

6.7 Transportation Systems Management

This chapter describes Transportation System Management (TSM) techniques, which are generally low-cost and designed to maximize the efficiency of the existing transportation system, reduce travel demand and dependence on single occupant vehicles, improve air quality, and reduce or eliminate the need for new and expensive transportation infrastructure.

TRANSPORTATION SYSTEM MANAGEMENT (TSM)

Finding creative solutions to deal with growth in population, traffic congestion, and achieving federal air quality standards, is an ongoing effort. One element of this effort that remains constant is finding ways to make our existing transportation system as efficient as possible. This is the role of Transportation System Management (TSM).

Transportation Systems Management (TSM) is often used interchangeably with Transportation Control Measures (TCMs) and Travel Demand Management (TDM) to describe a series of techniques designed to maximize the efficiency of the existing transportation system by reducing dependence on single occupant vehicles. The common goals of TSM, TCMs, and TDM are to reduce traffic congestion, improve air quality, and reduce or eliminate the need for new and expensive transportation infrastructure. Techniques are generally low-cost measures to reduce travel demand or improve the utilization of existing transportation facilities.

The differences between the three concepts are subtle. Each contains alternative transportation measures, such as carpooling, transit, bicycling, walking, vanpooling, compressed work weeks, and telecommuting. Transportation Systems Management (TSM) places emphasis on reducing traffic congestion by increasing the person-trip capacity of existing transportation systems. TSM techniques also include restriping roadways for channelization, ramp metering, establishment of freeway auxiliary lanes, and freeway service patrol. Travel Demand Management (TDM) strategies are designed to influence an individual's travel behavior by reducing the demand for single occupant vehicle travel, especially during peak commute periods. TDM strategies include techniques such as preferential parking for carpoolers, teleconferencing and advanced communication technology. Transportation Control Measures (TCMs) are geared towards reducing air pollution through techniques such as alternative fuel vehicles.

Since 1981, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have required that Transportation Systems Management (TSM) be part of the regional transportation planning and programming process. Specifically, the Regional Transportation Plan must have a TSM element which describes how the region intends to deal with the movement of people and goods by improving the efficiency and effectiveness of the total transportation system.

SACOG's MTP 2035 identifies a goal to reduce regional trips anticipated in the MTP by 10 percent. Land uses defined by Blueprint principals provide the framework for the future reduction in trips and VMT. TSM and TDM programs are a complementary component toward achieving the 10 percent trip reduction goal. Work-based trips account for about 20 percent of all

daily trips in the region. To contribute to the goals set forth in the MTP 2035, TSM and TDM programs will need to expand services to target the other 80 percent of regional trips. This chapter outlines various TSM and TDM strategies currently implemented in Placer County that will contribute toward achieving the regional goal.

According to 2005 Urban Mobility Report prepared by the Texas Transportation Institute, using 2002 data for Sacramento, about 48 percent of daily travel occurs in congested conditions, resulting in 40 hours of delay per traveler per year at a total congestion cost of \$739 per traveler per year.

TSM STRATEGIES

Traffic Flow Improvements

Roadway restriping, spot widening, channelization, ramp metering, auxiliary lanes, elimination of on-street parking, and computerized signalization are techniques currently used to improve the flow of traffic without new road construction.

- Roadway restriping seeks to increase the number of lanes by reducing lane width, thus increasing traffic capacity.
- Channelization, which is often done in conjunction with restriping, adds turn lanes to busy roadways to eliminate traffic backups behind cars trying to make turns.
- Auxiliary lanes are often added to ease merging of traffic onto and off of freeways, such as Interstate 80.
- Elimination of on-street parking is done to add lanes, and thus capacity, to heavily traveled roadways. In addition, traffic backups caused by vehicles entering or exiting on-street parking spaces is eliminated.
- Computerized signalization seeks to coordinate signal timing to smooth traffic flow.

Freeway Service Patrol (FSP)

Approximately half of the delay experienced by travelers in the United States is due to causes other than simple high volumes of traffic. Much of this nonrecurring congestion occurs as a result of traffic accidents and stalled vehicles. Quickly identifying and removing vehicle incidents reduces traveler delay by returning traffic capacity to normal levels. Freeway service patrol (FSP) programs are designed to reduce the traffic congestion during peak commute periods on area freeways by removing traffic impediments, such as cars with mechanical problems or that have been involved in accidents, as well as assisting the motoring public.

In 2003, PCTPA received grant funding from the Placer County Air Pollution Control District (APCD) to implement a Freeway Service Patrol in the congested areas of I-80 in south Placer County. This service operates weekdays during peak commute periods.

In 2005 and 2008, the Freeway Patrol Service was augmented by State funding, allowing the program to expand to SR 65 and adding hours of operation. A service truck which provides non-tow related service was added in 2009 to complement the existing weekday tow service and on Sundays in 2010 to assist recreational traffic occurring in the late afternoon / early evening.

Table 6.7-1 summarizes recent assist data for the PCTPA administered program.

Table 6.7-1
**Freeway Service Program Assist Comparison
By Problem Type & Vehicle Location**

Problem Type	2007 / 2008		2008 / 2009		
	SR65	I-80	SR65	I-80	Service Truck*
Abandoned	137	132	105	104	69
Accidents	204	179	432	438	63
Debris	37	30	36	25	31
Electrical	28	14	24	54	15
Flat Tire	175	183	249	288	205
Mechanical	142	147	276	265	197
Other	109	152	473	410	85
Out of Gas	168	100	117	105	82
Overheat	74	39	68	83	97
	1074	976	1780	1772	844
Vehicle Location					
In FWY Lanes	85	46	117	102	40
On a Ramp	27	63	141	114	3
On Left Shoulder	59	93	143	164	15
On Right Shoulder	887	710	1264	1347	784
Other	12	19	89	8	0
Unable to Locate	4	45	26	35	2
	1074	976	1780	1770	844

Note: Service Truck implemented in January 2009 (reflects only 6 months of assists).

Public Transit

Public transit service is the most widely used TSM measure in Placer County serving residents who depend on transit for commuting to work and school and for shopping, medical, and leisure trips. For a more comprehensive overview of the public transit and passenger rail services

operating in Placer County see the Public Transit and Passenger Rail sections of the Action Element.

Public transit service is provided by the Placer County Department of Public Works, the City of Roseville, the City of Auburn, the City of Lincoln, and the Western Placer Consolidated Transportation Services Agency (CTSA). Both Roseville and Placer County provide commuter bus services to downtown Sacramento. In addition, Placer County subsidizes ten commuter vanpools that provide an alternative to driving alone. The Capitol Corridor Joint Powers Authority (CCJPA) provides intercity passenger rail service between Auburn and San Jose with stops in Rocklin and Roseville in Placer County.

Ridesharing

There are several coordinated ridesharing programs that serve Placer County. The Sacramento Area Council of Governments (SACOG) manages the Regional Rideshare program covering Placer, El Dorado, Sacramento, Yolo, Yuba, and Sutter counties. It is part of a statewide network of rideshare agencies. The purpose of the Regional Rideshare program is to encourage the use of carpooling and other alternative transportation modes for traveling to work, school, personal trips, and recreation. The Regional Rideshare program includes a toll-free, easy to remember number (511) to call for information, a database of commuters interested in ridesharing (carpools and vanpools), and an extensive outreach program through employers.

Another regional program focused on encouraging ridesharing is Spare-the-Air managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD) and supported by the air districts of the Sacramento region (including the Placer County Air Pollution Control District). Spare-the-Air is a regional driving curtailment and health notification program that operates in the Sacramento ozone non-attainment area (which includes Placer County with the exception of the Tahoe Basin) during the summer smog season of June through September. Drivers are alerted to reduce driving on days when ozone formation is expected to be high, and the public is advised of ozone levels and health effects through a variety of media. In addition, all of the public transit providers in Placer County offer free rides on Spare the Air days.

PCTPA and the City of Roseville implement the Congestion Management Program (CMP) for Placer County. Their efforts are closely coordinated with the Regional Rideshare program and Spare-the-Air. The CMP provides marketing, seasonal incentive, educational and outreach efforts to the public and employers throughout Placer County about the benefits of using alternative modes of transportation, with the goal of reducing drive-alone auto commute trips and VMT. The CMP also offers an emergency guaranteed ride home program for employees, and includes educating school age children about the benefits of using alternative transportation, with the objective of positively impacting their view of alternative transportation before driving habits are established. A component of the CMP also includes implementation of the Western Placer Marketing Study, completed in 2003. The purpose of this Study is to facilitate the marketing of transit services as an integrated system, focused on increasing awareness of public transit through specific marketing strategies.

Finally, PCTPA has received a grant, from the Placer County Air Pollution Control District that funds a coordinated transit marketing program geared specifically to raise awareness of public transit options in Placer County. The coordinated transit marketing effort complements the CMP and includes the cooperation of the public transit operators who provide direction on marketing campaigns. As part of the program, public transit operators offer a summer youth pass good for unlimited rides on all fixed route transit in Placer County during summer months.

Pedestrian and Bikeway Facilities

By making these methods safer and more convenient, pedestrian and bikeway facilities make bicycling and walking more attractive as alternatives to the automobile. To further support biking as a viable alternative to driving alone, Placer County bike maps are available to the public. For a discussion of plans for pedestrian and bikeway facilities within Placer County, see the Non-motorized Transportation section of the Action Element.

Park-and-Ride Lots

The purpose of park-and-ride lots is to provide a central meeting place adjacent to major travel routes where commuters can congregate and form carpools or catch buses for the remainder of the commute trip. Non-commuters can use these facilities for recreational purposes, such as trail access for bicycling, hiking, and equestrian usage.

Caltrans operates numerous park-and-ride lots in Placer County, located along Interstate 80. Placer County also operates several lots, which are located convenient to I-80 as well. Many lots include bicycle lockers and are all paved areas for parking cars. Table 6.7-2 identifies Placer County park-and-ride lot locations and their service characteristics.

Table 6.7-2
Placer County Park-and-Ride Facilities

Jurisdiction	Location	Owner	Spaces	Transit Service	Bike Locker	Bike Lockers
Auburn	West of SR 49 at Atwood Rd	State	42	No	No	0
Auburn	Auburn Amtrak Rail Station -Nevada Street and Fulweiler Avenue	City	50	Amtrak and Placer County Transit	No	0
Placer Uninc.	Bell Rd and Bowman Rd NW side of 80	State / County	33	No	No	0
Placer Uninc.	Bowman - East side of Lincoln Way Interchange of I-80	County	21	No	Yes	4
Meadow Vista	Clipper Gap Rd - South side SR 80 on Placer Hills Road	County	53	Placer County Transit	No	0

Newcastle	Newcastle - SE side of Newcastle Rd Interchange	State / County	39	No	No	0
Newcastle	Indian Hills Rd and Newcastle Rd	State	27	No	No	0
Ophir	Lincoln / Ophir SR 193 on North West side of I- 80	County	37	No	No	0
Penryn	Penryn Rd Interchange on NW of I-80 on Boyington Rd	County	39	Placer County Transit	No	0
Weimar	Weimar Cross Rd -SW side of SR 80 at Weimar Cross Roads	County	12	No	No	0
Colfax	Dingus McGees Colfax (former) - Approx 1 mile south of Colfax/west side of SR 80	Private	50	No	No	0
Colfax	Colfax Amtrak Railroad Street	City	10	Amtrak and Placer County Transit	No	0
Lincoln	Sierra College Blvd - SW corner of SR 193 and Sierra College Blvd	State	24	No	No	0
Loomis	Horseshoe Bar Rd Interchange South side of SR 80	County	24	No	No	0
Loomis	Loomis Train Station, Horseshoe Bar Road	City	71	Placer County Transit		3
Rocklin	Sierra College Blvd - SE I-80 at Sierra College Blvd	County	24	No	No	0
Rocklin	Rocklin Amtrak Station - Rocklin Road and Railroad Avenue	City	50	Amtrak and Placer County Transit	No	0
Roseville	Roseville Amtrak Station - Church Street and North Grant Street	City	78	Amtrak and Roseville Transit		0
Roseville	Church at Cirby Way and Orlando Av	Private	172	Roseville Transit	Yes	Yes
Roseville	Creekside Town Center - Creekside Ridge Court	Private	50	Roseville Transit	No	0
Roseville	Foothills Blvd / Junction Blvd	Private	25	Roseville Transit	No	0
Roseville	Mahany Park - Pleasant Grove Blvd / Woodcreek Oaks	Private	42	Roseville Transit	Yes	0

Roseville	Maidu Park - East of I-80 at Rocky Ridge Drive and Johnson Ranch Drive	City	50	Roseville Transit	No	0
Roseville	Highland Reserve Marketplace - Pleasant Grove Boulevard and Fairway Drive	Private	25	Roseville Transit	Yes	Yes
Roseville	Roseville Galleria Blvd / East Roseville Parkway	Private	50	Placer County Transit and Roseville Transit	No	0
Roseville	Saugstad Park - NE of I-80 at Douglas Blvd and Buljan Street	State / County	91	Roseville Transit	Yes	6
Roseville	Roseville Costco - Stanford Ranch Road / Five Star Blvd	Private	35	Placer County Transit	No	0
Roseville	Taylor Road & Eureka Road	State	150	Placer County Transit and Roseville Transit	Yes	16

Source: Guide to Regional Park and Ride Lot, Sacramento Region 511 / SACOG, October 2006.

Mobility Rest Areas

Mobility rest areas are provided to increase driver safety and satisfaction. They offer motorists and commercial drivers regular stopping opportunities to rest, receive pertinent traveler information, and access to restroom facilities. There are currently two rest areas in Placer County, located along I-80 at Gold Run and Donner Summit, and one additional facility on SR20 just west of I-80 in Nevada County. One new rest area has been identified by Caltrans for I-80 east of Truckee, although no funding has been identified for its implementation.

Potential TSM Strategies

In Placer County, most every applicable TSM strategy is already being used in some form. Some strategies, such as transit, are well-established, while others, such as use of alternative fuels, are just beginning to expand their applicability. In addition, there are several Intelligent Transportation Systems (ITS) studies recently completed or underway in the Sacramento region, in the foothill counties (Placer, El Dorado, Nevada, Sierra), and in the Tahoe Basin (refer to Chapter 6.9). The result of these studies will be recommendations for implementation of technology improvements that can improve the flow and timeliness of information available to the traveler in order to avoid and/or reduce traffic congestion and delays due to traffic.

TDM STRATEGIES

Telecommuting, Compressed Work Weeks, and Flexible Work Hours

Telecommuting, compressed work weeks, and flexible work hours are employment based techniques to reduce the number of work trips per week, or to transfer trips to reduce peak hour congestion. Telecommuting, or alternative work location, allows workers to perform job duties at home or another location, communicating with the main work center by modem, fax, or telephone as necessary. This alternative is especially attractive for workers in rural areas or those commuting long distances, and studies have shown telecommuters are up to 20% more productive.

Compressed work weeks increase the number of hours worked each day to squeeze a regular work week into fewer work days. A typical schedule could be four 10-hour work days each week (4/10 schedule) or eight 9-hour days and one 8 hour day in two weeks (9/80 schedule).

Flexible work hours do not reduce the number of work trips per week, but seek to reduce traffic congestion by shifting some trips out of the peak period. Employers using flexible hours may allow workers to vary time of arrival and departure daily, or may require workers to choose a specific schedule to meet the needs of the employer and employee.

Teleconferencing

Teleconferencing is generally defined as meetings held by telephone or via video hookup to replace the need for traveling to meet in person. Many employers in Placer County utilize teleconferencing as a cost-effective way to conduct meetings and seminars while avoiding travel on roadways.

TDM Examples

There are many examples of TDM promotions and marketing campaigns currently being implemented in Placer County. The venues outlined below provide an opportunity for promoting alternative transportation modes through both on-going and seasonal campaigns, with an emphasis on congestion management and improved air quality.

Examples of ongoing TDM promotions and marketing campaigns implemented in Placer County include:

- Coordination with SACOG, regional air districts, and jurisdictions on alternative transportation efforts
- Transportation fair participation

- Sacramento Region 511 Rideshare marketing and match listing services
- Sacramento Region Commuter Club
- Vanpool promotion
- Emergency Guaranteed Ride Home services
- Transit information services for the general public
- TDM outreach for major capital projects
- Media releases, including Public Service Announcements, cable, radio and newspaper advertisements and articles
- Outreach to jurisdictions, employers and schools
- Quarterly employer TSM meetings, including training seminars for Employee Transportation Coordinators
- New employee outreach, including information packets with alternative transportation information
- Speaking engagements

Examples of seasonal TDM promotions and marketing campaigns implemented in Placer County include:

- Spare the Air, including free fare and incentive campaigns
- Summer Youth Bus Pass
- Bucks for Bikes
- May is Bike Month bike to work day events
- Earth Days
- Capitol Corridor holiday shopper program and kids ride free on weekends
- Way to Go-Walk to School days

TDM Partnerships

Partnering occurs with other on-going and seasonal campaigns with similar messages. This helps leverage resources for greater impact. PCTPA is an active partner in SACOG's Transportation Demand Management Working Group. This group coordinates and develops alternative transportation marketing strategies that are promoted by member organizations. Examples of

recent regional efforts include the Commuter Club and Bike Month. PCTPA has a strong working partnership with the City of Roseville and their large employer based network of businesses. PCTPA also works with the Capitol Corridor to promote passenger rail transportation as an alternative for Placer County residents traveling to downtown Sacramento, Davis and to the Bay Area both for commute and recreational purposes. All of Placer County jurisdictions are members in the Transit Operators Working Group (TOWG), which serves as an advisory group for implementing the recommendations of the Western Placer County Transit Marketing Study.

TDM Program Impacts

With a number of commuters using ridesharing arrangements and public transit, and an increasing percentages traveling outside peak periods, it is increasingly important to understand the effects traveler choices relate to external influences and public policy choices. Currently, the Sacramento region does not have a monitoring and measurement system in place to assess progress or long-term effectiveness of existing TDM programs. At one time, placement surveys were used to assess whether persons registering for ridesharing were placed into alternate modes of commuting. These surveys were, however, discontinued several years ago by SACOG. The current means of assessing program effectiveness is to use the results of the decennial Census Household Travel Survey. SACOG has recently assembled a Regional Transportation Monitoring Report documenting transportation data and trends in the Sacramento region from 2002 to 2009. The Monitoring Report provides a useful understanding of how the transportation system in the region is being used; and what changes and trends are in evidence. SACOG anticipates the Regional Transportation Monitoring Report will be updated every two years. The report will provide a resource to track and monitor the progress of transportation system performance.

TSM ACTION PLAN

Short and Long Range

1. Work cooperatively with neighboring jurisdictions to implement ITS improvements that would support TSM efforts in the region. (*PCTPA, SACOG, TRPA, NCTC, EDCTC, Sierra County, Caltrans*)
2. Continue to work cooperatively with SACOG, SMAQMD, and the City of Roseville on implementation and enhancement of regional rideshare programs that encourage the use of alternative modes of transportation. (*SACOG, SMAQMD, PCTPA, City of Roseville, local employers*)
3. Continue to work cooperatively with area school districts on outreach to children in educating them about the benefits realized through the use of alternative transportation. (*PCTPA, school districts, transit operators*)

4. Promote alternative modes of transportation to help meet the transportation needs of rural agricultural workers in Placer County. *(PCTPA, transit operators, agricultural industry, Placer County Farm Bureau, Placer County Agricultural Commissioner, Placer County Agriculture Department, Caltrans, SACOG)*
5. Implement traffic flow improvements on regionally significant roadways. *(PCTPA, jurisdictions, Caltrans)*
6. Improve and expand public transportation systems (bus and rail) as feasible, to maintain existing and increase new ridership. *(PCTPA, CCJPA, transit operators)*
7. Develop and expand facilities to support the use of alternative transportation such as pedestrian and bicycle facilities, park-and-ride lots, and intermodal transfer stations. *(PCTPA, CCJPA, jurisdictions, Caltrans)*
8. Increase the awareness to media, employers and the general public of alternative transportation options in Placer County through outreach, educational and incentive programs. *(PCTPA, jurisdictions, transit operators)*
9. Encourage SACOG to develop a periodic regional survey of traveler choices, which would monitor trends in traveler choices related to external influences and the impact of public policy programs. *(SACOG, jurisdictions, transit operators, PCTPA, Caltrans)*
10. Promote a transportation system which minimizes the dependency of long-distance, single-occupant vehicle trips and vehicle miles traveled in Placer County toward achieving SACOG's 10 percent regional trip reduction goal. *(SACOG, jurisdictions, transit operators, PCTPA, Caltrans)*

TSM PROJECTS

There are a few projects specifically designated TSM in the RTP, as shown below. There are, however, many other projects that are consistent with the TSM action plan including passenger rail, public transit, and non-motorized projects. See those sections of the Action Element for applicable project lists.

Table 6.7-3
TSM Projects List

Lead Agency	SACOG Project ID	SACOG MTP	SACOG MTIP	Project Title	Project Description	Year Complete	Status	Current Year (2010) \$	Expenditure Year \$	
Placer County Transportation Planning Agency	PLA25468	09-00	11-00	Placer County Congestion Management Program	The Placer County Congestion Management Program (CMP) provides educational and outreach efforts regarding alternative transportation modes, with a specific emphasis on marketing of public transit services to employers, residents and the school community. CMP activities are coordinated with the City of Roseville and SACOG's Regional Rideshare / TDM Program.	2014	Programmed	\$570,428	\$667,320	
Placer County Transportation Planning Agency	PLA25140	07-00		Congestion Management Program (CMP) activities (2014-2035)	Congestion Management Program activities for educational & outreach to reduce traffic congestion & drive alone auto trip making in Placer County. Both City of Roseville & PCTPA are implementing agencies.	2014-2035	Planned	\$2,500,000	\$5,696,920	
								2010-2015	\$689,476	\$938,602
								2016-2024	\$1,071,429	\$2,441,537
								2025-2035	\$1,309,524	\$2,984,101
								Total	\$3,070,428	\$6,364,240