public transportation within the study area, including providing park and ride facilities, as well as linking the communities to the Tucson metropolitan area and beyond.

