



06

System Preservation



RIVERBANK
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Riverbank Fountain, Riverbank, CA

6 SYSTEM PRESERVATION

Maintaining a transportation system in a state of good repair is a key component in determining regional transportation investments given that the condition of a transportation facility or service directly impacts its relative usefulness. In addition, 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, or Pavement Condition Index (PCI), is a measure of roadway pavement condition. As roadway pavement conditions worsen, the cost of repair increases exponentially. Therefore, StanCOG administers funding that supports local jurisdictions in achieving their maintenance and transit operational needs. Roadways in Stanislaus County are periodically evaluated for their PCI.

As shown 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.

As shown in **Table 6.1**, with the exception of unincorporated Stanislaus County roadways, the majority of Stanislaus County jurisdictions had an average PCI of between 50 and 70, which is considered At Risk.

Figure 6.1 - PCI Range



Table 6.1 - Pavement Conditions Index (PCI) Data

Name	County	Center Line Miles	Lane Miles	PCI	Condition
Ceres	Stanislaus	132.60	269.80	61	At Risk
Hughson	Stanislaus	27.40	55.10	71	Good
Modesto	Stanislaus	606.74	1,345.46	50	At Risk
Newman	Stanislaus	42.32	85.05	61	At Risk
Oakdale	Stanislaus	87.90	204.30	61	At Risk
Patterson	Stanislaus	80.87	161.64	61	At Risk
Riverbank	Stanislaus	102.99	204.82	71	Good
Stanislaus County	Stanislaus	1,559.66	3,141.87	49*	Poor
Turlock	Stanislaus	251.40	496.00	61	At Risk
Waterford	Stanislaus	24.40	55.90	71	Good

Source: League of California Cities "California Statewide Local Streets and Roads Needs Assessment", 2016.

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. Farebox recovery ratio 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). Farebox recovery ratio is used by transit agencies for monitoring progress toward policy goals and objectives. In order to receive the 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 formula for transit operators to measure how much of their funding comes from ticket sales, referred to as the farebox recovery ratio (FRR). 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 an urbanized area 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 fixed route transit that serve 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%. 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 2010 decennial census, Stanislaus County became an urbanized county as its population increased above the 500,000 threshold to 515,334. As such, current FRR's for providers of fixed-route transit in Stanislaus County are as follows:

- Modesto Area Express (MAX): 20% (urban)
- Stanislaus Regional Transit (StaRT): 15% (urban-rural blend)
- Turlock Transit (TT): 20% (urban)
- Ceres Area Transit (CAT): 20% (urban)

Congestion Management

The Congestion Management Process (CMP) 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. A CMP is required by the Federal Highway Administration (FHWA) to be developed and implemented as an integral part of the metropolitan planning process in urbanized areas with a population over 200,000. These metropolitan areas are known as Transportation Management Area (TMAs) and 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. StanCOG's congestion management process is currently in development to satisfy these and other requirements.

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 to invest resources in projects that, collectively, will make progress toward achieving national goals. Safety is one of the goal areas for which the state and Federal Highway Administration (FHWA) have made significant progress towards implementation of National Transportation Performance Management Requirements. In 2016, over 3,000 vehicle collisions occurred in Stanislaus County (see **Table 6.2**).

Table 6.2 Stanislaus County 2016 Collisions
Number of Collisions Percentage

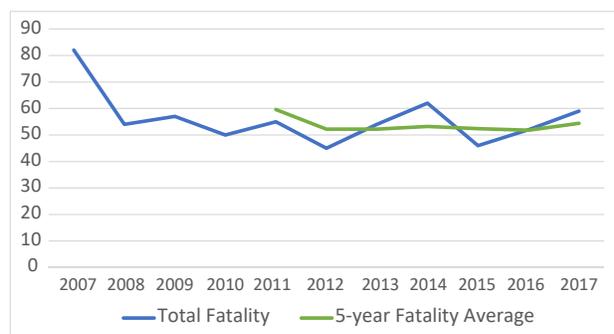
Stanislaus County 2016 Collisions		Number of Collisions	Percentage
Crash Involvement	Motor Vehicle	2469	80%
	Pedestrian	193	6%
	Bicycle	153	5%
	Motorcycle	150	5%
	Trucks	122	4%
Total		3087	100%
Stanislaus County 2016 Collisions		Number of Collisions	Percentage
Geography	Rural	1099	36%
	Urban	1988	64%
	Total	3087	100%

Source: Statewide Integrated Traffic Records System (SWITRS), Stanislaus County, 2016

To support the State of California in meeting its safety goals, MPOs are required to set safety performance targets for long-range transportation planning. StanCOG has elected to adopt the state's targets and is planning and programming projects that contribute toward the accomplishment of the Caltrans 2018 Safety Targets.

As presented in **Figure 6.1**, there was a downward trend in crash fatalities in Stanislaus County during the economic downturn as a result of the 2008 recession, as economic downturns are frequently associated with less growth in traffic or a decline in traffic volumes and an associated reduction in the number of crash fatalities and injuries. The total number of fatalities has fluctuated, however, as the economy has taken the path to recovery. The 2018 RTP/SCS contains significant investments in strategies to provide improved facilities for motorists, pedestrians and bicyclists to reduce collisions on the region's roadways.

Figure 6.1 Stanislaus County Fatalities



Source: NHTSA Fatality Analysis Reporting System (FARS), Stanislaus County, 2007-2017

Reliability

Increasing travel time reliability of the transportation system is an important component of system preservation. Travel time reliability measures consistency or dependability in travel times and applies to both vehicular travel and transit systems, as well as 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 about the specific routes they take, or the time of day in which they make 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 manages traffic flow and helps to increase reliability by reducing the impacts and duration of incidents, as well as smoothing traffic flows to slightly increase roadway capacity without adding pavement.

Traditional components of ITS include advanced communications technologies that allow for information to be shared between vehicles and infrastructure. This technology 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 vehicle miles travel (VMT). **Table 6.2** presents the anticipated reduction in VMT resulting from various TDM efforts. Some alternatives to single-occupancy vehicles are described below.

Altamont Corridor Express

The StanCOG 2018 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.

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. Most vanpools serve inter-county commutes, so the service will have much greater VMT benefit than what is shown for just Stanislaus County.

**Table 6.2 -
2035 Vehicle Miles Traveled (VMT) Reductions**

Year	CalVans	ACE Forward	Active Transportation	TDM	Total
2035	5,471	30,755	25,609	152,099	213,934

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 carpool or use transit services to reduce single-occupant vehicles trips. By year 2035, this TDM program could result in an approximate reduction of 152,099 vehicle miles traveled.