

San Carlos Apache Tribe Long Range Transportation Plan

Working Paper 1 / Existing and Future Conditions

June 28, 2019 (DRAFT)



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CHAPTER 1 / OVERVIEW

The San Carlos Long Range Transportation Plan (LRTP) is a joint effort of the San Carlos Apache Tribe (SCAT) and the Arizona Department of Transportation (ADOT) to update the 2009 LRTP. This 20-year plan will guide decisions and prioritize transportation investments in the San Carlos Apache Tribe communities. The LRTP will reflect the vision, goals, and values of the local communities of the Tribe.

GOALS AND OBJECTIVES

The LRTP will be guided by six transportation goals to achieve a robust multimodal transportation system. These goals include: improving roadway safety; enhancing accessibility; increasing mobility; increasing community livability; strengthening economic vitality; and maintaining environmental and cultural sensitivity.

The following objectives will be met to further the goals set forth by the LRTP:

- Conduct a comprehensive roadway inventory and describe the existing and future multimodal conditions;
- Update the BIA Roads Inventory Field Database System (RIFDS);
- Identify specific improvements;
- Develop short (5-year), mid (10-year), and long (20-year) multimodal transportation strategies to implement improvements and resolve identified inefficiencies; and
- Incorporate input from the Technical Advisory Committee (TAC), stakeholders, Tribal members and officials into the plan.

STUDY AREA

The study area is comprised of the entire San Carlos Apache Reservation. Established by executive order in 1871 by President Ulysses S. Grant, the Reservation spans 1,834,781 acres in eastern Arizona across portions of Gila, Graham, and Pinal Counties. The Reservation is situated approximately 110 miles east of Phoenix and 120 miles north of Tucson (Figure 1-1). Nearby communities include the City of Globe, which is located about 5 miles west of the Reservation, and Fort Thomas and Safford located to the east. The White Mountain Apache Tribe is located immediately north of San Carlos separated by the Black River. The San Carlos Apache Reservation contains several communities, including San Carlos, Bylas, Cutter, and Peridot (Figure 1-2). These communities are highlighted throughout the study for comparative purposes.

San Carlos

San Carlos is the largest community and the seat of government for the Reservation. It is in southeastern Gila County, bordered by the San Carlos River. San Carlos' economy is based in retail, construction trade, and public administration.

Bylas

Located along US 70 southeast of San Carlos, Bylas is an unincorporated community in Graham County, Arizona. The community includes the Bylas Wellness Center, Clarence Wesley Health Center, a police station, and the Mt. Turnbull Apache Market.

Cutter

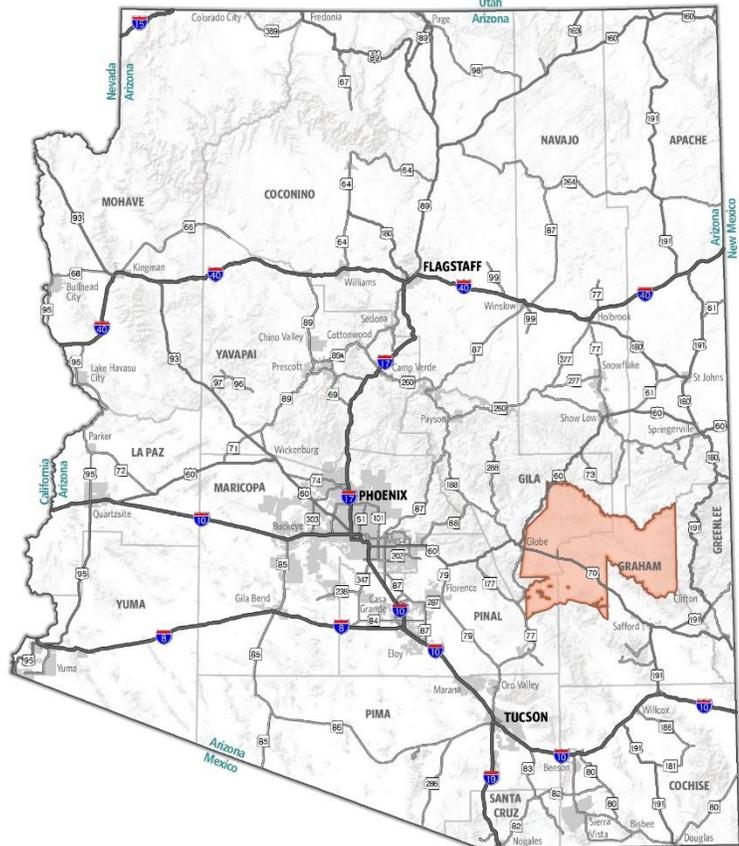
Just off the US 70 and northwest of San Carlos, Cutter is an unincorporated community in Gila County. The Apache Gold Casino & Resort is located in Cutter and is one of the main economic drivers for the Reservation.

Peridot

Splitting Gila and Graham Counties, US Route 70 passes through the Peridot community, 20 miles west from Globe and 57 miles southeast to Safford. Peridot's name is derived from the mineral, which can be found throughout the area.

The Apache people descend from the Athabascan family who migrated to the Southwest in the 10th century. Over time, many bands of Apache were relocated to their current tribal lands from their traditional homelands, which once extended throughout Arizona and New Mexico. The region has a wealth of geological, historic, and recreational attractions. The temperate climate of the Reservation makes hunting for big and small game, such as elk, bighorn sheep, javelina, antelope and migratory birds, enjoyable in every season.

Figure 1-1 Statewide Setting



PLANNING PROCESS

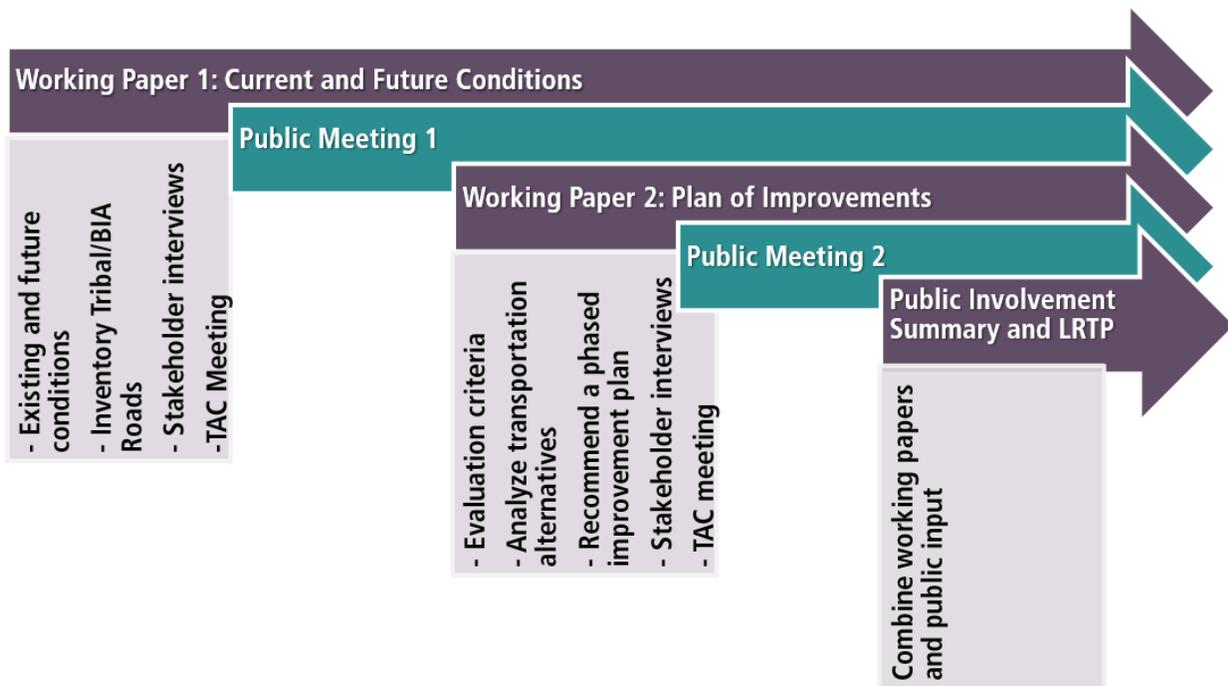
The planning process will be coordinated by the project management team with guidance from the Technical Advisory Committee (TAC) and will include public and stakeholder outreach (Figure 1-3). The Project Team is comprised of SCAT staff and the consultant team, as well as ADOT staff. Outreach is introduced in this section and described in detail in Appendix A.

The planning process will involve four phases:

1. Data collection
2. Analysis of existing and future conditions
3. Improvement recommendations and prioritization
4. Final Report

An inventory of all roads in the Reservation will be conducted concurrently with Working Paper 1 of the LRTP. Findings from the inventory inform the existing conditions and will also inform future projects.

Figure 1-3 Study Process



TECHNICAL ADVISORY COMMITTEE

The study will be guided by a Technical Advisory Committee (TAC) that includes representatives from San Carlos Tribal Government departments, the Bureau of Indian Affairs (BIA), Gila County, Pinal County, Graham County ADOT Multimodal Planning Division, ADOT Southeast Maintenance District, Central Arizona Governments (CAG), Southeastern Arizona Council of Governments (SEAGO), and U.S. Forest Service. The TAC will provide input and oversight throughout the process, and will champion the study, contributing to the successful development and delivery of the project. Two TAC meetings will be conducted throughout the study process.

STAKEHOLDERS

Stakeholders will include Tribal, community, and agency members. Throughout the study process, two stakeholder meetings and several stakeholder interviews will be conducted on the Reservation. Each stakeholder meeting will consist of three to four working sessions.

PUBLIC OUTREACH

Public involvement is essential to the broad acceptance and successful implementation of any transportation improvement plan. Community outreach informs the public about the study, provides opportunities to create a dialogue and gain citizen contributions, and creates a process to build consensus in support of proposed recommendations.

The project team will use several strategies to communicate project information to the public. A notification message, distribution letter, and flyer will be distributed at activity centers throughout the Reservation, and a website will be developed to provide important project details. The project team will also work with the local radio station to advertise and provide information about upcoming meetings.

The public and stakeholder involvement process includes two public information meetings. The meetings will be conducted to provide important and timely information to the public and to gain feedback on the needs and ideas of residents. One meeting will be held in San Carlos and the other in Bylas. Prior to the public meetings, study information will be communicated to the communities through newspaper notices, fliers and posters, and the project website. Each public meeting will include a presentation and active discussions with the public. All comments will be documented for public record to inform stakeholders of the public consensus, which will affect decisions made throughout the course of the study.

CHAPTER 2 / PREVIOUS STUDIES, REPORTS, AND PLANS

ONGOING AND COMPLETED STUDIES

The two prior SCAT LRTPs provide a reference to benchmark progress and realign goals as necessary. Other relevant studies provide the LRTP with context of surrounding area goals and perspectives. These internal and external studies are summarized below.

SCAT Long-Range Plans

2009 San Carlos Long-Range Transportation Plan

The 2009 LRTP update, funded by the then-emerging Arizona Department of Transportation (ADOT) Planning Assistance for Rural Areas (PARA) program, proposed a series of short- and long-term multimodal project recommendations. The funding sources identified in the 2009 plan remain viable and include: Bureau of Indian Affairs (BIA) Indian Reservation Roads (IRR) Program, ADOT, and neighboring government agencies.

The 2009 proposed projects were reviewed, and their progress status was determined. Results are outlined in Table 2-1.

Table 2-1 2009 LRTP Proposed Projects Update

Route	Description	Fiscal Year	Amount	Status
SCIR 6 PE	Reconstruct & Overlay	2009	\$75,291	Partial
	Engineering and Design	2010	\$75,874	Partial
SCIR Inventory	Data Entry - RIFDS	2009	\$1,118	Completed
SCIR 25	Indian Hills Rd	2009	\$671,060	Unknown
	Reconstruction	2010	\$24,405	Unknown
ADOT US 70	Construct Turning Lanes at Old Winkelman Highway and BIA 6 Intersection	2009	\$1,000,000	Completed
ADOT US 70	Gila River Bridge (Bridge Replacement) and Calva Road Intersection Improvements	2010	\$19,000,000	Completed
ADOT US 70	San Carlos River Bridge (Bridge Replacement)	2010	\$10,000,000	Unknown

1990 and 1998 Transportation Plans

The first SCAT LRTP was funded by the BIA and managed by SCAT's Planning Department. At that time, a formal San Carlos Transportation Planning office was yet to be formed to manage the implementation of the plan. A 1998 Transportation Planning Study was completed following the 1990 study.

Internal Relevant Studies

2009 San Carlos Apache Tribe Transit Feasibility Study and 2011 update

The San Carlos Apache Nnee Bich’o Nii Services formerly San Carlos Apache Transit Services, provides services to elderly and disabled Tribal members, underserved Tribal members, and Apache Gold Casino and Resort employees.

Although the Tribal area population was forecasted to grow slowly, the study found existing unmet needs and future demands among the high percentage of persons living below the poverty level and potentially transit dependent. And, although the public expressed a need for an expansion of transit services, the existing operation was nevertheless considered “well-run” and supported by both government and Tribal residents.

The study proposed a phased expansion of services in collaboration with surrounding jurisdictions and ADOT to external destinations including Phoenix and Tucson. Development of a joint Regional Transit Authority was suggested to meet expansion needs. Coordination of services with surrounding transit operations such as Cobre Valley Community Transit (CVCT), Safford-area transit services, and rural passenger rail service was operated as the Copper Spike Railway’s "Gila Tomahawk" by the Arizona Eastern Railway from 2005 to 2011.

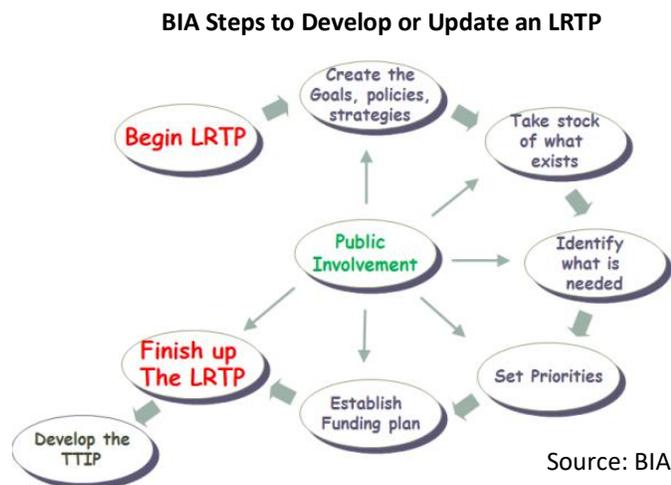
In the short-term, the LRTP recommended: purchasing two minibuses; ongoing maintenance and repair; additional stop signs; schedule changes and extension of the Globe, Safford, Phoenix, and Tucson routes; coordination with Cobre Valley Community Transit; several capital expenditures; and a study of future rail passenger service.

The mid- and long-term plans suggest even further expansion of Phoenix and Tucson service and additional capital expenditures, including bus shelters.

External Relevant Studies

Bureau of Indian Affairs Transportation Planning Guidelines (2017)

The Bureau of Indian Affairs (BIA) provides guidance on program delivery, including Transportation Planning and the requirement to develop Long-Range Transportation Plans. Tribes should perform “transportation planning” to evaluate and assess the transportation facilities serving the Tribe, including both existing and future facilities. LRTPs should include short-



and long-range plans. The process, as outlined by BIA, should include six steps illustrated in the image from the BIA guidelines, titled “BIA Steps to Develop or Update an LRTP.”

2018 CAG Greater Gila County Transit Feasibility Study

Through this study, a Transit Service Plan was developed for the Payson Senior Center, which created a fixed route bus service for the Star Valley area. The plan includes recommendations for fare structures, capital equipment needs, marketing plans, and a two-year budget.

In addition to the Transit Plan, collaboration was established with Cobre Valley Community Transit and San Carlos Apache Tribe to evaluate fare changes, fare structure updates, generate a marketing plan, and identify ideal transfer points and times and long-term expansion opportunities.

With continued commitment from Gila County and its partners, the study resulted in the implementation of the “Beeline Bus”, which received FTA funds and began operations in November 2018.

2017 Pedestrian Safety Action Plan

In 2017, improvements were suggested along US 70 in San Carlos in ADOT’s Multimodal Planning Division’s strategic plan for pedestrian safety improvement. The plan suggested increased separation between vehicles and pedestrians to reduce the number of pedestrian crashes. Crashes were most common in areas without lighting and when pedestrians were on the road and or under the influence of alcohol. Three options for countermeasures were recommended:

- No improvements: a do-nothing approach
- Engineering countermeasures: (1) widen shoulders and (2) provide road lighting
- Pedestrian education campaign: distribute pedestrian safety handouts at the Apache Gold Resort and neighboring businesses.

The Plan cited a 2010 RSA which found a need to eliminate the skewed intersection at the Y-intersection located at MP 259.2. Y-intersections pose potential conflicts and visibility issues for people on bikes and walking.

ADOT Roadway Safety Assessment (RSA) Studies

2009 Road Safety Assessment US 70, MP 294 to 298

In 2009, ADOT Safford District requested an RSA of US 70 from milepost 294 to 298 in Bylas. A long list of countermeasures was suggested for consideration. The RSA found safety issues concerning pedestrian lighting, signing, intersections, crashes and improvements needed in transit operations, maintenance, enforcement and education, and future development. The study was considered in the development of the 2009 LRTP.

2010 Road Safety Assessment US 70, MP 255.3 to 273

In anticipation of traffic growth associated with a new hospital near MP 273 and other developments, an RSA was conducted in 2010 in the ADOT Globe District. A long list of countermeasures was developed for consideration to address safety issues such as: a short passing lane, sag vertical curve, steep side slopes, pedestrian and bicycle issues, pavement markings, hospital access, guardrail delineation, access management, vegetation control, cattle guards, turn lanes, path crossings, bridges, the Apache Gold Casino, enforcement, emergency medical services and education, and crashes. This study was completed after the development of the 2009 LRTP.

PROGRAMMED AND SCOPED PROJECTS

ADOT's Multimodal Planning Division (MPD) publishes the Arizona State Transportation Improvement Program (STIP), which identifies priority transportation projects that utilize federal funds over a five-year timeframe. The ADOT MPD Planning and Programming section compiles the STIP from a list of projects from regional transportation improvement programs (TIPs). Projects included in the STIP are consistent with statewide long range transportation plans and metropolitan TIPs. The STIP includes projects recommended by the Tribal Transportation Program's (TTP) Transportation Improvement Program (TIP) for all federally recognized Tribes in Arizona. The San Carlos Apache Tribe TIP is included in the BIA Western Region's TIP. Table 2-2 lists the improvement projects included in the Arizona State Transportation Improvement Program (STIP) for fiscal years 2019-2023.

Table 2-2 ADOT State Transportation Improvement Projects (STIP) FY 2019-2023

Year	Project Location	Type of Improvement	Total Costs
2019	San Carlos High School - Bia 170, San Carlos Tribe	Signal/Sign	\$333,302

Source: ADOT STIP Fiscal Years 2019-2023

Note: Please note that the above projects are based on the current ADOT STIP. Some of the projects scheduled may already be complete.

In conjunction with the Federal Aviation Administration (FAA) and Arizona's public airports, ADOT develops a Five-Year Airport Development Capital Improvement Program (ACIP) for airport development. Funding for the Airport Program is mainly derived from flight property tax, aircraft lieu tax, aircraft registration, and aviation fuel tax. Table 2-3 lists the improvement projects included in the 2019-2023 Five-Year Airport Capital Improvement Program.

Table 2-3 FY2019 Airport Development Capital Improvement Program

Year	Project Location	Type of Improvement	Total Costs
2019	San Carlos Apache Airport	Runway 27 install 5 area lights adjacent to apron	\$330,400

Source: ADOT Five-Year Construction Program Fiscal Years 2019-2023

Note: Please note that the above projects are based on the current Five-Year Program. Some of the projects scheduled may already be complete.

CHAPTER 3 / LAND USE AND SOCIOECONOMIC CONDITIONS

LAND USE OWNERSHIP

The San Carlos Apache Reservation spans across portions of Gila, Graham, and Pinal Counties in southeastern Arizona, roaming over a landscape that ranges from alpine forests to desert. Over one-third of the community's land is forested (175,000 acres) or wooded (665,000 acres). Forest lands create a naturally superior habitat for many wildlife species, including elk, mule deer, turkeys, black bears and mountain lions. The Reservation is situated near the largest stand of ponderosa pine trees in the world and has an extensive variety of geological, historic, and recreational attractions.

The planning boundary covers an area of approximately 2,890 square miles. 99.6% of this area is owned by the San Carlos Apache Tribe, while the remaining 0.4% is leased out by the tribe for mining purposes. Figure 3-1 displays the land use ownership allocation in the study area.

PROPOSED DEVELOPMENTS

BIA has provided information on plans for "Future Roads" where future developments are expected to occur. There are three locations of proposed developments, two in Peridot just south of US 70 and another in Bylas near Mt. Turnbull Elementary School. The Bylas Master Plan road has already been constructed and will provided access to the proposed developments in that area.

EMPLOYMENT, SCHOOLS, POINTS OF INTEREST, AND ACTIVITY CENTERS

Total employment in the Reservation is estimated to be 2,265, based on 2015 U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics. Although tourism via the Apache Gold Casino in Cutter is the primary driver of the economy on the Reservation and recreation employs 304 workers (13.4% of all jobs), the largest employer on the Reservation is the government, which operates many agencies and employs 1,354 public administration workers (59.9% of all jobs). In addition to government work, cattle ranching operations contribute approximately \$1 million in annual livestock sales to the local economy. A total of six schools and one child care center serves the Reservation and the education services industry employs 227 workers (10% of all jobs).

The Reservation is a hub of recreational activity. San Carlos Lake, formed by the construction of Coolidge Dam, is a fisherman’s paradise with 158 miles of shoreline. The lake contains 19,500 acre-feet of water, making it one of the largest bodies of water in Arizona. Many diverse opportunities exist for the angler on the San Carlos Reservation with both warm-water and cold-water fisheries available all year round. More than 100 small ponds, called tanks, dot the area, along with many smaller lakes and streams. Talkalai Lake is fully stocked, and fishing for trout bass, channel, catfish, crappie and bluegill is excellent. More water-based recreation opportunities are available on the Salt River. U.S. 60, the direct route between Show Low and Globe, cuts through the Salt River Canyon, often referred to as the “mini Grand Canyon”. Whitewater rafting, kayaking, and canoeing are popular sports as the snow melts and runs into the river.

There are three grocery stores, eight major places of worship, and several social service agencies including food services for older adults and a shelter. Major activity centers are listed in Table 3-1. Figure 3-2 maps major employers in the area, and Table 3-2 identifies the Reservation’s major employers, schools, and points of interest.

Table 3-1 Activity Centers

Activity Centers	
Apache Gold Casino Resort	Rice Primary School
Apache Sky Casino	San Carlos Apache Airport
Bashas'	San Carlos Apache Healthcare Corporation
Mt Turnbull Elementary School	San Carlos Apache Tribe
Mt. Turnbull Apache Market	San Carlos Intermediate
Noline's Country Store	San Carlos Unified High School

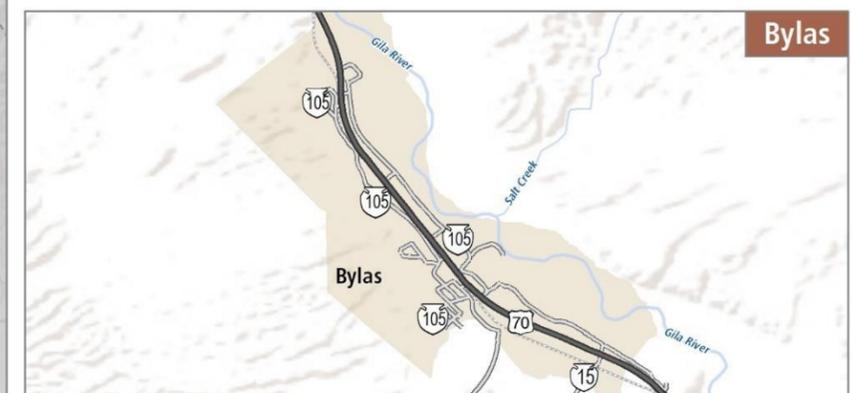
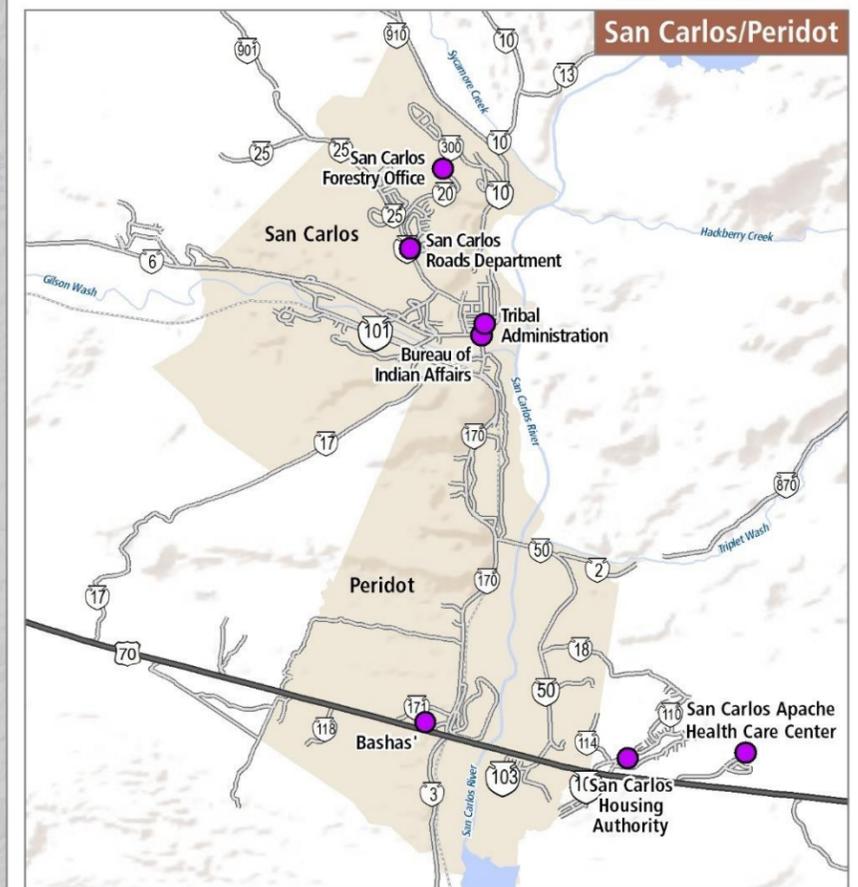
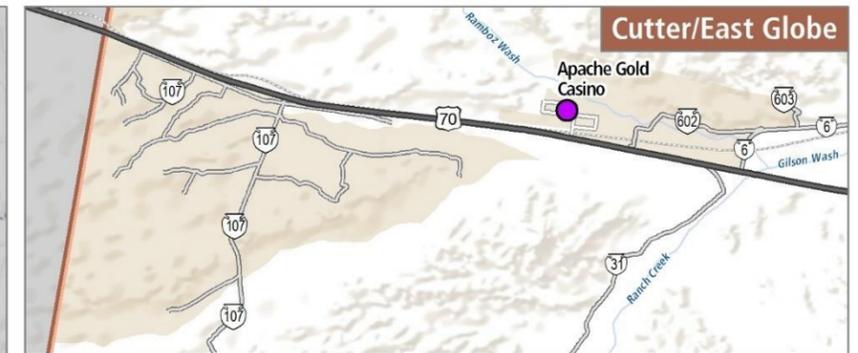
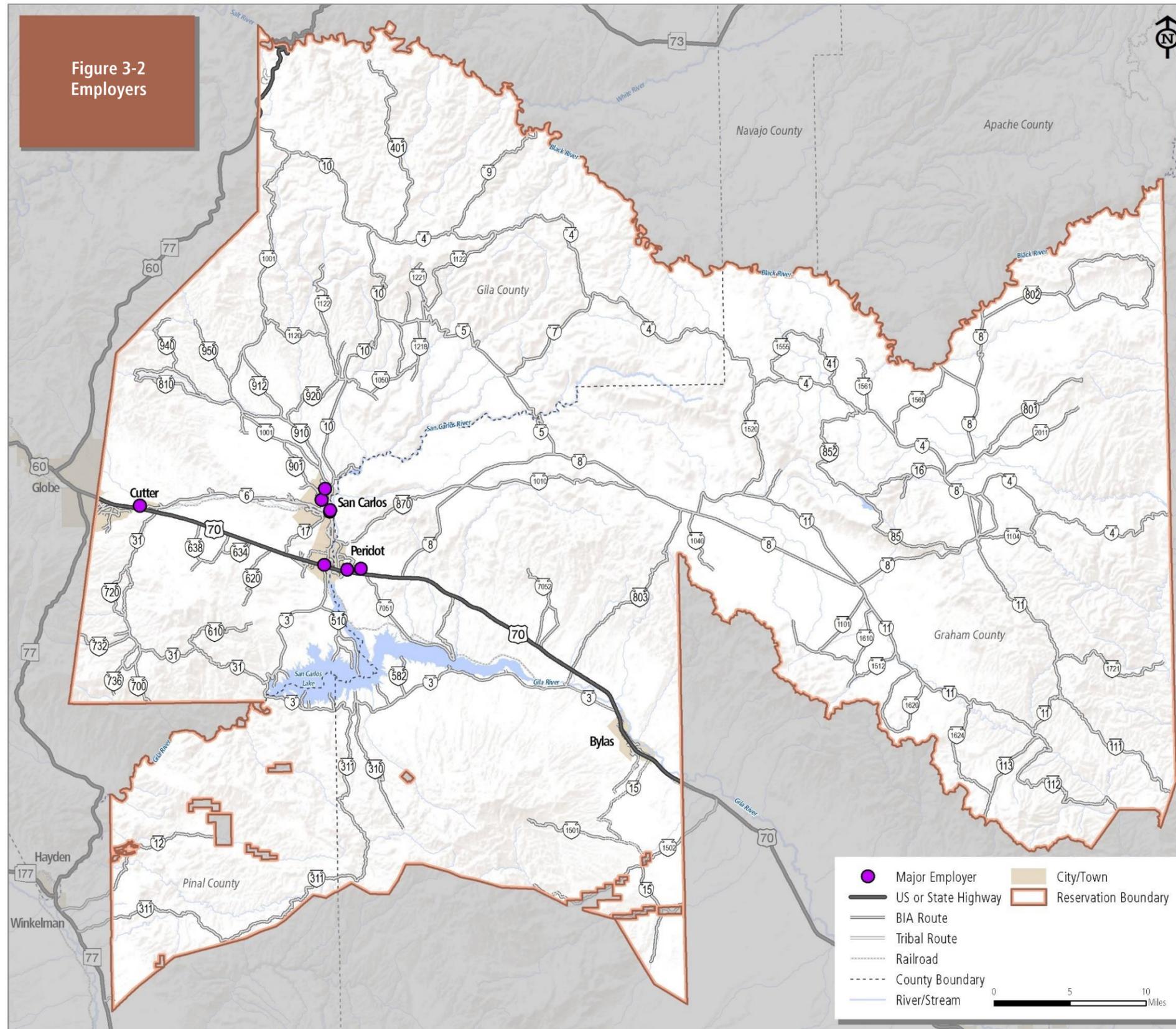
Source: Google Maps

Table 3-2 Reservation Employers, Schools, and Points of Interest

Name	Service Type
Apache Gold Casino Resort	Employer
San Carlos Housing Authority	Employer
San Carlos Apache Healthcare Corporation	Employer
Indian Roads Maintenance Yard	Employer
San Carlos Forestry Office	Employer
Apache Sky Casino	Employer
Bureau of Indian Affairs	Employer
San Carlos Apache Tribe	Employer
Rice Primary School	School and Child Care
Indian Hills Park	School and Child Care
San Carlos Intermediate	School and Child Care
San Carlos Unified High School	School and Child Care
St Charles Parochial School	School and Child Care
San. Carlos Secondary School	School and Child Care
Education Department	School and Child Care
San Carlos Alternative School	School and Child Care
San Carlos Unified School District	School and Child Care
Apache Tribe Child Care Program	School and Child Care
San Carlos Avenue	Grocery
Noline's Country Store	Grocery
Bashas'	Grocery
Mt. Turnbull Apache Market	Grocery
Apache Food Services-Older Adults	Community/Social Services
Shelter Care Home	Community/Social Services
Economic Security Department	Community/Social Services
San Carlos Apache Tribe Recreation & Wildlife	Recreation
San Carlos Recreation & Wildlife	Recreation
Grace Lutheran Church	Place of Worship
American Indian Church	Place of Worship
Freedom Holiness Church	Place of Worship
The Church of Jesus Christ of Latter-day Saints	Place of Worship
Grace Lutheran Church	Place of Worship
Peridot Lutheran Church	Place of Worship
Church of Jesus Christ	Place of Worship
St Charles Convent	Place of Worship

Source: Google Maps

Figure 3-2
Employers



EXISTING SOCIOECONOMIC CONDITIONS

Demographics help to describe the people that use the transportation system, how they change over time, and what their transportation needs might be. Demographic data from the 2013-2017 US Census American Community Survey (ACS) and the 2000 and 2010 Decennial Census will be used for the LRTP.

The Reservation's population increased by 5% between 2010 and 2017 and housing units by 11%. In comparison, the state of Arizona's population has increased by 7%, a slightly higher percentage, and housing by only 3%, a lower percentage, during the same years. Among the places within the Reservation, Peridot has experienced the greatest increases in population (22%) and San Carlos the greatest increase in housing units (20%). Table 3-3 summarizes the population and housing unit growth trends from 2000, 2010, and 2017 for the Reservation as a whole and for the selected communities.

Table 3-3 Population and Housing Trends

Geographic Area	2000	2010	2017	Growth 2010-2017
Population				
San Carlos Reservation	9,385	10,068	10,611	5%
Bylas	-	1,962	1,834	-7%
Cutter	-	74	0	-100%
Peridot	1,266	1,350	1,648	22%
San Carlos	3,716	4,038	4,395	9%
Arizona	5,130,632	6,392,017	6,809,946	7%
Housing Units				
San Carlos Reservation	2,496	2,627	2,764	11%
Bylas	-	491	454	-8%
Cutter	-	21	8	-62%
Peridot	345	362	330	-9%
San Carlos	1,015	998	1,199	20%
Arizona	2,189,189	2,844,526	2,941,894	3%

Source: US Census 2000, 2010, and ACS 2013-2017

Disadvantaged Population Groups

Along with total population and housing unit trends, analyzing population sub-groups also informs the LRTP of users’ needs. Historically underserved populations and populations protected under Title VI of the Civil Rights Act of 1964 are particularly important. Title VI of the Civil Rights Act of 1964 protects people from discrimination based on race, color, and national origin in programs and activities receiving federal financial assistance.

Identifying locations with high concentrations of disadvantaged population groups also informs prioritization decisions. Analyzing the distribution of persons with disabilities, for example, can help transportation decision-makers and planners understand the potential demand for ADA-compliant improvements, transit, or other services. Table 3-4 shows proportions of disadvantaged populations and Figure 3-3 to Figure 3-8 show the distributions of specific populations. By mapping these clusters through geographic analysis, planners can develop strategies to remedy issues such as poor access to jobs, education, and healthcare through transportation improvements. Title VI

Populations are defined as follows:

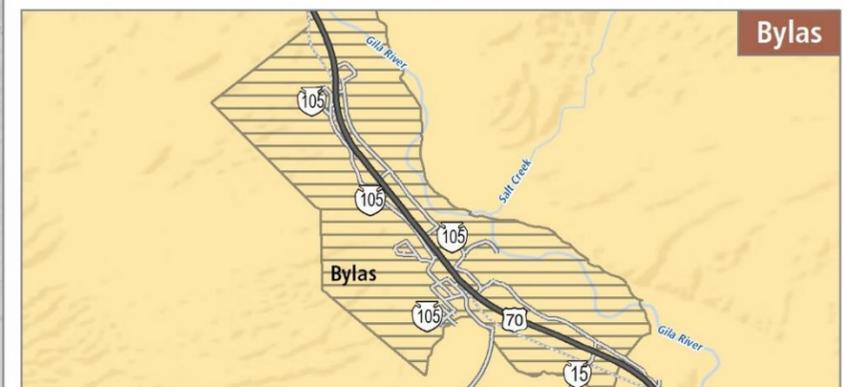
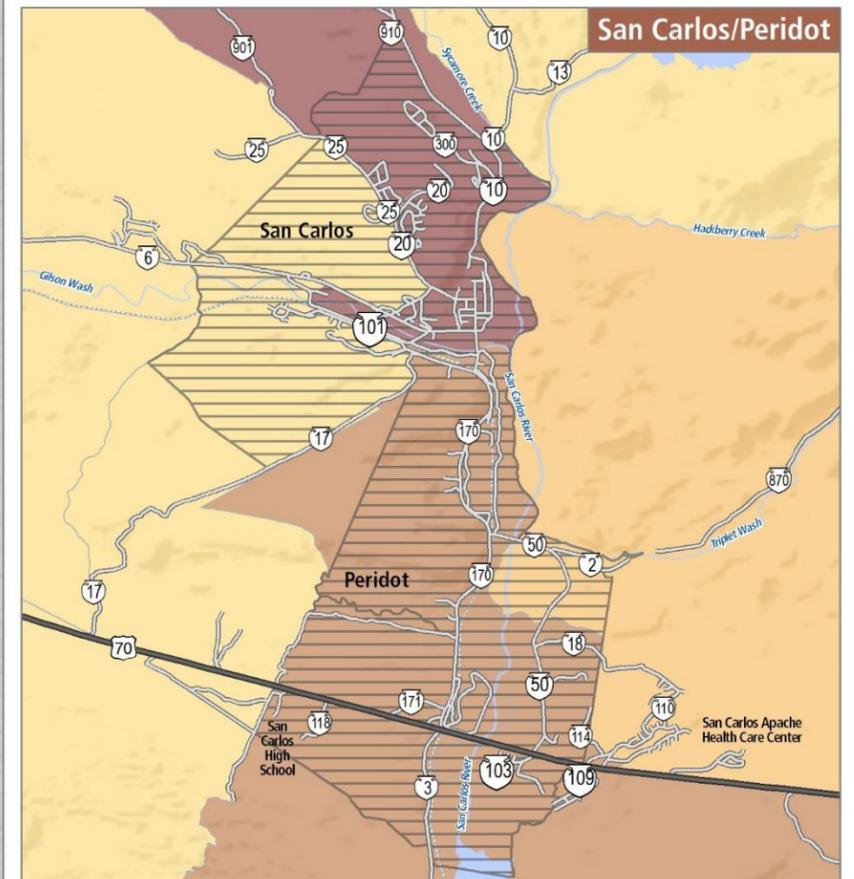
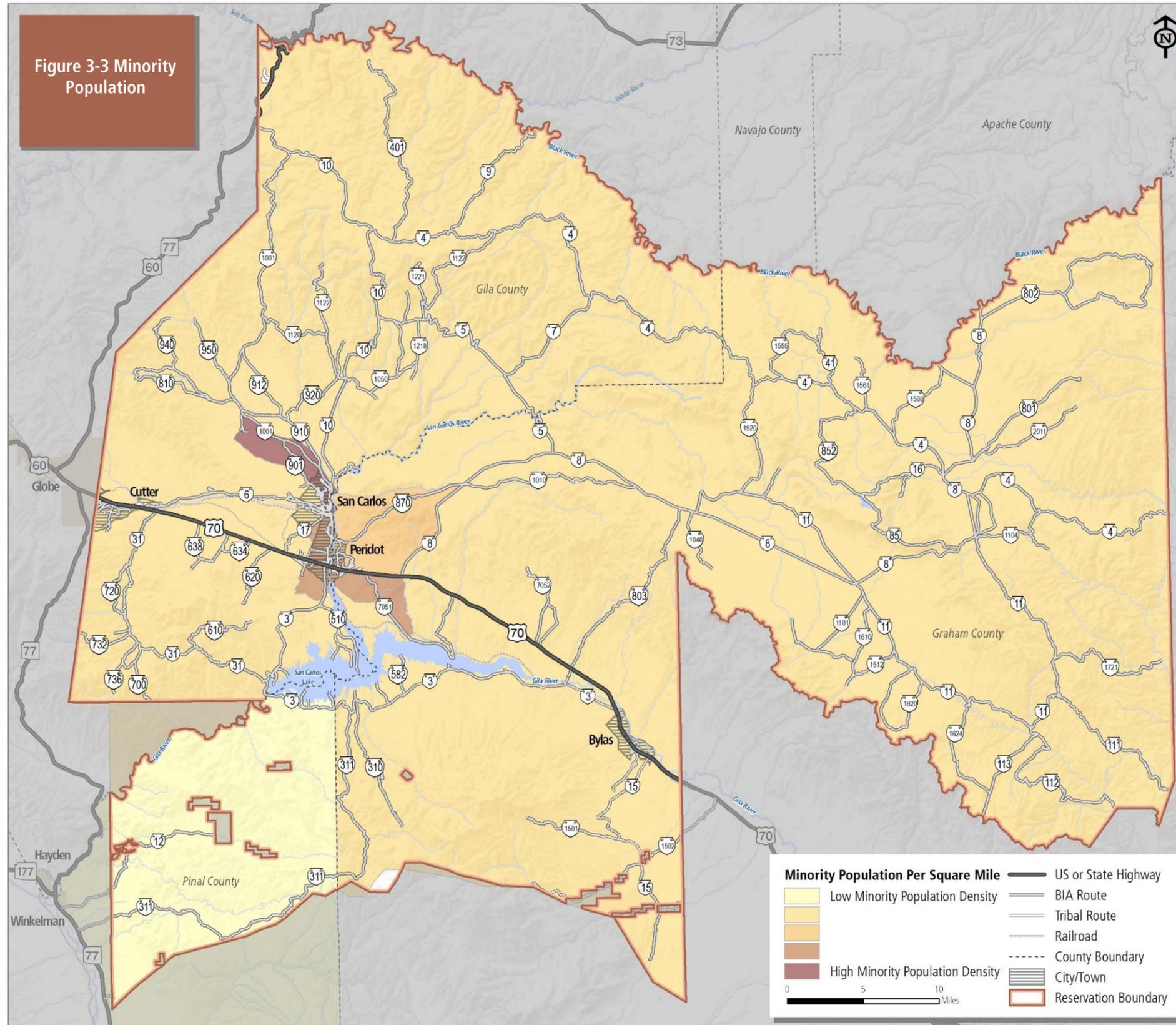
- *Below poverty* populations are people living in households with an income level below thresholds established by the US Census Bureau’s ACS, which vary by family size and composition.
- *Minority* populations include members of the following racial and ethnic groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black or African American, Hispanic or Latino, another race, or two or more races.
- *Populations with disabilities* are civilian, noninstitutionalized persons who have disabilities (such as sensory, physical, self-care, and/or employment disabilities). This protected population group often has difficulty operating automobiles and may require access to public transportation.
- A person with *limited English proficiency* is described as a person aged five and over who does not speak English as a primary language and has a limited ability to read, write, speak, and understand English.

Table 3-4 Disadvantaged Population Groups

Geography	San Carlos Reservation	Arizona
Total Population	10,611	6,809,946
Minority	98.9%	44.4%
Below Poverty	45.6%	17.0%
No Vehicle	22.9%	6.5%
65 and Older	7.0%	16.2%
Disability	13.4%	12.8%
Limited English Proficiency	25.7%	33.1%

Source: ACS 2013-2017

Figure 3-3 Minority Population



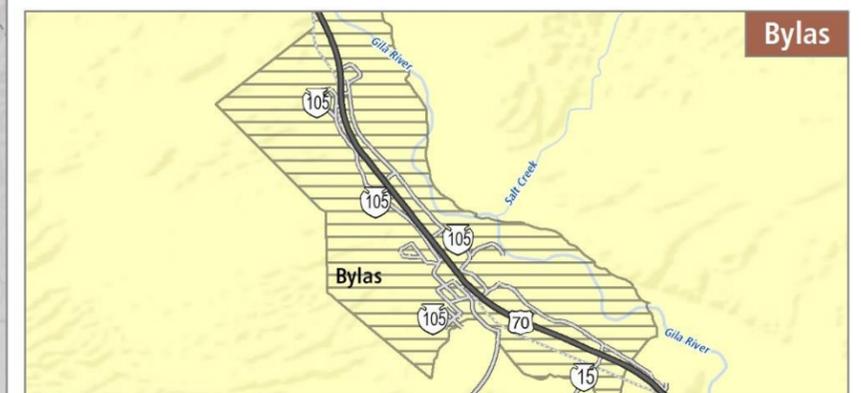
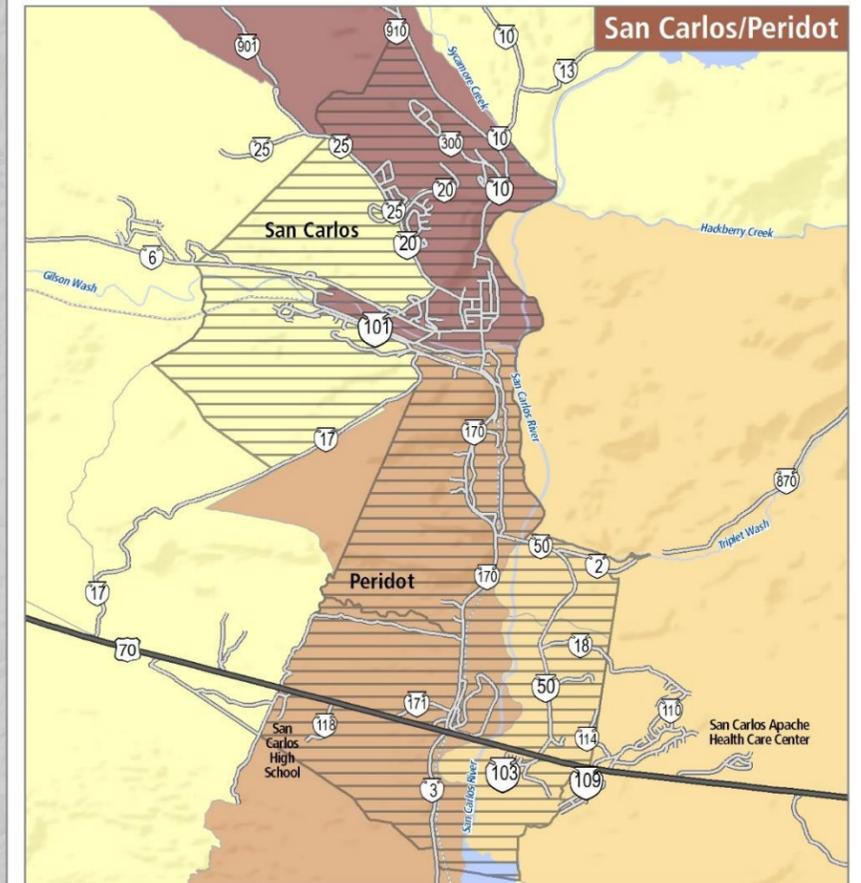
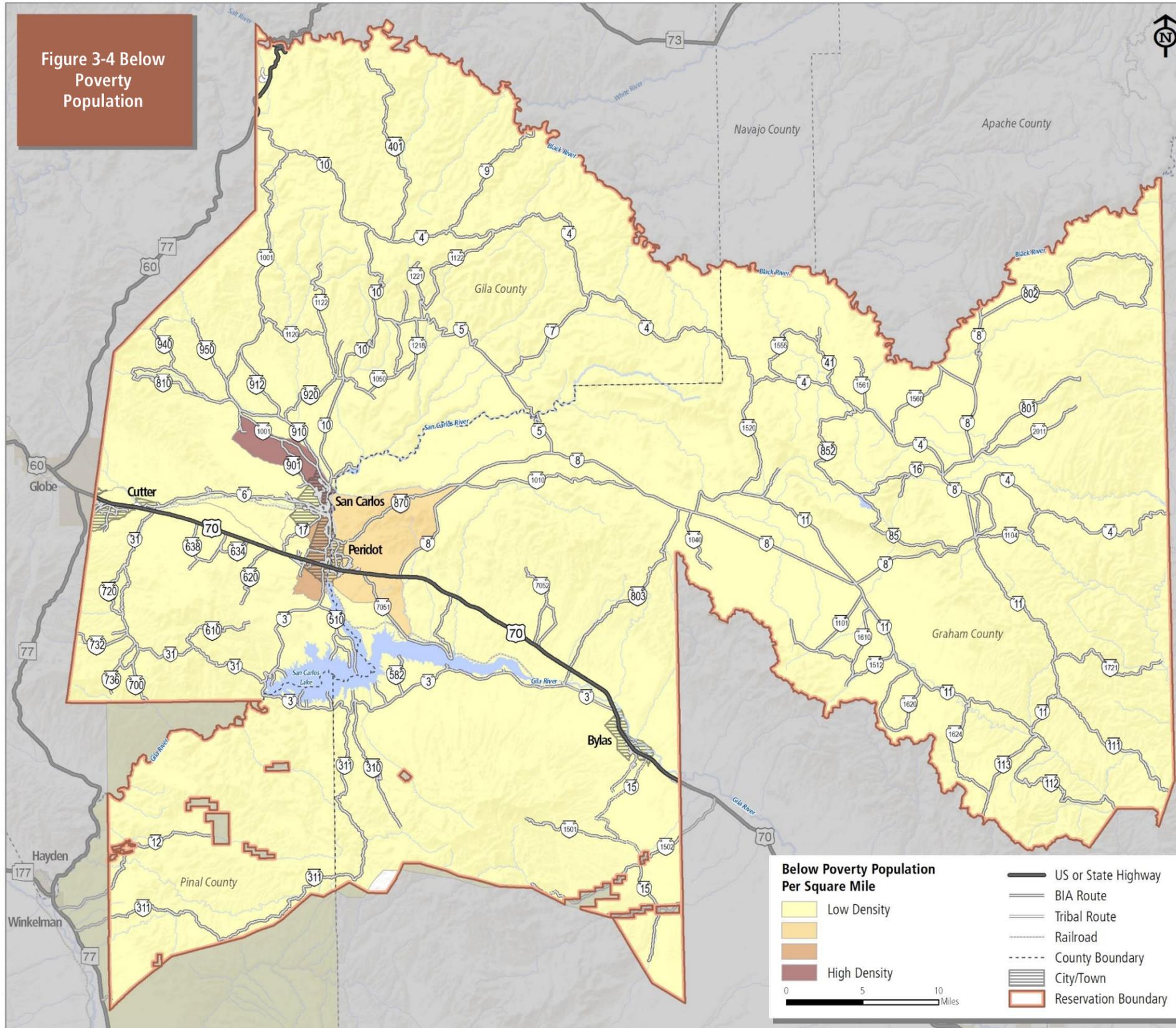


Figure 3-5 No-Vehicle Households

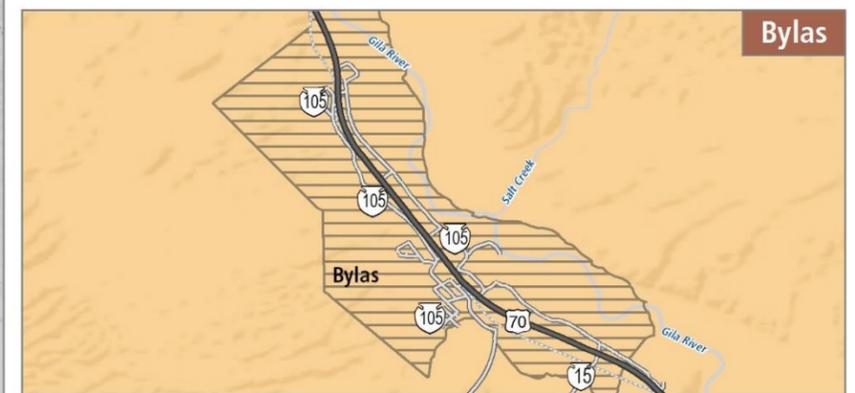
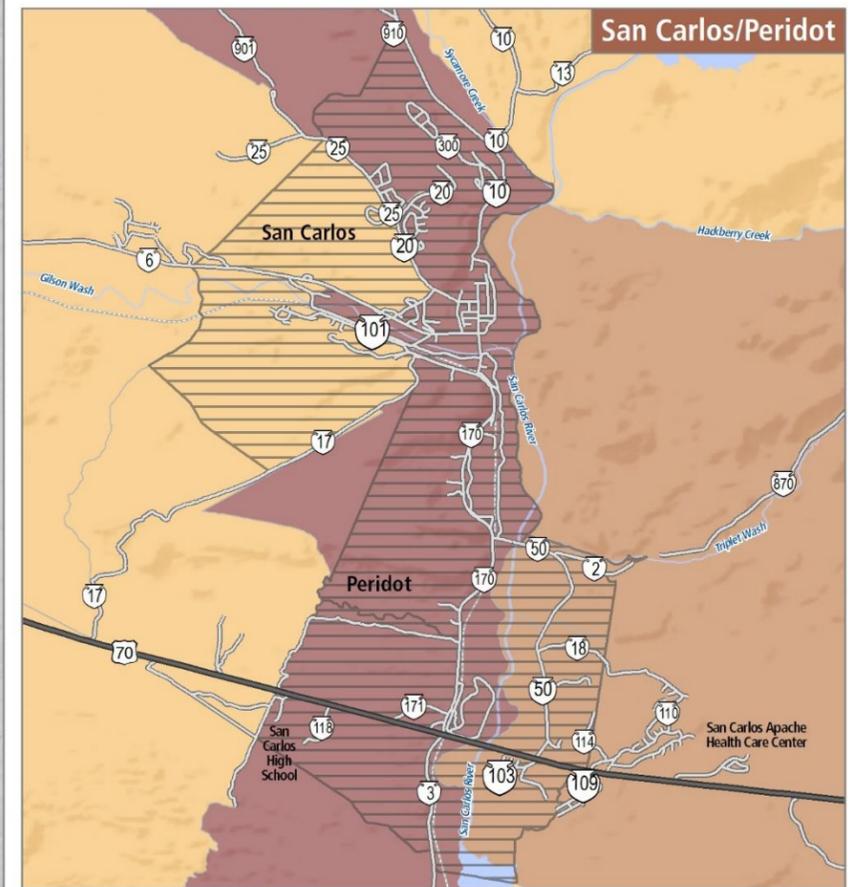
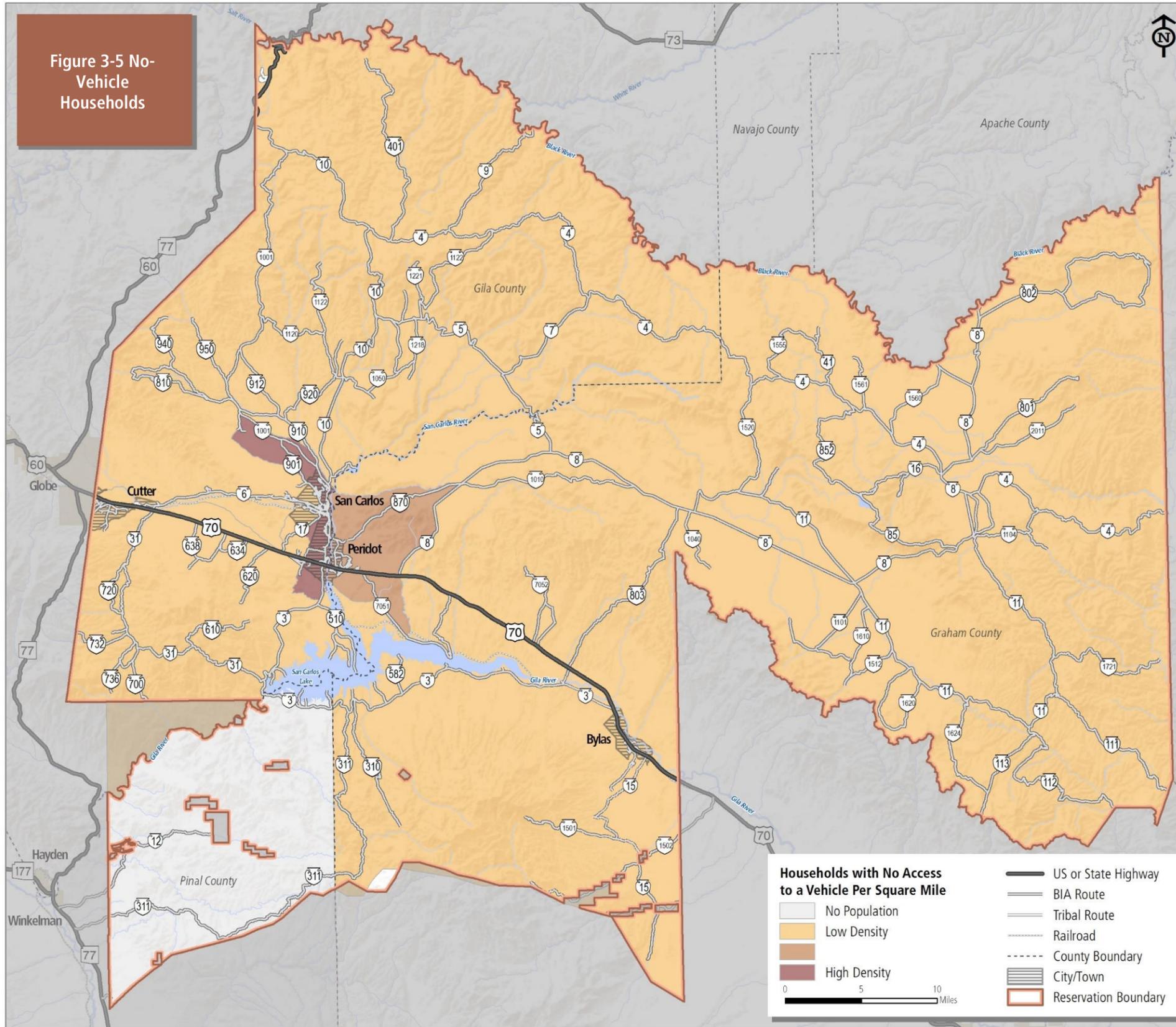


Figure 3-6 Adults 65 and Older

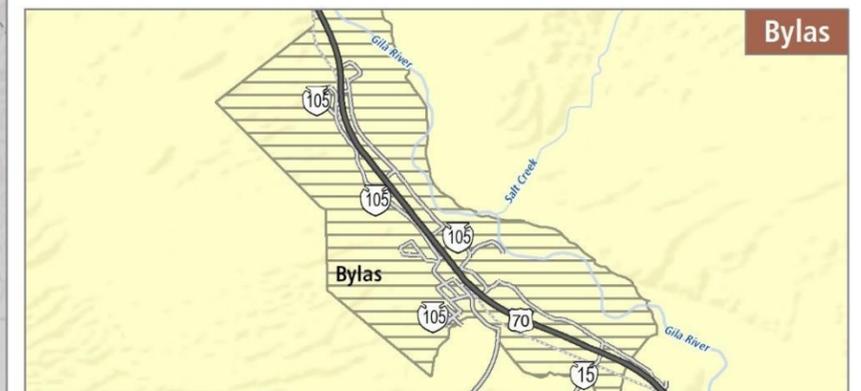
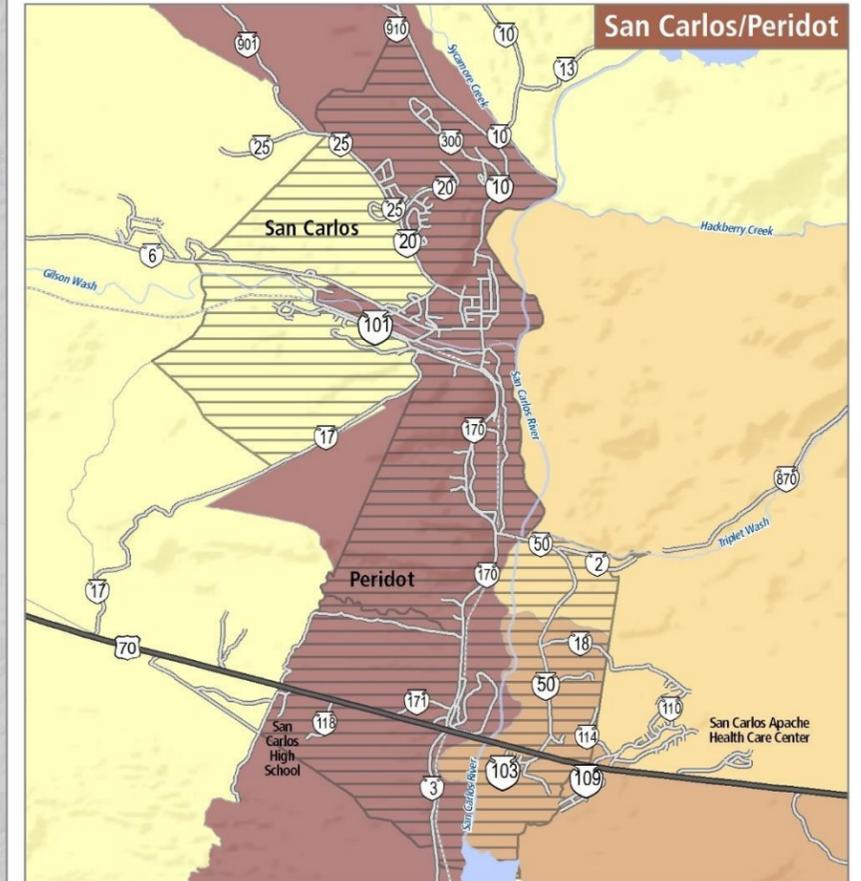
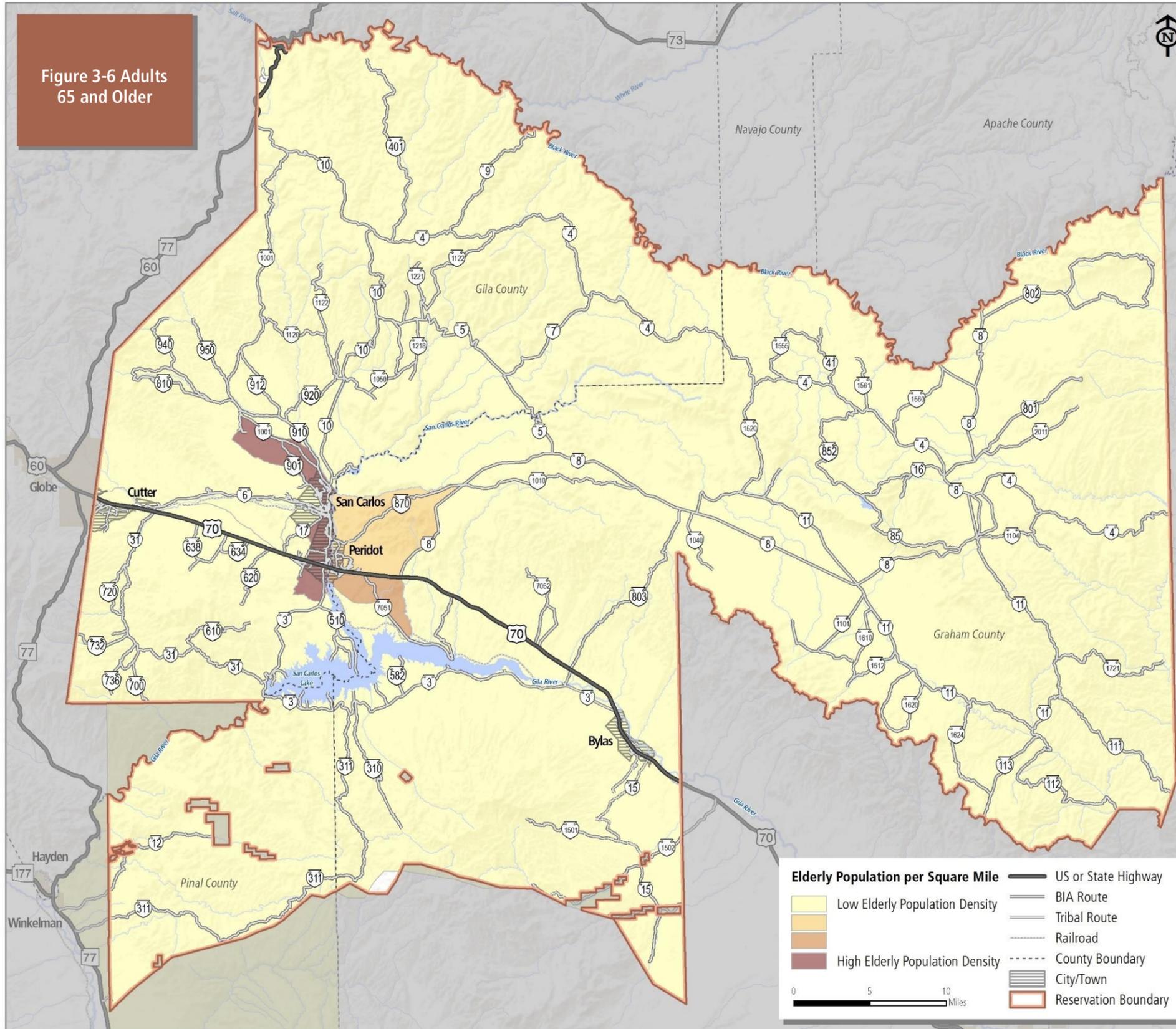
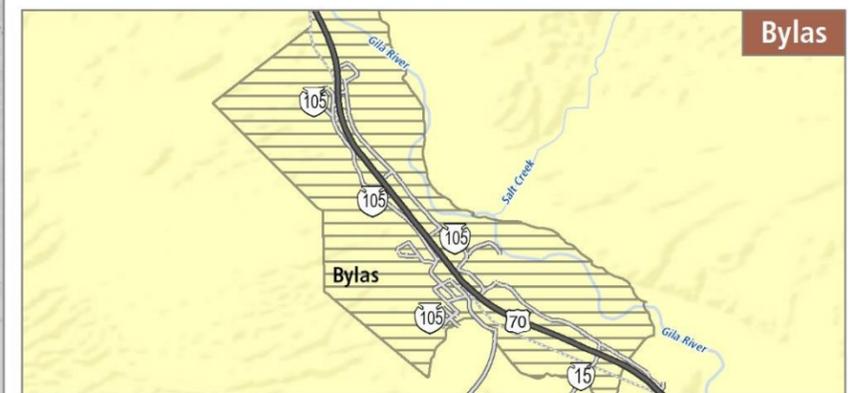
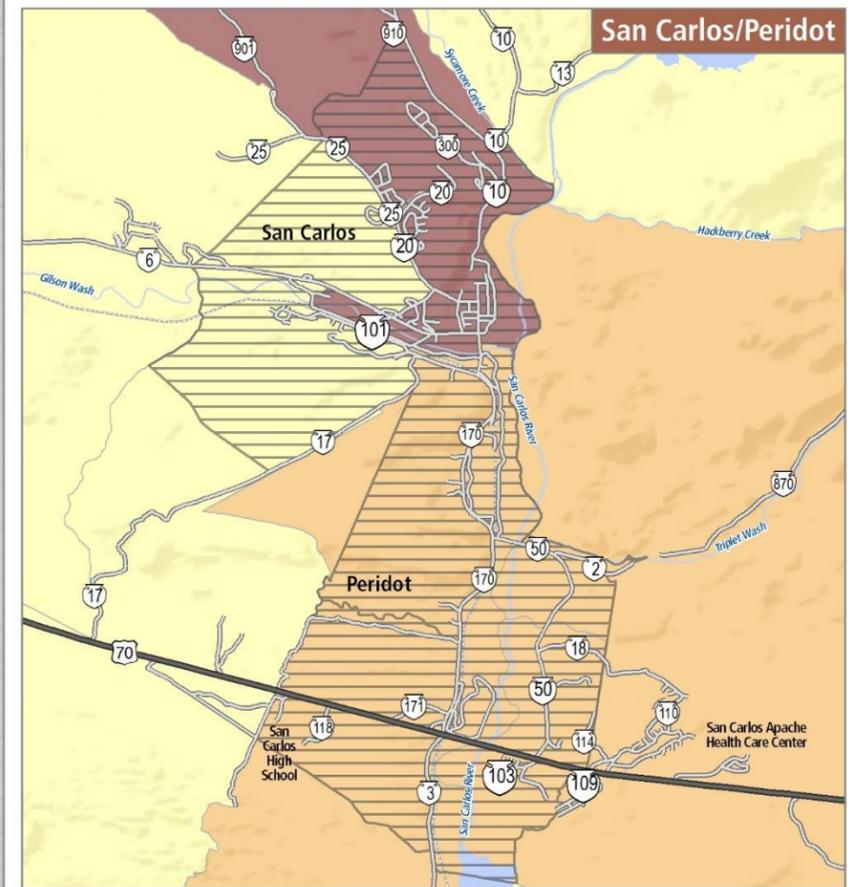
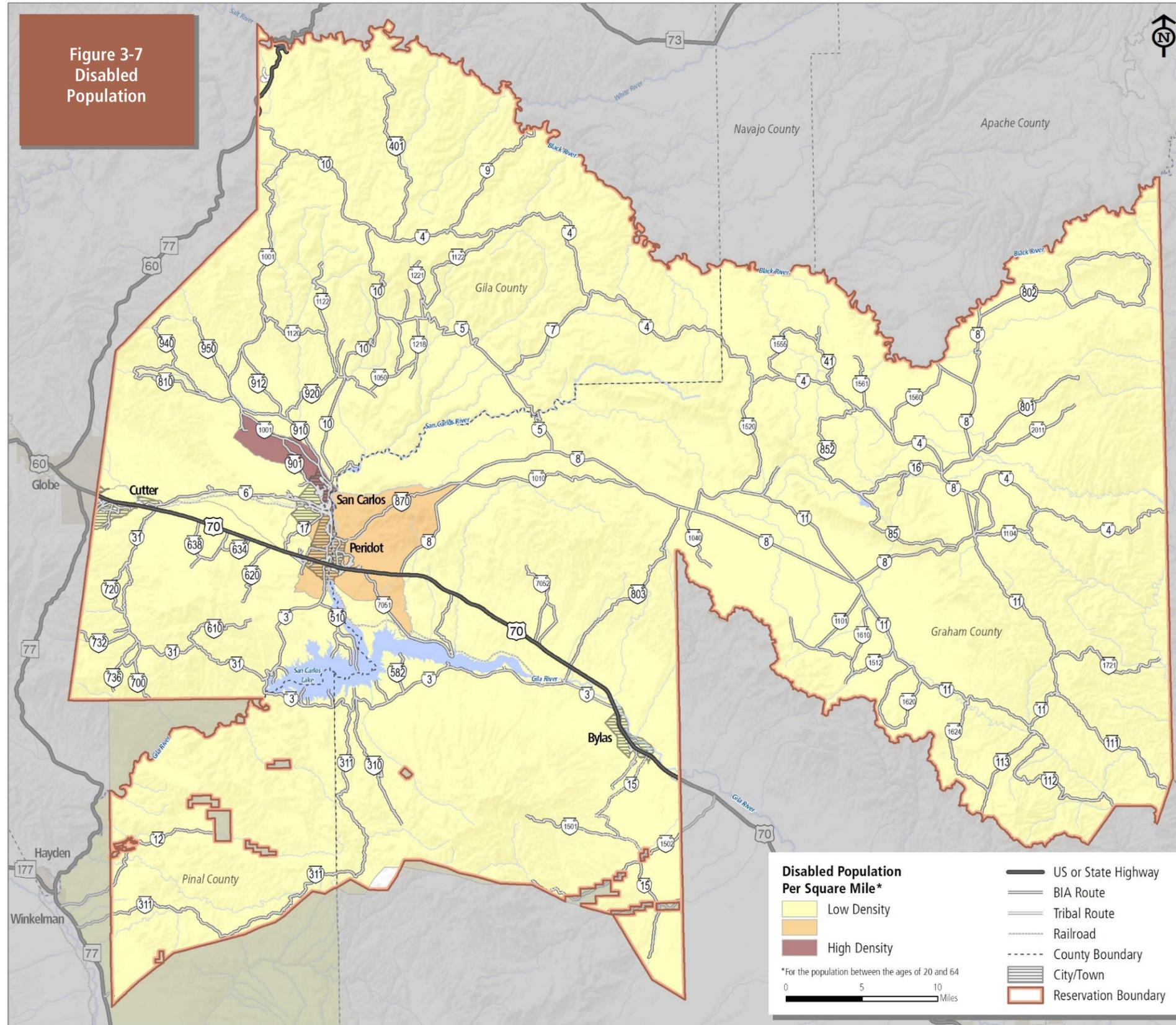
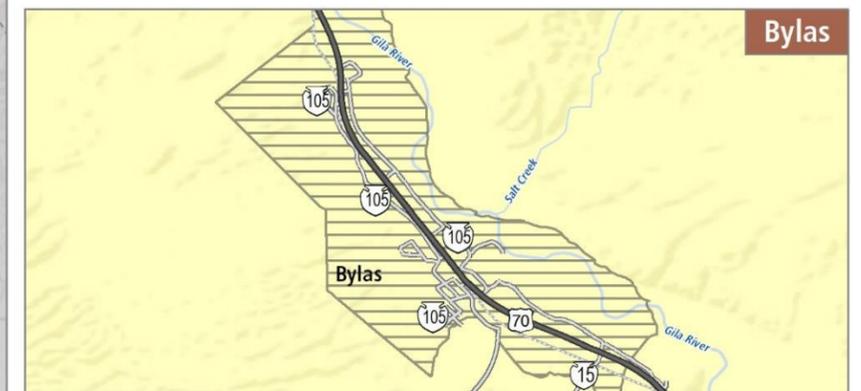
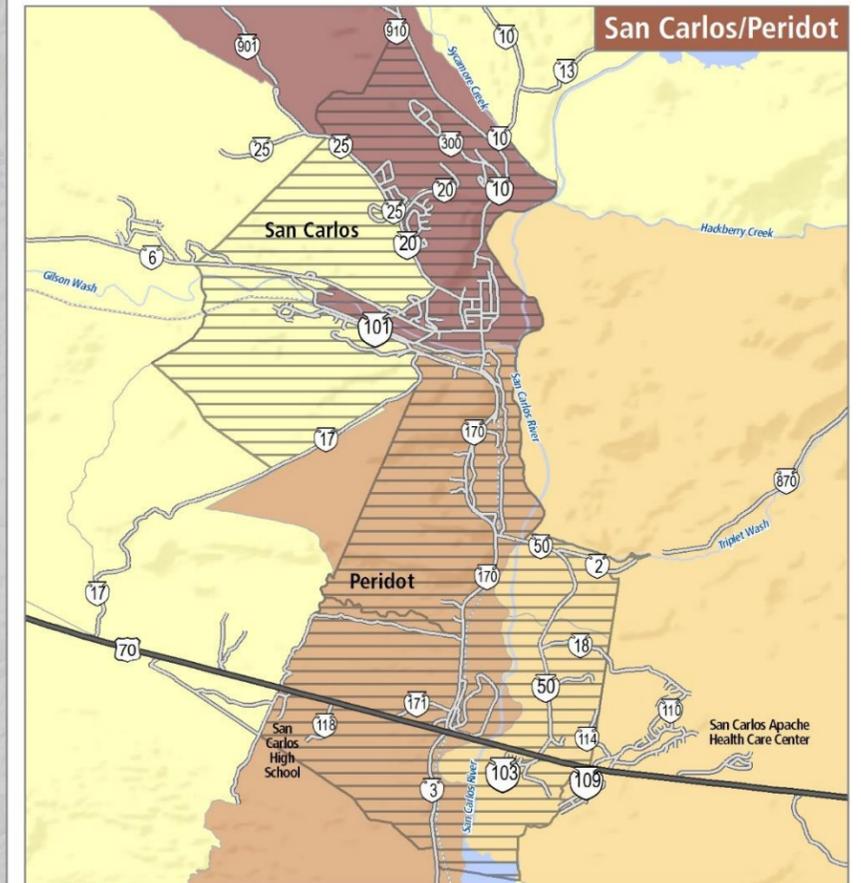
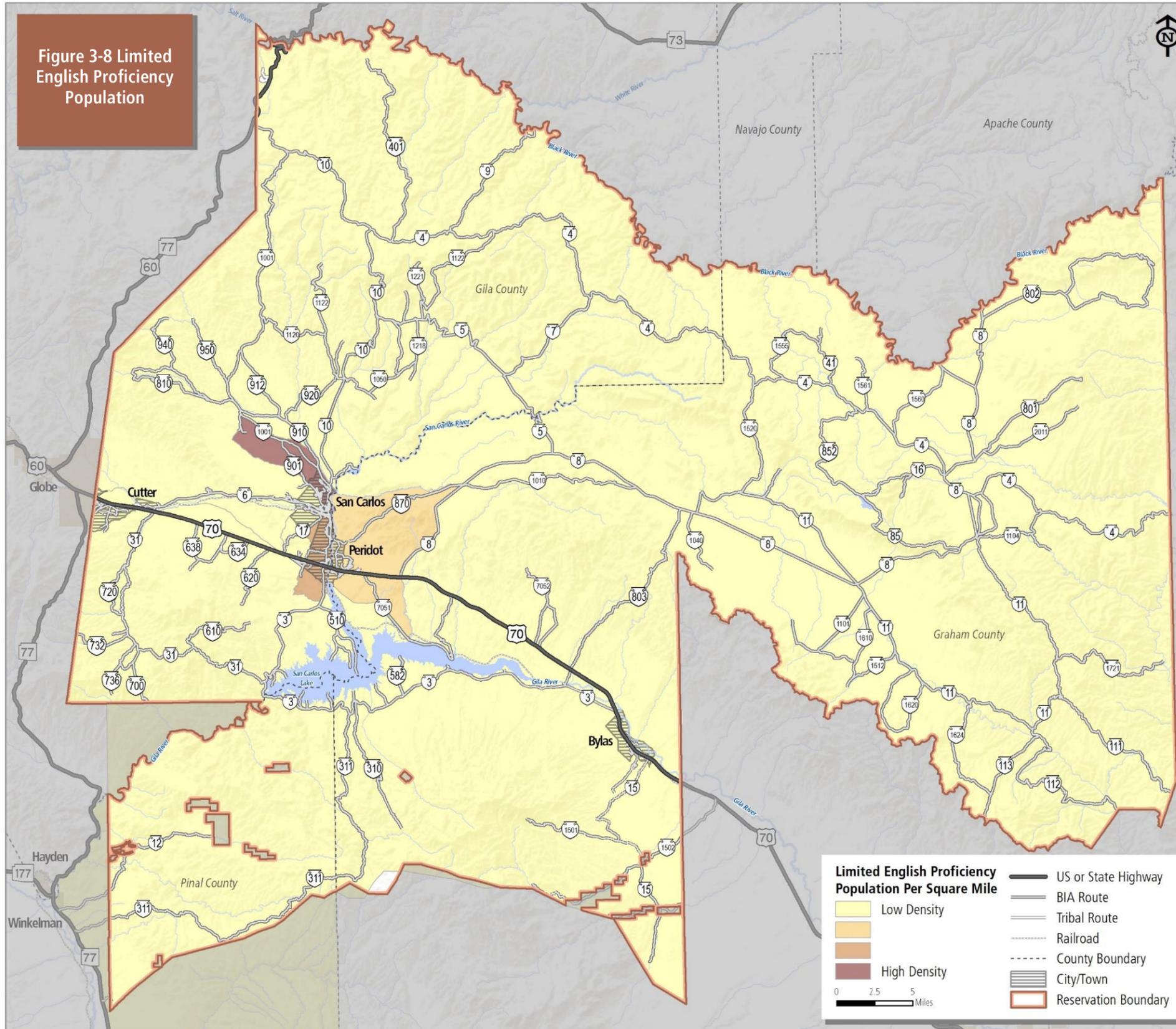


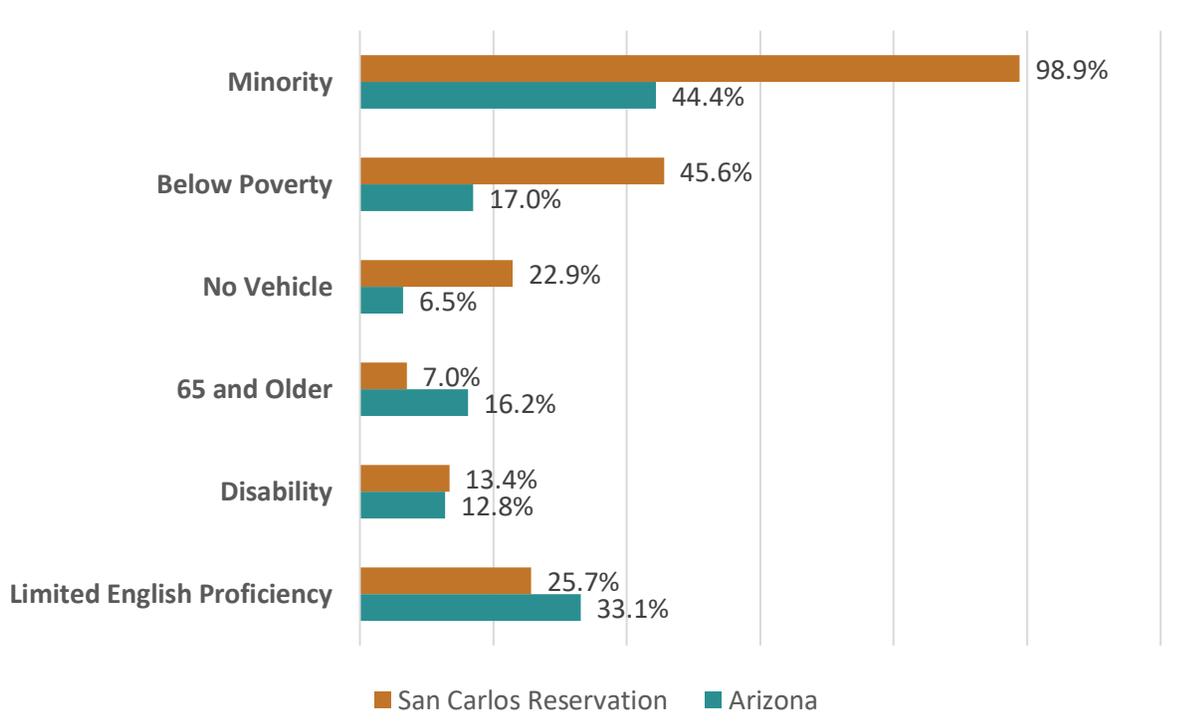
Figure 3-7
Disabled
Population





Minority, below poverty, and disability populations, and no-vehicle households exist in higher proportions on the Reservation than in the state. In contrast, people age 65 and older and limited English proficiency populations exist in higher proportions in the state (Figure 3-9). L RTP recommendations will consider these demographics and provide recommendations that fit the needs of the Reservation.

Figure 3-9 Disadvantaged Population Groups



Source: ACS 2013-2017

FUTURE SOCIOECONOMIC CONDITIONS

A successful transportation plan needs to anticipate future travel demand to accommodate increasing populations and changing travel patterns. This study forecasts future socioeconomic conditions for the years 2025, 2030, and 2040 to help planners, stakeholders, and the public envision realistic solutions to transportation issues.

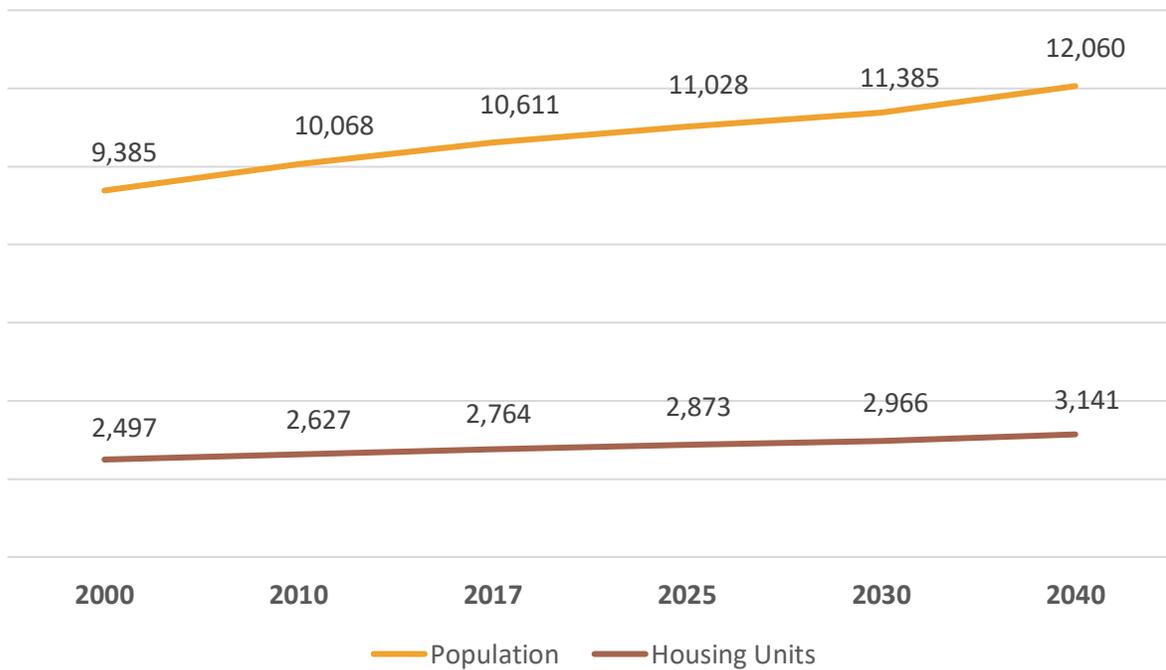
Table 3-5 Population and Housing Projections

	Estimates			Projections		
	2000	2010	2017	2025	2030	2040
Population	9,385	10,068	10,611	11,028	11,385	12,060
Housing Units	2,497	2,627	2,764	2,873	2,966	3,141
Occupied	2,207	2,320	2,332	2,424	2,502	2,650

Source: US Census 2000, 2010, ACS 2013-2017, OEO

As described in the previous section, socioeconomic data for the years 2000, 2010, and 2017 were obtained from the 2000 and 2010 Decennial Censuses and the 2017 American Community Survey. Population projections for future years were obtained from the State of Arizona’s Office of Economic Opportunity (OEO), which combines various forecast models and regional and local governmental input to create reasonable population estimates for future years. The OEO projections align closely with a linear trend line calculated using population estimates from 1990, 2000, 2010, and 2017. Housing projections were calculated by applying the 2017 population-to-housing unit ratio for total and occupied housing units. Table 3-5 shows the estimated population and housing projections for the future horizon years and Figure 3-10 shows the trends.

Figure 3-10 Current and Future Population Trends



It is important to note that the San Carlos Apache Tribe’s Tribal Enrollment Department maintains a population database for the total enrolled population of the Tribe. As of December 12, 2017, the Tribe’s total enrolled population was 16,576. Because this figure includes members of the Tribe who do not currently reside on the Reservation and, therefore, will not significantly impact existing or future traffic volumes or congestion, it will not be used in population projections and analysis in this study. Instead, future population estimates have been calculated using information from the Census and the Office of Economic Opportunity, which offer a more realistic view of the number of people served by the Reservation’s transportation network.

Chapter 4 / ROADWAY SYSTEM CONDITIONS

This section provides an inventory of the existing major transportation system and documents the status/condition of each transportation element, including bridges, pavement condition, crashes, traffic conditions, roadway performance, and other modes of transportation in the study area.

TRIBAL TRANSPORTATION PROGRAM

Jointly administered by the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA) and Bureau of Indian Affairs (BIA), the Tribal Transportation Program (TTP), formerly known as the Indian Reservation Roads (IRR) program, helps to provide safe and adequate transportation and public road access to and within Indian Reservations, Indian lands, and Alaska Native Village communities. The 2019 FHWA Tribal Transportation Program Delivery Guide notes that under the Fixing America's Transportation Act (FAST Act) (P.L. 114-94), federal agencies must work together through government-to-government relationships to carry out the TTP.

The National Tribal Transportation Facility Inventory (NTTFI), which replaces the IRR inventory under the TTP, is a comprehensive national inventory of tribal transportation facilities that are eligible for assistance under the TTP. To obtain proper funding, it is imperative that the NTTFI accurately reflects the conditions of the tribal roadways. A comprehensive roadway inventory was conducted to update the Reservation's NTTFI, which was last updated in 2009.

ROADWAY INVENTORY

A roadway inventory program was developed to identify roadway conditions on major roadways for the update of the NTTFI. The roadway inventory included conducting a windshield survey and video-logging roadway segments to capture the following key items:

- Road identification: length, class, location, road purpose
- Roadway conditions: number of lanes, width, surface conditions, shoulders
- Drainage: bridge locations and drainage conditions
- Alignment conditions
- Safety hazards

EXISTING ROADWAY SYSTEM

The San Carlos Apache Reservation has a total of approximately 1,1130.4 miles of roadway, of which BIA maintains 1,040 miles, ADOT maintains 86 miles and the Tribe maintains 4.4 miles. There

are also additional roads maintained by Tribal Forestry. US 70, US 60, BIA 170, BIA 6, and BIA 8 are the major roads in the area, but account for only a small portion of the total mileage. The majority (80%) of the roads in the study area are unpaved. Table 4-1 summarizes the mileage on the San Carlos Apache Reservation.

Table 4-1 Mileage Summary

Jurisdiction	Paved Miles	Unpaved Miles	Total Miles
ADOT	86	0	86
BIA	152.7	887.3	1040
San Carlos Apache Tribe	3.4	1.04	4.4
Total Miles	242.1	888.3	1130.4

Major Roads

US Highway 70

US Highway 70 is an ADOT owned two-lane paved roadway through the study area. Its starting terminus is at Globe and ending terminus is at the Arizona/New Mexico state border line. The highway connects three major communities in the area – Cutter, Peridot, and Bylas. This roadway has recently undergone significant improvements in Bylas.

US Highway 60

The US Highway 60 is a 2-lane, paved, state-owned highway that intersects a small section of the northwest corner of the Reservation.

BIA 170

BIA 170 is a two-lane paved facility that connects the two largest communities in the Reservation – Peridot and San Carlos.

BIA 6

BIA 6 connects Cutter and San Carlos. It is a paved two-lane roadway with recent improvements approaching San Carlos Avenue.

BIA 8

BIA 8 is a two-lane roadway that has a starting terminus at US 70 (near Peridot), traverses to Point of Pines Lake, and heads north towards Fort Apache Indian Reservation. The road is paved from US 70 to Point of Pines Lake. The remainder of the route is unpaved leading to the Black River.

Functional Classification and Lanes

Functional Classification is the grouping of roads, streets, and highways in a hierarchy based on the type of service they provide. Roads, streets and highways are part of an interconnected network, and each one performs a service in moving traffic throughout the system. Two separate functional classification definitions exist for major roadways throughout the study area - one developed by the Federal Highway Administration (FHWA) and one developed by BIA.

FHWA Functional Classification

Federal functional classification is assigned to all public roads using federal guidelines approved by FHWA. Although Tribal governments primarily receive funding through BIA, only roads federally classified as minor collector or above are eligible to receive federal funding. Table 4-2 provides an overview of each FHWA-approved classification within rural areas, and Figure 4-1 displays the FHWA functional classification for major roads in the area.

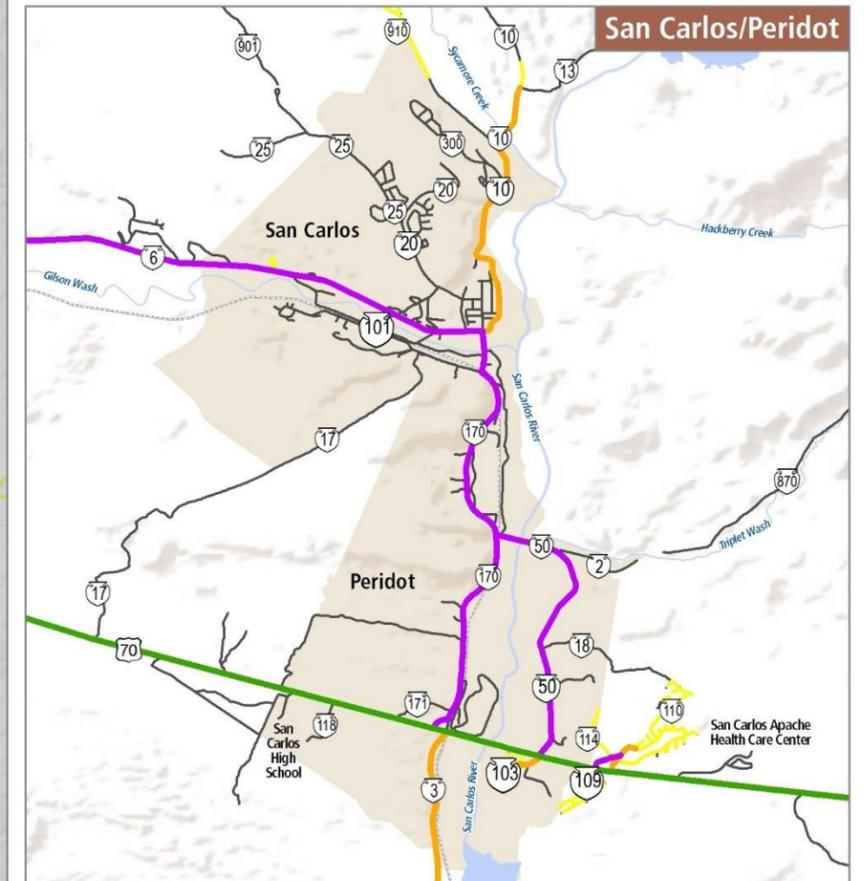
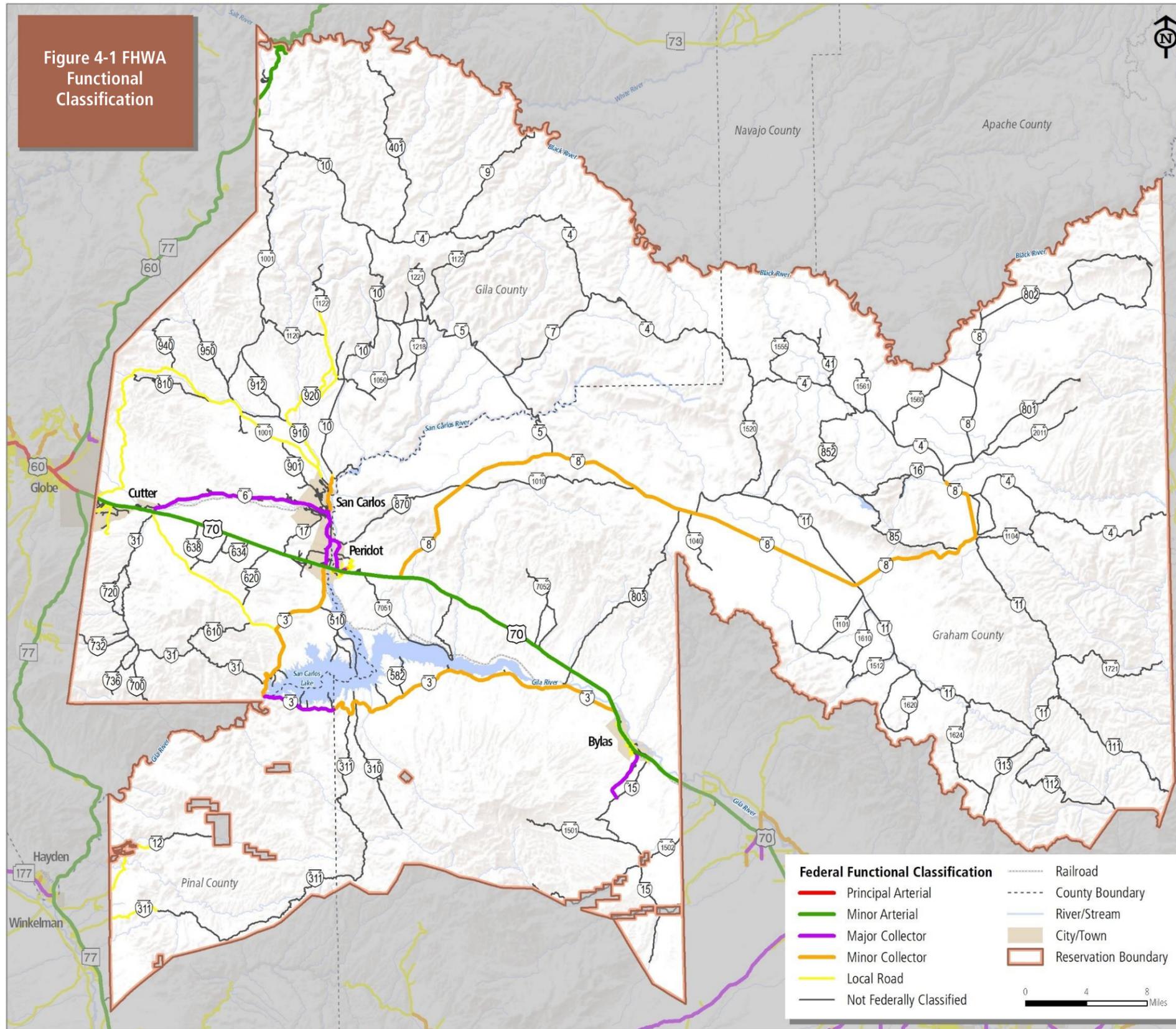
Table 4-2 FHWA Functional Classification

Classification	FHWA Definition
Principal Arterial	Serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel. They serve and connect most areas with populations of 25,000 or more and provide an integrated network of continuous routes without stub connections.
Minor Arterial	Link cities and larger towns and form an integrated network providing interstate and inter-county service. Are spaced at appropriate intervals to allow for a reasonable distance from developed areas. They have relatively high travel speeds and minimum interference to through movements.
Major Collector	Primarily serve intra-county rather than statewide travel, by linking county seats, larger towns, and other traffic generators to nearby towns and cities or higher classified routes.
Minor Collector	Provide access for population and traffic from local roads to major collectors. Typically serve smaller communities and link local, traffic generators.
Local Roads	Provide access to land next to the collector network and several travelers over short distances.

FHWA classifications for the Reservation's major roads are as follows:

- US 70: Minor Arterial
- US 60: Minor Arterial
- BIA 170: Major Collector
- BIA 6: Major Collector
- BIA 8: Minor Collector

Figure 4-1 FHWA Functional Classification



BIA Functional Classification

Roadway functional classification data was obtained from the existing BIA NTTFI roadway inventory. Table 4-3 lists the BIA functional classification types and definitions.

Table 4-3 BIA Functional Classification Definition

Class	Description
1 / Major Arterial	Provide an integrated network with characteristics for serving traffic between large population centers, generally without stub connections and having average daily traffic volumes of 10,000 vehicles per day or more with more than two lanes of traffic.
2 / Rural Minor Arterial	Provide an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Generally, provide for at least inter-county or inter-state service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.
3 / Streets	Located within communities serving residential areas.
4 / Rural Major Collector	Collector to Rural Local roads (Class = 5).
5 / Rural Local	Either a section line and/or stub type road, make connections within the grid of the system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.
6 / City Minor Arterial	Located within communities and serve as access to major arterials.
7 / City Collector	Located within communities and serve as collectors to the city local streets.
8	Non-road projects such as paths, trails, walkways, or other designated types of routes for public use by foot traffic, bicycles, trail bikes, snowmobiles, all-terrain vehicles, or other uses to provide for the general access of non-vehicular traffic.
9	Other transportation facilities such as public parking facilities adjacent to TTP routes and scenic byways, rest areas, and other scenic pullouts, ferry boat terminals, and transit terminals.
10	Airstrips that are within the boundaries of the TTP system grid and are open to the public. These airstrips are included for inventory and maintenance purposes only.
11	An overlapping or previously inventoried section or sections of a route and is used to indicate that it is not to be used for accumulating needs data. This class is used for reporting and identification purposes only.

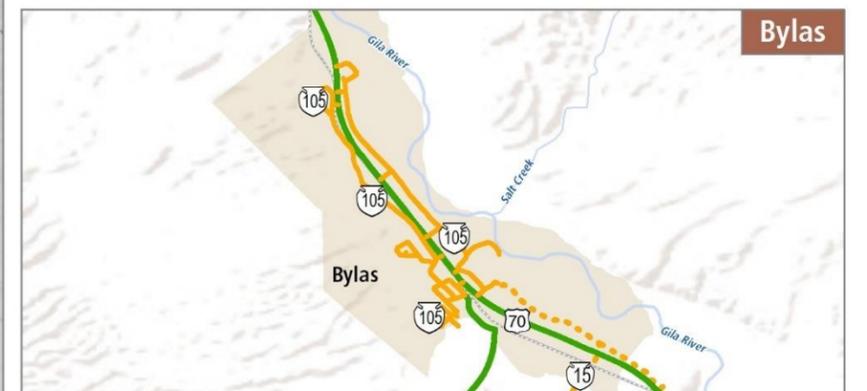
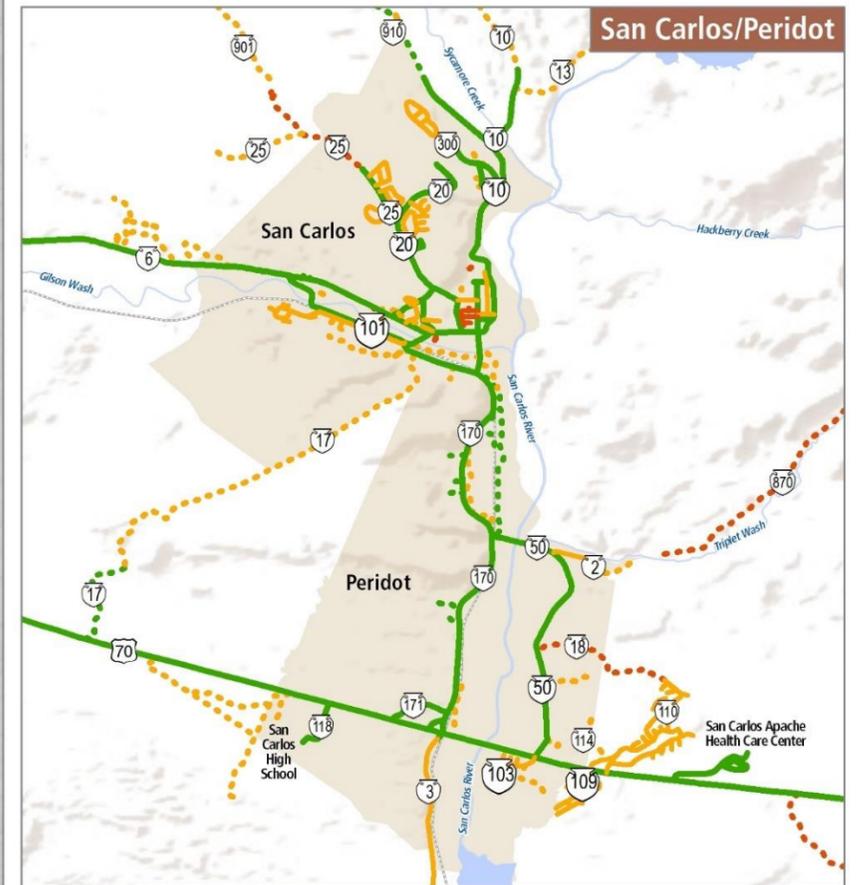
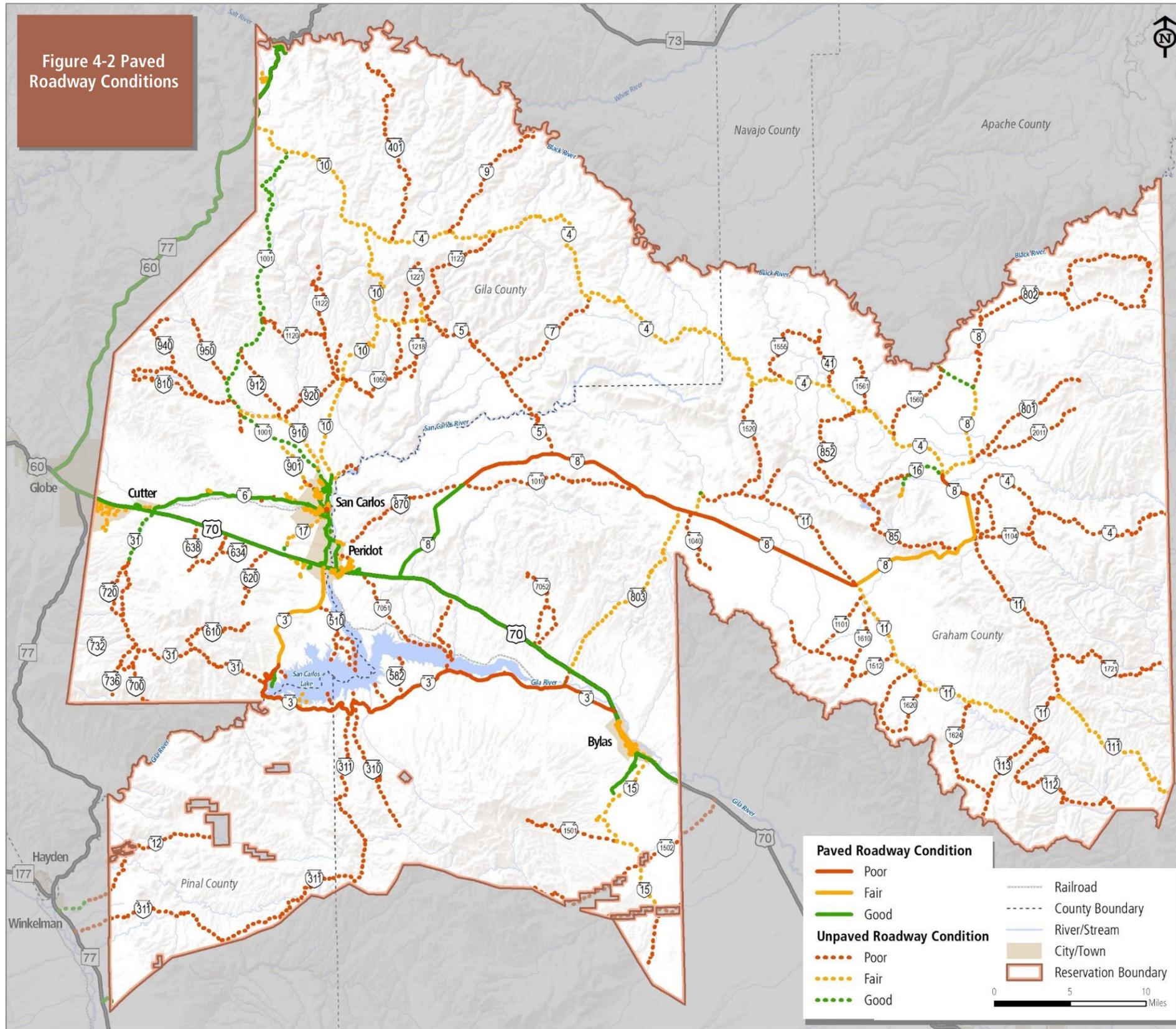
Pavement Type and Condition

Most roads in the Reservation are unpaved (80%). The pavement condition rating of US 70 and US 60 was provided by ADOT and all other roads were visually assessed during the inventory based on BIA standards. Figure 4-2 shows the surface type across roads in the area (unpaved and paved). and illustrates the condition of roads as good, fair and poor. For example, portions of BIA 3 from Bylas to Coolidge Dam have critically poor pavement conditions. BIA 8 also has a poor pavement rating near BIA 5. Table 4-4 shows definitions were used to assess the road condition.

Table 4-4 Surface Type

Condition	Paved	Unpaved
Good	Like new pavement with few defects as perceived by field reviewers, no signs of cracking and pavement deterioration, no maintenance is required as cracks are barely visible or well-sealed, liquid asphalt is barely noticeable.	Road surface is smooth and not damaged by water, there are no depressions or upheavals and drainage is in good condition, no maintenance is required. Dust is not severe and does not obstruct visibility. Corrugations, ruts, and potholes are not deep or are smooth. Wet conditions cause road to be muddy but do not cause a loss of steering.
Fair	Slight rutting, and/or cracking, and/or roughness that became noticeable by field reviewers. Cracking in different directions is more than ¼ in wide. The road may also be bumpy from corrugations but not enough to reduce vehicle speed and may have some pavement raveling.	The surface may be bowl shaped or may have water present on the surface. Soil particles may be found on the road surface and the vehicle may experience bumps due to corrugation, ruts, and potholes. Dust produces a moderately thick cloud which partially obstructs visibility. There are drainage issues and the road becomes muddy and requires vehicle speed reduction during wet conditions.
Poor	Multiple cracks, and/or potholes, and/or roughness, and/or bleeding are apparent on roadway. Cracks in different directions are preventing easy steering of the vehicle. Roadway may be uncomfortable to vehicle occupants and drivers may need to correct or avoid road defects. Corrugated ripples cause vehicle to reduce speed and rutting prevents easy steering of the vehicle. Previous fixes on the road are deteriorated and require maintenance.	Large amounts or evidence of water and/or severe surface depressions or upheavals. Water damage has washed away surface material leaving sharp rocks. Loose dirt creates severe dust that obstructs visibility and causes traffic to slow down or stop. Corrugations, ruts, and potholes may be large and deep and cause vehicle handling issues. Drainage is poor, and wet conditions may make the road hazardous or impassable.

Figure 4-2 Paved Roadway Conditions



Shoulders

Lack of shoulders or poorly designed and/or maintained shoulders are serious safety concerns. Most roads on the Reservation do not have shoulders. Figure 4-3 shows the shoulder availability along roads and their condition for the entire study area.

Bridges & Culverts

The San Carlos Apache Reservation has three major rivers that traverse through the area, in addition to several major and minor washes. As a result, several bridges and culverts are in service throughout the Reservation. Newer culverts with rock and wire supported structures present on BIA 4 and additional routes off BIA 8 seem to be working properly and are in good condition. Bridge condition data was provided by ADOT for bridges under State Highways and BIA for bridges under local roads and BIA roads. Five bridges are eligible for replacement along BIA 3. A total of eleven structures are eligible for rehabilitation; nine of which lie along BIA 3, and the remaining two along ADOT US 70. Figure 4-4 provides the location and condition of each bridge in the study area.

Number of Lanes

Data regarding the number of lanes on each major study roadway was collected during the inventory. Most study road are two lanes, except the following:

- State Route 77: portions of this route alter between two and three lane lanes
- State Route 70: small section leading up to US HWY 60 expands to 4 lanes; two in each direction

Posted Speed Limits

Posted speed limits were identified during the roadway inventory. Speed limits on state route highways range from 55 – 65 mph. Additional prominent routes limit speeds to 35 – 45 mph, while residential areas limit speeds to as low as 10 mph. Figure 4-5 provides an illustration of speed limits throughout the study area.

Street Lighting and Pavement Striping

Adequate representation and placement of lighting and paint striping improves safety along roadway networks. Street lighting is prominent along two stretches of the US 70 through Bylas and Globe. Minimal street lighting can also be found at the intersections of major roadways in Peridot and Cutter along US 70 and within the town of San Carlos along San Carlos Avenue. Although pavement striping is recognizable along roadways, the majority of paved roads require striping improvements for both centerline and shoulder distinction.

Drainage Conditions

Drainage conditions are poor for both paved and unpaved roadways. While many of the paved routes within residential areas are aligned with curbs/gutters, many are filled with debris and

overgrowth due to lack of proper drainage and maintenance. Majority of the unpaved roads flood due to storms or low water crossings.

- BIA 3 – sections near Coolidge Dam are affected by water runoff and debris in the roadway causing safety concerns for travelers.
- Routes along canyons East of Coolidge Dam – heavy drainage and erosion made multiple routes impassable.
- BIA 11/BIA 4 – multiple low water crossings and poor drainage caused large pools of water to settle in the roadway.

Railroad Crossings

The Arizona Eastern Railway (AZER) is a 133-mile-long railroad owned by Genesee & Wyoming that has served the Reservation since 1885. There are 17 AZER railroad crossings along the routes within the Reservation. Twelve of the crossings are signalized, and 7 are equipped with automatic gates. The intersection at Sam’s Crossing and Aravaipa Avenue in San Carlos has recently been updated with flashing lights but may still pose safety concerns without the addition of automatic gates. Table 4-5 and Figure 4-6 offer descriptions and locations of railroad crossings.

- Peridot Siding Rd/BIA 170 Crossing (#742332T): signal and gate improvements were made since the 2009 LRTP.
- Bylas crossings: recent improvements along US 70 included updating railway signals and gates leading into residential areas, including a new crossing on Route 105 (#973428V).

Traffic Control

Traffic control devices ensure orderly and safe traffic flows at intersections and along roadway networks. Stop signs are the primary traffic control device throughout the entirety of the Reservation. Many stop signs are in need replacement due to deterioration, vandalism, or improper placement. Bylas recently installed the first Pedestrian Hybrid Beacon (PHB) in the area; otherwise there are no signalized traffic control devices present.

Table 4-5 Study Area Railroad Crossings

Crossing Number	Route	Railroad	Type of Crossing	Signalized	Pavement Markings	Traffic Control Devices	# of Weekly Trains
742302B	1502	AZER	At Grade	Yes	None	Crossbucks	4
742306D	105	AZER	At Grade	Yes	Stop Lines; Railroad Crossing Symbols	Automatic Gates; Flashing Lights; Crossbucks	4
742309Y	105	AZER	At Grade	Yes	Stop Lines; Railroad Crossing Symbols	Automatic Gates; Flashing Lights; Crossbucks	4
742311A	3	AZER	Underpass	No	None	None	6
742316J	7051	AZER	At Grade	No	None	Crossbucks	4
742318X	7051	AZER	At Grade	No	None	Crossbucks	4
742327W	US 70	AZER	Overpass	No	None	None	6
742328D	1700	AZER	At Grade	Yes	None	Crossbucks	4
742329K	1700	AZER	At Grade	Yes	None	Crossbucks	4
742332T	50	AZER	At Grade	Yes	Railroad Crossing Symbols	Automatic Gates; Flashing Lights; Crossbucks; Stop Sign	4
742334G	102	AZER	At Grade	Yes	None	Crossbucks	4
742335N	170	AZER	At Grade	Yes	Stop Lines; Railroad Crossing Symbols	Automatic Gates; Flashing Lights; Crossbucks	4
742336V	101	AZER	At Grade	Yes	Stop Lines; Railroad Crossing Symbols	Flashing Lights; Crossbucks	4
742339R	6	AZER	At Grade	Yes	Stop Lines; Railroad Crossing Symbols	Automatic Gates; Flashing Lights; Crossbucks	4
742341S	602	AZER	At Grade	No	None	Crossbucks	4
742342Y	200	AZER	At Grade	Yes	Railroad Crossing Symbols	Automatic Gates; Flashing Lights; Crossbucks	4
973428V	105	AZER	At Grade	Yes	Stop Lines; Railroad Crossing Symbols	Automatic Gates; Flashing Lights	6

Source: Federal Railroad Administration Office of Safety Analysis

Figure 4-3
Shoulder
Conditions

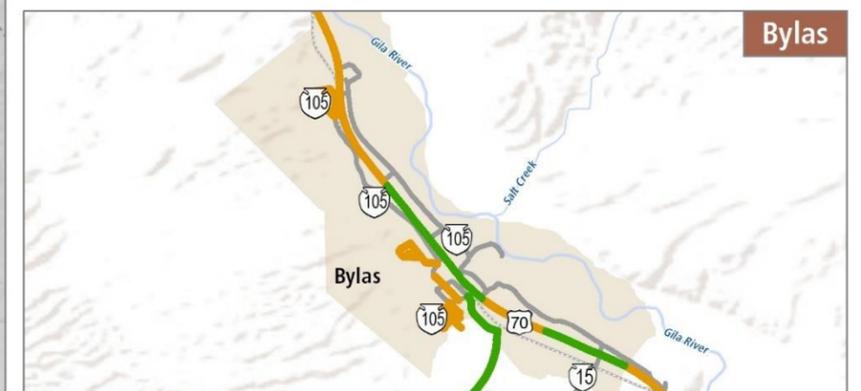
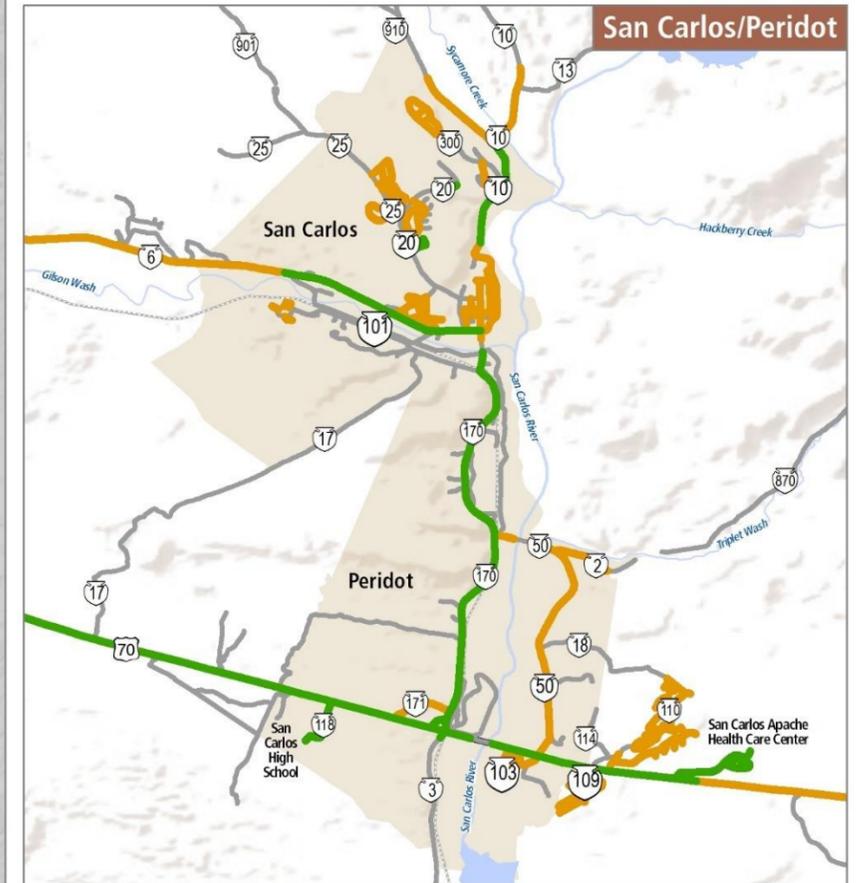
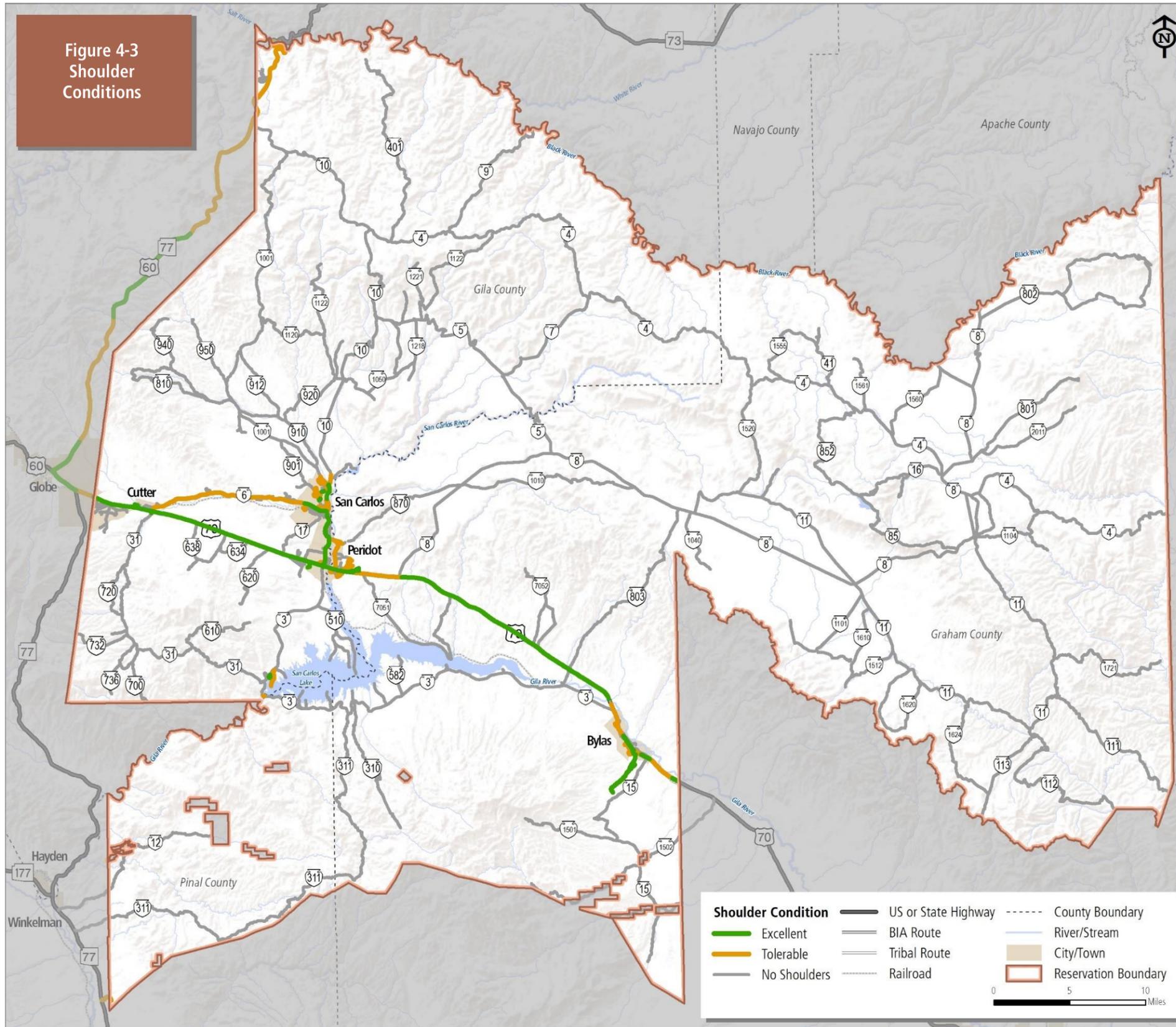
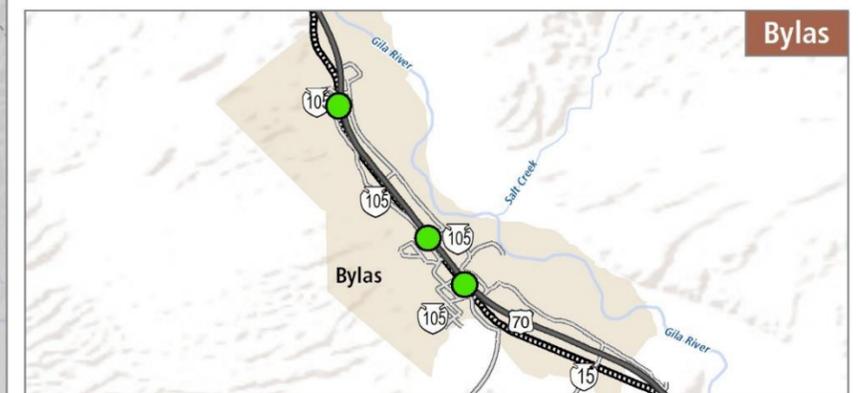
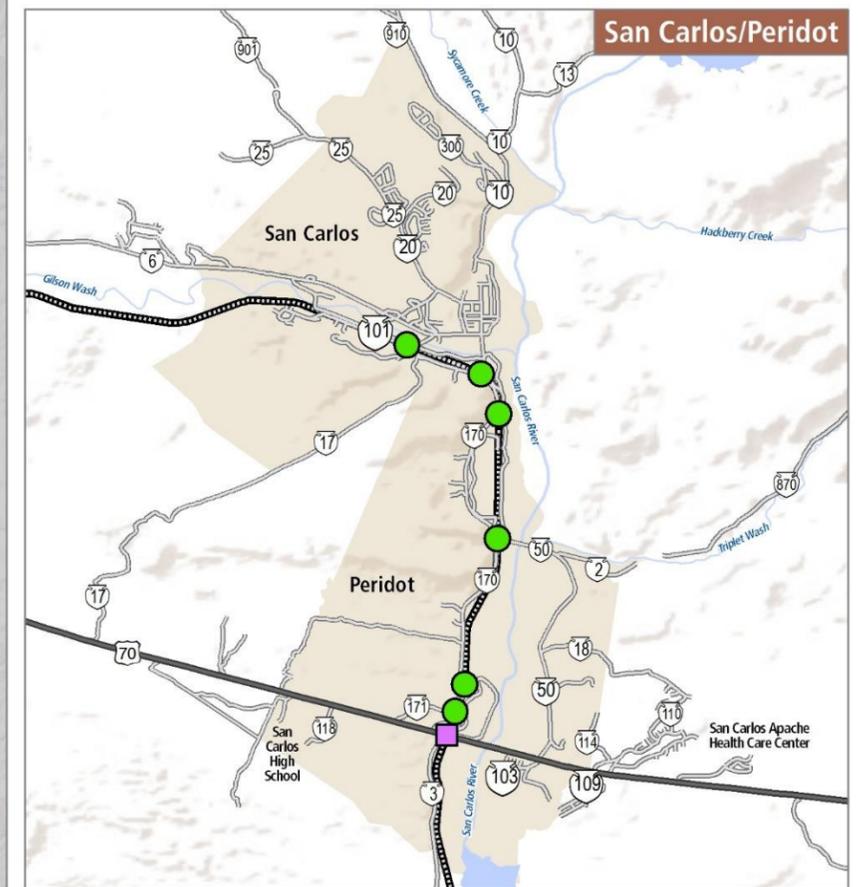
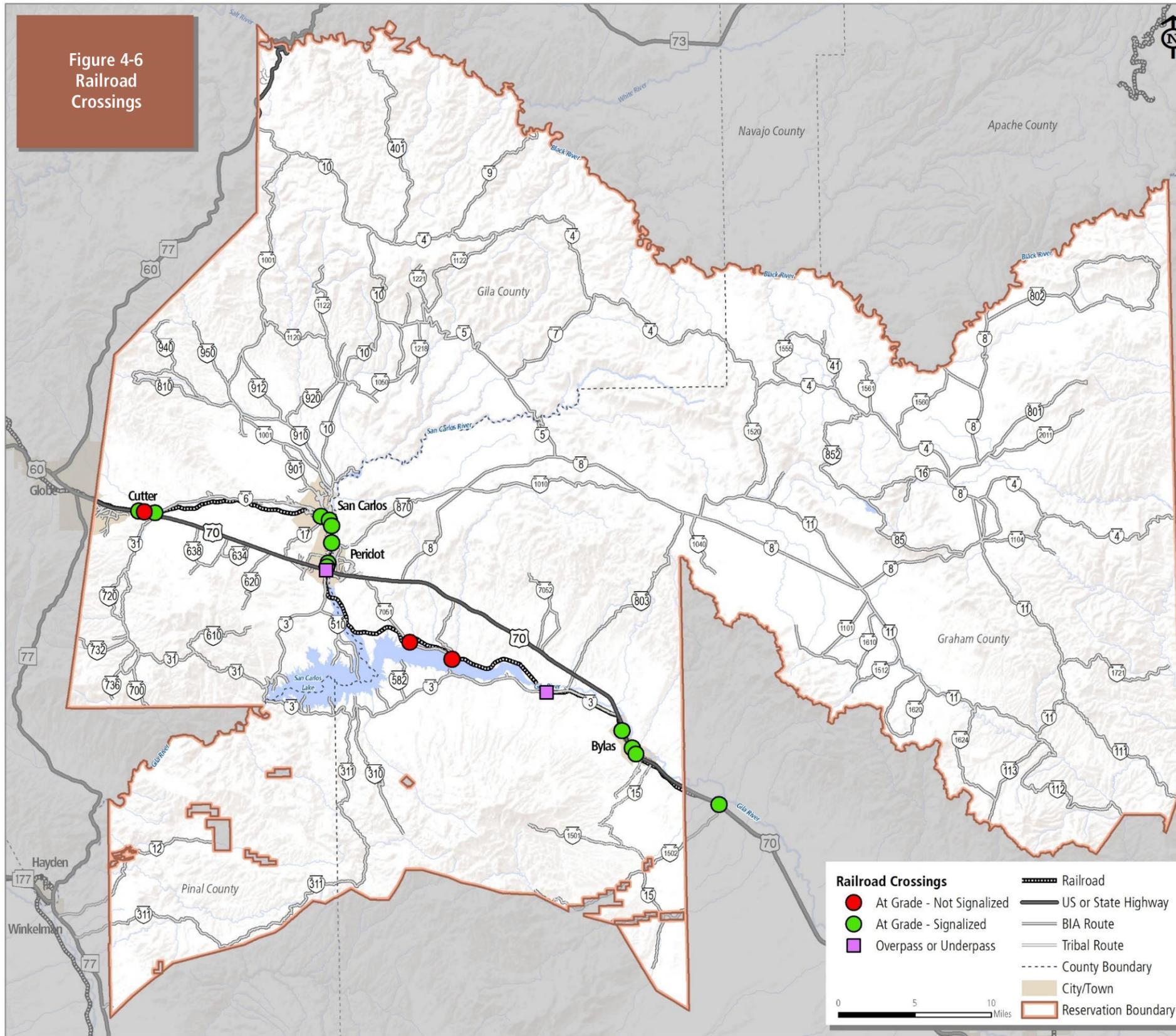


Figure 4-6
Railroad
Crossings



CRASH ANALYSIS

A crash analysis was conducted for the major roadways in the study area to identify high crash locations, trends, and contributing factors. Data for US 70 and US 60 within the Reservation for a five-year period between 2014 to 2018 were obtained from ADOT's Accident Location Identification Surveillance System (ALISS). The data show a total of 167 crashes occurred along US 60 (n=92 or 55%) and US 70 (n=75 or 45%) within the five-year period. Among those crashes, 39 (23%) were fatal and 17 (10%) were suspected to have resulted in serious injury.

Among the 167 crashes and 39 fatalities, 14 (35%) were pedestrian related crashes, 12 (85%) of which were fatal. All pedestrian related crashes occurred on US 70 during non-daylight hours and 71% (28) of all fatalities occurred during non-daylight hours.

Most crashes occurred on US 60 and no crashes were reported as occurring at an intersection. Alcohol was involved in a total of 11 (6.5%) crashes, 4 of which occurred on US 70 near Casino Rd, and 3 of which were pedestrian related and resulted in fatalities.

As shown in Table 4-6, crashes have increased over the years. 2018 shows the highest number of crashes and the highest number of fatalities. Improvements to mitigate the number of crashes, fatalities in general, and pedestrian fatalities will be considered in this LRTP. Figure 4-7 shows highlights of this analysis.

Table 4-6 Crash Severity by Year (2014 – 2018)

Year	No Injury or Possible Injury	Injury	Fatality	Total
2014	17	7	8	32
2015	12	5	10	27
2016	18	10	1	29
2017	16	9	8	33
2018	23	11	12	46
Total	86	42	39	167

Source: Arizona Department of Transportation (ADOT)

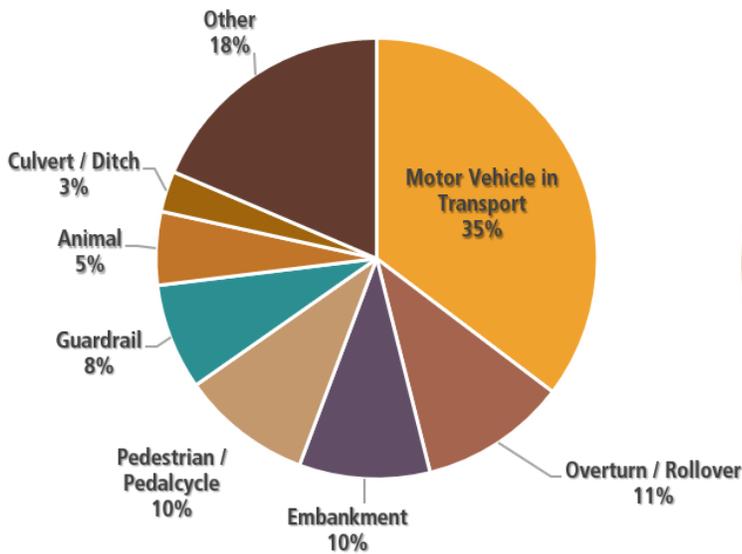
The LRTP will also use crash data from the San Carlos Apache Tribe for non-ADOT roads. SCAT maintains its own crash database, but only limited crash information was available from this database at the time this report was written. According to SCAT's available data, there were a total of 176 crashes on the Reservation over a six-year period between 2013 and 2018. No fatalities were reported.

Figure 4-7 Bridge Conditions

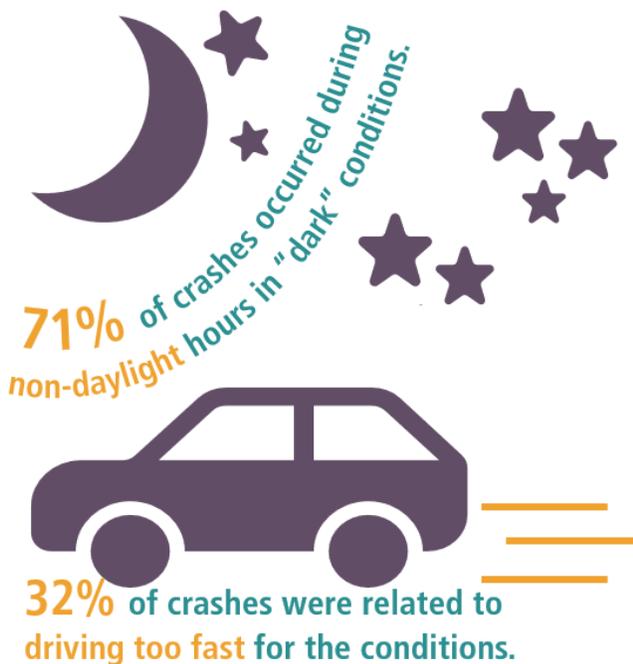
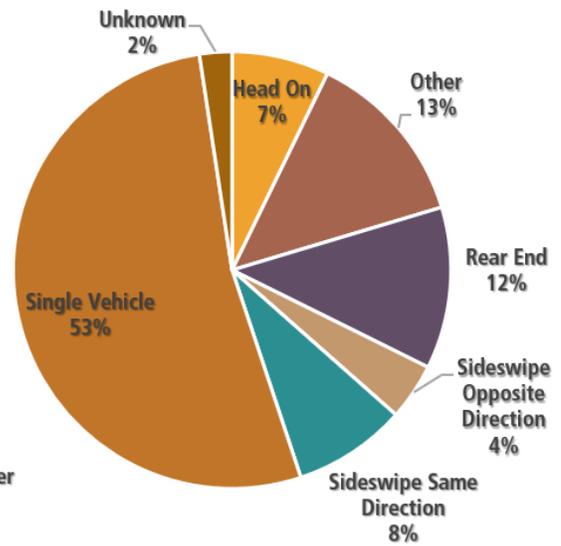
167 crashes occurred along US 60 and US 70 between 2014 – 2018.



Most Common First Harmful Event

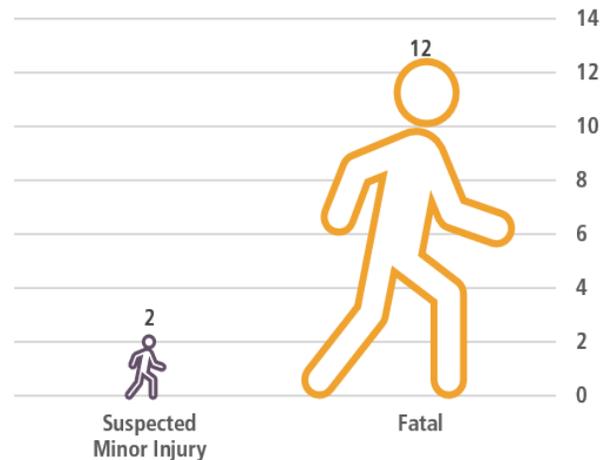


Collision Manner



All pedestrian crashes occurred on US 70, in non-daylight conditions.

A total of **12 (85%)** were fatal.



EXISTING TRAFFIC CONDITIONS

Vehicular turning movement counts were conducted in March 2019. Ten intersections were assessed for the vehicular turning movements as well as pedestrians and bicycles during morning (AM) and afternoon (PM) two-hour peak periods.

Key observations for the turning movement counts:

- All intersections are un-signalized and are currently two-way stop controlled.
- The intersection of US-70 and Peridot Siding Road has the highest amount of peak hour traffic, during both the AM and PM peak hours, within the study area. It has 981 and 1,013 vehicles during the AM and PM peak hours, respectively.
- The intersection of US-70 and Chiricahua Drive has the second highest amount of peak hour traffic, during both the AM and PM peak hours, within the study area. It has 923 and 909 vehicles during the AM and PM peak hours, respectively.
- The intersection of Lower Road and Connector Road has the lowest amount of peak hour traffic, during both the AM and PM peak hours, within the study area. It has 43 and 86 vehicles during the AM and PM peak hour, respectively.
- The intersection of San Carlos Avenue and Tonto Street has the highest amount of pedestrian/bicycle traffic, during both the AM and PM peak hours, within the study area. It has 15 and 12 pedestrians/bicycles crossing during the AM and PM peak hours, respectively.

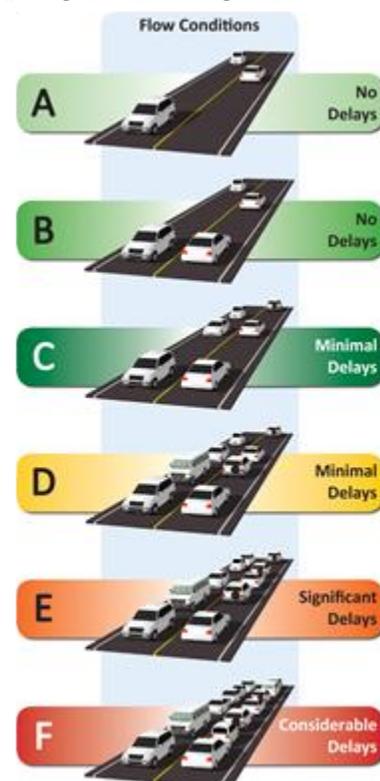
Current Intersection Level of Service

Utilizing the turning movement count data, Level-of-Service (LOS) conditions were determined for all intersections within the study area.

Analysis of the intersection operations was conducted using the nationally accepted methodology set forth in the Transportation Research Board's Highway Capacity Manual, 2010. The computer software Synchro version 10 was used to calculate the level of service for individual movements, approaches, and for each intersection as a whole.

Level of service (LOS) is a qualitative measure of the traffic operations at an intersection or on a roadway segment. It is ranked from LOS A, which signifies little or no congestion, to LOS F, which signifies congestion and traffic jam conditions (see Figure 4-8). At unsignalized intersections, LOS is calculated for those

Figure 4-8 Bridge Conditions



movements that must either stop for or yield to oncoming traffic and is based on average control delay for that particular movement. Control delay is the portion of total delay attributed to traffic control measures such as stop signs or traffic signals. The criteria for LOS at unsignalized intersections are shown in Table 4-7.

Table 4-7 Level of Service Criteria for Unsignalized Intersections

Level-of-Service	Delay
A	≤ 10 seconds per vehicle
B	> 10 and ≤ 15 seconds per vehicle
C	> 15 and ≤ 25 seconds per vehicle
D	> 25 and ≤ 35 seconds per vehicle
E	> 35 and ≤ 50 seconds per vehicle
F	> 50 seconds per vehicle

In addition to turning movement counts, 48-hour tube counts were also conducted in March 2019. Figure 4-9 shows the current Average Daily Traffic (ADT) for the major roadways. Figure 4-10 displays the current lane configuration and traffic control type at each intersection and the turn movement volumes. Figure 4-11 displays the overall intersection LOS, and the LOS at each turn movement for each leg/approach for each intersection.

Based on existing traffic counts, all intersection approaches and overall intersection perform at LOS C or better during both peak hours, except the intersection of US 70 & Chiricahua Drive which operates at LOS D during both peak hours.

Figure 4-9
Average Daily
Traffic on
Major Roads

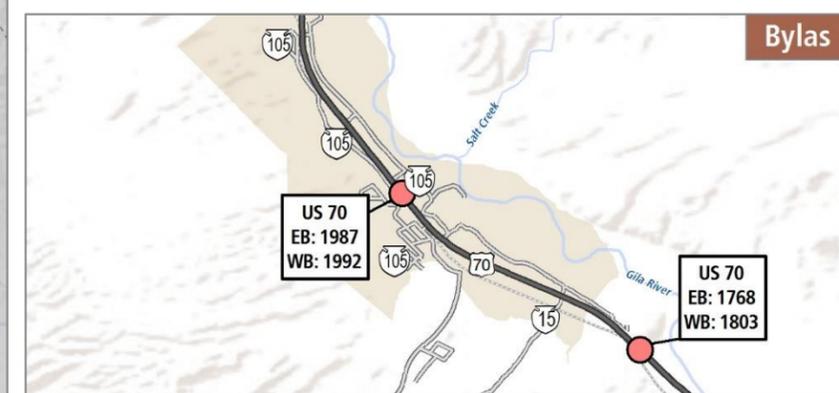
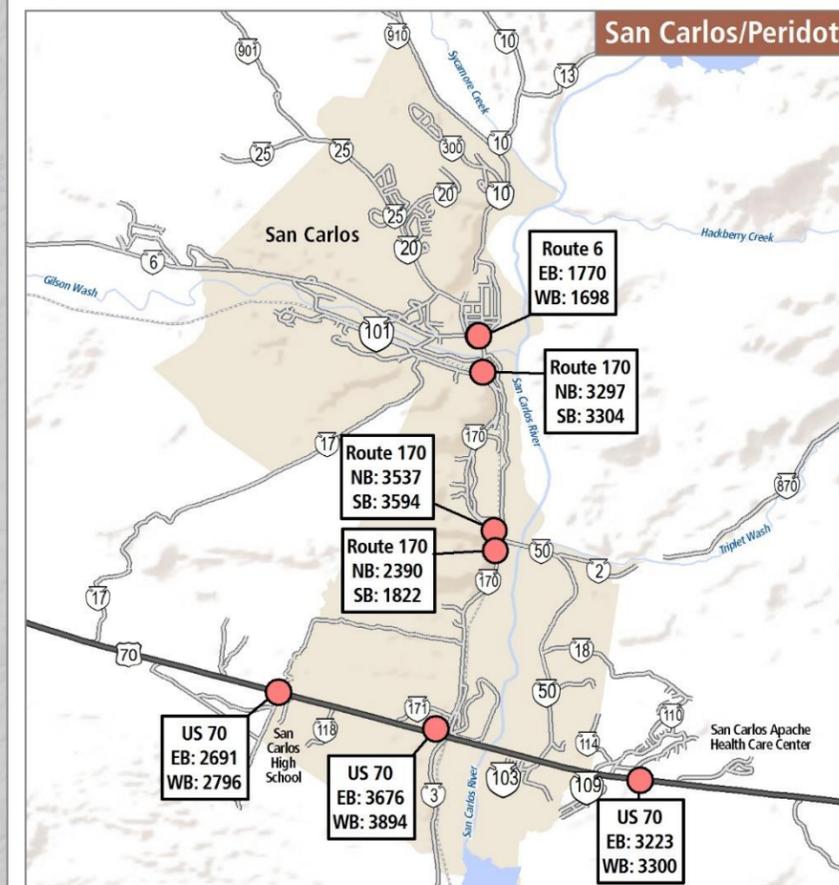
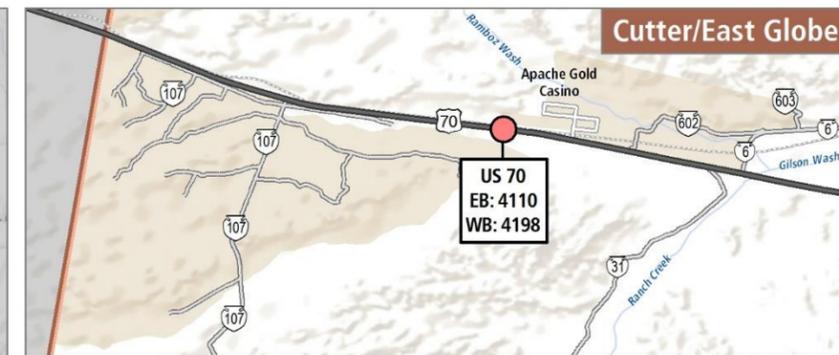
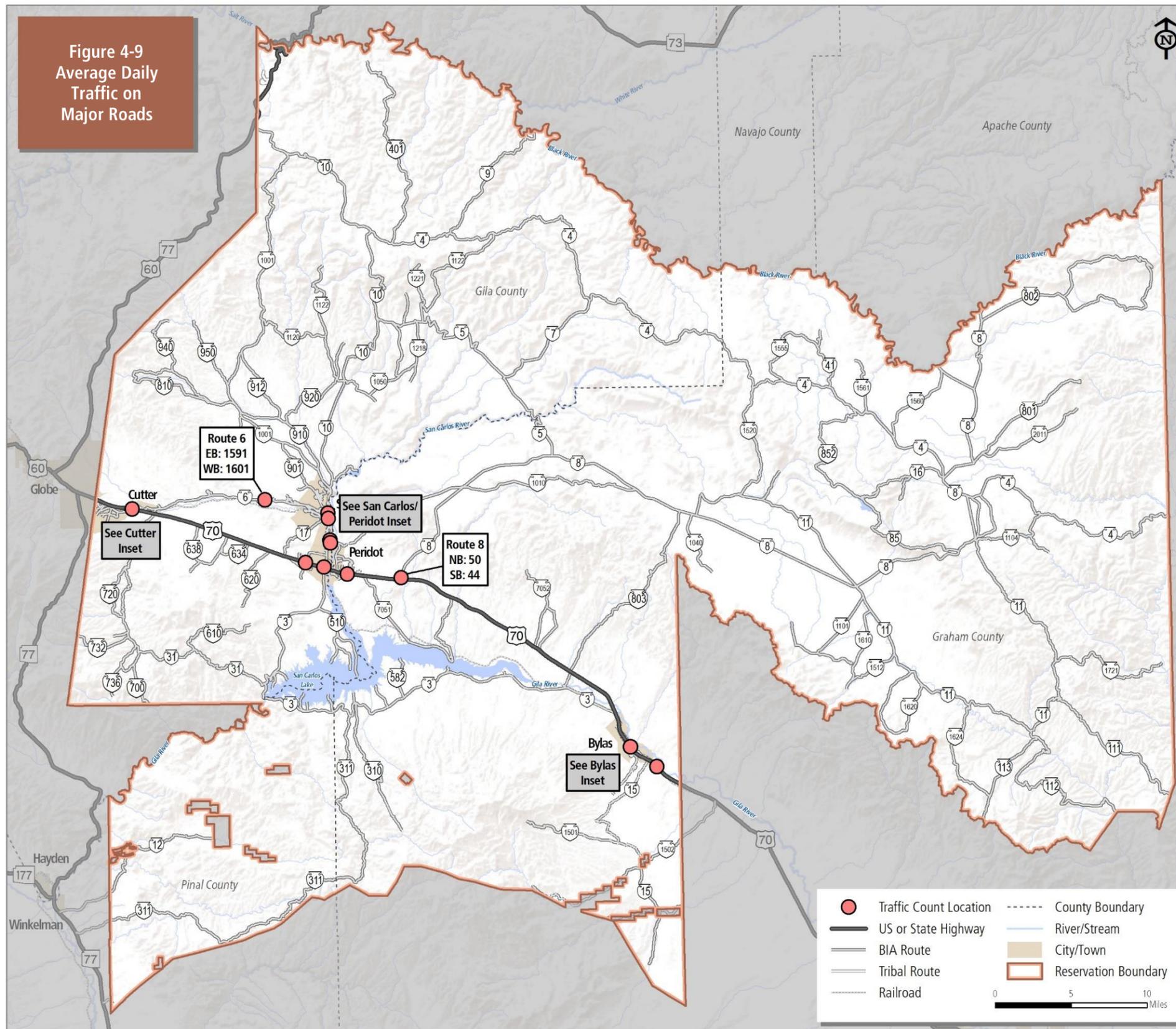


Figure 4-10 Turning Movement Counts

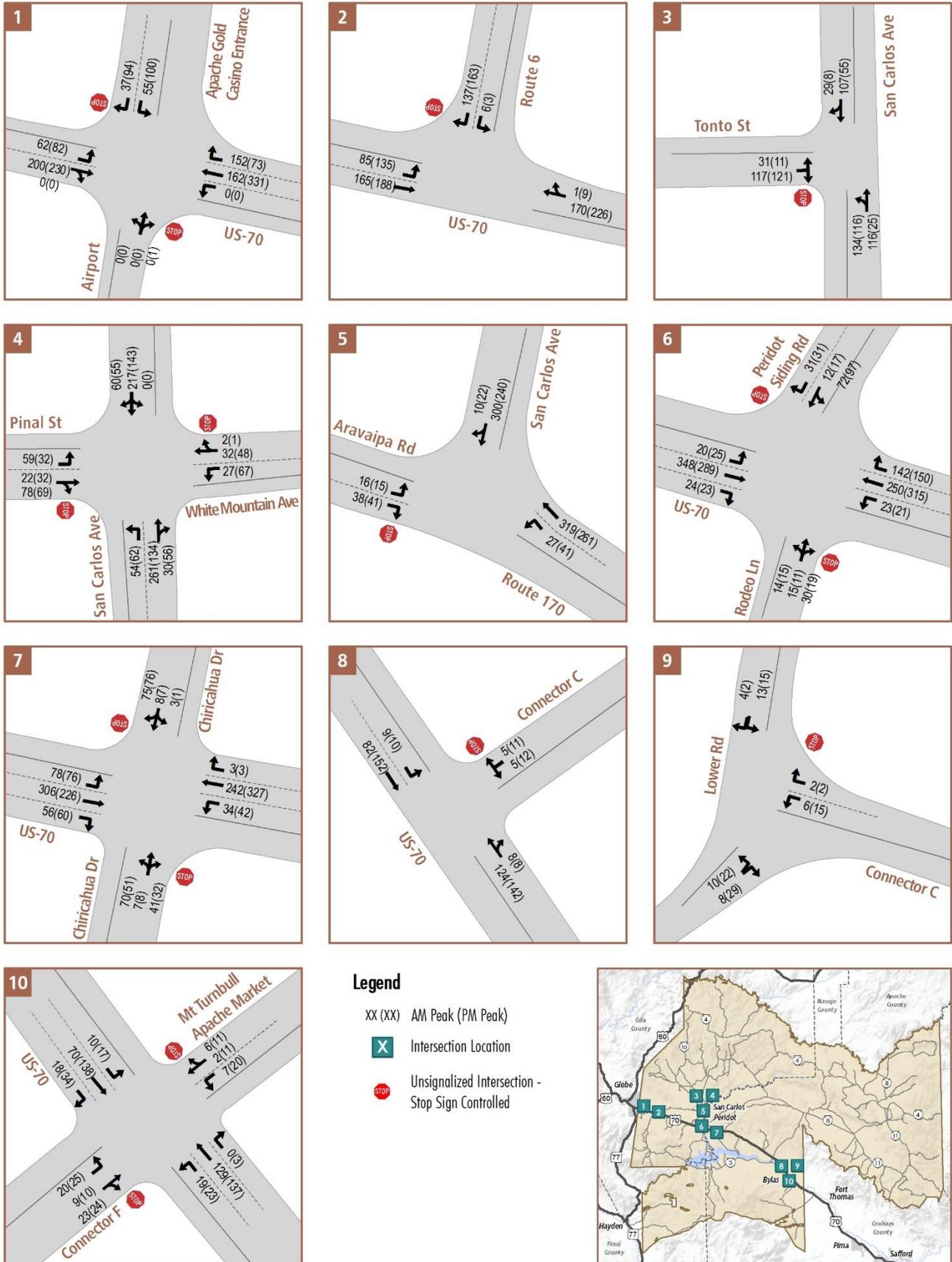
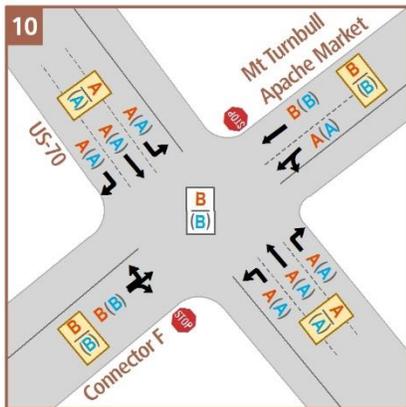
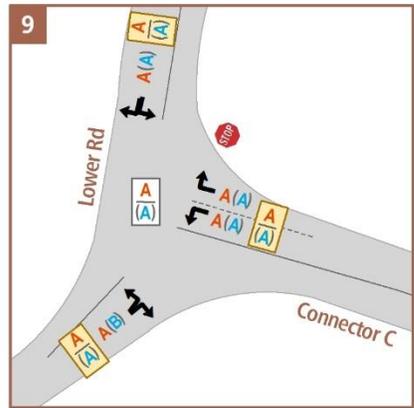
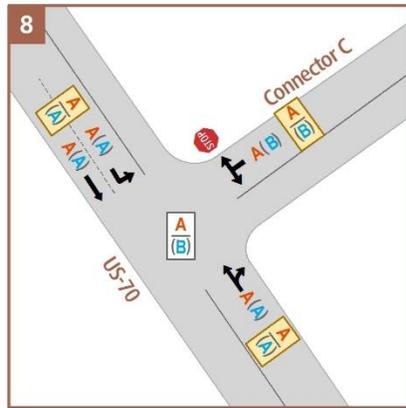
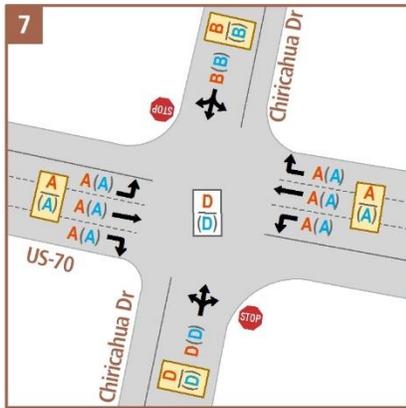
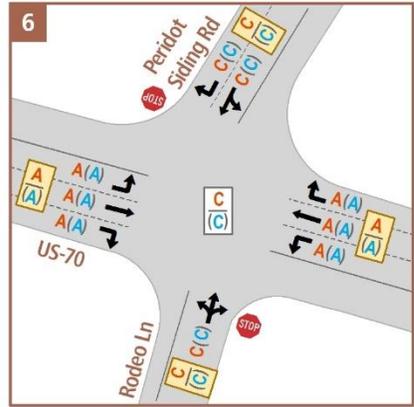
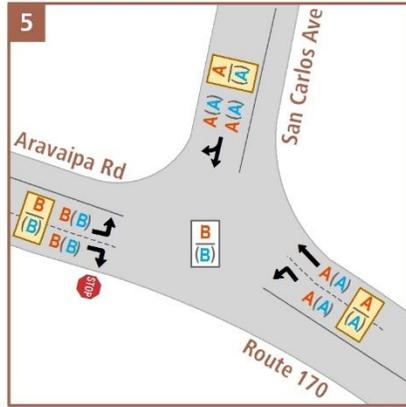
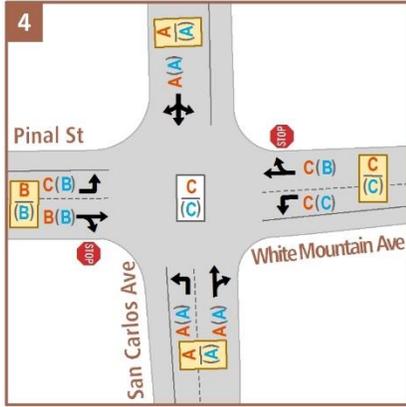
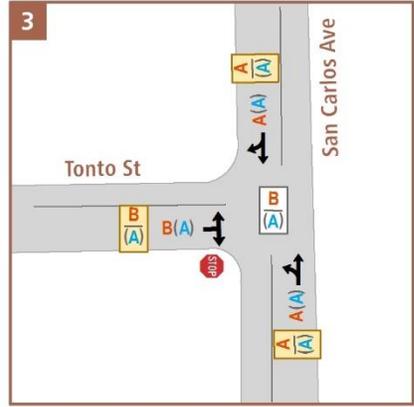
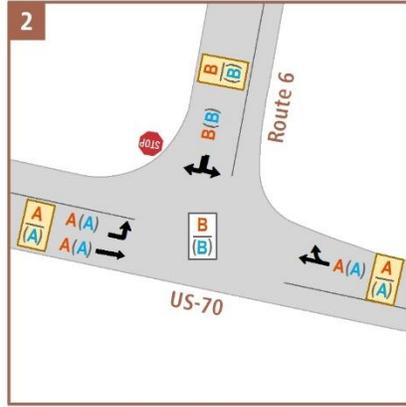
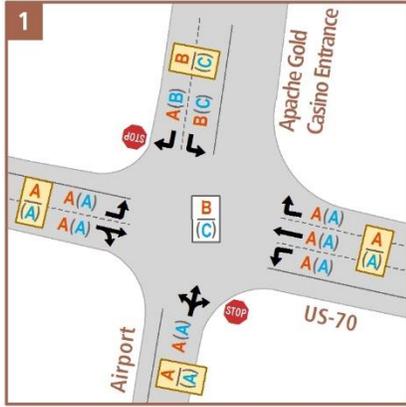
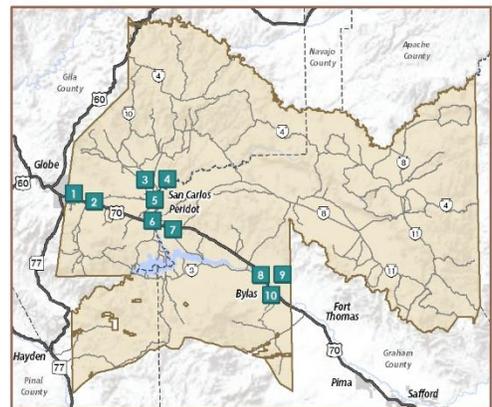


Figure 4-11 Intersection LOS



Legend

- Intersection Location
- Designated Turn Level of Service (LOS)
- Intersection Approach LOS
- Overall Intersection LOS



Future Traffic Conditions

The primary purpose of forecasting traffic volumes is to estimate the additional travel demand added to existing roadways and to forecast congestion levels due to projected growth in population and employment. This information helps plan for future traffic conditions and provides valuable insight into potential transportation solutions.

All future traffic volumes were estimated by assigning a 1% annual growth rate to the existing traffic volumes. The future forecasts represent traffic volumes without any roadway improvements (No-Build scenario) while using future traffic projections. This analysis helps evaluate how roadways perform in the future if no improvements are made.

Projected 2025 Intersection Level of Service

Figure 4-12 displays the projected 2025 turning movement volumes and Figure 4-13 displays the overall intersection LOS, and the LOS at each turning movement for each leg/approach for each intersection. Based on projected 2025 traffic volumes, all intersection approaches and overall intersections perform at a LOS of C or better, except for the following:

- US-70 & Peridot Siding Road, which operates at LOS D during the PM peak hour.
- US-70 & Chiricahua Drive, which operates at LOS E and D during the AM and PM peak hour, respectively.

Projected 2030 Intersection Level of Service

Figure 4-14 displays the projected 2030 turning movement volumes and Figure 4-15 displays the overall intersection LOS, and the LOS at each turning movement for each leg/approach for each intersection. Based on projected 2025 traffic volumes, all intersection approaches and overall intersections perform at a LOS of C or better, except for the following:

- US-70 & Peridot Siding Road, which operates at LOS D during the PM peak hour.
- US-70 & Chiricahua Drive, which operates at LOS E during both peak hours.

Projected 2040 Intersection Level of Service

Figure 4-16 displays the projected 2040 turning movement volumes and Figure 4-17 displays the overall intersection LOS, and the LOS at each turning movement for each leg/approach for each intersection. Based on projected 2025 traffic volumes all intersection approaches and overall intersections perform at a LOS of C or better, except for the following:

- US-70 & Apache Gold Casino, which operates at LOS D during the PM peak hour.
- Pinal Street & San Carlos Avenue, which operates at LOS D during the AM peak hour.
- US-70 & Peridot Siding Road, which operates at LOS D and E during AM and PM peak hour, respectively.
- US-70 & Chiricahua Drive, which operates at LOS F during both peak hours.

Figure 4-12 2025 Turning Movement Counts

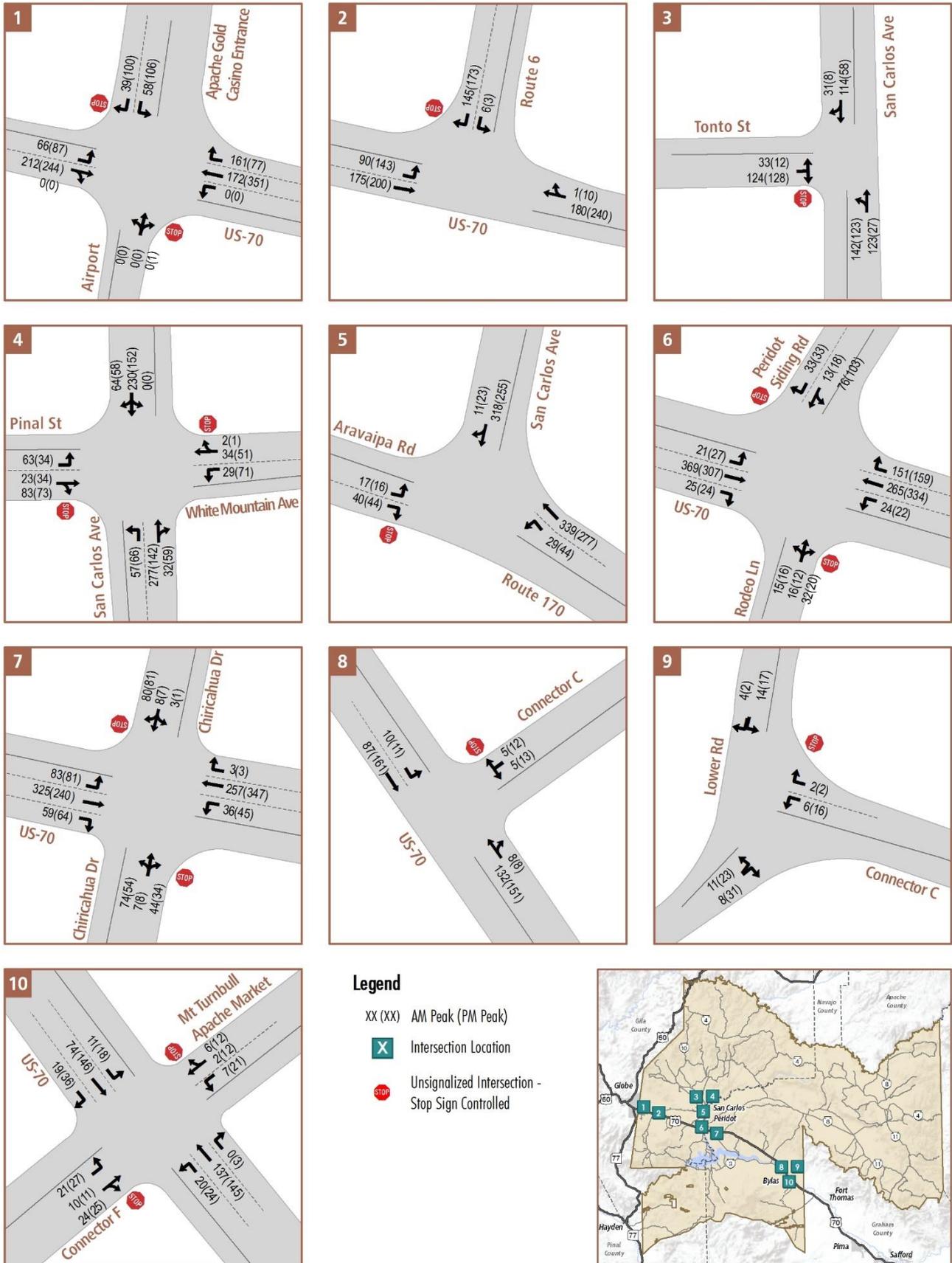


Figure 4-13 2025 Intersection LOS

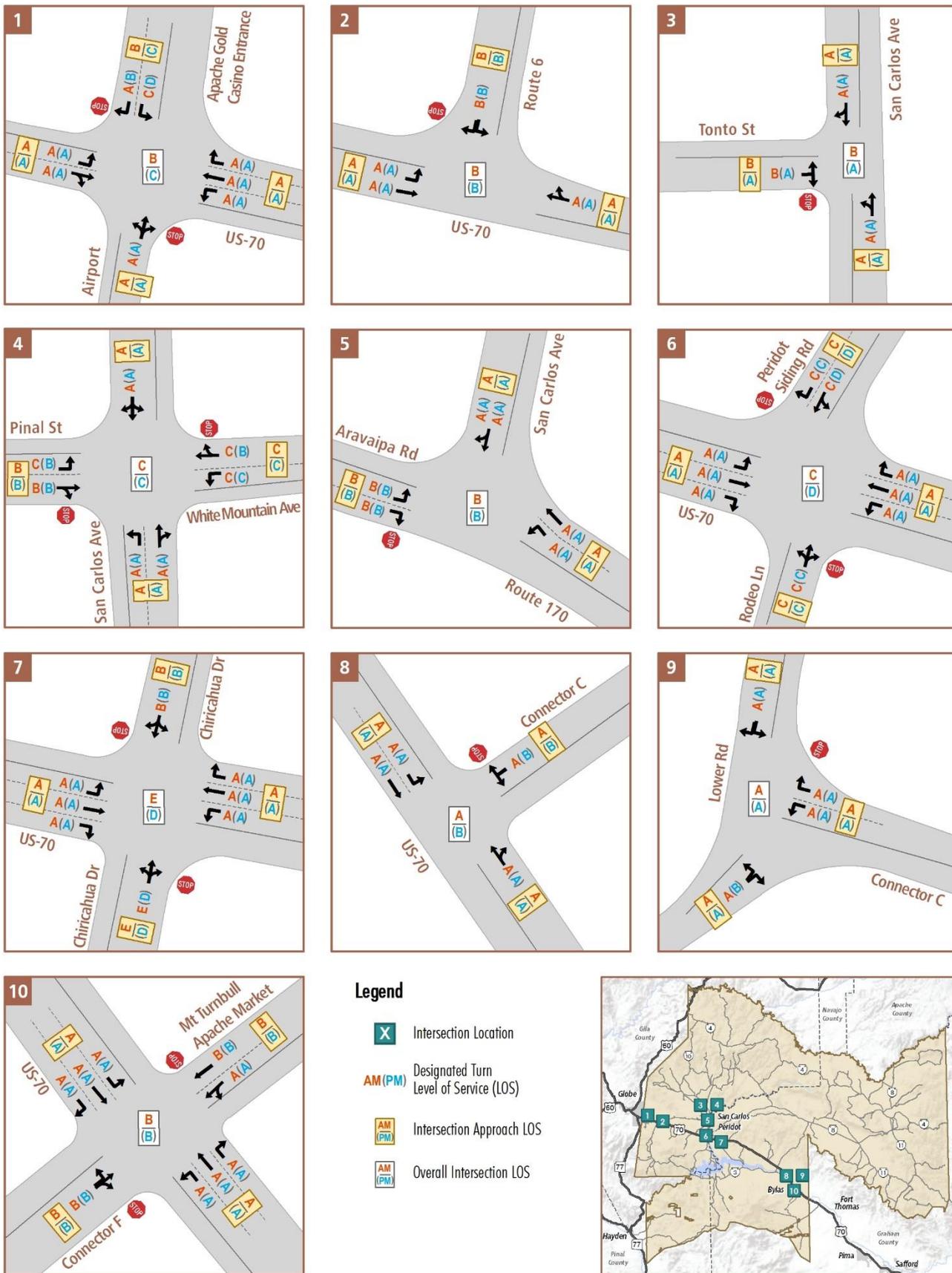


Figure 4-14 2030 Turning Movement Counts

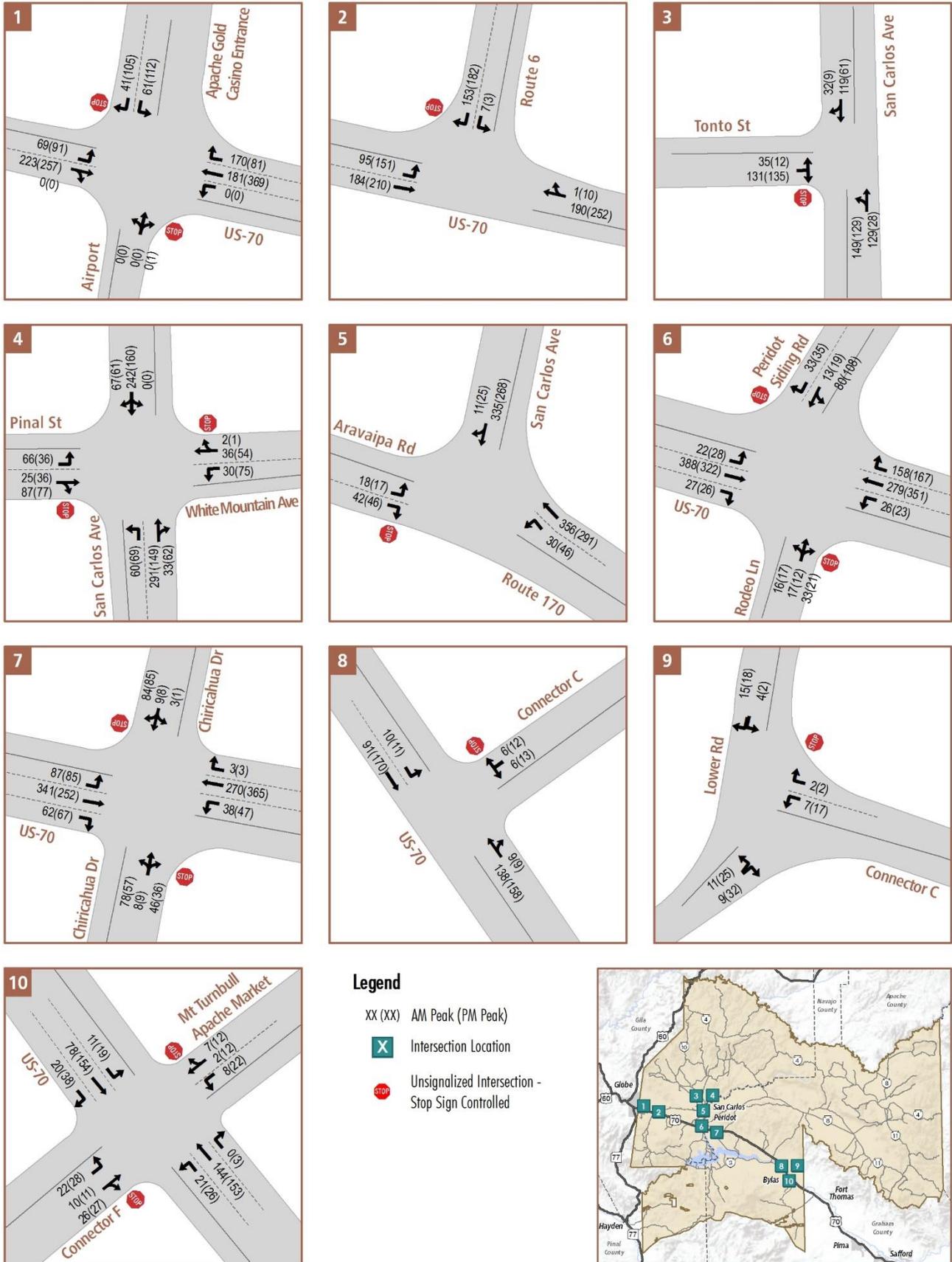


Figure 4-15 2030 Intersection LOS

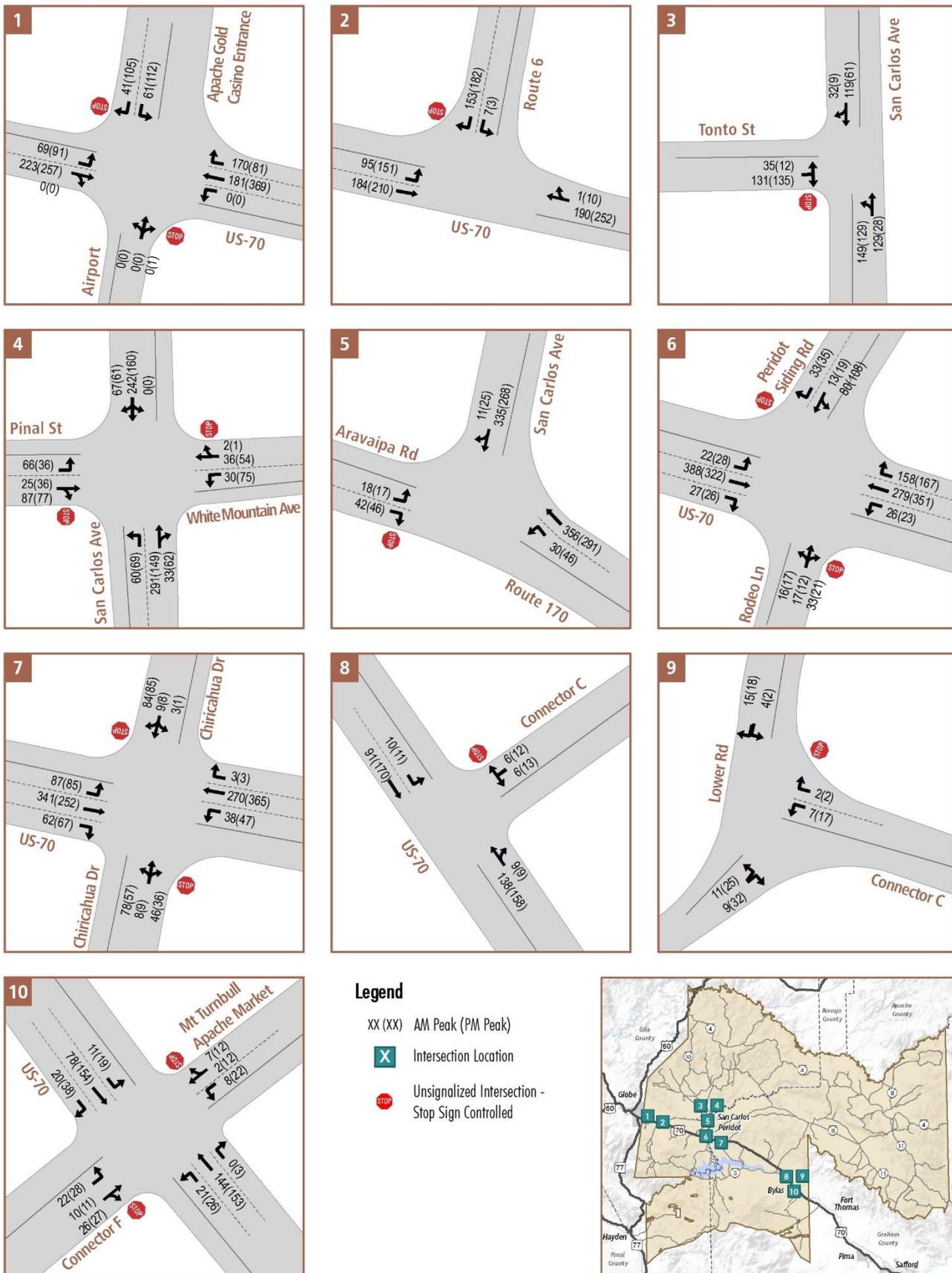


Figure 4-16 2040 Turning Movement Counts

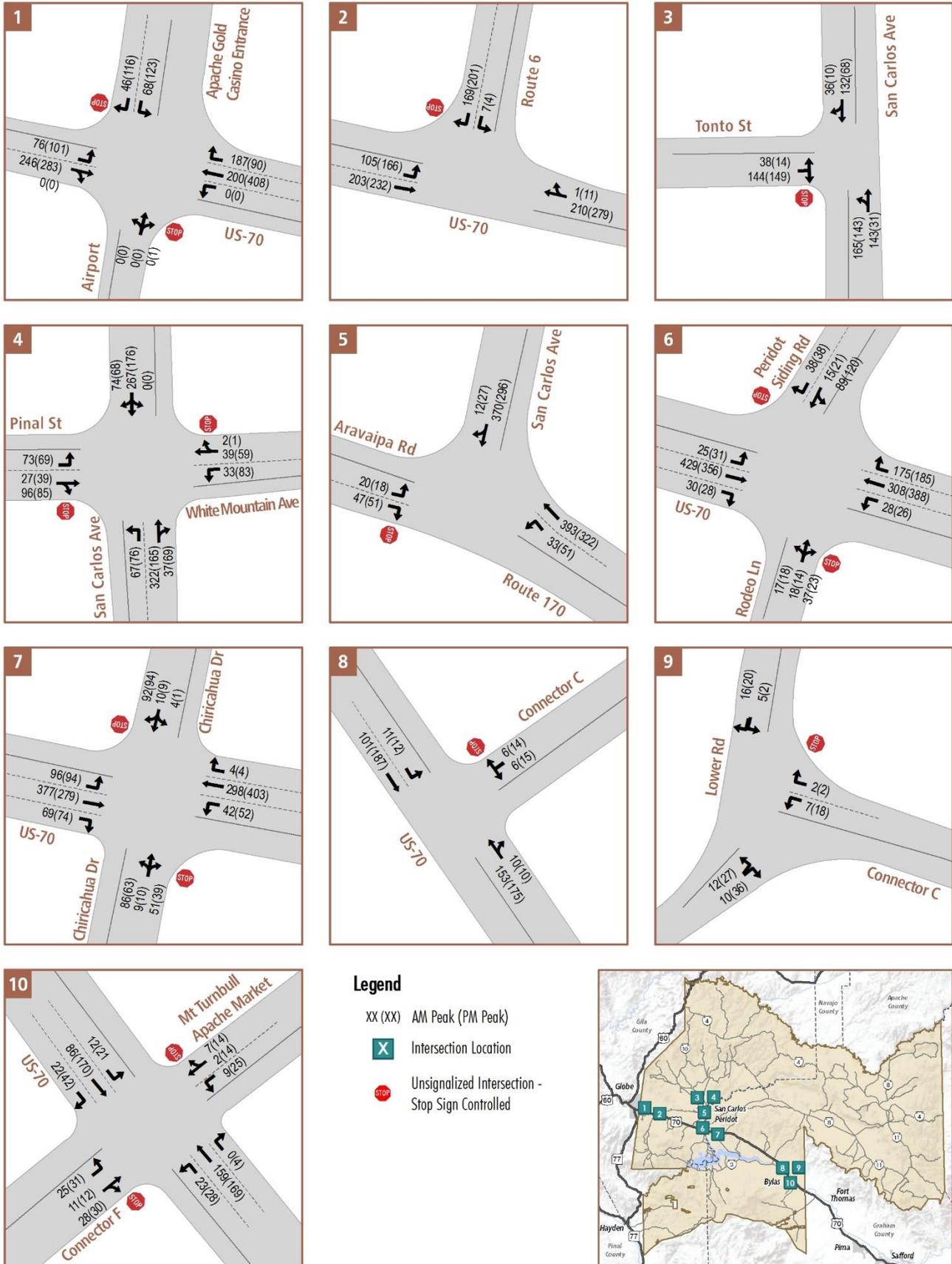
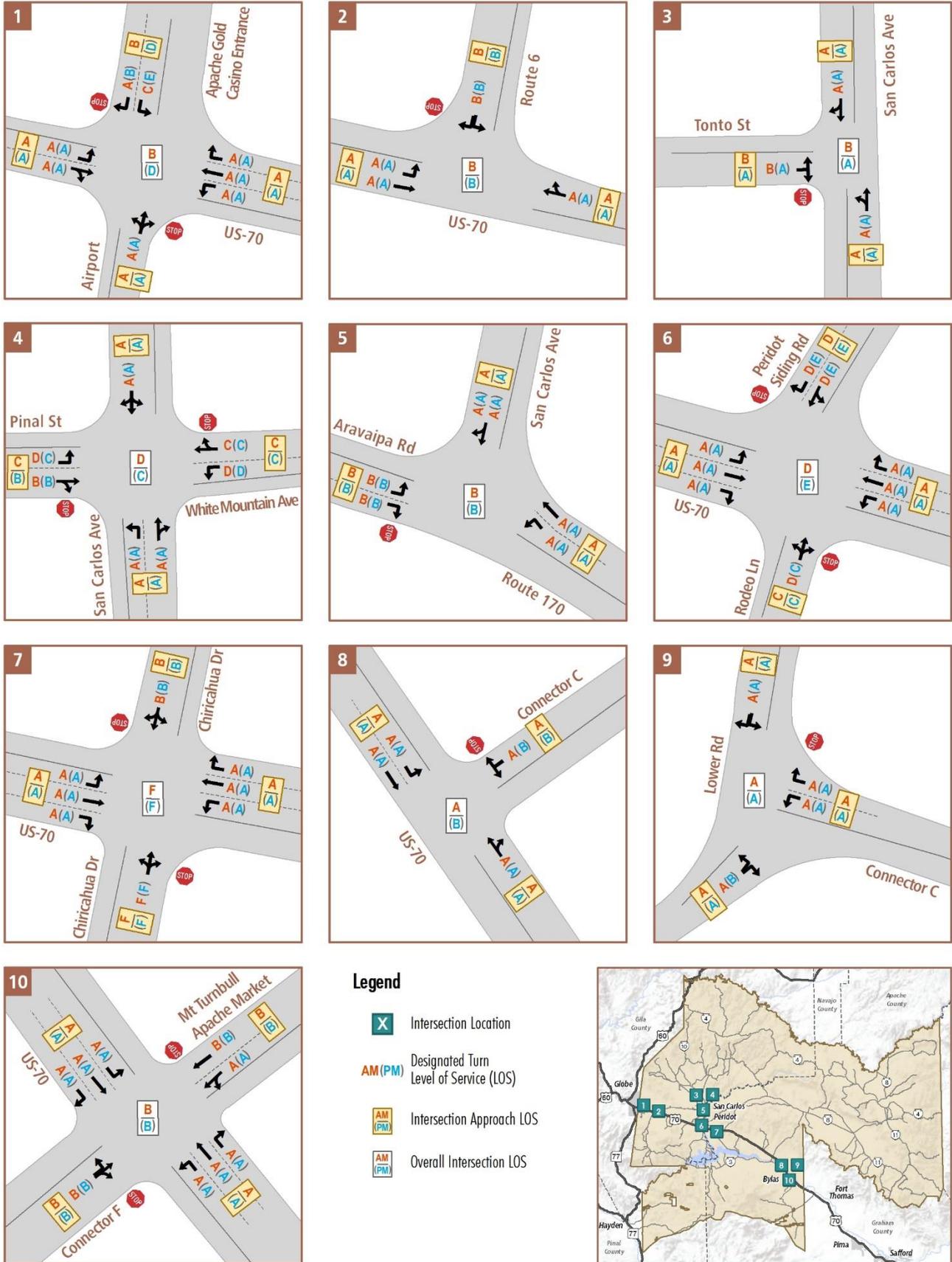


Figure 4-17 2040 Intersection LOS



CHAPTER 5 / MULTIMODAL TRANSPORTATION SYSTEM CONDITIONS

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Although the Reservation provides amenities for pedestrians throughout the area, the condition of these facilities is generally inadequate, especially given the relatively high levels of pedestrian activity. Sidewalks are present within San Carlos and other communities, but they are generally narrow and in poor condition. Overgrown vegetation, cracks, poor lighting, and other obstacles present safety and mobility issues.

Some pedestrian related improvements have recently been made, including a new sidewalk along Route 6 through the town of San Carlos. Street lighting is also present along this stretch. In Peridot, a lit walking path along the US 70 connects the high school to the hospital. Access to this path from the high school requires crossing the US 70, and no crosswalk is present. There is a narrow walking path along the east side of BIA 20 from the intersection of BIA 25 up the hill to the old San Carlos Airport. There is also a lit pedestrian pathway along the north side of US 70 through Bylas constructed by ADOT as an enhancement project. Remaining US 70 right-of-way within the study area has shoulders but is unlit. A new Pedestrian Hybrid Beacon (PHB) has also been installed in Bylas on the US 70 at the Mount Turnbull Apache Market. Figure 5-2 shows existing pedestrian facilities.

There are currently no bicycle facilities on the Reservation.

EXISTING TRANSIT SERVICES

The Tribe currently has one of the only transit services available in Gila County, San Carlos Apache Nnee Bich'o Nii Services, which provides services within the Reservation and to the Globe-Miami and Safford areas. The San Carlos Apache Tribe established a Transportation Department in 2007 in response to mobility needs for individuals living within the San Carlos Apache Reservation. In 2011 a Short-Term Implementation Plan for the services was conducted by the Tribe and ADOT.

The Nnee Bich'o Nii's fixed-route transit service provides local citizens better access to services and employment. A fixed route service follows a schedule along a pre-determined route with bus stop locations providing mobility within the Reservation and surrounding areas.

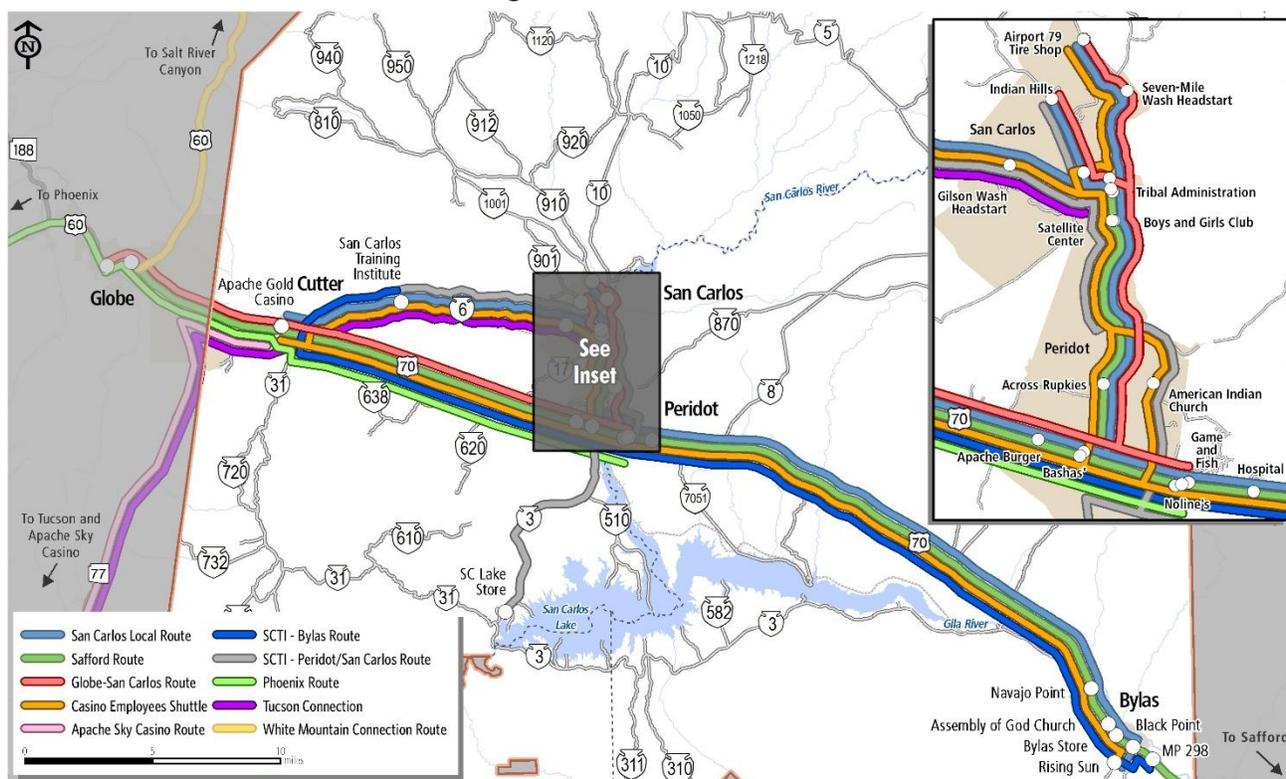
The service provides transportation to elderly and disabled Tribal members, Tribal recipients of Temporary Assistance to Needy Families (TANF), other Tribal members—many of whom are living at or below the poverty level—and employees of the Apache Gold Casino and Resort. The service receives funding through the Tribal Transportation Program (TTP) Section 5311 (j) of the FAST Act.

Service includes seven fixed routes (See Figure 5-1):

- **Globe - San Carlos Route:** fixed-route service operating Monday through Friday that connects Globe, San Carlos Apache Reservation, and Safford.
- **San Carlos - Peridot - Bylas Route:** local area shuttle with services Monday through Friday within the San Carlos Apache Reservation.
- **Safford - Globe Route:** fixed-route service operating Monday through Friday that connects Globe and the San Carlos Apache Reservation. Route connects to the CVCT at the Globe Train Depot.
- **Apache Gold Casino Employees Route:** van service for employees from areas throughout the San Carlos Apache Reservation to the Apache Gold Casino.
- **Apache Sky Casino Route:** van service for casino employees operating daily from Apache Gold Casino to Apache Sky Casino.
- **San Carlos Training Institute Routes:** van service consisting of two routes; one from Bylas and one from Peridot/San Carlos both connecting to the San Carlos Training Institute.
- **Phoenix Route:** shuttle service operating from San Carlos/Peridot to Phoenix on Mondays with return service from Phoenix on Fridays.

Fares range from \$1 to \$5 depending on the distance traveled. Major stops include the Apache Gold Casino, Globe Train Depot, Gila Community College, Nnee Bich’o Nii Office, and the Safford Walmart. Nnee Bich’o Nii has also expressed interest in developing routes to connect with the Fort Apache Connection near the Salt River Canyon and to the Tucson metropolitan area.

Figure 5-1 Transit Services

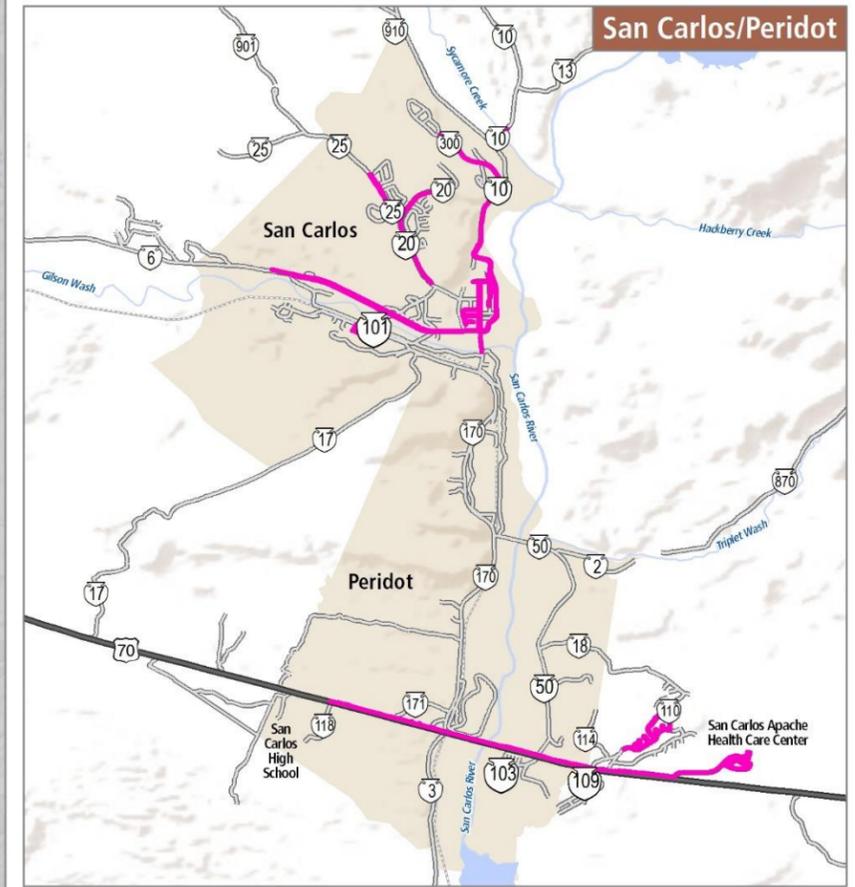
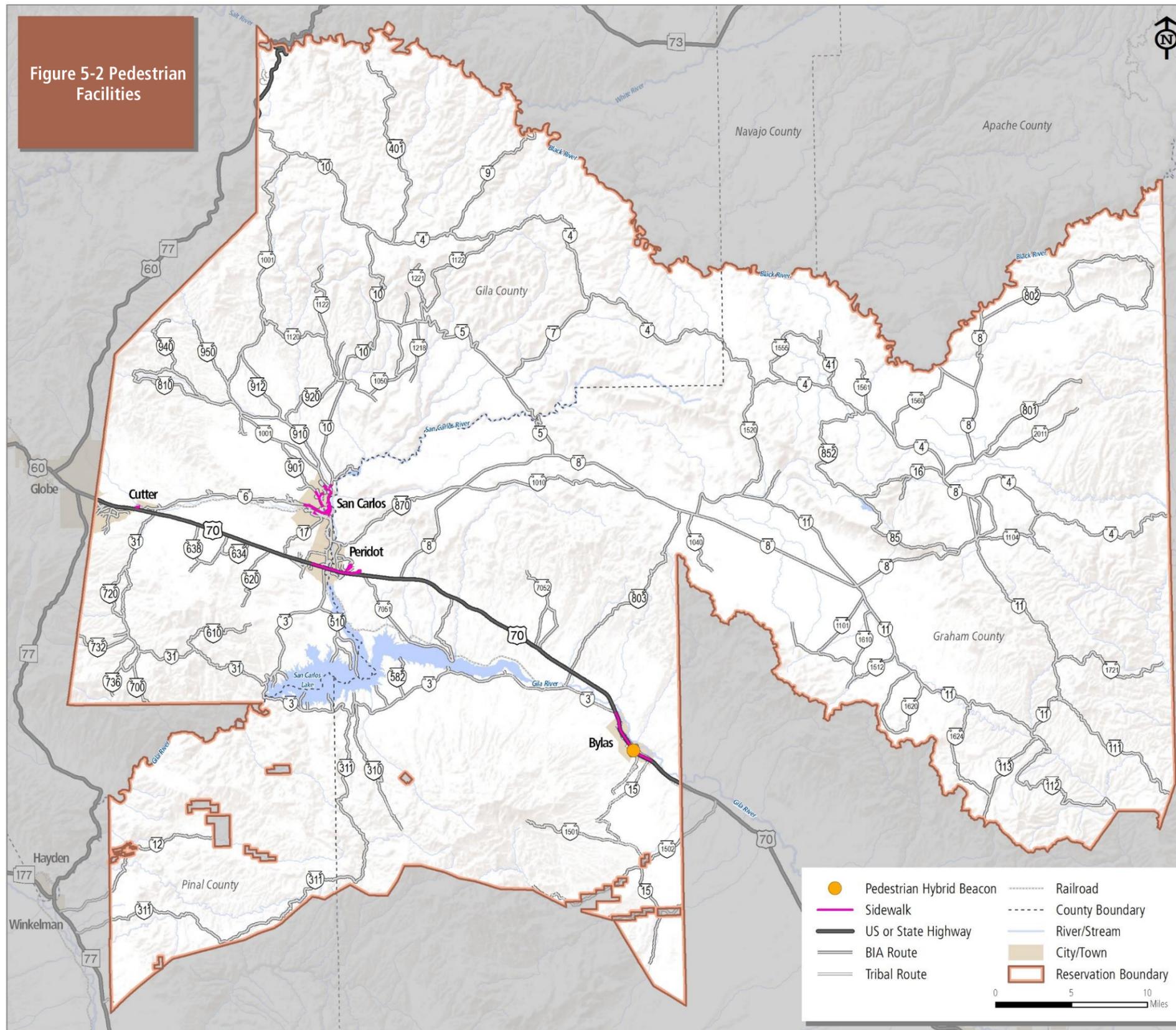


AVIATION AND MARITIME FACILITIES

San Carlos Apache Airport is a public use airport owned by the Tribe located 8 miles southeast of the central business district of Globe. It is categorized in the National Plan of Integrated Airport Systems for 2019–2023 as a basic aviation airport.

There are no maritime facilities located in the Reservation

Figure 5-2 Pedestrian Facilities



CHAPTER 6 / EXISTING TRANSPORTATION ISSUES

Based on inventory and analysis of existing and future conditions, transportation system deficiencies and issues are identified. These issues and deficiencies form the basis for the next phase of the study.

Table 6-1 lists deficiencies and issues based on the existing conditions analysis. Figure 6-1 displays the major transportation issues in the study area.

San Carlos

The town of San Carlos has four main roadways: San Carlos Avenue, BIA 6, BIA 10, and Tonto Street. These roadways are the most heavily trafficked routes within the area and lead to residences, businesses, and education facilities. Below are transportation issues gathered during the BIA inventory:

- San Carlos Avenue: high levels of pedestrian traffic with inadequate crosswalk signals for safe crossing
- Tonto Street/Apache Ave Intersection: consistently busy intersection without distinct intersection lane striping; unaligned placement of stop sign
- Tonto Street: faded pavement striping
- Sam's Crossing/Aravaipa Ave Railroad Crossing: missing signal and gates; crossing pavement in poor condition
- Communitywide Pavement Condition: cracking, corrugations, and deterioration is consistently present along these routes, especially in the small communities slightly north of BIA 6
- Communitywide Road Maintenance: gutters in residential areas are full of debris and vegetation from poor drainage

Peridot

Peridot is connected to the US 70 and San Carlos via BIA 170. It is home to residential areas, grocery stores, schools, and churches. The intersection at Peridot Siding Road and BIA 170 is a safety concern, with poor visibility of oncoming southbound traffic around the sharp turn.

Bylas

Bylas has recently undergone an upgrade along US 70 and a new roadway built leading to Mt. Turnbull Elementary School. Future housing development is expected within in this area. These upgrades have helped solve many safety/traffic issues. Existing neighborhood roadways have maintenance and drainage issues during storms. Several intersections in these communities have limited visibility due to large vegetation overgrowth and improper placement of stops signs.

BIA 3

BIA 3 was originally built as part of the old US 60 network. It provides access to the San Carlos Reservoir for people to enjoy recreational activities such as camping and fishing. The overall condition of many transportation facilities along this route is an issue.

- Bridge 167, 171, 186, 189, 192, 196, 197, 198, and 199 need rehabilitation. Two bridges need repair along guard rails due to vehicular crashes removing concrete and bending the wrought iron support. Other structures show visible defects, including poor pavement condition, surrounding erosion, and general wear and tear.
- Bridge 181, 184, 185, 193, and 194 need replacement. Multiple bridges currently have weight limits assigned and two have been completely closed with alternate detours in place. These alternate routes and culverts are also starting to show signs of structural and drainage issues.
- Pavement from Coolidge Dam to US 70 (East) shows very poor pavement conditions. The paint striping on this route is not visible in most areas. Heavy erosion on some areas near Coolidge Dam lead to major safety issues when inclement weather brings runoff debris into the roadway.

BIA 8

BIA 8 is primarily used to access the high country towards Point of Pines Lake and beyond. The majority of traffic observed during inventory were forestry service, recreational visitors, and ranchers. Most of this highway is paved; however, issues are still present.

- Pavement Condition: very large pot holes, particularly in the southbound lanes cause traffic to slow down and require drivers to maneuver outside of lane boundaries to avoid. This is a major issue at high speeds and especially during non-daylight hours.
- Incline from BIA11 – BIA 85: rockfall was observed numerous times during the roadway inventory along this incline. This route also has poor shoulders, and mountain goats are often in the roadway. High speeds and sharp corners are also safety concerns.
- Many of the unpaved roads in the high country are in poor condition due to abandonment and weather-related deterioration. Heavy erosion requires the use of 4x4 vehicles and sections are often unsafe to pass or completely impassable.

US 70

The US 70 is maintained by ADOT and provides access and mobility for the Reservation. Roadway conditions are good overall, but narrow shoulder widths, high travel speeds, and lack of street lighting are concerns. Issues along US 70 are primarily crash and safety related.

- High pedestrian traffic in Peridot and near the high school cause potential conflicts between cars and pedestrians. There is no safe crossing from high school to pedestrian path.
- Bridges at Gila River and near BIA 803: requires improvements and rehabilitation.
- All pedestrian crashes occurred on this road during non-daylight hours.

Table 6-1 Transportation Issues

Issue Type	Location	From	To	Description
Safety - Crashes	US 70	MP 290	MP 295	Fatality crashes – extremely high
	US 70	MP 265	MP 271	Fatality crashes – extremely high
	US 70	MP 255	MP 259	Fatality crashes – extremely high
	US 60	MP 290	MP 293	High number of crashes
Safety – Roadway / Intersection Geometry	BIA 170 and Peridot Siding Road Intersection			Limited sight distance
	Tonto Street and Apache Ave Intersection			Lack of Pavement Intersection Striping; poor stop sign placement
	BIA 8	BIA 11	BIA 85	Steep grade at Natanes
	BIA 8	BIA 870	Point of Pines Lake	Lack of pavement striping
	BIA 3	Soda Canyon	US 70 – East	Lack of pavement striping
	Tonto Street	San Carlos Avenue	Airport	Lack of pavement striping
	BIA 3	US 70	Coolidge Dam	Steep grades, curves, lack of superelevation
	BIA 100	San Carlos Avenue	Apache Avenue	Three crosswalks in need of repair
	BIA 171 and BIA 170 intersection			Stop sign in need of repair
	BIA 105	Throughout Section 70		Poor striping
	BIA 170	Throughout Section 50		Poor striping
BIA 1721	Throughout Section 10		Steep terrain; heavy erosion	
Bridge / Culvert Condition	US 70	BIA 803	BIA 3	2 bridges eligible for rehabilitation
	BIA 3	Soda Canyon	US 70 – East	9 bridges eligible for rehabilitation
	BIA 3	Coolidge Dam	US 70 – East	5 bridges eligible for replacement
Surface Condition	BIA 3	Soda Canyon	US 70 – East	Critically poor pavement condition
	BIA 8	Triplets Rd – West	BIA 11	Poor pavement condition; large potholes
	BIA 8	Throughout Sections 180 and 200		Large areas of pavement missing; potholes
	BIA 100	Throughout Section 130		Large areas of pavement missing
	BIA 101	Throughout Sections 10 and 50		Large areas of pavement missing; potholes
	BIA 103	Throughout Section 10		Potholes
	BIA 110	Throughout Sections 10 and 40		Potholes
	Systemwide			Majority of unpaved roads in poor condition
Access Management	Systemwide			Develop access management standards
Transit	Systemwide			Improve regionwide and internal transit facilities
Drainage	Systemwide			Consistent debris in all curbed neighborhoods, low water crossings, replace small culverts, unpaved
Pedestrian, Bicycle, Trails	Systemwide			Continue to develop stronger plan
Regional Connectivity	Systemwide			Improve regional connectivity
Emergency Evacuation Routes	Systemwide			Develop emergency evacuation plan
Local Roads Circulation	San Carlos, Peridot, Cutter, Bylas			Improve circulation

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APPENDIX A / STAKEHOLDER AND PUBLIC INVOLVEMENT PLAN

This Public and Stakeholder Outreach Plan (PSOP) describes how Jacobs Engineering, the San Carlos Apache Tribe (SCAT), and the project team will solicit public input; inform and involve the public, stakeholders, elected officials and agencies regarding the San Carlos Apache Tribe Long-Range Transportation Plan (LRTP) Update.

STUDY DESCRIPTION

The primary purpose of this study is to update the 2009 LRTP to address the current and future needs of the San Carlos Apache Tribe and develop a robust multimodal transportation plan that enhances safety, accessibility and mobility, community livability, economic vitality, encourages environmental and cultural sensitivity and reflects the vision, goals, and values of the local communities of the Tribe. Serving as the foundation for the area’s transportation system, the LRTP will serve as a guiding document for the Tribe to implement transportation improvements over the next 5-, 10-, and 20-year horizon periods.

ENGAGEMENT GOALS

This Plan will guide the project team in obtaining meaningful input from residents and stakeholders in the study area. The public and stakeholder involvement process embraces innovation, commitment, transparency, and trustworthiness while promoting meaningful dialogue and opportunities for individuals with disabilities or limited English proficiency to participate.

Outreach goals include:

- Gather meaningful public and stakeholder input at critical milestones.
- Engage stakeholders and the public to ensure that study findings reflect the needs and sentiment of the community.
- Provide clear and accurate information that encourages informed participation and input.
- Partner with tribal leaders, local businesses, schools, community leaders, and organizations to broaden outreach.
- Demonstrate a transparent decision-making process.



- Meet federal public engagement requirements, including Title VI, through outreach to traditionally underserved populations such as minorities, low-income, disabled and elderly groups.

PROJECT MANAGEMENT, TECHNICAL ADVISORY COMMITTEE, AND STAKEHOLDERS

This section outlines key participants and audiences the plan will specifically engage throughout the duration of the study.

Project Management Team (PMT) and Coordination

The PMT will meet once a month, in person or via Skype/phone, to review progress, provide technical guidance, and assist with coordination and outreach efforts. The primary role of the project management team is the overall management of study development, evaluation, and outreach.

The PMT will include:

- SCAT: Marvin Mull Jr. Charles Russell
- ADOT: Jason Bottjen
- Jacobs Engineering: Marc Pearsall, Alex Quintero, and Kim Engesath
- Tribal consultant: Rick Powers

PMT members will meet once a month to review progress, findings, working papers, and solicit direction. Most PMT meetings will be conducted in person and the occasional teleconference. Meetings coinciding with TAC meetings will be combined, if needed.

Technical Advisory Committee (TAC)

The TAC will meet four times during the study to review materials, provide input, and champion the goals and objectives of the study. The TAC will provide stakeholders and advisors an opportunity to review and provide feedback on materials, refining the product prior to public involvement. The TAC will also provide input, oversight, and champion the goals and objectives of the LRTP. The Jacobs team will work closely with the TAC to ensure the successful development and delivery of the study.

The TAC includes members from the following agencies:

- San Carlos Apache Tribal Government (SCAT)
- Bureau of Indian Affairs (BIA)
- Gila County
- Pinal County
- Graham County
- ADOT Multimodal Planning Division (ADOT-MPD)
- ADOT Southeast Maintenance District
- Central Arizona Governments (CAG)
- Southeastern Arizona Council of Governments (SEAGO)
- U.S. Forest Service

Stakeholder Meetings

Stakeholders will include Tribal, community, and agency members. Each stakeholder meeting will consist of three to four working sessions. Throughout the study process, two stakeholder meetings and several stakeholder interviews will be conducted at the Reservation.

Project Management Process and Task Schedule

The Project Manager (PM) will coordinate a Kick-off meeting and initial PMT meeting. The PM will also conduct coordination meeting with Bureau of Indian Affairs (BIA) with direction from the SCAT PMT member. An updated project schedule, featuring eighteen PMT meetings and monthly progress reports will also be developed.



PUBLIC OUTREACH METHODS

The two-phased outreach approach will include various engagement strategies. The following section describes the strategies.

Study Notifications

Jacobs will develop a notification message, distribution letter, and flyer announcing the project. SCAT planning staff will distribute flyers at key activity centers including the Post Office, grocery stores, and other Tribal Department offices. In addition to distributing written information and advertisement, SCAT planning staff will coordinate with the local radio station to advertise public meetings.

Public Information Meetings/Open Houses

Two public information meetings will be conducted to provide important and timely information to the public and to gain feedback on the needs and ideas of residents. One meeting will be held in San Carlos and the other in Bylas. Prior to the public meetings, study information will be communicated to the communities through newspaper notices, fliers and posters, and the project website. Each public meeting will include a presentation and active discussions with the public. A summary of comments voiced will be documented for public record and to inform stakeholders of the public consensus, which will affect decisions being made throughout the course of the study.

Public meeting activities and materials may include the following:

- Handouts and other materials including comment forms, sign-in sheets, etc.
- Electronic meeting notification
- Press releases
- Meeting locations and facilities.
- Flyers to be place at local public places (i.e. city hall, library, hospital, government offices, major grocery stores, etc.)
- Handouts/comment forms
- Exhibits
- PowerPoint presentations

Study Website

A study website will be created and maintained by ADOT Communications Web Team to disseminate information to those with internet access. The website will be hosted and updated by ADOT and will include information on the study process and schedule, links to an online survey tool, as well as any other collateral materials and study documents. Jacobs will provide the content to be posted on the website. The website will also include contact information and allow the public to email the project team comments and questions.

Contact/Comment Database

All comments received will be documented by ADOT. The following methods will be utilized to solicit and/or acquire comments:

- Fliers/posters
- Comment forms at the public meeting
- Project website online comment form
- E-mail

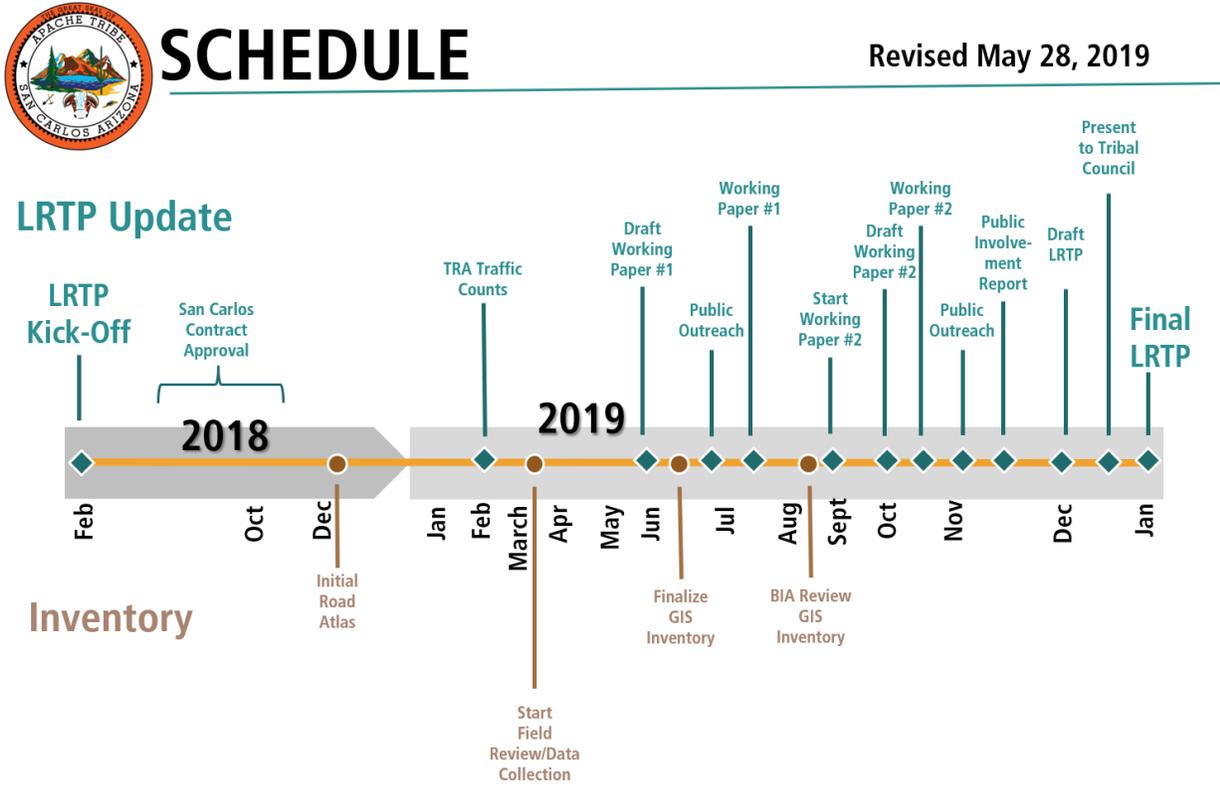
A database combining contact information and comments received from the public will be developed by ADOT. The contact list contains names, addresses, phone numbers, and e-mail addresses of any members of the public who have expressed an interest in the study or have submitted comments. The comment database will include all comments received via letter, e-mail, comment form, and/or phone call. All comments will be entered into the database and categorized. The database is updated on a regular basis, as needed.



PUBLIC AND STAKEHOLDER OUTREACH PLAN SCHEDULE

The public engagement efforts will be included in the overall study schedule.

Figure 1 Schedule



Public Engagement Documentation

The study team will prepare a draft/final memo summarizing public engagement process and input received.

Title VI/Environmental Justice

Title VI of the Civil Rights Act of 1964 and related statutes assure that all individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination on the basis of race, color, national origin, sex, and disability. Executive Order 12898 on Environmental Justice directs that programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low-income populations. The implementation of the outreach plan should ensure that these protected populations are given the opportunity to participate in the San Carlos Long-Range Transportation Plan Update.

APPENDIX B / TUBE COUNTS

Route	Location	Direction	Count Type	Count Dur	Start Date	Start Time	Avg Vol	AM PkHr	AM PkVol	AM PHF	PM PkHr	PM PkVol	PM PHF	Day Corr	pctS U	pctC B	Avg Spd	Spd 50pc t	Spd 85pc t
Route 107	80 feet S of US-70	NB	VOL	48	3/20/2019	0:00	78	9:30	6	0.8125	13:30	8	0.7500	0.2352	0.0%	0.0%	8.700	0.0	0.0
Route 107	80 feet S of US-70	SB	VOL	48	3/20/2019	0:00	75	10:15	6	0.8125	13:45	8	0.6250	0.2033	1.3%	0.0%	9.300	0.0	0.0
Old Winkelman Rd	175 feet S of US-70	NB	VOL	48	3/20/2019	0:00	346	6:45	50	0.8534	17:15	34	0.8625	0.6407	2.5%	0.0%	21.200	0.0	0.0
Old Winkelman Rd	175 feet S of US-70	SB	VOL	48	3/20/2019	0:00	336	7:30	20	0.6964	16:15	47	0.9400	0.7050	2.7%	0.0%	18.500	0.0	0.0
Apache Gold Casino Entrance	150 feet N of US-70	NB	VOL	48	3/20/2019	0:00	250	7:30	194	0.7114	17:45	186	0.9325	0.8371				0.0	0.0
Apache Gold Casino Entrance	150 feet N of US-70	SB	VOL	48	3/20/2019	0:00	120	10:15	64	0.8716	15:15	124	0.6994	0.7863				0.0	0.0
Dirt Road N of Airport (1900 ft E of Casino)	200 feet N of US-70	NB	VOL	48	3/20/2019	0:00	96	7:15	7	0.7000	16:00	11	0.6111	0.2906	15.5%	0.5%	7.500	0.0	0.0
Dirt Road N of Airport (1900 ft E of Casino)	200 feet N of US-70	SB	VOL	48	3/20/2019	0:00	142	7:15	10	0.5556	15:15	17	0.6538	0.3033	3.9%	0.4%	7.000	0.0	0.0
Skill Center Rd/Main St	100 feet N of Cutter Rd	NB	VOL	48	3/20/2019	0:00	272	6:30	77	0.5274	14:45	34	0.5565	0.9118	3.7%	0.0%	19.500	0.0	0.0
Skill Center Rd/Main St	100 feet N of Cutter Rd	SB	VOL	48	3/20/2019	0:00	276	6:45	42	0.6439	15:15	92	0.3376	0.9592	4.2%	0.4%	21.500	0.0	0.0
Aravaipa Ave	180 feet S of Cutter Rd	NB	VOL	48	3/19/2019	0:00	358	6:45	32	0.7619	17:00	36	0.7935	0.6896	1.0%	0.0%	19.800	0.0	0.0
Aravaipa Ave	180 feet S of Cutter Rd	SB	VOL	48	3/19/2019	0:00	357	7:00	26	0.7794	16:45	38	0.8021	0.5664	3.1%	0.1%	19.200	0.0	0.0
Indian Hills Rd	250 feet W of Airport Dr	EB	VOL	48	3/19/2019	0:00	922	7:15	102	0.5891	16:30	76	0.9107	0.8081	1.8%	0.0%	27.600	0.0	0.0
Indian Hills Rd	250 feet W of Airport Dr	WB	VOL	48	3/19/2019	0:00	920	7:30	58	0.7632	16:15	94	0.7875	0.8069	1.9%	0.0%	25.900	0.0	0.0
Mesa Dr	150 feet N of Cutter Rd	NB	VOL	48	3/19/2019	0:00	624	7:00	50	0.6579	16:15	56	0.8485	0.7268	1.8%	0.1%	22.100	0.0	0.0
Mesa Dr	150 feet N of Cutter Rd	SB	VOL	48	3/19/2019	0:00	604	7:00	56	0.9113	17:00	65	0.7222	0.8063	2.1%	0.0%	22.600	0.0	0.0
Airport Dr	150 feet W of Mesa Dr	EB	VOL	48	3/19/2019	0:00	186	7:15	190	0.6953	16:45	184	0.6866	0.9294	2.4%	0.1%	35.500	0.0	0.0
Airport Dr	150 feet W of Mesa Dr	WB	VOL	48	3/19/2019	0:00	185	7:30	138	0.7841	16:15	176	0.8486	0.8992	1.9%	0.0%	34.400	0.0	0.0
San Carlos Ave	400 feet N of Tonto St	NB	VOL	48	3/19/2019	0:00	600	7:15	88	0.7902	18:45	56	0.7500	0.8002	1.2%	0.0%	20.900	0.0	0.0
San Carlos Ave	400 feet N of Tonto St	SB	VOL	48	3/19/2019	0:00	618	7:15	84	0.8350	12:00	68	0.7849	0.7614	4.0%	0.0%	20.200	0.0	0.0
White Mountain Ave	190 feet N of Coyotero Rd	NB	VOL	48	3/19/2019	0:00	142	11:45	98	0.7991	15:45	135	0.7670	0.8983	2.3%	0.0%	27.200	0.0	0.0

Route	Location	Direction	Count Type	Count Dur	Start Date	Start Time	Avg Vol	AM PkHr	AM PkVo	AM PHF	PM PkHr	PM PkVo	PM PHF	Day Corr	pctS U	pctC B	Avg Spd	Spd 50pc t	Spd 85pc t
White Mountain Ave	190 feet N of Coyotero Rd	SB	VOL	48	3/19/2019	0:00	1423	7:00	126	0.7713	16:30	122	0.9242	0.9076	2.5%	0.1%	29.200	0.0	0.0
Apache Ave	165 feet N of Cutter Rd	NB	VOL	48	3/19/2019	0:00	294	7:15	66	0.7500	14:45	28	0.6250	0.8633	4.1%	0.0%	25.100	0.0	0.0
Apache Ave	165 feet N of Cutter Rd	SB	VOL	48	3/19/2019	0:00	372	7:30	73	0.7300	14:30	43	0.7963	0.7889	4.4%	0.0%	27.700	0.0	0.0
Cutter Rd	185 feet W of San Carlos Ave	EB	VOL	48	3/19/2019	0:00	1770	7:15	189	0.7810	15:45	164	0.7937	0.8959				0.0	0.0
Cutter Rd	185 feet W of San Carlos Ave	WB	VOL	48	3/19/2019	0:00	1698	11:45	136	0.8947	15:45	174	0.8529	0.8778				0.0	0.0
White Mountain Ave	225 feet E of San Carlos Ave	EB	VOL	48	3/19/2019	0:00	1083	11:45	73	0.8902	16:30	93	0.9490	0.8660	1.2%	0.0%	22.400	0.0	0.0
White Mountain Ave	225 feet E of San Carlos Ave	WB	VOL	48	3/19/2019	0:00	1154	11:45	94	0.7664	16:30	120	0.8451	0.8663	2.2%	0.1%	22.400	0.0	0.0
Aravaipa Ave	300 feet W of Route 170	EB	VOL	48	3/19/2019	0:00	660	7:15	66	0.7857	15:00	56	0.7708	0.7868	1.8%	0.0%	34.300	0.0	0.0
Aravaipa Ave	300 feet W of Route 170	WB	VOL	48	3/19/2019	0:00	6560	11:30	57	0.8636	16:30	86	0.9556	0.8267	3.8%	0.0%	33.700	0.0	0.0
Route 170	180 feet N of Peridot Siding Rd	NB	VOL	48	3/20/2019	0:00	3537	7:15	358	0.7386	16:30	294	0.9245	0.9515				0.0	0.0
Route 170	180 feet N of Peridot Siding Rd	SB	VOL	48	3/20/2019	0:00	3594	7:15	366	0.7409	15:00	313	0.8369	0.9529				0.0	0.0
Peridot Siding Rd	160 feet E of Route 170	EB	VOL	48	3/20/2019	0:00	1376	7:45	102	0.7575	14:45	118	0.9219	0.8746	0.9%	0.1%	23.600	0.0	0.0
Peridot Siding Rd	160 feet E of Route 170	WB	VOL	48	3/20/2019	0:00	1890	7:15	189	0.7441	16:30	154	0.9656	0.9102	1.6%	0.1%	24.800	0.0	0.0
Blue Stone Rd	800 feet E of Peridot Siding Rd	EB	VOL	48	3/20/2019	0:00	1220	11:30	10	0.7143	14:45	12	0.7500	0.4973	4.9%	0.0%	37.900	0.0	0.0
Blue Stone Rd	800 feet E of Peridot Siding Rd	WB	VOL	48	3/20/2019	0:00	1160	7:00	12	0.7500	15:00	13	0.7222	0.3778	6.0%	0.0%	40.300	0.0	0.0
High School Rd	100 feet S of US-70	EB	VOL	48	3/20/2019	0:00	3839	7:00	112	0.4849	14:30	44	0.7768	0.9391	4.3%	0.1%	18.700	0.0	0.0
High School Rd	100 feet S of US-70	WB	VOL	48	3/20/2019	0:00	3601	7:00	88	0.5641	15:00	48	0.3849	0.8786	1.5%	0.0%	14.200	0.0	0.0
Route 171	175 feet N of US-70	NB	VOL	48	3/20/2019	0:00	4481	7:30	58	0.6591	17:00	41	0.8913	0.7526	5.4%	0.2%	22.600	0.0	0.0
Route 171	175 feet N of US-70	SB	VOL	48	3/20/2019	0:00	5140	7:15	64	0.8000	15:00	52	0.9196	0.7707	3.9%	0.0%	20.500	0.0	0.0
Route 170	175 feet N of US-70	NB	VOL	48	3/20/2019	0:00	3676	7:15	426	0.7108	14:45	311	0.8988	0.9659				0.0	0.0
Route 170	175 feet N of US-70	SB	VOL	48	3/20/2019	0:00	3894	7:15	436	0.7055	14:45	323	0.8923	0.9632				0.0	0.0
Coolidge Dam Rd	275 feet N of US-70 Overpass	NB	VOL	32	3/20/2019	16:00	6270	11:00	46	0.7667	14:45	57	0.8906	0.6758	0.6%	0.0%	35.400	0.0	0.0
Coolidge Dam Rd	275 feet N of US-70 Overpass	SB	VOL	32	3/20/2019	16:00	6300	10:30	44	0.7857	16:45	66	0.9097	0.7053	1.0%	0.3%	36.300	0.0	0.0

Route	Location	Direction	Count Type	Count Dur	Start Date	Start Time	Avg Vol	AM PkHr	AM PkVol	AM PHF	PM PkHr	PM PkVol	PM PHF	Day Corr	pctS U	pctC B	Avg Spd	Spd 50pc t	Spd 85pc t
Peridot Siding Rd	160 feet N of US-70	NB	VOL	48	3/20/2019	0:00	2156	7:15	176	0.8073	16:30	190	0.8141	0.9269	0.9%	0.0%	32.600	0.0	0.0
Peridot Siding Rd	160 feet N of US-70	SB	VOL	48	3/20/2019	0:00	1580	7:30	116	0.8134	16:45	132	0.8833	0.8597	1.4%	0.2%	37.300	0.0	0.0
Rodeo Ln	160 feet S of US-70	NB	VOL	48	3/20/2019	0:00	611	7:00	50	0.8839	17:15	53	0.8833	0.7689	7.0%	0.2%	22.700	0.0	0.0
Rodeo Ln	160 feet S of US-70	SB	VOL	48	3/20/2019	0:00	690	7:30	60	0.8333	17:00	68	0.8438	0.7189	4.1%	0.1%	20.900	0.0	0.0
Chiricahua Dr	160 feet S of US-70	NB	VOL	48	3/20/2019	0:00	873	7:00	96	0.7619	16:00	66	0.7988	0.7999	2.1%	0.0%	21.200	0.0	0.0
Chiricahua Dr	160 feet S of US-70	SB	VOL	48	3/20/2019	0:00	856	11:15	64	0.7805	15:00	78	0.9070	0.7664	4.0%	0.1%	20.300	0.0	0.0
Moon Base Rd	100 feet N of US-70	NB	VOL	48	3/20/2019	0:00	1006	7:15	82	0.6174	16:15	95	0.7917	0.7989	3.7%	0.3%	18.000	0.0	0.0
Moon Base Rd	100 feet N of US-70	SB	VOL	48	3/20/2019	0:00	1170	7:15	109	0.8134	15:45	108	0.6891	0.8231	11.3%	1.6%	19.200	0.0	0.0
Medicine Way (Hospital Entrance)	160 feet N of US-70	NB	VOL	48	3/20/2019	0:00	1785	7:15	294	0.6060	12:30	142	0.8765	0.9566	2.0%	0.1%	19.200	0.0	0.0
Medicine Way (Hospital Entrance)	160 feet N of US-70	SB	VOL	48	3/20/2019	0:00	1795	11:45	169	0.7412	16:15	235	0.6351	0.9287	2.6%	0.0%	15.200	0.0	0.0
Point of Pines Rd	850 feet N of US-70	NB	VOL	48	3/20/2019	0:00	50	10:45	8	0.5714	12:00	4	0.5833	0.1597	1.0%	0.0%	38.300	0.0	0.0
Point of Pines Rd	850 feet N of US-70	SB	VOL	48	3/20/2019	0:00	44	10:45	4	0.5833	14:45	6	0.7500	0.1371	0.0%	0.0%	41.700	0.0	0.0
Warm Springs Rd	7000 feet N of Point of Pines Rd	NB	VOL	48	3/20/2019	0:00	1	7:15	0	0.2500		0	0.0000	0.0000	0.0%	0.0%	28.500	0.0	0.0
Warm Springs Rd	7000 feet N of Point of Pines Rd	SB	VOL	48	3/20/2019	0:00	2	11:45	0	0.2500	12:00	0	0.2500	-0.0150	0.0%	0.0%	36.700	0.0	0.0
Route 105	170 feet E of US-70	EB	VOL	48	3/19/2019	0:00	248	7:45	14	0.7778	18:30	28	0.7778	0.5786	2.4%	0.0%	13.300	0.0	0.0
Route 105	170 feet E of US-70	WB	VOL	48	3/19/2019	0:00	241	6:00	20	0.7885	18:00	23	0.7667	0.5627	1.9%	0.2%	13.500	0.0	0.0
Gasline Rd	300 feet S of Route 105	NB	VOL	48	3/19/2019	0:00	206	11:00	18	0.7955	19:30	19	0.6786	0.5586	5.1%	0.0%	22.400	0.0	0.0
Gasline Rd	300 feet S of Route 105	SB	VOL	48	3/19/2019	0:00	208	9:15	12	0.9583	17:00	22	0.8036	0.5750	3.1%	0.0%	21.500	0.0	0.0
Route 105 (Connector D)	70 feet W of US-70	EB	VOL	48	3/20/2019	0:00	281	6:45	20	0.8542	16:30	24	0.7656	0.5687	0.0%	0.0%	8.700	0.0	0.0
Route 105 (Connector D)	70 feet W of US-70	WB	VOL	48	3/20/2019	0:00	269	11:30	18	0.7955	17:30	30	0.8824	0.6356	0.7%	0.0%	12.000	0.0	0.0
Navajo Point Loop Rd	600 feet S of Route 105 (Connector D)	EB	VOL	48	3/20/2019	0:00	172	11:30	10	0.6563	17:30	20	0.7692	0.5000	4.1%	0.0%	24.700	0.0	0.0
Navajo Point Loop Rd	600 feet S of Route 105 (Connector D)	NB	VOL	48	3/20/2019	0:00	146	7:30	10	0.6250	19:00	14	0.6750	0.5258	3.4%	0.0%	26.500	0.0	0.0

Route	Location	Direction	Count Type	Count Dur	Start Date	Start Time	Avg Vol	AM PkHr	AM PkVo	AM PHF	PM PkHr	PM PkVo	PM PHF	Day Corr	pctS U	pctC B	Avg Spd	Spd 50pc t	Spd 85pc t
Gasline Rd	240 feet N of Route 105 (Connector B)	NB	VOL	48	3/19/2019	0:00	266	11:00	25	0.7353	18:15	31	0.7381	0.5830	4.3%	0.2%	25.900	0.0	0.0
Gasline Rd	240 feet N of Route 105 (Connector B)	SB	VOL	48	3/19/2019	0:00	273	9:00	16	0.6346	18:30	28	0.8088	0.6147	2.0%	0.0%	25.600	0.0	0.0
Route 105 (Connector B)	120 feet E of US-70	EB	VOL	48	3/19/2019	0:00	174	11:00	13	0.9286	17:45	21	0.6176	0.3673	1.1%	0.3%	12.500	0.0	0.0
Route 105 (Connector B)	120 feet E of US-70	WB	VOL	48	3/19/2019	0:00	184	7:00	16	0.6154	18:30	17	0.6538	0.4773	1.4%	0.0%	11.100	0.0	0.0
Gasline Rd	300 feet S of Route 105 (Connector B)	NB	VOL	48	3/19/2019	0:00	239	11:15	27	0.9000	18:15	24	0.8571	0.6338	3.1%	0.0%	25.300	0.0	0.0
Gasline Rd	300 feet S of Route 105 (Connector B)	SB	VOL	48	3/19/2019	0:00	232	11:15	17	0.7083	17:00	22	0.7679	0.5267	1.7%	0.0%	26.500	0.0	0.0
Navajo Point Loop Rd	260 feet S of Route 105 (Connector C)	NB	VOL	48	3/19/2019	0:00	250	11:45	22	0.8958	16:15	28	0.6875	0.6761	3.0%	0.2%	24.600	0.0	0.0
Navajo Point Loop Rd	260 feet S of Route 105 (Connector C)	SB	VOL	48	3/19/2019	0:00	260	11:30	22	0.7333	16:45	24	0.7206	0.5618	2.7%	0.0%	27.200	0.0	0.0
Route 105 (Connector C)	100 feet E of US-70	EB	VOL	48	3/19/2019	0:00	184	11:30	17	0.7083	12:00	15	0.6250	0.3754	2.2%	0.0%	21.100	0.0	0.0
Route 105 (Connector C)	100 feet E of US-70	WB	VOL	48	3/19/2019	0:00	154	11:45	14	0.5625	13:45	18	0.8182	0.5596	0.3%	0.0%	20.400	0.0	0.0
Navajo Point Loop Rd	170 feet N of Route 105 (Connector C)	NB	VOL	48	3/19/2019	0:00	330	11:45	28	0.7778	15:45	26	0.7222	0.6172	3.0%	0.2%	24.500	0.0	0.0
Navajo Point Loop Rd	170 feet N of Route 105 (Connector C)	SB	VOL	48	3/19/2019	0:00	338	11:30	25	0.7353	18:15	30	0.7024	0.5642	3.6%	0.0%	24.200	0.0	0.0
New Road	130 feet SE of Curve on Connector A	NWB	VOL	48	3/19/2019	0:00	327	7:00	36	0.7935	18:30	34	0.9306	0.5754	3.8%	0.2%	29.400	0.0	0.0
New Road	130 feet SE of Curve on Connector A	SE	VOL	48	3/19/2019	0:00	322	7:00	31	0.7381	16:15	31	0.7381	0.6099	12.8%	0.5%	26.300	0.0	0.0
Route 105	120 feet E of US-70	EB	VOL	48	3/19/2019	0:00	40	7:00	6	0.4643	15:15	6	0.5500	0.5502	7.5%	0.0%	18.600	0.0	0.0
Route 105	120 feet E of US-70	WB	VOL	48	3/19/2019	0:00	46	11:45	6	0.6875	15:15	7	0.7000	0.2210	9.8%	0.0%	16.900	0.0	0.0
New Road (Unknown Name)	200 feet N of Housing Community Entrance	NB	VOL	48	3/19/2019	0:00	304	7:00	31	0.8158	18:30	30	0.8676	0.5024	4.4%	0.0%	35.200	0.0	0.0
New Road (Unknown Name)	200 feet N of Housing Community Entrance	SB	VOL	48	3/19/2019	0:00	310	7:00	32	0.6848	16:30	28	0.7500	0.6215	4.0%	0.2%	37.000	0.0	0.0
US-70	4360 feet E of Route 15	EB	VOL	48	3/19/2019	0:00	176	10:45	140	0.8892	14:30	145	0.8631	0.8607	3.3%	6.7%	62.600	0.0	0.0
US-70	4360 feet E of Route 15	WB	VOL	48	3/19/2019	0:00	180	11:45	108	0.8958	17:00	160	0.7384	0.8506	4.0%	7.6%	66.100	0.0	0.0
US-70	2800 feet W of Casino Entrance	EB	SPD	48	3/20/2019	0:00	411	7:00	284	0.8696	16:00	298	0.9430	0.9319	2.2%	3.5%	63.531	63.6	69.3
US-70	2800 feet W of Casino Entrance	WB	SPD	48	3/20/2019	0:00	419	11:15	272	0.9595	15:30	417	0.9434	0.9590	2.0%	3.5%	61.355	61.4	68.0
Cutter Rd	3000 feet E of Route 61	EB	SPD	48	3/20/2019	0:00	159	7:00	136	0.7364	15:30	154	0.6016	0.9150	1.3%	0.1%	60.569	60.1	67.1

Route	Location	Direction	Count Type	Count Dur	Start Date	Start Time	Avg Vol	AM PkHr	AM PkVol	AM PHF	PM PkHr	PM PkVol	PM PHF	Day Corr	pctS U	pctC B	Avg Spd	Spd 50pc t	Spd 85pc t
Cutter Rd	3000 feet E of Route 61	WB	SPD	48	3/20/2019	0:00	1601	7:00	138	0.8415	17:00	149	0.9198	0.8849	1.3%	0.1%	58.718	58.3	64.5
Route 1001	2300 feet N of Route 10	NB	SPD	48	3/19/2019	0:00	100	10:45	11	0.7857	13:00	9	0.4500	0.3606	8.0%	0.0%	30.981	30.9	39.6
Route 1001	2300 feet N of Route 10	SB	SPD	48	3/19/2019	0:00	98	11:45	10	0.8333	13:45	10	0.5556	0.4219	10.7%	0.0%	29.911	30.0	41.4
Route 10	1950 feet E of Route 10/Route 1001 Intersection	EB	SPD	48	3/19/2019	0:00	42	11:45	3	0.7500	18:30	8	0.6250	0.2979	2.4%	1.2%	34.916	35.0	44.5
Route 10	1950 feet E of Route 10/Route 1001 Intersection	WB	SPD	48	3/19/2019	0:00	38	10:00	4	0.8750	15:00	6	0.5500	0.4930	1.3%	1.3%	38.456	38.8	44.1
White Mountain Ave	700 feet E of Old White Mountain Ave	EB	SPD	48	3/19/2019	0:00	1148	7:00	102	0.7969	16:15	103	0.9364	0.8580	2.5%	0.0%	27.915	27.9	32.2
White Mountain Ave	700 feet E of Old White Mountain Ave	WB	SPD	48	3/19/2019	0:00	1140	11:45	76	0.8779	15:45	112	0.7305	0.8799	2.4%	0.0%	29.039	28.8	33.3
San Carlos Ave	150 feet N of Cibicue Rd	NB	SPD	48	3/19/2019	0:00	2384	7:15	294	0.8305	12:00	194	0.9151	0.9378	5.0%	0.1%	21.167	21.6	27.2
San Carlos Ave	150 feet N of Cibicue Rd	SB	SPD	48	3/19/2019	0:00	2438	7:15	306	0.7183	12:00	229	0.7897	0.9593	1.9%	0.1%	20.363	20.9	26.5
Route 170	200 feet N of Aravaipa Ave	NB	SPD	48	3/19/2019	0:00	3297	7:15	371	0.7332	12:00	264	0.8684	0.9549	1.8%	0.1%	23.824	23.8	28.1
Route 170	200 feet N of Aravaipa Ave	SB	SPD	48	3/19/2019	0:00	3304	7:30	318	0.7632	15:45	300	0.7087	0.9484	1.5%	0.1%	26.594	26.9	30.9
Route 170	200 feet S of Peridot Siding Rd	EB	SPD	48	3/20/2019	0:00	2390	7:15	286	0.7566	15:00	217	0.8411	0.9409	2.2%	0.1%	47.134	47.0	52.6
Route 170	200 feet S of Peridot Siding Rd	WB	SPD	48	3/20/2019	0:00	1822	7:15	178	0.7063	15:00	159	0.8548	0.9264	2.7%	0.1%	45.887	45.8	51.3
US-70	1400 feet E of High School Rd	EB	SPD	48	3/20/2019	0:00	2691	7:15	204	0.7650	15:30	213	0.8730	0.8672	2.2%	4.9%	54.558	54.2	61.2
US-70	1400 feet E of High School Rd	WB	SPD	48	3/20/2019	0:00	2796	11:00	184	0.8786	16:30	258	0.9646	0.9325	2.2%	5.1%	56.583	56.8	64.0
US-70	1000 feet E of Moon Base Rd	EB	SPD	48	3/20/2019	0:00	3223	7:30	328	0.6222	16:15	249	0.9291	0.9216	1.6%	4.1%	53.769	53.8	59.5
US-70	1000 feet E of Moon Base Rd	WB	SPD	48	3/20/2019	0:00	3300	11:30	268	0.7914	15:45	328	0.6880	0.9519	1.6%	4.0%	48.993	48.6	54.5
US-70	650 feet E of Route 105 (Connector C)	NB	SPD	48	3/19/2019	0:00	1987	11:15	155	0.9451	15:30	144	0.9567	0.8368	2.9%	6.2%	45.518	45.5	51.4
US-70	650 feet E of Route 105 (Connector C)	SB	SPD	48	3/19/2019	0:00	1992	11:15	132	0.9296	16:45	180	0.8848	0.8631	2.6%	6.9%	46.307	46.1	52.1
APACHE GOLD CASINO ENTRANCE	At US-70	ALL	TMC	4	3/21/2019	7:30	2901	7:30	668	0.8930	16:00	912	0.9120	0.0000	0.0%	0.0%		0.0	0.0
CUTTER RD (AZ-170)	At US-70	ALL	TMC	4	3/21/2019	7:30	2368	7:30	565	0.9172	16:00	724	0.9282	0.0000	0.0%	0.0%		0.0	0.0
SAN CARLOS AVE	At TONTO ST	ALL	TMC	4	3/21/2019	7:30	1488	7:30	534	0.8042	16:00	336	0.8235	0.0000	0.0%	0.0%		0.0	0.0

Route	Location	Direction	Count Type	Count Dur	Start Date	Start Time	Avg Vol	AM PkHr	AM PkVo	AM PHF	PM PkHr	PM PkVo	PM PHF	Day Corr	pctS U	pctC B	Avg Spd	Spd 50pc t	Spd 85pc t
SAN CARLOS AVE	At WHITE MOUNTAIN AVE/PINAL ST	ALL	TMC	4	3/21/2019	7:30	261	7:30	842	0.736	16:15	699	0.944	0.0000	0.0%	0.0%		0.0	0.0
AZ-170/SAN CARLOS AVE	At ARAVAIPA RD	ALL	TMC	4	3/21/2019	7:30	223	7:30	710	0.733	16:30	620	0.906	0.0000	0.0%	0.0%		0.0	0.0
PERIDOT SIDING RD	At US-70	ALL	TMC	4	3/21/2019	7:30	350	7:30	981	0.771	16:15	1013	0.924	0.0000	0.0%	0.0%		0.0	0.0
CHIRICAHUA DR	At US-70	ALL	TMC	4	3/21/2019	7:30	326	7:30	923	0.764	16:15	909	0.877	0.0000	0.0%	0.0%		0.0	0.0
ROUTE 105 CONNECTOR C	At US-70	ALL	TMC	4	3/21/2019	7:30	129	7:30	264	0.904	16:00	407	0.908	0.0000	0.0%	0.0%		0.0	0.0
LOWER RD	At CONNECTOR RD C	ALL	TMC	4	3/21/2019	7:30	257	7:30	43	0.767	17:00	86	0.826	0.0000	0.0%	0.0%		0.0	0.0
US-70	At ROUTE 105 CONNECTOR F/CENTERPOINT ENTRANCE	ALL	TMC	4	3/21/2019	7:30	148	7:45	314	0.957	16:00	453	0.891	0.0000	0.0%	0.0%		0.0	0.0