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# System Preservation



## 6. SYSTEM PRESERVATION

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Maintaining a transportation system in a state of good repair is a key consideration for determining regional transportation investments given that the condition of a transportation facility or service directly impacts its relative usefulness. Maintaining transportation facilities and services helps to reduce the overall lifecycle costs associated with these facilities. A transportation system in a state of good repair positively affects travel by all modes, including automobile, bicycle, bus, rail, and even walking. A city or county cannot be sustainable over the long term without a well-maintained transportation system that supports local and regional travel.

### State of Good Repair

This section highlights key components of system preservation for Stanislaus County, including roadway pavement conditions, transit operations and cost, safety, reliability, intelligent transportation, and travel demand management.

#### *Roadway Pavement Conditions*

Pavement quality as described by the Pavement Condition Index (PCI), is a measure of roadway pavement condition. As roadway pavement conditions worsen, the cost of repair increases exponentially. StanCOG administers funding that support local jurisdictions maintenance and transit operational needs.

Pavement management is a crucial aspect to plan for the future of the Stanislaus region's roadway system, especially considering the significant role that the network plays in supporting the economy and serving commuter needs. In 2021, StanCOG initiated a Pavement Management Program (PMP) update to assess pavement condition for each of StanCOG's 10 member agencies. StanCOG took the lead on scope development and to acquire the services of a consultant to provide field data collection support and analytic services to assess the pavement condition and identifying sustainable and innovative pavement technologies to preserve pavement life. The PMP is expected to be completed in 2022.

The pavement condition index (PCI) is a measure which is used to indicate the general condition of a pavement section. As illustrated in **Figure 6.1**, PCI provides a numerical rating for the condition of roadway segments within the transportation network, where 0 is the worst condition and 100 is the best. The PCI measures:

- 1.) The type, extent and severity of pavement surface distresses (typically cracks and rutting), and
- 2.) The smoothness and ride comfort of the road.

Figure 6.1 – PCI Range



The PCI measurements resulting from the regional 2022 PMP update are presented in Table 6.1. The results show that the average pavement condition index for local jurisdictions in the Stanislaus Region range from a PCI of 62 to 79, values that fall under “At Risk” or “Good” pavement conditions.

Table 6.1 - Pavement Conditions Index (PCI) Data

Name	County	Center Line Miles	Lane Miles	PCI	Condition
Ceres	Stanislaus	134.0	273.8	68	At Risk
Hughson	Stanislaus	28.3	56.9	79	Good
Modesto	Stanislaus	618.4	1,371.8	66	At Risk
Newman	Stanislaus	40.7	81.4	68	At Risk
Oakdale	Stanislaus	83.4	170.5	75	Good
Patterson	Stanislaus	84.9	169.9	63	At Risk
Riverbank	Stanislaus	74.5	151.1	75	Good
Stanislaus County	Stanislaus	1,483.8	2,971.3	61	At Risk
Turlock	Stanislaus	252.8	510.0	62	At Risk
Waterford	Stanislaus	24.5	49.0	66	At Risk

Source: League of California Cities “California Statewide Local Streets and Roads Needs Assessment”, 2022 (unpublished).

### Transit Operations and Cost

The efficiency and effectiveness of transit services are determinants of the transit system’s state of good repair. Reviews of the transit system help to identify areas where unmet transit needs may exist and areas with inefficient transit service. The Farebox Recovery Ratio (FRR) for a passenger transportation system is the proportion of the amount of revenue generated through fares by its paying customers as a fraction of the cost of its total operating expenses (or more simply stated - it is the ratio of fares received to total operating cost). An FRR is used by transit agencies to evaluate progress toward policy goals and objectives. In order to receive an annual allocation of LTF and STA funds, jurisdictions must submit a claim. The ultimate significance of the farebox ratio is that a claimant’s maximum eligibility for these funds is determined in large part by its required ratios.

TDA law establishes a FRR formula for transit operators to measure how much of their funding comes from ticket sales. In order to receive the full allocation of TDA funds available to a transit operator, a minimum FRR must be achieved. Operators of fixed route transit serving in urbanized areas within an urbanized county (i.e. a county with a population of 500,000 or more, as determined through the decennial census), are required to meet a FRR of no less than 20%. Operators of a fixed route transit that serves both urban and rural areas within an urbanized county are allowed to have a blended FRR, as determined by the RTPA, with a minimum FRR of 10%. An FRR for services exclusive to senior and disabled persons, such as dial-a-ride (DAR), can be no less than 10%. Penalties which decrease the amount of TDA funds available to a transit operator are applied when the required FRR is not met. In the 2020 decennial census, Stanislaus County is defined as an urbanized county as its population is above the 500,000 threshold at 546,235. The current FRR's for providers of fixed-route transit in Stanislaus County are as follows:

Table 6-1: FRR for Stanislaus County Transit Operators

Transit Agency	Service	FRR*
Stanislaus Regional Transit Authority (StanRTA)	Fixed Route (Urbanized Area Fixed Route)	15 %
	Demand Response (Paratransit Dial-A-Ride)	
Turlock Transit	Fixed Route (Urbanized Area Fixed Route)	20 %
	Demand Response (Paratransit Dial-A-Ride)	10 %

*\*Blended FRR rate for StanRTA due to the consolidation of transit services in 2021*

In 2018, StanCOG supported the passage of SB 903 to authorize StanCOG, as the RTPA, to reduce the FRR by 5 percent from the ratio that was in effect in FY 2015-2016. While SB 903 is no longer in effect, AB 90 was passed in 2020 to remove the financial penalties associated with the FRR during fiscal years 2019-20 and 2020-21. This bill was passed to address the impacts of the COVID-19 pandemic on transit operators. On July of 2021, AB 149 extended the statutory relief for an additional two years.

## Congestion Management

A Congestion Management Process (CMP) is a systematic and regionally-accepted approach for managing and reducing the impacts of congestion on the movement of people and goods. A CMP is federally required in metropolitan areas with populations exceeding 200,000, known as Transportation Management Areas (TMAs). Federal requirements state that a CMP shall be developed and implemented as an integrated part of the metropolitan transportation planning process in all TMAs. TMAs are officially designated by the Secretary of Transportation using population figures after each decennial census. Title 23, Section 450.320 of the U.S. Code of Federal Regulations calls for metropolitan planning organizations, such as StanCOG, to “address congestion management through a process that provides for safe and effective integrated

management and operation of a multimodal transportation system.” Additionally, in a TMA designated as a nonattainment area for ozone or carbon monoxide, pursuant to the Clean Air Act, Federal funds may not be programmed for any project that will result in a significant increase in the carrying capacity for single occupancy vehicles (i.e., a new general purpose highway on a new location or adding general purpose lanes, with the exception of safety improvements or the elimination of bottlenecks), unless the project is addressed through a congestion management process meeting the requirements.

In 2020, StanCOG completed the update of their CMP data sources and data collection procedures with input from the CMP Steering Committee. The update to the CMP employed travel time data that was collected from real-time, anonymous Global Positioning System (GPS) sources from more that include more than 300 million connected vehicles and devices globally. The CMP update also employed speed-based Level of Service and reliability performance measures. Additionally, a CMP Geographic Information System (GIS) tool was developed to map the results of the analyses.

As part of the CMP update, Traffic Level of Service (LOS) was monitored on a total of 106.6 directional miles of freeways and 250.4 directional miles of arterials on the county’s CMP network. The CMP corridors on I-5 and SR-99 were categorized as limited-access freeway and interstate facilities. All other CMP corridors were categorized as principal arterials. Calendar year 2018 data was employed for the update and was obtained from INRIX, Inc., a supplier of commercially available speed data for CMP roadway LOS Monitoring.

## Safety

Improving transportation system performance, including pavement conditions, traffic flow, and reliability, has safety benefits. As a part of the Moving Ahead for Progress in the 21st Century Act (MAP- 21) and continued under the Fixing America’s Surface Transportation Act (FAST), states are required to invest resources in projects that, collectively, will make progress toward achieving these national goals.

Safety is one of the goal areas for which the state and Federal Highway Administration (FHWA) have made significant progress towards addressing since the implementation of the National Transportation Performance Management Requirements. In 2019, over 7,000 vehicle collisions occurred in Stanislaus County (see **Table 6.2**).

Table 6.2 Stanislaus County 2019 Collisions

Stanislaus County 2019 Collisions		Number of Collisions	Percentage
Crash Involvement	Motor Vehicle	6,634	93%
	Pedestrian	208	3%
	Bicycle	154	2%
	Motorcycle	156	2%
	Total	7,152	100%
Stanislaus County 2019 Collisions		Number of Collisions	Percentage
Geography	Rural	2,965	41%
	Urban	4,187	59%
	Total	7,152	100%

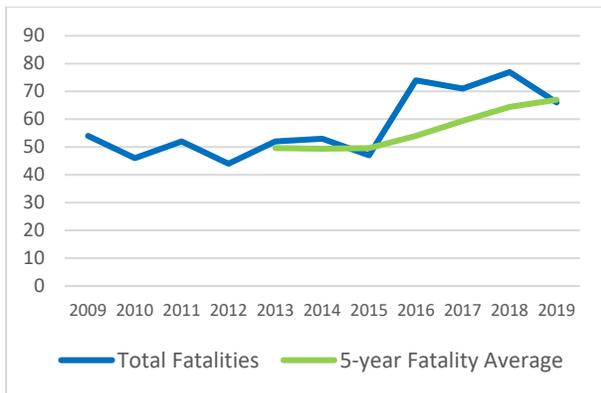
Source: Statewide Integrated Traffic Records System (SWITRS), Stanislaus County, 2019

To support the State of California in meeting its safety goals, MPOs are required to set safety performance targets for long-range transportation planning annually. Since its inception, StanCOG has elected to adopt the state’s targets and is planning and programming projects that contribute toward the accomplishment of the Caltrans 2022 Safety Targets.

In December of 2019, StanCOG implemented a year-long Bicyclist and Pedestrian Safety and Education Campaign. Known as “Walk and Roll Stanislaus,” a county-wide campaign was undertaken to increase awareness and influence travel behavior to improve health and safety in the region. The campaign included traditional media and social media advertisements as well as bus wrap and billboard advertisements. Due to the COVID-19 pandemic, many outreach activities were implemented using a virtual format. The project included an “open street” event webpage that hosted activities such as a road safety quiz and scavenger hunt. In addition, StanCOG provided virtual training for bicycle instructors. These activities culminated in a virtual regional transportation safety summit to facilitate a discussion among local stakeholders about changing current policies and practices. To support local agencies, an Active Transportation Toolkit was developed that identified funding opportunities and outreach and data analysis strategies to support bicycle and pedestrian safety.

As presented in **Figure 6.1**, there was a relatively even trend in crash fatalities in Stanislaus County between 2009 and 2015 before a sharp increase between 2015 and 2016 which was observed also at the statewide and national level. Fatalities have since stabilized which is counter to the increasing numbers that have continued to rise at the state and national level. 2020 and 2021 crash data were not included in the analysis because of the impacts caused by the COVID-19 pandemic. The 2022 RTP/ SCS contains significant investments to provide improved facilities for motorists, pedestrians and bicyclists to reduce collisions on the Stanislaus region’s roadways.

Figure 6.1 Stanislaus County Fatalities



Source: NHTSA Fatality Analysis Reporting System (FARS), Stanislaus County, 2009-2019

## Reliability

Increasing the travel time reliability of the transportation system is an important component of system preservation. Travel time reliability measures the consistency or dependability of travel times for vehicular travel, transit systems, freight carriers and air travelers. While travel time reliability does not directly address issues of congestion, it plays a key role in traffic management and operational activities. Knowing the travel time reliability of a roadway or system allows travelers to make more informed decisions regarding their specific routes and time of day of a trip.

Improvements to travel time reliability offset the worst impacts of congestion through reductions in user frustration and emissions, extending the life of existing facilities and delaying the need for widening and other capacity increases.

## Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) utilize technology to increase the efficiency and safety of a transportation network. ITS can manage traffic flow and help increase the travel time reliability by reducing the impacts and duration of incidents, as well as smoothing traffic flows to slightly increase roadway capacity without adding pavement. For example, the City of Modesto has invested in a robust communications network between its signals and traffic operations center to develop an Active Traffic Management System (ATMS) that allows the city's signals to operate in response to traffic levels, providing more green time to the corridors that need it and less to those that don't.

Traditional components of ITS include advanced communications technologies that allow for information to be shared between vehicles and infrastructure. These technologies includes automated speed enforcement systems, digital travel time signs, and vehicle sensors at signalized intersections, among other features. As vehicle

automation becomes more advanced, communication between vehicles and infrastructure, and amongst vehicles themselves, will increase the ways in which ITS can be used to improve the transportation system.

## Travel Demand Management

In order to request funding for capacity enhancing transportation improvement projects, the region must couple these requests with efforts to reduce overall travel demand. The goal of a Travel Demand Management (TDM) program is to develop alternatives to single-occupancy vehicle travel, with the ultimate goal of reducing system wide vehicle miles travelled (VMT). The 2022 RTP/SCS includes several TDM strategies. Their anticipated VMT benefits are highlighted in Table 6.2.

Table 6.2 – 2035 Vehicle Miles Traveled (VMT) Reductions

Strategy	2035 Daily VMT Reduction
Active Transportation Projects	92,000
Modesto Bus Rapid Transit	31,000
ACE Forward	31,000
eTrip (Rule 9410) and Vanpool	211,000
VMT Mitigation Bank / Exchange Program	205,000

These initiatives are described below.

### Active Transportation

The 2022 RTP/SCS includes nearly \$650 million for active transportation projects that will create new and safe connections for walking and biking trips. This will make it more attractive for users to walk or bike for shorter trips which in turn reduces the amount of locally generated VMT.

### Modesto Bus Rapid Transit

StanRTA is planning to implement a high frequency bus service between West Modesto and the Vintage Faire Mall via the Downtown Transit Center. This route would provide a direct connection for many commutes and trips leading to increased transit ridership in the City of Modesto.

### ACE Forward

The StanCOG 2022 RTP/SCS includes an extension of the Altamont Commuter Express (ACE) through Stanislaus and Merced Counties with stops in Modesto, Ceres, and Turlock. The service would then continue to the City of Merced. ACE service would include one train per day in each direction between Stanislaus County and San Jose, and three trains per day between Stanislaus County and Sacramento.

This could replace as many as 1,960 single occupant vehicles each day, primarily from commuters. The three Sacramento-bound trains would offer a transfer at Lathrop for those traveling to Alameda County or San Jose.

### ***Dibs***

Dibs is an informational travel service provided throughout Stanislaus, San Joaquin, and Merced counties. By linking people with information on transportation options, including carpooling, vanpooling, transit, and alternative modes, Dibs aims to reduce single-occupancy trips and congestion.

### ***SJVAPCD Rule 9410 (Voluntary Employer Travel Demand Management Program)***

The goal of this program is to require larger employers to establish an Employer Trip Reduction Implementation Plan (eTRIP) to encourage employees to participate in transportation demand management options such as carpool or the use of transit services to reduce single- occupant vehicles trips.

### ***CalVans Vanpool***

CalVans is a California Vanpool Authority program that provides van-share options for qualified California residents, with service in Stanislaus County. It is anticipated that single occupant vehicle drivers will opt to use the new vanpool capacity, thereby reducing VMT within the County. Many vanpools serve inter- county commutes, so the service will have a much greater VMT benefit than what is shown for just Stanislaus County.

### ***VMT Mitigation Bank***

While not directly a TDM measure, the development of VMT Bank allows development that is important to the County to continue in exchange for contributions to projects that result in VMT reduction to mitigate the potential impact of project generated VMT. This measure would therefore support TDM programs and VMT reducing infrastructure within Stanislaus County.