



**YUMA METROPOLITAN
PLANNING ORGANIZATION**

**2022-2045
LONG-RANGE
TRANSPORTATION
PLAN UPDATE**

Yuma Region in Motion

FINAL REPORT

July 2021

ACKNOWLEDGEMENTS

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Thank you to the study partners for their commitment of time, information sharing, and technical guidance throughout the planning process.

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Thank you to the residents of YMPO region for their participation in this planning process and their passion for improving the place they call home.



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1. LONG-RANGE TRANSPORTATION PLAN OVERVIEW

The Yuma Metropolitan Planning Organization (YMPO) is a federally recognized Metropolitan Planning Organization (MPO) for the Yuma region, located in southwestern Arizona. Federal legislation designates that an MPO must be established to represent urbanized areas with populations exceeding 50,000, as determined by the United States Decennial Census. The 1980 United States Decennial Census identified that the urbanized portion of Yuma County met the MPO population threshold 50,000, and in turn, YMPO was formed in 1982. The purpose of the YMPO is to serve as a coordinating body for local, state, and federal agencies on traffic, transportation, air quality conformity, and related issues in Yuma County.

What is the YMPO Long-Range Transportation Plan?

Every four years, the YMPO updates the Long-Range Transportation Plan (LRTP). This plan provides a common vision for the region's future transportation needs and guides the investment of public funds in transportation facilities, over the next 25 years. It includes short-, mid-, and long-term transportation strategies and addresses all modes of transportation, including automobile, bicycle, pedestrian, transit, truck, air, and rail movements. More directly than it has done in past, the YMPO strives to create a comprehensive LRTP that addresses all modes, evaluates roadway improvements and funding scenarios, and establishes a path toward not only meeting the region's transportation needs, but ensuring performance targets are met. The primary objectives of the YMPO 2022-2045 LRTP are to:

- Comprehensively assess regional transportation performance and needs;
- Develop an achievable improvement and implementation plan; and
- Establish policies to prioritize and systematically implement projects to address mobility, safety, pavement, bridge, and freight needs.

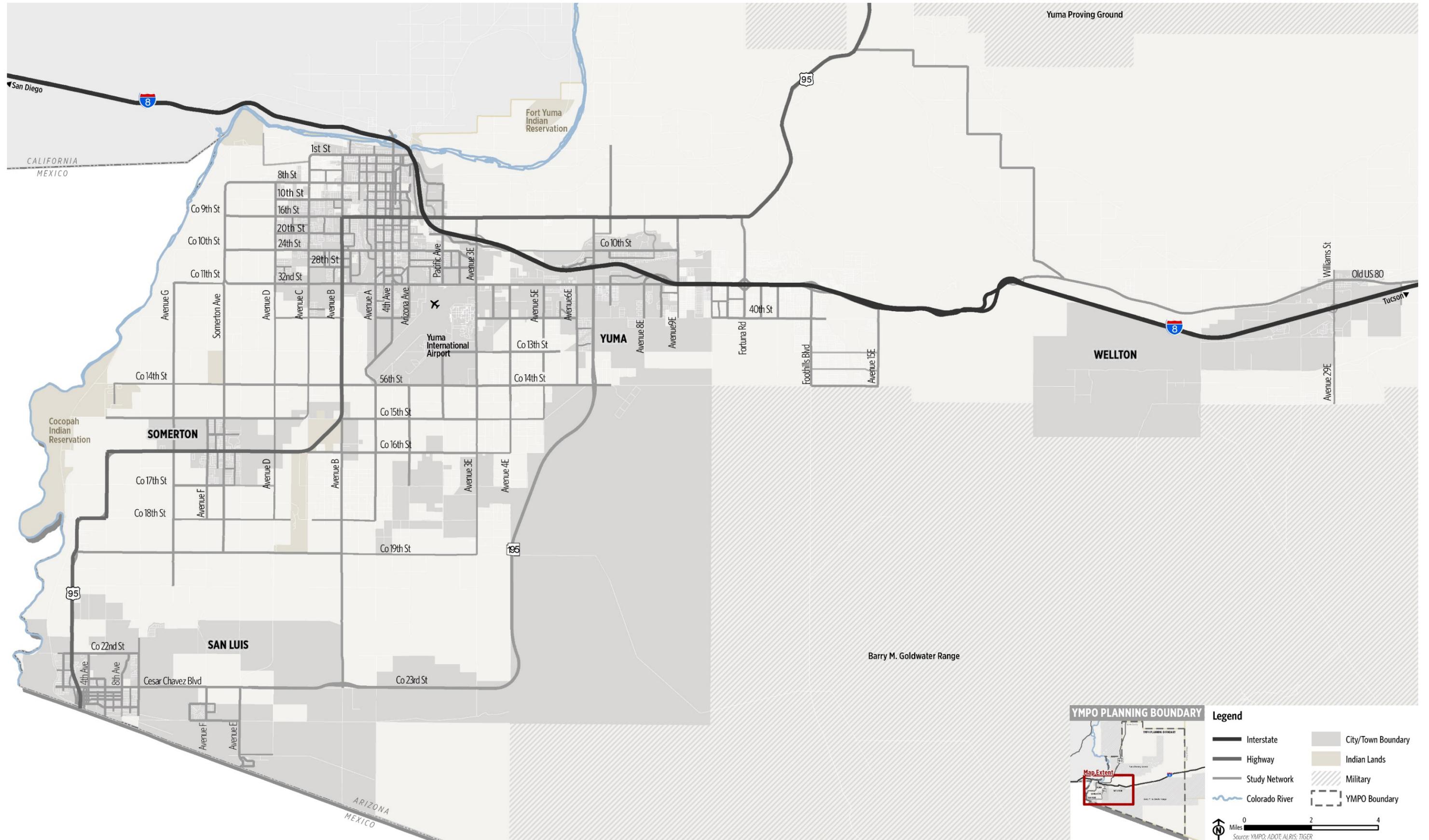
YMPO Planning Area

The YMPO is designated as a bi-state MPO and the planning area encompasses the entirety of Yuma County and the community of Winterhaven in Imperial County (**see Figure 1.1**). YMPO covers nearly 5,522 square miles and includes the cities of Yuma, Somerton, and San Luis, the Town of Wellton, the Cocopah Indian Tribe, and several unincorporated communities. Much of Yuma County is desert land accented by rugged mountains. However, several river valley regions contain an abundance of arable land, which is irrigated with water from the Colorado River. Farming, cattle, tourism, warehousing, manufacturing, and two military bases - US Marine Corp Air Station (MCAS) and US Army Yuma Proving Ground (YPG) are Yuma County's principal industries. MCAS shares one of the longest runways in the country with the Yuma International Airport.

Study Network

Streets are the physical backbone of the region's transportation network and one of the largest public assets. Developing a complete and connected multimodal network begins with identifying a wider transportation network of local and regional roadways called the "Study Network." The Study Network served as the basis for analyzing the performance and function of the region's transportation network. **Figure 1.1** illustrates the YMPO Long-Range Transportation Plan study network.

Figure 1. Study Area



YMPO PLANNING BOUNDARY

Legend

- Interstate
- Highway
- Study Network
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMPO Boundary

0 2 4 Miles

Source: YMPO; ADOE; ALRIS; TIGER

Why this Plan is Important

The YMPO region is changing - we are growing by leaps and bounds, our transportation network is transforming, and the mobility needs of our residents are increasing. Some of these challenges are old, some new, some are global, and others are unique to our region. To provide our residents, visitors, and businesses with the transportation network that works with their unique needs, we need to face our transportation future head-on. Here is a snapshot of the challenges we are facing and why this Plan is so important.

The Region is Growing

People and businesses are increasingly choosing the YMPO area as their home. By 2045 our population is projected to increase by 35 percent and employment by 30 percent! While this is great news for our economy, growth increases stress on our transportation system. The YMPO region has seen steady growth and, with the 2020 Census, population estimates may find the region exceeding the 200,000-population threshold to become a designated TMA- Transportation Management Area. As a TMA, YMPO will need to include additional modules to the LRTP. The 2022-2045 LRTP will need to lay the groundwork for YMPO to transition to TMA status.

We Drive A Lot

Like many of our peer areas, YMPO residents drive more and walk, bike, and use transit less. The reasons for our vehicle-dependency are complex and related not only to infrastructure, but also to our geography and culture. One way of combating congestion is reducing our dependency on vehicles and shifting our mindset and priorities when it comes to transportation and density.

Designing for Safety

No matter how a person travels, safety is our top priority! Nationwide, the number of people struck and killed walking has increased by 35% in the past decade! In 2018 alone, one pedestrian was killed every 88 minutes in traffic crashes nationwide. Rethinking how we approach safety and the design of our streets, so our most vulnerable users are safe, improves safety for everyone!

Local and International Hub

Strategically located at the crossroads of Arizona, California, and Mexico, the YMPO region is an important hub both in southwest Arizona and internationally. San Luis I LPOE is the busiest noncommercial LPOE in Arizona – with over 3 million vehicles and 2.5 million pedestrians a year. Planned expansion to the LPOE will further increase congestion issues in San Luis and on US 95. International trade connections between the United States, Mexico, and Canada present significant opportunities and challenges for the YMPO region.

By 2045 the YMPO region is projected to grow by...



Each year, San Luis I Land Port of Entry Processes:



Source: Arizona Commerce Authority Socioeconomic Projections, INRIX, US Census Bureau, US General Services Administration, theNounProject.com

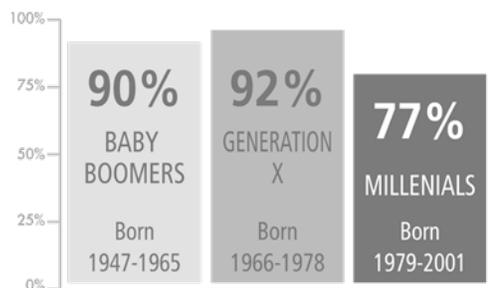
HIT BY A VEHICLE TRAVELING AT 20 MPH



HIT BY A VEHICLE TRAVELING AT 40 MPH



Commute to Work by Car (National Average by Age Group)



Source: Dangerous by Design, Bureau of Labor Statistics
Alliance for Biking and Walking, theNounProject.com

Prioritizing Investments

Since the completion of the Yuma Metropolitan Planning Organization (YMPO) 2018-2041 Regional Transportation Plan (RTP), several changes have occurred. These include changes in the local and regional economy, additional Fixing America's Surface Transportation (FAST) Act requirements have been enacted, a global pandemic has occurred, and the region has begun to evaluate the viability of a dedicated local funding source. All these changes necessitate a fresh perspective on the region's current and future transportation needs. Prioritizing our scarce funds to vital links in our transportation system helps us to focus on projects that achieve the biggest bang for our buck.

Incomplete Multimodal Networks

While there are hundreds of miles of sidewalks, bike lanes, and trails across our region, gaps in the system and lack of connectivity make it difficult for people to get around. Limited infrastructure, cul-de-sacs that restrict access, interstates and canals that create discontinuous or inconvenient routes can discourage walking and biking, complicate emergency vehicles access, and create longer travel times.

Meet the Needs of Everyone

Increasingly, people of all ages are seeking more walkable and bikeable neighborhoods that offer a wide range of transportation options (including transit, shared mobility, and on-demand services). Baby boomers, retirees, and millennials are increasingly moving to locations where they can walk or ride a bike to access their daily needs. Research conducted by the Bureau of Transportation Statistics shows that nearly two-thirds of homebuyers consider the walkability of an area in their purchase decision. Employers are increasingly looking for locations that offer their employees walkable and bikeable communities in which to live, work, and play.

Moving People, Not Cars

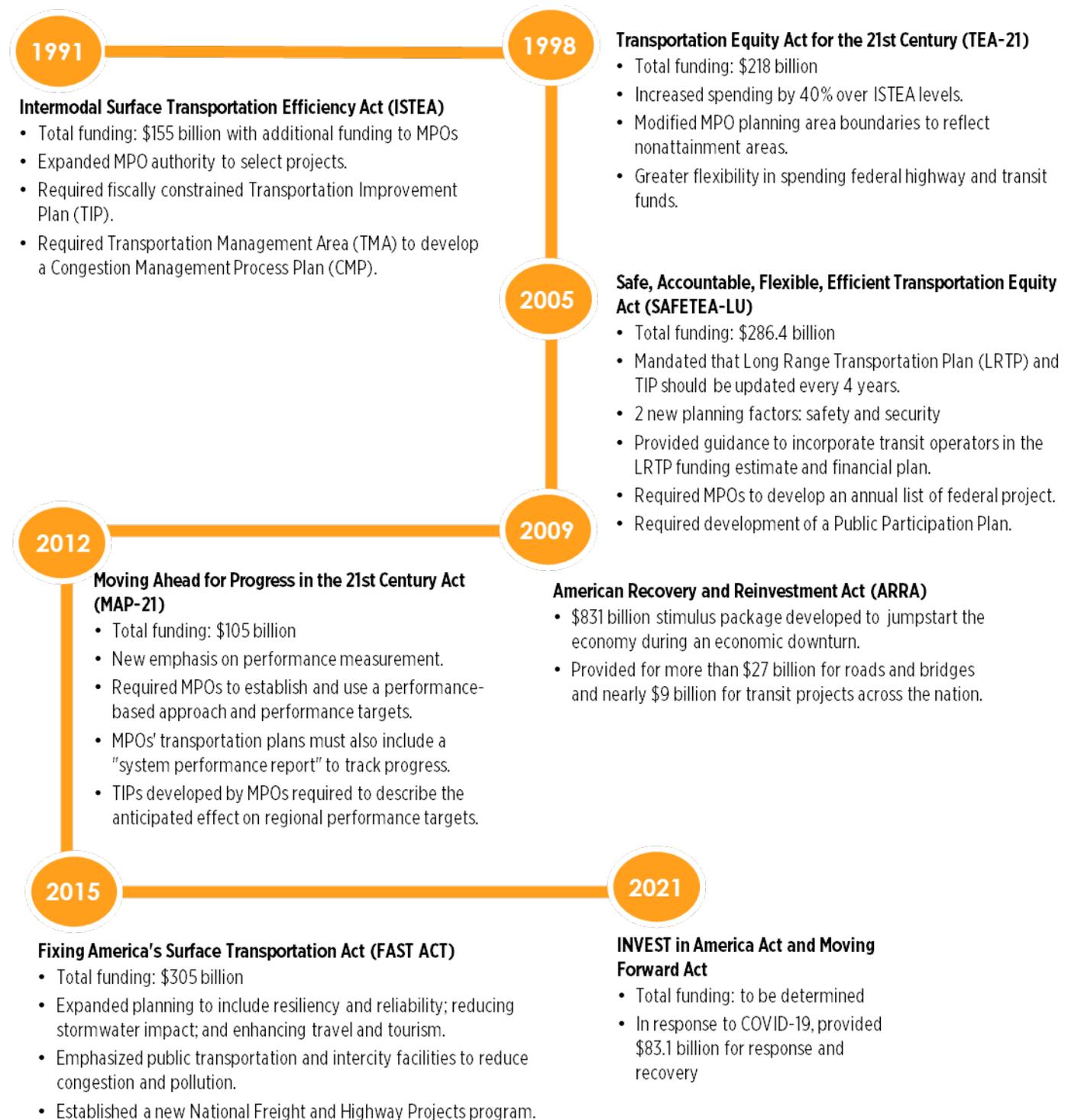
Our street network traditionally has been designed to focus on vehicle travel at the expense of the streets' other important functions. Streets should allow transit to travel efficiently, people to walk and ride bicycles, freight to move, as well as contribute to our livability by providing space for socializing and for businesses to function. Streets that do not provide comfortable alternatives to driving create barriers to transportation, especially for those people who cannot drive, such as people with mobility limitations or who cannot afford a vehicle.

How We Got Here

This section provides a summary of legislative acts and previous transportation plans, studies, and reports that influence how the YMPO region's transportation system looks and functions today.

Timeline of Legislative Acts

With significant legislative and policy changes occurring since the 2018-2041 RTP, this LRTP must account for and coincide with federal legislation changes and performance measurement targets initiated by the FAST Act. Under these new regulations, all regional agencies are required to establish performance targets to be eligible as a funding recipient. The following illustrates key transportation legislative acts and the impacts of the acts on MPOs.

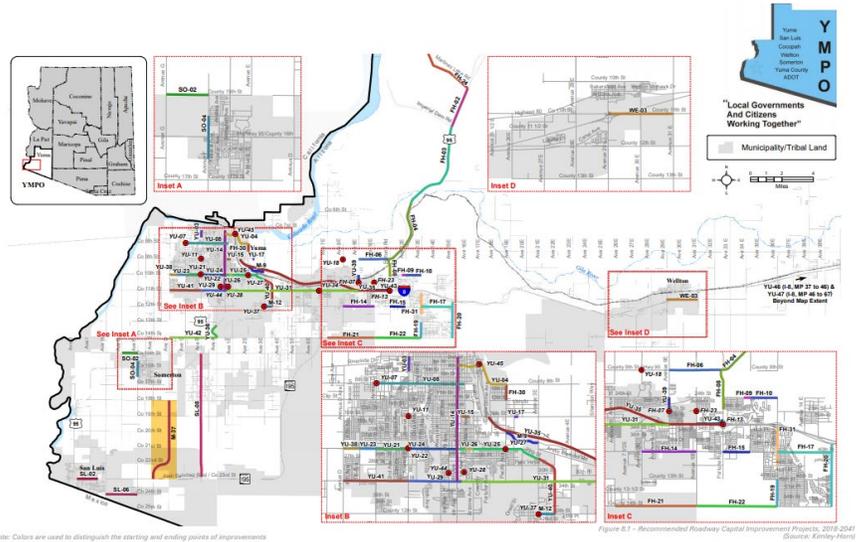


Previous Plans and Studies

Previous transportation plans, studies, and reports were reviewed to acknowledge recommendations and implemented plans that apply to the existing multimodal transportation system in the region.

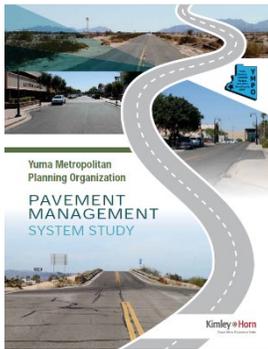
YMPO 2018-2041 Regional Transportation Plan (RTP)

The 2018-2041 YMPO RTP Update included comprehensive current and future conditions analyses and a transportation investment implementation plan for short-, mid-, and long-term planning horizons across the YMPO region. While the plan includes roadway, transit, and aviation needs, the focus of the plan was on roadway improvements, since YMPO member jurisdictions have control over the allocation of the revenues associated with roadway improvements. Ultimately, the Plan recommended numerous short-, mid-, and long-term improvement projects totaling over \$394.3 million in project costs from 2018 to 2041. Recommended improvements from the 2018 RTP were reviewed to determine the status of the projects and evaluated against current and future needs.



Note: Colors are used to distinguish the starting and ending points of improvements

Figure 0-1 - Recommended Roadway Capital Improvement Projects, 2018-2041 (Source: Kinley+Horn)



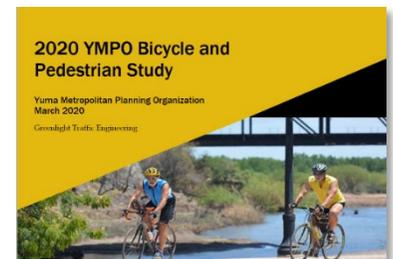
YMPO Pavement Management System Study (2020)

The objective of the YMPO Pavement Management System Study (PMS) was to provide YMPO and its member agency stakeholders with the information necessary to make informed decisions about how to maintain pavement assets and at what cost. Because the City of Yuma and Yuma County have previously implemented PMS programs and have completed pavement condition assessment activities in recent years, the Study focused on developing similar data sets for the Cocopah Nation, the Cities of San Luis and Somerton, and the Town of Wellton. Of the nearly 3.8 million sq. yd. of pavement assessed, nearly a quarter (22.9%) of the pavement was in good condition and over 40% of pavement was satisfactory. Over 13% of pavement conditions were found to be from poor to failing condition.

YMPO Bicycle and Pedestrian Study (2020)

The purpose of this study was to evaluate existing pedestrian and bicycle facilities within the YMPO region and to determine additional facilities that would promote and improve the safety and accessibility for bicyclists and pedestrians across the entire region. The Study reviewed existing pedestrian and bicycle facilities in the YMPO region and identified deficits and opportunities for safety improvements. Recommendations included:

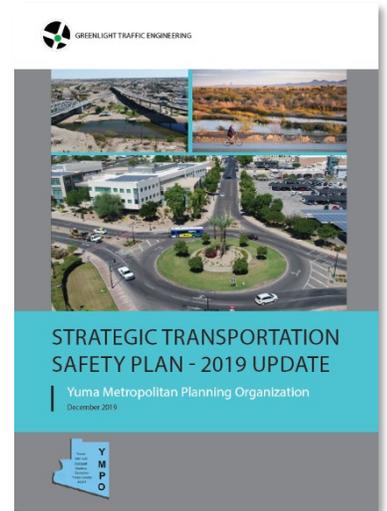
- Bike lanes along all arterials, including 6-foot-wide shoulder for rural arterials, sharrow markings in the urban areas with speed limit of 35 mph or less, and adding bike lanes in the urban areas with speed limit higher than 35 mph.
- Bike lanes along all transit routes and on collectors that are not covered by transit routes.
- Installed marked crosswalks at transit stops and between neighborhoods and parks,



YMPO Regional Strategic Transportation Safety Plan Update (2019)

This purpose of this plan was to identify key strategies and resources that can be implemented to reduce the risk of fatal and serious injury crashes occurring on roadways within the YMPO region. A key component of the STSP was to identify projects for pursuing Highway Safety Improvement Program (HSIP) funds. Nine HSIP applications were developed, and eight projects were awarded \$10 million. These include:

- City of Yuma:
 - 32nd Street & Avenue 7E, 32nd Street & Pacific Ave, 24th Street & Avenue A: Flashing yellow arrows;
 - 5 Arterials (30 Miles): Wider pavement markings; and
 - 4th Avenue & Court St/4th Street/12th Street, 12th Street & 6th Avenue, Giss Parkway & 1st Ave: Pedestrian hybrid beacons.
- Yuma County:
 - County 11th Street & Avenue G: Curve realignment, paved shoulders, warning signage;
 - 13 Arterials (98 Miles): Wider pavement markings; and
 - Avenue G, County 19th Street: Centerline rumble strips; County 14th Street & Avenue 4E: Traffic signal installation, turn lanes.
- City of San Luis:
 - 10th Avenue & Los Alamos Street: Curve realignment, paved shoulders, warning signage.



Additional Local and Regional Studies and Plans

A review of member agency and key stakeholder's previously completed studies and plans was completed to better understand the local, regional, and statewide network of transportation facilities that will directly or indirectly impact the YMPO's transportation system. This review included:

- City of Yuma (2012), Yuma County (2020), Town of Wellton (2013, City of Somerton (2010), and City of San Luis (2020) Comprehensive Plans
- Yuma County Intergovernmental Public Transportation Authority (YCIPTA) Short Range Transit Plan
- YCIPTA Wellton Regional Transit Connector Service Feasibility Review and Implementation Plan (2006)
- ADOT I-8 Corridor Profile Study (2017)
- ADOT Binational Freight Corridor Study (2017)
- ADOT Binational San Luis Transportation Study (2013)
- City of Somerton Transportation Plan Update (2013)
- City of San Luis Transit Circulation Study (2016)
- Town of Wellton Transportation Long-Range Plan PARA (2011)
- Town of Wellton Bicycle and Pedestrian Plan (2014)
- Winterhaven / Quechan Reservation Rural Connector (2008)
- Yuma County Transportation Needs for the Foothills and Mesa Del Sol Areas PARA (2012)
- City Yuma Tree and Shade Master Plan (2020)
- City Yuma Transportation Master Plan (2020)
- U.S. Border Patrol Strategy (2020)

Plan Process

The development of the YMPO 2022-2045 Long-Range Transportation Plan was a collaborative effort that brought together residents, the business community, regional and state partners, and local stakeholders to create a strategic transportation vision for the YMPO area. The Plan's process included listening, complex technical analysis, as well as coordination with concurrent planning initiatives and community partners. The multi-phased process included the following steps:

SETTING THE STAGE	The YMPO Long-Range Transportation Plan assessed how people and goods are traveling in and through the region, as well as the performance, safety, and comfort of the region's existing transportation network. The process provided a base for understanding the region's transportation challenges and needs today and tomorrow.
ALTERNATIVES EVALUATION AND DRAFT RECOMMENDATIONS	A transportation network is only as good as its weakest link. Draft improvement strategies were identified and evaluated to address or mitigate issues, system gaps, and needs identified in the first step.
RECOMMENDED INVESTMENT PLAN	Draft candidate projects identified in the previous step were prioritized using a data-driven process and funding availability. The draft Investment Plan was developed to outline short-, mid-, and long-term prioritized project and investment recommendations.
FINAL 2045 LRTP	This phase of the project included a collaborative process between YMPO and its member agencies to recommend projects and priorities.

Long-Range Transportation Plan (LRTP) Requirements

An LRTP is a federally mandated document for MPOs in order to establish and/or update long-term planning vision and goals, as well as reassess changes to the regional system and reprioritize regional investments. Every four years, YMPO identifies the system's strengths and weaknesses; forecasts changes in population, employment, and land use; and creates a plan to address existing and future mobility needs. Pursuant to Title 23 U.S. Code § 134 and Title 49 U.S. Code § 5303, all metropolitan planning organizations which are not designated with air quality non-attainment are required to update their respective transportation plans at a frequency of no longer than every five years using a 20+ year planning horizon. In addition to federal requirements, Arizona executive order mandates that all MPO transportation plans are fiscally constrained and utilize the state demographer's population projections in all traffic model forecasting.



2. PLANNING FRAMEWORK

This section outlines the region's vision for transportation, and the goals, objectives, and performance measures that lay the groundwork for the LRTP's planning process. After Plan adoption, these goals, objectives, and performance measures are routinely reviewed and monitored through an annual process that reports on system performance.

YMPO LRTP Goals

The future of the transportation system in the Yuma MPO region will be driven by the goals, objectives, and performance measures developed by the LRTP. Since these goals, objectives, and performance measures set the foundation for the entire planning effort, it is important that they reflect the direction of the community. The YMPO Board of Directors previously elected to adopt and support ADOT's transportation planning goals and performance targets; however, additional regional goals areas and targets have also been identified as priority transportation areas for the region. **Figure 2.1** outlines the goal statements that will set a roadmap for the region while also meeting federal requirements.

Figure 2.1. YMPO Adopted ADOT Transportation Goals and Additional YMPO Regional Priority Transportation Goals



Objectives, Performance Measures, and Targets

The YMPO 2045 LRTP was developed to be consistent with the requirements of the Fixing America's Surface Transportation Act (FAST Act), which was signed into law on December 4, 2015. The FAST Act maintained a performance-driven, outcome-based approach to transportation planning first introduced with the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was signed into law in 2012. Performance-based planning methods help to translate a long-range vision into a set of goals, priorities, and performance criteria that can be used to guide investment decisions.

Performance measures are quantifiable outcomes that help track progress toward accomplishing goals. Performance targets are intended to be realistic and achievable outcomes, given the funding constraints of the region. FHWA requires states (ADOT) to establish the goals/percentages for the categories defined by FHWA, as outlined in MAP-21 and the FAST Act. YMPO also has elected to support ADOT's performance targets along with their goals. **Table 2.1** outlines the objectives, performance measures, and performance targets for the YMPO LRTP.

Table 2.1. Objectives, Performance Measures, and Targets

Objective	Performance Measure	Performance Target
ADOT Goal: Safety		
Reduce the number of fatalities and serious injuries on public roads in the region.	Number of fatalities	1% or less increase in fatalities
	Fatality rate	0% or less increase in fatality rate
	Serious injuries	4% or more decrease in suspected serious injuries
	Serious injury rate	6% or more decrease in suspected serious injury rate
	Non-motorized fatalities / suspected serious injuries	2% or less increase in non-motorized fatalities / suspected serious injuries
ADOT Goal: Infrastructure Condition		
Increase the percentage of roads in good condition.	Percent of Interstate pavements in good condition	4-year target of 44% or more of interstate pavements in good condition
	Percent of Interstate pavements in poor condition	4-year target of 2% or less of interstate pavements in poor condition
	Percent of Non-Interstate NHS pavements in good condition	2- and 4-year target of 28% or more of non-interstate NHS pavements in good condition
	Percent of Non-Interstate NHS pavements in poor condition	2- and 4-year target of 6% or less of non-interstate NHS pavements in poor condition
Increase the percentage of bridges in good condition	Percent of NHS bridges classified in good condition based on deck area	2- and 4-year target of 52% or more of NHS bridges in good condition
	Percent of NHS Bridges classified in poor condition based on deck area	2- and 4-year target of 4% or less of NHS bridges in poor condition

Table 2.1. Objectives, Performance Measures, and Targets (Continued)

Objective	Performance Measure	Performance Target
ADOT Goal: System Reliability		
Improve travel time reliability	Percent of person-miles on interstate with reliable travel times	86% (2 year) and 85.8% (4 year) target of person-miles on interstate have reliable travel times
	Percent of person-miles on non-interstate NHS with reliable travel times	74.9% of person-miles on non-interstate NHS have reliable travel times
ADOT Goal: Freight Movement & Economic Vitality		
Maintain or improve Truck Travel Time Reliability	Improve Interstate Truck Travel Time Reliability Index	Interstate Truck Travel Time Reliability Index of 1.35 (2 year) and 1.23 (4 year)
ADOT Goal: Environmental Sustainability		
Improve regional air quality	Reduce Volatile Organic Compounds (VOC) emissions	Move toward attainment standard for VOC
	Reduce Nitrogen Oxide (NOx)	Move toward attainment standard for NOx
	Reduce PM10	Move toward attainment standard for PM10
Regional Priority Goal: Congestion Reduction		
Reduce annual hours of delay	Annual hours of vehicle delay	Reduce annual hours of vehicle delay
Reduce roadway segment miles with unacceptable LOS (LOS E or LOS F)	Miles of roadway segments that perform at LOS E or LOS F during peak periods	Reduce roadway miles with unacceptable LOS (LOS E or F)
Reduce intersections with unacceptable LOS (LOS E or LOS F)	Number of intersections that perform at LOS E or LOS F during peak periods	Reduce number of intersections with unacceptable LOS (LOS E or F)
Regional Priority Goal: Bicycle and Pedestrian Mobility		
Increase percentage of roads with bicycle lanes or paved striped shoulders	Miles of bike facilities	Increase mileage of bike facilities
Increase percentage of roads with safe sidewalk facilities	Miles of pedestrian facilities (sidewalks, trail paths, shared-use paths, etc)	Increase mileage of pedestrian facilities

Table 2.1. Objectives, Performance Measures, and Targets (Continued)

Objective	Performance Measure	Performance Target	
Regional Priority Goal: Transit Mobility			
Replace vehicles and equipment that are beyond useful life	Percent of revenue vehicles beyond useful life by 2023	26% or less of revenue vehicles beyond useful life by 2023	
	Percent of equipment beyond useful life by 2023	50% or less of equipment beyond useful life by 2023	
Maintain TERM rating below 3.0	Percent with a TERM rating below 3.0	20% or less with a TERM rating below 3.0	
Increase annual transit ridership on YCAT system.	Annual YCAT transit ridership		
Involve more groups in the YMPO Regional Mobility Committee	Number of participating agencies in the Regional Mobility Committee		
Market the Enhanced Mobility of Seniors and Individuals with Disabilities (FTA 5310 Program) to the public.	Number of trips provided		
Work to meet unmet transportation needs within Yuma County	Transportation funding		
Increase cost-effectiveness of transit	Contract expense per revenue vehicle hour		
Increase annual transit ridership on YCAT system	Annual YCAT transit ridership		
Regional Priority Goal: Border Crossings			
Improve the accessibility and efficiency of cross-border travel for all modes of travel	Number of commercial truck crossings at POE2		
	Number of personal vehicle crossings at POE1		
	Number of pedestrian crossings at POE1		
Improve wait times at San Luis Ports of Entry	The U.S. Customs and Border Protection has set the following goals: Ready Lanes: 50% of general traffic lane wait times - A "Ready Lane" is a dedicated lane for travelers entering the U.S. at land border ports of entry with identification that contains a Radio Frequency Identification (RFID) chip		

Table 2.1. Objectives, Performance Measures, and Targets (Continued)

Objective	Performance Measure	Performance Target
Regional Priority Goal: Tourism & Development		
Improve facilities that provide access to key tourism destinations and regional activity centers.		
Regional Priority Goal: Aviation		
Contribute to the economy of the region by increasing the level of aviation activity	Military aircraft operations	
	GA local operations – Those operating in the local traffic pattern or within a 20-mile radius of the airport	
	GA itinerant operations - Those GA operations (excluding commuter or air taxi) not qualifying as local	
	Commercial services – scheduled operations by certified carriers or interstate carriers	

System Performance Report

The best laid plans often have unexpected outcomes. Therefore, plans need to be regularly evaluated to monitor progress and, if necessary, make adjustments to ensure undesired outcomes do not develop. To ensure that YMPO 2045 LRTP is successful in achieving the goals and objectives previously identified, **Table 2.2** outlines the baseline performance of the region's transportation system and current status regarding each of the performance targets shown in Table 2.1. All datasets contain the latest available data as of December 2020. The safety statistics are based on five-year rolling averages per the Arizona Crash Information System (ACIS) database; the five-year averages of the years 2014-2018 and 2015-2019 were compared to determine progress toward the safety goals.



Table 2.2. YMPO Performance Target Status

Performance Measure	Performance Target	Current YMPO Status	Meets Target?
Safety			
Number of fatalities	1% or less increase in fatalities	2.9% decrease	✓
Fatality rate	0% or less increase in fatality rate	6.9% decrease	✓
Serious injuries	4% or more decrease in suspected serious injuries	7.3% increase	✗
Serious injury rate	6% or more decrease in suspected serious injury rate	3.6% increase	✗
Non-motorized fatalities / suspected serious injuries	2% or less increase in non-motorized fatalities / suspected serious injuries	1.5% decrease	✓
Infrastructure Condition			
Percent of Interstate pavements in good condition	4-year target of 44% or more of interstate pavements in good condition	71.8% in Good condition	✓
Percent of Interstate pavements in poor condition	4-year target of 2% or less of interstate pavements in poor condition	5.7% in Poor condition	✗
Percent of Non-Interstate NHS pavements in good condition	2- and 4-year target of 28% or more of non-interstate NHS pavements in good condition	65.3% in Good condition	✓
Percent of Non-Interstate NHS pavements in poor condition	2- and 4-year target of 6% or less of non-interstate NHS pavements in poor condition	5.7% in Poor condition	✗
Percent of NHS bridges classified in good condition based on deck area	2- and 4-year target of 52% or more of NHS bridges in good condition	46% in Good condition	✗
Percent of NHS Bridges classified in poor condition based on deck area	2- and 4-year target of 4% or less of NHS bridges in poor condition	0% in Poor condition	✓
System Reliability			
Percent of person-miles on interstate with reliable travel times	86% (2 year) and 85.8% (4 year) target of person-miles on interstate have reliable travel times	100%	✓
Percent of person-miles on non-interstate NHS with reliable travel times	74.9% of person-miles on non-interstate NHS have reliable travel times	95.8	✓
Freight Movement & Economic Vitality			
Improve Interstate Truck Travel Time Reliability Index	Interstate Truck Travel Time Reliability Index of 1.35 (2 year) and 1.23 (4 year)	1.14	✓
Environmental Sustainability			
Reduce Volatile Organic Compounds (VOC) emissions	Move toward attainment standard for VOC	PM10, VOC, and NOx emissions based on 2022-2045 YMPO LRTP and 2022-2026 YMPO TIP are below established thresholds.	N/A
Reduce Nitrogen Oxide (NOx)	Move toward attainment standard for NOx		N/A
Reduce PM10	Move toward attainment standard for PM10		N/A

3. THE YMPO REGION TODAY

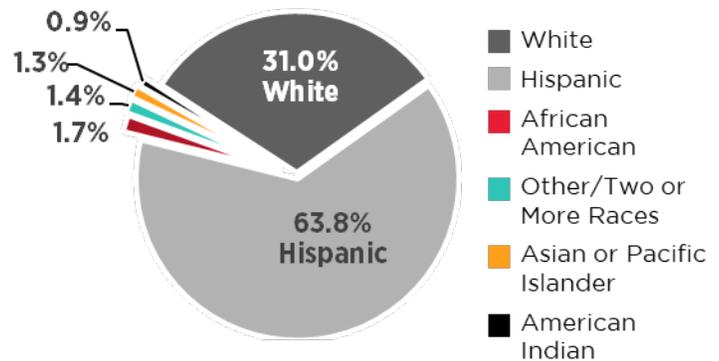
This section presents a summary of existing socioeconomics, land use patterns, and economic characteristics and trends that sets a baseline for evaluating the region's transportation system.

The YMPO Region at a Glance

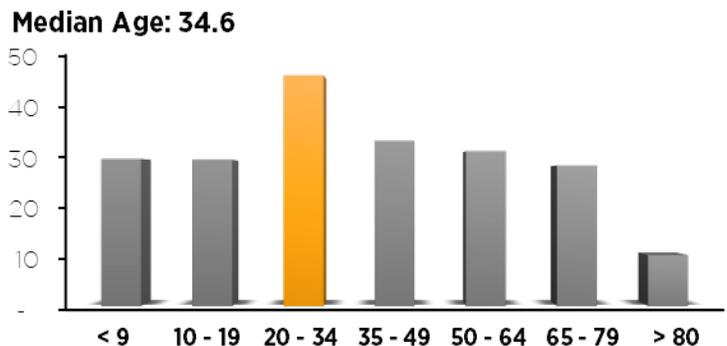
Once a sleepy agriculture area, the Yuma MPO region has transformed into a diverse community that still maintains its strong heritage in agriculture. The region's dynamic growth and advantageous geographic location between California and Mexico have attracted a diverse socioeconomic, ethnic, and generational population.

- **Total Population (Year 2020):** 231,871
- **Median Age:** 34.6
- **Female Population:** 48.5%
- **Minority Population:** 69.0%
- **Total Housing Units:** 92,625
- **Median Household Income:** \$45,243
- **Average Commute Time:** 20.5 minutes

Population by Race



Population by Age in thousands



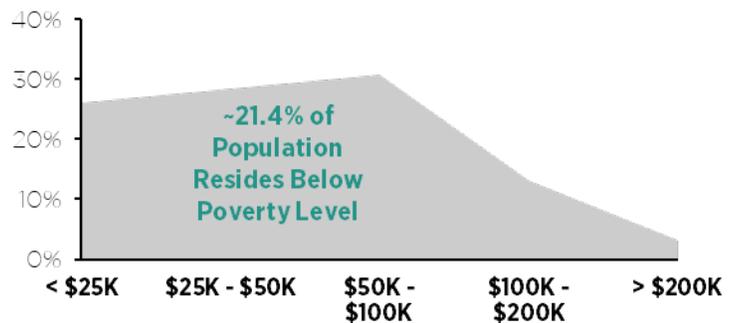
We are Changing...

According to the 2019 US Census Bureau American Community Survey:

- **We are Getting Older:** Since 2000, our median age has slightly increased from 33.9 to 34.6 years of age. Over 30 percent of residents in the YMPO region, however, are under 21 years old today.
- **We are More Educated:** 15.0 percent of residents have obtained at least a bachelor's degree, a significant increase from only 11.8 percent in 2000.
- **We Have More Money:** Since 2000, our median household income has increased by over 28 percent! Rising from \$32,182 in 2000 to \$45,243 in 2019.
- **Our Commute Is Changing:** Single driver commuters have increased to 80 percent from 73.7 percent in 2000.

Household Income

Median Household Income: \$45,243



Source: U.S. Census Bureau, ACS 2019 5-year Estimates



Lay of the Land

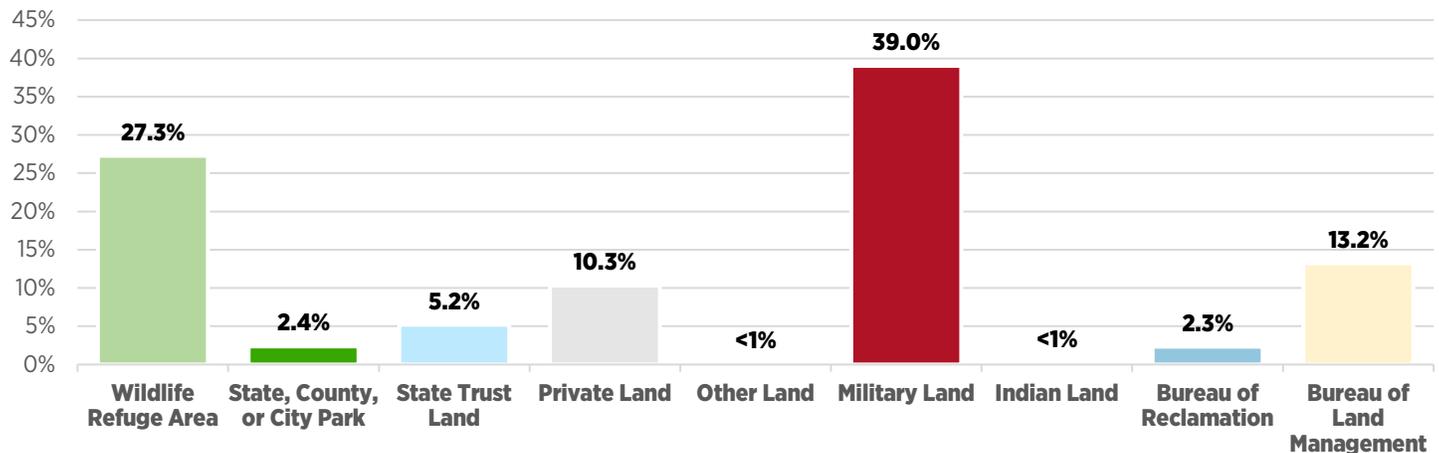
Having a strong understanding of the land use context and development patterns is imperative to creating a transportation network that complements surrounding character and facilitates movement. Just as land use influences the transportation network, the transportation network influences land use. For example, a local roadway in a residential neighborhood serves a different purpose and user than a high-capacity corridor in the downtown core.

Land Ownership Today

The YMPO region covers over 5,522 square miles and has remained relatively unchanged since the previous LRTP. As illustrated in **Figure 3.1 and 3.2**, diverse landowners occur throughout the YMPO region. Major landowners in the region include:

- **Privately Owned Land:** 10.3% of land
- **Military Land:** 39% of land
- **National Wildlife Refuge Areas:** 27.3% of land
- **Bureau of Land Management** 13.2% of land
- **State Trust Land:** 5.2% of land

Figure 3.1. Land Ownership in the Yuma Region Today



There is a perception that because only 10% of the region is privately owned that there is a shortage of developable land. This low percentage, however, is largely a result of the presence of two large military areas (the Yuma Proving Grounds and the Barry M. Goldwater Range) and large wildlife refuge areas maintained by the US Fish and Wildlife Service (Cabeza Prieta, Kofa, and Imperial Mountain refuges areas). The State of Arizona owns 5.2 percent of the land in the YMPO, largely State Trust Land, and an additional 13.2% of land is managed by the Bureau of Land Management. The Cocopah Indian Tribe and Fort Yuma Quechan Indian Tribe are key stakeholders that own over 11.7 square miles of land within their respective reservations.



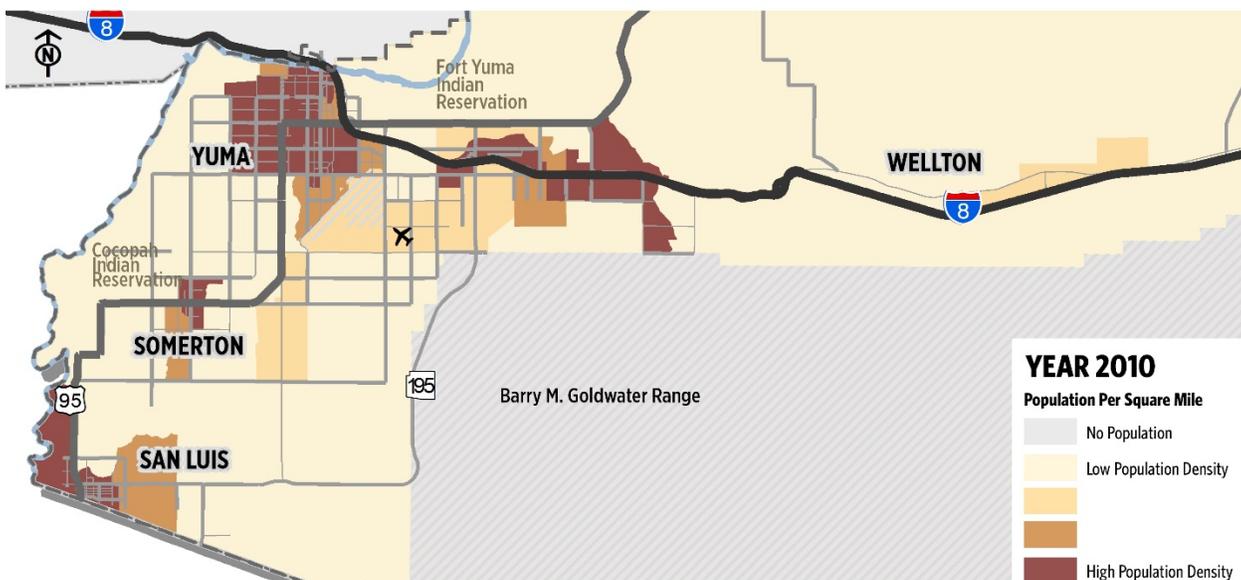
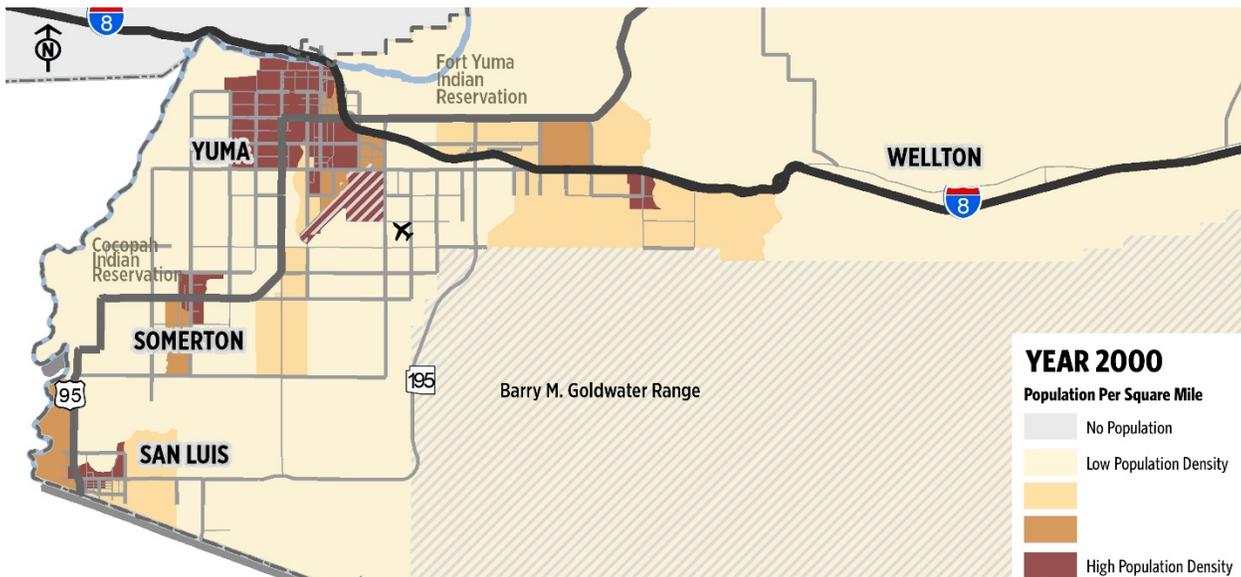
Where We Live

According to the US Census Bureau, YMPO is one of the fastest-growing cities in the nation. This rapid growth and maturing urban development, however, not only creates opportunities, but it poses challenges to our transportation network. Understanding where growth is greatest is imperative to creating a plan that manages the increased demands on our transportation system.

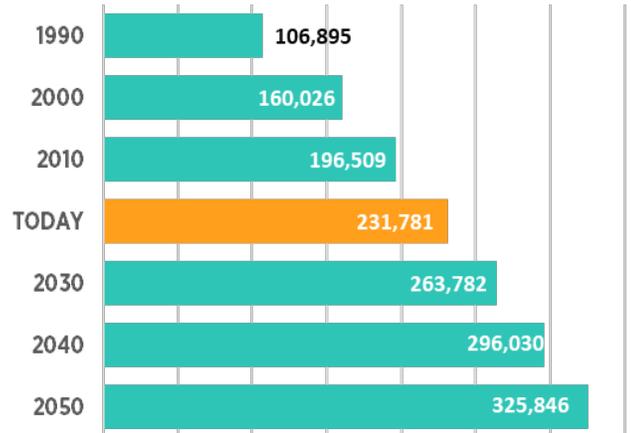
We are Growing

Since 1990, the region's population has increased by over 116 percent and shows no signs of slowing. As illustrated in **Figure 3.3 and 3.4**, much of this increased population is due to infill development and major developments in the urban fringe, particularly in the Fortuna Foothills area along I-8 and the San Luis area. Understanding where new housing and employment growth occurs is useful for defining what types of transportation services will be necessary to support both quality of life and economic stability.

Figure 3.3. Population Growth (Census 2000 – 2010)



Population Through the Years



Where We Work

As the region's transportation system is developed, and as projects are identified and prioritized for funding, access to major employment centers should be considered. Employment centers' access to safe and reliable transportation systems will enable and encourage these employers to expand and new employers to relocate to the YMPO region. As illustrated in **Figure 3.5**, employment opportunities can be found throughout the region. In total, there are over 2,400 employers that employ over 67,700 people. **Table 3.1** outlines the top employers within the region.

Table 3.1. Top Employers in the YMPO Region Today

Employer	Activity	Number of Employees
Marine Air Corps Station Yuma (MCAS-Yuma)	Government	1,108 civilian, 4,460 military, 1,118 contracted
Yuma Union High School District	Education	3,100
Yuma Proving Ground	Government	786 civilian, 258 military, 1338 contracted
Yuma Regional Medical Center	Health Care	2,300 full-time
Yuma County	Government	1,437
Yuma Elementary School District	Education	1,200 full-time /part-time, 200 contracted

Source: Greater Yuma Economic Development Corporation, 2018

The three largest industries in the Yuma economy are agriculture, military, and tourism. As illustrated in **Figure 3.4**, major employment centers are located throughout the region. Major employment areas include:

- **Agriculture Land:** Undisputedly, agriculture is the number one industry for Yuma County. Yuma County is responsible for 90% of all leafy vegetables grown in the United States, November through March. According to a 2013 University of Arizona study, agriculture produces an estimated \$2.5 billion a year into the Yuma economy. A strong, connected transportation network that allows the efficient movement of goods and people are needed to support the region's thriving agriculture businesses.
- **Military Land:** the Yuma Proving Ground and the Marine Corps Air Station – Yuma (MCAS-Yuma) are major employment generators in the Yuma region.
 - Yuma Proving Ground (YPG) is a large test facility for the U.S. Army and is located in the northwest portion of Yuma County. Y YPG provides a site for the Army to test things such as long-range artillery, missile firing aircraft, cargo and personnel parachutes, direct fire weapons, unmanned aerial systems, and technologies to defeat roadside bombs. YPG also serves as a location for training with thousands of soldiers and marines each year. General Motors also operates a hot weather vehicle testing facility on a 2,400-acre site located within YPG.
 - Marine Corps Air Station (MCAS)-Yuma covers 7.58 square miles within the City of Yuma. The site of MCAS was first used as an airfield in 1928. Today, MCAS Yuma supports 80 percent of the US Marine Corps' air-to-ground aviation training and hosts approximately 70 aviation units, bringing an average of 600 aircraft and 14,000 personnel for ongoing training throughout the year.



Figure 3.4. Current Population Density

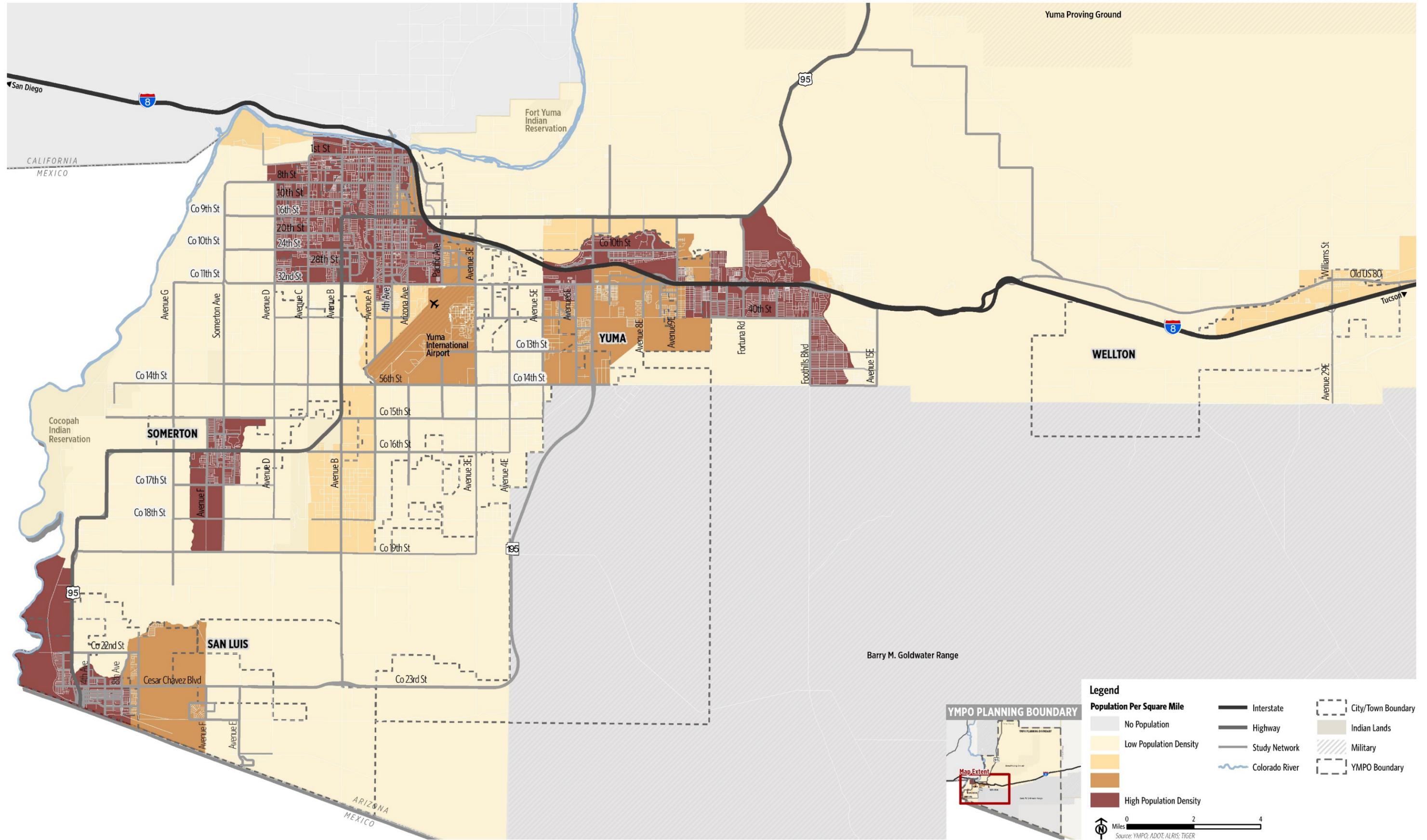
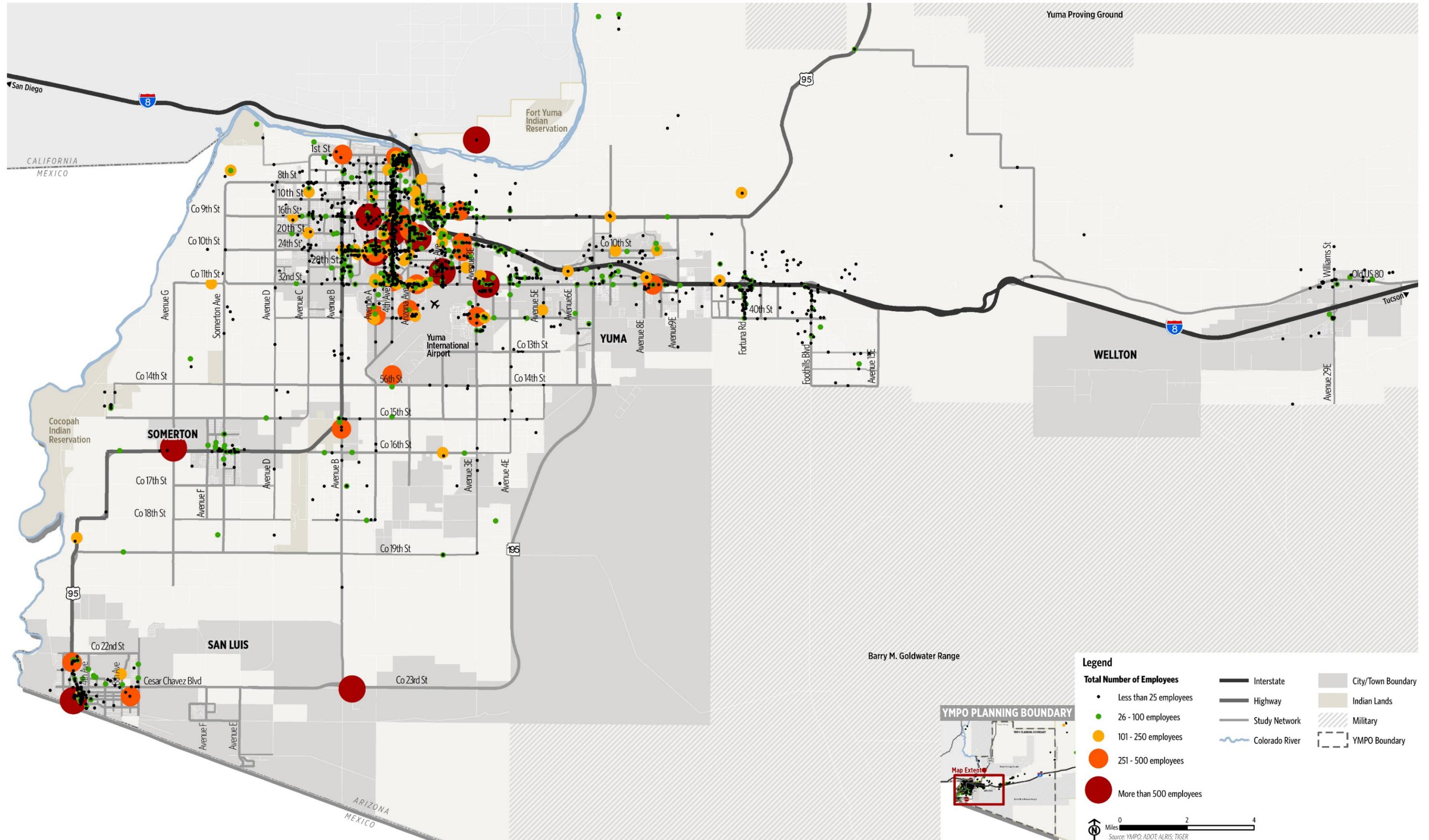


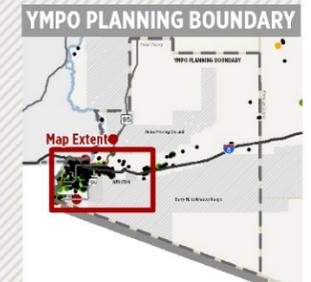
Figure 3.5. Major Employment Areas



Legend

<ul style="list-style-type: none"> • Less than 25 employees • 26 - 100 employees • 101 - 250 employees • 251 - 500 employees • More than 500 employees 	<ul style="list-style-type: none"> — Interstate — Highway — Study Network — Colorado River 	<ul style="list-style-type: none"> ▭ City/Town Boundary ▭ Indian Lands ▭ Military ▭ YMPO Boundary
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0 2 4
Miles
Source: YMPO; ADOT; ALRIS; TIGER



Where We Shop, Play, and Learn

Activity centers are vibrant community hubs and key destinations and transportation generators for people to work, play, live, and learn. Activity centers generally include a wide variety of land uses including shopping/retail areas, commercial, hospital, and education centers. Many of these key destinations are clustered together to form larger community hubs. Understanding where key activity centers are is imperative to developing a transportation system that conveniently connects major transportation generators through a variety of modes. **Figure 3.6** illustrates major activity centers and transportation generators in the region, including:

- **K-12 Schools.** In total, there are 88 public K-12 schools in the region. The largest schools in the study area include Cibola High School, Yuma High School, and San Luis High School. Providing comfortable walking and biking facilities to these schools is critical since many children are likely to have short commutes that could be converted to walking or biking trips.
- **Higher Education.** Extensions of the University of Arizona, Arizona State University, and Northern Arizona University are located within the City of Yuma. Arizona Western College has 12 locations across Yuma and La Paz counties.
- **Health Care Facilities.** Yuma Regional Medical Center is the largest healthcare facility in the County and also one of the largest employers in the region.
- **Commercial Centers.** Major retail centers are located near most major subdivisions and along major roadways. Grocery stores or big-box retailers are typically the anchor store for these centers. Providing direct and convenient multimodal transportation connections between major residential communities and key activity centers creates opportunities to connect a large number of residents to the places they need to travel.

Tourism, Trade, and Economic Development

Tourism

There are three main drivers of tourism in Yuma County. These are winter visitors or “snowbirds,” visitors from Mexico, and visitors to the military facilities, the largest of which is the U.S. Army Yuma Proving Ground (YPG). Of the three drivers, military tourism is the least cyclical. Each is discussed in more detail below.

Military tourism: Visits to the military base are one of the main drivers of business travel in Yuma. Research from the Yuma Chamber of Commerce finds that YPG has some 35,000 visitors a year, comprised of U.S. and foreign travelers. The visitors come to observe equipment tests and to acquire military goods and services. While here, the visitors stay in hotel rooms, eat in restaurants, rent cars, shop for incidentals, often-extend stays here. The report explains that some tests that are conducted two or three times a year may attract 600 people for a month at a time. With a reported 100 hotel rooms on the post, most visitors seek lodging in the nearby cities and towns. Military tourism is not the largest segment of Yuma’s tourism market, but it is a valuable component as it is steady throughout the year and offsets the seasonality of Yuma’s winter tourism market. In addition, it does not fluctuate with changes in the peso-to-dollar exchange rate. Finally, it is largely comprised of business travelers, who tend to spend more per visitor night than leisure travelers.

Winter tourism: Given the warm climate and affordable cost of living, Yuma is a popular location for winter visitors, otherwise known as “snowbirds.” The generally accepted definition for this traveler is someone who travels to Yuma between the months of December to May and stays in the area 30 days or longer. These travelers are typically retired and may range in age from late 50s through their 80s. A recent study of the Yuma winter tourism market by Arizona State University concluded that approximately 71,000 winter visitors come to Yuma in the winter. Many arrive by RV, but others own or rent modular housing or obtain other types of temporary lodging. These locations are found throughout the county. The winter visitors tend to find a location that suits their tastes and budget, make friends, and then return to the familiar location. Direct spending for those who own a home or lot, or rent a lot in an RV Park, is estimated at \$179 million. That is approximately equal to 10 percent of the County’s 2019 GDP. The actual economic impact of these visitors is larger as the estimate of direct spending misses the multiplier effect of purchases of supplies and re-spending by local workers hired by the snowbirds during their stay.

One downside risk for Yuma’s winter tourism market is uncertainty whether the Baby Boomers, who are now moving into retirement, will favor RVs to the same degree that their parents did. It is too soon to determine, but

Yuma's seasonal lodging industry may need to adapt to the tastes of a different generation to retain the snowbird market.

Tourism from Mexico: Because of its proximity to Mexico, Yuma County is a popular destination for tourists from Mexico. This proximity shapes their travel behavior. Visitors to the border communities of San Luis and Yuma are almost all day-visitors because of their proximity to the border. Spending can be volatile, fluctuating with the exchange rate between the peso and the dollar. As day-trippers, shopping is the leading reason given for a visit. The cities of San Luis and Yuma are the main beneficiaries of this spending as Yuma is largely accessed by travelers via the San Luis crossing. The leading shopping destination given was Wal-mart. The Mexican Visitor Survey, 2007-08, reports that Yuma County retailers benefitted from \$270,991,000. This spending was largely in the cities with the City of Yuma reporting \$173,900,000 in sales to visitors from Mexico and San Luis retailers gaining \$95,352,000 in sales from cross-border tourists.

Trade

After Nogales, the San Luis crossing is Arizona's busiest, with a special focus on agricultural commodities. As the main source of the nation's winter vegetables, the Yuma region enjoys a strong and stable agricultural base, but agricultural activity is subject to adverse impacts from commodity price swings and other factors. Moreover, the peak season for importing agricultural produces is the winter, the same time that Yuma's tourism sector peaks. This makes the Yuma economy one of the most volatile metropolitan areas in the U.S.

In 2020, the U.S. imported \$407.3 million of fresh produce, \$28.6 million in machinery, and \$10.4 million in electronics via the San Luis port of entry. In that same year, the U.S. exported \$36.7 million in electronics and \$25.6 million in manufactured equipment, according to data collected by the University of Arizona. Of all the major trade flows reports, all are relatively stable with small dips for 2020's COVID impact except for U.S. exports of electronics to Mexico via San Luis.

There is close economic integration between firms on each side of the border. As trade and commerce have grown along the border, supply chains have developed that allow manufacturers on each side to share production and work together to create goods. Intermediate inputs flow back and forth across the border as the final product is fabricated—sometimes with supply linkages extending well beyond the border.

Given the closely integrated supply chains and the associated economic exchange that support the economic vitality of both trade partners, disruptions and long or unpredictable wait times are costly to producers and consumers, with negative impacts that ripple through the supply chain. Over time, economic investment will gravitate to crossings where operations are efficient and predictable. Recent developments offer Yuma producers and their counterparts in Mexico an opportunity to further develop their border economy. The recent supply chain disruptions caused by the COVID 19 pandemic highlighted supply chain weaknesses and has prompted producers to reconsider the resilience of their supply chains rather than exclusively focusing on cost cutting. This focus on resiliency, safety, and security favors near-shoring or “ally” shoring essential commodities, trends that may drive greater investment along the U.S. – Mexico border.

Economic Development

Given the volatility of some of its core industries—tourism, produce import and logistics, and cross-border trade and manufacturing—the economic development plans of Yuma County's communities focus on taking care of existing strengths and diversifying to offset some of the volatility in the economy.

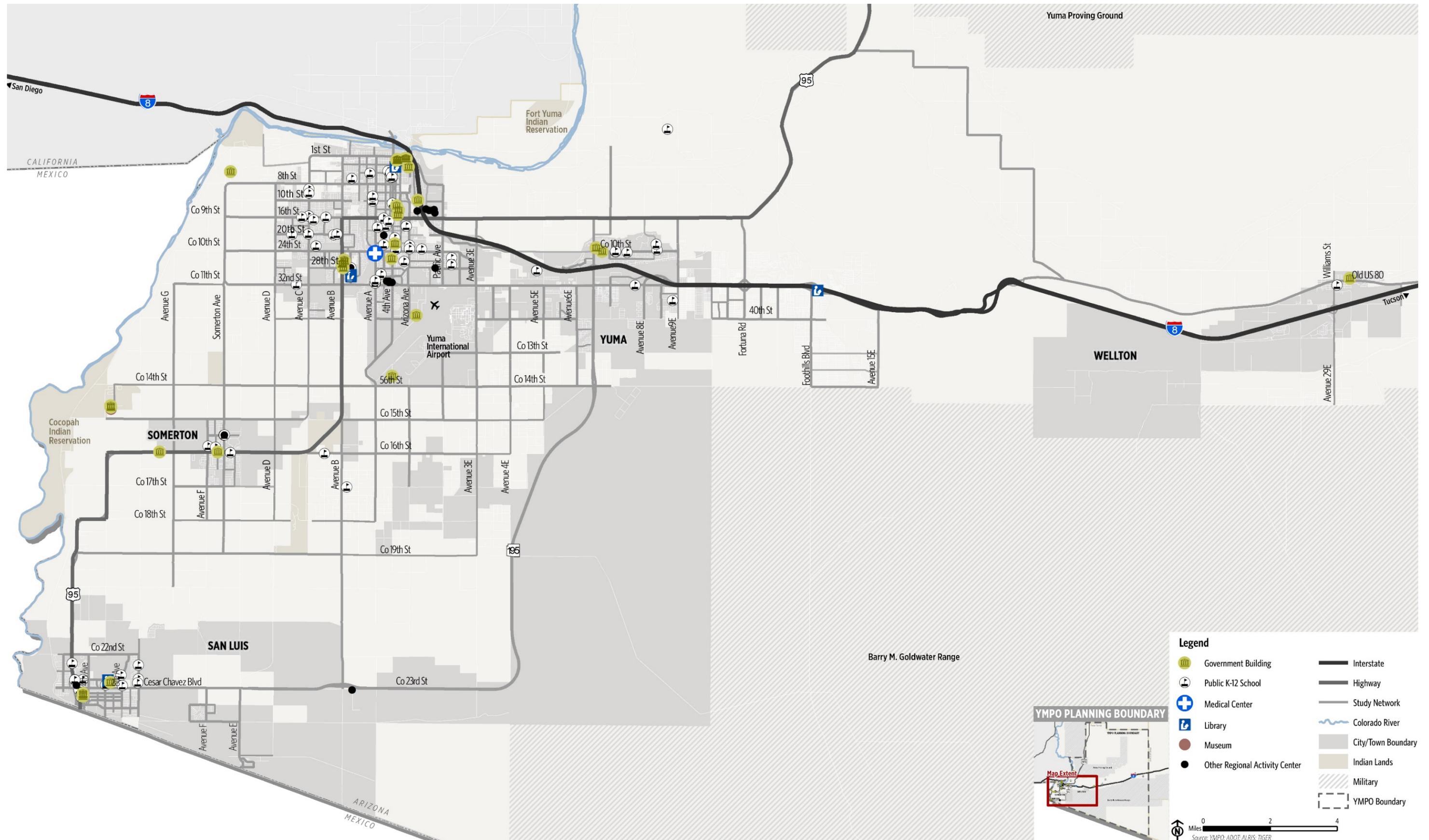
For example, Yuma is already the top producer of agriculture in Arizona. Yuma County has a strong value-add agriculture and product industry with nearly 40% of all winter produce consumed in the U.S. coming through the San Luis port-of-entry. Agribusiness and value-add business opportunities could be further developed in San Luis and elsewhere in the county. Other economic development targets include logistics and distribution, Maquila, and aviation and defense testing.

In Somerton, industry strengths include agriculture and related food processing, light industry, tourism related to ventures by the Cocopah Nation, and health services. Given the emphasis on agriculture and tourism, transportation planning will need to find ways to route trucks away from the main tourist areas.

The Yuma County Economic Development Plan (2020) builds on many of these themes. Key industry targets that build on the economy's strengths, but offer new opportunities, include an expansion of food processing into new products, aerospace/spaceport, logistics, and advanced/numerical computer control.

In terms of supporting infrastructure, the Plan calls for road investment in the emerging Manufacturing Investment Zone (specifics to be determined by future study, and broadband in multiple communities, especially in the vicinity of the Spaceport once the site is selected.)

Figure 3.6. Major Activity Centers



Legend

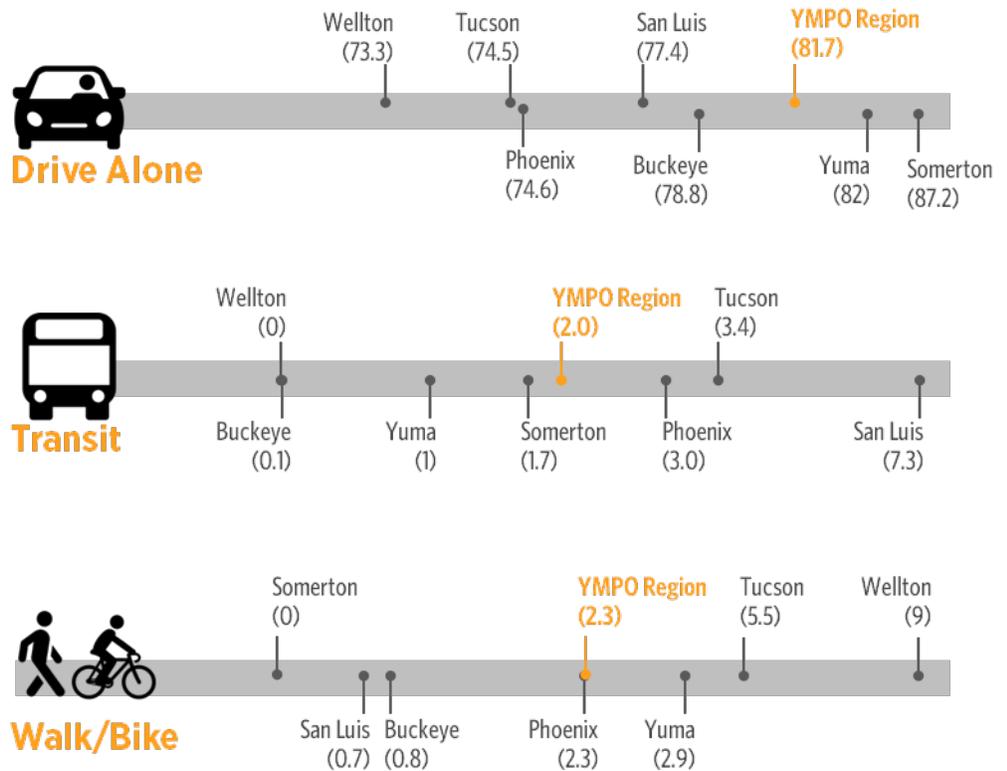
	Government Building		Interstate
	Public K-12 School		Highway
	Medical Center		Study Network
	Library		Colorado River
	Museum		City/Town Boundary
	Other Regional Activity Center		Indian Lands
			Military
			YMPO Boundary

0 2 4
Miles
Source: YMPO, ADOT, ALRIS, TIGER

How We Commute

Because driving to and from work makes up a major portion of an individual's transportation activity, how people commute is an essential element in transportation planning. Nearly 81.7 percent of commuters in the YMPO region drive to work alone, while only around 10.3 percent carpool and another 2.4 percent telecommute. Nationwide, people telecommuting has increased a whopping 115 percent in the last 10 years, changing the way our transportation system is being used. Commuter's walking, biking, or taking transit only account for 4.3 percent of commutes in the YMPO region. **Figure 3.7** illustrates areas that have the highest walking, biking, and transit mode share. Densities illustrated in Figure 3.7 reflect the total number of persons that commute by walking, biking, or using public transportation per the US Census Bureau's American Community Survey per square mile.

How People Are Commuting (by percent)



Average Commute Times

According to the 2019 US Census Bureau American Community Survey, average commute times in the YMPO region are significantly higher than the statewide average:

- **Arizona Statewide Average:** 25.7 minutes
- **Yuma Region:** 20.5 minutes
- **San Luis:** 32.7 minutes
- **Somerton:** 24.0 minutes
- **Wellton:** 33.3 minutes
- **Yuma:** 15.8 minutes

Average Commute Time (minutes)



Source: U.S. Census Bureau, ACS 2019 5-year Estimates

Our Social Needs

Often, transportation and land use decisions place unfair burdens on disadvantaged communities. Conducting an analysis of traditionally underserved populations helps identify locations with high concentrations of people or groups who may not be physically or financially capable of owning or driving a vehicle and rely on walking, riding bicycles, and transit to meet their daily travel needs.

Disadvantaged Population Groups in the YMPO Region

Table 3.2. Disadvantage Population Groups in the YMPO Region

Area	Population	Age 18 and Under	Age 65 and Older	Minority	Age 18-64 with Mobility Limitations	Limited English Household	Household with No Vehicles Available
City of San Luis	32,985	29.0%	7.6%	97.7%	24.2%	47.1%	5.2%
City of Somerton	16,146	33.5%	7.4%	96.9%	25.8%	29.2%	5.1%
Town of Wellton	3,007	10.4%	45.1%	50.6%	26.4%	19.6%	7.5%
City of Yuma	96,349	26.4%	15.2%	67.4%	18.3%	14.3%	6.9%
Cocopah Indian Tribe	1,341	25.1%	33.2%	65.6%	40.0%	2.0%	15.3%
Other Unincorporated Areas	59,640	20.4%	31.1%	49.2%	16.2%	12.4%	4.2%
Yuma County Overall	209,468	25.4%	18.5%	69.0%	19.4%	20.0%	5.8%

Source: US Census Bureau, American Community Survey 2015 – 2020 5 Year Estimates

Socioeconomic Equity Model

A socioeconomic equity model was developed to identify areas with high percentages of population groups that traditionally rely on walking, riding bicycles, and using transit as their primary means of transportation. The socioeconomic equity model identified levels of socioeconomic need based on combined densities of the following indicators:

- **Age:** children and elderly populations
- **Communities of Color:** minority populations
- **Disabled Populations:** persons that have cognitive, visual, and physical disabilities
- **Low-Income:** households that are financially less likely to own a vehicle
- **Vehicle Ownership:** households with limited or no access to a vehicle

To calculate the equity of an area, family- or household-level variables were converted to person-units using the average family or household size for each block group. Each socioeconomic measure was then summed and divided by the total population of the block group. Because an individual can meet more than one of the qualifying attributes (e.g., a person could be living in poverty and be in a single-parent household), the index intentionally counts individual's multiple times to generate an index that evaluates the relative equity disadvantage of the block group. Thus, the highest theoretical score for an index block group would be 8 if every person and household met every possible criterion.

Figure 3.8 illustrates the results of the social equity model.

Figure 3.7. Percent of Workers that Commute by Walking, Biking, or Public Transportation

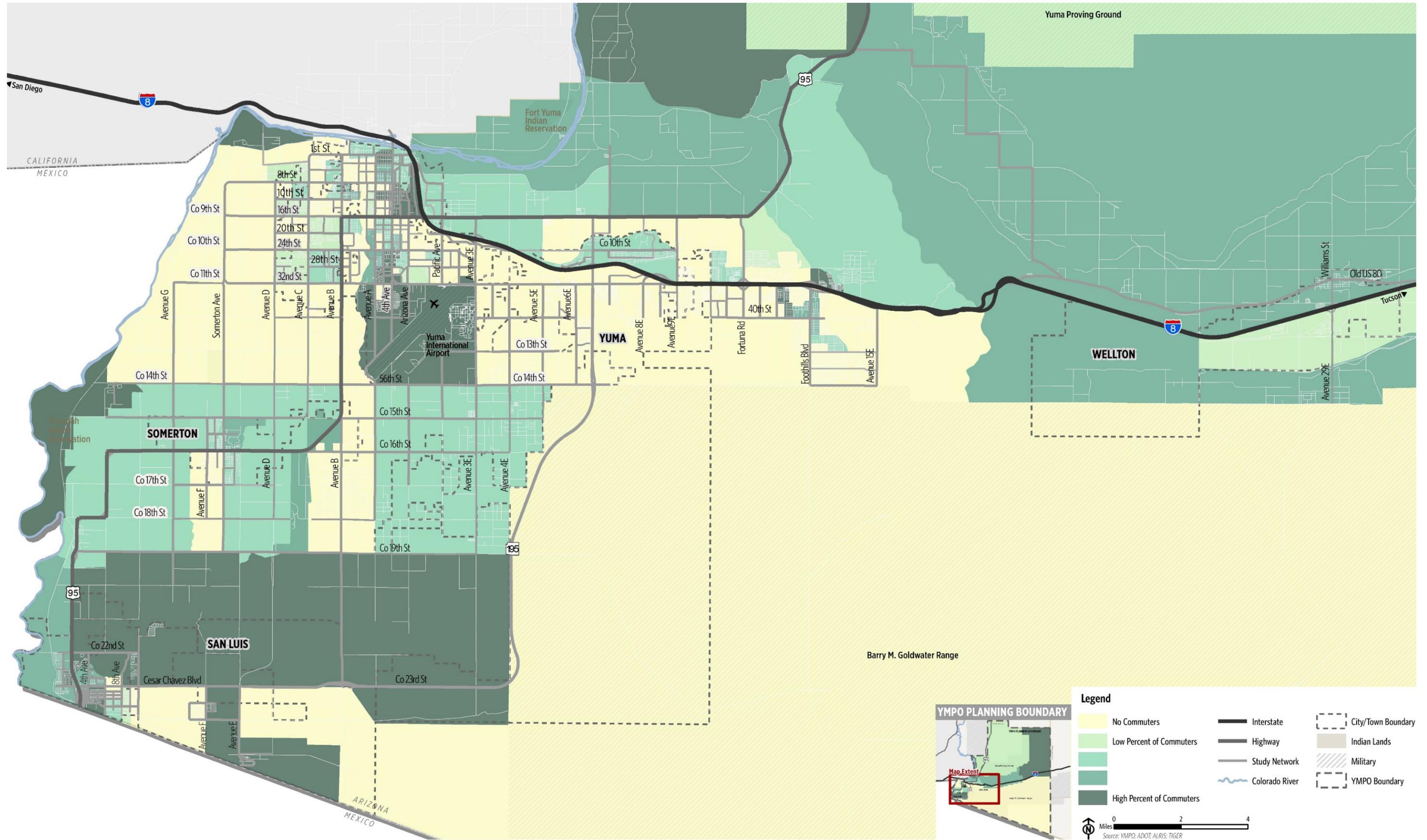
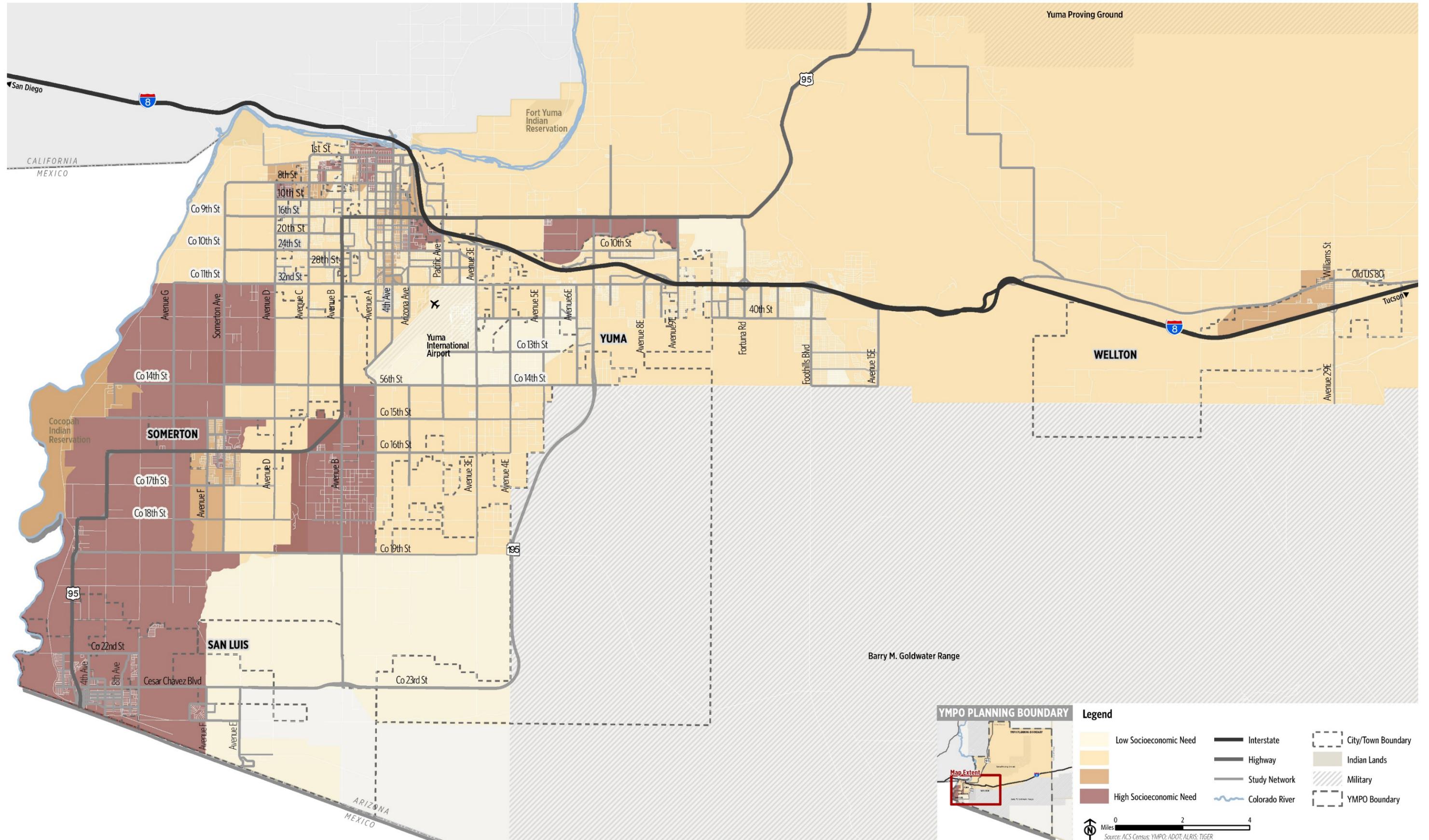


Figure 3.8. Social Equity Model



4. DRIVING IN THE YMPO REGION

This section outlines existing roadway characteristics and conditions in the YMPO region. This analysis sets a baseline for comparing how potential roadway improvements will address existing and future transportation needs and issues.

The YMPO Street System

Functional Classification

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. All vehicle trips include two distinct functions: mobility and land access.

Functional classification is a hierarchy of roadway classes based on their role in providing access and mobility. The region uses five primary classifications: interstate, principal arterial, arterial, collector, and minor collector. To access federal funding, roads must be federally functionally classified as major collector or higher. Local streets are not eligible for federal funding.

Figure 4.1 illustrates the functional classification of the street system in the YMPO region per Arizona Department of Transportation. **Table 4.1** summarizes how much of the region's system is within by each functional class. As shown in the figure and table, major collectors make up the majority of the YMPO L RTP study network. I-8 and adjoining ramps also make 20 percent of the study network, reinforcing the coordination needs with ADOT.

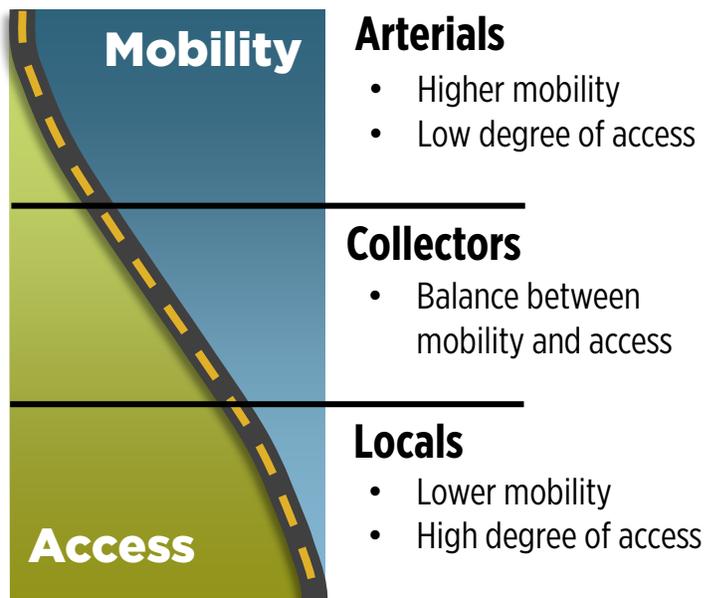


Table 4.1. Functional Classification of Study Network

Functional Classification	Mileage	Percentage
Interstate, Expressways, and Ramps	190.9	26.0%
Principal Arterial	80.8	11.0%
Minor Arterial	60.1	8.2%
Major Collector	270.9	36.9%
Minor Collector	103.9	14.1%
Local Roads	18.4	2.5%

Travel Lanes

Figure 4.2 illustrates the number of lanes of the YMPO region's street system. The figure represents the general number of through lanes and there may be short sections with more lanes where development has occurred, or fewer lanes due to development patterns. The number of lanes provided at individual intersections also varies. There are locations where additional through and/or turn lanes exist to improve intersection capacity. Key findings include:

- Two-lane major collectors account for 35 percent of the study network.
- Arterial roadways are primarily 4 lanes (45 percent of all arterials).

Posted Speed Limit

The speed limit of a corridor not only impacts traffic flows, but also can be a critical factor in the number and severity of crashes. Speed impacts crash severity in many ways - at higher speeds, a driver's peripheral vision is reduced, and a car's stopping distance is greater. As shown on the right, the likelihood that a pedestrian hit by a vehicle will survive sharply decreases when speeds increase.

To determine the posted speed limits of study corridors, speed limits were compiled from readily available GIS data from the YMPO and via a Google StreetView review of conditions. **Figure 4.3** and **Table 4.2** outlines current posted speed limits. Findings show:

- Posted speed limits vary from 20 to 65 MPH.
- Due to the regional nature of corridors, many arterials and collectors in the region have a posted speed of 50 MPH or higher.
- Posted speeds drop significantly within incorporated city/town limits.

Pedestrian Fatality by Speed



Source: *Dangerous by Design*

Table 4.2. Posted Speed Limits

Posted Speed Limit	Mileage	Percent of System
25 MPH or Less	74.2	10.1%
30 – 35 MPH	96.3	13.1%
40 – 45 MPH	119.8	16.3%
50 MPH or Higher	444.1	60.5%

Traffic Control

Together, traffic control devices help manage the movement of people and goods in an efficient manner. Traffic control devices include:

- **Traffic Signals:** Controls the flow of vehicles on the roadway network. Improving traffic signal timing can increase mobility and reduce overall congestion.
- **Roundabout:** A circular intersection with specific design and traffic control features including yield control of all entering traffic, channelized approaches, and appropriate geometric curvature to ensure that travel speeds on the circulatory roadway are typically less than 30 mph.
- **Traffic Signs:** A STOP or YIELD sign alert drivers to come to a complete stop or yield at intersections.

Figure 4.4 illustrates the location of traffic signals on the study network. It's important to note that the image includes traffic control devices both, on the study network and on roadways intersecting the study network. Understanding access points to the study network, specifically Regionally Significant Routes, helps to identify corridors that may benefit from access management.

Regionally Significant Routes

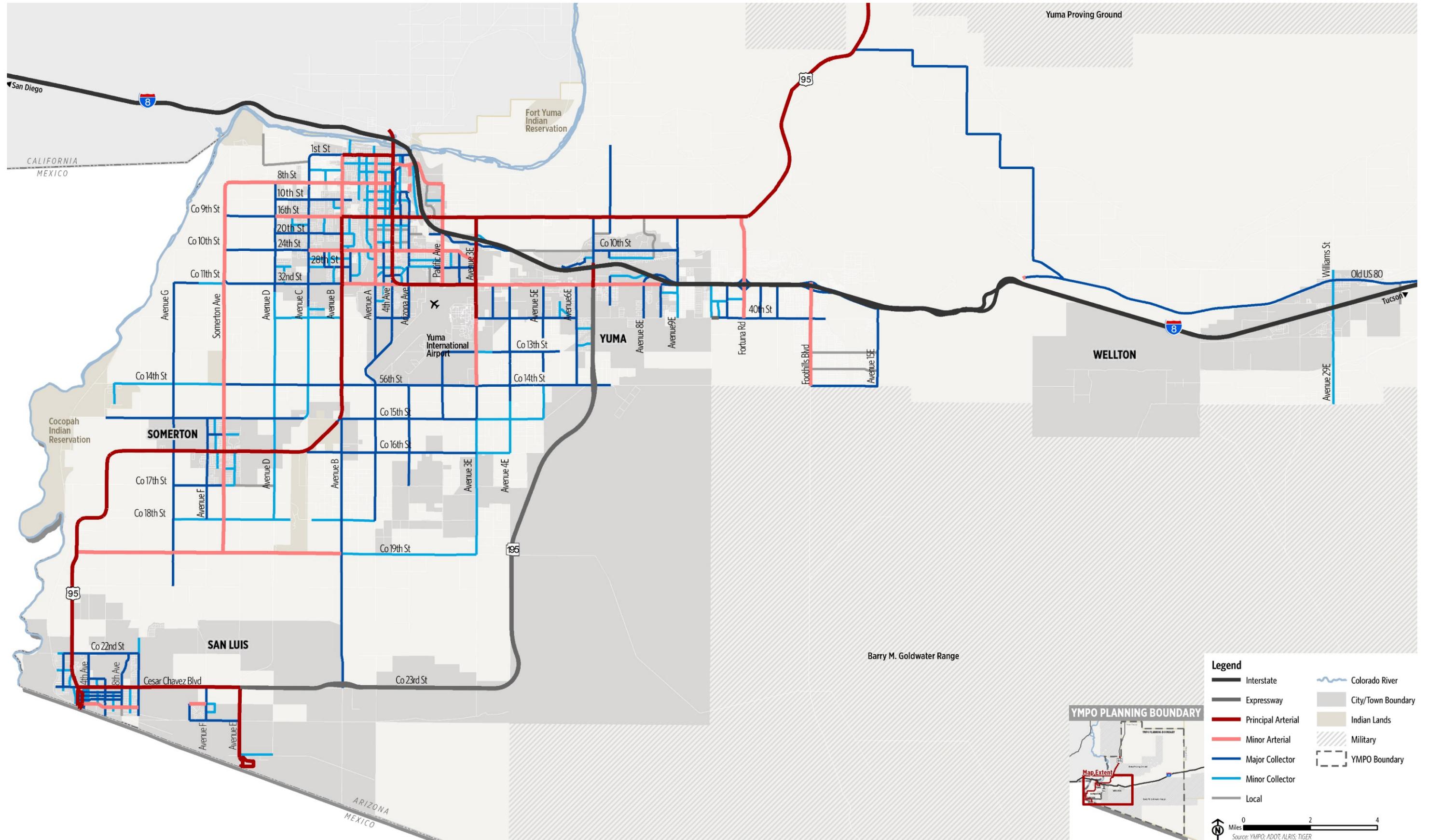
To assess the YMPO region in greater detail than the traditional approach of only assessing core high-capacity roadways, a set of Regionally Significant Routes were identified that represent corridors that provide important regional mobility and connectivity in and through the YMPO region. The Regionally Significant Routes were determined through the following assessment criteria:

- **Functional Classification** – a regionally significant route needs to meet a minimum threshold of a collector route.
- **Route Continuity** – a regionally significant route needs to provide longitudinal access to the region. Routes with frequent termini and/or short end-to-end lengths were disqualified from consideration.
- **Criteria Access / Destination Points** – a regionally significant route needs to provide critical access to one or more regional destinations within the YMPO region. These destinations include, but are not limited to, employment centers, tourist sites, recreational sites, prominent residential locations, and commercial activity zones.

Following the identification of Regionally Significant Routes using the assessment criteria, the core Technical Advisory Committee (TAC) was given an opportunity to provide feedback, to ensure that each member agency's regional routes were reflected accordingly. Following TAC approval, individual corridors, totaling approximately 329 miles, were selected as a Regionally Significant Route, as shown in **Figure 4.5**. The Regionally Significant Routes includes:

- **Existing Regionally Significant Routes:** Existing corridors that serve as the backbone of the regional transportation system and provide local and regional mobility and connectivity to homes, employment, activity centers, and other major destinations.
- **Future Regionally Significant Routes:** Corridors identified by the TAC that with strategic improvements would provide important regional mobility connections. Future corridors include County 14th Street east of SR 195, Avenue E/D connection from County 23rd Street to County 18th Street, and a connection of Avenue 3E and County 19th Street from Avenue B to 56th Street.

Figure 4.1. Functional Classification



Legend

	Interstate		Colorado River
	Expressway		City/Town Boundary
	Principal Arterial		Indian Lands
	Minor Arterial		Military
	Major Collector		YMPO Boundary
	Minor Collector		
	Local		

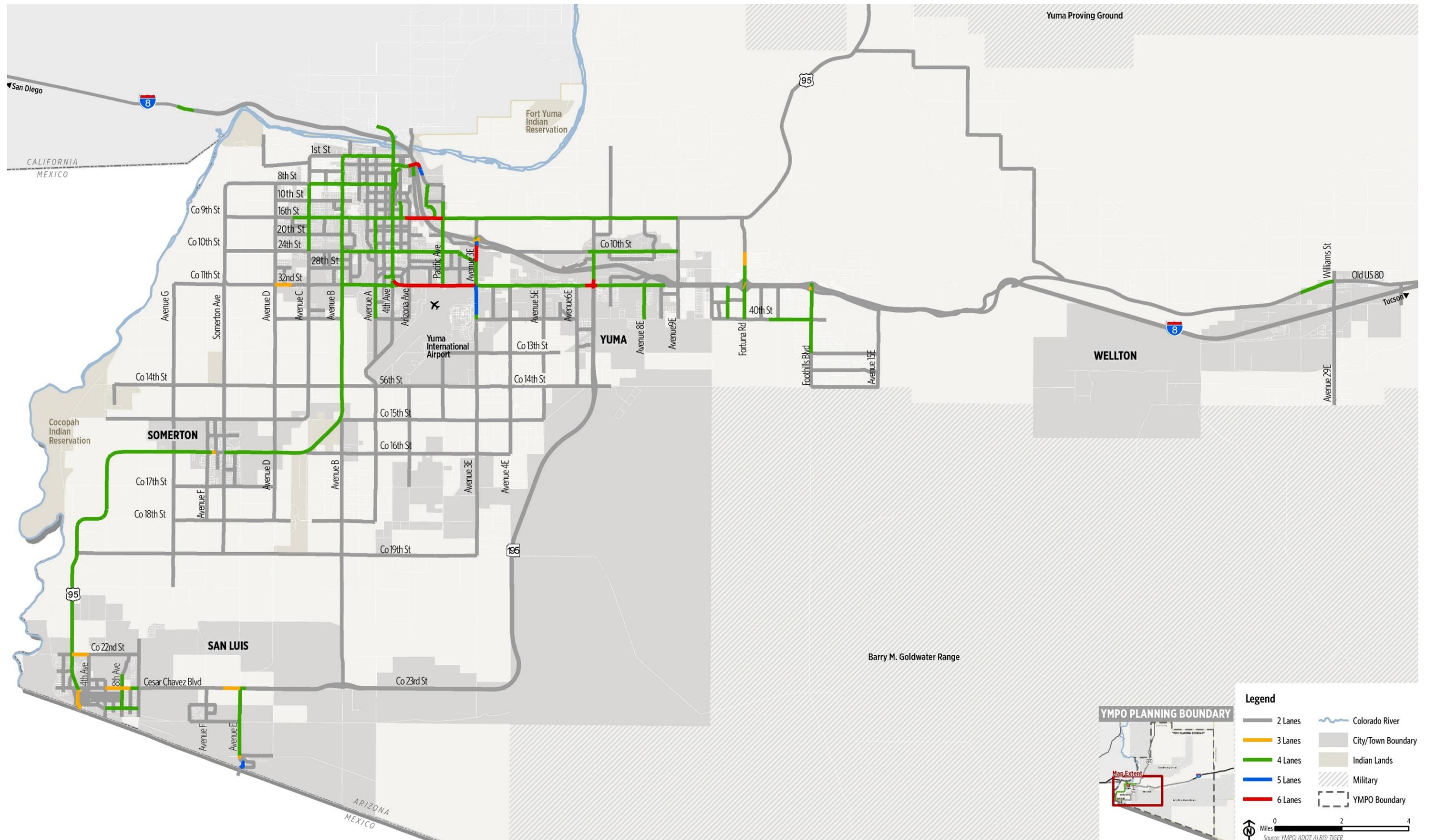
YMPO PLANNING BOUNDARY

Map Extent

0 2 4 Miles

Source: YMPO, ADOT, ALRIS, TIGER

Figure 4.2. Number of Travel Lanes



Legend

- 2 Lanes (Grey line)
- 3 Lanes (Orange line)
- 4 Lanes (Green line)
- 5 Lanes (Blue line)
- 6 Lanes (Red line)
- Colorado River (Blue wavy line)
- City/Town Boundary (Grey shaded area)
- Indian Lands (Tan shaded area)
- Military (Hatched area)
- YMPO Boundary (Dashed line)

Map Extent

0 2 4 Miles

Source: YMPO; ADOT; ALRIS; TIGER

Figure 4.4. Traffic Control

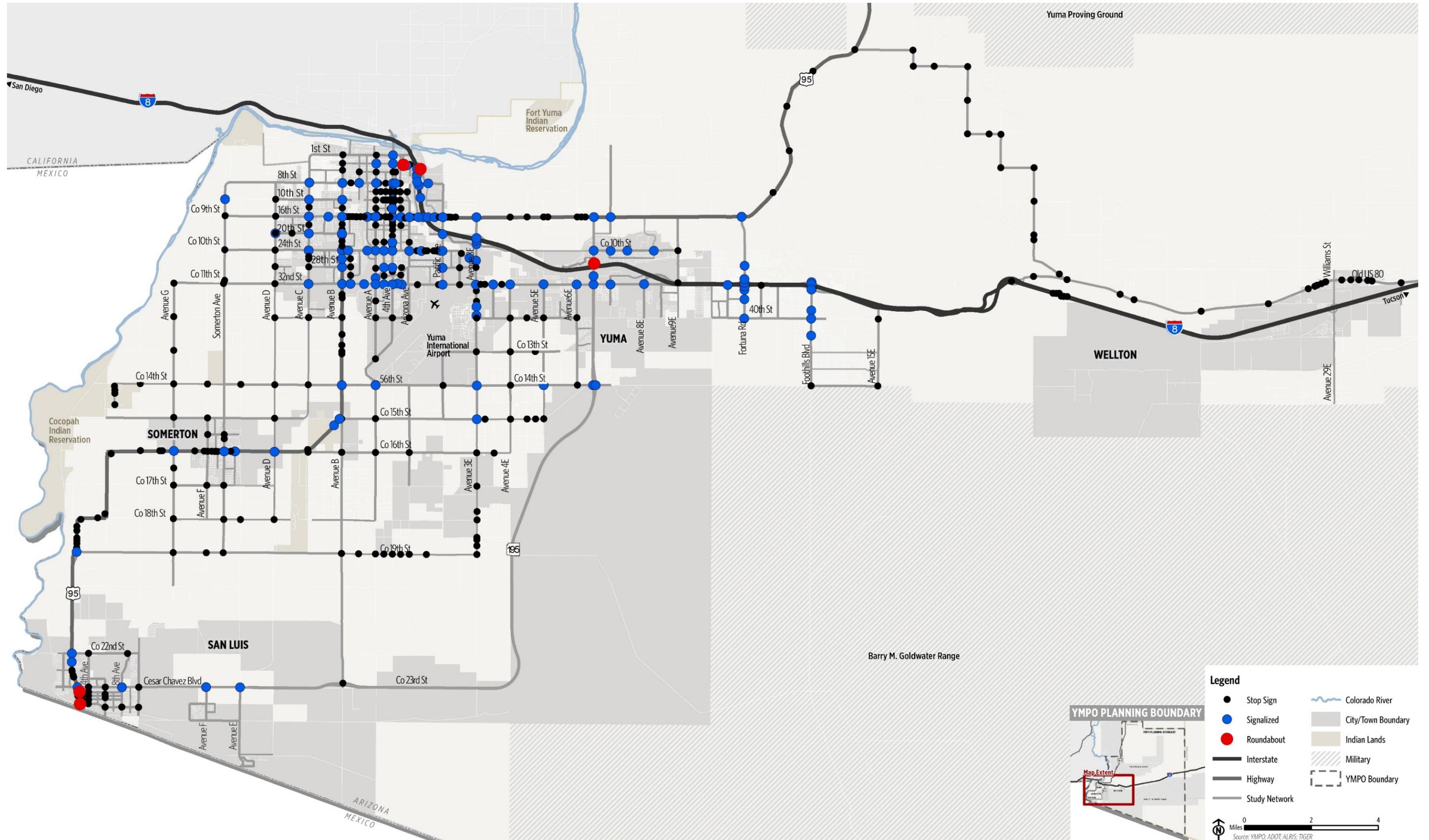
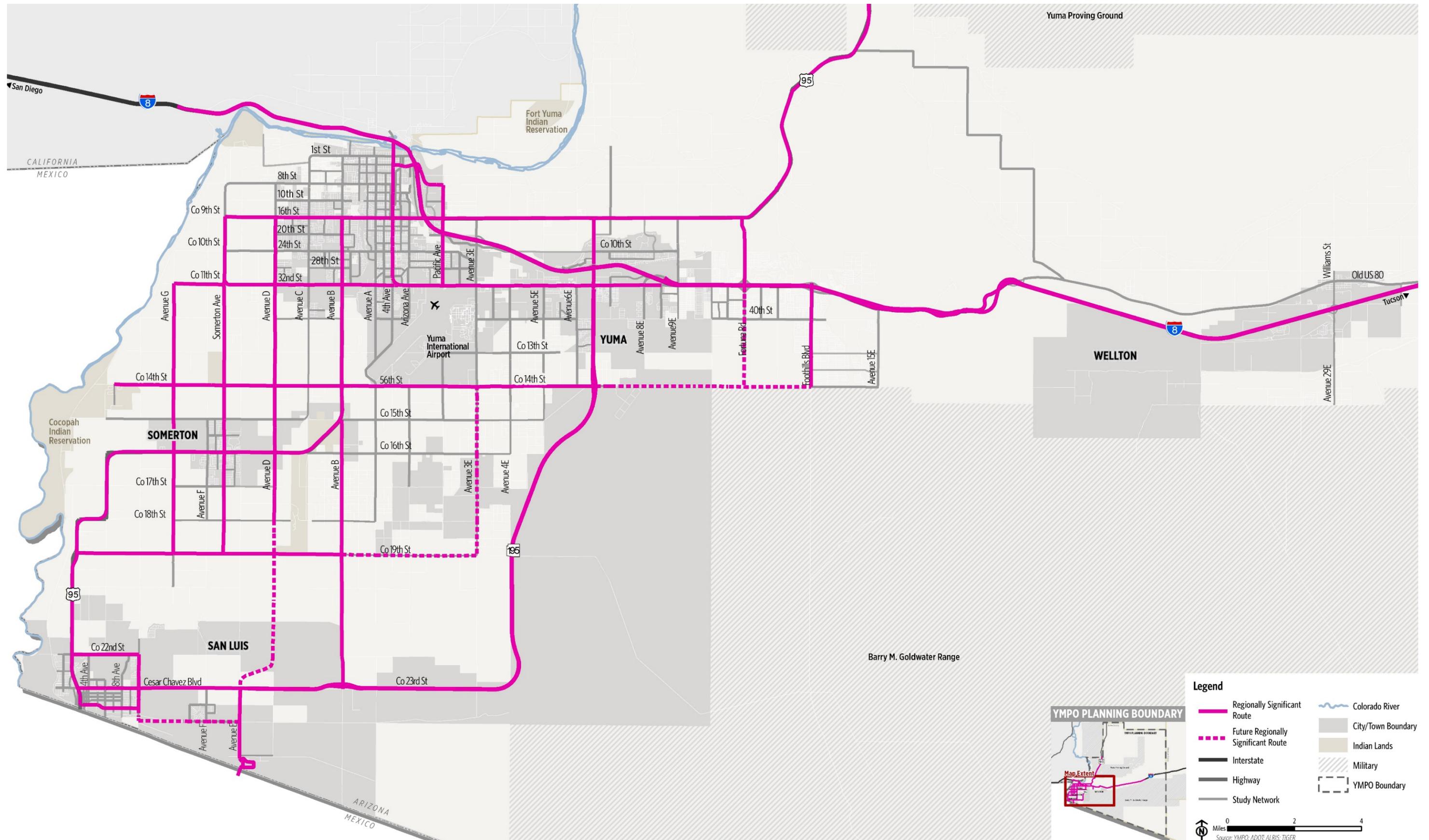


Figure 4.5. Regionally Significant Routes



Legend

- Regionally Significant Route
- Future Regionally Significant Route
- Interstate
- Highway
- Study Network
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMPO Boundary

0 2 4
Miles
Source: YMPO, ADOT, ALRS, TIGER

System Management

The region has made a tremendous investment in our transportation network, and maintaining these facilities in good working order is no small task. But this essential maintenance not only provides the public with safe infrastructure, but also reduces costly repairs.

Pavement Condition

Pavement quality is a fundamental element of identifying transportation asset condition. Since pavement deteriorates over time, and can be exacerbated by higher traffic volumes, weather, and heavy truck usage, it's important to note that pavement condition represents a snapshot of time when the condition of the pavement was assessed. Given that the YMPO's study network crosses multiple jurisdictions, a variety of pavement condition assessments have taken place. Pavement data collected for this Plan included:

- ADOT collects a series of pavement rating data, including the International Roughness Index (IRI), rutting and cracking percentage. For this pavement assessment, the 2019 collected IRI values were used to determine the pavement quality on I-18, US-95, and SR-195.
- The City of Yuma and Yuma County have implemented Pavement Management System programs that use Pavement Condition Index (PCI) to assess the quality of pavement on their maintained roadways.
- YMPO recently completed the Yuma Pavement Management System Study, that assessed the PCI of roadways for the Cocopah Nation, the cities of San Luis and Somerton, and the Town of Wellton.

In order to standardize the different reporting methodologies, a good, fair, and poor range was applied to each standard.

Figure 4.6 illustrates the current pavement conditions based upon Pavement Management System (PMS) data from the City of Yuma, Yuma County, and the recently completed YMPO Pavement Management Study. As illustrated in the Figure, many of the Regionally Significant Roads are in fair to poor condition.

Structures

Maintaining bridges and culverts in a state of good repair is essential for preserving mobility and connectivity. Weight limits or closures on structurally deficient bridges negatively impacts freight and traffic movement, while functionally obsolete structures that inadequately carry current traffic volumes may cause traffic congestion. ADOT performs all bridge and culvert inspections across the entire state, regardless of route ownership or classification through the Structure Inventory and Appraisal process. There are currently 241 structures in the YMPO region, which includes bridges, culverts, overpasses, and underpasses. **Figure 4.7** illustrates the location and condition of structures along the study network. It is important to note that the construction year and/or age of the structure does not reflect more recent reconstructions or bridge improvements.

Field Review Observed Issues and Concerns

A two-day field review was conducted in January 2021 to review roadway conditions and characteristics in the YMPO region. During the field review, the study team identified several transportation system deficiencies and issues. In combination with results of the data analysis, these observations will help form the basis for developing the Plan. **Figure 4.8** illustrates issues and concerns witnessed by the study team, including:

At-grade Railroad Crossings

- All at-grade crossings are signed in advance to warn motorists.
- Sight distance southbound on Fortuna Road approaching the crossing is limited.
- When trains are present at the William Street crossing in Wellton no additional access is present within 5 miles.

Drainage Issues

- County 10th Street and Araby Road intersection: northbound right turn lane does not have drainage infrastructure causing ponding.
- Ponding issues on Pacific Avenue, south of Palo Verde Street, made the southbound lanes impassable.

Roadway Geometry Issues

- Landscaping walls present along residential streets frequently limit motorist's intersection sight distance.
- The intersection of Arizona Avenue and Palo Verde is elongated, reducing the northbound and westbound sight distance.
- Multiple intersections have right-turn lanes that do not meet deceleration and storage length requirements.
- 32nd Street and 4th Avenue intersection: westbound left turn is followed by a horizontal curve making the maneuver difficult for larger vehicles.
- As County 14th Street approaches Avenue A from the west, there is a crest curve that limits sight distance at the traffic signal.
- A crest curve to the east of the intersection of 8th Avenue and County 22nd Street limits intersection sight distance.
- Poor pavement conditions on US 95 (County 22nd Street to County 19 ½ Street), and County 19th Street (Avenue B to Avenue C).
- 24th Street and 22nd Drive intersection: no permitted left turn movements westbound at the intersection.
- County 17th Street does not align at Somerton Avenue resulting in an angled through movement at the intersection.

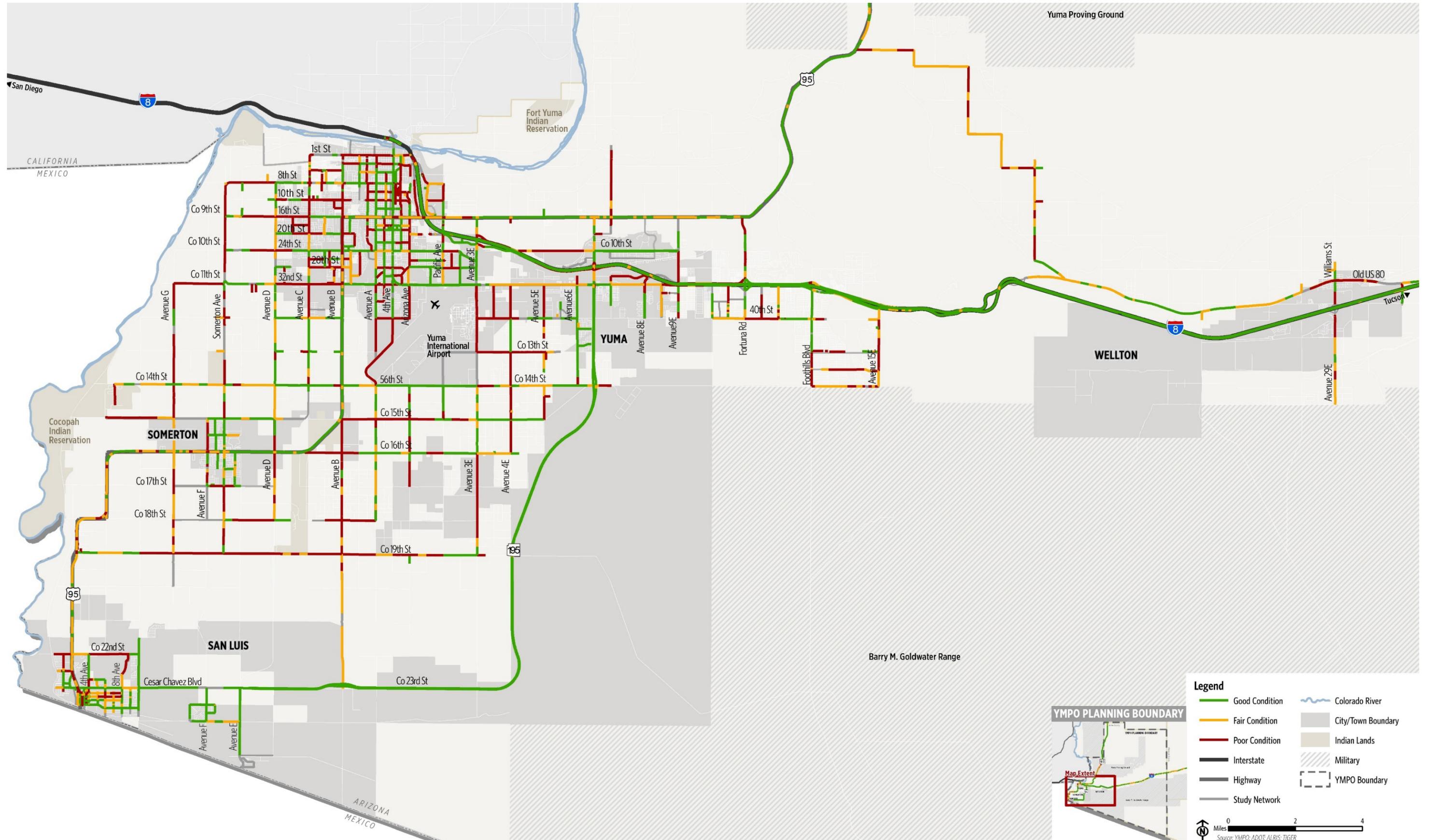
Traffic Congestion

- The westbound through movement at the intersection of 16th Street and Avenue A extends significantly beyond the intersection boundaries, blocking access to driveways and side streets.
- The eastbound through movement at the intersection of 24th Street and 4th Avenue extends significantly beyond the intersection boundaries, blocking access to driveways and side streets.
- 16th Street & Sunridge Dr – The eastbound left movement queue at the intersection of 16th Street and Sunridge Drive extends beyond the left turn lane and blocks the through movement travel lanes.
- The stretch of 32nd Street from Arizona Ave to Avenue 3E has high traffic volumes and speeds (5-15 mph over the posted speed limit).
- 1st Street and D Street intersection: witnessed many motorists run the stop sign on the stop-controlled approaches.

Pedestrian and Bicycle Conditions

- Crosswalks at schools are often not marked with yellow paint.
- Many crosswalks are only signed or painted, rarely both present.
- Limited crossings result in pedestrians crossing midblock.
- County Avenue H (Juan Sanchez Boulevard to Julian Street): existing sidewalk dips to pavement level to allow for the roadway to drain across the sidewalk, making the sidewalk impassible.
- Avenue A has a large sag curve where it intersects with 28th Street. The crosswalk provided for this intersection is at the low point of this sag curve reducing oncoming motorist sight distance and causing all drainage to cover the crosswalk.
- 14th Avenue & 8th Street - canal multi-use path has no signage to inform the user of expected movement at crossing. Path has driveway at street crossing, but crosswalk only exists to the east at the light. No signage exists to inform drivers of the bike/ped crossing.
- Bike facilities and lighting on 28th Street drop off between 33rd Drive and 45th Avenue.

Figure 4.6. Pavement Conditions



Legend

- Good Condition
- Fair Condition
- Poor Condition
- Interstate
- Highway
- Study Network
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMPO Boundary

0 2 4
Miles
Source: YMPO; ADOT; ALRS; TIGER

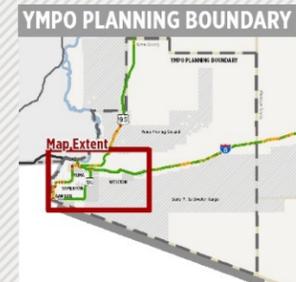
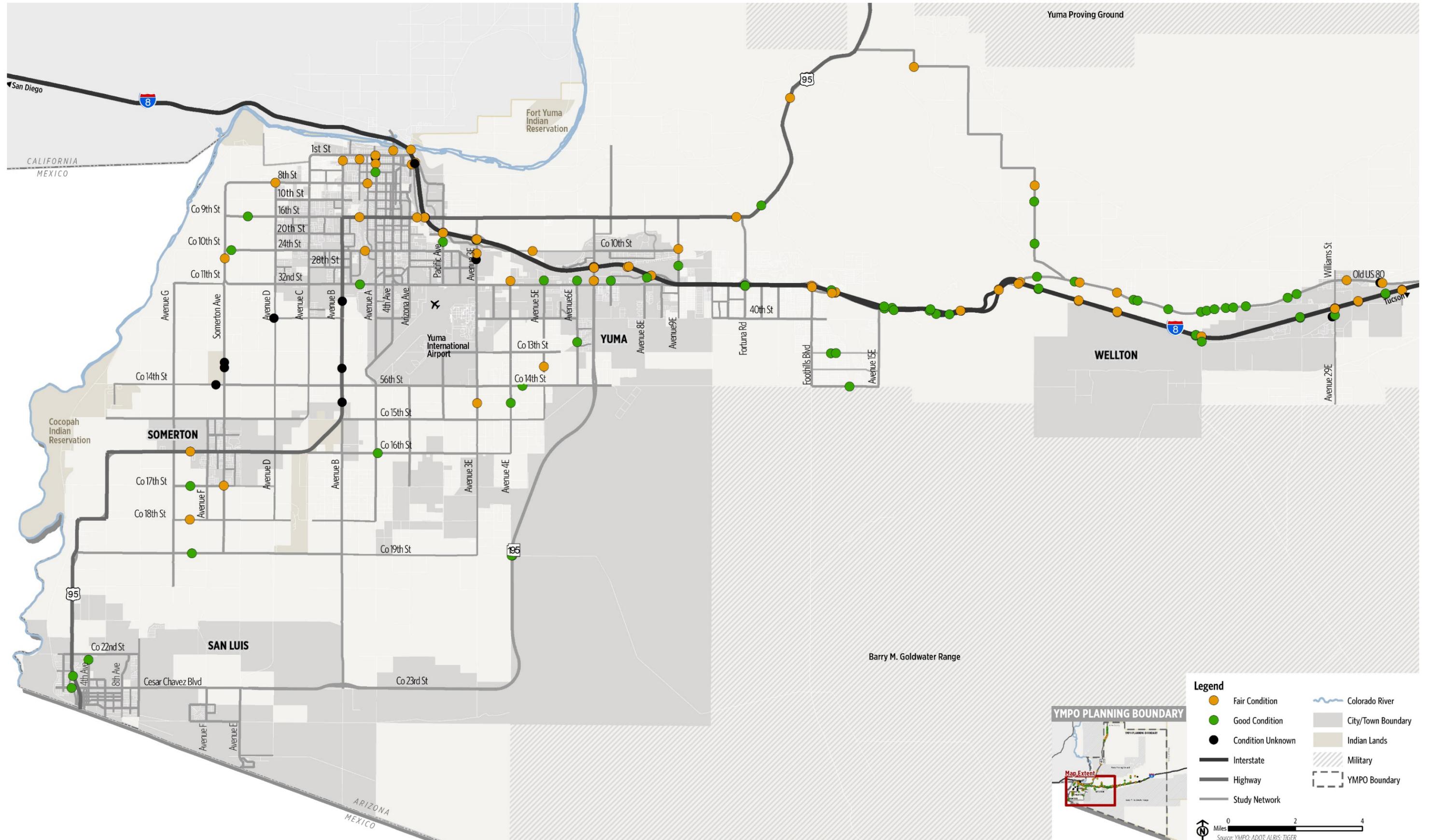


Figure 4.7. Structure Conditions

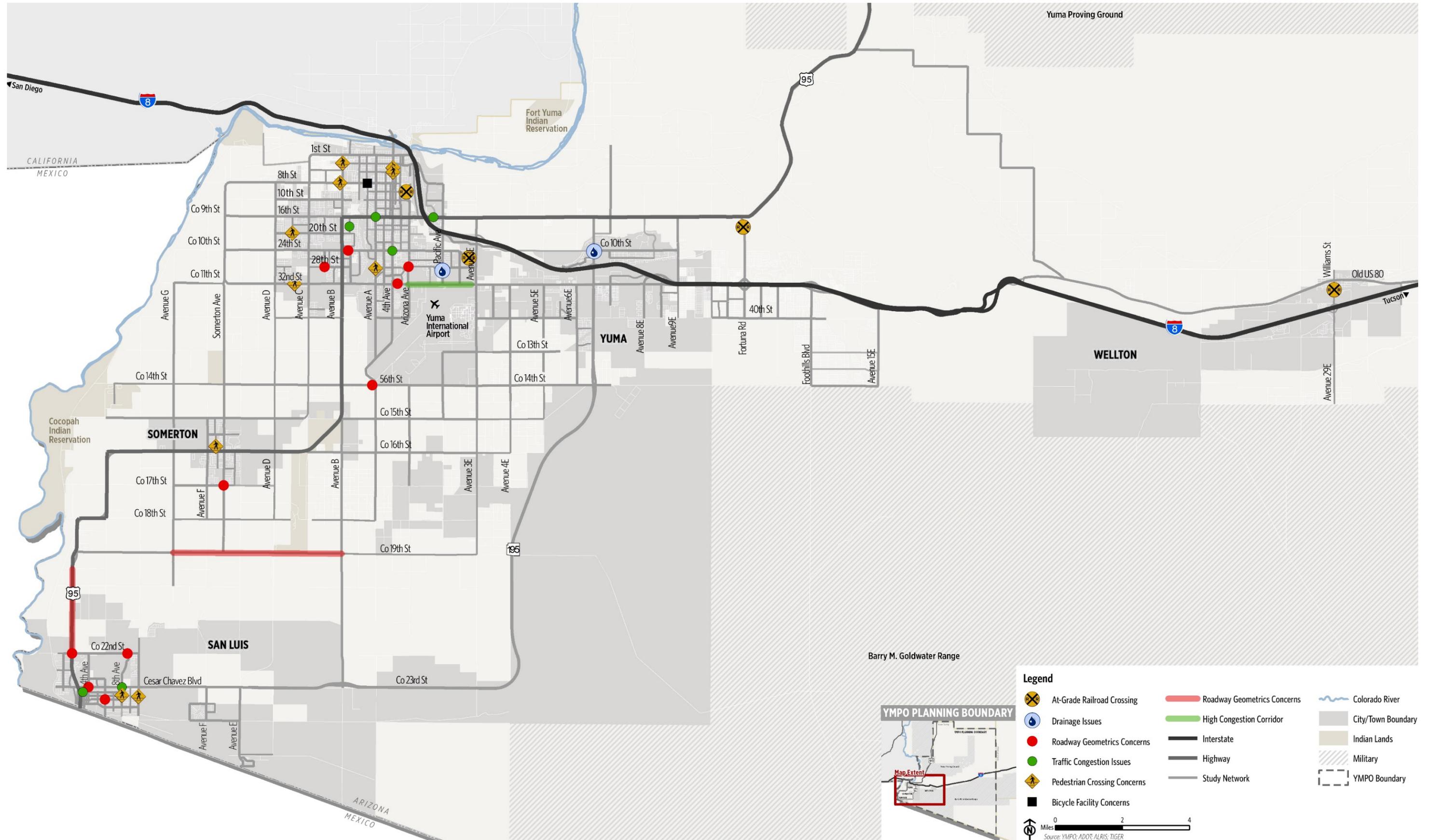


Legend

- Fair Condition
- Good Condition
- Condition Unknown
- Interstate
- Highway
- Study Network
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMPO Boundary

0 2 4
Miles
Source: YMPO, ADOT, ALRS, TIGER

Figure 4.8. Observed Issues, Concerns, and Needs



System Performance

A road's performance is often evaluated using *Level of Service* (LOS) methodology, a traditional metric that has been used by transportation professionals and agencies for several decades. LOS, however, is only reflective of relative vehicular traffic flow and is not an accurate predictor of how motorists feel when traveling on streets. For instance, a collector road with an active street environment surrounded by dense mixed use naturally attracts traffic, creating a poor LOS rating, whereas a local roadway within an area with closed businesses and blight conditions may score a good LOS rating. This section reviews roadway performance using LOS and additional metrics that are reflective of user experience.

Traffic Volumes

Traffic volumes is an important variable in understanding the function of a corridor. Current daily traffic volumes were obtained from YMPO and ADOT where available. Countywide Yuma MPO Regional Travel Demand Model was developed, calibrated, and validated as part of this plan. **Figure 4.9** illustrates existing traffic volumes in the YMPO region today based on the travel demand model. Findings show that the highest traffic volumes are located primarily on segments of I-8, 16th Street, 32nd Street, 24th Street, Avenue 3E, 4th Avenue, Avenue B in the City of Yuma; and Cesar Chavez Boulevard, and US Highway 95 in the San Luis area.

Level of Service

Level of Service (LOS) is a term used to describe traffic operations. Level of Service can be calculated for the various elements of a street system including road segments, signalized intersections, and unsignalized intersections. The various levels of service range from LOS A (free flowing traffic) to LOS F (forced flow, or very congested), and are described as:

- **LOS A:** free flow with low volumes and no delays
- **LOS B:** stable flow with speeds restricted by travel conditions and with minor delays
- **LOS C:** stable flow with speeds and maneuverability controlled because of higher volumes. Speed and maneuverability are severely restricted and the driver or pedestrian's experience is generally a poor level of comfort or convenience.
- **LOS E:** operating conditions at or near the capacity level. All speeds are reduced to a low but relatively uniform value. LOS E is unstable and can quickly deteriorate to LOS F.
- **LOS F:** Forced flow with very low speeds caused by traffic volumes exceeding the capacity of the corridor. Users experience long delays with stop-and-go traffic.

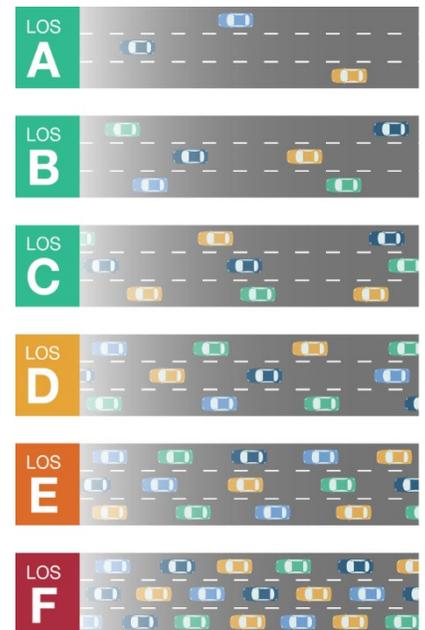
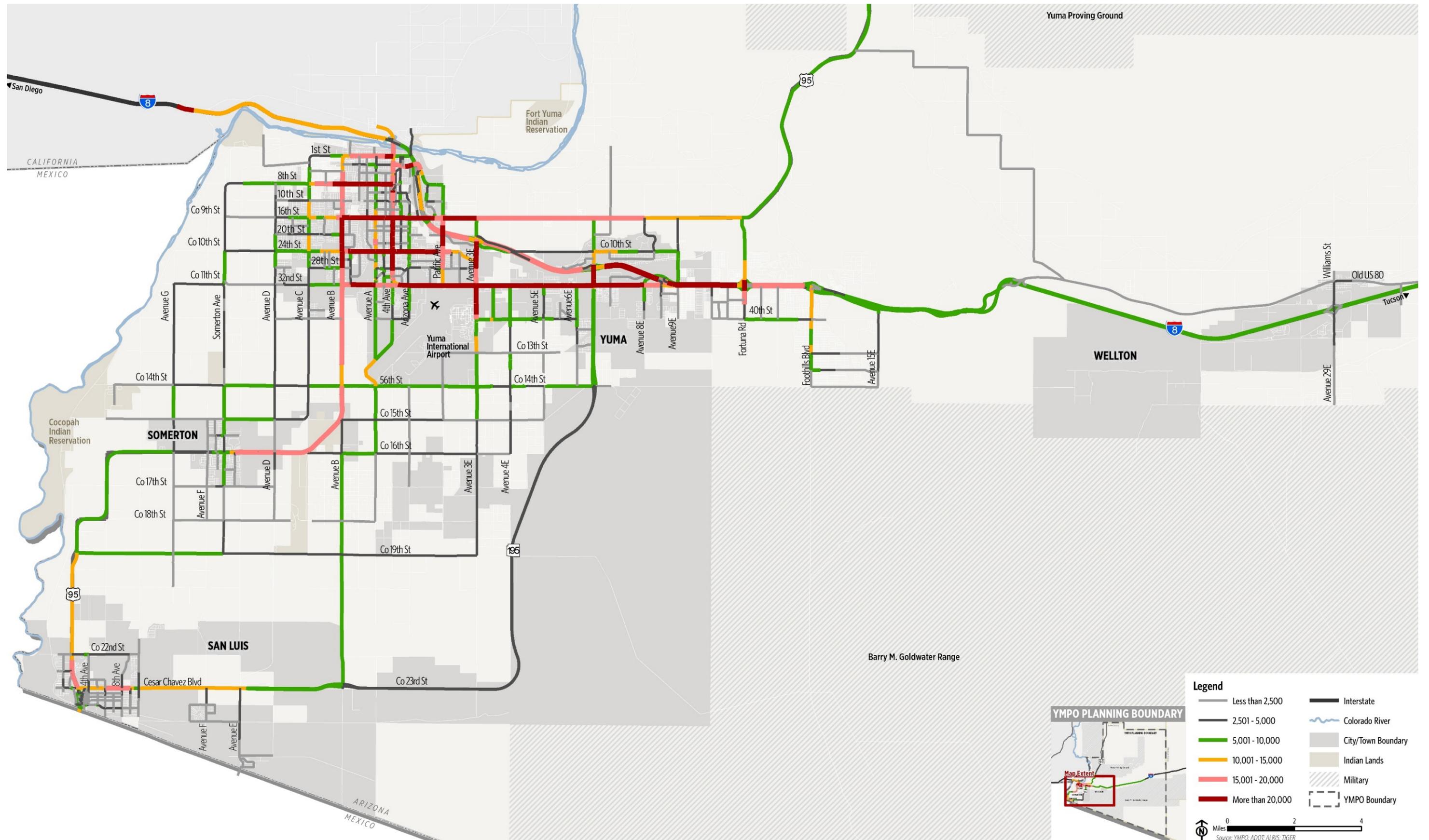


Figure 4.10 illustrates existing LOS in the YMPO region today. As illustrated in the figure, some corridor segments operate at a LOS D or worse, including portions of I-8, 16th St, 24th St, Airport Loop Road, and south and north frontage roads.

Figure 4.9. Daily Traffic Volumes



Legend

— Less than 2,500	— Interstate
— 2,501 - 5,000	— Colorado River
— 5,001 - 10,000	— City/Town Boundary
— 10,001 - 15,000	— Indian Lands
— 15,001 - 20,000	— Military
— More than 20,000	— YMPO Boundary

Source: YMPO, ADOT, ALRS, TIGER

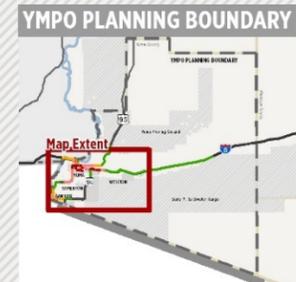
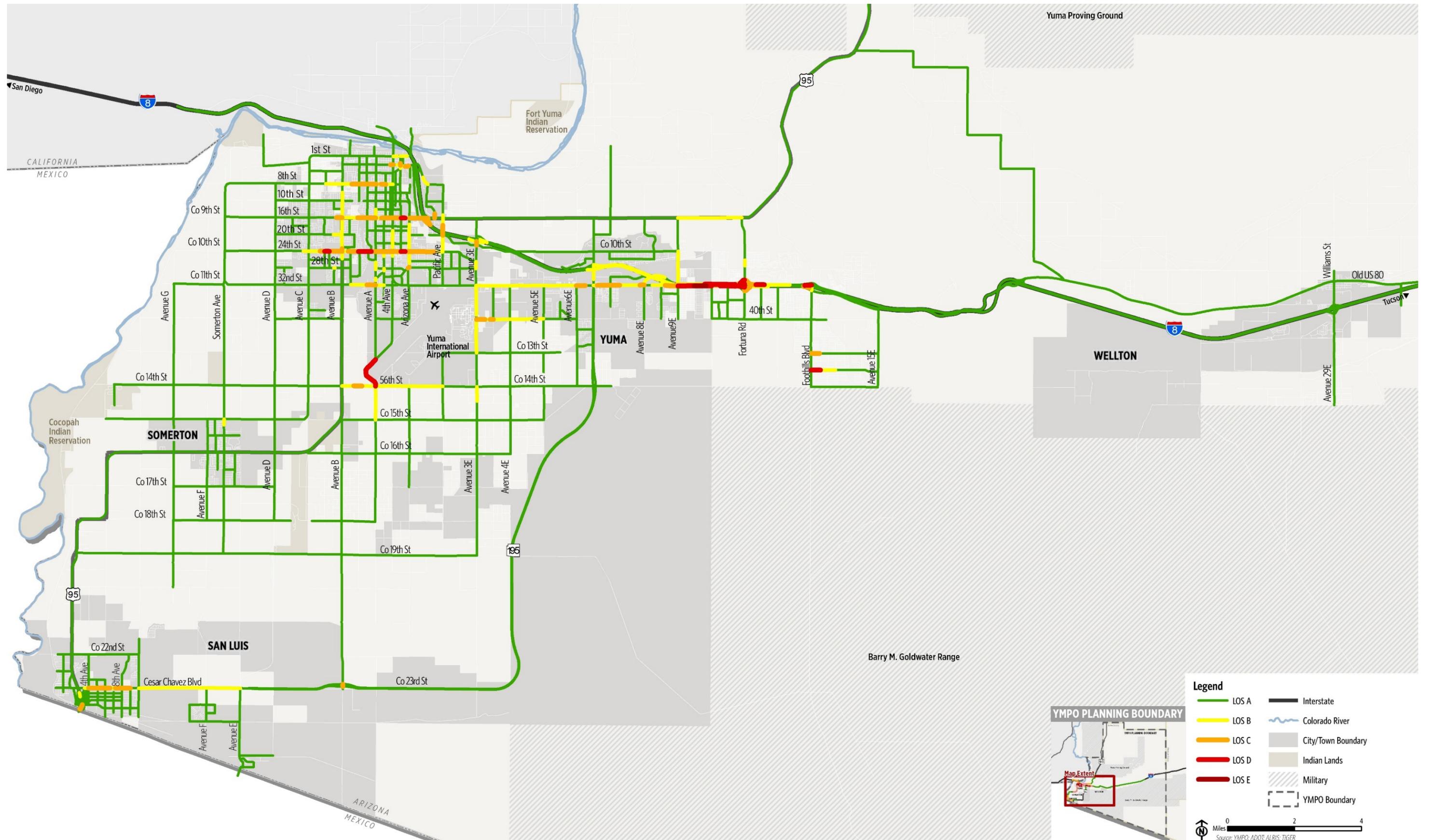


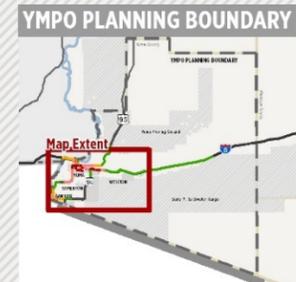
Figure 4.10. Existing Corridor Level of Service



Legend

- LOS A
- LOS B
- LOS C
- LOS D
- LOS E
- Interstate
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMPO Boundary

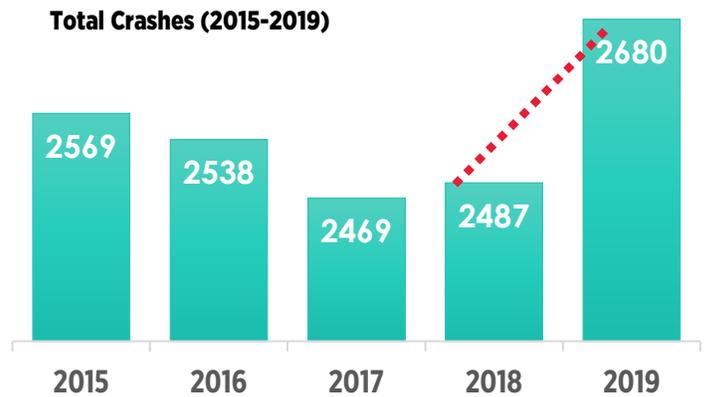
0 2 4
Miles
Source: YMPO, ADOT, ALRS, TIGER



How Safe Are Our Streets?

Crash data analysis helps identify trends, patterns, predominant crash types, and high crash rate corridors and intersections. This analysis also helps identify potential safety improvements to reduce the frequency and severity of crashes. Crash analysis presented in this section is based on data obtained from the ADOT for the five-year period of 2015 to 2019.

Between 2015 and 2019, a total of 12,743 crashes were reported within the Yuma region. As the chart on the right illustrates, crashes have increased by more than 4.3 percent over the five-year period. The following section outlines key crash characteristics to help better understand the “who,” “what,” “when,” “where,” and “how” of transportation safety in the Yuma region. **Figure 4.11** illustrates locations with the highest density of crashes. As the figure shows, crashes occur throughout the Yuma region but are largely located at major intersections.



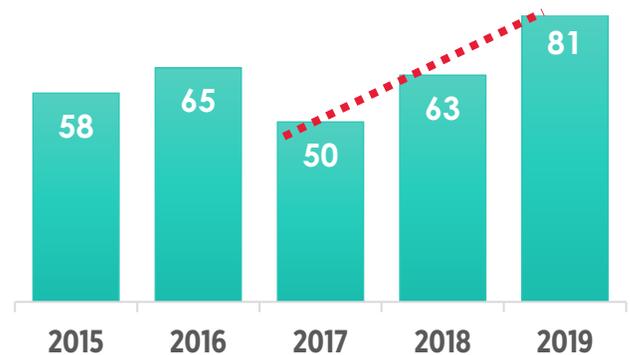
How Severe are the Crashes?

Figure 4.12 illustrates locations of fatal and serious injury crashes in the YMPO region. As the figure shows, fatal and serious injury crashes occur throughout the region, but are largely located along arterial corridors. Since 2015, the YMPO region has experienced an increase in fatal and serious injury crashes. According to the *Arizona Strategic Traffic Safety Plan*, this same trend can be seen statewide. While the chart below shows a decrease in fatal crashes from 2018 and 2019, preliminary 2020 crash statistics show an increase in fatal crashes within the YMPO region.

Fatal Crashes (2015-2019)



Severe Injury Crashes (2015-2019)



Fatal crashes increased by 78% since 2016.

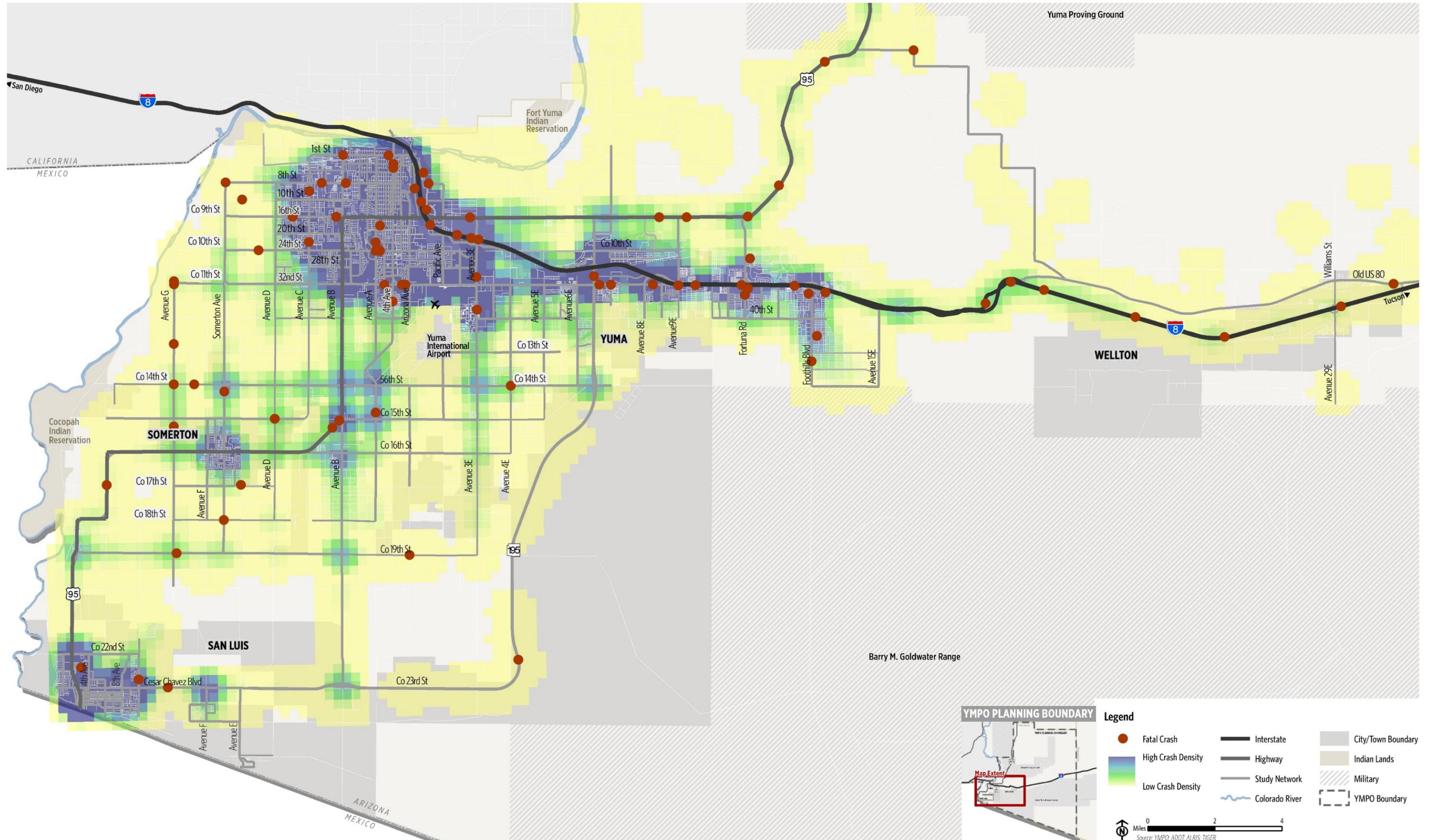
Fatal crashes accounted for <1% of all crashes reported.

While there is a small decrease in fatal crashes from 2018 to 2019, preliminary 2020 data shows an increase in fatal crashes in the YMPO region.

Serious injury crashes are on the increase in the YMPO region.

Serious injury crashes increased by 62% since 2017.

Figure 4.11. Crash Density (2015 - 2019)



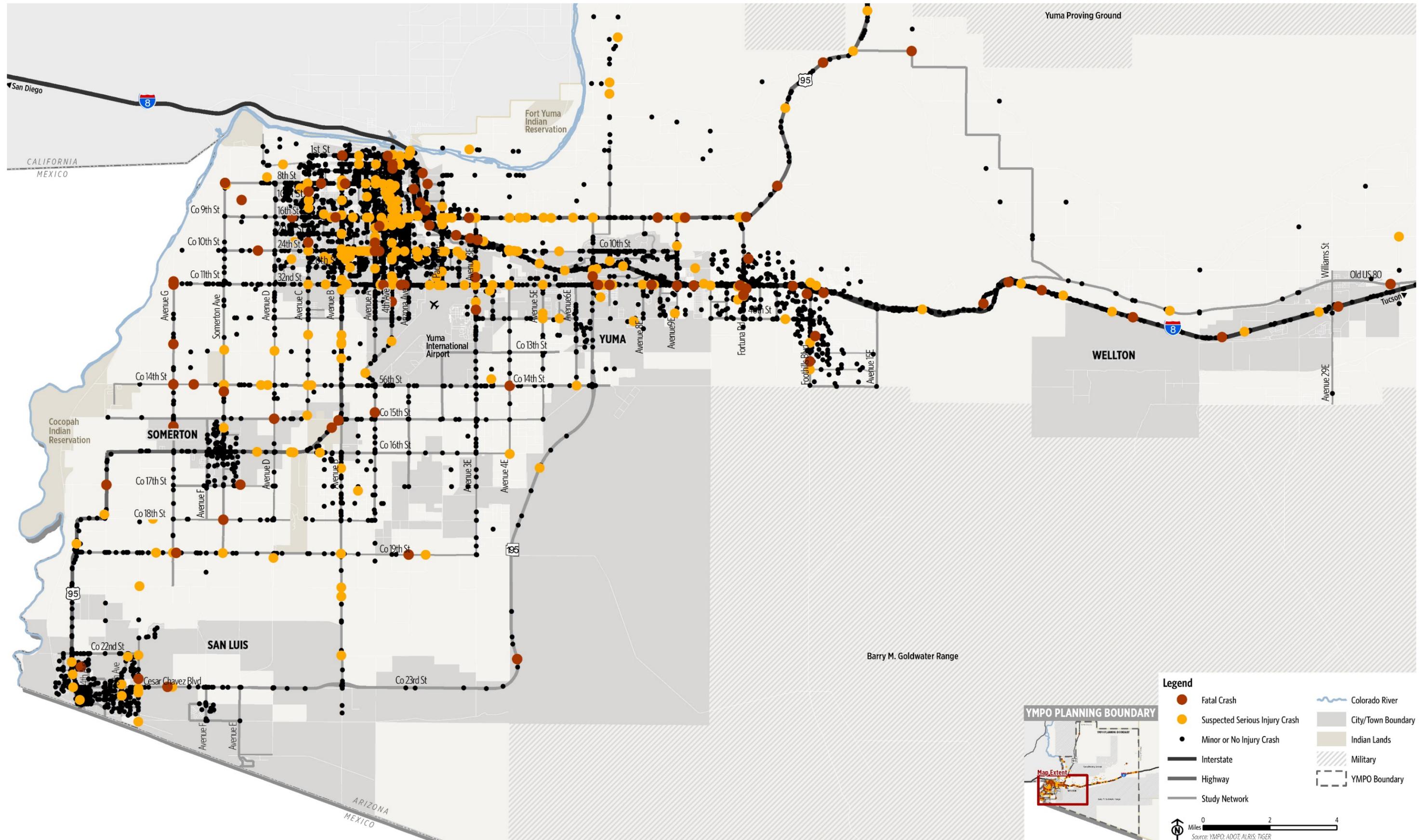
YMO PLANNING BOUNDARY

Legend

- Fatal Crash
- High Crash Density
- Low Crash Density
- Interstate
- Highway
- Study Network
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMO Boundary

0 2 4 Miles
Source: YMPO, ADOT, ALRIS, TIGER

Figure 4.12. Fatal and Severe Injury Crashes (2015 - 2019)



Who is Involved?

In a traditional crash data report, passenger vehicles and freight vehicles are grouped together in the crash database as vehicles. Key findings shows:

- Vehicles make up the largest percentage of user types involved in crashes in the YMPO region.
- Bicyclist involved crashes have increased by 53% since 2015.
- Pedestrian involved crash trends have remained consistent since 2015.
- In 2019, 1.7% of all crashes involved a bicyclist and 1.4% of all crashes involved a pedestrian.

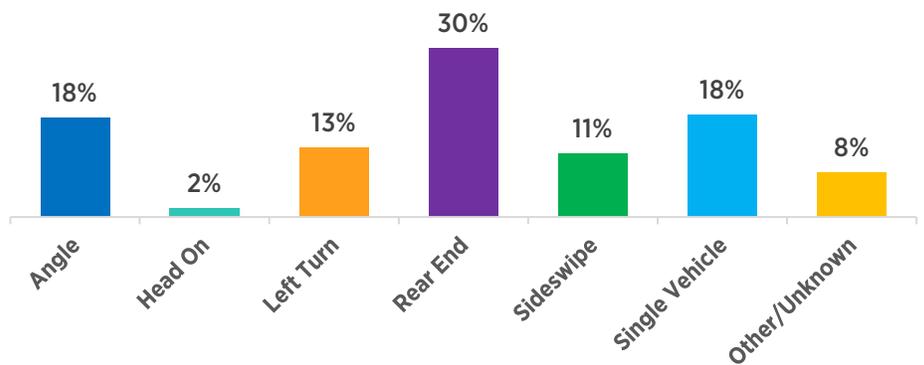
Bicycle and Pedestrian Involved Crashes (2015-2019)



What Type of Crashes are Occurring?

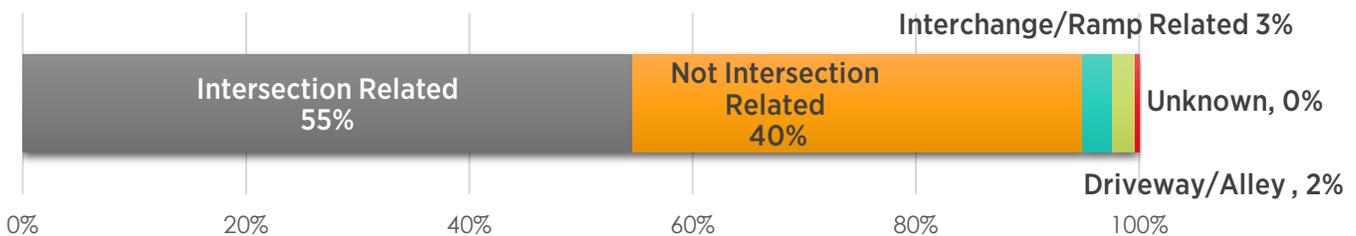
While every crash is unique, they are often categorized according to the circumstances of the crash. Each vehicle crash can be grouped into different collision types, including rear-end crashes, angle crashes, left/right hand turn crashes, and head on crashes. Each crash type can indicate a particular problem that may be addressed through a targeted engineering, enforcement, or behavioral countermeasure. As illustrated on the right, rear-end and angle crashes make up over 30% of all crashes in the YMPO region historically.

Crashes by Type



Where are the Crashes Happening?

Understanding the locational context of crashes is an important step in identifying location specific safety issues that may be addressed through a targeted engineering, enforcement, or behavioral countermeasure. Within the YMPO region, there is a disproportionate split between crashes occurring at intersections and along corridors, with nearly 55% of all crashes occurring at intersections.



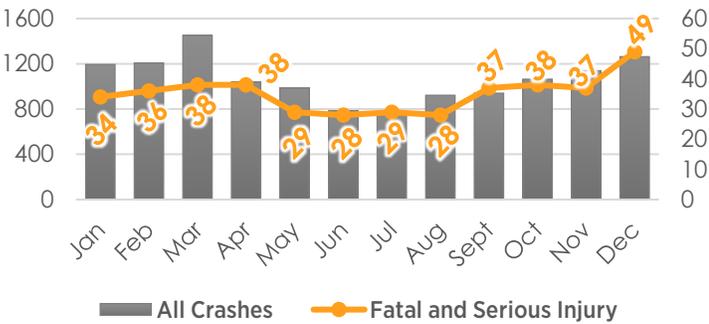
When do Crashes Occur?

Evaluating time of day, day of the week, and month crashes occurred can help identify contributing factors such as motor vehicle volumes and street lighting. The following section outlines when crashes occurred during the period of 2015-2019.

Time of Year

While there is a slight decrease in crashes during the summer months, the total number of crashes stays consistent throughout the year. Fatal and serious crashes do significantly decrease during April, November, and December. Bicycle and pedestrian related crashes also stayed consistent, with spikes in October, November, and April. April typically has the highest number of pedestrian related crashes, whereas bicycle related crashes largely occurred in October and November.

Total Crashes By Month



Pedestrian and Bicycle Related Crashes by Month

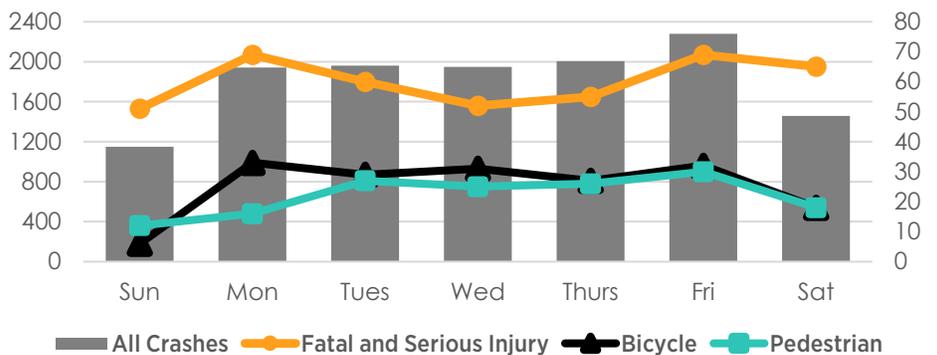


Day of Week

As shown on the right, Sunday historically has experienced the lowest number of crashes. Fatal and serious injury crashes; however, typically are lower on Wednesdays and Sundays. Monday through Fridays generally experience the same level of crashes, but fatal and serious injury crashes occur more often on Tuesdays, Fridays, and Saturdays. Key findings show:

- 69% of serious and fatal crashes occurred on Friday and Saturdays.
- 33% of bicycle related crashes occurred on Monday or Friday.
- 19% of pedestrian related crashes occurred on a Friday.

Total Crashes by Day of the Week

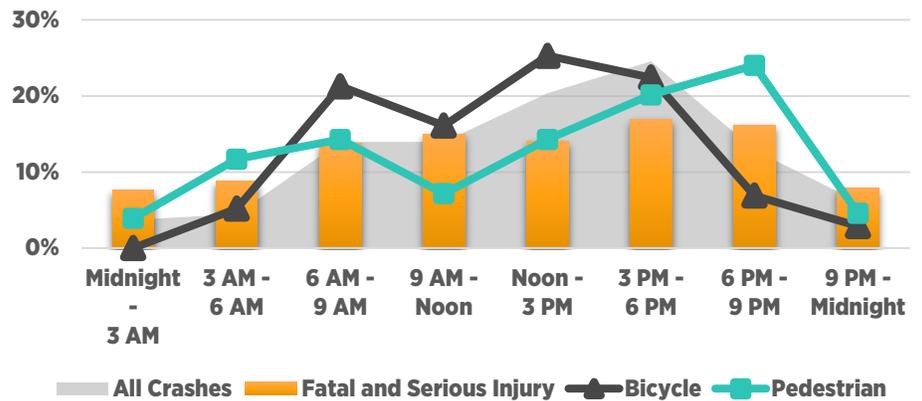


Time of Week

As shown on the right, historically crashes have largely occurred from noon to 6 PM. Key findings show:

- 40% of all crashes occur between noon to 6PM.
- Fatal and serious injury crashes largely occurred during daytime hours from 6 AM to 9 PM.
- Spikes in fatal and serious injury crashes occurred between 2 PM to 4 PM and 6 PM to 8 PM.
- 48% of bicycle related crashes occurred between noon and 6 PM.
- Spikes in pedestrian related crashes occurred between 5 PM and 8 PM.

Total Crashes by Time of Day

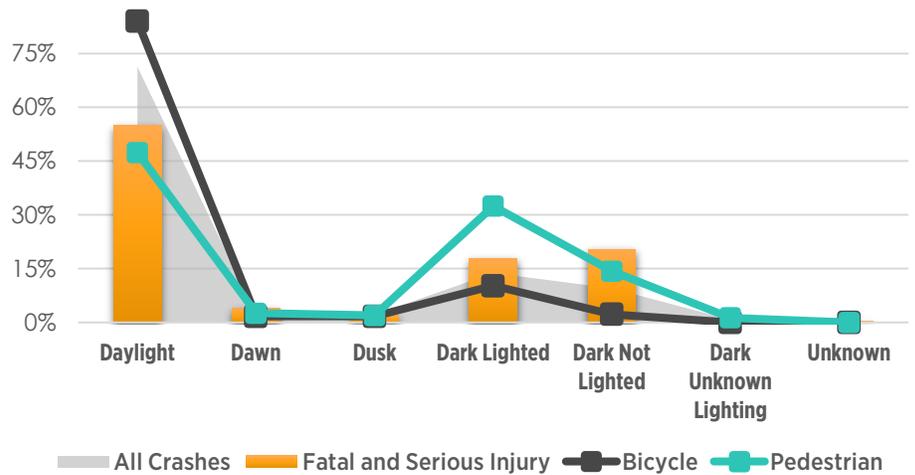


Light Conditions

As shown on the right, historically crashes have largely occurred from during the daylight. Key findings show:

- 71% of all crashes and 55% of fatal and serious injury crashes occurred during the daylight.
- 20% of fatal and serious injury crashes occurred during dark, not lighted conditions and another 18% during dark, lighted conditions.
- While most pedestrian related crashes occurred during daylight conditions, 32% occurred during dark, lighted conditions.

Total Crashes by Light Conditions



Goods Movement

Another major function of the transportation system is to move goods and services for commercial purposes. The efficient movement of freight, goods, and packages is extremely important to the region's economic prosperity. Yuma's location on the border of four states (Arizona, California, Sonora, Mexico and Baja, Mexico) and two countries (United States and Mexico), makes it a natural transportation hub.

Truck Freight

Major commercial and industrial trucking activity is limited to designated truck routes, which are built to standards accommodating heavy vehicles. **Figure 4.13** illustrates designated commercial truck routes and overweight truck routes in the YMPO region today. Key routes include:

- **Commercial Truck Routes:**
 - I-8, US 95, SR 195, 8th Street, 16th Street, 4th Avenue, and 32nd Street.
- **Oversized Truck Routes:**
 - SR-195 from the City of San Luis to 32nd Street and east of San Luis.

As part of the City of Yuma Transportation Master Plan (2014), a Buildout Truck Routing Plan was developed for the community, also shown in **Figure 4.13**. A focus for the plan was to facilitate the efficient movement of trucks and minimize excessive wear on local streets.

National Freight Highway System

The FHWA has established a National Highway Freight Network to improve the U.S. freight transportation network. While I-8 is not considered part of the Primary Highway Freight System, the interstate does provide important continuity and access to freight transportation facilities.

Arizona State Freight Plan

ADOT is currently updating the Arizona State Freight Plan, that identifies short- and long-range freight related transportation investments. The 2017 State Freight Plan identified US Highway 96 from the San Luis Port of Entry (LPOE) to the City of Yuma as a critical freight corridor that recurrently experiences urban congestion.

Air Freight

Yuma International Airport. Yuma International Airport (YIA) offers limited freight service through an air cargo ramp and FedEx. YIA; however, is increasingly addressing the freight needs of MCAS-Yuma, Yuma Proving Ground, and developments in the region. As military and space-related activities increase at the YIA, the demand for expanded air freight capability will also increase.

Rolle Field. Located two miles north of San Luis II POE, Rolle Field provides general aviation services. As economic development, expansion of the San Luis II POE, and increased freight demand is placed on the region, Rolle Field is well positioned to support freight services.

Rail Freight

Union Pacific Railroad (UPRR). The UPRR Sunset Route, that goes from Los Angeles to El Paso through the YMPO operates up to 70 trains per day. Ongoing double tracking of the line will allow the company to operate more than 100 trains per day.

UPRR Wellton Branch. The Wellton Branch Railroad Rehabilitation Study was conducted to assess the costs for alternatives to reestablish freight and passenger service between Arlington, Arizona, and Wellton. The reestablishment of service would provide a direct connection from Los Angeles to Phoenix. The Wellton Branch is a segment of the UPRR Phoenix Subdivision that extends between downtown Phoenix and Wellton, Arizona.

YMPO Rail/Heavy Freight Corridor Alignment Study. YMPO is currently in the process of evaluating potential railroad corridor alignments to connect the east-west Union Pacific rail line and the US/Mexico Border. Ultimately, the corridor will help to create an efficient and safe freight transportation network that will provide regional connections between Sonora, Mexico, and Yuma County.

Border Infrastructure

Commercial and non-commercial traffic across the Arizona–Sonora border have continued to increase, and the majority of LPOEs have experienced an increased crossing of people and goods. These increases are expected to continue as rapid population and economic growth occurs in the region. However, facilities at the LPOEs are outdated and were not designed to accommodate the increased volumes of cross-border traffic. Furthermore, the COVID-19 pandemic has underscored the need for facilities and processes that promote general hygiene and public health for both travelers and staff at the LPOEs.

The YMPO region is currently served by two international separate Land Port of Entry (LPOE). The San Luis Port of Entry I is one of Arizona's busiest ports, with over eight million people crossing the border on a yearly basis. San Luis Commercial Port of Entry II is the second largest commodities port of entry in Arizona due to fresh produce imported from Mexico. The following provides a summary of LPOE conditions in the YMPO region today.

San Luis I Land Port of Entry (LPOE)

San Luis I Land Port of Entry (LPOE) is located on the U.S.–Mexico border in the City of San Luis, Arizona. The LPOE connects U.S. Highway 95 on the north, and Mexican Federal Highway 2 and Sonora State Highway 40 to the south. San Luis POE I was constructed in 1930 and later expanded in 1984 and 1991. The LPOE is the westernmost Arizona port near the California border (approximately 4 miles) and is the primary crossing location for farmworkers transported to agricultural fields daily across Yuma County.

San Luis I LPOE is the second busiest non-commercial LPOE in Arizona. Traffic data collection at the border has found:

- Vehicle traffic has increased from 3.02 million in 2012 to 3.25 million in 2018.
- Since 2010, privately-owned vehicles (POVs) using San Luis I LPOE has increased by 58 percent.
- Wait times for vehicles often exceed 2 hours.



The higher volume coupled with outdated facilities creates long wait times, leading to traffic backups in downtown San Luis from southbound vehicles and additional traffic backups from northbound vehicles traveling from Mexico. During agriculture produce season, congestion significantly increases at the LPOE due to the increase amount of cross-border traffic.

US General Service Administration (GSA) was awarded partial funding for the renovation and expansion of the LPOE in 2019. The two-phase project will include site development and infrastructure; expanded northbound POV lanes; northbound primary and preprimary inspection canopies; associated northbound secondary processing; expanded southbound POV lanes; southbound primary and secondary inspection and processing building; parking; and more. It will also include pedestrian, administrative, and other facilities.

Upon expansion of San Luis I LPOE, the City of San Luis may need to improve and upgrade their multimodal transportation system to accommodate the additional lanes and potential increase of cross-border traffic. The city is currently in the process of developing a Downtown Redevelopment Plan that will evaluate multimodal transportation needs. In 2013, ADOT completed a San Luis Street Improvement project to improve traffic and pedestrian mobility through the San Luis POE, to reduce conflicts between motorists, bicyclists, and pedestrians. The project recommended:

- Constructing two roundabouts: D Street at US 95 and Urtuzuastegui Street at US 95
- Converting Archibald Street (SB) and 1st Avenue (NB) to one-way streets
- Reconfiguring NB traffic from the POE directly to 1st Avenue with accessibility to US 95 from the Urtuzuastegui Street (EB and WB)

- Converting US 95 from a five-lane facility between the planned Urtuzuastegui Street mini- roundabout and D Street roundabout into a two-lane local road
- Constructing a transition road from the F Street/US 95 intersection, which is north of the D Street roundabout, west to Archibald Street
- New construction, reconstruction, and widening of Archibald Street from a two-lane street to a three-lane one-way SB facility from F Street to Urtuzuastegui Street
- Constructing an additional EB lane on Urtuzuastegui Street from Archibald Street to the LPOE
- Providing amenities on US 95 to accommodate pedestrian and bicycle traffic

San Luis II LPOE

Located about five miles from downtown, San Luis II LPOE is the commercial port of entry that process large freight trucks since its opening in November 2010. Commercial vehicles are processed through three primary inspection lanes. One of these three lanes is dedicated as a Free and Secure Trade (FAST) lane. This new port was designed to initially process 150 trucks per day with the potential to expand to 650 trucks per day by 2030. The facility was also designed for the potential of adding additional facilities for passenger vehicles, pedestrians, and bicyclists.



Statewide Planning Efforts

The Arizona Department of Transportation (ADOT) recently initiated a study to update the Arizona–Sonora Border Master Plan (BMP) developed in 2013 to improve the efficiency and effectiveness of Arizona–Mexico cross-border traffic. Ultimately, the plan will refine, identify, and prioritize transportation and infrastructure improvements by refining the existing plan for identifying, prioritizing, and promoting LPOE and related transportation projects. This will improve the capacity and operations of the LPOEs and transportation infrastructure to relieve traffic congestion, reduce delays, enhance safety and security, promote international trade, and improve the quality of life for residents in the border region.

Participation in the Implementation Monitoring Committee (IMC)

Continued coordination with U.S. Customs and Border Protection (CBP) and GSA is necessary to maintain focus on transportation corridors, including routes identified as part of the national freight highway network between POE projects and surface transportation infrastructure adjacent to the ports. YMPO should participate in the IMC recommended in the Arizona-Sonora Border Master Plan.

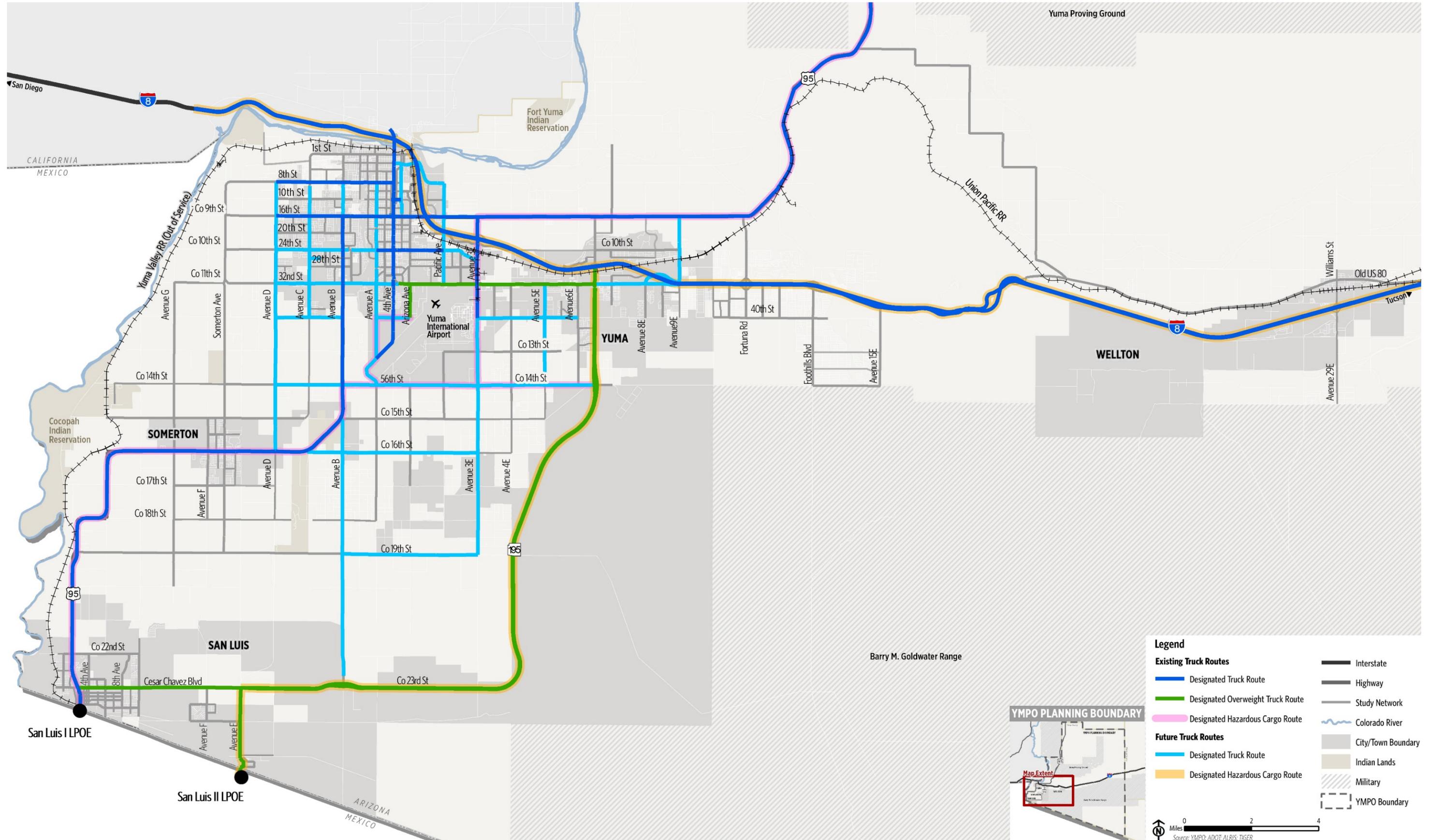
Accessibility to International POEs

Accessibility to the international POEs should be improved by providing alternate routes and additional capacity along Juan Sanchez Boulevard, Avenue E, 56th Street, US 95, and Avenue 3E, as identified and prioritized in the Arizona-Sonora Border Master Plan. The 2015 San Luis Streets Improvement project was designed to improve circulation of traffic, enhance pedestrian safety, and improve access to downtown businesses.

Access for workers traveling between Arizona and Sonora

Access for workers traveling between Arizona and Sonora, Mexico should be improved. Currently, many of these workers are pedestrians who experience long delays in the early morning hours. The expansion of San Luis POE I is planned to improve wait times. Processing efficiency for transit and vanpools that connect workers to downtown San Luis and agricultural employment centers should be improved.

Figure 4.13. Major Freight Facilities in the YMPO Region



Legend

	Existing Truck Routes		Interstate
	Designated Overweight Truck Route		Highway
	Designated Hazardous Cargo Route		Study Network
	Future Truck Routes		Colorado River
	Designated Hazardous Cargo Route		City/Town Boundary
			Indian Lands
			Military
			YMPO Boundary

0 2 4
Miles
Source: YMPO, ADOT, ALRIS, TIGER

5. MULTIMODAL TRANSPORTATION

While trips taken by walking, bicycling, or using public transportation make up a modest share of the total commuting trips in the region, multimodal transportation is an important component to the overall mobility of a community and region. Investments in walking, biking, public transportation, and other forms of multimodal infrastructure not only results in a more balanced and accessible transportation network, but aids in alleviating socioeconomic and health disparities, supports economic prosperity, and helps to create a more livable and sustainable community.

Active Transportation

Active transportation includes any self-propelled, human-powered modes of transportation that engage people in active participation, including walking, biking, jogging, skateboarding, inline skating, and the use of assistive mobility devices. This section summarizes existing active transportation network facility locations and conditions.

Pedestrian Network

Walking is the most common form of transportation, as every trip begins and ends by foot. At some point in the day, everyone is a pedestrian. Pedestrians are highly diverse, ranging from joggers, groups enjoying a leisurely stroll, parents with children, skateboarders, rollerblades, people with pets on a leash, and people using mobility aids. Sidewalks are the backbone of the pedestrian network, as they provide a designated space for people to walk along a roadway. Sidewalks are supported by a collection of facilities to create a more visible, navigable, and enjoyable walking experience.

Walking in the YMPO Region Today

Currently, the YMPO region does not have a regional inventory of sidewalk locations; however, during this project an aerial and field assessment review was conducted to identify pedestrian issues and concerns. The conditions of sidewalks affect all pedestrians, particularly individuals with disabilities. Sidewalk gaps, uneven surfaces, obstructions, or poor sidewalk conditions create deterrents or barriers to pedestrian travel. YMPO member agencies have invested significantly in constructed pedestrian facilities. During the inventory, the study team noted:

- Sidewalks are generally present in urbanized cores; however, there are limited to no sidewalks in rural areas.
- Many corridors have gaps in the sidewalks due to sporadic corridor and business development, forcing pedestrians to walk in unpaved areas in the roadway's shoulder.
- Freeways, major roads, and canals have created physical crossing barriers.
- Existing sidewalks are generally in fair to poor condition that could be difficult for persons in a wheelchair or pushing a stroller.

Figure 5.1 illustrates locations of existing crosswalks available within the YMPO region.

Bicycle and Trail Network

Bicycling is an essential component of any transportation system that provides numerous benefits to communities and residents. Despite the region's general dependency to single-occupancy vehicles, the region has a strong and thriving bicycle community of recreational cyclists that bike primarily for leisure or physical activity. These riders prefer long-distance, continuous routes and often ride on the weekend or early morning hours. To meet the needs of these riders, as well as to provide biking opportunities for commuting or personal purposes (such as shopping), the region is increasingly supporting and investing in bicycle infrastructure.

Biking in the YMPO Region Today

The majority of the existing bicycle network system within the YMPO region is composed of dedicated bicycle lanes, shared-use paths, and shared roadways or wide roadway shoulders. The Yuma Bicycle Facilities Master Plan (2009) and the YMPO Bicycle and Pedestrian Safety Plan (2020) identified a network of bike lanes, bike paths, shared-use paths, and crossings to create a network that connects to schools and activity centers to encourage bicyclists of all ages and abilities to routinely use bicycling to get to and from work, school, and other activities. **Figure 5.1** illustrates the location of existing and planned bicycle facilities within the YMPO region.

Off-Street Paths and Trails

When bicycle and pedestrian facilities are connected to recreational areas, they act as an extension of the transportation system. Connecting parks and other recreational facilities via bicycle and pedestrian facilities is a way to make parks more accessible and provide a safe and convenient means for residents to explore the recreational system. Off-street paths and trails are open to bikers, walkers, hikers, runners, and often equestrians. **Figure 5.1** illustrates the locations of major local and regional trails.

Multimodal Safety Conditions

Analysis of pedestrian- and bicycle-related crash data provides YMPO and partner agencies with important safety information to help make informed decisions on safety improvements. The following provides a summary of safety conditions as they related to pedestrian and bicyclists in the YMPO region. The analysis was performed using ADOT's Arizona Crash Information System (ACIS) database for 2015 to 2019.

How Severe are the Crashes?

In total there were 228 pedestrian- and bicycle-related crashes that occurred in the YMPO region. Of these crashes, 66 percent were fatal or serious injury crashes. Since 2015, the YMPO region has experienced an increase in fatal and serious injury pedestrian- and bicycle-related crashes. According to the *Arizona Strategic Traffic Safety Plan*, this same trend can be seen statewide. **Table 5.1 and Figure 5.2** outline the number and location of serious and fatal injury pedestrian- and bicycle-related crashes.

Bicycle and Pedestrian Involved Crashes (2015-2019)

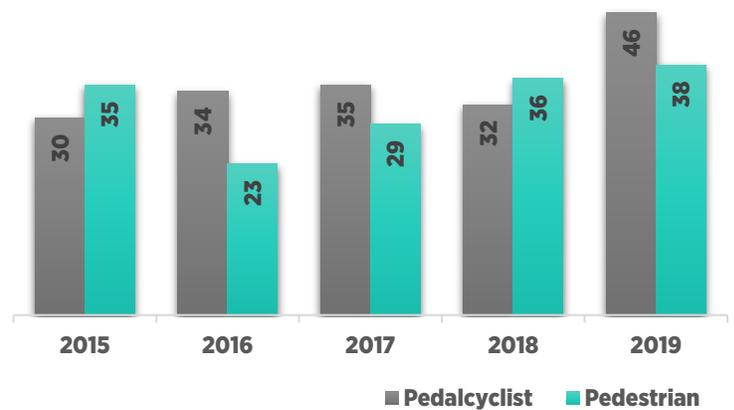


Table 5.1. Pedestrian- and Bicycle-Related Crashes by Severity

	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
Bicyclist	8	54	98	15	2	177
Pedestrian	3	50	59	35	14	161
Total	11	104	157	50	16	338

When do Crashes Occur?

While there is a slight decrease in crashes during the summer months, the total number of crashes stays fairly consistent throughout the year. Bicycle- and pedestrian-related crashes also stayed consistent, with spikes in October, November, and April. April typically has the highest number of pedestrian-related crashes, whereas bicycle-related crashes largely occurred in October and November.

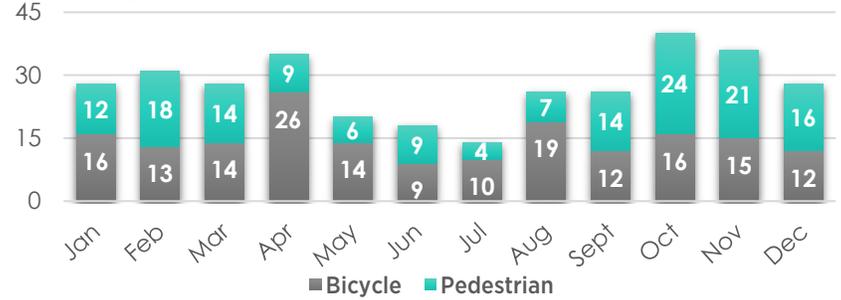
As shown on the right, approximately 27 percent of all pedestrian-related crashes occurred during the evening period between 6:00 pm to 9:00 pm. This may be attributed to pedestrians walking without reflective clothing that may be hard to see if lighting is scarce. Conversely, bicycle-related crashes largely occurred during AM and PM commute periods, 21 percent between 6:00 am to 9:00 am and 22 percent from 3:00 pm to 6:00 pm. This may be an indicator that a percentage of the population relies on biking to work.

While most pedestrian related crashes occurred during daylight conditions, 32% occurred during dark, lighted conditions. As previously noted, bicycle-related crashes largely occurred during daylight hours.

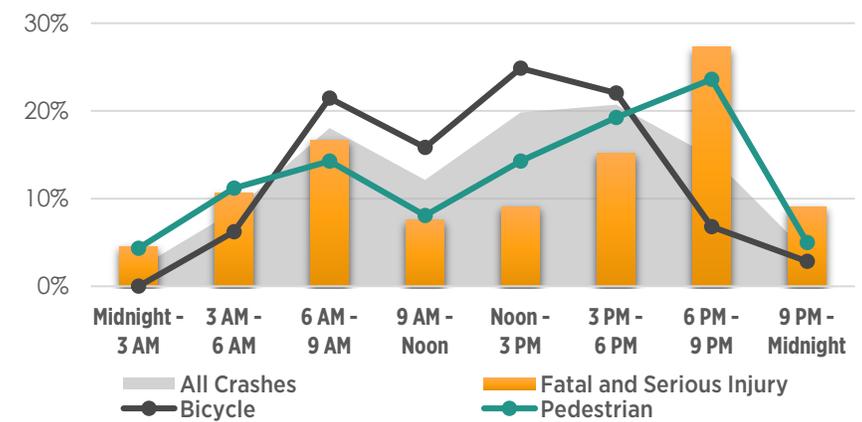
Where did they Occur?

Figure 5.2 illustrates the locations of pedestrian- and bicycle- related crashes. As shown in the Figure, fatal crashes primarily occurred in Yuma. The highest number of fatal and serious injury crashes occurred on US Highway 95, 24th Street, and 4th Avenue. Tables 5.2 – 5.5 outline corridors and intersections with a significant number of pedestrian- and bicycle-related crashes.

Pedestrian and Bicycle Related Crashes by Month



Bicycle and Pedestrian Involved Crashes by Time of Day



Bicycle and Pedestrian Involved Crashes by Light Conditions

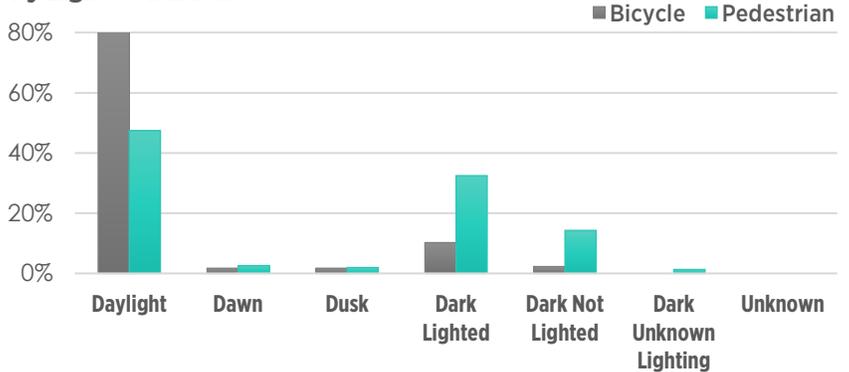


Table 5.2. Corridors with One or More Pedestrian-Related Crashes by Severity

Corridor	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
US 95	2	7	8	5	1	23
4th Ave / SB 8	0	7	5	4	1	17
24th Street	0	6	5	4	1	16
1st Street	0	1	2	1	1	5
32nd St / SB 8	0	0	0	1	1	2
32nd Street	0	0	0	1	1	2
4th Avenue	0	1	1	0	0	2
6th Ave	0	2	0	0	0	2
Arizona Avenue	0	1	1	0	0	2
Juan Sanchez Blvd	0	2	0	0	0	2

Table 5.3. Intersections with One or More Pedestrian-Related Crashes by Severity

Intersection	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
C St & 1st St	1	3	0	0	0	4
S 4th Ave & W 24th St	0	3	1	0	0	4
S 6th Ave & W 1st St	0	0	2	0	1	3
E 24th St & S Arizona Ave	0	0	2	0	0	2
S 4th Ave & W 28th St	0	2	0	0	0	2
S Arizona Ave & E 26th Pl	1	1	0	0	0	2
S Ave B & W 8th St	0	1	0	1	0	2
W 14th St & S 4th Ave	0	0	0	2	0	2
W 18th St & S 4th Ave	0	1	0	1	0	2
W 24th St & South Virginia Dr West	0	0	2	0	0	2
W 24th St & W 22nd Dr	0	0	1	1	0	2
W 3rd St & S Ave A	0	0	2	0	0	2

Table 5.4. Corridors with One or More Bicycle-Related Crashes by Severity

Corridor	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
24th Street	0	5	10	4	0	19
4th Ave / SB 8	0	5	12	1	0	18
US 95	0	4	5	2	1	12
32nd Street	0	0	4	0	0	4
Arizona Avenue	1	0	2	0	0	3
1st Street	0	0	2	0	0	2
Archibald St	2	0	0	0	0	2
Avenue 3E	0	1	1	0	0	2
County 11th Street	0	0	1	1	0	2
I8 Frontage Road	0	2	0	0	0	2
Somerton Ave	1	0	1	0	0	2

Table 5.5. Intersections with One or More Bicycle -Related Crashes by Severity

Intersection	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
W 24th St & S 17th Ave	0	2	0	3	0	5
S 8th Ave & W 24th St	0	2	2	0	0	4
W 20th St & S Ave C	0	2	2	0	0	4
S 4th Ave & W 19th St	0	0	3	0	0	3

Table 5.5. Intersections with One or More Bicycle -Related Crashes by Severity (Continued)

Intersection	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
S 4th Ave & W 25th St	0	0	3	0	0	3
W 8th St & S 14th Ave	0	0	3	0	0	3
W 8th St & S 6th Ave	0	0	3	0	0	3
W 8th St & S Magnolia Ave	0	2	1	0	0	3
E 16th St & S 1st Ave	0	0	2	0	0	2
S 4th Ave & W 17th Pl	0	0	2	0	0	2
S 4th Ave & W 24th St	0	1	1	0	0	2
S Ave A & W 23rd St	0	0	2	0	0	2
W 16th St & S 4th Ave	0	1	1	0	0	2
W 16th St & S 8th Ave East	0	0	2	0	0	2
W 24th St & S 6th Ave East	0	1	1	0	0	2
W 24th St & S Ave A	0	0	1	1	0	2
W 24th St & South Virginia Dr West	0	0	2	0	0	2
W 26th St & S 4th Ave	0	0	2	0	0	2
W 3rd St & S Ave A	0	2		0	0	2
W 5th St & S Ave B	0	1	1	0	0	2

Multimodal Transportation Challenges and Opportunities

Developing a safe and connected regional multimodal network is not without its challenges. Barriers such as heavily traveled roads, high speed limits, canals, and development constraints hinder connections and pose safety issues for crossings. There are, however, numerous opportunities to expand and enhance existing multimodal facilities to create a robust multimodal network.

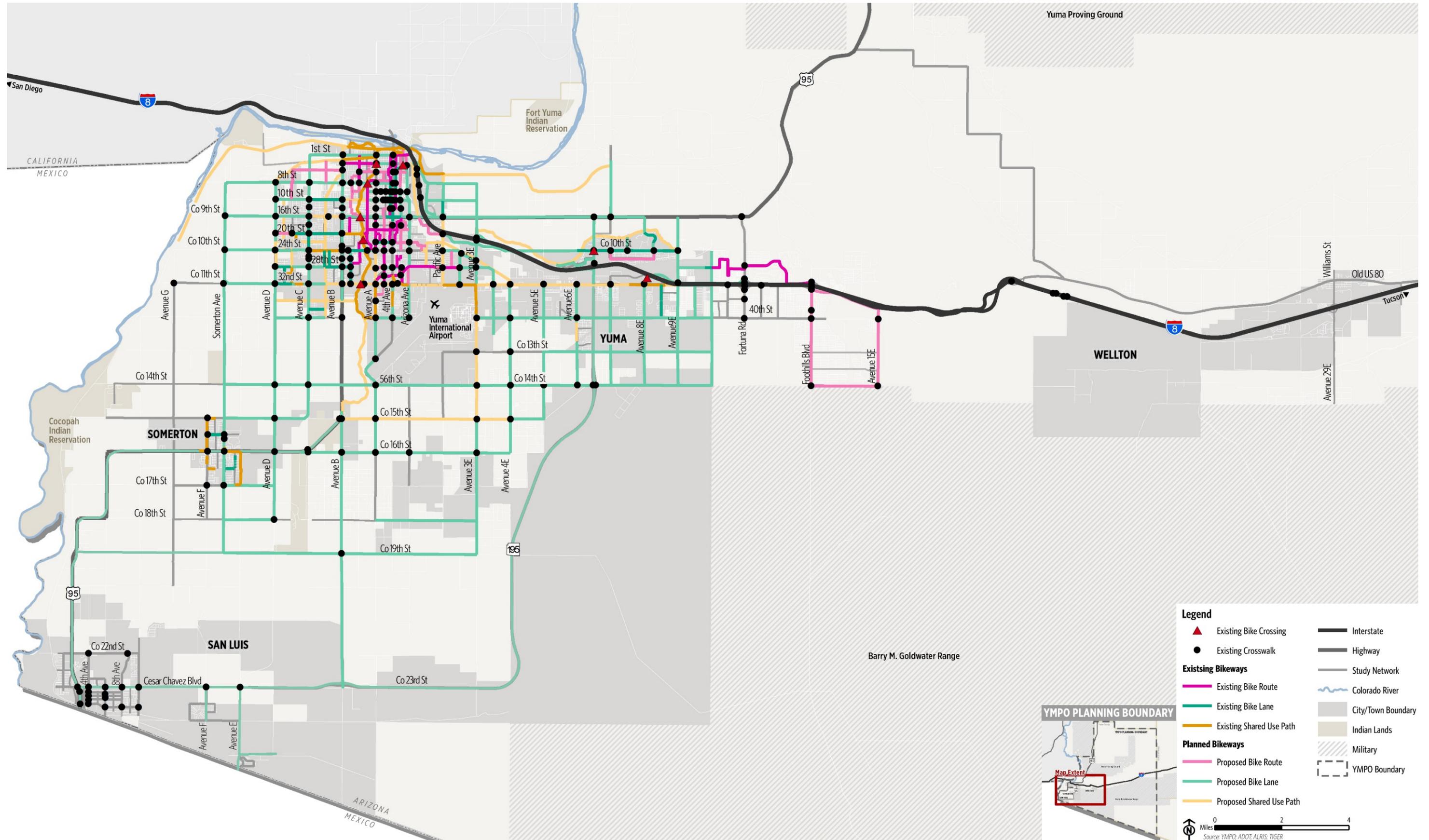
Challenges:

- Communities primarily linked by high-speed, high-volume corridors makes it difficult to create a multimodal network that accommodates all ages and abilities.
- Areas of high demand are primarily arterials or highways. Low stress connections to these arterial locations often have physical barriers limiting access.
- The combination of topography, narrow right-of-way, and financial constraints makes it difficult to widen roadways or install sidewalks on both sides of the Rd.
- Scarce funding is often the biggest challenge to expand the multimodal network.

Opportunities:

- Incorporating sidewalk and bicycle improvements into yearly maintenance and pavement preservation projects.
- Upgrading existing signed bike routes that have an existing roadway width that can accommodate bike lanes.
- In areas where there are no right-of-way concerns, widening existing sidewalks to a 10-foot shared-use path.
- Collaborate with local bike clubs, student clubs, and colleges to increase public education and awareness for pedestrian and bicycle safety.
- Build partnerships with businesses connected to bus stops to help support and fund transit amenities, such as shelters or bike racks.
- Encouraging member agencies to change development codes and regulations to encourage and require the construction and maintenance of multimodal facilities.
- Review planned roadway capacity projects to include multimodal facilities.

Figure 5.1. Active Transportation Network

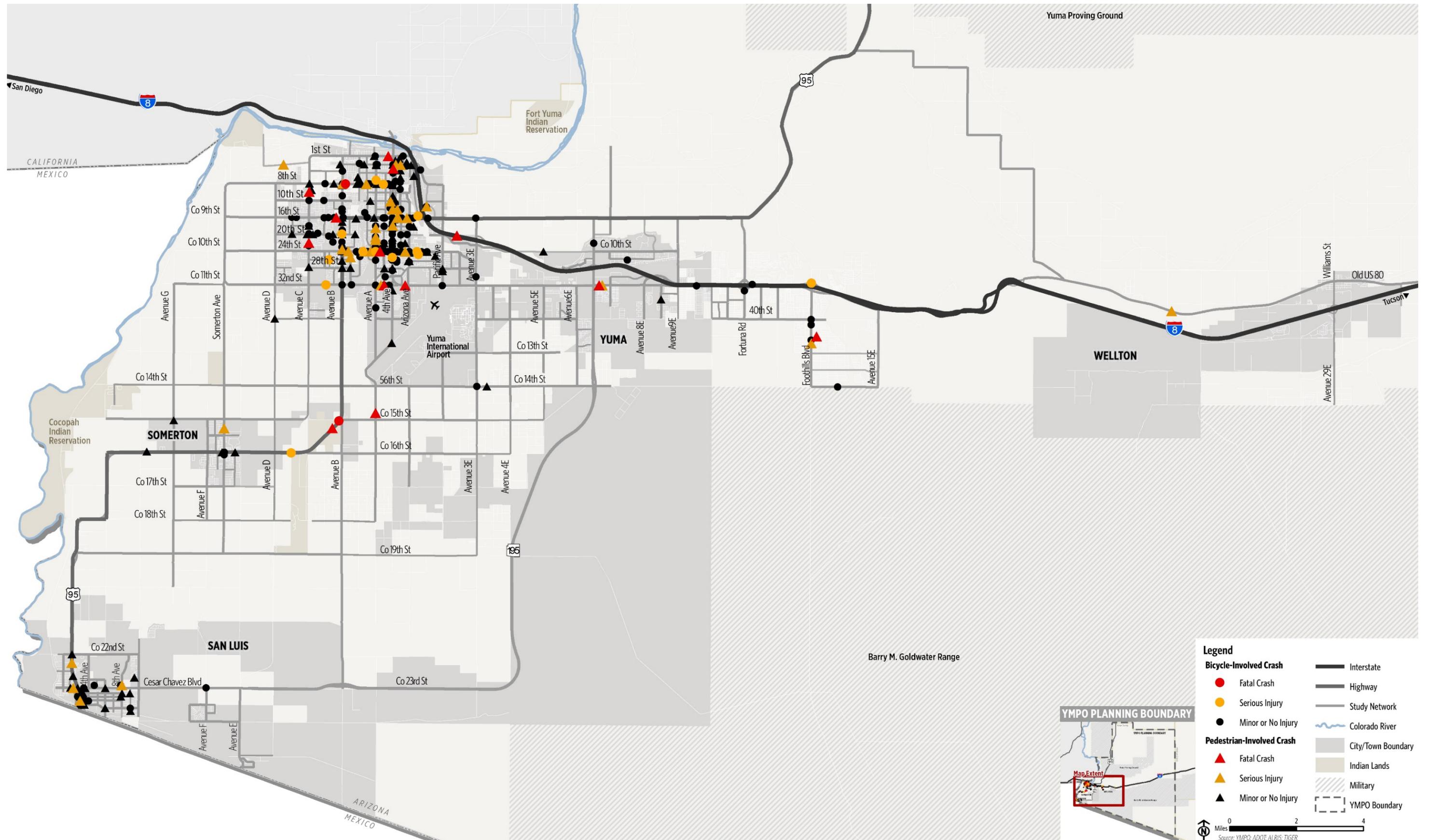


Legend

- ▲ Existing Bike Crossing
- Existing Crosswalk
- Existing Bike Route
- Existing Bike Lane
- Existing Shared Use Path
- Proposed Bike Route
- Proposed Bike Lane
- Proposed Shared Use Path
- Interstate
- Highway
- Study Network
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMPO Boundary

0 2 4
Miles
Source: YMPO; ADO; ALRIS; TIGER

Figure 5.2. Pedestrian- and Bicycle-Involved Crashes



Public Transportation

A strong public transportation network is a key component to a great transportation network. Public transportation provides important access and connectivity to key destinations and regional access to employment, education, shopping, and services. The Yuma County Intergovernmental Public Transportation Authority (YCIPTA) provides Yuma County Area Transit (YCAT) fixed route, vanpool, and YCAT On-Call demand responsive bus service throughout southwestern Yuma County. The YMPO is responsible for coordinating federal transit system funding and investment.



Information in this section is extracted from the YCIPTA/YMPO Short-Range Transit Plan (SRTP) completed in June 2021. Outcomes from the SRTP provide the foundation (recommended service restructuring) for an Action Plan (Plan) to guide the implementation of transit service improvements over the next 5-year period. The SRTP also documents YCIPTA's capital and operating budgets to ensure financial capacity to carry out existing and proposed levels of operations and associated capital improvement plans.

Yuma County Area Transit Service Overview

YCAT fixed route and On-Call paratransit services cover a 78-square mile service area containing nearly 200,000 residents of the Arizona cities of Yuma, San Luis, and Somerton; Town of Wellton; Cocopah Indian Reservation; unincorporated communities of Gadsden, Fortuna Foothills, and Ligurta; Fort Yuma-Quechan Indian Reservation; and Winterhaven community in Imperial County, California. As illustrated in **Figure 5.3 and Table 5.1**, the YCAT operates 10 fixed routes that extended 344 directional miles. Weekday service consists of 10 routes operating between 5:30 am and 10:45 pm, although service span varies by route and only NightCAT runs after 8:07 pm. Six routes operate on Saturday between 9:15 am 6:30 pm. Most routes operate on hourly headways.

Table 5.1. Fixed Route Network Characteristics

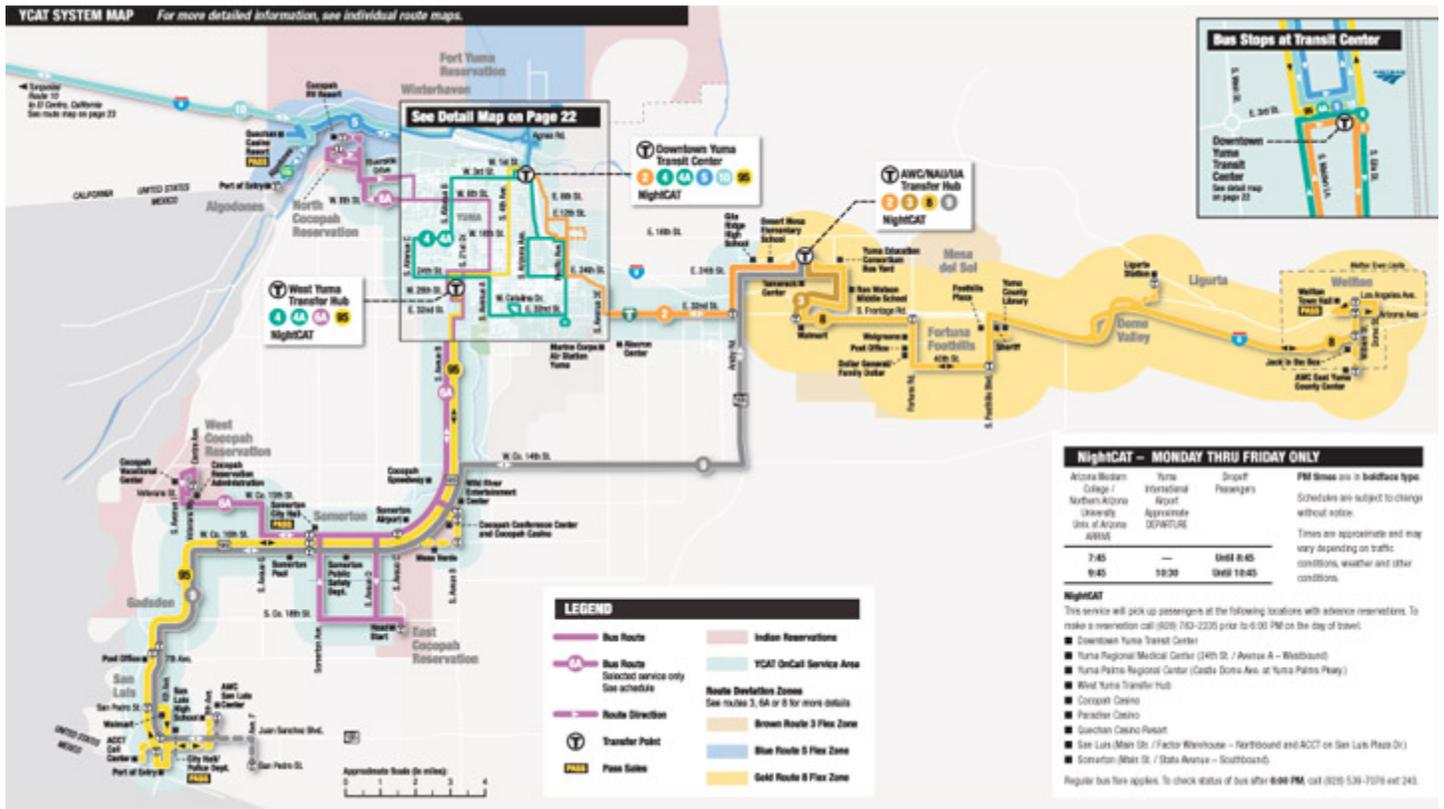
Route	Terminals		Service Coverage Key Trip Generators	Service Span		Service Frequency	
	Terminal 1	Terminal 2		Begin Weekday	End Weekday	Weekday minutes	Saturday minutes
2 Orange - Colleges/E Yuma	Downtown YTC	AWC/NAU/UA Hub	Arizona Western College, Northern Arizona University, University of Arizona, Yuma Palms Regional Center	5:27 AM 9:26 AM	8:15 PM 6:21 PM	60	60
3 Brown - Fortuna Foothill Shuttle	County Library	AWC/NAU/UA Hub	Walmart, County Library	7:57 AM 10:57 AM	6:24 PM 5:24 PM	60	60
4/4A Green - Central Yuma Circulator	Downtown YTC	W Yuma Hub	Social Security, Yuma Palms Regional Center, Yuma Int'l Airport, Big Curve SC, Southgate Mall, Yuma Regional Medical Center, Walmart	6:53 AM 9:53 AM	7:16 PM 4:16 PM	60 (2-way)	60 (1-way)
5 Blue - Quechan Shuttle	Downtown YTC	Quechan Casino Resort	Ft. Yuma Reservation, Quechan Community Center/Social Services, Winterhaven, Andrade Port of Entry	7:19 AM 10:19 AM	6:11 PM 4:11 PM	60	60
6 Purple - Avenue A / Cocopah Reservation	N Cocopah Reservation Admin Office at Veterans Drive	Cocopah Casino Resort	North, East & West Cocopah Reservation, Cocopah Casino Resort, Somerton	6:57 AM 9:57 AM	6:30 PM 3:55 PM	60	60
8 Gold - I-8/Wellton	Wellton (Arizona Av & William St)	AWC/NAU/UA Hub	AWC E Yuma County Center, Ligurta Station, Walmart, County Library	6:55 AM	4:52 PM	1 AM / 2 PM trips	--
9 Silver - South County AWC Connector	San Luis (Avenue F & Olivo)	AWC/NAU/UA Hub	San Luis, Gadsden, Somerton	5:46 AM Monday thru Thursday only	6:16 PM	4 NB / 2 SB trips	--
10 Turquoise - I-8/Central Yuma	Downtown YTC	El Centro Bus Terminal	Paradise Casino, Gonzo's Super Save, Winterhaven Superior Court, Quechan Casino, Imperial Valley Mall, El Centro Medical Center	7:30 AM Mon, Wed, Fri only	4:17 PM	2 round trips	--
95 Yellow - Hwy 95 South	Downtown YTC	San Luis (2nd & B)	Yuma, Cocopah, Mesa Verde/Orange Grove, Somerton, Gadsden, San Luis	5:35 AM 9:09 AM	8:07 PM 6:43 PM	30 / 60	60
99 Night Cat	AWC/NAU/UA Hub	Flex	Winterhaven, Yuma, Somerton, San Luis, Cocopah and Quechan/Fort Yuma Reservations, Fortuna Foothills and unincorporated areas within a ¼-miles radius of a YCAT route.	7:45:00 PM ---	10:45:00 PM ---	2 trips	--

Source: YCIPTA/YMPO Short-Range Transit Plan

As depicted in **Figure 5.3**, the routes are primarily one-way loops that connect at three major hub locations:

- **Downtown Yuma Transit Center (DYTC)** site is located at East 3rd and Gila Street, near the portal entrance to the Amtrak station in the northeast corner of the Downtown Historic district.
- **AWU/NAU/UA transfer hub** is located north of E 24th Street on the AWC campus.
- **West Yuma transfer hub (WYTH)** is located on the north side of West 26th Street at 23rd Avenue, adjacent to the Walmart store.
- Other transfer points include the Cocopah Casino, downtown San Luis, and El Centro.

Figure 5.3. YCAT System Map



Source: Yuma County Intergovernmental Public Transportation Authority

System Performance

Table 5.2 provides a summary of system performance since the last significant system restructuring in 2014-15. This system assessment uses operated data to determine how YCIPTA, as an agency, has performed. YCAT experienced modest ridership growth between July 2015 and February 2020. Total boardings increased cumulatively 7.8% between FY 2016 and FY 2019, averaging 1.95% annually over four fiscal years. This upward trend, however, was significantly impacted by the 2020/2021 COVID-19 pandemic.

Table 5.2. YCAT System Performance Indicators

	2016	2017	2018	2019	2020
Annual Boardings	425,575	421,396	437,956	458,831	377,419
Total Operating Cost	\$3,557,074	\$3,729,271	\$3,091,017	\$4,547,418	\$4,462,015
Fare Revenue	\$531,536	\$418,124	\$416,688	\$415,121	\$325,093
Revenue Vehicle Hours	37,593	37,906	37,408	36,133	6,500
Revenue Vehicle Miles	842,228	842,094	835,223	778,830	800,561
Performance and Cost Effectiveness					
Boardings per Revenue Hour	11.3	11.1	11.7	12.7	10.3
Total Cost per Boarding	\$8.36	\$8.85	\$7.06	\$9.91	\$11.82
Farebox Recovery	14.9%	11.2%	13.5%	9.1%	7.3%

Source: YCIPTA/YMPO Short-Range Transit Plan

Paratransit Characteristics and Performance

In accordance with the Americans with Disabilities Act (ADA), YCAT also offers complementary paratransit service to people who are unable to use the fixed route bus service due to a disability. ADA requires transit agencies to provide paratransit to disabled populations for trips with origins and destinations within $\frac{3}{4}$ of a mile of a route or bus stop. YCAT On-Call service is available within $\frac{3}{4}$ mile of the existing fixed route service; however, on-call service is not available along Brown 3, Blue 5, or Gold 8 as these routes offer flexible service to all customers. Service is not available in the corridors of limited-schedule commuter routes Silver 9 and Turquoise 10.

YCAT provides paratransit services Monday through Friday, 5:27 am to 8:15 pm, and Saturday from 9:30 am to 6:45pm. All paratransit vehicles are wheelchair accessible. Reservations must be called in 24 hours in advance. Vehicles are dispatched on a strictly as-needed basis, operating only when trip reservations have been made.

Table 5.2 provides summary of key system performance from the last five years. YCAT OnCall provided 10,438 rides in FY 2019, with daily ridership averaging 44 boardings per weekday and 12 boardings per Saturday.

Table 5.2. YCAT On-Call System Performance Indicators

	2016	2017	2018	2019	2020
Annual Boardings	7,505	8,696	7,933	11,722	10,438
Total Operating Cost	\$200,155	\$205,910	\$233,870	\$239,203	\$230,957
Fare Revenue	\$7,949	\$9,338	\$6,778	\$2,754	\$1,094
Revenue Vehicle Hours	4,198	4,181	4,260	5,117	4,244
Revenue Vehicle Miles	65,856	76,145	68,964	96,824	82,744
Performance and Cost Effectiveness					
Boardings per Revenue Hour	1.8	2.1	1.9	2.3	2.5
Total Cost per Boarding	\$26.67	\$23.68	\$29.48	\$20.41	\$22.13
Farebox Recovery	4.0%	4.5%	2.9%	1.2%	0.5%

Source: YCIPTA/YMPO Short-Range Transit Plan

YCAT Vanpool Program

YCAT Vanpool provides clearly marked vans to qualifying groups of 7-15 commuters to be driven by one of the vanpool members. Passengers share the cost of operating the van by paying a monthly fee to the primary driver. The fee covers gas, insurance, and vehicle maintenance. Vans must originate, terminate, or travel through Yuma County to be eligible for up to a \$300 per month subsidy per vanpool. Total FY 2020 ridership was 68,423 commuters. The data reflects a stable program in terms of ridership and level of service.

Currently, Yuma Proving Ground (YPG) employees are the largest market served by the YCAT vanpools program. All YPG vanpools currently travel to/from the Yuma Proving Ground operated by the U.S. Army. The Yuma Proving Ground appears to be an ideal market for vanpools with its relative isolation, fixed work schedules, lack of midday travel demand, and the dispersed origins of vanpool commuters.

Hotel del Sol Multimodal Transportation Center

Currently, YCIPTA administration and YCAT operations are housed in a leased facility located at 2715 East 14th Street in the Gila Acres industrial area of Yuma. The 2.7-acre site includes a metal building containing garage and administrative office space and unpaved bus parking area enclosed by chain-link fencing.

The City of Yuma is moving ahead with plans to design and construct a multimodal transportation center inside the historic Hotel Del Sol in Downtown Yuma. When complete, the facility will house YCAT and YCIPTA offices, as well as Greyhound bus ticketing, and an Amtrak terminal. The exterior will include a pedestrian plaza with bus and rideshare areas, with pedestrian crossings to the Amtrak station and Armed Services Park. Additional building uses will be located on the second and third floors, will be determined through the project development process. With a passthrough agreement with the city, YCIPTA received nearly \$1.9 million received from two FTA grants to pay for project design work currently in progress.

Other Regional Transit Connections

Supporting the expansive YCAT system is a network of public and private transportation providers in the YMPO region include:

- Greyhound provides long-distance connections to over 3,400 destinations across the US and Mexico, including Phoenix, Tucson, San Diego, and Los Angeles. YCIPTA has developed a partnership with Greyhound to sell tickets, as well as accepting Greyhound tickets on board YCAT routes. Commissions on tickets sales averaged \$24,596 annually based on a four-year average (FY 2016-FY 2019).
- Flixbus service provides long-distance connections to Phoenix, Tucson, San Diego, and Los Angeles.
- Amtrak provides cross-country passenger rail service three times a week on the Sunset Limited and Texas Eagle train lines.
- Numerous human services agencies operate specialized transportation services for clientele or specialized population groups.

6. THE YMPO REGION TOMORROW

Understanding the impacts on project growth and development is critical to developing a transportation plan that addresses not only current issues, but future transportation needs and issues. This section outlines projected population and employment in the YMPO and evaluates the impact of this development on the region's transportation system.

Future Population and Employment Conditions

In accordance with Executive Order 2011-04, population and employment estimates and forecasts developed by the Arizona Department of Administration (ADOA) should be utilized by all government agencies for planning purposes. The State Demographer's Office, a part of ADOA, develops yearly population and employment estimates and 25-year population forecasts for the State of Arizona. A Council of Technical Solutions, comprised of representatives from State universities, regional councils, and state agencies, provides technical guidance on the quality, methodology, standards, and analytical techniques.

Based on previous planning documents, local jurisdictions, General Plans, and input received from local officials, planned developments and potential timeframes were identified. Socioeconomic projections developed by the State Demographer's Office for the 2030 and 2045 horizon years were disaggregated at the Traffic Analysis Zone (TAZ) level to reflect the planned residential, commercial, and employment developments. TAZs are used to divide large regions, such as the entire YMPO region, into smaller geographies to group socioeconomic data particularly for use of traffic modeling purposes. TAZ boundaries often, but not always, align with major streets or physical boundaries, such as municipal boundaries, waterways, or political boundaries.

Population Projections

The State Demographer's Office estimates that the YMPO region will have a population of 311,199 by 2045, a 35 percent increase from today's population. **Table 6.1** shows a tabular summary of the historical and projected population and housing units in the study area, whereas **Figure 6.1** and **Figure 6.2** illustrate current and projected number of housing units by TAZ in the YMPO region.

Table 6.1. Population and Housing Unit Projections

Jurisdiction	Population			Housing Unit		
	Current	2045	Percent Change	Current	2045	Percent Change
City of San Luis	37,990	73,552	93.6%	8,960	17,347	93.6%
City of Somerton	17,698	28,357	60.2%	4,719	7,562	60.2%
Town of Wellton	3,254	4,928	51.4%	1,427	2,161	51.4%
City of Yuma	105,365	136,286	29.3%	35,357	45,734	29.3%
Cocopah Indian Tribe*	863	831	-3.7%	438	438	0.0%
Unincorporated Yuma County	64,787	67,245	3.8%	24,448	25,375	3.8%
Yuma County Overall	229,957	311,199	35.3%	75,349	98,617	30.9%

Source: Arizona Department of Administration

* Cocopah Indian Tribe population is not reported separately in the 2019 AOEO population estimates. Assumed to be included in Unincorporated County Totals. Tribe population estimated from AOEO Projections spreadsheet and reduced Unincorporated County population accordingly.

Employment Projections

The State Demographer's Office estimates that the YMPO region will have over 108,000 employees by 2045, a 29.4 percent increase from today's population. **Table 6.2** shows a tabular summary of the historical and projected population and housing units in the study area, whereas **Figure 6.3** and **Figure 6.4** illustrates the current and projected employment by TAZ in the YMPO region.

Table 6.2. Employment Projections

Jurisdiction	Current	Employment 2045	Percent Change
City of San Luis	7,345	14,221	93.6%
City of Somerton	2,254	3,612	60.2%
Town of Wellton	1,335	2,022	51.5%
City of Yuma	50,746	65,638	29.3%
Cocopah Indian Tribe*	1,085	1,045	-3.7%
Unincorporated Yuma County	20,699	21,484	3.8%
Yuma County Overall	83,464	108,022	29.4%

Source: Arizona Department of Administration

* Cocopah Indian Tribe population is not reported separately in the 2019 AOEO population estimates. Assumed to be included in Unincorporated County Totals. Tribe population estimated from AOEO Projections spreadsheet and reduced Unincorporated County population accordingly.

** County employment total obtained from AOEO. Estimated employment for individual jurisdictions based on 2015 ratios.

*** Estimated 2045 employment for each jurisdiction based on 2019 employment to population ratios.

Future Transportation Performance

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 population and employment growth. In addition, this analysis provides valuable insight into potential transportation solutions. A regional travel demand model was utilized to estimate future traffic conditions.

Travel demand models are utilized to estimate travel conditions based on population, employment, and roadway network characteristics. These travel demand models utilize trip generations to estimate how many trips are created and attracted between homes and activity centers. Steps to develop a travel demand model include:

- Develop a roadway network of committed improvements (network includes characteristics such as the number of lanes, posted speed limits, functional classification, etc.);
- Allocate projected socioeconomic conditions and land use categories to specific Traffic Analysis Zones (TAZ);
- Generate existing vehicle trips based on land use conditions;
- Distribute vehicle trips to TAZs;
- Assign the vehicle trips to the street network; and
- Validate model utilizing existing traffic count data.

Future Traffic Conditions

Estimations of traffic conditions were developed based on projected population and employment conditions presented at the beginning of this chapter. The future traffic forecasts presented in this section represent traffic volumes for the committed roadway network (No-Build scenario). This analysis helps evaluate how roadways perform if no roadway improvements are made for the 2045 horizon year. Roadway performance is expressed in terms of Level of Service (LOS). In general, for rural areas, LOS A and B represent little to no congestion, or that the roadway is "below capacity." Heavy congestion refers to roadways that are nearing or above the capacity levels of a roadway. Road segments that have the highest traffic volumes are not necessarily the most congested, as some segments can carry higher amounts of traffic because they have more lanes.

Projected 2045 Traffic Conditions

No-Build Scenario

Traffic projections were developed for 2045 to determine how the region's transportation system would function if no improvements (beyond normal maintenance) were made during that time period. This scenario is referred to as the No-Build Scenario. The No-Build Scenario provides a snapshot of future traffic conditions, highlighting expected problems and deficiencies. It also provides a baseline for developing and evaluating possible build alternatives. **Figure 6.5 and Figure 6.6** display the projected 2045 daily traffic volumes and the congestion levels for the committed roadway network if no other roadway improvements are made (No-Build). Roadways that are reaching capacity levels and may experience congestion include:

- **At or Above Capacity (LOS E & LOS F)**

- 16th Street (west of 14th Avenue)
- 24th Street (west of 14th Avenue)
- 32nd Street (east of SR 195)
- Frontage Road (east of Avenue 9E)
- Frontage Road (west of Foothills Boulevard)
- Fortuna Road (north of I-8)
- 48th Street (east of Foothills Boulevard)
- Airport Loop (56th Street to Arizona Avenue)
- Main Street (north of San Luis I LPOE)

- **Near Capacity (LOS C & LOS D):**

- 1st Avenue (west of I-8)
- 3rd Street (portions of the corridor from 7th Avenue to I-8)
- 8th Street (west of 4th Avenue)
- 16th Street (portions of the corridor from west of Avenue C to east of Avenue 3E)
- 24th Street (portions of the corridor from Avenue C to Pacific Avenue)
- 32nd Street (west of Avenue B to 4th Avenue)
- Portions of Avenue B, Avenue A, 8th Avenue, 4th Avenue, and Arizona Avenue north of 32nd Street
- Giss Parkway (north of Castle Dome Avenue)
- County 10th Street (east of I-8)
- 32nd Street (Avenue 3E to I-8)
- Avenue 3E (north of County 13th Street)
- 40th Street (east of Arizona 3E)
- Avenue 9E (north of 32nd Street)
- County 10th Street (east of I-8)
- County 9th Street (Avenue 9E to Fortuna Road)
- Fortuna Road (north of I-8)
- 56th Street (Avenue B to Pacific Avenue)
- County 14th Street (west of SR 195)
- North Frontage Road (west of Avenue 9E)
- I-8 (portion of the corridor from SR 195 to Avenue 15E)
- Foothills Boulevard (52nd Street to 48th Street)
- 48th Street (Foothills Boulevard to Avenue 15E)
- 52nd Street (Foothills Boulevard to Avenue 15E)
- Avenue B (County 19th Street to County 18th Street)
- County 16th Street (east of Avenue B)
- Somerton Avenue (south of County 15th Street)
- Cesar Chavez Boulevard (4th Avenue to Avenue F)

Figure 6.1. Current Dwelling Unit Density by Traffic Analysis Zone

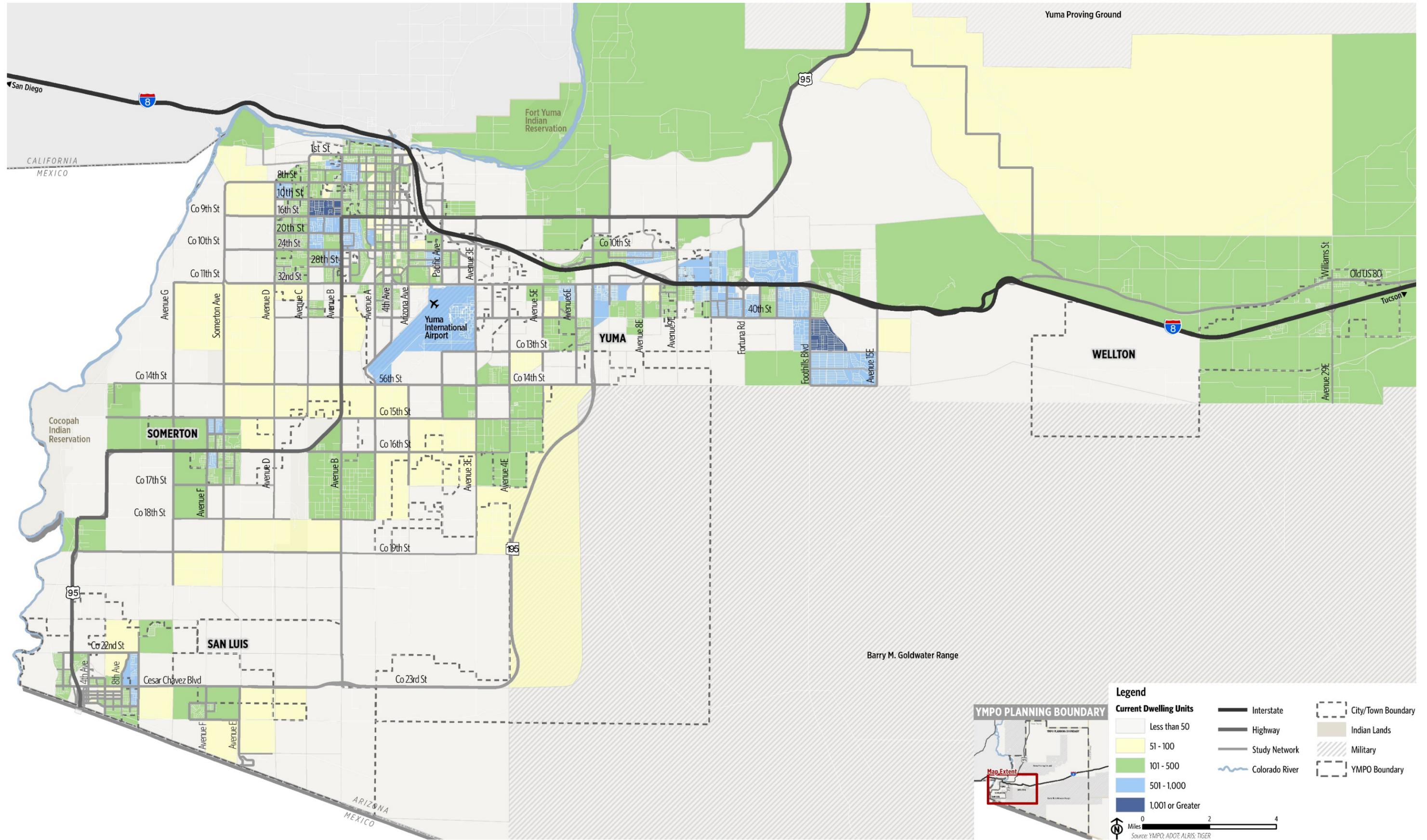
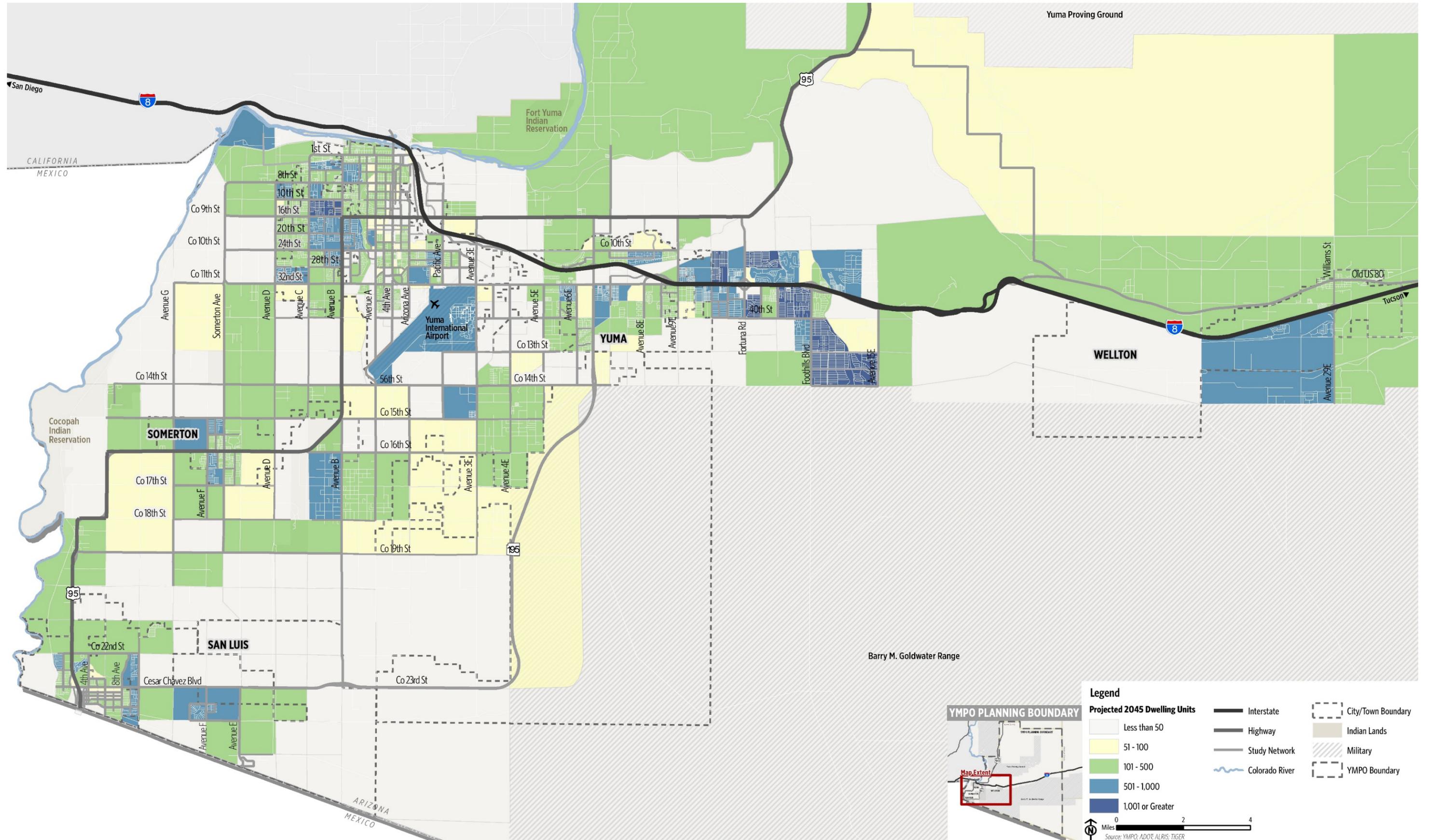


Figure 6.2. Projected 2045 Dwelling Unit Density by Traffic Analysis Zone



Legend

Less than 50	Interstate	City/Town Boundary
51 - 100	Highway	Indian Lands
101 - 500	Study Network	Military
501 - 1,000	Colorado River	YMO Boundary
1,001 or Greater		

0 2 4
Miles
Source: YMPO; ADOT; ALRIS; TIGER

Figure 6.3. Current Employment Density by Traffic Analysis Zone

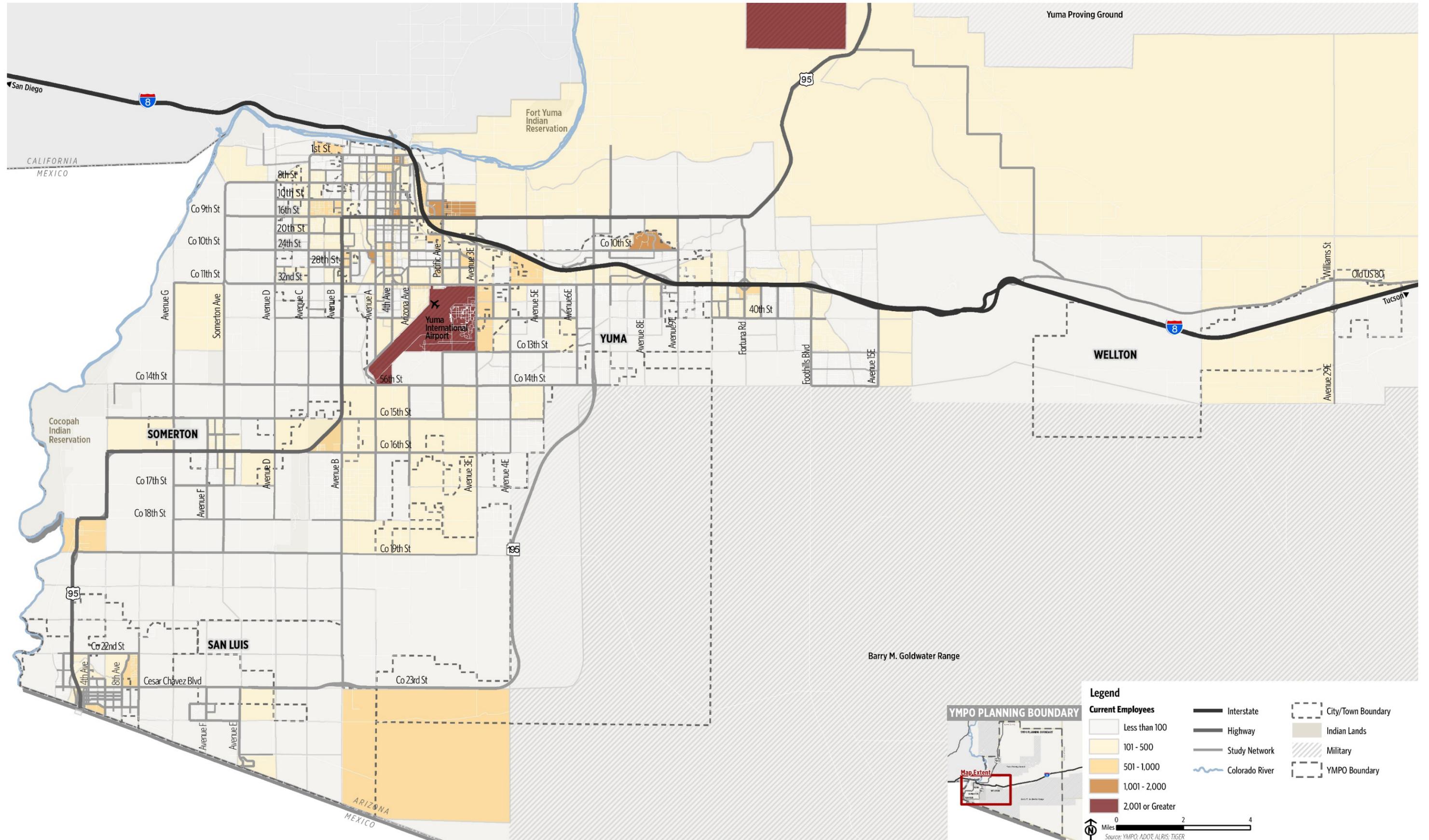


Figure 6.4. Projected 2045 Employment by Traffic Analysis Zone

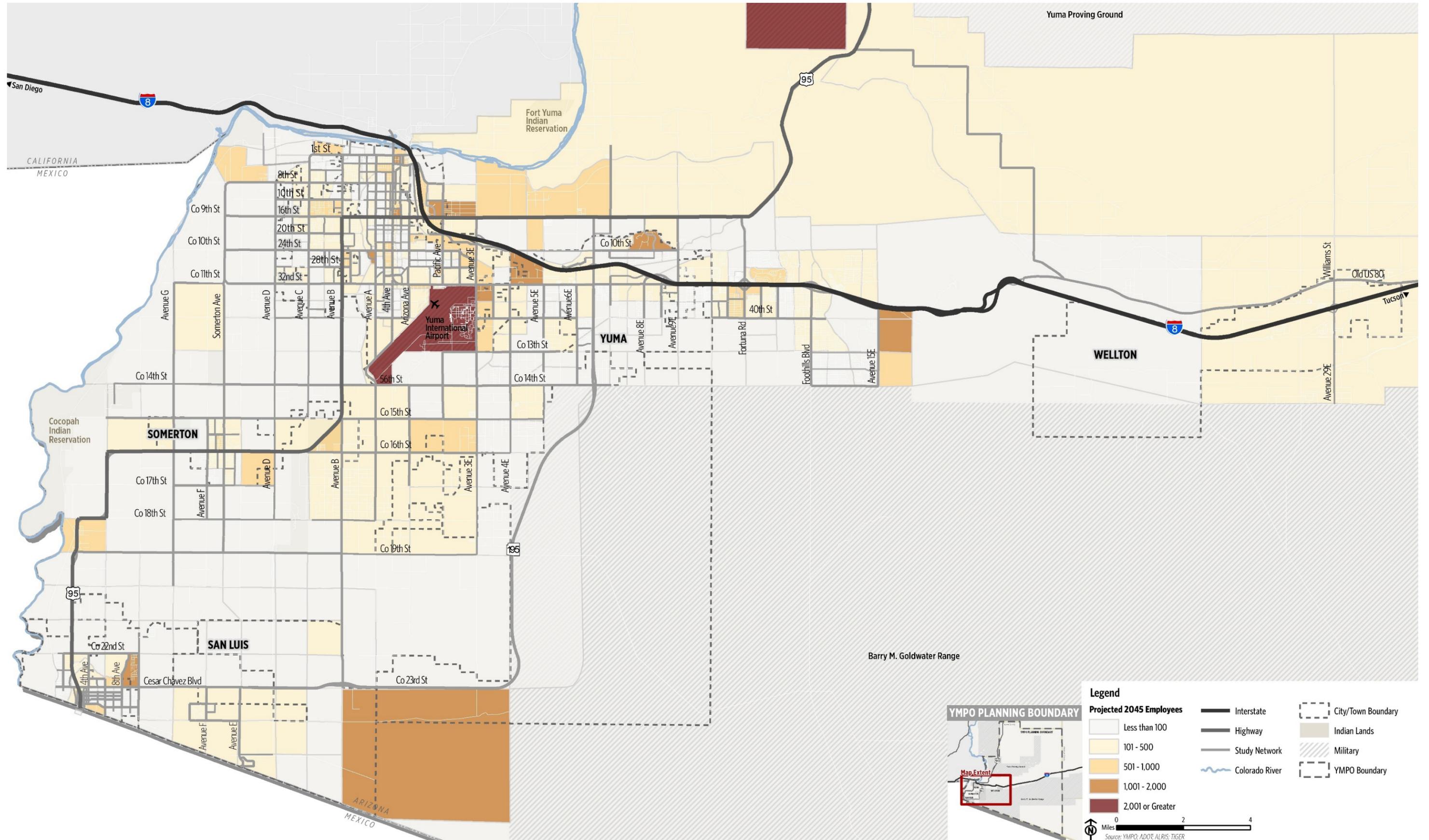
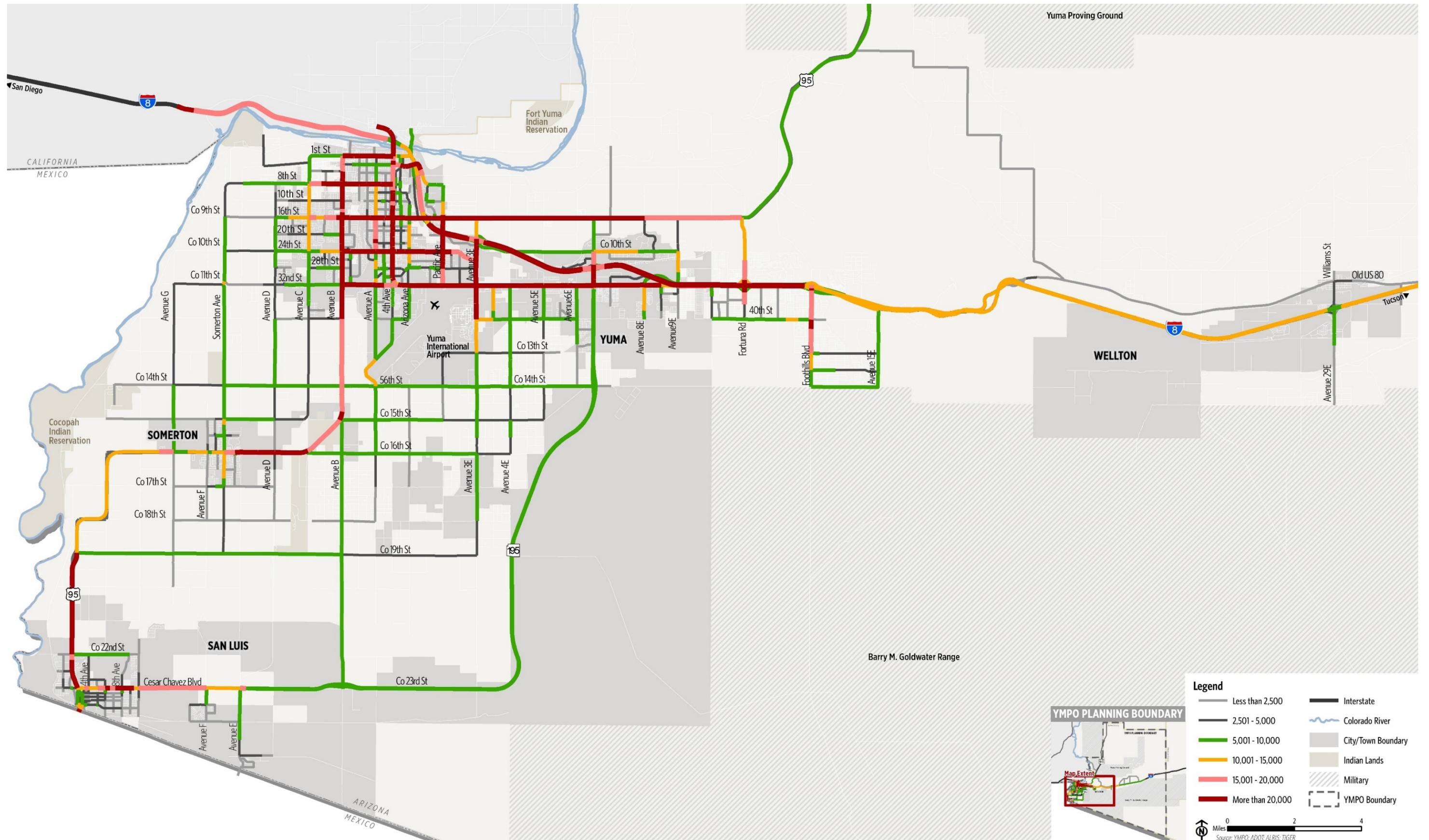


Figure 6.5. Projected 2045 Traffic Volumes



Legend

- Less than 2,500
- 2,501 - 5,000
- 5,001 - 10,000
- 10,001 - 15,000
- 15,001 - 20,000
- More than 20,000
- Interstate
- Colorado River
- City/Town Boundary
- Indian Lands
- Military
- YMPO Boundary

0 2 4
Miles
Source: YMPO, ADOT, ALRIS, TIGER

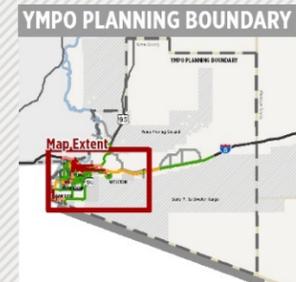
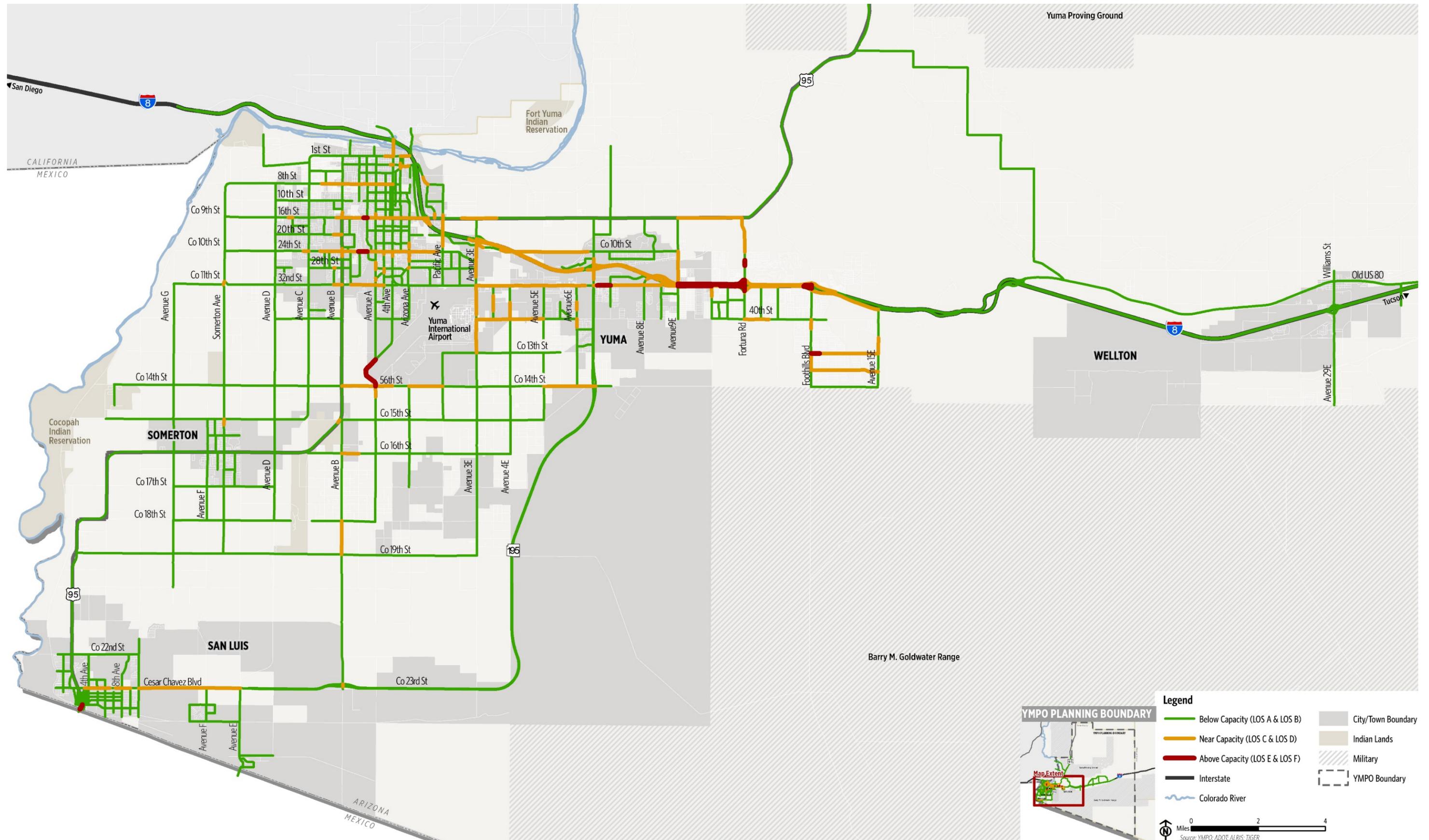


Figure 6.2. Projected 2045 Level of Congestion



7. WHAT WE HEARD

Public involvement is essential to the broad acceptance and successful implementation of any transportation improvement plan. The goal of community outreach is to educate stakeholders and the public about the study, provide opportunities for input, and to create a process to build consensus in support of the study recommendations. For this study, Phase 1 of the outreach focused on current transportation issues, problem areas, and needs; and Phase 2 focused on improvement recommendations for the problem areas identified in the first phase. This chapter presents public and stakeholder outreach conducted during both phases of public involvement.

Phase 1 Outreach

The purpose of the first phase of community outreach was to seek input from the public regarding the existing and future deficiencies and needs of the area. For the Existing and Future Conditions milestone, various public involvement approaches and strategies were conducted in coordination with the YMPO to increase project awareness and solicit input from the public and key stakeholders to inform the development of draft LRTP alternatives. The key public involvement approaches and strategies that were used are described below.

YMPO Board Presentations

Presentations to inform and share updates about the LRTP process were made to the YMPO Technical Advisory Committee (TAC) and Executive Board throughout the Plan. The presentations provided an opportunity for member agencies and elected officials to hear directly from the study team on the findings of the LRTP as well as to address and known issues or concerns. Presentations to the YMPO were held monthly while presentations to the YMPO Executive Board were held at key project milestones.

Agency/Stakeholder Coordination

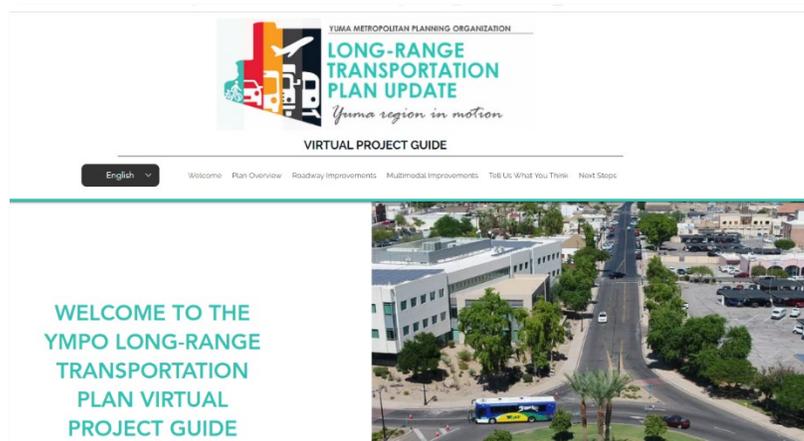
To hear directly from YMPO member agencies and planning partners, one-on-one meetings were held to discuss preliminary issues, ideas, and challenges to multimodal transportation conditions in the YMPO region. These meetings provided an opportunity for the study team to talk directly to key decision-makers and staff that will help to carry forward recommendations made in the YMPO LRTP. Stakeholder meetings included:

- City of Yuma
- City of Somerton
- City of San Luis
- Town of Wellton
- Cocopah Indian Tribe
- Yuma County
- Yuma County Intergovernmental Public Transportation Authority
- Yuma County Economic Development Corporation
- Arizona Department of Transportation
- US General Services Administration

Online Virtual Guide

A project website was developed and launched in spring 2021, allowing the public easy access to important information about the LRTP. The website address was:

www.GreaterYumaMoves.com. The website was available in English and Spanish and included key project information, a survey, and an interactive online mapping tool to allow participants to “pin” areas of concerns. A comment form is also provided to allow the public to submit a question or concern directly to the study team.



Advertisement and Promotion

To make the public aware of the purpose of the YMPO LRTP and to invite them to participate in an online survey and mapping exercise, the study team advertised and promoted the plan utilizing various platforms. Advertisements and promotions completed to-date include:

- Social media posts on the YMPO's s Facebook feed. This post was also shared by many of YMPO's member agencies to further aid in expanding outreach.
- A promotional video was developed to advertise the LRTP for distribution to local media outlets and for use on social media sites.
- Email notices were shared Federal / State / Local / Other Local / Private / stakeholders on May 5th, May 13th and May 19th, 2021) to inform them about the project and encourage that they information their networks to participate in the public input opportunities for this project.
- Legal notices were posted in the Yuma Sun and Baja El Sol on April 23rd, 2021, and July 10th, 2021.

Share your thoughts to help shape the Yuma region's transportation system.

The Yuma Metropolitan Planning Organization (YMPO) is seeking public input to update the Long Range Transportation Plan (LRTP) for the Yuma metropolitan region. The LRTP Update will identify and address future transportation needs and priorities through 2045.

Public Comment Period Ends May 20, 2021

Visit GreaterYumaMoves.com to learn more about this project.

OPTIONS TO SUBMIT QUESTIONS AND COMMENTS
Project Website: GreaterYumaMoves.com
Email: info@GreaterYumaMoves.com
Phone Lines: 928-581-7849
Mail: YMPO, 230 W. Morrison Street, Yuma, AZ 85364

Comparta sus pensamientos para dar forma al sistema de transporte de la región de Yuma.

La Organización de Planificación Metropolitana de Yuma (YMPO por sus siglas en inglés) está buscando la opinión del público para actualizar el Plan de Transporte de Largo Alcance (LRTP por sus siglas en inglés) para la región metropolitana de Yuma. La Actualización LRTP identificará y abordará las necesidades y prioridades de transporte futuras hasta el 2045.

El Período de Comentarios Públicos Cierra el 20 de mayo de 2021

Visite GreaterYumaMoves.com para aprender más sobre este proyecto.

OPCIONES PARA ENVIAR PREGUNTAS Y COMENTARIOS
Sitio Web: GreaterYumaMoves.com
Correo Electrónico: info@GreaterYumaMoves.com
Línea Telefónica: 928-581-7849
Correo: YMPO, 230 W. Morrison Street, Yuma, AZ 85364

Phase 1 Outreach Results

The official public comment period for public involvement phase 1 opened April 20, 2021 and closed May 20, 2021. Over 430 comments were received through email, social media and the questionnaire and interactive map featured in the online virtual guide. General themes found throughout phase 1 included:

Bicycle Network

- Improve bicycle lane connectivity by adding bike lanes that link to key destinations such as schools and activity centers.
- Add protected/dedicated bicycle lanes.
- The region's bicycle network needs more continuous bike lanes to support safe and enjoyable bicycling activity.

Safety

- Improve safety by adding more signage to remind/inform motorists about traffic laws.
- Improve safety by lowering speed limits.
- Add pedestrian/bicycle bridges over major roads to promote safety.
- Add sidewalks in neighborhoods, rural areas and where missing.
- Add shade to pedestrian walkways/sidewalks.
- To promote safe street crossings, add more clearly marked crosswalks with safety features such as flashing signals.
- Enforce pedestrian jaywalking at border.
- Improve pedestrian and vehicular crossing infrastructure at border.

- Add more traffic signals to control traffic flow and safety.

Roadway/Traffic

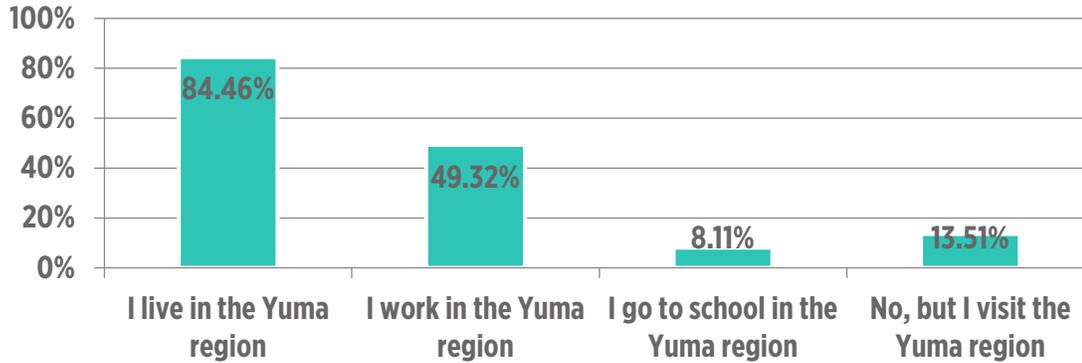
- Reduce traffic congestion on roads.
- Add capacity to Route 95 between Yuma and the Yuma Proving Grounds.
- Alleviate high traffic volumes by adding capacity to those streets that are nearby.
- Increase street maintenance efforts - pave more streets to improve roadway surface conditions; ensure traffic lane striping remains visible.
- Potholes are an issue and need to be addressed.
- Optimize traffic flows by improving traffic signal timing and adding sensors to traffic signals.
- Remove roundabouts.

Transit

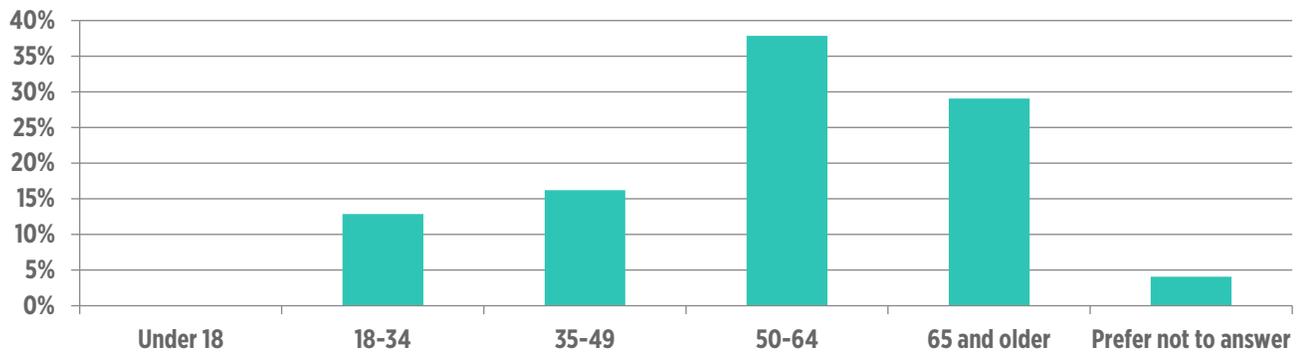
- Increase bus frequency and add more stops.
- Add shade and seating to bus stops.
- Create and expand local YCAT routes. Phase 1 Survey Results

Listed below are the results Phase 1 public survey.

Question 1. Do you live, work, or go to school in the Yuma region?

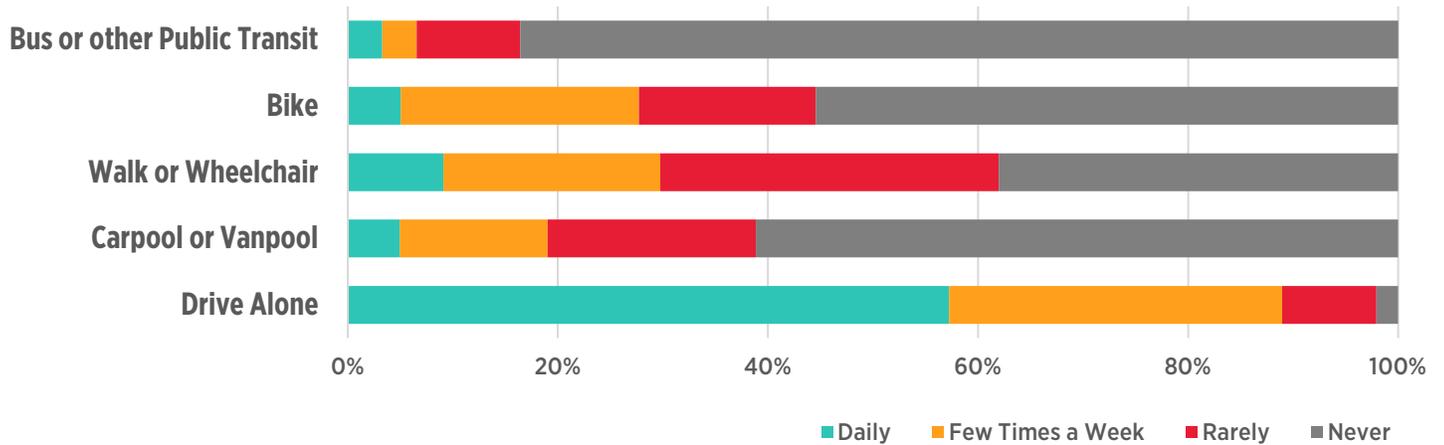


Question 2. What is your age range?



Question 3. How do you travel today?

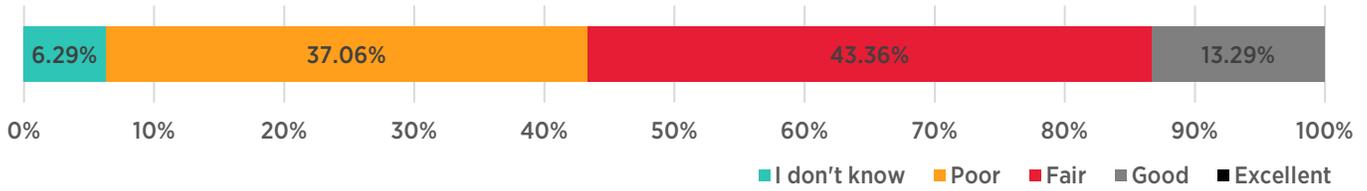
Respondents primarily drive alone on a daily basis (57.2 percent). Respondents also commented that a few times a week they use walk or use a wheelchair (20.7 percent) or bike (22.7 percent).



Question 4. How would you rate the transportation system (including roads, bicycle and pedestrian facilities, public transit, etc.) in the Yuma region?

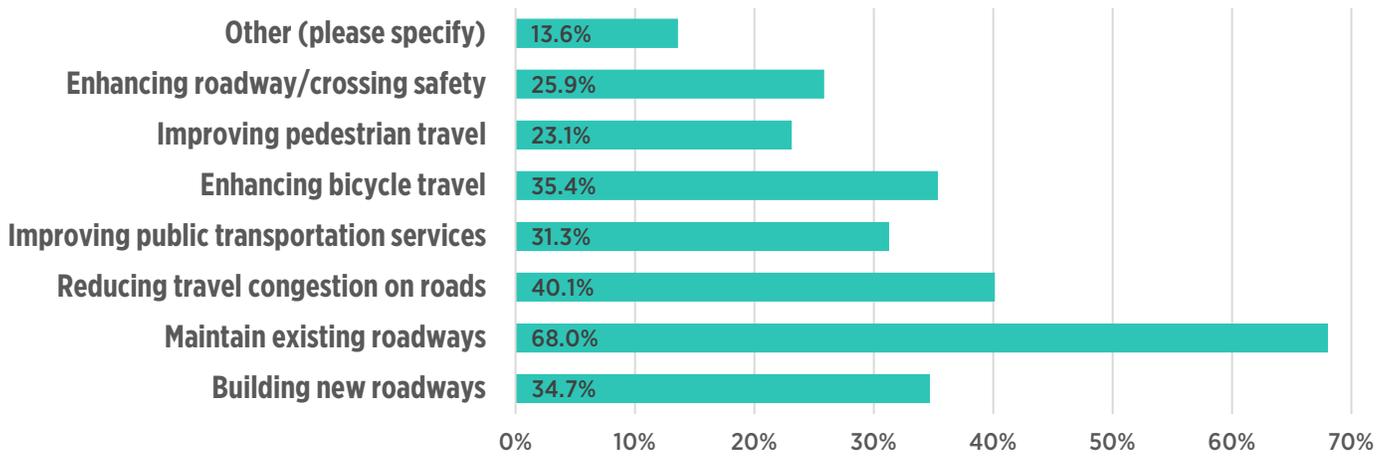
Respondents largely commented that the existing transportation system in the YMPO region is in fair condition (43.4 percent) or poor condition (37.1%). An additional 13.3 percent commended that the transportation system is in good condition.





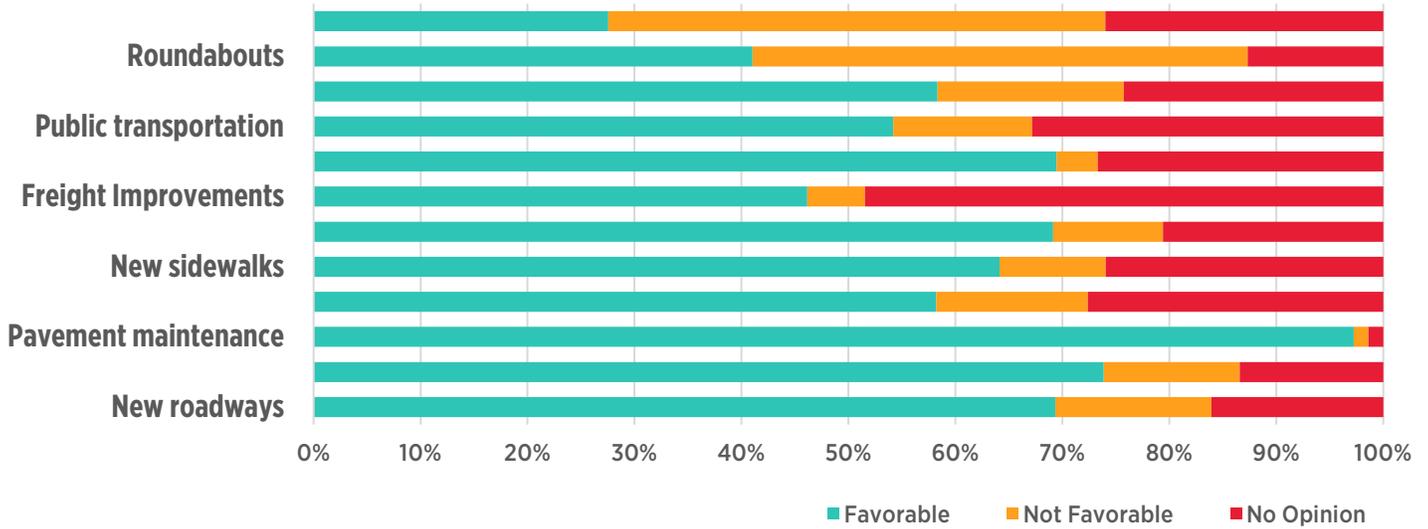
Question 5. What do you think is the greatest transportation need in the Yuma region today? Select your TOP 3 choices.

Respondents largely commented that maintain existing roads is the greatest transportation need, with 68 percent. An additional 40.1 percent chose "reducing existing transportation services" and 35.7 percent chose "Enhancing bicycle travel".



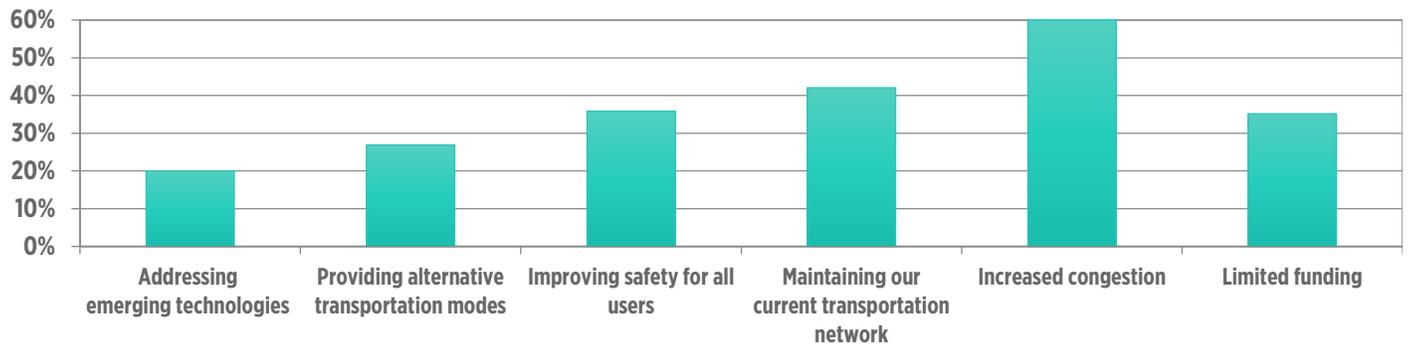
Question 6. What transportation improvements are you in favor of?

An overwhelming percentage of respondents commented that they are in favor of pavement maintenance (69.3 percent). Respondents largely were in favor of most potential improvements listed; however, 46.3 percent were not in favor of roundabouts and 46.5 percent were not in favor of slower speeds.



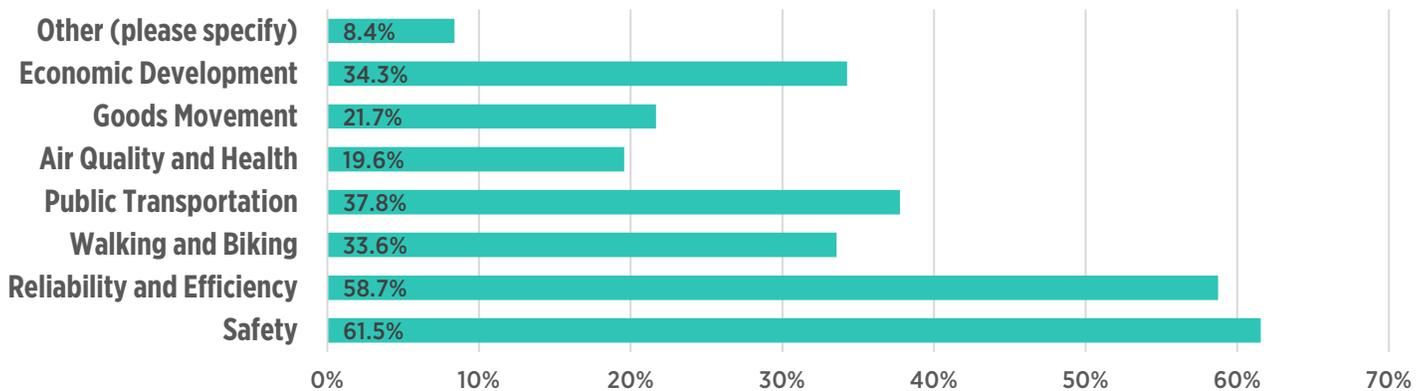
Question 7. In the future, how do you see region's transportation network?

60 percent of respondents commented that increased congestion will be the region's great transportation challenge in 20 years. 42 percent also commented that maintain our current transportation network will be a challenge.



Question 8. Which transportation goals should we prioritize through 2045?

61.5 percent of respondents identified safety as a transportation goal that the region should prioritize. 58.7 percent also identified reliability and efficiency.



Phase 2 Outreach

The purpose of the second phase of community outreach was to seek input from the public regarding the draft recommended improvement projects. To support the draft final LRTP phase, various public involvement approaches and strategies were conducted in coordination with the YMPO to increase project awareness and solicit input from the public and key stakeholders. The key public involvement approaches and strategies that were used are described below.

Agency/Stakeholder Coordination

To hear directly from YMPO member agencies and planning partners, one-on-one meetings were held to discuss potential project needs and their priority in the YMPO region. These meetings provided an opportunity for the study team to talk directly to key decision-makers and staff that will help to carry forward recommendations made in the YMPO LRTP. Stakeholder meetings included:

- City of Yuma
- City of Somerton
- City of San Luis
- Town of Wellton
- Cocopah Indian Tribe
- Yuma County
- Arizona Department of Transportation

Online Virtual Guide

A project website was developed and launched in summer 2021, allowing the public to view the draft improvement projects and additional information about the LRTP. The website address was: www.GreaterYumaMoves.com.

The website was available in English and Spanish and included key project information, maps illustrating recommended improvements, and an interactive online mapping tool to allow participants to “pin” comments about the proposed improvement projects. A comment form is also provided to allow the public to submit a question or concern directly to the study team.



Advertisement and Promotion

To make the public aware of the purpose of the YMPO LRTP and to invite them to comment on the Draft LRTP, the study team advertised and promoted the plan utilizing various platforms. Advertisements and promotions completed to-date include:

- Social media posts on the YMPO's s Facebook feed. This post was also shared by many of YMPO's member agencies to further aid in expanding outreach.
- Email notices were shared Federal / State / Local / Other Local / Private / stakeholders on July 20, 2021 to inform them about the availability of the draft final LRTP and the comment period.
- Legal notices were posted in the Yuma Sun and Baja El Sol on July 9, 2021.

Phase 2 Outreach Results

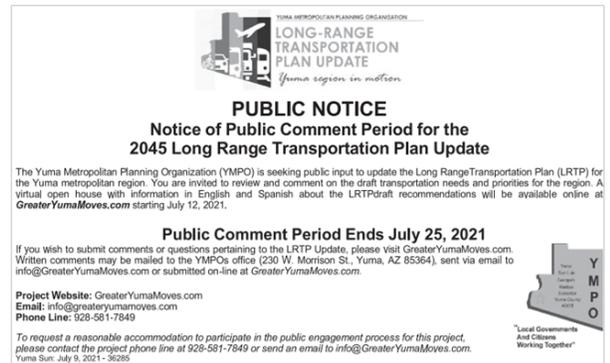
The official public comment period for public involvement phase 2 opened July 12, 2021, and closed July 25, 2021. Several comments were received through email, social media and interactive map featured in the online virtual guide. The following are comments received during phase 2 outreach.

"Widen/Extend Ave D to I8 and add on/off ramp. Loop Araby south of Marine Base and airport that reaches to Avenue D." – comment via online mapping tool

"They have missed some very crucial areas! 32nd st below the water tower pavement needs help, and better markings for the crosswalk at the canal. 24th st below the hospital needs replaced. The surface is horrible. 26th place needs restrictions on speed. people treat it worse than a freeway. Or you don't live on the area why are you using it as a cut through at over 65mph in a resident? New polymer speed bumps here would fix all of that. At posted speed they flow out of the way. At above posted speed limit the polymers lock together solid." – comment via social media

"Next year's budget leave some money to Parks & Rec so they can buy some good grass seed to make the circle downtown and other areas better looking. Fill in spots are very noticeable. Grass is cut too short." – comment via social media

"8th Ave from 24th Street to 16th Street is a drag!!! People leave that 4 way stop at 22nd Street like a 1/4-mile race way!!!! Good getting out of your driveway!!! It's residential! 25 miles an hour not 50!!!!" – comment via social media



YUMA METROPOLITAN PLANNING ORGANIZATION
LONG-RANGE TRANSPORTATION PLAN UPDATE
Yuma region in motion

PUBLIC NOTICE
Notice of Public Comment Period for the 2045 Long Range Transportation Plan Update

The Yuma Metropolitan Planning Organization (YMPO) is seeking public input to update the Long Range Transportation Plan (LRTP) for the Yuma metropolitan region. You are invited to review and comment on the draft transportation needs and priorities for the region. A virtual open house with information in English and Spanish about the LRTP draft recommendations will be available online at GreaterYumaMoves.com starting July 12, 2021.

Public Comment Period Ends July 25, 2021

If you wish to submit comments or questions pertaining to the LRTP Update, please visit GreaterYumaMoves.com. Written comments may be mailed to the YMPO's office (230 W. Morrison St., Yuma, AZ 85364), sent via email to info@GreaterYumaMoves.com or submitted on-line at GreaterYumaMoves.com.

Project Website: GreaterYumaMoves.com
Email: info@GreaterYumaMoves.com
Phone Line: 928-561-7849

To request a reasonable accommodation to participate in the public engagement process for this project, please contact the project phone line at 928-561-7849 or send an email to info@GreaterYumaMoves.com.
Yuma Sun: July 9, 2021 - 36265

Local Governments And Citizens Working Together



LONG-RANGE TRANSPORTATION PLAN UPDATE
Yuma region in motion

AVISO PÚBLICO
Aviso del Periodo de Comentario Público Para la Actualización del Plan de Transporte de Largo Alcance de 2045

La Organización de Planificación Metropolitana de Yuma (YMPO por sus siglas en inglés) está buscando la opinión del público para actualizar el Plan de Transporte de Largo Alcance (LRTP por sus siglas en inglés) para la región metropolitana de Yuma. Esta invitado a revisar y comentar sobre el borrador de las necesidades y prioridades de transporte para la región. Una sesión abierta virtual con información en inglés y español sobre las recomendaciones preliminares del LRTP estará disponible en línea en GreaterYumaMoves.com a partir del 12 de julio de 2021.

Periodo de Comentario Público Termina el 25 de julio, 2021

Si desea enviar comentarios o preguntas relacionadas con la actualización del LRTP, visite GreaterYumaMoves.com. Los comentarios escritos pueden enviarse por correo a la oficina de YMPO (230 W. Morrison St., Yuma, AZ 85364), enviarse por correo electrónico a info@GreaterYumaMoves.com o enviarse en línea en GreaterYumaMoves.com.

Sitio Web: GreaterYumaMoves.com
Correo Electrónico: info@GreaterYumaMoves.com
Línea Telefónica: 928-561-7849

Para solicitar una adaptación razonable para participar en el proceso de participación pública de este proyecto, comuníquese con la línea telefónica del proyecto al 928-561-7849 o envíe un correo electrónico a info@GreaterYumaMoves.com.
Bajo El Sol: 9 de julio del 2021 - 36553

Local Governments And Citizens Working Together

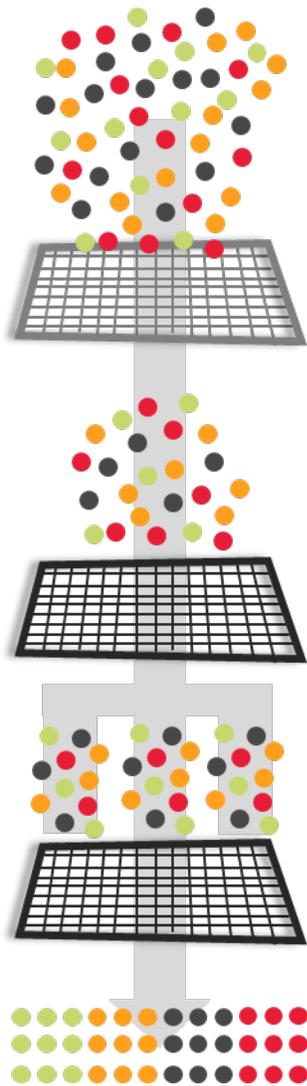
8. NEEDS ASSESSMENT

The goals described in Chapter 3 informed a five-step evaluation process that shaped the YMPO 2022-2045 L RTP recommendations. This process used public input and region-wide data analysis to screen, score, and prioritize a long list of projects that came from previous plans, conversations with the community, and local and national expertise in multimodal transportation systems.

Project Identification Process

A needs assessment identifies the multimodal transportation projects needed to address existing and future transportation network deficiencies within the YMPO's planning boundary without considering funding limitations. Developing the Needs Plan is the starting point for understanding and prioritizing the region's overall transportation needs. However, once the applicable transportation revenues available to the YMPO are applied, the number of projects that can be constructed to address the needs becomes significantly reduced. As illustrated below in the overall project identification and prioritization process, projects identified as a need are evaluate by scoring each project using defined goals and objectives, described later in this chapter. The projects that rank the highest are focused on when selecting which projects to include in the Cost Feasible Plan.

Figure 8.1. Project Identification and Prioritization Process Overview



STEP 1: COLLECT PROJECTS AND PROGRAMS

The study team gathered more than 200 project and program ideas, including recommendations from the 2018 Long-Range Transportation Plan and new suggestions from YMPO member agencies and from residents across the region.

STEP 2: SCREENED AND EVALUATED PROJECTS

The study team screened and evaluated recommended projects for validity, feasibility, and need.

STEP 3: SCORE PROJECTS

Scored projects based on a set of prioritization criteria to identify projects that best meet YMPO L RTP goals and objectives. Based on results, projects were grouped into high-, mid-, and low-need

STEP 4: FUNDING ANALYSIS AND PROJECT FEASIBILITY

Projects were then evaluated against available funding and reviewed for feasibility to determine phasing of implementation.

STEP 6: PRIORITIZE AND RECOMMEND

Based on results from previous steps, projects were assigned to implementation timeframes based on need and funding availability.

Regional Needs Assessment

The following outlines the identification and screening of potential improvement projects in the YMPO region. The results of this needs assessment creates a universe of needs to be scored and prioritized.

Pavement Preservation Needs

Figure 8.2 illustrates the locations in need of pavement preservation. As a regional assessment, the current and future pavement performance was identified using a broad regional approach. Degradation interval criteria were established as determined by facility type (highway vs. non-highway) and average traffic volumes. In accordance to ADOT design expectations and standards, an ADOT highway facility's pavement design lifespan is 25 years. Alternatively, literature supports that other, less intensive, lower speed facilities may be designed to a lower design lifespan of approximately 20 years. Therefore, all YMPO area highway facilities are assumed a 25-year total pavement lifespan. All other regionally significant routes were assumed a 20-year total pavement lifespan. Beyond the facility type, the intensity of use along the corridor determines the rate of degradation, with increased load and volume across a roadway implies a quicker deteriorating facility. In addition to the total lifespan, roadways with volumes greater than 10,000 AADT were assigned a steeper degradation rate earlier in the pavement lifespan, whereas roadway segments with volumes less than 10,000 AADT were assigned a shallower degradation rate.

Roadway Needs

In order to best capture both existing projects as well as identify new projects, the comprehensive list of projects was developed by 1) referencing previously completed studies, plans and reports; 2) direct TAC input; 3) public comment and 4) project team identification of high need location solutions.

Previously Completed Studies, Plans and Reports

The initial approach to developing the list of roadway project needs included a review of the previous plans, Transportation Improvements Plans, and Capital Improvements Plans. Projects identified in these plans were refined based on programming/construction status, changes to roadway and/or traffic conditions and TAC input on the current significance of these project recommendations.

Direct Input from the YMPO Member Agencies

The study team met one-on-one with YMPO TAC members to discuss project recommendations for their respective jurisdiction's facilities. These project recommendations were vetted by the full TAC representation and plan development team prior to confirmation as a project recommendation.

Public Input

The online public engagement process enabled various opportunities for the public to post comments and/or answers specific transportation-related questions. The plan development team reviewed frequently recurring comments, specifically identifying locations or systemic concerns and cross-referenced with needs. Multiple public concerns were adopted as project recommendations, corresponding directly with elevated needs and/or corresponding directly to an existing project recommendation.

Universe of Needs

Figure 8.3 illustrates the universe of roadway needs identified through this four-step process. The needs includes intersection, safety, and capacity related projects. In addition, new roadways to better connect and circulate traffic was always identified. This includes:

- County 14th Street Extension
- 40th Street Extension
- County 15th Street Extension
- County 24th Street Extension
- County 11th Street Extension
- 28th Street Extension
- 40th Street Widening
- Avenue 3 1/2 E - 24th Street Connection
- Avenue E / Avenue D Extension
- County 25th Street Extension
- Avenue B Extension

Evaluation of Performance

Capacity related improvement projects, such as widening existing roadways and constructing new roadways, were evaluated to identify potential projects to alleviate existing or projected traffic congestion. **Figure 8.4 and Figure 8.5** displays the projected daily traffic volumes and the congestion levels if the recommended projects are constructed. As shown in the Figures, the level of congestion throughout the YMPO region significantly improves based on the No-Build future traffic conditions. As shown in Figure 8.5, if recommended roadway projects are built, a small handful of corridors may experience congestion levels, including:

- **At or Above Capacity (LOS E & LOS F)**

- Main Street north of San Luis I LPOE
- I-8 east of 16th Street
- 24th Street west of Avenue A
- Fortuna Road north of I-18

- **Near Capacity (LOS C & LOS D)**

- Cesar Chavez Boulevard: 5th Avenue to 6th Avenue
- County 16th Street: east of Avenue B
- 56th Street: east of Avenue B
- Avenue A: south of 56th Street
- 4th Avenue: south of 40th Street
- 4th Avenue: north of 1st Street
- Avenue 3E: north of 40th Street to County 13th Street
- 32nd Street: west of 4th Avenue
- 24th Street: Avenue C to Pacific Avenue
- 16th Street: Avenue B to I-8
- 1st Street: east of Avenue A
- Pacific Avenue: north of I-8
- Avenue A: 32nd Street to 24th Street
- Avenue B: 24th Street to 16th Street
- County 14th Street: west of SR 195
- 32nd Street: east of Avenue 6E
- I-8 interchanges at Avenue 3e, Avenue 3E, Fortuna Road, and Foothills Boulevard
- Frontage Road: west of Avenue 15E
- 51st Street: east of Foothills Boulevard

Pedestrian Network Needs

The approach to identifying pedestrian network needs was to concentrate resources in areas where improvements are most needed and where people are most likely to walk. Proposed pedestrian needs aim to close sidewalk gaps and provide a safe and comfortable experience for users of all ages and abilities. Combined with the existing pedestrian network, the identified needs create a more robust, connected, and comfortable walking environment. **Figure 8.6** illustrates pedestrian improvement needs in the YMPO region.

Bicycle Network Needs

A comprehensive bicycle network improves a bicyclists' level of comfort, convenience, and access to key destinations. For this study, a complete, regional bicycle network was developed that connects local and regional community destinations safely and efficiently. Planning a regional bicycle network enables YMPO member agencies to prioritize and seek funding to construct bicycle facilities where they will provide the greatest benefit to bicyclists and the community-at-large. Bicycle network solutions were identified to logically connect existing facilities to improve local and regional mobility and to determine potential upgrades to existing facilities to improve the overall safety and comfort of roadways. **Figure 8.6** illustrates the recommended complete bicycle network for the YMPO region. For all identified needs, an engineering assessment should occur to determine the feasibility of construction.

Figure 8.2. Pavement Preservation Needs

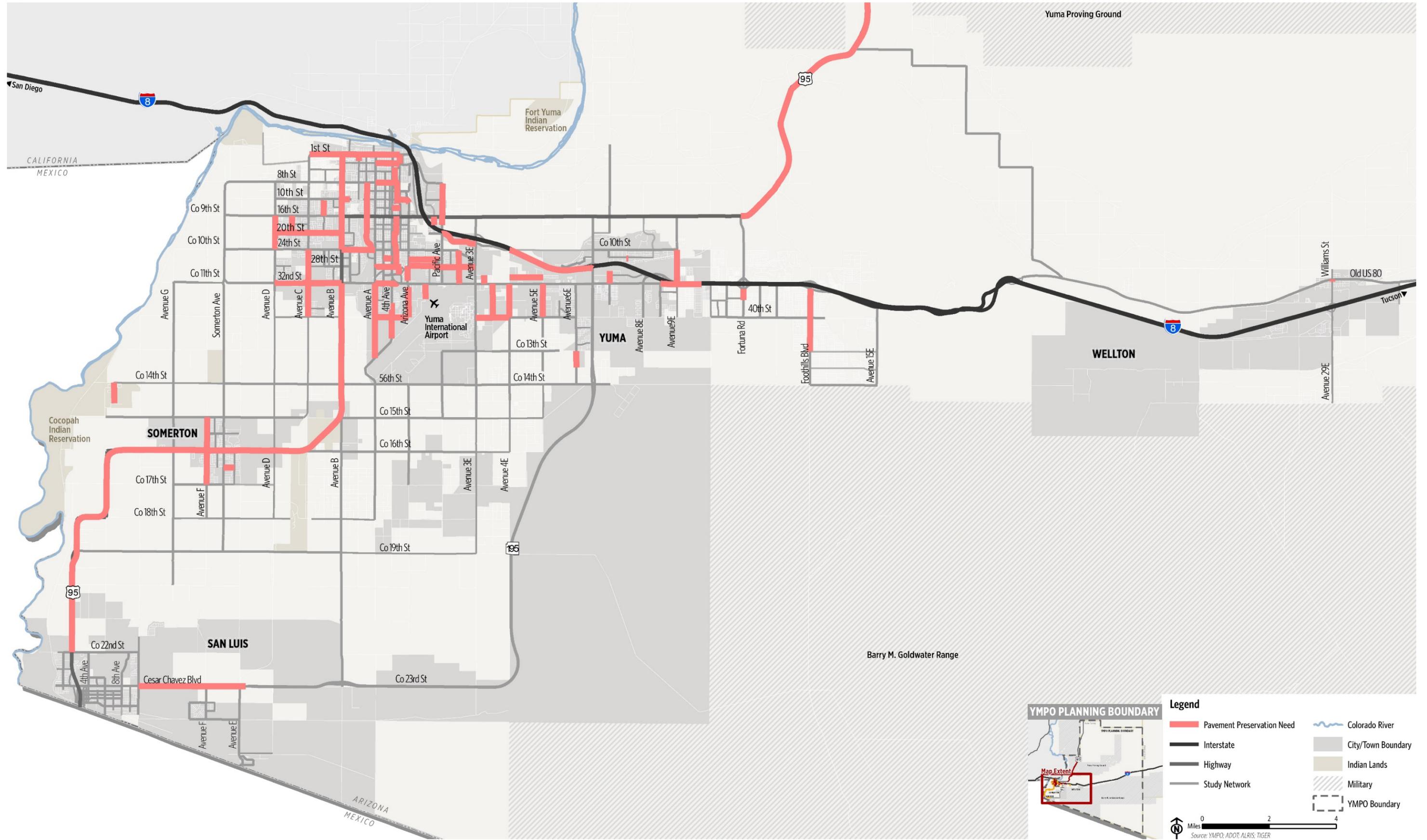


Figure 8.3. Roadway Improvement Needs

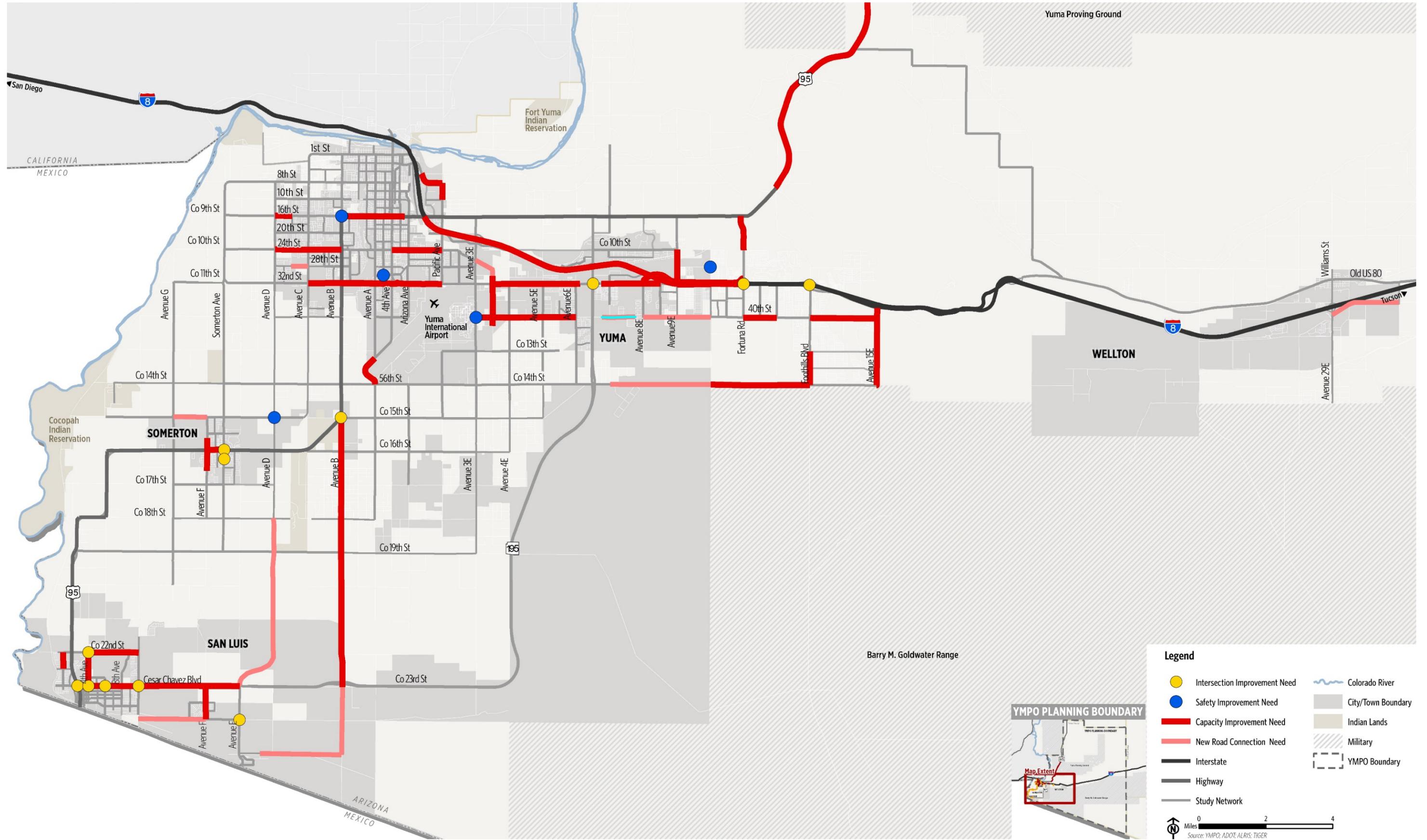
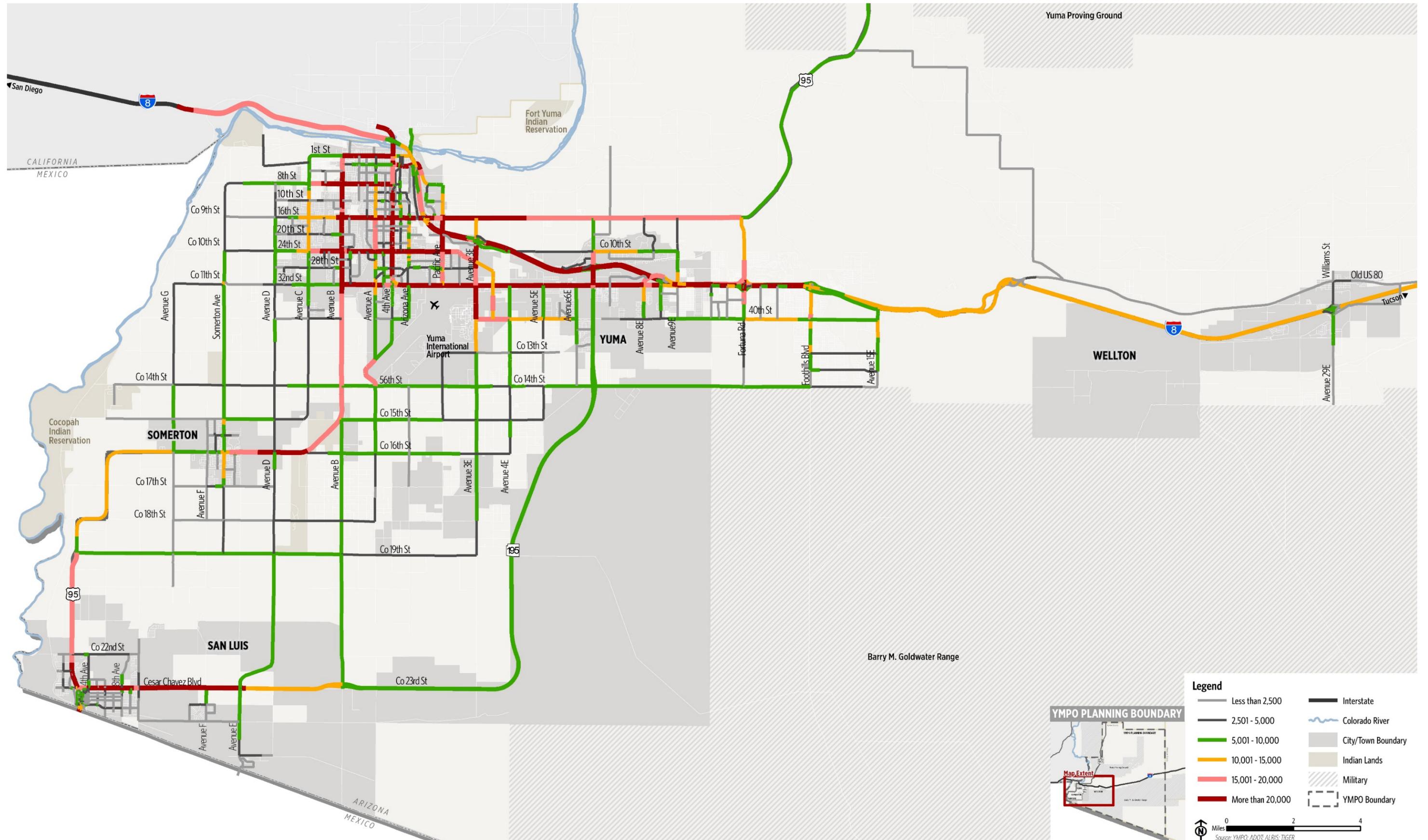


Figure 8.4. Projected 2045 Traffic Volumes with Roadway Improvements



Legend

Less than 2,500	Interstate
2,501 - 5,000	Colorado River
5,001 - 10,000	City/Town Boundary
10,001 - 15,000	Indian Lands
15,001 - 20,000	Military
More than 20,000	YMPO Boundary

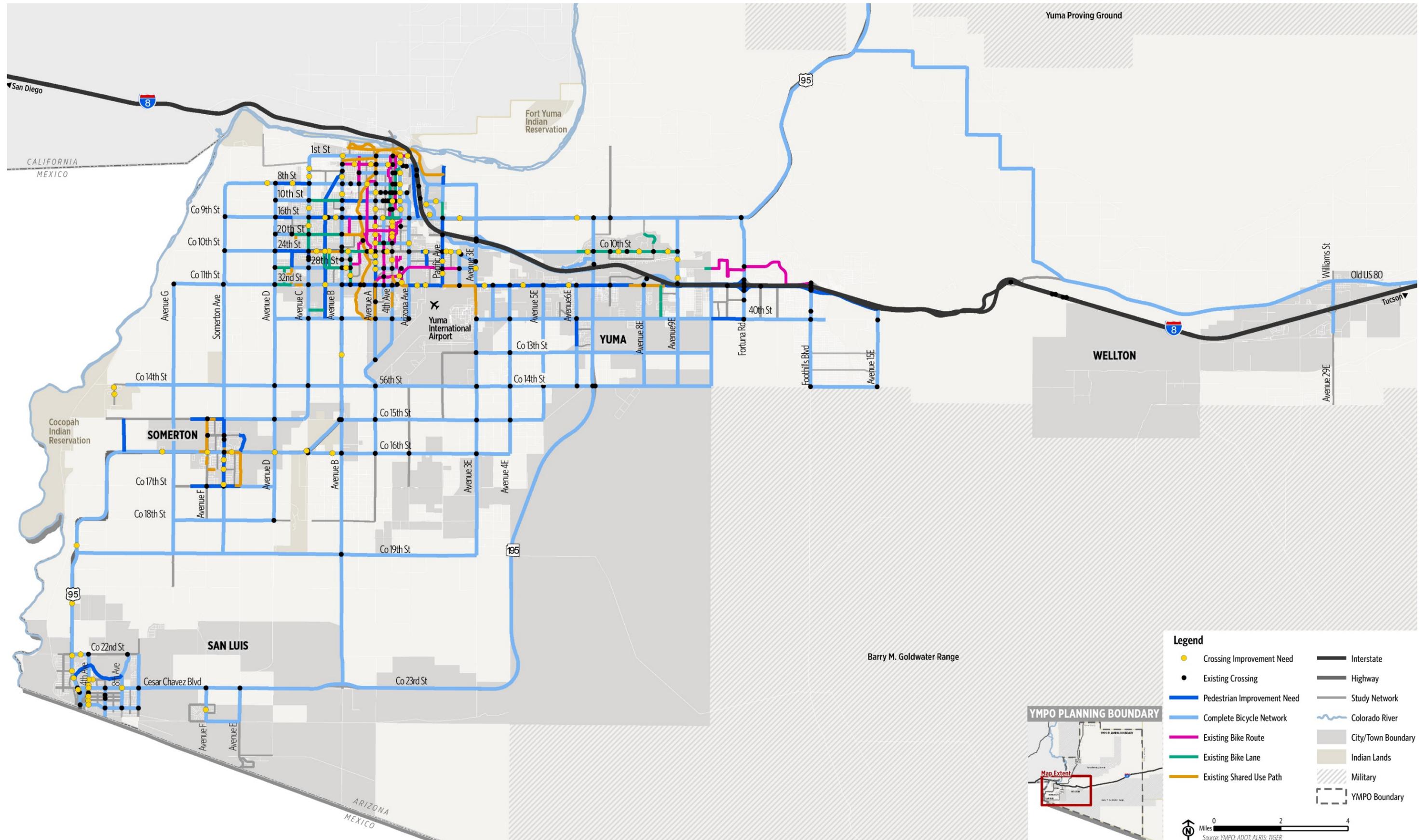
YMPO PLANNING BOUNDARY

Map Extent

0 2 4 Miles

Source: YMPO; ADOT; ALRIS; TIGER

Figure 8.6. Pedestrian and Bicycle Improvement Needs



Project Prioritization

Once the Needs List was finalized, a prioritization methodology was developed and used to prioritize projects for the Cost Feasible Plan. Project Prioritization is an essential part of the development of the LRTP as scores produced from this process aid regional decision-makers in selecting transportation projects that will benefit the region while maximizing the use of scarce financial resources. The prioritization process uses a flexible approach, intended to provide clear direction for proactively seeking project funds and completing the design and engineering of the most critical projects, while still allowing for opportunistic implementation of projects.

Project Prioritization Framework

Evaluation criteria are used to evaluate and then compare how well potential transportation projects meet a plan’s goals and objectives. Each criterion is assigned a weighting factor that places more emphasis on those criteria that require more focus in the YMPO transportation system. Ultimately, this type of evaluation is used to develop the recommendations and prioritize transportation projects. The evaluation criteria and performance measures listed in **Table 8.1** and **Table 8.2** demonstrate the scoring methodology for roadway and multimodal project evaluation and selection, creating an actionable way for the vision, goals, and objectives to shape project selection.

Table 8.1 Roadway Project Prioritization Framework

Evaluation Criteria	Weight
Safety	25
Project located on a high injury corridor or intersection	15
Project location (segment or intersection) has experienced 1 or more fatal or serious injury crashes in most recent 5-year period	10
System Preservation	10
Project improves pavement or bridge condition	10
Mobility	10
Project improves composite V/C (existing and future V/C)	10
Project incorporates one or more multimodal improvements	5
Freight Movement and Economic Vitality	10
Project on a current or planned commercial truck route or freight route	5
Located within or providing direct access to identified economic development zones, border proximity, employment hub, and/or other regionally significant locations or infrastructure	5
Regional Connectivity	10
Project located on a Regionally Significant Route	10
Sustainable Environment and Social Equity	15
Project potentially reduces vehicle emissions	5
Project located in an area with high disadvantaged population groups	10

Table 8.2. Multimodal Project Prioritization Framework

Evaluation Criteria	Weight
Safety	30
Project located on a pedestrian- or bicycle-related crash corridor or intersection	20
Project location (segment or intersection) has experienced 1 or more fatal or serious injury pedestrian- or bicycle-related crash in most recent 5-year period	10
Access and Connectivity	30
Project addresses system gap to create a continuous and interconnected ped/bike network	15
Project connects people within neighborhoods, to recreational facilities, trails, transit stops, or across multiple jurisdictions	15
Equity	15
Provides transportation options for vulnerable population groups	15
Regional Connectivity	15
Project located on a Regionally Significant Route	15
Feasibility	10
Project has limited physical constraints	10

9. COST FEASIBLE PLAN

This chapter summarizes the development of the 2022-2045 LRTP Cost Feasible Plan, which identifies the multimodal transportation projects that can be funded through 2045 based on the estimated revenues. The Cost Feasible Plan serves as the guide for how revenue available to the MPO will be used to achieve this vision through a list of long-term projects between 2026 and 2045. To make the best use of limited dollars, the MPO designed the Cost Feasible Plan to identify and fund those projects that increase the performance of the transportation system based on identified MPO goals shown in Chapter 2.

Process Overview

Five Step Approach

In developing the 2045 YMPO LRTP, the YMPO established a new approach to identifying, prioritizing, and funding transportation improvements in the region. This new approach was conceived to ensure that the financial resources of the MPO are allocated in a manner that reflects the overall transportation vision and goals for the region. The five-step approach to developing this 2045 Cost Feasible Plan included:

- **Step 1: Develop Revenue Forecasts** – Revenue forecasts for capital and operations/maintenance were developed based on a combination of historical revenues and anticipated future availability.
- **Step 2: Allocate Revenues to Funding Programs** – Revenues were allocated to funding programs according to eligible uses and policy direction from the MPO Technical Advisory Committee.
- **Step 3: Assign Prioritized Projects to Funding Programs** – The prioritized roadway, safety, and multimodal projects were assigned to the appropriate funding programs.
- **Step 4: Assign Funded Projects to Time Periods** – Based on revenue availability, funded projects were prioritized and assigned to a future planning horizon.
- **Step 5: Determine Year-of-Expenditure (YOE) Costs for Projects** – Costs for each project were converted from 2021 dollars to Year-of-Expenditure (YOE) dollars to account for future inflation.

Recommended Investment Strategy

A primary purpose of the LRTP is to identify how federal funds will be expended over the next 20 years. Roadway improvements are categorized into three general categories of investments: preservation, modernization, and expansion, as defined below. These categories are consistent with the ADOT Long Range Transportation Plan.

YMPO Long-Range Transportation Plan		
PRESERVATION Projects that preserve transportation infrastructure by mitigating asset deterioration and elongating asset service life	MODERNIZATION Projects that improve travel efficient, functionality, and/or safety without physically adding roadway capacity	EXPANSION Projects that add roadway capacity through the addition of new facilities and/or services.
<ul style="list-style-type: none"> • Pavement • Bridge 	<ul style="list-style-type: none"> • Safety Countermeasures • Intersection Improvements • Technology Improvements 	<ul style="list-style-type: none"> • Capacity Projects: Roadway Widening and New Roadways

Based on the current and future needs and projected funding levels, the LRTP recommend that federal funding be distributed with the below percentages:



Revenue Forecasts

Ensuring that the financial resources will be available to fund the multimodal transportation projects by 2045 is an important element of the YMPO 2022-2045 LRTP. As shown in Chapter 1, the premise of the long-range revenue forecast is rooted in federal regulation originally required by the Intermodal Surface Transportation Efficiency Act of 1991. This following summarizes transportation revenues available to fund multimodal transportation projects within the YMPO region through 2045.

Revenue projections include federal, state, city, and county sources. The County and its municipalities have historically funded transportation projects using local sources, such as fuel taxes, impact fees, and General Fund transfers (ad valorem) in addition to federal and state revenues. **Table 9.1 and Table 9.2** summarizes the total projected capital and operations revenues that are anticipated to be available for the 2045 LRTP.

Table 9.1. Projected Revenues for Capital Improvements

Revenue Source	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Total 2022-2045
Highway User Revenue Fund (HURF)	\$26,927,454	\$32,134,901	\$37,305,366	\$42,406,196	\$37,597,555	\$176,371,472
Surface Transportation Block Grants (STBG)	\$5,125,685	\$5,305,085	\$5,490,765	\$5,682,940	\$4,705,476	\$26,309,951
City of Yuma Road Tax	\$20,807,050	\$33,954,659	\$39,677,268	\$42,924,877	\$36,678,180	\$174,042,033
Federal Highway Safety Improvement Program (HSIP)	\$11,494,345	\$2,500,000	\$2,500,000	\$2,500,000	\$2,000,000	\$20,994,345
Off-system Bridge Funding	\$717,100	\$742,199	\$795,062	\$795,062	\$822,889	\$3,872,310
Developer Participation	\$18,515,467	\$22,097,007	\$26,371,341	\$31,472,482	\$29,507,761	\$127,964,059
Proposed Yuma Countywide Half-Cent Sales Tax	\$19,084,459	\$51,152,806	\$56,476,832	\$62,354,986	\$54,525,303	\$243,594,386
Yuma County Vehicle License Tax (VLT)	\$7,404,324	\$8,374,637	\$9,344,950	\$10,315,262	\$8,950,835	\$44,390,008
Total Anticipated Revenue	\$110,075,884	\$156,261,294	\$177,961,583	\$198,451,805	\$174,787,998	\$817,538,564

Table 9.2. Projected Revenues for Operations and Maintenance

Revenue Source	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Total 2022-2045
ADOT HURF	\$37,713,323	\$43,720,078	\$50,683,553	\$58,756,128	\$53,674,551	\$244,547,632
Cities/Counties Highway User Revenue Fund (HURF)	\$71,596,938	\$85,443,285	\$99,190,892	\$112,753,196	\$99,967,416	\$71,596,938
City of Yuma Road Tax	\$7,566,200	\$12,347,149	\$14,428,097	\$15,609,046	\$13,337,520	\$63,288,012
Proposed Yuma Countywide Half-Cent Sales Tax	\$4,617,208	\$12,375,679	\$13,663,750	\$15,085,884	\$13,191,606	\$58,934,126
Yuma County Vehicle License Tax (VLT)	\$3,475,499	\$3,930,952	\$4,386,405	\$4,841,858	\$4,201,412	\$20,836,126
Total Anticipated Revenue	\$124,969,168	\$157,817,142	\$182,352,696	\$207,046,112	\$184,372,505	\$856,557,623

Roadway Projects

Development of the cost feasible roadway projects began by estimating the costs associated with each project in the roadway needs. The planning level cost estimates for each project were based on typical per-mile/foot construction costs. Estimated costs for each project are expressed in 2021 dollars and in most cases do not include costs associated with right-of-way acquisition. Actual costs for projects could vary at the time of implementation; therefore, a detailed analysis should be performed on a case-by-case basis to determine actual costs. Unless otherwise noted, the recommended projects are not yet funded. Projects were then prioritized based on the project prioritization process presented below, traffic modeling results, collaboration with YMPO member agencies, and public input.

Pavement Preservation Projects

On-going, paved road maintenance and pavement reconstruction is critical to the overall safety of the area's transportation network. Maintaining a roads pavement condition can lessen maintenance costs on vehicles, improve overall safety, and provide motorists with a smoother, more comfortable ride. Pavement improvement projects include:

- **Pavement Rehabilitation:** Minor rehabilitation consists of non-structural enhancements to eliminate age-related, top-down surface cracking that develops in flexible pavements due to environmental exposure. Major rehabilitation consists of structural enhancements that both extend the service life of an existing pavement and/or improve its load-carrying capability. Surface treatments methods include microsurfacing, chip seal, slurry seal, and crack seal.
- **Roadway Reconstruction:** comprehensive rebuilding of the roadway to a new condition with current criteria
- **Roadway Paving:** Paving roads results in a number of benefits, including reduced vehicle maintenance, improved driving experience and safety, and reduced dust emissions.

Table 9.3 and Figure 9.1 illustrates planned pavement maintenance, rehabilitation, or reconstruction projects on the study network. In addition to these, City of Yuma and Yuma County conduct pavement preservation activities on local roads and subdivisions on a ongoing basis.

Bridge Projects

Proposed bridge improvement projects were developed based on input received by stakeholders, review of existing conditions, programmed improvements, and sufficiency ratings obtained from ADOT's bridge inventory. Bridge rehabilitation involves major work required to restore the structural integrity of a bridge and to correct safety defects; to be eligible for rehabilitation, a bridge must have a Sufficiency Rating of 80 or less. To be eligible for replacement a bridge must have a Sufficiency Rating less than 50. **Table 9.4** outlines bridge projects and the recommended implementation phase.

Safety and Intersection Projects

As part of the YMPO 2022-2045 LRTP, a safety analysis was performed to identify and prioritize locations to be further evaluated for possible safety solutions. **Table 9.5, Table 9.6, and Figure 9.2** illustrate safety and intersection improvement projects by implementation phase for the YMPO region. These projects include:

- Developing corridor safety studies to determine elements that pose a safety concern on the existing roadway and to identify mitigation measures to improve safety.
- Conducting an intersection evaluation studies to assess the need for a roundabout or traffic signal at the intersection.
- Constructing safety and intersection improvements, including signage, marking, adding lighting, and constructing grade separated railroad crossings.

Capacity Projects

Capacity related improvement projects, such as widening existing roadways and constructing new roadways, were evaluated to identify potential projects to alleviate existing or projected traffic congestion. Based on forecasted growth in the YMPO region for the next 25 years, several of the current roadways will not be able to meet future demand. **Table 9.7 and Figure 9.3** illustrate capacity improvements by implementation phase in the

YMPO region. These projects are based on results of the project prioritization process presented in Chapter 8 and currently funded projects.

Multimodal Projects

As noted in Chapter 8, the LRTP noted the need for developing a complete network of multimodal facilities and a policy framework for prioritizing and implementing bicycle and pedestrian projects in the region. The YMPO 2045 LRTP has committed to improving bicycle and pedestrian facilities throughout the region. **Table 9.8, Table 9.9, and Figure 9.4** illustrates pedestrian improvements by implementation phase. **Table 9.10 and Figure 9.5** illustrate the bicycle improvements by implementation phase.

Maintenance Considerations

In addition to providing new and enhanced facilities, it is imperative that the agencies maintain their pedestrian and bicycle facilities. Bicyclists and pedestrians are vulnerable to pavement/sidewalk irregularities such as cracks, potholes, broken glass, sand, etc. Unmaintained landscaping causes safety issues by obstructing bicycle lanes and sidewalks and blocking visibility. Major storms and motor vehicle crashes can leave debris, presenting hazards to pedestrians and bicyclists, which must be picked up as soon as possible.

Maintenance needs are typically identified through one of three sources: the public reporting a problem, routine inspections, or special inspections after a storm, crash, or construction project. YMPO member agencies should monitor scheduled maintenance programs to ensure bicycle and pedestrian facility maintenance. Buffered sidewalks and shared use paths often require more frequent and different maintenance practices (depending on the degree and type of physical separation). During the facility design selection phase of project development, maintenance needs and costs should be considered.

Integrating recommended improvements with agencies' pavement management programs is a cost-effective strategy for installing on-street bicycle facilities during routine roadway maintenance and resurfacing projects. During roadway restriping and resurfacing, the existing pavement could be striped or additional pavement could be added to accommodate bike lanes and paved shoulders.

Table 9.3. Pavement Projects by Type and Implementation Phase

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
PAV-1	ADOT	US 95 Pavement Rehabilitation: MP 33.7 to MP 44.3	10.4	Pavement Rehabilitation	X					\$2,493,550	\$2,493,550
PAV-2	ADOT	US 95 Pavement Rehabilitation: MP 44.3 to MP 54	9.3	Pavement Rehabilitation	X					\$8,250,000	\$8,250,000
PAV-3	City of Yuma	12th Street Paving, 21st Drive to Avenue B	0.2	Roadway Paving	X					\$185,000	\$185,000
PAV-4	City of Yuma	12th Street Paving, 21st Drive to Avenue B	0.2	Roadway Paving	X					\$185,000	\$185,000
PAV-5	City of Yuma	14th Avenue Reconstruction, 24th Street to 8th Street	2.1	Pavement Reconstruction	X					\$1,980,000	\$1,980,000
PAV-6	City of Yuma	14th Street Paving, 1st Avenue to 4th Avenue	0.2	Roadway Paving	X					\$350,000	\$350,000
PAV-7	City of Yuma	1st Street Reconstruction, 4th Ave to W City Limit	1.7	Pavement Reconstruction	X					\$1,650,000	\$1,650,000
PAV-8	City of Yuma	26th Place Reconstruction, San Marcos to Arizona Avenue	0.9	Pavement Reconstruction	X					\$280,000	\$280,000
PAV-9	City of Yuma	26th Street Reconstruction, 4th Avenue to 8th Avenue	0.3	Pavement Reconstruction	X					\$340,000	\$340,000
PAV-10	City of Yuma	26th Street Reconstruction, Laramie to Avenue 7-1/2E	0.1	Pavement Reconstruction	X					\$340,000	\$340,000
PAV-11	City of Yuma	28th Street Reconstruction, Avenue A to Madison Avenue	0.8	Pavement Reconstruction	X					\$835,000	\$835,000
PAV-12	City of Yuma	2nd Avenue Reconstruction, 13th Street to 8th Street	0.6	Pavement Reconstruction	X					\$1,480,000	\$1,480,000
PAV-13	City of Yuma	32nd Street Paving, Avenue B to Avenue C	1	Roadway Paving	X					\$1,200,000	\$1,200,000
PAV-14	City of Yuma	3rd Avenue Reconstruction, 23rd Street to 16th Street	0.9	Pavement Reconstruction	X					\$1,050,000	\$1,050,000
PAV-15	City of Yuma	40th Street Paving, Arizona Avenue to Avenue A	1	Roadway Paving	X					\$1,225,000	\$1,225,000
PAV-16	City of Yuma	45th Avenue Paving, 16th Street to 20th Street	0.5	Roadway Paving	X					\$500,000	\$500,000
PAV-17	City of Yuma	4th Avenue Reconstruction, Gillaspie/Buirch to South End	1.1	Pavement Reconstruction	X					\$280,000	\$280,000
PAV-18	City of Yuma	Arizona Avenue Paving, 33rd Street to 40th Street	0.9	Roadway Paving	X					\$1,515,000	\$1,515,000
PAV-19	City of Yuma	Arizona Avenue Paving, Palo Verde to Country Club Drive	0.4	Roadway Paving	X					\$1,023,259	\$1,023,259
PAV-20	City of Yuma	Avenue 3-1/2E Paving, 32nd Street to 40th Street	1	Roadway Paving	X					\$961,420	\$961,420
PAV-21	City of Yuma	Avenue 3-1/2E Paving, 32nd Street to 40th Street	1	Roadway Paving	X					\$961,420	\$961,420
PAV-22	City of Yuma	Avenue 9E Reconstruction, 24th Street to North Frontage Road	1	Pavement Reconstruction	X					\$1,700,000	\$1,700,000
PAV-23	City of Yuma	Avenue 9E Reconstruction, 24th Street to North Frontage Road	1	Pavement Reconstruction	X					\$1,700,000	\$1,700,000
PAV-24	City of Yuma	Avenue A Paving, 32nd Street to Airport Loop Road	2.2	Roadway Paving	X					\$3,300,000	\$3,300,000
PAV-25	City of Yuma	Avenue B Reconstruction, 24th Street to 16th Street	1	Pavement Rehabilitation	X					\$1,950,000	\$1,950,000
PAV-26	City of Yuma	Fortuna Avenue Reconstruction, 32nd Street to 36th Street	0.5	Pavement Reconstruction	X					\$340,000	\$340,000
PAV-27	City of Yuma	Gila Ridge Road Reconstruction, Avenue 4E to Araby Road	2.6	Pavement Reconstruction	X					\$2,475,000	\$2,475,000
PAV-28	City of Yuma	Short Way Reconstruction, 30th Street to 32nd Street	0.3	Pavement Reconstruction	X					\$230,000	\$230,000
PAV-29	City of Yuma	South Frontage Road Reconstruction, Ave 8-1/2E to Salida Del Sol	1.2	Pavement Reconstruction	X					\$1,375,000	\$1,375,000
PAV-30	City of Yuma	Virginia Drive Reconstruction, 23rd Street to 28th Street	0.6	Pavement Reconstruction	X					\$890,000	\$890,000
PAV-31	Cocopah Indian Tribe	Centre Road Pavement Preservation: County 14th Street to End Terminus	0.6	Pavement Rehabilitation	X					\$413,400	\$413,400
PAV-32	Town of Wellton	Williams Street Pavement Preservation: Oakland Avenue to Los Angeles Avenue	0.1	Roadway Paving	X					\$561,169	\$561,169
PAV-33	City of San Luis	Cesar Chavez Boulevard Mill and Fill: 10th Avenue to SR 195	3.2	Roadway Paving		X				\$2,964,000	\$4,033,594
PAV-34	City of Yuma	12th Street Reconstruction, 1st Ave to AZ Ave	0.3	Pavement Reconstruction		X				\$255,000	\$347,020
PAV-35	City of Yuma	1st Ave Reconstruction, 1st St to Giss Pkwy	0.3	Pavement Reconstruction		X				\$40,000	\$54,434
PAV-36	City of Yuma	1st Ave Reconstruction, 28th St to Catalina Dr	0.2	Pavement Reconstruction		X				\$280,000	\$381,041

Table 9.3. Pavement Projects by Type and Implementation Phase (Continued)

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
PAV-38	City of Yuma	20th St Reconstruction, Ave B to Ave D	2	Pavement Reconstruction		X				\$1,375,000	\$1,871,185
PAV-39	City of Yuma	24th St Reconstruction, Ave B to Arizona Ave	1	Pavement Reconstruction		X				\$3,850,000	\$5,239,318
PAV-40	City of Yuma	26th Place Reconstruction, San Marcos to AZ Ave	0.9	Pavement Reconstruction		X				\$800,000	\$1,088,689
PAV-41	City of Yuma	26th St Reconstruction, 4th Ave to 8th Ave	0.3	Pavement Reconstruction		X				\$250,000	\$340,215
PAV-42	City of Yuma	26th St Reconstruction, Laramie to Ave 7-1/2 E	0.1	Pavement Reconstruction		X				\$300,000	\$408,259
PAV-43	City of Yuma	30th Pl Reconstruction, Ave 4E to Ave 5E	1	Pavement Reconstruction		X				\$125,000	\$170,108
PAV-44	City of Yuma	32nd St Reconstruction, Ave A to 32nd St	0.7	Pavement Reconstruction		X				\$100,000	\$136,086
PAV-45	City of Yuma	32nd St Reconstruction, Ave B to Ave D	2	Pavement Reconstruction		X				\$150,000	\$204,129
PAV-46	City of Yuma	33rd Dr Reconstruction, 12th Places to 16th Street	0.5	Pavement Reconstruction		X				\$615,000	\$836,930
PAV-47	City of Yuma	3rd St Reconstruction, Ave A to 4th Ave	0.5	Pavement Reconstruction		X				\$640,000	\$870,952
PAV-48	City of Yuma	40th St Reconstruction, Ave 3E to Ave 4E	1	Pavement Reconstruction		X				\$1,375,000	\$1,871,185
PAV-49	City of Yuma	8th St Reconstruction, Ave A to 1st Ave	0.7	Pavement Reconstruction		X				\$810,000	\$1,102,298
PAV-50	City of Yuma	Ave 2-1/2 E Reconstruction, 24th St to 32nd St	1	Pavement Reconstruction		X				\$1,245,000	\$1,694,273
PAV-51	City of Yuma	Ave 4E Reconstruction, 32nd St to 40th St	1	Pavement Reconstruction		X				\$1,210,000	\$1,646,643
PAV-52	City of Yuma	Ave 5E Reconstruction, 32nd St to 40th St	1	Pavement Reconstruction		X				\$90,000	\$122,478
PAV-53	City of Yuma	Ave 6E Reconstruction, 48th St to S City Limit	0.5	Pavement Reconstruction		X				\$475,000	\$646,409
PAV-54	City of Yuma	Ave 7E Reconstruction, 29th to 32nd Street	0.4	Pavement Reconstruction		X				\$340,000	\$462,693
PAV-55	City of Yuma	Ave D Reconstruction, 16th St to 24th St	1	Pavement Reconstruction		X				\$590,000	\$802,908
PAV-56	City of Yuma	Avenue A Reconstruction, 32nd St - Airport Loop Rd	2.2	Pavement Reconstruction		X				\$3,000,000	\$4,082,585
PAV-57	City of Yuma	Avenue B Reconstruction, 16th St to 1st St	1.8	Pavement Reconstruction		X				\$2,750,000	\$3,742,370
PAV-58	City of Yuma	Avenue C Reconstruction, 24th St to 40th St	2	Pavement Reconstruction		X				\$200,000	\$272,172
PAV-59	City of Yuma	Fortuna Ave Reconstruction, 32nd St to 36th St	0.3	Pavement Reconstruction		X				\$300,000	\$408,259
										\$66,148,218	\$74,855,453

Table 9.4. Bridge Projects by Implementation Phase

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
BRD-1	City of Yuma	10th Place and Iron Drive Bridge Rehabilitation	0.1	Rehabilitation	X					\$300,000	\$300,000
BRD-2	ADOT	I-8 Colorado River Bridge Deck Rehabilitation	0.2	Rehabilitation	X					\$5,000,000	\$5,000,000
BRD-3	ADOT	I-8 Bridge Deck Rehabilitation: MP 0.1 to MP 33	33	Rehabilitation	X					\$4,500,000	\$4,500,000
BRD-4	City of Yuma	South Gila Canal Bridge Replacement at Avenue 7E	0.1	Replacement	X					\$406,000	\$406,000
BRD-5	City of Yuma	3rd Street Bridge Rehabilitation at East Main Canal	0.1	Rehabilitation		X				\$708,000	\$963,490
BRD-6	City of Yuma	36th Street over A Canal	0.1	New Bridge		X				\$1,400,000	\$1,905,207
BRD-7	City of Yuma	48th Street over A Canal	0.1	New Bridge		X				\$1,500,000	\$2,041,293
										\$15,314,000	\$17,157,282

Figure 9.1. Pavement Projects by Implementation Phase

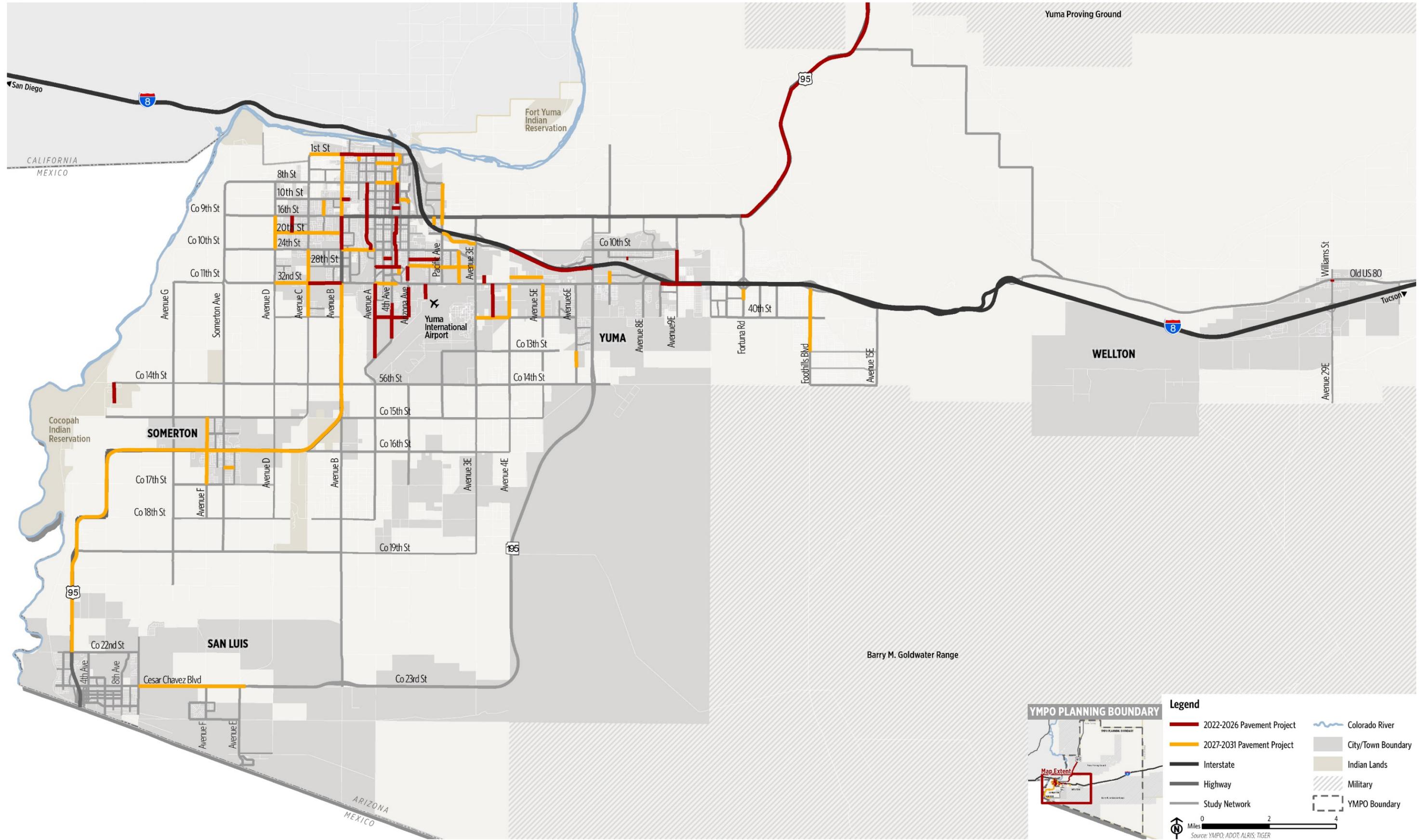


Table 9.5. Safety Improvements by Implementation Phase

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
SAF-1	City of Yuma	16th Street Corridor Safety Study: Avenue B to Avenue 3E	4	Conduct comprehensive evaluation of the corridor to determine safety and capacity improvements.	X					\$160,000	\$160,000
SAF-2	City of Yuma	4th Avenue Corridor Safety Study: 1st Street to 32nd Street	4	Conduct comprehensive evaluation of the corridor to determine safety and capacity improvements.	X					\$160,000	\$160,000
SAF-3	City of Yuma	8th Street Corridor Safety Study: Avenue B to 4th Avenue	1.5	Conduct comprehensive evaluation of the corridor to determine safety and capacity improvements.	X					\$75,000	\$75,000
SAF-4	City of Yuma	Avenue 3E Corridor Safety Study: 16th Street to 40th Street	3	Conduct comprehensive evaluation of the corridor to determine safety and capacity improvements.	X					\$125,000	\$125,000
SAF-5	City of Yuma	Avenue B Corridor Safety Study: 3rd Street to 32nd Street	3.5	Conduct comprehensive evaluation of the corridor to determine safety and capacity improvements.	X					\$150,000	\$150,000
SAF-6	City of Yuma	24th Street Corridor Study: Avenue B to Pacific Avenue	3	Conduct comprehensive evaluation of the corridor to determine safety and capacity improvements.	X					\$125,000	\$125,000
SAF-7	City of Yuma	Catalina Drive/8th Avenue Intersection Safety	0.1	Evaluate the need for a roundabout or traffic signal at the intersection.	X					\$25,000	\$25,000
SAF-8	City of Yuma	Giss Parkway Corridor Safety Study: 4th Avenue to Redondo Center Drive	0.6	Evaluate unsignalized intersections along the corridor to determine safety improvements.	X					\$75,000	\$75,000
SAF-9	City of Yuma	32nd Street Corridor Study: Avenue C to Pacific Avenue	4	Conduct comprehensive evaluation of the corridor to determine safety and capacity improvements.	X					\$150,000	\$150,000
SAF-10	City of Yuma	4th Avenue Safety Improvements: 1st Street to 32nd Street	4	Implement corridor safety improvements including traffic signal upgrades, HAWK signals at 4th Avenue / 13th Street, pork chop medians at 4th Avenue / 13th Street, and lighting from 1st Street to 14th Street.	X					\$4,350,000	\$4,350,000
SAF-11	City of Yuma	Avenue B/16th Street Safety Improvements	0.1	Add additional turn lanes at the intersection.		X				\$4,800,000	\$6,532,137
SAF-12	City of Yuma	Avenue 3E/40th Street Intersection Safety Improvements	0.1	Implement intersection safety improvements including addition of turn lanes, lighting, sidewalks, and evaluate the need for a traffic signal.		X				\$2,400,000	\$3,266,068
SAF-13	City of Yuma	28th Street/Avenue 10E Intersection Safety Improvements	0.1	Implement intersection safety improvements including sidewalks, lighting, pavement rehabilitation and markings, and pedestrian enhancements.		X				\$420,000	\$571,562
SAF-14	City of San Luis	10th Avenue Safety Improvements: Cesar Chavez Boulevard to County 24th Street Alignment	1	Conduct corridor safety evaluation to determine safety improvements needed. Improvements may include signing, wider pavement marking, lighting, speed reduction, install curb/gutter/sidewalk, etc.		X				\$40,000	\$54,434
SAF-15	Town of Somerton	County 15th Street / Avenue D Intersection Safety Improvements	0.1	Assess and implement intersection safety improvements.		X				\$250,000	\$340,215
SAF-16	Yuma County	Avenue B Safety Improvements: 1st Street to 5th Street	0.5	Implement safety improvements including wider pavement markings, signage, and other safety improvements.		X				\$500,000	\$680,431
SAF-17	Yuma County	16th Street Safety Improvements: Lee Drive to Alamo Drive	0.25	Project includes sidewalks, lighting, and access control.		X				\$135,000	\$183,716
SAF-18	Yuma County	Avenue 9E Grade Separated Railroad Crossing: 24th Street to 28th Street	0.25	Construct grade separate railroad crossing structure.			X			\$20,300,000	\$34,426,393
SAF-19	Yuma County	8th Street Safety Improvements: Avenue C to 1st Avenue	2.8	Implement corridor safety improvements including lighting and signal upgrades at Avenue C intersection.			X			\$2,700,000	\$4,578,880
										\$36,940,000	\$56,028,837

Table 9.6. Intersection Improvements by Implementation Phase

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
INT-1	City of San Luis	US 95/Cesar Chavez Boulevard: Intersection Evaluation Study	0.1	Conduct an intersection evaluation study to determine appropriate intersection control (signal vs roundabout), number and length of turn lanes, and other improvements. Also evaluate alternative options to realign one or more streets of the intersection.	X					\$30,000	\$30,000
INT-2	City of San Luis	4th Avenue/ County 22nd Street Traffic Signal	0.1	Install traffic signal.	X					\$230,000	\$230,000
INT-3	City of San Luis	Cesar Chavez Boulevard/10th Avenue Traffic Signal	0.1	Install traffic signal.	X					\$230,000	\$230,000
INT-4	City of San Luis	Cesar Chavez Boulevard/4th Avenue Traffic Signal	0.1	Install traffic signal.	X					\$230,000	\$230,000
INT-5	City of San Luis	Cesar Chavez Boulevard/6th Avenue Traffic Signal	0.1	Install traffic signal.	X					\$230,000	\$230,000
INT-6	Town of Somerton	US 95 / Avenue B / County 15th Street Intersection Evaluation Study	0.1	Conduct an intersection evaluation study to determine appropriate intersection control (signal vs roundabout), number and length of turn lanes, and other improvements. Also evaluate alternative options to realign one or more streets of the intersection.	X					\$50,000	\$50,000
INT-7	City of San Luis	Avenue E/County 24th Street Traffic Signal	0.1	Install traffic signal.		X				\$230,000	\$312,998
INT-8	Town of Somerton	Somerton Ave/Fern Street	0.1	Install traffic signal.		X				\$230,000	\$312,998
INT-9	Town of Somerton	Main Street / Somerton Avenue Traffic Signal Upgrade	0.1	Traffic signal upgrade.		X				\$300,000	\$408,259
INT-10	ADOT	I 8 Interchange Improvements: Fortuna Road	0.1	Interchange modernization.				X		\$5,000,000	\$10,566,884
INT-11	ADOT	I 8 Interchange Improvements: SR 195	0.1	Interchange modernization.				X		\$5,000,000	\$10,566,884
INT-12	ADOT	I 8 Interchange Improvements: Foothills Boulevard	0.1	Interchange modernization.					X	\$5,000,000	\$13,168,260
										\$16,760,000	\$36,336,283

Figure 9.2. Safety and Intersection Projects by Implementation Phase

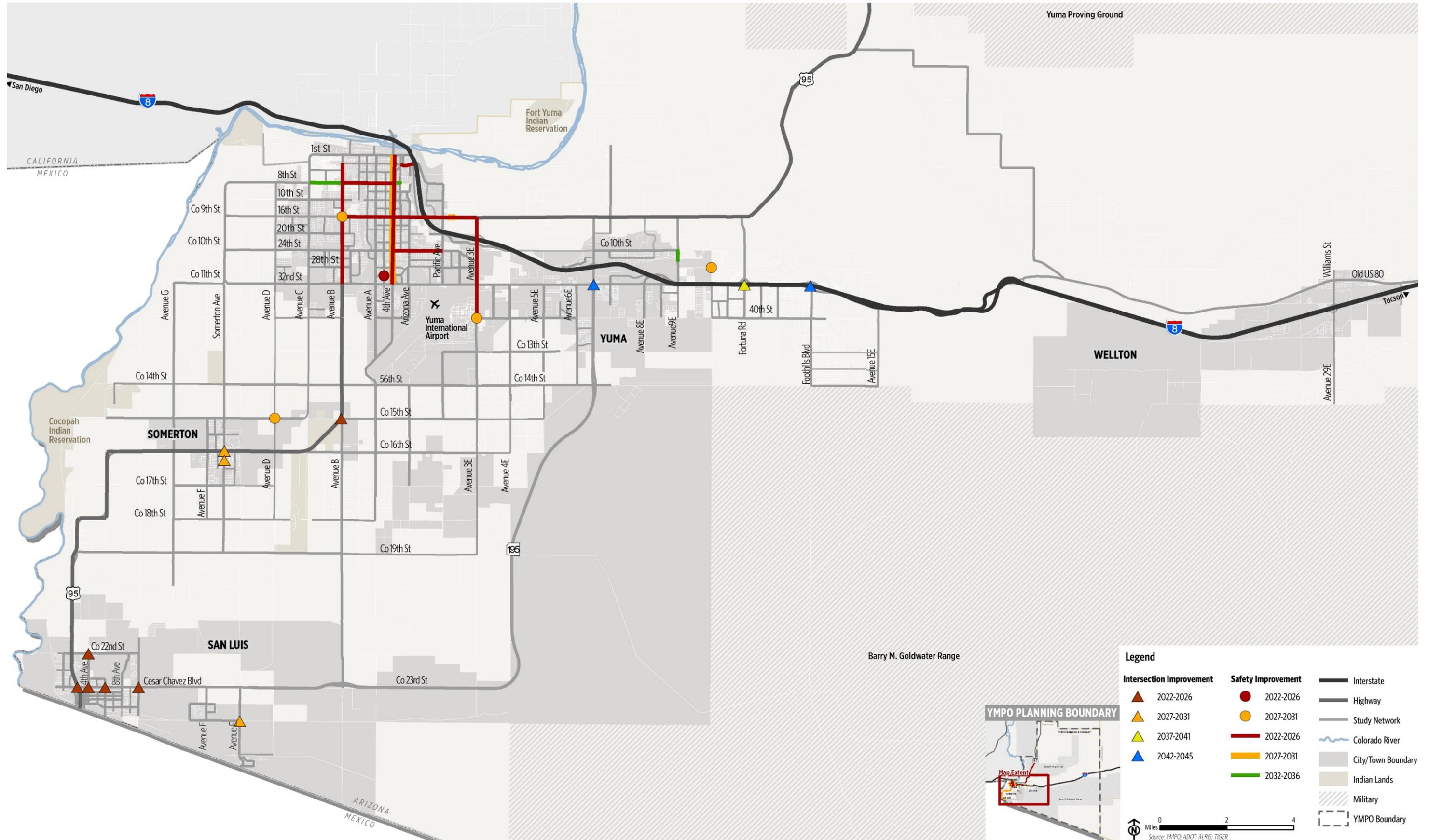


Table 9.7. Capacity and New Roadway Improvements by Implementation Phase

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
CAP-1	ADOT	US 95 Widening: Rifle Range Road to Wellton-Mohawk Canal	3	Widen roadway from two lanes to four lanes.	X					\$10,601,000	\$10,601,000
CAP-1	City of Yuma	28th Street Widening: Avenue C to 33rd Avenue	1	Widen roadway from two lanes to four lanes.	X					\$3,000,000	\$3,000,000
CAP-3	City of Yuma	24th Street Widening: Avenue C to Avenue D	1	Widen roadway from two lanes to four lanes.	X					\$3,000,000	\$3,000,000
CAP-2	City of Yuma	28th Street Extension: Avenue C to 45th Avenue	0.5	Construct new two-lane roadway.	X					\$1,300,000	\$1,300,000
CAP-5	City of San Luis	County 24th Street Extension: 10th Avenue to Avenue F	2	Construct new two-lane roadway.	X					\$1,345,760	\$1,345,760
CAP-6	City of San Luis	Cesar Chavez Boulevard Widening: Main Street to 10th Avenue	1.8	Widen roadway from two lanes to four lanes.	X					\$5,400,000	\$5,400,000
CAP-7	City of Yuma	16th Street Widening: 3rd Avenue to Maple Avenue	0.2	Widen roadway from four lanes to six lanes.	X					\$5,520,000	\$5,520,000
CAP-8	Yuma County	North Frontage Road Widening: Avenue 10E to Fortuna Road	1	Widen roadway from two lanes to four lanes.	X					\$3,000,000	\$3,000,000
CAP-9	City of Yuma	Airport Area Traffic Circulation Study: 32nd Street, Avenue B, County 14th Street, Avenue 3E	N/A	Develop a traffic circulation plan for the Yuma International Airport area. Address congestion issues on Airport Loop Road; evaluate impacts of potential closure of Airport Loop Road and 4th Avenue Extension.	X					\$200,000	\$200,000
CAP-10	City of San Luis	Merrill Avenue Widening: County 22nd Street to County 22 1/2 Street	0.5	Add center turn lane.		X				\$1,650,000	\$2,245,422
CAP-11	City of San Luis	County 22nd Street Widening: 4th Avenue to 10th Avenue	1.5	Widen roadway from two lanes to four lanes.		X				\$4,500,000	\$6,123,878
CAP-12	City of San Luis	Avenue F Widening: Cesar Chavez Boulevard to San Luis Lane	1	Widen to four lanes.		X				\$3,000,000	\$4,082,585
CAP-13	Yuma County	County 12th Street Widening: Fortuna Road to Avenue 12E	1	Widen roadway from two lanes to four lanes.		X				\$3,000,000	\$4,082,585
CAP-14	Town of Somerton	County 15th Street Extension: Avenue G to Avenue F	1	Construct new two-lane roadway.		X				\$2,600,000	\$3,538,241
CAP-15	Town of Somerton	Main Street Reconfiguration: Cesar Chavez Avenue to Somerton Avenue		Reduce four lane road to three lane road. Enhance bike and pedestrian facilities.		X				\$450,000	\$612,388
CAP-16	Yuma County	40th Street Extension: Avenue 8E to Avenue 10E	2	Construct new two-lane roadway.		X				\$9,800,000	\$13,336,446
CAP-17	Yuma County	Avenue E / Avenue D Extension: County 23rd Avenue to County 18th Street	5.6	Construct new two lane roadway.		X				\$14,560,000	\$19,814,148
CAP-18	Yuma County	Avenue B Safety Improvements: County 15th Street to SR 195	7	Implement safety improvements along the corridor including pavement rehabilitation, pave/grade shoulders, wider pavement markings, and intersection improvements.		X				\$472,500	\$643,007
CAP-19	Yuma County	8th Street Widening: 6th Street to Pacific Avenue	0.8	Widen roadway from two lanes to four lanes.		X				\$4,160,000	\$5,661,185
CAP-20	City of Yuma	32nd Street Widening: 1,500 Feet West of Avenue 7E to Avenue 8 1/2 E	1.8	Widen roadway from four lanes to six lanes.			X			\$5,400,000	\$9,157,760
CAP-21	City of Yuma	32nd Street Widening: Avenue 3E to Quarter Mile East of Avenue 6E	3.25	Widen roadway from four lanes to six lanes.			X			\$9,600,000	\$16,280,462
CAP-22	City of Yuma	40th Street Widening: Avenue 3E to Avenue 4E	1	Widen roadway from two/three lanes to four lanes.			X			\$1,500,000	\$2,543,822
CAP-23	City of Yuma	North Frontage Road Widening: Avenue 9E to Avenue 10E	1	Widen roadway from two lanes to four lanes.			X			\$3,000,000	\$5,087,644
CAP-24	City of Yuma	Pacific Avenue Widening: 8th Street to 12 Street	0.5	Widen roadway from two lanes to four lanes.			X			\$1,500,000	\$2,543,822
CAP-25	City of Yuma	South Frontage Road Widening: Avenue 9E to Avenue 10E	1	Widen roadway from two lanes to four lanes.			X			\$3,000,000	\$5,087,644
CAP-26	ADOT	US 95 Widening: Wellton-Mohawk Canal to Aberdeen Road	9.5	Widen roadway from two lanes to four lanes.			X			\$33,630,000	\$57,032,493

Table 9.7. Capacity and New Roadway Improvements by Implementation Phase (Continued)

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
CAP-27	City of San Luis	4th Avenue Widening: Cesar Chavez Boulevard to County 22nd Street	1	Widen roadway from two lanes to four lanes.			X			\$3,000,000	\$5,087,644
CAP-28	Yuma County	Fortuna Road Widening: US 95 to 28th Street	1.5	Widen roadway from two lanes to four lanes.			X			\$4,500,000	\$7,631,466
CAP-29	Town of Wellton	County 11th Street Extension: Avenue 29E to Avenue 31E	2	Construct new two-lane roadway.			X			\$5,200,000	\$8,818,583
CAP-30	Yuma County	40th Street Widening: Avenue 6 3/4 E to Desert Willow Way	1	Construct new two-lane roadway.			X			\$4,900,000	\$8,309,819
CAP-31	Yuma County	40th Street Widening: Avenue 4E to Avenue 6E	2	Widen roadway from two lanes to four lanes.			X			\$7,000,000	\$11,871,170
CAP-32	Yuma County	County 12th Street Widening: Foothills Boulevard to Avenue 15E	2	Widen roadway from two lanes to four lanes.			X			\$6,000,000	\$10,175,289
CAP-33	Yuma County	Foothills Boulevard Widening: County 13th Street to County 14th Street	1	Widen roadway from two lanes to four lanes.			X			\$3,000,000	\$5,087,644
CAP-34	City of San Luis	Cesar Chavez Boulevard Widening: 10th Avenue to Avenue E	3	Widen roadway from two lanes to four lanes.			X			\$9,000,000	\$15,262,933
CAP-35	City of Yuma	32nd Street Widening: Avenue B to Avenue D	2	Widen roadway from two lanes to four lanes.			X			\$6,000,000	\$10,175,289
CAP-36	Town of Somerton	Cesar Chavez Avenue Widening: County 15 1/2 Street to County 16 1/2 Street	0.5	Widen roadway from two lanes to four lanes.			X			\$1,500,000	\$2,543,822
CAP-37	City of Yuma	Avenue 3 1/2 E - 24th Street Connection: 24th Street / Avenue 3E intersection to Avenue 3 1/2 E end terminus	0.75	Construct new two-lane roadway.				X		\$3,675,000	\$7,766,660
CAP-38	City of Yuma	Avenue 3-1/2 E Widening: 32nd Street to 44th Street	1.5	Widen roadway from two lanes to four lanes.				X		\$4,500,000	\$9,510,196
CAP-39	City of Yuma	Avenue 9E Widening: North Frontage Road to 24th Street	1	Widen roadway from two lanes to four lanes.				X		\$3,000,000	\$6,340,130
CAP-40	City of Yuma	16th Street Widening: Avenue D to 45th Avenue	0.5	Widen roadway from two lanes to four lanes.				X		\$1,500,000	\$3,170,065
CAP-41	Yuma County	County 14th Street Extension: Avenue 10E to Avenue 13E	3	Construct new two-lane roadway.				X		\$7,800,000	\$16,484,339
CAP-42	City of Yuma	24th Street Widening: Avenue C to Avenue B	1	Widen roadway from two lanes to four lanes. Improve Ave B / 24th Street intersection to include turn lanes and traffic signal upgrades.					X	\$3,450,000	\$9,086,099
CAP-43	ADOT	I 8 Widening: 16th Street to Fortuna Road	10	Widen I 8 from two lanes to three lanes each direction.					X	\$97,000,000	\$255,464,245
CAP-44	City of Yuma	County 14th Street Extension: Avenue 7E to Avenue 10E	3	Construct new two-lane roadway.					X	\$7,800,000	\$20,542,486
CAP-45	Yuma County	Avenue 15E Widening: South Frontage Road to County 14th Street	2.3	Widen roadway from two lanes to four lanes.					X	\$6,900,000	\$18,172,199
CAP-46	City of Yuma	40th Street Overpass: SR 195	0.1	Construct overpass.					X	\$15,000,000	\$39,504,780
CAP-47	City of Yuma	56th Street and SR 195 Service Traffic Interchange: SR 195	0.1	Construct service traffic interchange.					X	\$18,000,000	\$47,405,736
										\$353,914,260	\$709,650,888
Unfunded Needs											
CAP-48	City of San Luis	Avenue B Extension: SR 195 to County 25th Street Alignment	2	Construct new two-lane roadway.						\$5,200,000	\$13,694,990
CAP-49	City of San Luis	County 25th Street Extension: Avenue E to Avenue B Alignment	2.5	Construct new two-lane roadway.						\$6,500,000	\$17,118,738
CAP-50	City of Yuma	16th Street Widening: Avenue B to 3rd Avenue	1.6	Widen roadway from four lanes to six lanes.						\$44,160,000	\$116,302,073
CAP-51	City of Yuma	32nd Street Widening: Avenue B to 32nd Street Connection	1.6	Widen roadway from four lanes to six lanes.						\$44,160,000	\$116,302,073

Figure 9.3. Capacity and New Roadway Improvements by Implementation Phase

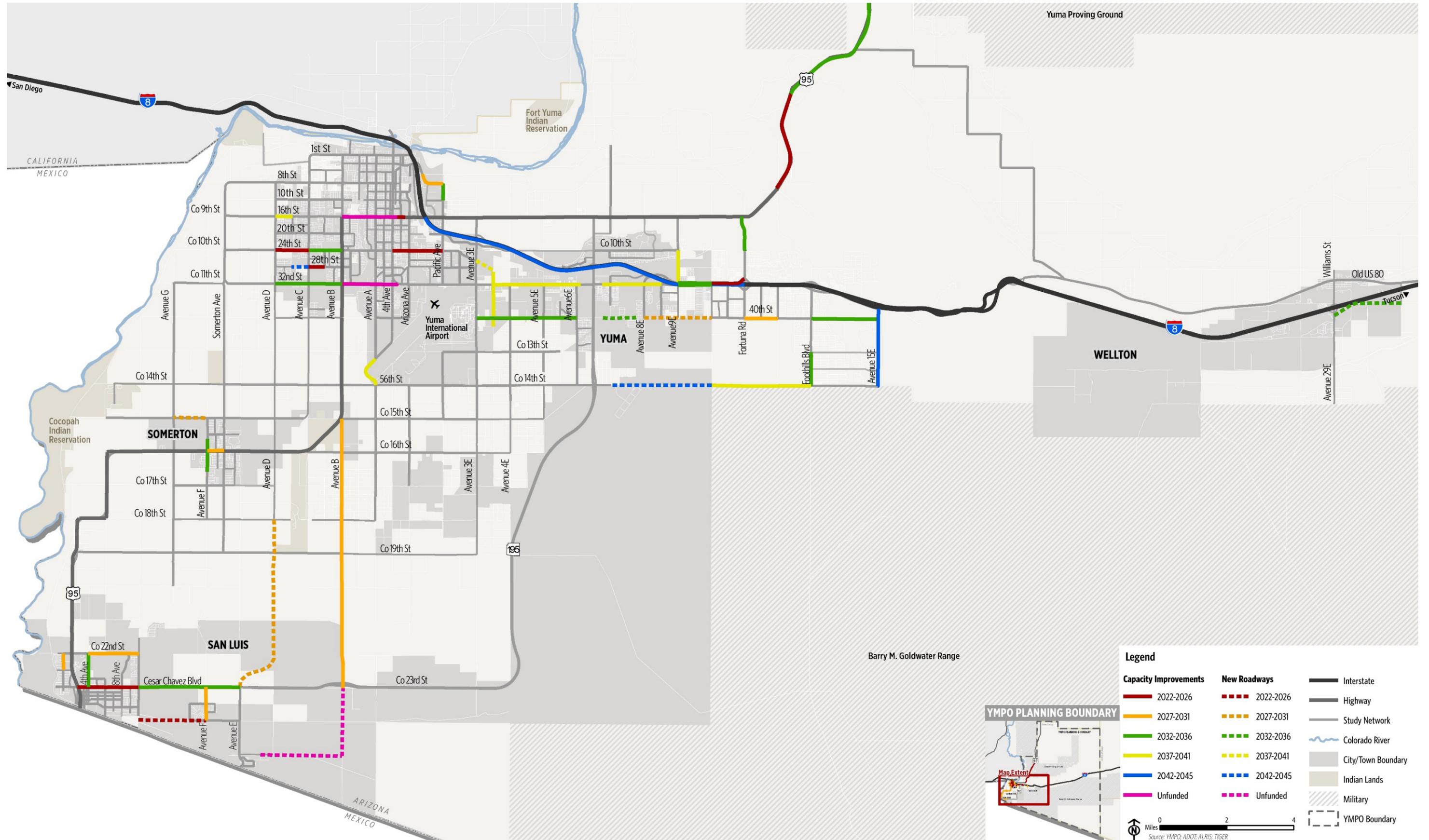


Table 9.8. Pedestrian Improvements by Implementation Phase

ID	Lead Agency	Project	Length (Mi)	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
PED-1	City of Yuma	22nd St Sidewalk Gaps, Ave A to 4th Ave	0.5	Fill sidewalk gaps	X					\$45,000	\$45,000
PED-2	City of Yuma	32nd St Multi-Use Path, Ave A to Ave B	1.0	Construct a 10-foot-wide path along the north side of 32nd St	X					\$600,000	\$600,000
PED-3	City of Yuma	45th Ave Multi Use Path, 28th to 24th St	0.5	Design and construct (2) new 10-foot-wide asphaltic concrete paved multi-use path along the east side of 45th Ave	X					\$330,000	\$330,000
PED-4	City of Yuma	Ave A Sidewalk, 32nd St to 36th St	0.5	Construct sidewalk along the east side of Ave A	X					\$75,000	\$75,000
PED-5	City of Yuma	B 3.7 Lateral Linear Park, 24th St to Palo Verde St	0.5	Construct new multi-use path	X					\$350,000	\$350,000
PED-6	City of Yuma	Pacific Ave Multi-Use Path, River Levee to 8th St	0.6	Construct multi-use path		X				\$250,000	\$340,215
PED-7	City of Yuma	12th St Sidewalk, Ave B to E. Main Canal	0.7	Construct sidewalks		X				\$50,000	\$68,043
PED-8	City of Yuma	16th St Sidewalk Gaps, 45th Ave to W City Limit	0.5	Fill sidewalk gaps		X				\$40,000	\$54,434
PED-9	City of Yuma	24th St Sidewalk Gaps, Ave C to Ave D	1.0	Fill sidewalk gaps		X				\$50,000	\$68,043
PED-10	City of Yuma	24th St Sidewalks, Ave B to 33rd Dr	0.5	Construct sidewalks		X				\$125,000	\$170,108
PED-11	City of Yuma	Ave C Sidewalks, 24th St to 26th St	0.2	Construct sidewalks		X				\$30,000	\$40,826
PED-12	City of Yuma	32nd St Multi-Use Path, Arizona Ave to Pacific Ave	1.0	Construct multi-use path		X				\$600,000	\$816,517
PED-13	City of Yuma	16th St Multi-Use Path, Ave B to Ave C	1.0	Construct multi-use path		X				\$600,000	\$816,517
PED-14	City of Yuma	Pacific Ave Sidewalk, 16th St to 32nd St	0.6	Fill sidewalk gaps		X				\$450,000	\$612,388
PED-15	City of Yuma	Thacker Lateral Linear Park, W. M Canal to 24th St	2.5	Construct multi-use path		X				\$200,000	\$272,172
										\$3,795,000	\$4,659,264
Unfunded Needs											
PED-16	City of Yuma	24th St Multi-Use Path: Kennedy Ln to East of Mary Ave	0.3	Construct multi-use path							
PED-17	City of Yuma	32nd St Multi-Use Path: Ave 3 1/2E to Ave 8E	4.2	Construct multi-use path							
PED-18	City of Yuma	Ave 6E Multi-Use Path: 46th St to 32nd St	0.8	Construct multi-use path							
PED-19	City of Yuma	Ave A Multi-Use Path: 32nd St to 24th St	1.0	Construct multi-use path							
PED-20	City of Yuma	Pacific Ave Multi-Use Path: 32nd St to County 9th St	2.0	Construct multi-use path							
PED-21	City of Yuma	Redondo Center Dr Multi-Use Path: 16th St to Giss Pkwy	1.6	Construct multi-use path							
PED-22	City of Yuma	32nd St Multi-Use Path: Ave A to 32nd St	0.7	Construct multi-use path							
PED-23	Town of Somerton	Somerton Ave Sidewalk: Garvin St to Main St	0.5	Construct sidewalks							
PED-24	Town of Somerton	Somerton Ave Sidewalk: George St to Palo Verde St	0.5	Construct sidewalks							
PED-25	Town of Somerton	North Somerton Canal (Ave E) Sidewalk: Main St to Jefferson St	0.7	Construct multi-use path							
PED-26	Town of Somerton	County 17th St Sidewalk: Main Drain to Somerton Ave	1.0	Construct sidewalks							
PED-27	Town of Somerton	Somerton Ave Sidewalk: Main St to County 17th St	0.5	Construct sidewalks							
PED-28	Town of Somerton	Somerton Ave Sidewalk: Palo Verde St to County 15th St	0.4	Construct sidewalks							
PED-29	Yuma County	County 12th St Sidewalk: Ave 10E to Ave 11E	1.0	Construct sidewalks							
PED-30	Yuma County	Frontage Rd Sidewalk: Ave 10E to Ave 11E	1.0	Construct sidewalks							
PED-31	Yuma County	Yuma Main Drain (Ave F 1/2) Sidewalk: Main St to County 15th St	1.0	Construct sidewalks							
PED-32	Yuma County	County 15th St Sidewalk: Main Drain to Ave E	1.5	Construct sidewalks							
PED-33	Yuma County	32nd St Sidewalk: Ave 3E to Ave 3 1/2E	0.5	Construct sidewalks							
PED-34	Yuma County	24th St Sidewalk: Ave C to Ave B	0.5	Construct sidewalks							
PED-35	Yuma County	8th St Sidewalk: Ave D to Ave C	1.0	Construct sidewalks							
PED-36	Yuma County	Canal Path Multi-Use Path: 40th St to Ave B	2.0	Construct multi-use path							
PED-37	City of Yuma	Frontage Rd Sidewalk: Ave 8 1/2 E to Ave 15E	6.7	Construct sidewalks							
PED-38	City of San Luis	Canal Path Multi-Use Path: US Hwy 95 to 8th Ave	1.8	Construct multi-use path							

Table 9.9. Multimodal Crossing Improvements by Implementation Phase

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
PEDC -1	City of Yuma	East Main Canal Linear Park Trail 32nd St Connection	Construct pedestrian bridge	X					\$375,000	\$375,000
PEDC-2	City of Yuma	West Main Canal Linear Park, Crossing at 1st St	Install high visibility crossing	X					\$30,000	\$30,000
PEDC-3	City of Yuma	East Main Canal Linear Park, Crossing at 24th St	Upgrade the crossing with improved crosswalk markings, and add wayfinding marking and signage for bicyclists and pedestrians. Additional evaluation may support enhancing the scope to include pedestrian refuge and HAWK signal.		X				\$150,000	\$204,129
PEDC-4	City of Yuma	East Main Canal Linear Park, Crossing at 8th St	Upgrade crossing		X				\$25,000	\$34,022
PEDC-5	City of Yuma	East Main Canal Linear Park, Ped Bridge 12th St Align	Construct pedestrian bridge		X				\$100,000	\$136,086
PEDC-6	City of Yuma	3rd St/6th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs			X			\$6,000	\$10,175
PEDC-7	City of Yuma	12th St/1st Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs			X			\$12,000	\$20,351
PEDC-8	City of Yuma	18th St/4th St	Proposed high visibility crosswalks along with advance pedestrian warning signs			X			\$12,000	\$20,351
PEDC-9	City of Yuma	20th Pl/4th St	Proposed high visibility crosswalks along with advance pedestrian warning signs			X			\$9,000	\$15,263
PEDC-10	City of Yuma	Ave A/20th St	Proposed high visibility crosswalks along with advance pedestrian warning signs			X			\$6,000	\$10,175
PEDC-11	City of Yuma	12th St/4th St	Proposed high visibility crosswalks along with advance pedestrian warning signs			X			\$12,000	\$20,351
PEDC-12	City of Yuma	16th St/Arcadia Ln	Proposed RRFB along with advance pedestrian warning signs				X		\$30,000	\$63,401
PEDC-13	City of Yuma	3rd St from Ave B to 15th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs				X		\$14,000	\$29,587
PEDC-14	City of Yuma	24h St/22nd Dr	Proposed high visibility crosswalk				X		\$4,000	\$8,454
PEDC-15	City of Yuma	24th St/Elks Ave	Proposed high visibility crosswalk along with advance pedestrian warning signs				X		\$7,000	\$14,794
PEDC-16	City of Yuma	Yuma Palms Parkway/Castle Dome Rd	Proposed high visibility crosswalks along with advance pedestrian warning signs				X		\$4,000	\$8,454
PEDC-17	City of Yuma	Country Club Dr/Catalina Dr	Proposed high visibility crosswalks along with advance pedestrian warning signs				X		\$7,000	\$14,794
									\$803,000	\$1,015,385
Unfunded Needs										
PEDC-18	City of San Luis	Juan Sanchez Blvd/4th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs; Proposed sidewalk on both sides (4,200 Feet)						\$240,000	
PEDC-19	City of San Luis	US Hwy 95/North of Beach St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$12,000	
PEDC-20	City of San Luis	Urtuzuastegui St/4th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	
PEDC-21	City of San Luis	US Highway 95 from Estibella Drive to Lankin Drive	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$12,000	
PEDC-22	City of San Luis	Juan Sanchez Blvd/8th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$22,000	
PEDC-23	City of San Luis	B St/4th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$12,000	
PEDC-24	City of San Luis	C St/4th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$12,000	
PEDC-25	City of San Luis	Arizona St/4th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	
PEDC-26	City of San Luis	Union St/4th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	
PEDC-27	City of San Luis	County 22nd St/East of Main St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$7,000	
PEDC-28	City of San Luis	Main St/south of County 22nd St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$12,000	

Table 9.9. Multimodal Crossing Improvements by Implementation Phase (Continued)

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
PEDC-29	City of San Luis	Main St/Archibald St	Install pedestrian bridge or high visibility pedestrian crossing							
PEDC-30	City of San Luis	Union St/McCain Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-31	City of San Luis	Ave F/Los Olivos Way	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-32	City of Yuma	16th St/8th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-33	City of Yuma	3rd St/13th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$12,000	
PEDC-34	City of Yuma	8th St/14th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$10,000	
PEDC-35	City of Yuma	16th St/Canal East of 33rd Dr	Proposed high visibility crosswalks along with advance pedestrian warning signs for canal path						\$9,000	
PEDC-36	City of Yuma	12th St/Yuma Palms Regional Center Entrance	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$9,000	
PEDC-37	City of Yuma	10th St/1st Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$10,000	
PEDC-38	City of Yuma	14th St/1st Ave	Proposed RRFB along with advance pedestrian warning signs						\$25,000	
PEDC-39	City of Yuma	5th St/1st Ave	Proposed RRFB along with advance pedestrian warning signs						\$12,000	
PEDC-40	City of Yuma	8th St/1st Ave	Proposed RRFB along with advance pedestrian warning signs						\$8,000	
PEDC-41	City of Yuma	1st St/1st Ave	Proposed RRFB along with advance pedestrian warning signs						\$7,000	
PEDC-42	City of Yuma	3rd St/1st Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-43	City of Yuma	30th St/21st Dr	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$9,000	
PEDC-44	City of Yuma	28th St/23rd Dr	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$16,000	
PEDC-45	City of Yuma	32nd St/Crest Drive	Proposed RRFB along with advance pedestrian warning signs						\$29,000	
PEDC-46	City of Yuma	17th St/4th St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$17,000	
PEDC-47	City of Yuma	20th St/4th St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-48	City of Yuma	10th St/Ave A	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	
PEDC-49	City of Yuma	Ave A/14th St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	
PEDC-50	City of Yuma	Ave A/22nd St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$11,000	
PEDC-51	City of Yuma	Ave B/Immaculate Conception Catholic Church	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-52	City of Yuma	24th St/31st Ave	Proposed RRFB along with advance pedestrian warning signs						\$9,000	
PEDC-53	City of Yuma	1st St/Ave B	Proposed high visibility crosswalk						\$2,000	
PEDC-54	City of Yuma	22nd St/Arizona Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-55	City of Yuma	Ave A/28th St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-56	City of Yuma	24th St/37th St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-57	City of Yuma	32nd St/Country Rd Blvd	Proposed RRFB along with advance pedestrian warning signs						\$29,000	
PEDC-58	City of Yuma	32nd St/Shortway	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$9,000	
PEDC-59	City of Yuma	Ave A/18th St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	
PEDC-60	City of Yuma	North of 12th St/Ave B	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-61	City of Yuma	14th St/Ave C	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	
PEDC-62	City of Yuma	18th St/Ave C	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$6,000	

Table 9.9. Multimodal Crossing Improvements by Implementation Phase (Continued)

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
PEDC-63	City of Yuma	San Marco Dr/Pacific Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$4,000	
PEDC-64	City of Yuma	24th St/East of 34th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs for canal path						\$9,000	
PEDC-65	City of Yuma	32nd St/E of 30th St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-66	City of Yuma	1st St/Maiden ST	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-67	City of Yuma	24 th St /6th Ave	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$9,000	
PEDC-68	City of Yuma	26th St/4th Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$12,000	
PEDC-69	City of Yuma	Ave A: Southwest Medical Center Between 24th St and 32nd St	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-70	City of Yuma	Ave A/Westride Dr	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-71	City of Yuma	Shilo Hotel/Castle Dome Rd	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$7,000	
PEDC-72	City of Yuma	24th St/Melody Ln	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$9,000	
PEDC-73	City of Yuma	24th St at AWC Entrance/Tamarack Center	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$9,000	
PEDC-74	City of Yuma	24th St/College Ave	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$4,000	
PEDC-75	City of Yuma	County 10th St/Vista de Castillo Ave	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$4,000	
PEDC-76	City of Yuma	24th St/Engler Ave	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$4,000	
PEDC-77	City of Yuma	32nd St/Fortuna Ave	Proposed RRFB along with advance pedestrian warning signs						\$29,000	
PEDC-78	City of Yuma	32nd St/East of Ave 4E	Proposed RRFB along with advance pedestrian warning signs						\$29,000	
PEDC-79	City of Yuma	30th St/Ave 9E	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$14,000	
PEDC-80	City of Yuma	1st Ave/Catalina Dr	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$7,000	
PEDC-81	City of Yuma	Walmart/Pacific Ave	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$4,000	
PEDC-82	City of Yuma	24th St/West of Mary Ln	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-83	City of Yuma	Ave 9E/Araby Blaisdell Rd	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-84	City of Yuma	8th St from Ave D to Ave C	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-85	City of Yuma	24th St/Ave 1/2	Proposed high visibility crosswalk along with advance pedestrian warning signs						\$9,000	
PEDC-86	City of Yuma	Palo Verde St/Ave 3E	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	
PEDC-87	City of Yuma	County 10th St/View Parkway	Proposed high visibility crosswalks along with advance pedestrian warning signs						\$9,000	

Figure 9.4. Pedestrian Improvement Projects by Implementation Phase

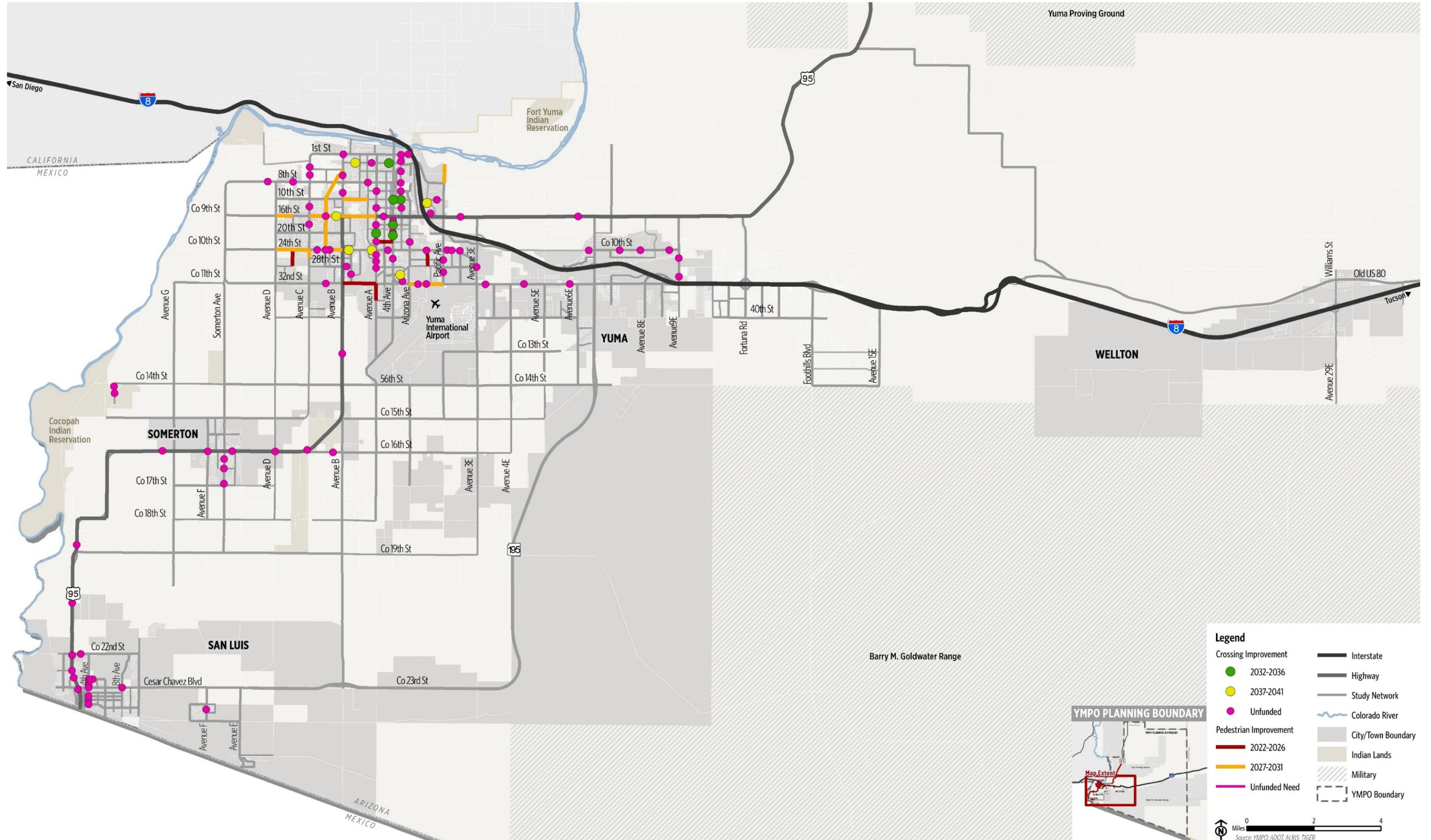


Table 9.10. Bicycle Improvement Projects by Implementation Phase

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
BIKE-1	City of San Luis	C St Bike Route	Install signage and Sharrow markings				X		\$3,250	\$6,868.47
BIKE-2	City of Yuma	14th Ave Bike Route	Install Sharrow				X		\$3,000	\$6,340.13
BIKE-3	City of Yuma	1st Ave Bike Route	Install Sharrow				X		\$3,000	\$6,340.13
BIKE-4	City of Yuma	Ave B Bike Route	Install Sharrow				X		\$3,000	\$6,340.13
BIKE-5	City of Yuma	24th St Bike Route	Install Sharrow				X		\$3,000	\$6,340.13
BIKE-6	Somerton	County 15th St Bike Route	Install signage and striping for bike lanes/presence of bikes				X		\$10,000	\$21,133.77
BIKE-7	City of San Luis	County 22nd St Bike Route	Install signage and Sharrow marking (8,448 feet)					X	\$10,415	\$27,429.49
BIKE-8	City of San Luis	Cesar Chavez Blvd Bike Route	Install signage and striping along west side of Main St; Install Sharrow marking on the pavements for shared bike and car lanes for north directions					X	\$15,000	\$39,504.78
BIKE-9	City of San Luis	US Hwy 95 Bike Route	Restripe and add bike lanes along Main St; Install signage and striping					X	\$42,500	\$111,930.21
BIKE-10	City of Yuma	Castle Dome Ave Bike Route	Install Sharrow					X	\$3,000	\$7,900.96
BIKE-11	City of Yuma	8th St Bike Lanes	Install bike lanes					X	\$3,000	\$7,900.96
BIKE-12	City of Yuma	Ave B Bike Route	Install Sharrow					X	\$3,000	\$7,900.96
BIKE-13	City of Yuma	Madison Ave Bike Route	Install signage and Sharrow Marking					X	\$7,500	\$19,752.39
BIKE-14	City of Yuma	19th Ave Bike Route	Install Sharrow					X	\$3,000	\$7,900.96
BIKE-15	City of Yuma	Magnolia Ave Bike Route	Install Sharrow					X	\$3,000	\$7,900.96
BIKE-16	City of Yuma	Palo Verde St Bike Route	Install Sharrow					X	\$3,000	\$7,900.96
BIKE-17	City of Yuma	16th St Bike Route	Install Sharrow					X	\$3,000	\$7,900.96
BIKE-18	City of Yuma	4th Ave Shoulder Widening	Install signage and striping from 4th Ave to Prison Hill Rd; Install 6-foot-wide shoulder from Prison Hill Rd to Pacific Ave					X	\$136,000	\$358,176.67
BIKE-19	City of Yuma	12th St Bike Route	Install Sharrow					X	\$3,000	\$7,900.96
BIKE-20	Yuma County	County 8th St Bike Route	Install Sharrow (10,560 Feet)					X	\$15,000	\$39,504.78
BIKE-21	Yuma County	County 16th St/Main St Bike Route	Install signage and striping for bike lanes/presence of bikes					X	\$10,000	\$26,336.52
Unfunded Need										
BIKE-22	ADOT	Ave E Bike Route	Install signage and striping for bike lanes/presence of bikes; Six Dynamic speed feedback signs						\$135,500	
BIKE-23	City of San Luis	County 22nd St Bike Route	Install signage and Sharrow markings						\$7,500	
BIKE-24	City of San Luis	Cesar Chavez Blvd Bike Route	Install signage and Sharrow marking (8,976 feet)						\$11,050	
BIKE-25	City of San Luis	County 22nd St Bike Route	Install signage and Sharrow marking (8,976 feet)						\$11,050	
BIKE-26	City of San Luis	County 23rd St Shoulder Widening	Install signage and Sharrow markings; Install 6' shoulder from County 24th St to Juan Sanchez Blvd (10,560 feet)						\$269,000	
BIKE-27	City of San Luis	County 23rd St Bike Route	Install signage and Sharrow markings						\$7,500	
BIKE-28	City of San Luis	Main St Bike Route	Install signage and Sharrow markings						\$2,000	
BIKE-29	City of San Luis	Cesar Chavez Blvd Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (19,200 feet); Install signage and striping						\$480,000	
BIKE-30	City of San Luis	US Hwy 95 Bike Route	Install signage and Sharrow markings						\$3,250	
BIKE-31	City of San Luis	10th Ave Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (31,680 feet); Install signage and striping						\$264,000	
BIKE-32	City of San Luis	Ave E Bike Route	Install signage and striping; Install shoulder on County 24th St both directions 10,560 feet						\$269,000	
BIKE-33	City of San Luis	Main St Bike Route	Install signage and Sharrow markings						\$3,250	
BIKE-34	City of San Luis	4th Ave Bike Route	Install signage and Sharrow marking (9,350 feet)						\$11,700	
BIKE-35	City of Yuma	14th Ave Bike Route	Install Sharrow						\$3,000	
BIKE-36	City of Yuma	16th St Bike Route	Install Sharrow						\$3,000	
BIKE-30	City of San Luis	US Hwy 95 Bike Route	Install signage and Sharrow markings						\$3,250	
BIKE-31	City of San Luis	10th Ave Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (31,680 feet); Install signage and striping						\$264,000	
BIKE-32	City of San Luis	Ave E Bike Route	Install signage and striping; Install shoulder on County 24th St both directions 10,560 feet						\$269,000	
BIKE-33	City of San Luis	Main St Bike Route	Install signage and Sharrow markings						\$3,250	

Table 9.10. Bicycle Improvement Projects by Implementation Phase (Continued)

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
BIKE-37	City of Yuma	Ave D Bike Lanes	Install bike lanes						\$3,000	
BIKE-38	City of Yuma	Pacific Ave Bike Route	Install Sharrow						\$3,000	
BIKE-39	City of Yuma	Parkview Loop Rd Bike Lanes	Install bike lanes						\$3,000	
BIKE-40	City of Yuma	Araby Rd Bike Route	Install Sharrow						\$3,000	
BIKE-41	City of Yuma	Ave A Bike Route	Install Sharrow						\$3,000	
BIKE-42	City of Yuma	West of Ave C Bike Route	Install Sharrow						\$3,000	
BIKE-43	City of Yuma	Ave A Bike Route	Install Sharrow						\$3,000	
BIKE-44	City of Yuma	Ave A Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (18,480 Feet); Install signage and striping						\$470,750	
BIKE-45	City of Yuma	Airport Loop Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (25,872 Feet); Install signage and striping						\$659,050	
BIKE-46	City of Yuma	22nd St Bike Lanes	Install bike lanes						\$3,000	
BIKE-47	City of Yuma	32nd St Bike Lanes	Install bike lanes						\$3,000	
BIKE-48	City of Yuma	12th St Bike Route	Install Sharrow						\$3,000	
BIKE-49	City of Yuma	32nd St Bike Lanes	Install bike lanes						\$3,000	
BIKE-50	City of Yuma	16th St Bike Route	Install signage and Sharrow markings						\$37,500	
BIKE-51	City of Yuma	32nd St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 Feet); Install signage and striping						\$269,000	
BIKE-52	City of Yuma	32nd St Bike Route	Install Sharrow						\$3,000	
BIKE-53	City of Yuma	County 12th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 feet); Install signage and striping						\$269,000	
BIKE-54	City of Yuma	32nd St Bike Route	Install Sharrow						\$3,000	
BIKE-55	City of Yuma	County 12th St Bike Route	Install Sharrow						\$3,000	
BIKE-56	City of Yuma	County 14th St Bike Route	Install Sharrow						\$3,000	
BIKE-57	City of Yuma	County 14th St Bike Route	Install Sharrow						\$3,000	
BIKE-58	City of Yuma	Ave B Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (23,760 Feet); Install signage and striping						\$619,000	
BIKE-59	City of Yuma	32nd St Shoulder Widening	Roadway widen and install bike lane (2 miles)						\$2,122,000	
BIKE-60	City of Yuma	16th St Shoulder Widening	Widen roadway and install bike lanes (2 miles)						\$2,122,000	
BIKE-61	City of Yuma	Ave 3E Bike Route	Install Sharrow						\$3,000	
BIKE-62	City of Yuma	Ave 3E Bike Route	Install Sharrow						\$3,000	
BIKE-63	City of Yuma	Ave 5E Bike Route	Install Sharrow						\$3,000	
BIKE-64	City of Yuma	Pacific Ave Bike Route	Install Sharrow						\$3,000	
BIKE-65	City of Yuma	Ave 2 1/2 Bike Route	Install Sharrow						\$3,000	
BIKE-66	City of Yuma	Ave 6E Bike Route	Install Sharrow						\$3,000	
BIKE-67	City of Yuma	County 14th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,240 Feet) Install signage and striping						\$1,076,000	
BIKE-68	City of Yuma	Ave A Bike Route	Install Sharrow						\$3,000	
BIKE-69	Town of Wellton	County 12th St Bike Route	Install Sharrow						\$3,000	
BIKE-70	Yuma County	Ave D Bike Route	Install signage and striping; Install shoulder from Ave D to 45th Ave (5,350 feet)						\$137,000	
BIKE-71	Yuma County	Somerton Ave Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 Feet); Install signage and striping						\$269,000	
BIKE-72	Yuma County	Somerton Ave Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (21,120 Feet); Install signage and striping						\$538,000	
BIKE-73	Yuma County	Ave G Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (32,525 feet); Install signage and striping						\$829,000	
BIKE-74	Yuma County	Ave D Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (32,525 feet); Install signage and striping						\$947,000	
BIKE-75	Yuma County	Pacific Ave Shoulder Widening	Install 2-foot-wide shoulder along both sides of the roadway (10,560 Feet) Install signage and striping						\$269,000	
BIKE-76	Yuma County	Foothills Blvd Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 Feet); Install signage and striping						\$538,000	

Table 9.10. Bicycle Improvement Projects by Implementation Phase (Continued)

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
BIKE-77	Yuma County	56th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (23,760 Feet); Install signage and striping						\$619,000	
BIKE-78	Yuma County	32nd St Bike Route	Install Sharrow						\$3,000	
BIKE-79	Yuma County	County 10th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 feet); Install signage and striping						\$269,000	
BIKE-80	Yuma County	County 14th St Bike Route	Install Sharrow						\$3,000	
BIKE-81	Yuma County	56th St Bike Lanes	Install bike lanes						\$3,000	
BIKE-82	Yuma County	County 4th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (5,280 Feet); Install signage and striping						\$134,500	
BIKE-83	Yuma County	County 6th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (21,120 Feet); Install signage and striping						\$538,000	
BIKE-84	Yuma County	County 7th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 Feet); Install signage and striping						\$269,000	
BIKE-85	Yuma County	Old US 80 Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (33,264 Feet); Install signage and striping						\$847,350	
BIKE-86	Yuma County	County 6th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 feet); Install signage and striping						\$269,000	
BIKE-87	Yuma County	County 5th St Bike Route	Install Sharrow						\$3,000	
BIKE-88	Yuma County	County 14th St Shoulder Widening	Install shoulder and signage and striping						\$240,000	
BIKE-89	Yuma County	County 19th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,768 feet); Install signage and striping						\$1,089,450	
BIKE-90	Yuma County	County 15th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 feet); Install signage and striping						\$269,000	
BIKE-91	Yuma County	County 10th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (36,960 feet); Install signage and striping						\$941,500	
BIKE-92	Yuma County	County 16th St Bike Route	Install Sharrow						\$3,000	
BIKE-93	Yuma County	County 14th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (31,680 feet); Install signage and striping						\$807,000	
BIKE-94	Yuma County	County 15th St Bike Route	Install Sharrow						\$3,000	
BIKE-95	Yuma County	County 14th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (31,680 feet); Install signage and striping						\$807,000	
BIKE-96	Yuma County	County 14th St Bike Route	Install Sharrow						\$3,000	
BIKE-97	Yuma County	County 16th St/ Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (21,120 Feet); Install signage and striping						\$538,000	
BIKE-98	Yuma County	SR 195 Bike Route	Install Sharrow						\$3,000	
BIKE-99	Yuma County	County 15th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (31,680 feet); Install signage and striping						\$807,000	
BIKE-100	Yuma County	County 15th St Bike Route	Install Sharrow						\$3,000	
BIKE-101	Yuma County	56th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (21,120 Feet); Install signage and striping						\$538,000	
BIKE-102	Yuma County	County 12th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway from County 12th St to County 10th St (21,120 Feet); Install signage and striping; Install Sharrow from County 9th St to 1st St						\$560,000	
BIKE-103	Yuma County	County 18th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (63,677 feet); Install signage and striping						\$1,345,000	
BIKE-104	Yuma County	County 12th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,663 feet); Install signage and striping						\$1,087,000	
BIKE-105	Yuma County	County 19th St Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (84,796 feet); Install signage and striping						\$2,160,070	
BIKE-106	Yuma County	Ave D Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (21,120 Feet); Install signage and striping						\$538,000	
BIKE-107	Yuma County	Fortuna Rd Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (25,344 feet); Install signage and striping						\$645,000	
BIKE-108	Yuma County	Ave 3E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (31,680 feet); Install signage and striping						\$807,000	

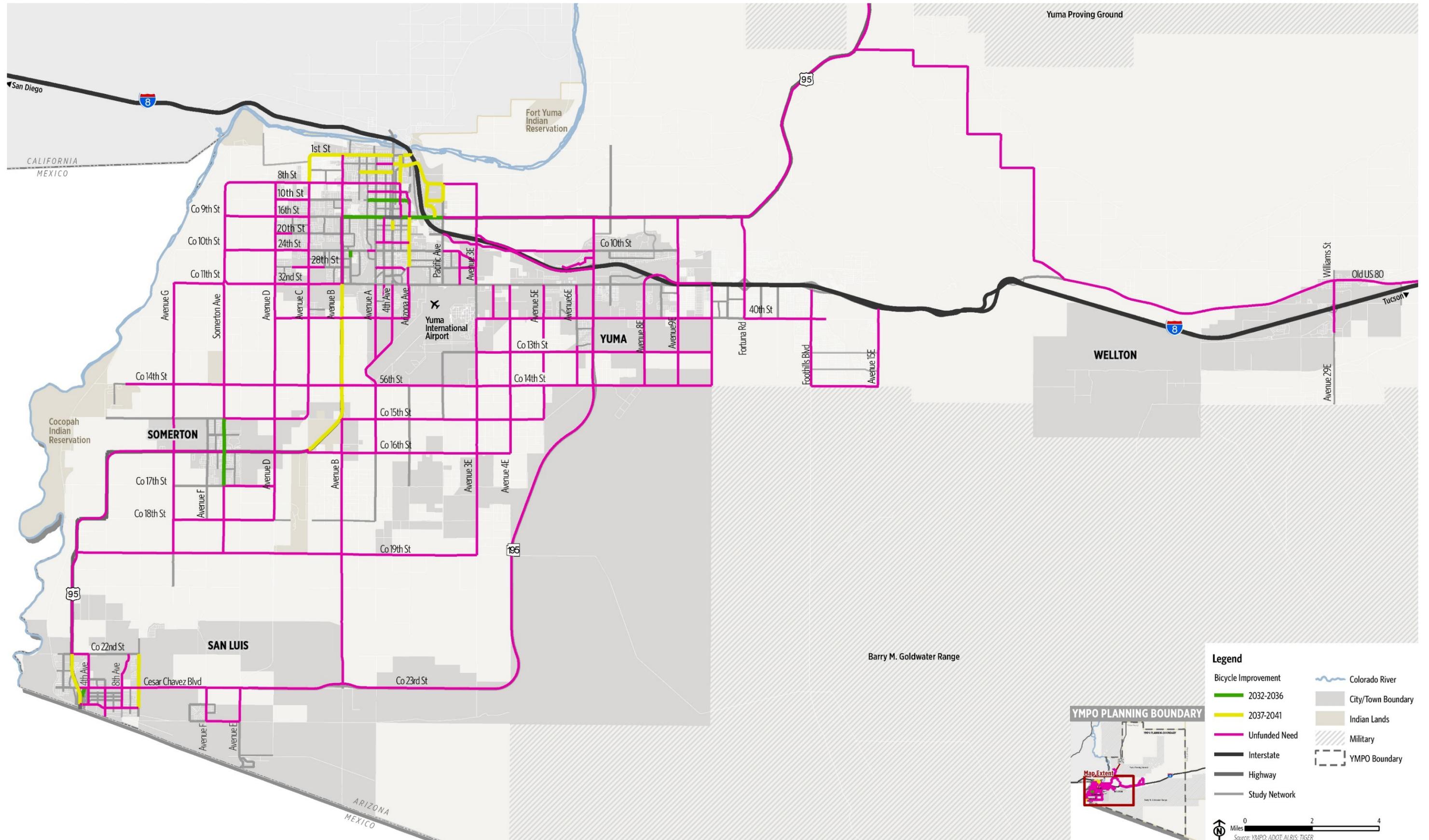
Table 9.10. Bicycle Improvement Projects by Implementation Phase (Continued)

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
BIKE-109	Yuma County	Ave 3E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (31,680 feet); Install signage and striping						\$807,000	
BIKE-110	Yuma County	Farm Rd Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (34,320 Feet); Install signage and striping						\$874,250	
BIKE-111	Yuma County	Ave 5E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,240 Feet) Install signage and striping						\$1,076,000	
BIKE-112	Yuma County	Somerton Ave Bike Route	Install Sharrow						\$3,000	
BIKE-113	Yuma County	Ave B Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,240 Feet); Install signage and striping						\$1,076,000	
BIKE-114	Yuma County	Ave 3E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (21,120 Feet); Install signage and striping						\$538,000	
BIKE-115	Yuma County	Ave G Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway from Ave G to 5,000 feet east; Install signage and striping, and sharrow marking						\$1,371,900	
BIKE-116	Yuma County	Ave 3E Bike Route	Install Sharrow						\$3,000	
BIKE-117	Yuma County	County 19th St Bike Route	Install Sharrow						\$3,000	
BIKE-118	Yuma County	County 19th St Bike Route	Install signage and striping; Install shoulder from Ave D to 45th Ave (5,350 feet)						\$137,000	
BIKE-119	Yuma County	Ave G Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 feet); Install signage and striping						\$269,000	
BIKE-120	Yuma County	Main St Shoulder Widening	Install shoulder along both sides of the roadway (83,424 feet); Install signage and striping						\$2,085,600	
BIKE-121	Yuma County	County 19th St Bike Route	Install shoulder along both sides of the roadway (21,650 feet); Install signage and striping						\$541,500	
BIKE-122	Yuma County	Ave B Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,665 feet); Install signage and striping						\$1,086,760	
BIKE-123	Yuma County	US Hwy 95 Bike Route	Install Sharrow						\$3,000	
BIKE-124	Yuma County	Ave 39E Bike Route	Install Sharrow						\$3,000	
BIKE-125	Yuma County	Ave 18E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (18,480 Feet); Install signage and striping						\$471,000	
BIKE-126	Yuma County	Ave 38E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 feet); Install signage and striping						\$269,000	
BIKE-127	Yuma County	Mohave Valley Rd Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 feet); Install signage and striping						\$269,000	
BIKE-128	Yuma County	Ave 19E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 Feet); Install signage and striping						\$269,000	
BIKE-129	Yuma County	Dome Valley Rd Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (10,560 Feet); Install signage and striping						\$269,000	
BIKE-130	Yuma County	Ave D Bike Route	Install Sharrow						\$3,000	
BIKE-131	Yuma County	Somerton Ave Bike Route	Install Sharrow						\$3,000	
BIKE-132	Yuma County	Pacific Ave Bike Route	Install signage and striping; Install shoulder along south side of 16th St from Ave 2 ¼ to Ave 3E						\$86,000	
BIKE-133	Yuma County	Old US 80 Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,240 Feet); Install signage and striping						\$1,076,000	
BIKE-134	Yuma County	56th St Bike Lanes	Install bike lanes						\$3,000	
BIKE-135	Yuma County	County 12th St Bike Route	Install signage and striping, and Sharrow marking						\$30,000	
BIKE-136	Yuma County	Ave 3E Bike Route	Install signage and striping, and Sharrow marking in urban section						\$25,000	
BIKE-137	Yuma County	32nd St Bike Route	Install Sharrow						\$3,000	
BIKE-138	Yuma County	County 19th St Bike Route	Install signage and striping for bike lanes/presence of bikes						\$25,000	
BIKE-139	Yuma County	US Hwy 95 Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (15,840 feet); Install signage and striping						\$403,500	
BIKE-140	Yuma County	Dome Valley Rd Bike Route	Install Sharrow						\$3,000	

Table 9.10. Bicycle Improvement Projects by Implementation Phase (Continued)

ID	Lead Agency	Project	Project Description	2022-2026	2027-2031	2032-2036	2037-2041	2042-2045	Cost	Cost at Year of Expenditure (YOE)
BIKE-141	Yuma County	Dome Ave Bike Route	Install Sharrow						\$3,000	
BIKE-142	Yuma County	Ave 31E Bike Route	Install Sharrow						\$3,000	
BIKE-143	Yuma County	Ave 36E Bike Route	Install Sharrow						\$3,000	
BIKE-144	Yuma County	Ave 29E Bike Route	Install Sharrow (5,280 Feet)						\$7,500	
BIKE-145	Yuma County	County 15th St Shoulder Widening	Install 6-foot-wide shoulder; Install signage and striping						\$1,848,000	
BIKE-146	Yuma County	North of County 19th St Bike Route	Install signage and striping for bike lanes/presence of bikes						\$25,000	
BIKE-147	Yuma County	Ave 3E Shoulder Widening	Improve shoulder for 4 miles, add 2 more feet on each side; Install signage and striping						\$548,000	
BIKE-148	Yuma County	Fortuna Rd Bike Route	Install signage and striping for bike lanes/presence of bikes						\$52,500	
BIKE-149	Yuma County	County 22nd St Bike Route	Install signage and striping for bike lanes/presence of bikes						\$15,000	
BIKE-150	Yuma County	Ave B Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (18,480 Feet); Install signage and striping						\$470,750	
BIKE-151	Yuma County	Ave D Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (63,888 Feet); Install signage and striping						\$1,628,000	
BIKE-152	Yuma County	Ave 3E Shoulder Widening	Install 6-foot-wide shoulder along both sides of the roadway (42,240 Feet) Install signage and striping						\$1,076,000	
BIKE-153	Yuma County	County 14th St Bike Route	Install Sharrow						\$3,000	

Figure 9.5. Bicycle Improvement Projects by Implementation



Legend

Bicycle Improvement	Colorado River
2032-2036	City/Town Boundary
2037-2041	Indian Lands
Unfunded Need	Military
Interstate	YMPO Boundary
Highway	
Study Network	

0 2 4 Miles
Source: YMPO, ADOT, ALRIS, TIGER

Transit Improvement Projects

The YMPO/YCIPTA Short-Range Transit Plan developed a phased five-year transition plan to redesign existing transit services to better respond to the mobility expectations and preferences of Yuma region residents, employees, and visitors. The plan includes targeted and system redesign improvements for implementation through 2026. **Table 9.11** provides a listing of the cost feasible projects recommended from the YMPO/YCIPTA Short-Range Transit Plan.

Table 9.11. Transit Projects by Implementation Phase

Project	Project Description	2022-2023	2023-2024	2024-2025	2025-2026	Cost
Orange 2 FLEX Zone Modification	FLEX Zone Modification	X				\$0
Green 4A Catalina Loop Conversion from Fixed Route to FLEX	Convert Catalina Loop from fixed route to FLEX deviation	X				\$0
Green 4A Catalina Loop	School Day Capacity Increase	X				\$0
Bus Stop Improvements	Preferred Service Plan Improvement: 10 bus shelters/bus stop amenities	X				\$250,000
Vehicle Replacement	Replace Vehicles #150, #151, #152 & #153	X				\$1,320,000
Blue 5 and Turquoise 10 – Schedule Coordination	Schedule Coordination		X			\$29,563
Blue 5 Improved Headway	Improving the Blue 5 headway to the Andrade Port of Entry to hourly (currently every two hours)		X			\$0
Turquoise 10	Add Tuesday and Thursday service		X			\$49,272
4 th Ave: Reroute Purple 6	Between Avenue A to 4 th Avenue		X			\$0
4 th Ave: Add bus to Yellow 95 - Weekdays	Downtown Yuma Transit Center (DYTC) to West Yuma Transfer Hub (WYTH)		X			\$249,316
4 th Ave: Add bus to Yellow 95 Saturdays	Downtown Yuma Transit Center (DYTC) to West Yuma Transfer Hub (WYTH)		X			\$34,162
US 95 South Corridor Service – Improve Cocopah Headways	Adds 1 bus south of WYTH		X			\$262,677
Discontinue Silver 9	Replaced by Yellow 95 - Orange 2 connection at WYTH		X			-\$90,332
East County Redesign - Gold 2X Express	Redesign Gold 8			X		\$41,603
Blue 5 FLEX Microtransit Feeder	Subsidize max 25 one-way trips up to \$5.00			X		\$38,375
Quechan PMoD	On demand shared ride taxi service direct on Reservation			X		\$153,500
Reroute Orange 2	1 bus on hourly headway				X	\$0
Restructure Green 4/4A	2 buses on hourly headway				X	\$0
New Red 7	1 bus on hourly headway (Adds 1 bus)				X	\$283,478
US 95 South Corridor Service – Integrated Schedule	Reschedule Purple 6 and Yellow 95				X	\$0
Cocopah FLEX Deviation Capacity	Convert fixed route to deviation				X	\$0
East County Redesign - Orange 2 Local	Foothills Branch Library to WYTH via Campus				X	\$0
East County Redesign - FLEX Microtransit Feeder	Subsidize max 25 one-way trips up to \$5.00				X	\$76,750

Aviation Improvement Projects

This section discusses revenues and capital improvements planned for **Yuma International Airport (YIA)** and Rolle Field. The YCAA governs these airports. Planned improvements are based on information in the Airport Program section of the ADOT **2019-2023** Five-Year Transportation Facilities Construction Program. This short-term planning horizon covers items of the highest priority. These items are coordinated with ADOT on a yearly basis, when the Five-Year Airport Capital Improvement Program (ACIP) information is **updated**, and potential funding sources and priorities are assigned to individual projects. Each year, YIA and Rolle Field re-examine the priorities for funding in the short-term period, bringing projects which were originally included in intermediate or long-term planning horizons onto the FAA's or ADOT's capital programming list. While some projects are demand-based, others are based on design standards, safety, or rehabilitation needs.

The current Master Plan for Yuma International Airport was completed in 2009 and is currently in the process of being updated. The objective of the "Shared-Use" Airfield Master Plan for the Yuma International Airport (NYL) and Marine Corps Air Station, Yuma (MCAS) is to provide the community, public officials, MCAS and the Yuma County Airport Authority (YCAA) with proper guidance for future development at NYL to satisfy military, commercial airline and general aviation demands and be wholly compatible with the environment. The draft Master Plan is scheduled for completion at the end of 2021. Preliminary study findings have found a variety for the Airport including:

- MCAS Yuma may extend Runway 03R/21L and decouple with Runway 08/26.
- Decouple the thresholds for Runway 08 and Runway 17 intersections.
- Resurface Runway 17/35 for pavement repair.
- Widen taxiways to GA facilities northwest of Runway 03L/21R to accommodate ADG III aircraft activity.
- Construct a full-length parallel taxiway northwest of Runway 03L/21R.
- Conduct terminal expansion programs based upon airline and passenger activity levels.
- Conduct a review of Public Parking fee structure.
- Address the public stall deficits.
- Implement employee rideshare/regional transit program and relocate employee parking.

Yuma International Airport/Marine Corps Air Station (MCAS)

MCAS-Yuma and the YCAA work together under a Joint Use Agreement, which has provided the opportunity to develop a single airfield master plan that supports the aviation vision of both airfield users. Additionally, it binds both to develop in compliance with an agreed master plan.

Yuma International Airport Revenue Sources

YCAA has access to various sources of funding—a mix of FAA funding, State funding, Passenger Facility Charge (PFC) revenues, Customer Facility Charge (CFC) revenues, private funds, and Airport funds. The Federal Aviation Administration (FAA), ADOT, and local shares are based on a 91.06%, 4.47%, 4.47% ratio. Currently, the FAA share in Arizona is 91.06%. ADOT matches one-half of the local share on FAA projects.

Rolle Field

Rolle Field Revenue Sources Currently funding for Rolle Field is based primarily on ADOT and local sources. To be eligible for Federal Airport Improvement Program funds, an airport must be in the National Plan of Integrated Airport Systems (NPIAS), which is a federal planning document that defines the service level and role of all airports in the federal airport system. Currently, Rolle Field does not meet eligibility guidelines to be included in the NPAIS. The following short-term aviation projects are part of the ADOT Five-Year ACIP, which is contained in the ADOT 2019-2023 Five-Year Transportation Facilities Construction Program:

- P-608 Application on Runway 17-35, Section 10 - \$104,922

10. IMPLEMENTATION PLAN

The YMPO 2022-2045 LRTP provides a 20+ year vision for transportation in the Yuma region and creates the framework that the YMPO will use to set its priorities for future federally funded transportation planning studies and capital improvement projects. The YMPO 2022-2045 LRTP ultimately will aid the Yuma MPO in achieving its goals of creating a transportation system that moves people and goods, creates jobs, and strengthens communities. Based on the needs assessment, performance-based project prioritization process, and forecast of available revenues for transportation, a 2045 Cost Feasible Plan was developed for the Yuma region.

Policy and Project Implementation

The YMPO preferred Recommended Investment Choice (RIC) and prioritized list of projects provide both a programmatic framework and an action plan to drive future transportation regional investment prioritization. With adoption by the MPO the 2022-2045 LRTP will guide the MPO in its decision making over the next twenty four years. Each year, the MPO will identify priority studies and capital projects that support the LRTP's goals and objectives and program those studies and projects in the MPO's Unified Planning Work Program (UPWP) and its Transportation Improvement Program (TIP), respectively. The LRTP, UPWP, and the TIP make up the set of federally required certification documents produced by the MPO.

The Unified Planning Work Program (UPWP)

The UPWP is the planning element of the MPO's set of certification documents and is guided by the visions, goals, objectives, and investment framework established in the LRTP. UPWP-funded task categories include the following:

- Core MPO functions, including preparation of the federally required certification documents (LRTP, UPWP, and TIP); maintenance of the MPO's travel demand model; public outreach; and administrative functions.
- Transportation planning studies that will be conducted by MPO staff.
- Technical assistance program.
- Support to the MPO, including administrative and logistical preparation for MPO meetings and preparation of the necessary materials and information.

The outputs of the work programmed in the UPWP assist with numerous aspects of the transportation planning process, as laid out in the vision of the LRTP.

Transportation Improvement Program (TIP)

The TIP is the implementation arm of the LRTP and prioritizes funding for transportation infrastructure projects throughout the metropolitan area. Each year, the MPO evaluates and selects projects that will receive federal dollars for construction over the next five years and programs them in the TIP. The development of the TIP is guided by the vision, goals, objectives, and investment framework established in the LRTP.

Performance-based Planning and Programming (PBPP)

As noted in Chapter 8, the YMPO has established a performance-based prioritization process. This process uses performance measures and targets to assess its progress in achieving its LRTP-based vision, goals, and objectives. Moving forward, the MPO will establish and track additional performance measures that relate to its goals and objectives. As the MPO invests its funds, it will continually review and report on its progress with respect to its performance measures. The MPO will provide updates on its performance targets annually in its TIP, which will also describe how it expects TIP projects will support progress on performance measures and achieve performance targets. Collectively, these activities will help the MPO understand whether its investments are moving the region's transportation.

Links between the 2022-2045 LRTP, UPWP, TIP and PBPP

As described above, the MPO's LRTP, TIP, and UPWP direct funds to planning studies and projects aimed at improving the region's transportation system and meeting established goals and objectives. The MPO's new focus on PBPP will allow it to measure progress made towards regional transportation goals and to decide whether and how to modify its investment decisions in response to performance.

Other Projects / Studies

In addition to the project lists outlined in Chapter 10, a need for additional planning studies was identified for the YMPO region and/or individual member agencies to pursue, outside of the perimeters of the RTP. These recommendations include:

Routes of Regional Significance Study

The YMPO has defined a system of Regionally Significant Routes (RSR) for the YMPO study area. These routes include interstates, principal arterials, and those collector streets necessary to identify a complete system. Together, the RSRs serve as the backbone for the YMPO region's transportation network. To address any current or future multimodal transportation needs, this study will evaluate current and future transportation conditions and develop the ultimate cross-section concept and improvement projects to ensure the efficient and safe movement of people and goods. The plan will also explore ways to improve safety, access and mobility through a partnering approach with federal, state, county, local, tribal, and private stakeholders. The purpose of the plan is to guide development of the RSRs and to preserve rights-of-way for the identified routes when development occurred throughout the county.

Downtown San Luis Area Circulation Study

The Downtown San Luis Area is a uniquely different transportation environment from the rest of the YMPO region, with a multitude of congested urban traffic, small blocks, high pedestrian activity, high parking demand and the unique needs of the San Luis II LPOE. This urban context presents numerous challenges in efficiently circulating traffic, providing safe vehicle-pedestrian interactions, amongst other concerns. A dedicated downtown area study would allow for a localized small area transportation study approach to be taken for the greater downtown core to address potential countermeasures to these challenges.

Yuma International Airport Traffic Circulation Study

To understand the specific multimodal transportation needs surrounding the Yuma International Airport, a dedicated traffic circulation study is recommended. This study allow for a more detailed, small area study approach to be taken to understand and address traffic circulation issues in the area. This study will also evaluate the impact of potential closures of Airport Loop Road and 4th Avenue extension.

Regionwide Transportation Systems (ITS) Framework Plan

A regionwide Intelligent Transportation Systems (ITS) Framework Plan would define a vision for the effective use of technology to support intelligent transportation operations and management goals and identifies key strategies that the region can implement to address critical technical and institutional needs that are inherent in a regional operations program. The overarching purpose of the Plan would be to build on the City of Yuma's ITS plan, create a regional ITS framework, provide policy guidance and articulate a common vision of what ITS applications should be employed in the region to improve mobility, safety, efficiency, and reliability.

Yuma County Origin-Destination Study

An Origin and Destination Study answers questions about the major flows of traffic through the county. The study would look at where vehicles and freight are coming from, where they are going, why people are traveling, when the trips occur, and what kinds of vehicles are traveling. This study would be particularly important to understand the impact and needs of cross-border travel at LPOEs.

Emerging Technologies Readiness Plan

A readiness plan will ultimately help the region plan for the future arrival of autonomous vehicles (AVs), connected vehicles (CVs), and other emerging technologies that may operate on the region's streets. The purpose of the readiness plan is to provide background on the status of emerging technologies, identify the potential effects on the region's transportation system, and propose potential ways to leverage the technologies while managing potential impacts.

Active Transportation Plan

In addition to the multimodal analysis conducted in this LRTP, the YMPO region would greatly benefit from a comprehensive Active Transportation Plan. In particular, the City of Yuma and Yuma County have invested in both on- and off-street bicycle and pedestrian amenities and facilities, included by not limited to bicycle lanes, sidewalks, multi-use paths, unpaved paths and recreational trails. This large inventory of facilities across multiple jurisdictions would benefit from a focused study to comprehensively assess all existing, planned and potentially new bicycle, pedestrian and recreation facilities.

Best Practices

Complete Streets

Complete streets is a term used to describe roads that are designed and operated to enable safe access for all users. People of all ages and abilities can safely move along and across streets in a community, regardless of how they are traveling. Complete streets make it easy to cross the street, walk, and bicycle to destinations. A complete street in a rural area will look quite different from a complete street in a highly urban area, but both are designed to balance safety and convenience for everyone using the road. Within an urban area, a complete street may include sidewalks, bike lanes, median treatments, and frequent pedestrian crossing opportunities. Within a rural area, a complete street may simply include a wide paved shoulder for use by bicyclists and pedestrians. Both examples of complete streets respond to the needs of the roadway users along the corridor.

Travel Demand Management (TDM)

TDM is traditionally intended to decrease the number of single occupant vehicles (SOVs) that travel on roadways, with particular emphasis on reducing peak period congestion. This can be achieved through the implementation of various policies and strategies that replace vehicle trips with another mode of travel such as transit, carpooling or vanpooling, bicycling, or walking. For an individual or combination of TDM strategies to be successful, these alternative travel modes must be conveniently accessible and can also be benefited from incentives as well. Furthermore, FHWA has developed a more comprehensive approach towards TDM that looks beyond trip reduction but emphasizes maximizing travel options to transportation system users; *Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability.*

According to the American Community Surveys (ACS) conducted by the U. S. Census Bureau, the number of workers in Yuma County that drive alone to and from work has been steadily increasing over the past several years, up from an estimated 78 percent in 2010 to 80 percent in 2019. Vanpooling can be a great option for larger groups of commuters and is actively utilized in the YMPO region via YCAT. YCAT Vanpool provides clearly marked vans to qualifying groups of 7-15 commuters, driven by one of the vanpool members. Passengers share the cost of operating the van by paying a monthly fee to the primary driver. The fee covers gas, insurance, and vehicle maintenance. YCIPTA provides a \$300 subsidy to vans on a first come, first served basis through their contractor, Enterprise. Further information about the program is provided on the YCIPTA website, www.yciptat.org/vanpool.html¹. YCAT has seen increases in annual boardings in their vanpool service with the integration of Saturday and Sunday service since 2018. As noted in the YMPO Short-Range Transit Plan, Yuma Proving Grounds (YPG) has emerged as the primary market for vanpool service and serves as a TDM strategy to combat commuter-related congestion along US 95.

Regional Needs and Projects

More Travel Mode Choices

In conjunction with the FHWA guidance, transportation alternatives to SOV use should be provided through investments in bicycle, transit, and pedestrian infrastructure investments throughout the YMPO region. Additionally, with changes commuter patterns and recurring transportation demand, most recently experienced throughout 2020, TDM strategies may include passive strategies such as promotion of compressed work week schedules, off-peak working hours and commute schedules, and/or increased adoption of workforce telecommuting.

The current YCIPTA 10-Year Capital Plan includes funding to install bus shelters, signs, information posts, poles, benches, trash cans, and other passenger enhancements. Additionally, bicycle and pedestrian improvements should be strategically integrated into applicable road widening and intersection projects coinciding with each agency's bicycle plan to support and growth the ease in multimodal trip-making throughout the region.

¹ Source: <https://www.yciptat.org/vanpool.html>

Intelligent Transportation Systems for Public Transportation

A pillar of the future of transportation is to ingrate ITS solutions and technology into all aspects of transportation. Incorporating ITS applications into public transportation can incentivize transit use by improving transit efficiencies, convenience, and overall ride experience resulting in increased transit use, an decreasing SOV demand, for both work and non-work trips.

Programs and Strategies to Reduce SOVs

Programs and strategies to deter SOV use should be considered both regional and at local jurisdictional levels of governments and by employers. Examples of strategies and programs include:

- Parking pricing strategies encouraging non-SOV modes, such as demand parking pricing, reduction in parking minimums.
- Employer programs to encourage carpooling or transit use through employee reimbursement and by providing vanpool services or vehicles.
- Employer programs to encourage active transportation commuting by implementing secure bicycle parking, lockers, storage, and shower facilities.
- Employer incentive programs to encourage alternative work hour, compressed workweek schedules, and telecommuting options to reduce travel during peak periods of congestion.

Marketing Campaigns

Developing printed, audio, and/or digital messaging can help inform the public of available alternate travel mode options and encourage their use. Use of social media campaigns, coordinated partnership with print and digital publishers, radio, or cable providers are possible outreach and messaging approaches.

Congestion Management

Regional Traffic Congestion Can Vary Seasonally

The most significant recurring congested periods in the YMPO region occur during the daily commute-to-work period occurs on the north and south I-8 frontage roads, in urbanized commercial areas in the City of Yuma, and at San Luis POE I. The YMPO region has multiple unique factors that contribute towards unrecognized, non-recurring, yet still persistent congestion, including slow and oversized agricultural vehicle during the agricultural produce season as well as an influx of winter seasonal population, adding significant traffic volumes, with some areas increasing by 33 percent over average conditions.

With the projected increase in population and economic activity in the region, congestion levels will increase significantly unless steps are taken to plan and implement a multimodal transportation plan to combat congestion by increasing transportation choices that reduce the region's reliance on SOV use. Managing increasing regional congestion as the region continues to growth is a goal of this RTP.

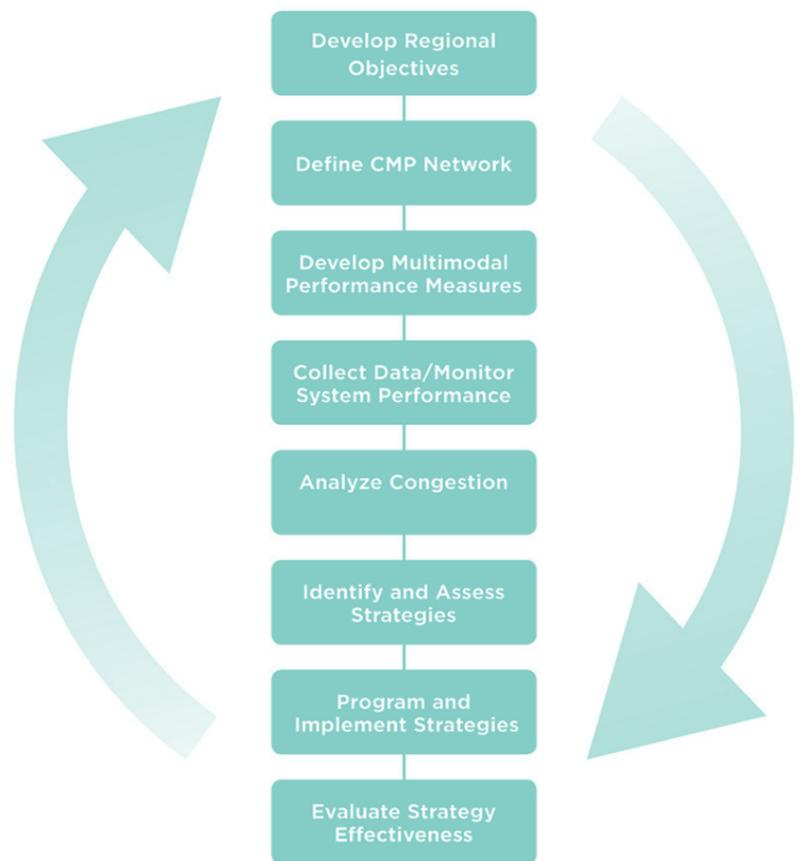
Congestion Management Process (CMP)

The YMPO region has not yet developed a regional CMP, as YMPO has not yet eclipsed urbanized area population threshold of 200,000 nor has YMPO been defined as a Transportation Management Area (TMA) requiring CMP development. When both criteria are met, a CMP will be required as part of the regional transportation planning process and undergo formal federal review. Though not yet required, proactive development of a CMP can offer valuable input to congestion relief strategies as the region anticipates future designation as a TMA.

The CMP process, illustrated on the right, is a systematic approach, collaboratively developed and implemented throughout a metropolitan region, that provides for the safe and effective management and operation of new and existing transportation facilities through the use of demand reduction and operational management strategies.

To prepare a CMP for the YMPO region, CMP models from MPOs across the country are available in publications prepared by FHWA, FTA, and the

Association of Metropolitan Planning Organizations (AMPO). The FHWA CMP Guidebook² defines the steps for developing a CMP process model. The process model is not intended to serve as a step-by-step approach, but rather articulate the approach sequencing, building on regional objectives to develop and implement strategies and evaluate their effectiveness.



² https://www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/cmpguidebk.pdf

Intelligent Transportation System (ITS)

ITS uses traffic and traveler information to integrate all components of a traditional transportation system into an interconnected network. ITS uses technologies, communications, and management strategies to increase the safety and efficiency of the surface transportation system.

ITS in the YMPO Region

Traditional ITS devices that are used by YMPO member jurisdictions include traffic signals, traffic detection, and communications between signals to a centralized management and operations system. Signal preemption for emergency vehicles and highway-rail equipment are also utilized in the YMPO region. The current focus of local jurisdictions is to manage the arterial street system to maximize the safety and efficiency of the arterial transportation system.

In the City of Yuma signals are centrally operated by a signal system housed at the City of Yuma Traffic Operations Center (TOC). Signals along 4th Avenue and 16th Street are coordinated to maximize progression and reduce travel time along the corridors. The City is responsible for maintenance and operation of City intersections. There are currently no Closed-Circuit Television (CCTV) cameras at signalized intersections in the YMPO urbanized area, although camera functionality has been included in the development of the City's centrally controlled system. Intersection loops systems are used for traffic detection on City-operated signals. In 2020 City of Yuma has published an ITS Strategic Plan that inventories existing infrastructure, catalogues needs, and identifies implementation opportunities.

ADOT utilizes a package of ITS strategies commonly referred to as a Freeway Management System (FMS). The FMS provides surveillance, incident management, travel time displays, and traveler advisory functions throughout the state. All FMS operations are centrally coordinated from the ADOT TOC in Phoenix. The TOC also serves as a statewide emergency coordination center during freeway emergencies. ADOT operates one Dynamic Message Sign (DMS) in Yuma County on I-8 eastbound around Avenue 10E. The DMS is used by ADOT to provide traveler information such as construction alerts, lane restrictions, and general public service announcements.

ADOT also provides information via the internet at www.az511.com. This 511-traveler information service provides traveler information in Sonora, Mexico and wait times at San Luis POE I. This website is heavily utilized by local television and radio traffic reporters, as well as members of the public, to obtain freeway condition information.

The Arizona Broadband Implementation

The State of Arizona Department of Administration (ADOA), led by Governor Douglas A. Ducey, partnered with Mission Critical Partners, LLC (MCP) to develop this Arizona Statewide Broadband Strategic Plan, published in 2018. The goal of this study was to effectively coordinate, manage and collaborate on the resources required to deliver accessible, affordable, and reliable access to broadband services. Specifically, this plan is targeted to identify strategies and solutions to closing the gap in broadband access to both rural and tribal communities which both are significantly more likely to not have access to reliable broadband services. This plan identified six guiding goals:

- Goal 1: Broadband is accessible and affordable.
- Goal 2: Broadband expansion is strategically governed and implemented.
- Goal 3: Existing broadband infrastructure is identified, leveraged and expanded.
- Goal 4: Funding opportunities are identified, leveraged and expanded.
- Goal 5: Citizens understand the impact of broadband and promote adoption.
- Goal 6: Policies are implemented to incentivize provisioning of and/or reducing barriers to broadband.

In conjunction with this plan and overall goal to improve affordable access to broadband, ADOT is specifically working to integrate the expansion of broadband infrastructure in conjunction with future transportation corridor investments.

ITS at Ports of Entry

There are four POEs in the YMPO region: two in Yuma supporting I-8 state-to-state travel and two in San Luis supporting international travel. There are only a few existing ITS devices associated with screening and processing (e.g., cameras, signals, signs) at the state POEs, while the international POEs have a more widespread deployment of ITS devices.

ADOT is beginning a comprehensive update to the Arizona-Sonora Border Master Plan, last published in 2013. ADOT will collaborate with the state of Sonora, Mexico, the Secretaria de Relaciones Exteriores, the Secretaria de Comunicaciones y Transportes and several other local, state and federal agencies to develop. This study will focus on improving efficiency and effectiveness in cross-border travel at Arizona's six international POEs. This assessment will look for opportunities to integrate appropriate ITS solutions.

Statewide ITS Architecture

The state of Arizona, ADOT specifically, is responsible for establishing a Statewide ITS Architecture, in compliance that includes the necessary components needed to demonstrate conformity to federal regulations in 23 CFR Part 940 including, but not limited to: operational concept, list of agreements, system functional requirements, standards identification and a maintenance plan. ADOT has completed the latest update to this plan in July 2017. Yuma County Intergovernmental Public Transportation Authority (YCIPTA) was also involved in the development of a regional ITS architecture regarding existing and planned transit ITS functions.

The Arizona Statewide ITS Architecture provides a standard framework for planning, defining, and integrating ITS. Local agencies are encouraged to utilize this framework to better define local planned ITS projects, thus ensuring consistency across jurisdictions, regional compatibility and better integration in the future. The Statewide ITS Architecture is developed to establish a consistent framework and general project recommendations but does not assess the statewide system's existing or needed ITS infrastructure or suggest direct project recommendations. The Arizona ITS Architecture includes all ITS elements existing and planned in the state of Arizona. The ITS elements include:

- Archived Data Management Systems for Arizona
- Emergency Management for Arizona
- Traffic Management
- Transit Services for Arizona
- Maintenance and Construction Operations for Arizona
- Traveler Information for Arizona

Needs, Projects, and Estimates

Arterial ITS Program

Traffic signal synchronization/coordination along the region's major transportation corridors should be reassessed on a biennial basis to ensure traffic flow is optimized and consistent with changes experienced in travel patterns and volume growth or redistribution across that time. DMS and CCTV cameras do not exist along roadways in the YMPO region and should be a planned investment as an ITS-specific project or included as part of future intersection improvements. The YMPO region could benefit from investing in arterial DMS to provide traveler information to the local traveling public, such as closures and restrictions, special event messages, and travel times. CCTV cameras can provide surveillance capabilities for monitoring incidents and congestion levels.

- The integration of Adaptive Signal Control Technology has the potential to address congestion concerns with a cost-effective solution. This technology is also an appealing solution for corridors with limited available right-of-way as an alternative to extensive widening and expansion projects. Adaptive signal control technology has the capacity to provide the following as compared to a conventional signal systems:
- Optimize green light time equitably to best accommodate all traffic movements
- Improve travel time reliability by sequencing vehicle caravanning through consecutive green lights
- Reduce congestion by creating smoother flow
- Prolong the effectiveness of traffic signal timing

The City of Yuma's ITS Strategic Plan is an excellent guiding ITS document for future ITS infrastructure integration across the city. YMPO is exploring the merits, benefits, and opportunities to establish a regional ITS Strategic Plan that compounds off of the City of Yuma plan singularly. The goal of this potential plan would be to remain consistent both the YMPO and statewide existing frameworks, but to expand the scope to the remainder of the YMPO region to account for the different infrastructure needs in the more rural and less developed locations within the region as well.

Freeway Management System (FMS)

Enhancements to ADOT's FMS system in the YMPO region along I-8 would benefit interstate travelers and commercial vehicle operations. Inclusion of some CCTV surveillance of I-8 and coordination with the City of Yuma TOC would support integrated corridor management when I-8 experiences closures or restrictions that force traffic onto the arterial network. Additional DMS along I-8 westbound and eastbound would provide traveler information to the public when closures or restrictions cause delays. Shared control of future Caltrans DMS close to the state line should be considered for incidents that may affect state line accessibility.

Transportation Security

The security of the transportation system is a national and regional priority. September 11, 2001, fundamentally changed many Americans' perspective about homeland safety and security. While most directly recognized in association with aviation, considers the number of hazardous materials, chemicals, and flammable products that are transported on the nation's infrastructure each day, the security of America's infrastructure including critical transportation assets such as bridges, POEs, airports, and primary highways, has become an important consideration during the development of new transportation projects. Additionally, with the incorporation of connected and autonomous vehicles and infrastructure, transportation cyber security has become an important consideration when implementing this infrastructure in the future.

Security Planning

The YMPO region has developed plans to mitigate adverse impacts from hazardous natural or man-made events. In 2004, 2005, Yuma County and its incorporated cities and towns participated in a multi-jurisdictional mitigation planning process. YMPO member jurisdictions developed Multi-Hazard Mitigation Plans for Yuma County, San Luis, Somerton, Wellton, and the City of Yuma.

The Federal Emergency Management Authority approved these plans between 2005 and 2006. In 2010, a five-year update was first completed, and the plans were consolidated into one overall plan called the Yuma County Multi-Jurisdictional Hazard Mitigation Plan. This consolidated plan provides information on potential hazards including descriptions, history, probability and magnitude, vulnerability, sources, and profile maps. This coordinated plan was subsequently updated in 2019, including Yuma County, all incorporated cities and towns in Yuma County, along with the Cocopah Tribe. The hazards evaluated include transportation crashes, drought, earthquakes, flooding, severe wind, and wildfire.

In 2013 and subsequently updated in 2018, the State of Arizona Hazard Mitigation Plan was developed, which included the assessment of Yuma County.

Regional Needs and Projects

Transportation Infrastructure Planning

Planning for transportation security should be regular part of the regional transportation planning process. The appropriate transportation security approaches that should be considered is contextually dependent upon the scope, scale, and location of project. The following questions should be asked to determine potential transportation security considerations for individual projects:

- Is the proposed project in a primarily rural area?
- Does the proposed project cross a state border?
- Is the proposed project adjacent to an international border?
- Will the proposed project be in close proximity to urbanized areas?
- Will the proposed project become a major thoroughfare subject to heavy truck traffic and hazardous materials?
- Is the proposed project a critical piece of infrastructure (e.g., bridges across navigable waters, rest areas, POEs)?
- Are there other nearby infrastructure (e.g., military facilities, airports, power plants, refining facilities, etc.)?
- Could the proposed project affect or mitigate hazards identified in the Yuma County Multi-jurisdictional Hazard Mitigation Plan?

The majority of needed roadway system improvements are located near I-8, the UPRR, the Colorado River, the border with California, the US-Mexico international border, USAMC YPG MCAS-Yuma, YIA, highly urbanized

areas, and agricultural areas. These warrant a security risk assessment as part of project development. Coordination with the Arizona Division of Emergency Management (ADEM) and Yuma County Office of Emergency Management should be considered.

Transportation Security/Incident Management Working Group

A transportation security/incident management working group should be established to provide transportation security input on new projects. This working group can also enhance collaboration and coordination between traditional transportation infrastructure providers (e.g., regional, county, tribal, and local entities) and emergency responders. The working group should coordinate with YMPO and member jurisdictions to establish organizational responsibilities, available transportation resources, and procedures for preparing for, responding to, and recovering from incidents that impact the residents of the YMPO region. The working group should solicit input from key emergency management and response stakeholders including the Yuma County Office of Emergency Management, Yuma County Sheriff's Office, ADEM, Arizona Department of Public Safety (DPS), and FHWA.

Transportation Security Education and Training

YMPO should conduct transportation security education, training exercises, and workshops using local and national experts.

Intelligent Transportation System (ITS) Integration

The YMPO region's ITS infrastructure is an integral part of transportation security. Current and future transportation and transit ITS components should consider video surveillance, CCTV, DMS, mobility assistance patrols, vehicle detectors, transit vehicle tracking, in-vehicle navigation, integrated radio systems, and automated vehicle location. These traffic monitoring, incident detection, and response systems can be utilized to improve the security of the regional transportation system.

New Technologies

Connected & Automated Vehicles

Automated vehicles and self-driving cars have undergone extraordinary advancements in the past decades with advanced testing and development phases and multiple semi-autonomous vehicles in production. Additionally, various automated safety features are currently available to improve safety such as:

- Electronic stability control – slows individual wheels during a turn to keep a car on course
- Lane-Keep assist – Detects lane departure and steers vehicle back into the correct lane
- Adaptive cruise control – monitors the driver-set speed and distance to the vehicle ahead
- Collision warning system – alerts the driver if a collision is imminent
- Automatic braking – automatically applies brakes to avoid a collision
- Adaptive headlights – give you a better view of the road around curves especially at night. The lights react to the steering, speed and elevation of the car, and make adjustments for better visibility
- Back up camera – improves visibility when backing up or parking
- Active parking assist – helps parallel park the vehicle with no steering from the driver
- Drowsiness alert – uses automobile or driver data to indicate when the driver needs a break

Automated vehicles have the potential to improve travel reliability, improve safety, reduce congestion, and reduce vehicle emissions. Many automobile manufacturers are advancing preparations for in automated vehicle production for both passenger and commercial/freight vehicles.

The secondary benefit to autonomous vehicles is the ability connect these vehicles to both other vehicles traveling in the system corridors as well as opportunities to connect with the physical roadway system infrastructure itself. This technology has enormous upside potential to improve critical transportation goals including significant safety improvements, reduction in traffic congestion, as well as optimizing driving decision-making to experience reduced fuel consumption, emissions, and other air quality and environmental benefits.

The U.S. Department of Transportation (USDOT) Intelligent Transportation Systems Joint Program Office (ITS JPO), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Federal Motor Carrier Safety Administration (FMCSA), and the National Highway Traffic Safety Administration (NHTSA) are collaborating to research and spur the deployment of connected vehicle technology. This commitment has exciting potential for the future to make our roadways safer, with the House Energy and Commerce Committee, in 2018, stating

that "self-driving cars are projected to reduce traffic deaths by 90%, saving 30,000 lives a year," commutes and trip making less stressful and more efficient, as well as help reduce mobile emissions.

Electric Vehicles and Charging Stations

In conjunction with autonomous vehicles, electronic vehicle technology is also advancing with an influx of fully electronic vehicles in production and accessible for personal, public transit, and commercial truck fleets. These may be fully electric vehicles or plug-in hybrids, which use a gasoline engine to extend the driving range when longer trips than the battery can provide are taken. Along with the expansion of manufactures producing electric vehicles, there has been additional public, employer-based and business-partnership investments that has expanded the access of vehicle charging locations, which has continued to reduce the barriers of vehicle range that has been a limiting factor of early electronic vehicle technology.

YMPO supports increased electric vehicle infrastructure and future initiatives may include outreach and education.

Air Quality Conformity

The YMPO has the responsibility to ensure that the transportation plans and programs within the YMPO planning boundaries, generally the greater Yuma area, conform to the state and national air quality plans and standards. Specifically, the emissions generated from proposed projects in the YMPO's five-year Transportation Improvement Program (TIP) for 2022-2026 and the 2022-2045 LRTP must be consistent with and conform to national ambient air quality standards (NAAQS).

The YMPO is required to undertake an air quality conformity analysis for two reasons:

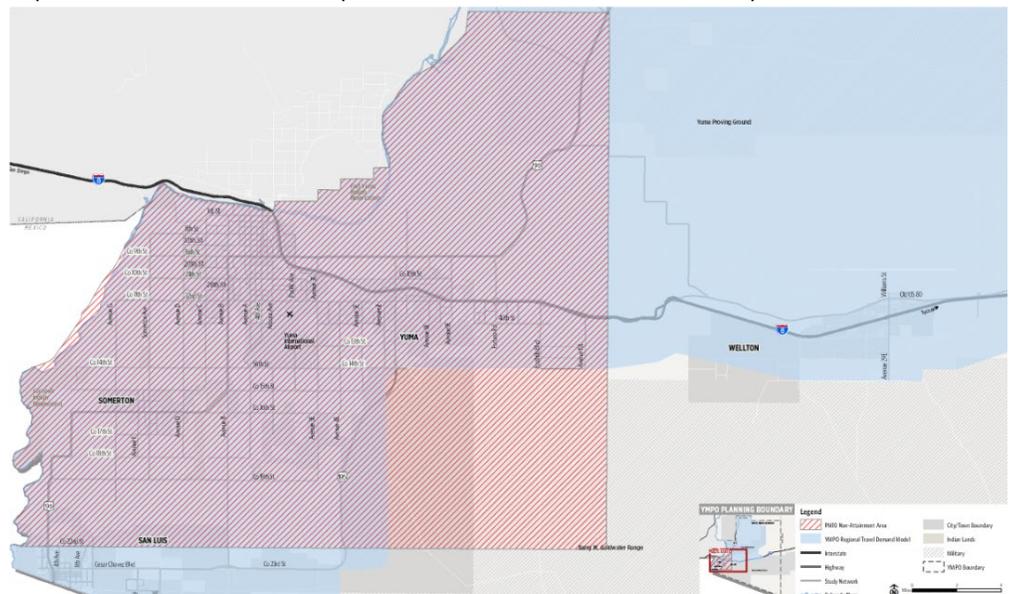
- To ensure that transportation investments (projects), strategies and programs, taken as a whole, have air quality impacts consistent with and conforming to state and national air quality plans and standards.
- To ensure that neither the transportation system as a whole nor individual transportation projects cause new air quality violations or worsen existing conditions.

The air quality conformity process establishes the connection between transportation planning and emission reductions from transportation sources and is intended to ensure that integrated transportation and air quality planning occurs in areas designated as Non-Attainment or Maintenance Areas by the United States Environmental Protection Agency (EPA). A regional emissions analysis must be conducted to assess the impacts that transportation projects will have on emissions within an air quality planning area.

A Non-Attainment area is an area that has violated one or more of the National Ambient Air Quality Standards (NAAQS). A portion of the greater Yuma area is currently designated as a nonattainment area for the 1987 Particulate Matter 10 (PM10) standard and a portion is designated as a nonattainment area for the 2015 8-hour Ozone standard. Yuma County comprises the southernmost part of the Colorado River Valley.

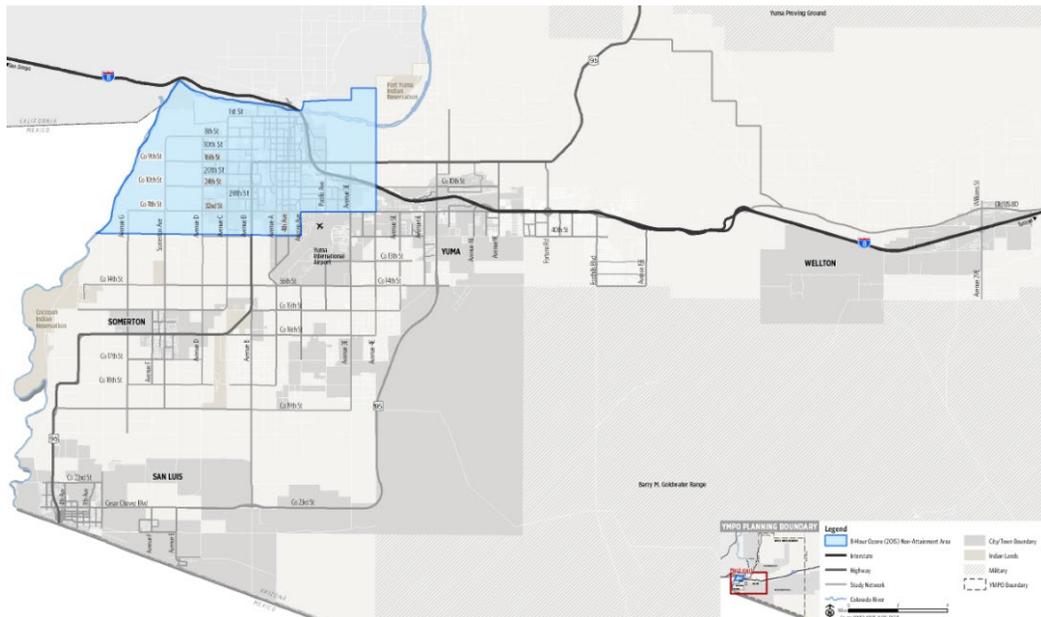
PM10 Nonattainment Area

The PM10 nonattainment area is geographically located in the far southwest portion of the Lower Colorado River Valley and illustrated by the red hatched area in Figure to the right. The PM10 nonattainment area contains a total of 16 full and partial townships comprising approximately 456 square miles or 300,000 acres.



Ozone Nonattainment Area

A small portion of Yuma was designated as nonattainment for the 2015 8-hour ozone standard in 2018, with an effective date of (83 Federal Register 25776; effective August 3, 2018). The portion of Yuma that is nonattainment for ozone is shown in blue in the figure to the right and is approximately 46,700 acres.



Travel Demand Model

The 2022-2045 LRTP travel demand model provides the appropriate level of detail required by conformity regulations. It is the most recent version of the regional travel demand model for the YMPO region. The recommended roadway system projects are financially constrained for the 2022-2045 planning period, as well as for each of the four interim planning periods. The conformity analysis is based on assumptions derived from estimates of current and future population, employment, travel, and congestion contained in or produced by the travel demand model.

Pollutant Emissions Estimates

The conformity determinations were performed per procedures prescribed by federal, state, and local regulations; Arizona transportation conformity rules; and MPO planning regulations implementing the FAST Act and MAP-21 requirements. As part of the conformity determination, assumptions have been discussed with various local, state, and federal agencies for their continued validity and updated whenever necessary. EPA's MOVES2014a model was used to derive emissions as required by the EPA.

Paved and Unpaved Roads

The primary contributor to PM10 emissions is road dust from paved and unpaved roads. Emissions for road dust are calculated using a process referred to as AP-42, Compilation of Air Pollutant Emission Factors.

AP-42 was first published in 1972 as the primary compilation of EPA's emission factor information. The document, now in its fifth edition, contains guidance on how to determine PM10 road dust emissions from both paved and unpaved roads. The methodology for determining paved and unpaved road dust emissions was confirmed following consultation with the FHWA Resource Center.

Reasonable Available Control Measures (RACMs)

In 1992, Transportation Control Measures (TCMs) were established for the YMPO nonattainment area. These TCMs were transportation improvements planned and implemented for the purpose of reducing pollutant emissions and improving air quality. At the same time, local governments adopted, implemented, and enforced RACMs.

Some of the RACMs implemented included:

- Paving, stabilizing, and/or reducing travel on unpaved streets, roads, and unpaved areas
- Watering unpaved streets, alleys, shoulders, and canal and levee roads
- Sweeping paved streets
- Reducing travel on canal roads
- Constructing improvements such as parking lots and landscaped areas to minimize the amount of undeveloped desert in developed areas that was exposed to the elements

Newly Paved Roads

In addition to the emissions reductions sources described above, there will be emissions reductions gained because of newly paved roads and widened roads that are recommended in the 2022-2045 LRTP. Emissions reductions were estimated by analysis year for these paving improvements.

Results and Conclusions

Emissions estimates from MOVES3.0.1 and AP-42 were combined estimates of reductions from RACMs and newly paved roads to determine the overall impact of on-road mobile sources on PM10 levels in the YMPO nonattainment area for the maintenance plan budget years of 2022, 2025, 2035, and 2045. The ADEQ Yuma PM Maintenance Plan (August 2006) establishes annual emissions maintenance budgets for use in conformity analyses. Results from this analysis are summarized in Table 10.1, along with comparisons to the established Motor Vehicle Emission Budgets (MVEBs).

Emissions estimates from MOVES3.0.1 were determined for Ozone for the years 2022, 2025, 2035, and 2045 and compared to the baseline year of 2017. Ozone is modeled for its precursors; NOx and VOC. **Table 10.2** shows the mobile source emissions results for the baseline year 2017 and analysis years for NOx and VOC.

Table 10.1 Motor Vehicle Emissions Budget Comparison for PM₁₀

Budget Year	PM ₁₀ Tons per Year (tpy)	Maintenance Plan Budget (tpy) ³	Annual Reduction (tpy)	Total Adjusted PM ₁₀ (tpy)
2022	8,557.9	10,803	8.79	8,549.1
2025	8,810.6	10,803	8.79	8,801.8
2035	9,020.5	10,803	8.79	9,011.7
2045	9,214.2	10,803	8.79	9,205.4

Table 10.2 NOx and VOC Emissions Comparison to 2017 Baseline Year Results

Budget Year	NOx Tons per Year (tpy)	NOx 2017 Baseline Year (tpy)	VOC Tons per Year (tpy)	2017 Baseline Year (tpy)
2022	2.033	3.759	3.492	5.204
2025	1.684	3.759	3.174	5.204
2035	1.183	3.759	2.205	5.204
2045	1.220	3.759	2.206	5.204

This air quality analysis documentation demonstrates conformity between the 2022-2026 Transportation Improvement Program, the 2022-2045 Long Range Transportation Plan, and the State Implementation Plan.

The analysis indicates that the projected emissions levels based on projects contained in the YMPO LRTP Update 2022-2045 meet the applicable conformity tests. Therefore, it is the determination of this analysis that this plan conforms under the PM10 National Ambient Air Quality Standards and the 2015 8-hour ozone National Ambient Air Quality Standards.

³ Motor Vehicle Emissions Budget as per 75FR32295, effective June 27, 2007.