

# Chapter 4

## Maximizing System Efficiency

This chapter highlights opportunities to maximize system efficiency through adjustments in the transportation system and modifications in travel behavior. Our existing transportation system represents a major investment of capital and labor resources over many decades. **VISION 2025** identifies (in Chapter 5) additional investments necessary to meet future transportation needs while placing top priority on making the best use of the facilities already in place. Lower-cost investments in existing transportation facilities, which can be implemented in the near-term, will help reduce the need for higher cost, major capital investments in the future. With advanced planning and the programming of funds on transportation control measures, public policy can increase the efficiency of the transportation system and the attraction of convenient alternatives, thereby decreasing the attraction of single occupant vehicles.

Given the Scenario Fundability Comparison, Table 1-3 (Chapter 1, page 1-5), widening Route 101 to 6-lanes must be deferred beyond the scope of this plan. The 1997 Route 101 Major Investment Study commissioned by SLOCOG also advised delaying six-laning. The recommended implementation package of the MIS included a combination of travel demand and system management techniques and spot widening, as necessary. The MIS also noted the need for a monitoring program prior to six-laning to evaluate the effectiveness of TDM/TSM measures.

**VISION 2025** endeavors to maximize the efficiency of the existing transportation system through the implementation of Demand Management, System Management, and Intelligent Transportation Systems. These three programs can increase the efficiency of the existing transportation network. Furthermore, through an ongoing monitoring program the region will be able to better assess existing conditions, the effectiveness of improvements, and make the necessary adjustments to ensure that the region's investment decisions are germane and consistent with regional policies.

### **TDM - Transportation Demand Management**

Measures in this category are designed to modify individual travel behavior through incentive programs. Such programs usually focus on motivational methods (financial, convenience, regulatory) to increase the use of ridesharing, public transit, bicycling, walking and other alternatives to the single occupant vehicle. Implementation can be through improvements in public transit and rideshare matching services and other supporting strategies.

**VISION 2025** recommends TDM as a fundamental approach to achieve multiple goals of the region. Improved mobility, accessibility, and efficiency can be expected through the increasing usage, financial support, and promotion of various TDM strategies. This plan supports actions to reduce single occupant vehicles with focused efforts to increase carpooling, vanpooling, and public transit usage. **VISION 2025** also supports the expansion of alternative transportation options and opportunities for rail, pedestrian, bicycle and air travel.

### Chapter contents

**Demand Management** (4-1)

**System Management** (4-3)

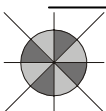
**Intelligent Transportation** (4-4)

**Performance Indicators** (4-7)

**Action Policies** (4-11)

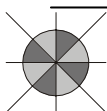
### **TDM Strategies**

- Carpooling
- Vanpooling
- Transit Ridership
- Ridesharing
- Telecommuting
- Employer Measures
- Economic Incentives
- Parking/Pricing Management
- Alternative Work Hours
- Toll and Congestion Pricing



The following list identifies several TDM strategies available.

- **Carpools** – 2+ people in an automobile, commuting
- **Vanpools** – 6+ people in a van, commuting.
- **Transit Ridership** – Directed efforts to encourage use of existing transit options.
- **Ridesharing** – Directed efforts and promotions to reduce single-occupant vehicles.
- **Parking Shuttles** – Focus on high demand areas such as recreational destinations and large employment centers.
- **Telecommuting** – Using a computer and Internet connection to reduce work trips.
- **Complementary Support Measures by Employers** -- Supporting programs by employers can increase the effectiveness of other TDM programs through marketing, providing site amenities (bike facilities, showers), and other supporting services.
- **Economic Incentives** -- The objective of this strategy is to provide direct economic incentives for travelers to shift from single-occupant vehicles. These economic incentives include transit fare subsidies, rideshare subsidies, travel allowances, and use of company fleet vehicles for use in rideshare programs.
- **Parking Supply and Pricing Management** --The objective of this strategy is to reduce the supply and demand of parking, which translates to a direct reduction in the number of vehicles on the roads. Research suggests that the supply and price of parking may be the most potent demand management strategy. Higher parking prices or time restrictions forces some single-occupant vehicle users to reconsider commute alternatives such as transit or ridesharing to split the cost of parking or take advantage of reduced prices for carpools.
- **Alternative Work Hours** -- Work hours established by employers and class times scheduled by educational facilities govern the time period in which employees and students travel. These policies influence the volume of employees and students traveling during the peak traffic periods. The implementation of alternative working hours, such as staggered work hours, compressed workweek, and flex time, would spread the arrival-departure times and thus reduce peak period travel demand. Commonly used at employment centers, flexible hours can also be applied to other major destinations, including colleges and schools, to reduce travel in the peak hour.
- **Tolls and Congestion Pricing** --This strategy highlights the direct cost of automobile use. Since drivers are often unaware of the costs associated with driving (road maintenance, insurance, capital investments, fuel subsidies), direct pricing of automobile use can be an effective tool in reducing the amount of vehicle miles traveled (VMT). The effect of direct pricing for automobile use also serves to suppress the latent demand for automobile use. Congestion pricing, where road users are charged differential rates varying by time of day and location depending on the level of congestion, is the most direct congestion pricing approach and promises the greatest potential for reducing VMT. Special federal legislation would be required to convert highways in the County to toll facilities. This option is not considered likely or feasible during the 20-year horizon of **VISION 2025**.



## **TSM- Transportation System Management**

TSM strategies emphasize the use of engineering methods, minor capital enhancements and investments in alternative transportation to improve traffic flow and the overall performance of the system. One of the benefits of TSM is minimizing the need for major capital investments by improving the efficiency and operation of the existing transportation infrastructure. Typical measures include synchronization of traffic signals, intersection channelization, designation of one-way streets, transit system enhancements, improved parking management, expanded bikeway systems, and development of Park and Ride lots. Implementation is by local and regional transportation providers (local/regional government, transit districts, Caltrans, etc.).

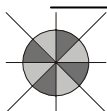
**VISION 2025** supports TSM as a fundamental approach to achieve a sustainable transportation system within the region. Improved mobility, accessibility, and efficiency can be expected through the increasing implementation, financial support, and promotion of various TSM strategies. **VISION 2025** supports actions to implement engineering improvements and investments in alternative transportation as well as the expansion of transit services, bike/ped facilities, and functional improvements.

### **TSM Strategies**

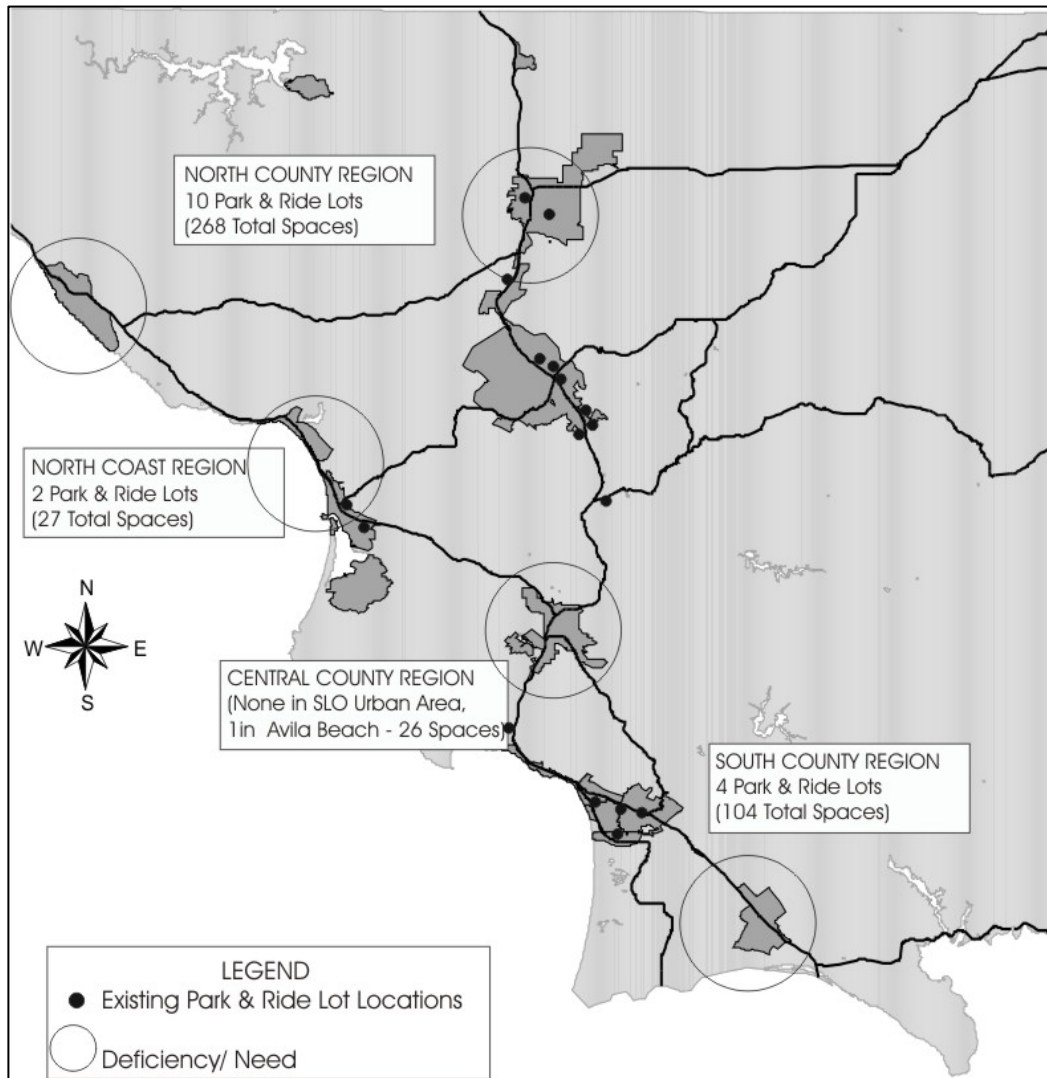
Signal Synchronization  
Channelization  
Transit Enhancements  
One-Way Streets  
Parking Management  
Park & Ride Lots - PnRs,  
Roundabouts  
Bikeway Expansion  
Pedestrian Facilities  
HOV Facilities

The following list identifies several TSM strategies available.

- **Signal Synchronization** – Improves traffic flow through coordination and timing.
- **Channelization** – Separates conflicting movements into distinct lanes, thus reducing accidents and improving flow.
- **Transit Enhancements** – Make transit use easier, more convenient and attractive. One such enhancement could be expanded express bus service coordinated with PnR lot development.
- **Park and Ride Lots** – Provide opportunities for carpools/vanpools or transit riders to begin/end commute. (See Map 4-1 for location of existing PnRs and identification of deficiencies)
- **One-Way Streets** – Increase road carrying capacity by taking away left turns across traffic.
- **Parking Management** – Provides or limits options to park to concentrate travelers or encourage other modes.
- **Bikeway Expansion** – Makes bike travel easier, more convenient and safer.
- **Pedestrian Facilities** - Makes walking easier, more convenient and safer.
- **Roundabouts** – Increases intersection capacity and reduces time spent waiting for signals.
- **Ramp Metering** - The installation of traffic signals at ramp entrances limits and spaces the amount of traffic entering the freeway. By feeding traffic into the freeway mainstream traffic at dispersed regular intervals, the entering vehicles are easily absorbed thus minimizing conflicts and disruption of flow to mainstream traffic. However, local streets may be impacted by traffic queuing for the metered on ramps.
- **High Occupancy Vehicle Lanes** -- Although HOV lanes are not expected within the time frame of **VISION 2025**, the objective of this strategy is to enhance LOS for a designated lane and thus provide an incentive for single-occupant vehicles to shift to high-occupant vehicles. The incentive would come in the form of travel time savings and predictability of travel time; however, the facilities must be in place for HOV use such as an HOV lane or a queue pass-by lane on ramps. HOV lanes work best when there is sufficient traffic congestion to cause significant traffic delays that provide incentives to create carpools.



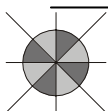
**Figure 4-1 – Park and Ride Lots (Existing Facilities and Deficiencies)**



## **ITS - Intelligent Transportation Systems**

New and advanced technologies are emerging under the broad heading of Intelligent Transportation Systems. ITS encompasses a myriad of devices that capture or disseminate information classified under several primary headings, including: Traffic Management and Safety, Transit Management, Tourism and Traveler Information, and Emergency Management and Enforcement. This program is intended to develop and implement an integrated and modular Intelligent Transportation Systems – using the latest advances in technology - to improve safety, increase efficiency, reduce environmental impacts, and provide for ongoing monitoring and performance.

The foundation for SLOCOG's ITS Strategy was the development of the Central Coast ITS Strategic Deployment Plan in 2000. This plan was developed in a cooperative manner with the RTPAs and MPOs of the Central Coast, Caltrans, California Highway Patrol, the Federal Transit Agency, and the Federal Highway Administration. This Strategic Deployment Plan identifies the future needs of the central coast's transportation system users and local agencies and recommends the appropriate technologies to serve those needs through better



management and integration of the transportation system. An update to the plan is currently underway to meet new Federal guidelines.

Without a designated funding source, implementation of ITS have been minimal. Low-cost safety improvements in the form of advanced crosswalks have been installed in multiple locations and multiple jurisdictions through the use of local and regional funding. Additionally, emergency response advancements have been made in multiple jurisdictions through the implementation of signal override systems and on major highway corridors with the callbox network. San Luis Obispo Transit has a pilot program track vehicles and provide real-time schedule information at key stop locations. Caltrans has installed a Traffic Management Center at District 5. Smart card technology is currently under consideration.

Advanced technologies can be used to better manage our transportation systems performance and to improve mobility, safety, and efficiency on, highways, regional routes, and transit systems. Additionally, detection and information collection systems can be directly used to monitor performance of various systems. Future ITS implementation strategies include using SAFE funds to install ITS components on highways. The following list identifies several ITS devices for each primary heading.

#### **Traffic Management and Safety devices include:**

- Closed Circuit Television are used to monitor road conditions
- Advanced Crosswalks increase awareness of potential pedestrian conflicts
- Highway Advisory Radio can provide motorist with traffic information via radio
- Changeable Message Signs can provided motorists with traffic/weather information
- Detection Devices are used to monitor road conditions and capture/store planning data
- Smart Callboxes have traffic and environmental detection capabilities

#### **Transit Management devices include:**

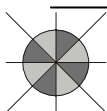
- Electronic Fare Collection collects fares through electronic transit pass readers
- Real-time transit route and schedule information
- Signal Priority gives traffic signal priority to the transit vehicle
- Real-Time Schedule Information provides users access to dynamic transit information
- Video Surveillance provides monitoring for the security of transit passengers
- Automated Passenger Counting counts passengers using automated devices

#### **Tourism and Traveler Information dissemination devices include:**

- Internet-based system (Interactive)
- Kiosk-based system (Interactive)
- Telephone-based system (Interactive)
- Radio and Pager systems (Broadcast)

#### **Emergency Management and Enforcement devices include**

- Signal Preemption gives traffic signal priority to emergency vehicles
- Neighborhood speed monitoring tracks speed issues at a local level
- Emergency Vehicle Tracking and Guidance supports dynamic routing



Past accomplishments for TDM and TSM can be found within the Performance Monitoring section of this chapter. Specific capital projects that maximize the efficiency of the overall transportation system can be found in Chapter 5, Table 5-14.

## Performance Monitoring Program

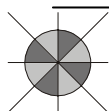
The Performance Monitoring Program (PMP) for **VISION 2025** provides the region with the ability to analyze how well the transportation system is functioning. The data collected for the PMP provides a basis for identifying the need for short and long term system improvements. Through this process the region benefits from the ability to make effective investment decisions.

A significant amount of transportation indicators are already collected regularly by various agencies in the San Luis Obispo region, including: SLOCOG, Caltrans District 5, the Regional Transit Authority (RTA), the cities and county, and non-governmental organizations.

Caltrans SLOCOG and cities/county collect traffic volume counts on a regular basis. Transit Ridership data is collected by the regional and local transit providers and vehicle occupancy on US 101 into San Luis Obispo city is regularly collected by SLOCOG. The SLO Regional Rideshare agency provides data on commuter behavior and the results of regular employer surveys. Aviation and passenger rail service providers collect and report passenger usage data. This data is compared with data from agencies in other parts of the State and nation to determine how indicators for our region are consistent and how local performance compares to other areas.

The indicators used in the PMP measure the transportation system's effectiveness in achieving one or more of the following **VISION 2025** goals:

- A. **Mobility** – Ability of people and goods to move within and through the region in an efficient, economical, and timely manner.
- B. **Accessibility** – Ability of residents and visitors to have access to goods, people and information by using various transportation modes with minimal barriers.
- C. **Safety** – Optimum level of public safety in the use of all travel modes, including commercial vehicles, rail facilities, public transportation vehicles and facilities, and airports.
- D. **Efficiency** – Maximum system utility, service life of infrastructure, and public service with minimum use of financial resources.
- E. **Sustainability** – Provide a transportation network for this and future generations with a balanced pursuit of high cost capital improvements and low cost system preservation, maintenance of overall transportation system and healthy ecosystems, efficient use of financial resources, and minimal consumption of nonrenewable resources.
- F. **Equity** – Optimum allocation of financial and technical resources to effectively address system operation and improvement priorities without negative impacts or biases to geographic areas and economically, socially or racially disadvantaged members of the public.



## VISION 2025 Performance Indicators

The individual sources of data used to measure the performance of the transportation system come from many different agencies and since uniformity is lacking, adjustments must be made. The data collection process in the following performance indicators are the most typical and readily available sources of data used to analyze the status of the transportation system:

- 1. Mode Choice** – The percentage of commuters who travel to work by single occupant vehicle, or ride transit or use other non-vehicular modes. Development of a comprehensive transportation system requires provision of a full range of modal choices. This indicator is designed to evaluate the use of all travel modes.

Commuters in the San Luis Obispo region are better than the national average at carpooling to work (13.5% vs 9.4%), biking or walking (5% vs 3.7%) or working at home (5.6% vs 2.8%) than driving alone to work (72.9% vs 78.2%). Although transit usage is below the national average, it has increased by almost 60% since 1990.

- 2. Travel Time to Work** – The time it takes a worker to get from home to place a of work is an important measure of the increased congestion in our urban areas and a sign that people are moving further from their place of work to find affordable housing.

The region is doing a better than average job of keeping travel times relatively low compared to the nation – this can be attributed to the rural nature of the region. According to the 2000 Census the average commute time in the San Luis Obispo region is slightly less than the national average (21.1 min. vs 25.5 min). More significant is the fact that only 8.8% of local trips are 45 minutes or more versus 15.4% nationally.

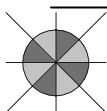
- 3. Average Vehicle Occupancy (AVO)**- The number of occupants per vehicle as measured on Route 101 in the South County and on Cuesta Grade. The single occupant vehicle is the most significant cause of increasing traffic congestion in the San Luis Obispo region. It contributes to increased air pollution and higher fuel consumption, leading to high cost mitigation measures.

The region is doing a better job than the nation in this regard. Drivers in the San Luis Obispo region are more likely to share a ride than drivers around the nation and state. During three of the past four years vehicle occupancy in the San Luis Obispo region has been fairly steady at about 1.25 versus 1.15 for California and 1.14 nationally.

- 4. Park and Ride Lots & Usage** - The work force of the San Luis Obispo region is generally concentrated in the major employment center in the City of San Luis Obispo. Park and Ride Lots are a means of increasing ridesharing and transit use and decreasing traffic congestion and parking problems in the urban centers.

- 5. Transit Ridership** – Total Ridership for the all regional and local fixed-route and Dial-a-Ride transit systems in the region. This indicator is a vital means of evaluating trends in the use of public transit system and the effectiveness of services.

Ridership on all forms of public transit in the San Luis Obispo region is fairly high considering the population distribution and composition. Total Ridership in 2003 was 1.28 million compared to 1.53 million in 1999, but the number is rebounding in 2004 as some routes revamped and others expanded. . So far this year, fixed route Ridership has grown by 2.6%, of which most took place on North and South County local systems (Paso Robles with more than 7%, South County Area Transit (SCAT) and Atascadero at close to 6% each). While SLO Transit overall only grew by 1.4 %-the last 6 months with



the new service plan which has led to a net 5% increase over Jan-June 2003.

- 6. Transit Service Level** – Change in the number of communities served by public transit and the number of trips per day. For public transit to be most successful service must be provided to the greatest number of people. As more people are encouraged to use public transit, traffic congestion is reduced and the need for increasing road capacity is delayed.

The region is doing a very good job of providing transit service to those who need it. Between 1990 and 2000 there was a 105% increase in the number of areas served. The number of routes was increased significantly with service expanded to include San Miguel, Hearst Castle and Santa Maria and the number of daily round trips provided increased from 18 to 37 per day.

- 7. Passenger Rail Ridership** – Change in the number of riders boarding passenger trains (Coast Starlight and Pacific Surfliner) at stations in San Luis Obispo at Grover Beach, San Luis Obispo and Paso Robles. The San Luis Obispo region has a long history tied to the railroads. A significant investment of public funds has been made during the past ten years to improve the SLO Railroad Station and build new stations in Grover Beach and Paso Robles. A great deal of effort was exerted to assure that the San Diegan passenger rail service (now called the Pacific Surfliner) was extended from its former terminus in Santa Barbara to the City of San Luis Obispo.

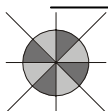
The region is doing a very good job of supporting passenger rail service. During the past five years total annual riders on passenger rail services to the San Luis Obispo region have been fairly high at between 88,000 and 94,000. Between 1999 and 2003, the Coast Starlight had between 45,000 and 53,000 boarding's per year, while the Pacific Surfliner had around 40,000 each year. As of August 2004, ridership statewide on the Coast Starlight is down 25.4% from 2003 while ridership on the Pacific Surfliner is up 15%. For San Luis Obispo County, if the trend between January and July holds, total Ridership will be near the highest level at about 90,000.

- 8. Airline Passengers** – Change in the number of passengers enplaned and deplaned on commercial and private airline services at San Luis Obispo County Airport. Aviation based passenger service to is a valuable component to the overall transportation system. The services provided by aviation are essential to the economy. Air travel is a viable alternative to driving to major urban areas to the north and south of San Luis Obispo – San Francisco Bay Area and the Los Angeles Basin.

During the past five years total annual airline passengers at San Luis Obispo Airport has been fairly high at between 310,000 in 1999 and 295,000 in 2003. This year, following a 3.9% decline from 2002 to 2003 the number of passengers has increased significantly in the first half, by 13%. This is in part due to the addition of three new routes, including Las Vegas, Phoenix and San Jose. If the trend continues, 2004 will see the highest level of passengers since 1999.

- 9. Bike and Pedestrian Facilities** – The number of miles of all types of facilities implemented throughout the region. The provision of facilities for bicycle and pedestrian safety is essential to the establishment of a comprehensive transportation system. These facilities directly serve the public by providing safe access to schools and recreational facilities and urban center.

Significant progress has been made in the past ten years in the process of improving bike facilities. The San Luis Obispo region now has a fairly extensive network of bike



facilities on state highways and local roads. There are more than 16.5 miles of Class I Bikepaths and 150 miles of Class II Bikelanes throughout the region. Major projects have been implemented in all areas of the region, serving the needs of residents and visitors alike. Much work remains to be done to fully develop the bikeway system.

**10. Vehicle Miles of Travel** – Change in Vehicle Miles of Travel (VMT) on State Highways and local roads. The relative variation in vehicle miles of travel on State highways and local roads is an important means of evaluating the relationship between population growth and overall vehicular travel with the region.

The region is doing fairly well in this regard. Between 1995 and 2003 (the last year data is available) the annual growth in VMT for the San Luis Obispo region has been fairly consistent with the Statewide total. The highest growth occurred in 1998 when there was a 5.5 % increase. Since then the rate of growth has been lower; in 1999 it was 3.6%, and in 2000 it was 2.6%. The smallest change was in 2001 when VMT increased by only .6%. This has been attributed to the recession. In 2002 the economy began to recover and VMT increased by 4% and in 2003 it increased by 4.9%.

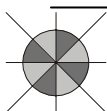
**11. Streets & Roads Condition** - Changes in the condition of local streets and roads as defined in the Countywide Road Maintenance Study. The relative condition of our local streets and roads is an important measure of how well we are addressing the need to provide funding for road maintenance and rehabilitation. The San Luis Obispo region has 1,825 miles of local roads: 1,284 miles are the responsibility of the County and 541 the cities.

Significant progress in improving local roads was made between 1998 and 2003. Between 1998 and 2000 the SLOCOG Board programmed over \$32.4 million in State Transportation Improvement Program (STIP) and State Highway Account (SHA) funds for local street and road purposes. Much work remains to be done. Since 2000 the ability of the SLOCOG Board and local agencies to provide funding for streets and roads has been seriously limited due to the State budget deficit.

**12. Accident Rates** - The number and type of accidents that occur on our State Highways is an important indicator of the condition of these facilities and how well they are designed to maximize safe operation of Vehicles.

During the past several years the overall accident rate for State Highways and local roads in the San Luis Obispo region has been slightly lower than the statewide average for similar facilities.

- The accident rate for Highway 101 in 2001 was about .69 per MVM versus .77 per MVM for similar facilities statewide. Between 2001 and 2003 the rate for Highway 101 declined to .66 per MVM.
- The accident rate for Highway 46 in 2001 was .50 per MVM versus .69 for similar facilities statewide. Between 2001 and 2003 the accident rate for Highway 46 increased slightly to .51 per MVM.
- The rate of collisions per MVM on rural roads in the SLO region dropped from 1.76 to 1.44 per MVM compared with the rate on the State Highway system which fell from 1.32 in 1999 to 1.3 per MVM in 2002 in the same period.



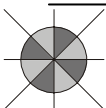
**13. Highway Traffic Volume -** Change in the Average Annual Daily Traffic (AADT) on Highway 101 as measured by Caltrans in its annual reports. AADT is the standard term used to describe traffic flow rates for a roadway segment. It is determined by calculating an average hour of the day representing the segments most common traffic characteristics. The relative change in traffic volumes on the various segments of Highway 101 in San Luis Obispo County is an important measure of the changes in growth and development that are occurring throughout the region.

Between 1980 and 2000 traffic on Highway 101 (which directly serves over 75% of the county population) grew by a low of 77% in the San Miguel area to a high of 169% in the Templeton area. There has been a significant increase in travel within the north county between the cities of Atascadero and Paso Robles and the unincorporated community of Templeton. Traffic volume in the north county has been increasing at a notably higher rate than the south county for the past few years. The following table gives details of the change in AADT for all of Highway 101.

Highway Segment	1980 Seg. Avg. AADT	2003 Seg. Avg. AADT	Change Seg. Avg. AADT % Change
Nipomo	26,300	55,660	29,300 (111%)
Five Cities	28,700	55,600	26,900 (94%)
Avila	30,300	62,500	32,200 (106%)
City of SLO	27,400	64,200	36,800 (134%)
Cuesta Grade	19,000	45,000	26,000 (137%)
Atascadero	20,800	42,250	24,400 (117%)
Templeton	20,460	55,000	34,500 (169%)
Paso Robles	21,600	39,800	18,200 (84%)
San Miguel	10,560	18,667	8,100 (77%)

**14. Roadway Levels of Service (LOS)** – The term LOS is used to qualitatively describe the operating conditions of a roadway or highway based on factors such as speed, travel time, ability to maneuver, following distance, delay, and safety. The level of service of a facility is designated with a letter, A through F, with A representing the best operating conditions and F the worst. The change in LOS is a specific indicator of how much traffic (or the type of vehicles) is increasing on a state highway or local road. As the level of congestion increases to F, the traveling public will experience increasing periods of slow moving or stopped traffic. Transportation planners and engineers monitor the LOS carefully to develop appropriate improvement plans.

In 2004, the average LOS for selected segments of Highway 101 ranged from A in the San Miguel area to a high C rating in much of the remainder of the Route (See Table 2-3 in Chapter 2). In addition, there are an increasing number of times when the LOS declines temporarily to D, E, and sometimes F under high levels of travel during peak commute periods. It is estimated that by 2025 the LOS for Highway 101 will deteriorate significantly unless various improvements are implemented.



## ACTION POLICIES

### Transportation Demand Management

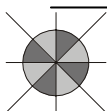
- TDM-1 Support the Regional Rideshare Program and Transportation Management Association as the primary means of implementing Transportation Demand Management strategies.
- TDM -2 Support the implementation of California Air Resources Board and San Luis Obispo County APCD programs that reduce motor vehicle use and enhance air quality.
- TDM -3 Provide recommendations when reviewing local plans and projects to encourage improved connectivity within and between communities to reduce traffic congestion.
- TDM -4 Provide financial support to transit, rail, bike and pedestrian systems and support facilities to encourage alternative mode usage and connectivity.
- TDM-5 Work with Caltrans and local jurisdictions to expand, improve, and maintain Park-and-Ride lots and encourage public transit providers to serve major lots with fixed route service.
- TDM -6 Establish and annually monitor performance objectives to evaluate the effectiveness of TDM/TSM/ITS efforts.

### Transportation System Management

- TSM -1 Update *operational improvement strategies* (OPS) to raise the efficiency and safety of each major transportation program, including, Highway, Streets and Roads; Non Motorized Transportation; and Public Transportation.
- TSM -2 Implement operational improvements to improve efficiency and safety throughout the Routes 1, 101, 46, 41, 227 and 166 corridors and on all Routes of Regional Significance.
- TSM -3 Promote carpooling, ridesharing and public transit.
- TSM -4 Encourage all jurisdictions to provide channelization at locations where warranted by traffic volumes and conflicts.
- TSM -5 Transit/Bikeways – Provide funding to address the system-wide needs, especially for underdeveloped transit, bike, and pedestrian networks.
- TSM-6 Provide financial support for projects that improve the efficiency of the existing network, promote alternative transportation modes and limit future expenditures for capacity expansion.

### Intelligent Transportation Systems

- ITS-1 Work with Caltrans and adjacent Counties to develop and maintain a flexible ITS architecture to incorporate and implement current and emerging technologies
- ITS-2 Create standards to ensure compatibility of local and regional future needs while accommodating the existing infrastructure and systems.
- ITS-3 Incorporate advanced technologies into transportation improvement projects and secure adequate funding to build and maintain these systems.
- ITS-4 Monitor progress on project implementation, and provide information to promote ITS applications for local and regional use.
- ITS-5 Establish and annually monitor performance criteria that include quantitative and qualitative measures of component effectiveness.



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