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TRANSPORTATION CONTROL MEASURES

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INTRODUCTION

This document is an update of the San Luis Obispo County Air Pollution Control District's Transportation Control Measures (TCMs). TCMs are programs or activities to encourage the traveling public to rely less on the automobile, or to use the automobile more efficiently. TCMs reduce emissions from on-road motor vehicles and trucks by encouraging people to change their travel behavior to less polluting modes, improving the transportation system to allow more efficient travel regardless of mode, and implementing emission control technology improvements to the motor vehicle fleet. TCMs also have the added benefits beyond emission reduction of reducing congestion and improving energy efficiency.

While some use is made of alternate transportation modes, most people today still choose the convenience and apparent economy of the private auto. Since the end of WWII, the US has experienced unparalleled growth in per capita motor vehicle ownership and usage. Today, with less than five percent of the world's population, the US consumes a quarter of the world's oil, with half of this burned in motor vehicles. This unparalleled growth and consumption has occurred at least in part because the automobile has been underpriced. (Avoiding the Collision of Cities and Cars: Urban Transportation Policy for the Twenty-first Century, Johnson et al, 1993).

Research has revealed that the private motor vehicle has long been subsidized. Revenues based on vehicle use cover only 60 percent of the costs of building and maintaining the nation's roads and bridges. Roadway services that provide benefits to motorists are also funded without regard to vehicle use, such as traffic related police services, courts and emergency vehicles. (The Going Rate: What It Really Costs to Drive, MacKenzie et al, 1992).

John Meyer, Professor of Economics at Harvard University, has estimated that commuters going to work in central business districts in American cities in their own cars directly pay for only about 25 percent of the total cost of their transportation. The other 75 percent is typically borne by society through increased taxes, provision of free parking, lost time due to traffic congestion, accident mitigation, and air pollution. According to the EPA, about 90 million Americans live in areas that do not meet federal air quality standards, in large measure the consequence of car and truck emissions. In addition, development of the highway system has impacted land use by encouraging urban sprawl, which has led to longer commutes. Up to two-thirds of urban land is devoted to the automobile for purposes such as roads, parking lots, driveways, and garages. However, it is very difficult to quantify the social costs of direct and indirect subsidies with any precision because subsidies vary from one region to the next and because some of the costs involve the incalculable loss of human life, health, and lost opportunities. (Johnson, 1993).

Slowing the rate of growth of travel by the single occupant motor vehicle trip is a major goal of this Plan. However, substantial reductions in these trips cannot be achieved without adequate transportation alternatives. Thus, a considerable effort must continue to be made to increase the availability and viability of safe and convenient alternatives to the private auto. To this end, the transportation control measures already implemented and proposed for adoption are all linked, with each measure designed to strengthen and reinforce the other measures.

Any program to reduce motor vehicle emissions must include a comprehensive strategy to reduce the overall number of trips, VMT, and congestion. The TCMs described in this Plan focus on reducing the number of short trips and limiting the growth of VMT to, or below, the

rate of population increase. When considered as a comprehensive strategy, these measures are expected to reduce approximately 47,000 average daily trips and 155,000 vehicle miles traveled by the year 2003. Additional long-term reductions are available through implementation of the adopted land use planning strategies found in Appendix E. Planning documents published by the ARB, the Local Government Commission, and others estimate motor vehicle usage can be reduced by 15% to 30% with implementation of appropriate land use and circulation management programs. In addition, TCMs and land use strategies have benefits beyond emissions reductions by improving energy efficiency and relieving traffic congestion.

BACKGROUND

The California Clean Air Act (CCAA) requires that districts adopt all Reasonably Available Transportation Control Measures to reduce the growth rate of motor vehicle trips and vehicle miles traveled.

Evaluation of the TCMs presented in this 2001 CAP update primarily involved a re-examination of the control measures and implementation schedule in the 1998 CAP. Emission reductions from measures already implemented were tabulated to estimate the amount of additional reductions necessary to meet the targets established by the CCAA. As shown in the following sections, implementation of the adopted transportation control measures is on-going, and will continue to provide mobile source emission reductions necessary to achieve the state air quality standards. Therefore, the 2001 CAP serves primarily as an update of the measures implemented in the 1998 CAP and proposes no additional transportation control measures for adoption.

The following discussion addresses the general format and components of each control measure:

I. TITLE OF MEASURE

II. BASELINE EMISSIONS

The base year (1987) data emissions from all motor vehicles are presented. If available, additional transportation information and assumptions are contained in Sec. XI.

III. CONTROL MEASURE DESCRIPTION

Defines the objective(s) of the proposed measure and a summary description of the proposed controls.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

This identifies the portion of the vehicle fleet whose emissions are targeted for reduction.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

This section describes the expected emissions and vehicle use reductions resulting from implementing the measure. Emission reductions are presented as tons/day, while vehicle use reductions are presented in average daily trips and vehicle miles traveled.

VI. COST EFFECTIVENESS

Describes the cost implications of the proposed measure. Where possible, cost effectiveness is calculated as the cost (\$) per ton of emissions reduced.

VII. SCHEDULE

Provides a schedule when one has been developed. For most of the supporting measures, cooperative agreements are necessary to implement the measure, and schedules will be developed as part of that process.

VIII. JURISDICTION

This section names the agency(s) responsible for implementing the measure.

IX. RECOMMENDATION

This part states whether the District recommends the measure be adopted, retained for further study, or deleted.

X. REFERENCES

Lists references used to develop the measure.

XI. EMISSION DOCUMENTATION

This section outlines the calculation methodology used to determine expected emission reductions.

XII. COST-EFFECTIVENESS DOCUMENTATION

Provides information on cost effectiveness, assumptions underlying the measure, and calculations used to derive previous conclusions.

ADOPTED CONTROL MEASURES

This section describes measures already implemented since adoption of the 1995 CAP. Emission reductions from these measures are included as part of the attainment strategy for this plan.

I. T-1B CAMPUS-BASED TRIP REDUCTION PROGRAM

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NOx (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

III. CONTROL MEASURE DESCRIPTION

A. Background

This control measure is designed to reduce vehicle trips and vehicle miles traveled, and primarily targets the student populations of California Polytechnic State University, San Luis Obispo (Cal Poly) and Cuesta Community College. The adopted control measure requires the development of individual programs tailored to meet the trip reduction needs of each campus, and detailed in separate agreements with each campus. At this time, Cal Poly and the District have reached a cooperative agreement that is consistent with the program described below. The District will be working with Cuesta College staff in the near future to reach a similar agreement.

B. Program Requirements for College Campuses:

1.) Appoint a Transportation Coordinator

Responsibilities are to implement and administer the trip reduction program at the school site and act as designated contact person to the APCD. The District will provide training at no cost for affected schools. Hours spent by the ETC on program administration will vary with the number of pupils, baseline Average Vehicle Ridership (AVR), and the program of trip reduction options and strategies selected for implementation. As student turnover is continuous, the program will likely follow a cycle coordinated to each school year. More time will probably be spent in the first year the school participates in the program, due to the need for Transportation Coordinator training and program development and start-up. For multi-site school districts, one person could be designated as ETC for all locations. Third-party ETC representation will also be an option. This service could be performed by a District approved consultant or a Transportation Management Association (TMA).

2.) Create an On-Site Transportation Information Center

This could be as simple as a bulletin board, or as elaborate as a small office, depending on school size and needs. Information presented could include rideshare posters; transit maps and schedules; agency phone numbers; "Riders Wanted" notices (to advertise for carpool and vanpool riders); the school Transportation Coordinator's name and phone number; and information on air quality, traffic, commuting costs, bicycling, telelearning, and any other relevant information. The District recommends that these activities be coordinated by the ETC and managed by the campus environmental club.

3.) AVR Survey

Once each school year, the schools will conduct an AVR survey to verify program effectiveness. Survey forms and methodology will be developed by District staff and representatives from each school in order to insure unique aspects of each schools operations and student population are considered. The District will provide survey processing, if requested, for each school.

4.) Trip Reduction Program Reporting

Schools affected by this control measure would be responsible for submitting reports according to guidelines cooperatively developed by the District and the schools, which include the following:

- a.) Results of an annual student AVR survey.
- b.) A summary of existing transportation facilities at the school site, including transit service, auto parking, and bicycle facilities.
- c.) Quantification of the affected student population, and the number of daily vehicle trips reduced.
- d.) A commitment to implement approved trip reduction options and strategies, such as the following:
 - Ride Matching Service.
 - Modified School Week.
 - Flexible Class Hours.
 - Telelearning.
 - Direct Reward to Non-SOV Commuters (preferential registration, etc.)
 - Preferred Parking for Carpools and Vanpools.
 - Reduce Parking Availability for SOVs.
 - Establish or Increase Parking Fees for all Vehicles.
 - Transit Pass Subsidies.
 - Carpool/Vanpool Subsidies.
 - School Sponsored/Operated Vanpools.
 - Carpool/Vanpool Loading Areas.
 - Protected Bicycle Storage.
 - Showers and lockers for Bicycle/Pedestrian Commuters.
 - Recognition/Rewards Program.
 - Construct a system of bikes-only paths on campus.
 - Contribute to construction of bike paths leading to campus.
 - Optimize class schedules to reduce total number of weekly trips for students.
 - Other strategies developed by the schools and approved by the APCD.
- e.) An annual report on program progress and effectiveness. Reports would document the past year's success or failure at meeting AVR goals, and describe any additional measures needed to achieve the next year's AVR targets.
- f.) A commitment by high level school authority, such as the superintendent, school board, or Board of Trustees, to implement the Plan.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

Sources affected are student commuter vehicles arriving on college campuses between 6:00 a.m. and 7:00 p.m. Affected vehicle types are light duty autos and trucks, and motorcycles. Home study, off-site special education, intern, co-op, and other students in special categories who do not routinely report to the main campus are not counted under this rule.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	baseline	0.012	0.017	0.019	0.021	0.023	0.019
NO _x (t/d)	baseline	0.009	0.015	0.017	0.020	0.025	0.028
PM ₁₀	baseline	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
ADT	baseline	1,028	1,805	2,237	3,011	3,968	8,103
VMT	baseline	5,505	11,329	17,166	26,595	35,942	71,095

(see Section XI. for documentation)

The projected emission reductions shown above are for Cal Poly and Cuesta College.

VI. COST-EFFECTIVENESS

Cost-effectiveness has not been determined for this measure.

VII. SCHEDULE

Cal Poly has submitted a Trip Reduction Plan to the District and has already made significant progress in implementing a student trip reduction program. The University has appointed a full-time "Commuter Services Coordinator" for the campus, designated a transportation information center, and has developed and implemented a Trip Reduction Plan, including transit subsidies, bicycle and pedestrian facility improvements, and telecommuting programs. According to the 1997 Staff/Student Transportation Survey conducted by the Cal Poly Commuter Services Office, Cal Poly met their student AVR goal of 2.0 in 1997 with a very admirable AVR of 3.16. A follow-up survey conducted in the spring of 2001 indicated the student AVR had dropped to 2.49 though still in general compliance with AVR goals. The Cal Poly faculty 2001 workweek AVR was determined to be 1.33, a bit above the county wide average. The District's focus for Cal Poly is to help maintain and improve existing student AVR rates and to improve faculty/staff use of alternative forms of transportation.

Cuesta College is in the initial stages of implementation; progress to date includes transit subsidies and rearrangement of class schedules to better fit bus schedules. The results of the Cuesta Student Commute Survey conducted in the spring of 2000 indicate a student commute AVR of 1.32, a bit below the campus's AVR target for 2000 of 1.5. The District will be focusing on efforts to assist Cuesta College meet the AVR goals presented in this Plan.

AVR GOALS CAL POLY & CUESTA

<u>Year</u>	<u>Cal Poly</u>	<u>Cuesta</u>
1997	2.0	1.35
2000	2.5	1.5
2005	3.0	2.0

VIII. JURISDICTION

This measure will be implemented through District public education and information programs, as well as cooperative agreements between the District and targeted schools.

IX. RECOMMENDATION

To continue implementation of this adopted measure.

X. REFERENCE

San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1998.

XI. EMISSION DOCUMENTATION

Baseline on-road mobile source emissions for San Luis Obispo County from ARB's mobile source emission inventory model MVEI7G ver 1.0c. Emission reductions estimated using URBEMIS7G and projected ADT and VMT reductions achieved with this measure. Spreadsheets documenting the emission reduction calculations are presented at the end of this control measure.

XII. COST-EFFECTIVENESS DOCUMENTATION

N/A

I. T-1C VOLUNTARY COMMUTE OPTIONS PROGRAM

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NOx (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

III. CONTROL MEASURE DESCRIPTION

This measure is designed to reduce the number of commute and other trips made with single occupant vehicles (SOVs) through an outreach effort to employers to encourage voluntary participation in a worksite trip reduction program. Implementation of this measure was begun in 1997 with the development of a marketing plan to identify appropriate strategies for the outreach effort and mechanisms for defining and targeting employers with the highest potential for successful participation. Called the *Transportation Choices Program* (TCP), success will depend in part on Strategic Partners like Regional Rideshare and Ride-On Transportation jointly promoting transportation options to targeted employers. Alliances with essential and supplemental Service Providers have also been initiated to enhance the viability and convenience of alternative commuting. The primary goal of the measure is to achieve an average AVR of 1.35 for 20% of all commuters working at facilities with 50 or more employees.

Employer Commute Options Program Goals & Tasks:

1. Contact all employers in the county with more than 20 employees via direct mail to explain program and gauge interest.
2. Target and personally visit all employers with more than 50 employees over 5 year period to explain services offered and benefits of participation. At each participating site:
 - a. Conduct employee survey
 - b. Assist in development of tailored commute options plan
 - c. Provide training, promotional materials and ongoing assistance to onsite staff for plan implementation
3. Develop and promote incentives to encourage program participation by employers and their employees. Examples include:
 - a. Developing agreements with local jurisdictions to reduce parking requirements for new and existing development that implement TDM strategies.
 - b. Work with local businesses and agencies to develop coupons or discount cards for local services, restaurants, etc, that could be earned by program participants.
 - c. Develop an awards program to recognize businesses and organizations in the county that are voluntarily promoting TDM to their employees or customers.
4. Develop and implement media and public relations plan to reinforce program message with the

- general public. Radio, television and print media will be used where effective.
5. Provide carpool and vanpool matching services through existing rideshare programs.
 6. Establish a “network” of transportation demand management professionals and TCP program managers from participating companies.
 - a. Promote the successes of the group and its members, as well as success stories from others in the community, who are contributing to reducing trips.
 7. Conduct presentations on alternative transportation to interested groups and students.
 8. Compile regular status reports to inform participants and the public on program results.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

Sources affected by this control measure are drivers of light duty autos, trucks, and motorcycles commuting to worksites throughout San Luis Obispo County. Assumes achieving an average AVR of 1.35 for 20 % of all commuters working at facilities with 50 or more employees.

Program Projections for Year 2005

Number of Targeted Employers:	225
Number of Targeted Employees:	32,650

* (based on 1997 EDD figures of total County employment of 100,085)

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	baseline	0.009	0.011	0.026	0.028	0.024	0.013
NOx (t/d)	baseline	0.009	0.011	0.026	0.025	0.024	0.018
PM ₁₀	baseline	0.0002	0.0002	0.0006	0.0007	0.0008	0.0008
ADT	baseline	545	843	2,381	3,101	3,211	3,500
VMT	baseline	6,979	10,788	30,480	39,689	41,106	42,593

(see Section XI. for documentation)

VI. COST EFFECTIVENESS

Few additional costs are expected to accrue to participating businesses. The District and its Strategic Partners will provide training, information and education materials, program consultations, surveys and survey processing to participating businesses free of charge.

VII. SCHEDULE

Measure adopted	December 1995
Full Implementation	December 31, 2003

<u>Action</u>	<u>Time frame</u>
<u>Completed Tasks</u>	

Develop marketing plan	Fall 1997
Identify and form agreement with Strategic Partners	Fall 1997
Develop TCP Resource Guide for employers	Spring 1998
Program information to 50 employers > 20 employees	Spring 1998
Site visits to 15 employers > 100 employees	Summer 1998
Development of incentives package for employees	Summer 1998
Provide TDM training for participating employers	Fall 1998
Site visits to a total of 30 employers > 100 employees	Spring 2000

Remaining Implementation Schedule

Site visits to a total of 40 employers > 100 employees	Spring 2001
Site visit to 1 business cluster > 100 employees	Spring 2001
Status report on TCP	Summer 2001
Site visits to a total of 50 employers > 100 employees	Spring 2002
Status report on TCP	Summer 2002
Site visits to all employers > 100 employees	Summer 2003
Subsequent status reports	Spring 2003, etc.
Full implementation of measure	December, 2003

VIII. JURISDICTION

This measure will be implemented by the APCD, Regional Rideshare, Ride-On Transportation and other identified service providers.

IX. RECOMMENDATION

This measure was adopted in December 1995 and is undergoing phased implementation.

X. REFERENCES

1. San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1995.

XI. EMISSION DOCUMENTATION

Baseline on-road mobile source emissions for San Luis Obispo County from ARB's mobile source emission inventory model MVEI7G ver 1.0c. Emission reductions estimated using URBEMIS7G and projected ADT and VMT reductions achieved with this measure. Spreadsheets documenting the emission reduction calculations are presented at the end of this control measure.

XII. COST-EFFECTIVENESS DOCUMENTATION

Cost-effectiveness has not been determined for this measure.

I. T-2B REGIONAL TRANSIT IMPROVEMENTS

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NOx (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

Although this measure targets trips made by light-duty passenger vehicles, emissions from all on-road motor vehicles are presented in order to be consistent with other measures.

III. CONTROL MEASURE DESCRIPTION

Improving transit service and facilities can attract individuals to use public transit instead of a private automobile. As transit ridership increases, roadway congestion and emissions decrease.

The adopted control measure proposed a plan for making regional transit a practical option for commuters, and reflects programs already planned for implementation. The key recommendations include boarding area improvements, better service to Amtrak, increasing bus frequency during commute hours, providing service to northern Santa Barbara county, and developing express runs to major destinations. Since adoption of this measure, the San Luis Obispo Regional Transit Agency (SLORTA), operator of Central Coast Area Transit (CCAT), has achieved most of the goals in the original control measure.

The focus of this updated measure is again on service and facility improvements for commuters, including inter-city rail improvements as a trip reduction strategy. The goal of this measure is to increase overall ridership by at least 2.5% per year. A description of transit improvements to maintain system growth toward achievement of this goal is provided below:

A. Infrastructure Improvements.

1. Improve bus stops to include a lighted sheltered waiting area, benches, posted bus route, and schedule/fare information, where appropriate.
2. Proceed with development of a Regional Transit Center in San Luis Obispo. Connecting service to the San Luis Obispo central business district, Greyhound Bus Depot and the San Luis Obispo Airport should be provided.
3. Develop multi-modal transportation centers at major transit transfer points. These centers should incorporate components such as park-n-ride lots, transit access, and bicycle and pedestrian facilities into an integrated transportation departure point.

4. Pursue real-time transit location information at multimodal transfer centers.
5. Pursue a universal transit pass for use on all transit systems in San Luis Obispo County.

B. Service Expansion

1. Provide evening service, where demand is indicated.
2. Increase commuter-focused (commute time express service) service on the Route 101 and 1 corridors in 1996, 1997, and 1998, highlighting express service to increase ridership.
3. Increase direct service between Los Osos and San Luis Obispo.
4. Service to Santa Maria should be maintained and expanded to meet the goal of increasing ridership 2.5% per year.
5. Identify funding to maintain marketing aimed at new choice riders .
6. Support Ride-On, consolidating human service transportation, and the TMA, serving grouped trips in the general public and business sector.

C. Operational Changes

1. Continue to distribute the Design Standard Handbook, which was jointly developed by SLOCOG and APCD, and explains how transit facilities can be incorporated into the design phase of new projects. Topics addressed include standard bus stop design, bus turnout standards, pedestrian access and transit access problems.
2. Promote annual rider satisfaction surveys in order to evaluate and improve the level of service provided.
3. Transit providers should budget for "clean fueled" vehicles when purchasing new buses and to examine the feasibility of retrofitting existing vehicles for alternate fuel use.

D. Inter-City Rail Service

An additional objective of this measure is maintaining and improving inter-city rail service between San Luis Obispo and the rest of California, to reduce motor vehicle trips and VMT.

Since the last CAP update, intercity rail service was extended to the City of Paso Robles, which is now served daily by Amtrak's *Coast Starlight*. In addition, Grover Beach and San Luis Obispo are now served by the *San Diegan*, Amtrak's southern California intercity rail service.

The District recommends that all three cities with train station facilities continue to support and promote alternative transportation modes for visitors to the county, with adequate transportation linkages between the train stations and visitor-serving attractions.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

This measure is designed to reduce trips and Vehicle Miles Traveled (VMT) by light-duty passenger vehicles (automobiles, light duty trucks, and motorcycles).

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	baseline	0.002	0.005	0.004	0.004	0.004	0.002
NOx (t/d)	baseline	0.006	0.005	0.004	0.003	0.003	0.002
PM ₁₀	baseline	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
ADT	baseline	149	352	392	444	509	702
VMT	baseline	1,909	4,503	5,012	5,683	6,515	8,991

(see Section XI. for documentation)

VI. COST EFFECTIVENESS

Few additional costs are expected to result from implementation of this measure. Implementation costs are part of the existing program for the CCAT budget.

VII. SCHEDULE

This control measure was adopted in January, 1992. Implementation of this measure is on-going.

VIII. JURISDICTION

Implementation of this measure is the responsibility of SLORTA and SLOCOG. Responsibility for emission reductions calculations and reporting success of the measure rests with the District.

Program monitoring would be a cooperative effort between the Regional Transit Manager, SLOCOG, and the Air Pollution Control District. Progress would be reported annually to the ARB.

IX. RECOMMENDATION

Continue on-going implementation of this adopted control measure.

X. REFERENCES

- 1.) San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1995.
- 2.) San Luis Obispo Rail Improvement Feasibility Study. March, 1992.

XI. EMISSION DOCUMENTATION

Baseline on-road mobile source emissions for San Luis Obispo County from ARB's mobile source emission inventory model MVEI7G ver 1.0c. Emission reductions estimated using URBEMIS7G and projected ADT and VMT reductions achieved with this measure. Spreadsheets documenting the emission reduction calculations are presented at the end of this control measure.

XII. COST-EFFECTIVENESS DOCUMENTATION

N/A.

I. T-3 BICYCLING AND BIKEWAY ENHANCEMENTS

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NOx (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

III. CONTROL MEASURE DESCRIPTION

The goal of this measure is to achieve a county-wide average bicycle mode share of 5% within seven years. This measure improves air quality in two ways. First, it supports the Voluntary Trip Reduction Program (T1C) by providing a safe and inexpensive way for employees to commute to work or school. In addition, bike infrastructure improvements will increase safety and convenience for those commuters not affected by T1C. The measure also facilitates cycling for shopping and other trip purposes.

The following discussion describes the infrastructure improvements and administrative actions that were proposed in the adopted control measure and includes a status report for each action.

A. Infrastructure Improvements

1. *Construct needed bikeways.* Significant progress has been made to construct needed bikeways throughout the county since measure adoption. The adopted control measure proposed that all Class I and II bikeways within the county urban reserve lines and identified in the Regional Transportation Plan (RTP) or City circulation elements should be completed by 1995, and all Class I and II bikeways identified in the RTP and located outside the URLs should be completed by the year 2000
2. *Bicycle parking.* The adopted measure placed a priority on bike parking at park and ride lots, bus stops, and other intermodal exchange points. Since adoption, bicycle lockers have been installed at seven of the ten park and ride lots in the county. The goal of the Park and Ride Lot TCM (T4), is to provide adequate commuter bicycle storage at all park and ride lots in the county. .
3. *Bikeway maintenance and intermodal exchange.* The adopted measure identified maintenance and repair of the bikeway system as an essential part of the program. In addition, intermodal exchange improvements focused on bike racks on buses. Since measure adoption, CCAT and SLO Transit have installed bicycle racks on all regional buses.
4. *Identify infrastructure development areas.* The adopted control measure requested

SLOCOG to identify areas where additional bikeway construction is needed, with input from cities through congestion management programs. Since the measure was adopted, bicycle plans have been adopted by San Luis Obispo County, the City of San Luis Obispo, and Paso Robles.

B. Administrative Functions

1. *Identify sources of construction funding.* The adopted measure specified that funding sources needed to be identified and a work plan should be developed for implementation of the programs outlined in this measure. Since measure adoption, \$6 million of Proposition 116 funds have been programmed to help fund bicycle infrastructure projects, SLOCOG has dedicated 2% of all TDA funds for bikeway improvements (approximately \$80,000 per year).
2. *Implement a safe bicycling education program.* The adopted control measure identified an effective education campaign focused on both motorists and cyclists as key to public acceptance of cycling as a legitimate means of transportation. The measure directed SLOCOG or other appropriate agency to complete a blueprint for a community education program, which would utilize components of successful programs in other communities which have achieved a substantial modal shift to bicycling. The County Bikeways Plan, adopted in September of 1994, includes a chapter on existing and proposed county-wide educational programs on bicycle transportation (Chapter V). The focus of the chapter is on promotional and safety education activities of various agencies and groups.
3. *Track development of bikeways and bike parking.* The adopted control measure directed SLOCOG or another responsible agency to prepare an Annual Report showing progress of infrastructure and education programs.
4. *Perform counts and surveys to assess measure effectiveness.* The adopted control measure directed SLOCOG or other responsible agency to perform counts of cyclists on representative days at various locations around the county. A portion of these riders should be surveyed, and asked questions regarding trip length, origin/destination, purpose of the trip (work, school, shopping) and if cycling is a usual travel mode. The District is currently working with SLOCOG and City of San Luis Obispo staff to implement a bicycle traffic count program that will include field surveys of riders.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

This measure is designed to reduce both trips and miles traveled on county streets and roads by light duty vehicles. This measure targets trips less than five miles in length made by light duty vehicles.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	baseline	0.000	0.037	0.036	0.120	0.146	0.084
NOx (t/d)	baseline	0.000	0.022	0.021	0.067	0.088	0.060
PM ₁₀	baseline	0.0000	0.0002	0.0002	0.0010	0.0014	0.0016
ADT	baseline	0,000	5,943	6,337	25,667	37,896	45,767
VMT	baseline	0,000	10,698	11,407	46,201	68,213	82,381

(see Section XI. for documentation)

VI. COST-EFFECTIVENESS

Current cost estimates for individual bikeway projects differ greatly, because of issues such as urban v. rural location, terrain, amount of road widening and/or land acquisition necessary, whether bridges are involved, etc. The adopted control measure assumed bikeway costs of approximately \$42,000 per mile. Costs for typical Class II urban projects in the City of San Luis Obispo, which include redesign and reconstruction of existing roadway with no land acquisition costs, are consistent with the assumptions in the adopted measure. However, the average costs per mile for bikeway projects proposed in the County Bikeways Plan are significantly higher, because of the typical need for widening and/or right-of-way acquisition. Based on information provided by County Engineering, the average cost per mile for bikeways in the unincorporated portions of San Luis Obispo County is about \$115,000 per mile. Thus, the range of average costs for bikeway projects in San Luis Obispo county is \$42,000 for urban areas to \$115,000 per mile for rural areas.

It is expected that bikeways in urban areas will be utilized with more frequency by commuter cyclists, while rural bikeways will be used mostly by recreational riders. Because of the lower costs associated with typical urban bikeways projects, District staff believes this control measure remains very cost-effective at reducing short motor vehicle trips associated with commuting.

VII. SCHEDULE

This measure was adopted in January, 1992. Since the measure was adopted, bicycle plans have been adopted by the County, as well as the Cities of San Luis Obispo and Paso Robles. The other cities generally refer to bicycling in the Circulation Elements of their General Plans, and many rely on the Bikeways Element of the Regional Transportation Plan. Implementation of the measure will require cooperative actions by local governments, SLOCOG and the District. Program monitoring would be a cooperative effort of SLOCOG and the District. Progress would be reported annually to the ARB.

VIII. JURISDICTION

Measure implementation is the responsibility of the Cities, the County, and SLOCOG

IX. RECOMMENDATION

To continue implementation of this adopted measure.

X. REFERENCES

1. San Luis Obispo Council of Governments. 1994 Regional Transportation Plan. February, 1995.
2. San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1995.
3. San Luis Obispo County Engineering Department. County Bikeways Plan. October, 1996.

XI. EMISSION DOCUMENTATION

The effectiveness of this measure will be based on the percentage of short trips shifted from motor vehicles to bicycles. It is assumed facilities would be used daily through the year, although use would probably be highest in warm months, which coincides with the 'smog season'.

Baseline on-road mobile source emissions for San Luis Obispo County from ARB's mobile source emission inventory model MVEI7G ver 1.0c. Emission reductions estimated using URBEMIS7G and projected ADT and VMT reductions achieved with this measure. Spreadsheets documenting the emission reduction calculations are presented at the end of this control measure.

XII. COST-EFFECTIVENESS DOCUMENTATION

N/A.

I. T-4 PARK AND RIDE LOTS

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0 7.6	6.1	4.7	2.5	
NOx (t/d)	21.8	19.2	16.3 14.6	12.9	11.6	10.2	

(see Section XI. for documentation)

III. IMPLEMENTED CONTROL MEASURE DESCRIPTION

Designed to support the Trip Reduction Program, Park and Ride (P&R) lots provide a staging area for ridesharing activities. The most common use of P&R lots in San Luis Obispo County is as a meeting point for carpools and vanpools. Transit connections are available at some lots within a short walk, and bike lockers are available at most lots; however, the primary use is for automobile parking.

San Luis Obispo County Park & Ride Lot Profile :			
Name & Location	Parking Spaces	Bike Lockers?	Transit Access?
Niblick Rd, Woodland Plaza II, Paso Robles	33	Racks	PRCAT, CCAT
Train Station, 8th & Pine, Paso Robles	15	Racks	PRCAT, CCAT
Mall Extension: Hwy 41, Atascadero	42	4	no
Curbaril Av & Hwy 101, Atascadero	25	8	CCAT
Santa Barbara Rd & Hwy 101, Atascadero	12	4	no
Hwy 58 & 101, Santa Margarita	15	4	CCAT
Church of Nazarene: So. Bay Bl, Los Osos	10	0	CCAT
Vons Market: Los Osos Valley Rd, Los Osos	15	0	no
Pismo Beach Outlet Center: Hwy 101, PB	25	0	SCAT
Halcyon Rd & Hwy 101, Arroyo Grande	33	4	SCAT,CCAT
Nipomo Boys & Girls Club: 101 & Tefft	30	0	CCAT
Totals:	255	24	8 of 11

In San Luis Obispo County, P&R lots are administered by Caltrans and SLOCOG. Eleven lots currently exist, with 255 total spaces available. Future P&R lots should use existing parking lots or other paved areas, and/or develop agreements for P&R usage when new commercial development occurs. When an agreement is initiated, Caltrans provides to the property owner \$3 million in public liability insurance. Paving open areas should be the last choice for new lots.

Use of a park and ride lot will generally reduce the length of a commute trip, but not eliminate the trip. This reduces running exhaust and evaporative emissions, which generally make up about 44% of ROG emissions and 72% of NOx emissions from light duty vehicles and trucks. However, if a P&R lot is served by commuter transit or shuttle service, and adequate bicycle storage facilities are available on-site, P&R lots can reduce both VMT and motor vehicle trips. Therefore, the goal of this measure is to improve the trip reduction potential of P&R lots by providing commuter transit service and adequate bicycle storage to existing and future P&R lots in the county.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

This measure would serve commuters and ridesharers throughout the county. Expanded transit service and bicycle parking facilities could also attract some Single Occupant Vehicle (SOV) travelers and those driving to their destination for shopping, school, and medical purpose trips. This group may also grow as P&R lots become used as transit centers.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

This measure is designed to reduce vehicle miles traveled and some trips made by light-duty passenger vehicles (autos, trucks and motorcycles) associated with work and school commute travel. There are emission reduction benefits associated with the use of Park and Ride lots, although there may not be a significant reduction in vehicle cold start emissions when ridesharers drive their SOV to a lot. However, reductions in running emissions will occur after leaving the lot in a carpool or on transit. This measure is considered a supporting strategy for measures T1C, T2A, T2B, and T3.

VI. COST EFFECTIVENESS

N/A.

VII. SCHEDULE

This control measure was adopted in January, 1992, and is being implemented by Caltrans in coordination with SLOCOG. Caltrans and SLOCOG conduct an ongoing monitoring program to analyze expansion needs of existing lots, development of new lots, or removal of unused lots.

VIII. JURISDICTION

Caltrans and SLOCOG have primary jurisdiction over development and maintenance of Park and Ride lots. Development of new Park and Ride lots could become part of District mitigation programs under the California Environmental Quality Act. Responsibility for reporting success of the measure rests with the APCD.

IX. RECOMMENDATION

To continue implementation of this adopted control measure.

X. REFERENCES

1. Caltrans District 5. Park & Ride Lot Final Program Report. April, 1996.
2. San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1998.

IX. EMISSION REDUCTION DOCUMENTATION

N/A.

X. COST-EFFECTIVENESS DOCUMENTATION

N/A.

I. T-5: MOTOR VEHICLE INSPECTION AND CONTROL PROGRAM

II. BASELINE EMISSIONS

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NOx (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

III. ADOPTED CONTROL MEASURE DESCRIPTION

A. Motor Vehicle Inspection Program

Vehicle inspection and maintenance (I&M) programs, otherwise known as "smog check" programs, are designed to ensure that emission control devices on motor vehicles continue to function properly. Inspection of vehicle emission control systems is typically required prior to vehicle re-registration. Whether or not a vehicle needs a Smog Check depends on the type of vehicle, model year and the air quality designation for the area of registration.

Most areas of the state are required to implement either the "Basic" or "Enhanced" program, which requires vehicles to have Smog Check performed every two years, when being sold, and when being initially registered in California. "Change of Ownership" areas require Smog Check only upon sale or initial registration in California. Vehicles four model years old and newer are not required to have the biennial Smog Check until their fifth year. San Luis Obispo County is required to implement the Basic I&M program.

The statutes provide for future implementation of a heavy duty diesel vehicle inspection program related to excessive smoke emissions that would be enforced by BAR and the Highway Patrol. This program includes provisions for the development of a roadside inspection and test procedure "that is feasible for use in an intermittent roadside inspection program". In addition, this section includes guidelines for developing regulations related to excessive emissions for heavy duty diesel vehicles. This includes requiring test procedures comparable to those for vehicles currently covered by law and the imposition of an infraction penalty of up to \$1,500 for excessive smoke emissions.

All I&M programs in California are administered by the state through the Bureau of Automotive Repair (BAR) pursuant to Sections 3325 et seq. of Title 16 of the California Administrative Code and Sections 44000 et seq. of the California Health and Safety Code. These statutes require that vehicles in Basic I&M program areas be inspected according to procedures defined in the above-noted sections every two years or upon change of ownership.

The basic program, specified in Sections 3327 and 3340 of the California Administrative Code requires:

- determining that the vehicle has the appropriate required smog control devices,
- inspecting and adjusting those devices, as required,

- assuring that the ignition system is operating properly,
- determining that the carburation or fuel injection system is functioning according to manufacturer's specifications, and
- measuring hydrocarbon and carbon monoxide readings at idle and at 2500 rpm after making the above inspections, adjustments, and repairs.
- vehicles whose emissions are two or more times greater than the allowed limit are designated as "Gross Polluters" and must be retested at an official Test-Only station to verify repairs.

Test requirements vary depending on the year in which the vehicle was manufactured, the number of cylinders in the engine, and the pollutant being tested and may be revised from time to time by regulation. If a vehicle fails it must be adjusted or repaired and then retested, with the allowed maximum cost of the work up to \$450 depending on the model year of the car. Repair cost waivers, Economic Hardship Extensions, or Repair Assistance are available to qualified applicants.

B. Motor Vehicle Control Program

The Motor Vehicle Control Program, adopted by ARB in 1989, seeks to limit tailpipe emissions to such an extent that California cars will have emissions significantly lower than cars sold in other states. Emission standards adopted by ARB reflect significant advances in catalytic technology and electronics. The resultant cars are even cleaner as they come off the assembly lines and are lower polluting throughout their actual road life.

Automobile standards are expected to produce a more refined catalytic converter that reaches its optimum operating temperature more quickly. Automobile manufacturers are expected to use more advanced fuel injection systems for more precise fuel metering. As a result emissions reductions and improved fuel economy are expected to occur. Applicable emission standards for automobiles are presented below:

1. For the first 50,000 miles of driving, ROG emissions are limited to 0.25 g/mile and CO emissions are limited to 3.4 g/mile. After 100,000 miles of driving, emissions are limited to 0.31 g/mile and 4.2 g/mile for ROG and CO respectively.
2. NO_x emissions are limited to 0.4 g/mile on 1989 and 1990 model cars. This standard reflects a 90% rollback in NO_x emissions compared to uncontrolled models.

Advances in pollution control technology have also resulted in more stringent emission standards for light and medium weight gasoline-powered vehicles. The new standards, limiting ROG, CO and NO_x, will be imposed on models through 1995-1996. A significant benefit of the new standards is a limit on CO emissions at idle. These standards reduce emissions from many of these vehicles by 25 - 75 %, depending on their curb weight.

Diesel buses and trucks must meet the same emission limits as gasoline-powered vehicles for ROG, NO_x and CO. However, the most significant problem for these vehicles is particulate. These emissions are limited to 0.6 g/mile for 1988 models, 0.25 g/mile in 1991 and 0.10 g/mile in 1994, a 90 % cutback from typical levels before the standards were set. Add-on controls and cleaner-burning alternate fuels will help eliminate the formation of particulate. ARB standards

for diesel trucks and buses parallel those adopted nationally by EPA.

The following table summarizes mobile source control measures which are proposed for adoption by the ARB, and those which are to be considered for further study.

ARB Adopted Automobile and Truck Control Measures:

- Vehicle Inspection and Maintenance (1990)
- On-Board Diagnostic Systems (Phases 1 and 2) (1988/1994)
- Expanded Compliance Testing (1987)
- Certification of Aftermarket Catalytic Converters (1989)
- Revised In-Use Recall Regulations (1990)
- Emission Control System Warranty Requirements (1990)
- Light-Duty Vehicle Aftermarket Parts Program (1990/1994)
- Heavy-Duty Vehicle Smoke Enforcement Program (1991)
- New and Used Import Vehicle Certification Regulations (1987)
- Standards for Gas and Diesel-Powered Heavy-Duty Engines (1987/1988)
- Standards of 0.4 gram per mile for Light and Medium-Duty Vehicles (1989/1994)
- Lower HC and CO Standard for Light-Duty Vehicles (1989/1993)
- New Diesel Fuel Quality Standard (1989/1993)
- Revised Standards and Tests for Medium and Light Heavy-Duty Engines (1990/1998)
- Revised Evaporative Emission Test Procedures (1990/1995)
- New Emission Vehicles and Clean Fuels Program (1994 and on)
- Methanol, LPG, and CNG Emission Standards (1989/1990)

Adopted Programs for Other Types of Vehicles:

- Standards for Utility Engines (1994/1998)

Proposed Automobile and Truck Control Programs:

- Improved Certification Requirements for Alternate Fuels Retrofit (1991/1992)
- New Gasoline Specifications (1991/1994)

Proposed Programs for Other Types of Vehicles:

- Emission Standards for Construction Equipment Larger than 175 hp (1991/1996)
- Emission Standards for Off-Road Motorcycles (1991/1996)
- Emission Standards for Marine Vessels (1991/1996)
- Emission Standards for Off-Highway Vehicles (1991/1996)

Planned Measures for Automobiles and Trucks:

- Enhancement to Smog Check Program
- Smog Check for Light-Duty Diesel Vehicles
- Smog Check for Fleet Heavy-Duty Trucks
- Heavy-Duty Bus Particulate Trap Retrofit
- Control of Off-Cycle Emissions
- Low Emission Vehicle Standards for Heavy-Duty Engines
- Fleet Average Standards for Post 2003 Model Years Low Emission Vehicles

Planned Measures for Other Vehicles:

- Retrofit/Operational Requirements for Locomotives

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

All passenger vehicles, light and medium duty trucks, and heavy duty gasoline fueled trucks and buses registered in the county would be subject to the requirement that they undergo a "smog check" according to the provisions of the law every two years or upon a change of ownership. There will be vehicles in each class not subject to this measure, because their model year is older than the mandated cutoff year.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

Emissions reductions for this program are calculated by ARB as baseline information and accounted for in the 1991 Planning Inventory for On-Road Vehicles.

VI. COST EFFECTIVENESS

Cost-effectiveness has not been determined for this measure.

VII. SCHEDULE

This measure was adopted in 1989, and began implementation July 1, 1990.

VIII. JURISDICTION

Jurisdiction for the "smog check" program resides with the Bureau of Automotive Repair.

IX. RECOMMENDATION

To continue implementation of this adopted control measure..

X. REFERENCES

San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1991.

XI. EMISSION DOCUMENTATION

N/A.

XII. COST-EFFECTIVENESS DOCUMENTATION

N/A.

I. T-6 TRAFFIC FLOW IMPROVEMENTS

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NOx (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

III. CONTROL MEASURE DESCRIPTION

A. Objective

Control measure T-6 in the 1991 Clean Air Plan focused on motor vehicle traffic, and was based on the premise that congestion relief programs produced an overall benefit to air quality by reducing all vehicle emissions. Since that time, updated computer models for motor vehicle emissions indicate that traffic flow improvements result in decreased NOx emissions for vehicle speeds up to 20 mph, and 35 miles per hour for ROG. Beyond these speed regimes, emissions of ROG and NOx increase with increased vehicle speeds. To reflect these factors, the revised control measure focuses on traffic flow improvements and “traffic-calming.” A strategy to directly benefit non-motorized forms of traffic, traffic-calming refers to a full range of methods designed to improve the flow of non-motorized transportation means by slowing down the speed of motorized traffic. Traffic-calming is generally used in residential areas on non-arterial local streets and roads.

The goal of this measure is to improve the road system and infrastructure in a way that increases its efficiency, reduces emissions, and supports the other Transportation Control Measures in this Plan. Peak hour traffic management should also increase pedestrian and bicyclist safety.

Traffic flow improvements help keep traffic moving smoothly during peak hours when the road system is near its capacity, such as during commute periods or on holidays. The County and local jurisdictions can implement changes that may reduce stop-and-go conditions and associated vehicle emissions on roads lacking efficient channelization, signalization, one-way streets, and/or synchronized signals.

Traffic congestion is often a disincentive to driving, and can cause mode shifts to transit, especially when trip times become equalized because of priority treatment for transit. However, intentionally causing congestion is not recommended here. On the contrary, this measure focuses on reducing localized emission problems by reducing congestion. Recent research has shown, however, that adding significant additional capacity to the road system, such as freeway widening, does not usually reduce emissions as was previously hypothesized. Therefore, large road capacity expansion projects are discouraged until all strategies to reduce trips and VMT are implemented.

B. Description of Traffic Flow Improvements:

1. Traffic Signal Improvements: Providing traffic lights and synchronizing their timing can significantly improve traffic flow. Signal improvements on a given roadway usually decrease the total number of vehicle stops, reduces total idle time, and increases average speeds.
2. Channelization: Constructing right and left turn lanes can prevent traffic delays. Right and left turn pockets should be provided in all areas where traffic volumes warrant them. In addition, passing lanes should be provided where safe and appropriate. Channelization measures may include bus pull-outs and passenger drop-off facilities. SLOCOG and local agencies should evaluate the existing road system, identify areas for channelization, and develop a capital improvement program for improvements.
3. One-way streets: Designation of one way streets may reduce congestion because existing roads can carry more cars at a given speed without adding more lanes. Local circulation elements should identify potential one way streets and LOS standards for conversion to one way.
4. High Occupancy Vehicle (HOV) lanes: HOV (more than one occupant per vehicle) lanes help improve traffic flow on crowded freeways during peak hours by reducing the total number of cars on the road. They also provide material incentive to carpoolers and can help buses stay on schedule during peak hours. Highway expansion projects should provide HOV lanes rather than merely constructing additional free lanes, since free lanes may actually increase VMT and only minimally reduce long term congestion problems. Local circulation plans should consider HOV lanes to expedite buses during peak hours.
5. On-Street Parking Restrictions: Traffic congestion in downtown areas is compounded by on-street parking. In many cases, the removal of on-street parking improves flow of traffic and may reduce the need for roadway construction. Trade-offs exist between reducing congestion and emissions, the cost of developing off-street parking, and potential impacts to businesses. It is reasonable to assume that the Commute Alternatives Program and other TCMs in this plan will reduce parking demand, thereby lessening possible negative economic impacts to downtown merchants from parking restrictions.

Parking restrictions may be temporary, occurring only during peak hours, or on just one side of the street. In order to achieve the objectives of measure T-3, (Bikeways) local jurisdictions should consider converting on-street parking to bike lanes in areas where street widening is not practical. Local agencies should adopt Level Of Service (LOS) standards for the central business district and prepare plans for parking restrictions or removal when congestion reaches a proscribed level.
6. Traffic-Calming: A term that originated in Europe, traffic-calming refers to a full range of methods that improve the flow of bicycles, pedestrians, and disabled, through street and sidewalk improvements. The techniques result in slower motor vehicle speeds which are safer and more compatible for walking and cycling. Typical traffic-calming methods include speed humps and decks, raised and textured crosswalks, curb bulb-outs, narrowed traffic lanes, and reduced and enforced speed limits. Traffic-calming is primarily intended for use on residential streets and roads, not arterials.

The concept of traffic-calming sometimes contradicts traditional traffic engineering goals to move traffic as efficiently and quickly as possible. Most traffic-calming methods involve slowing vehicles down by installing obstacles, reducing sight distance, and/or narrowing the roadway. The traditional traffic engineering goal of facilitating increased volumes of motor vehicles by parking removal and/or lane widening works in the opposite direction of traffic-calming techniques.

In 1981, the German federal government set up six traffic-calming demonstration projects in villages, towns and cities of varying density. The initial report showed that with a reduction of speed from 37 km/h (23 mph) to 20 km/h (12 mph), traffic volumes remained constant, but there was a 60 percent decrease in injuries and a 43 to 53 percent decrease in fatalities, and air pollution decreased from 10 to 50 percent. The German Auto Club, skeptical of the official results, did its own research that revealed broad acceptance after initial opposition by the motorists. Interviews of residents and motorists in the traffic-calmed areas showed that the percentage of motorists who considered a 30km/h (18mph) speed limit acceptable grew from 27 percent before implementation to 67 percent after, while the percentage of receptive residents grew from 30 to 75 percent. It is important to note that these motor vehicle speeds are highly compatible with bicycles, without the need for separate lanes: the cyclist can simply share the street with the motorist.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

This measure would affect all jurisdictions throughout the county.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

This measure is proposed to support the complete package of transportation control measures. Emission reductions are accounted for in T-1B, T-1C, T-2A, T-2B, and T-3.

VI. COST-EFFECTIVENESS

Cost-effectiveness has not been determined for this measure. The cost to implement the different strategies will vary depending on the type and size of each project. It can be assumed that most of the proposals in this measure will provide some emission reduction, while saving motorist's time and improving fuel economy.

VII. SCHEDULE

This measure has been implemented to a varying extent by most jurisdictions in the county. The District recommends that the traffic flow improvements in this control measure be incorporated into each jurisdiction's general plan circulation element during the next update cycle. Program monitoring would be a cooperative effort of SLOCOG and the District. Progress would be reported annually to the ARB.

VIII JURISDICTION

Implementation of the measure will require cooperative actions by local governments, SLOCOG, Caltrans, and the District. Responsibility for future emission reductions calculations and reporting the success of the measure rests with the District.

IX RECOMMENDATION

To continue implementation of this adopted control measure.

X REFERENCES

1. San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1995.
2. U.S. Department of Transportation/ Federal Highway Administration. National Bicycling and Walking Study: Case Study No. 20: The Effects of Environmental Design on the Amount and Type of Bicycling and Walking. April, 1993.

XI EMISSION DOCUMENTATION

N/A.

XII COST-EFFECTIVENESS DOCUMENTATION

N/A

I. T-8 TELEWORKING, TELECONFERENCING & TELELEARNING

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NO _x (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

III. CONTROL MEASURE DESCRIPTION

The objective of this measure is to reduce the number of trips and miles traveled by employees and students by promoting teleworking, teleconferencing and telelearning. These strategies can reduce the number of days per week that an employee, or student, must report to the worksite or school. Teleconferencing can reduce business travel both locally and out of town trips. Numerous recent studies show that teleworking is an effective trip reduction measure by eliminating some work trips without increases in non-work trips.

Teleworking

Teleworking is loosely defined as performing tasks, normally done at work, at home or at a satellite office (telework center). Teleworking is usually accomplished with a computer and can be enhanced by also using a modem. The modem allows the worker to be “connected” to the worksite in order to access files, and receive and send e-mail. This allows an employee to perform as though present in the office, without the corresponding commute trip.

Teleworking may allow a company to reduce office space, thus reducing real estate and overhead. Teleworking can allow a company to recruit employees from out of the area while not requiring the new employee to relocate. It may allow a company to increase its scope of business and begin operations in another time zone, or another continent, without having employees staff a local office at inconvenient hours. Teleworking has been found to increase productivity from 15 to 20% and contributes to reduced absenteeism and tardiness while improving employee morale.

It should be noted that it is not a requirement for teleworking tasks to be computer oriented. It is practical to perform many jobs in the home office that do not require a computer. Accounting, bookkeeping, drafting, or catching up on reading, can all be effectively accomplished at home.

Teleconferencing

Video services available at the worksite or at a teleconferencing center can reduce the need for business-related travel. Connecting to colleagues in town, in another city, or across the country is practical, easy and very low-cost. Facilities are available from Pac-Tel, at commercial photo-

copy centers, colleges and universities, and many teleworking centers around the state. In San Luis Obispo county, Cal Poly offers use of its video-conferencing facility for public and private use. Use of the facility costs \$100.00 per hour for business users and \$75.00 per hour for non-profit/state users. There may be an additional dial up fee of \$75.00 per hour if the teleconferencing connection is made by the Cal Poly facility. This is extremely cost-effective when compared to the hourly rate and travel costs of bring a consultant to town for an entire day in order to attend a two hour meeting.

Telelearning

Similar to video-conferencing in its use of technology, telelearning allows students to attend classes that would otherwise be unavailable due to distance or lack of space. Classes are made available over television channels at a school, a video-conferencing center, or potentially from the home. The classes use two-way interactive communications and allow instructor and student to communicate in real time.

Cal Poly is seeking sites in both the north and south county to open annexes which will be aimed at adult education and will offer educational opportunities not otherwise available in those areas. Plans at this time are for these facilities to serve approximately 500 students each semester.

The District will develop a campaign to promote these strategies to businesses and schools in San Luis Obispo county. The District will develop teleworking related educational and program management materials to assist businesses in developing successful teleworking programs. District staff will conduct presentations to familiarize business owners and managers with the concept and similar sessions for teleworkers on how to make the most productive use of their teleworking time.

Other Tele-Communications Projects

Departments of the County of San Luis Obispo have made information available to residents through computers located at all county offices and the fifteen libraries in the county. Agendas and minutes from Board of Supervisors meetings, property tax information, assessor and parcel information, and information about county services and fees can all be accessed from these terminals. Some county departments have developed home pages on SLONET and the World Wide Web, that provide information about each departments functions and services.

Since these connections became available, total inquires have averaged between 300 to 400 per month. The County Tax Collector's office, which utilizes an automated voice data service, reports doubling the number of customer contacts it receives every day, and that one half of those calls come after hours.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

This measure is designed to reduce both trips and miles traveled by light duty vehicles.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

N/A.

VI. COST EFFECTIVENESS

N/A.

VII. SCHEDULE

Implementation is on-going and voluntary.

VIII. JURISDICTION

This measure would be implemented jointly by the District, SLOCOG, Regional Rideshare, Caltrans, and local jurisdictions.

IX. RECOMMENDATION

To continue implementation of this adopted control measure.

X. REFERENCES

1. San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1995.
2. Telecommuting Centers and Related Concepts: A Review of Practice. Institute of Transportation Studies, University of California, Davis. 1994.
3. San Luis Obispo North County Telecommuting Feasibility Study: Executive Summary. Prepared for Caltrans by Brandon Jones, Anita Broughton & Holly Padove. 1995.

XI. EMISSION DOCUMENTATION

N/A.

XII. COST-EFFECTIVENESS DOCUMENTATION

N/A.

CONTROL MEASURES PROPOSED FOR DEFERRAL/CONTINGENCY

The measure included in this section was found unnecessary to meet the emission reduction goals of the 2001 CAP. It is recommended for deferral/contingency, to be reconsidered only in the event that reductions from adopted measures are insufficient to achieve attainment within the required time frame.

I. T-12 FLEET OPERATOR ALTERNATE FUELS PROGRAM

II. BASELINE EMISSIONS

ARB Inventory Category: Planning Inventory Emissions from On-Road Vehicles (Tons per Day)

<u>Year</u>	<u>1991</u>	<u>1994</u>	<u>1997</u>	<u>2000</u>	<u>2003</u>	<u>2006</u>	<u>2015</u>
ROG (t/d)	16.3	12.3	9.0	7.6	6.1	4.7	2.5
NOx (t/d)	21.8	19.2	16.3	14.6	12.9	11.6	10.2

(see Section XI. for documentation)

III. ADOPTED CONTROL MEASURE DESCRIPTION

This measure will reduce vehicle emissions from fleets of 50 or more vehicles to levels that are lower than those achievable through existing control technology and conventional gasoline. Clean fueled and gasoline fueled vehicles may emit similar amounts of hydrocarbons, but the capability of these hydrocarbons to form ozone may vary greatly. Clean fuels include: Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LNG), Methanol and Electricity.

The use of clean fuels, rather than gasoline, has the potential to reduce ROG and NOx emissions in addition to reducing vehicular toxics and the associated cancer risk. The District's Clean Fuels Program for Fleet Vehicles is proposed as a mandatory program. Elements of this program include:

- Requiring all fleet operators with fifty or more vehicles to begin replacing vehicles in their fleets with Transitional Low Emitting Vehicles (TLEVs in ARB terminology), Low Emitting Vehicles (LEVs), or Ultra Low Emitting Vehicles (ULEVs). The ARB has designated a proposed schedule for the introduction of TLEVs, LEVs, and ULEVs into California Based on the total numbers of fleet vehicles purchased each year, a minimum percentage of that total (either additions to the fleet or replacements for retired vehicles) must be qualifying vehicles. The years for which these percentages would apply for fleets with 50 or more vehicles are indicated in the fifth column and the percentage of fleet additions in the sixth column of Table 4. To qualify, either new vehicles meeting the ARB designation, or existing fleet vehicles converted to alternate fuels would be required.
- Requiring eligible fleet operators to report annually to the District on the distribution of new vehicle purchases or conversions with respect to TLEVs, LEVs, and ULEVs as compared to the schedule; the total makeup of their fleets; and to document vehicle mileage by vehicle type and fuel use by fuel type to assure that alternate fueled vehicles are displacing traditionally fueled vehicles.
- Including provisions in the regulation that encourage fleet operators to make their refueling facilities available to employees or members of the public who choose to purchase alternate fuel vehicles.

Regulation Requirements

- All known fleet operators would be surveyed to determine the current makeup of each fleet and the overall number of fleets in San Luis Obispo County. A public information effort would be necessary to reach fleet operators not known to the District. Those with fleets exceeding the number specified in the above schedule would be notified of the proposed regulation.
- Affected operators would be required to prepare an annual plan for incorporating the required mix of alternate fueled vehicles into their fleet. Such a plan would include projections for new vehicle acquisitions for the next three successive years. Updates and revisions to the plan would be required annually. The annual update would document the vehicle purchases for the prior year and compare the actual purchases with those in the plan for that year. Deficiencies in the number of TLEVs, LEVs, or ULEVs actually purchased compared to the plan would be documented and explained. The updated three year acquisition schedule for alternate fuel vehicles could be increased to bring the operator into compliance within two years.
- As part of the plan submittal, the fleet operator would also provide records of fuel consumption and miles traveled, by vehicle type, to show that the alternate fueled vehicles were actually being used at a level at least equal to their fraction of the overall vehicle fleet. That is, if 10 percent of the vehicles are considered alternate fueled vehicles, then at least 10 percent of the fleet miles traveled or 10 percent (in energy equivalent units) of the fuel use should be attributed to those vehicles.

IV. SOURCES AFFECTED AND EMISSIONS SUBJECT TO CONTROL

This control measure is designed to reduce ozone precursor emissions from fleets of 50 or more vehicles. Based on information from a 1990 District survey, fleet vehicles are estimated to be about 2% of all registered vehicles in the county. Emission reductions only reflect the use of light- and medium-duty clean fueled vehicles. Potential reductions from heavy-duty clean fueled vehicles have not been quantified.

V. PROJECTED REDUCTIONS IN EMISSIONS AND VEHICLE USE

N/A.

VI. COST EFFECTIVENESS

N/A.

VII. SCHEDULE

N/A

VIII. JURISDICTION

This regulation would be implemented via Air Pollution Control District rule making authority provided under California Health and Safety Code Division 26 - Air Resources; Part 3 - Air Pollution Control Districts; Chapter 6 - General Powers and Duties; Section 40717 - Transportation Control Measures; Section 40920 - Clean Fuels for Fleet Vehicles.

IX. RECOMMENDATION

This measure is proposed for further study.

X. REFERENCES

San Luis Obispo County Air Pollution Control District. Clean Air Plan Appendix D: Transportation Control Measures. December, 1998.

XI. EMISSION DOCUMENTATION

N/A.

XII. COST-EFFECTIVENESS DOCUMENTATION

N/A