CHAPTER 5

TRANSPORTATION CONTROL MEASURES

5. TRANSPORTATION CONTROL MEASURES

5.1 BACKGROUND

In June 1993, the boards of the Santa Barbara County Association of Governments and the Santa Barbara County Air Pollution Control District jointly approved a Memorandum of Understanding (MOU), which effectively placed the responsibility for developing the transportation elements of the air quality plans with SBCAG. This MOU allows SBCAG to assist the APCD in a cooperative effort towards meeting the APCD's responsibilities for developing the transportation elements of its state and federal air quality plans. Under the MOU, SBCAG is responsible for the development and analysis of the ~~2004~~ 2007 Plan's on-road mobile source emission estimates and transportation control measures (TCMs). SBCAG also provides the APCD with socio-economic projections, ~~which~~ that form the basis for many of the stationary and area source growth forecasts for this ~~2004~~ 2007 Plan.

Since 1993, the following four State Implementation Plan (SIP) updates have been developed under the MOU: 1) 1993 Rate of Progress Plan; 2) 1994 Clean Air Plan (1-Hour Ozone Attainment Demonstration Plan); 3) 1998 Clean Air Plan; and, 4) 2001 Clean Air Plan (Maintenance Plan). All these plans were developed under the auspices of Section 176(c)(4) of the 1990 federal Clean Air Act Amendments (Federal Act), which requires that regional transportation planning and programming activities be consistent with the region's air quality planning goals.

To facilitate implementation of the federal Act Section 176(c)(4), past SIP updates for Santa Barbara County explicitly identified an on-road mobile source emission control strategy (TCMs) and the on-road mobile source emission budgets for ozone precursors. These emission budgets established an upper limit on vehicular emissions that the area could accommodate and still achieve and/or maintain the federal 1-hour ozone standard.

Re-designation of Santa Barbara County as an 8-hour ozone attainment area (effective June 15, 2004) ended the applicability of Section 176(c)(4) of the Clean Air Act and the federal transportation conformity regulation to Santa Barbara County on June 15, 2005. Santa Barbara County is now defined as an area that is designated unclassifiable/attainment for the federal 8-hour ozone standard and was previously designated attainment for the federal 1-hour ozone standard with an approved maintenance plan. This requires Santa Barbara County to submit a federal Act Section 110(a)(1) maintenance plan (2007 Clean Air Plan) no later than June 15, 2007. Pursuant to a May 20, 2005 EPA memorandum[a] the 2007 Plan will not establish emission budgets for conformity purposes nor will the on-road mobile source emission control strategy identified in the 2007 Plan be subject to the expeditious implementation requirements of the federal conformity regulation. This 2007 Plan and future SIP updates will continue to be developed using the Interagency Consultation and Public Participation Procedures given that these procedures were locally adopted as APCD Rule 701. Similarly, the federal Department of Transportation's metropolitan planning regulations require that future regional transportation plan/program updates must continue to meet the Financially Constrained requirement.

[a] Memorandum from Lydia N. Wegman, Director, Air Quality Strategies and Standards Division, USEPA, to Air Division Directors, Regions I-X, May 20, 2005.

5.2 HISTORICAL TRENDS IN VEHICLE ACTIVITY

5.2.1 State Act Performance Measure

The state Act requires areas classified as having a "moderate" non-attainment classification for the state one-hour ozone standard, such as Santa Barbara County, to track and meet the following transportation performance standard: a substantial reduction in the rate of increase in passenger vehicle trips and vehicle miles traveled (VMT).[b] ARB has defined substantial reduction as holding growth in VMT and trips to the same growth rate as population. ~~For Santa Barbara County, this would equate to reducing VMT growth rates by more than one half the growth rates experienced during the 1980's.~~

Figure 5-1 shows that the annual VMT growth rate since ~~1980~~ 1990 has been highly variable with many peaks accompanied by negative growth occurring during the recession years of 1991 and 1995. ~~However, for~~ For 12 of the ~~16~~ 17 years monitored since the passage of the California Clean Air Act in 1988, the annual VMT growth rate has exceeded the annual population growth rate in Santa Barbara County. ~~The figure also shows that the annual VMT growth rate over the last three years (2000-2002) has begun to approach the VMT growth rates experienced during the 1980's – a period of significant vehicle growth and activity.~~ However, since the year 2000, the VMT growth rate has been declining and over the past two years (2003-2004), total VMT has declined, creating a negative growth rate. As a result, the population growth rate has exceeded the VMT growth rate since 2002. As shown in Table 5-1, the average annual VMT growth rate from ~~1980~~ 1990 to ~~1989~~ 1999 was ~~4.11~~ 1.31 percent. ~~During the 1990's, VMT growth rates dropped by more than half – falling to an annual average of 1.31 percent - a significant decline from previous levels. However, over the three year period spanning from 2000 to 2002, the annual average growth rate in VMT has risen to 3.02 percent in Santa Barbara County.~~ The trend over the last five years has been a further decline in the VMT growth rate. For the period 2000 to 2004, the average annual VMT growth rate is 1.23 percent. The annual average population growth rate over these ~~three~~ analysis periods is ~~1.97 percent,~~ 0.63 percent, and ~~0.75~~ 1.06 percent respectively – ~~well~~ below the comparable average annual rates of VMT growth. ~~Ratios of these rates also indicate an increase in the disparity of VMT growth over population in recent years. Based on this information, Santa Barbara County is clearly not meeting this State Act performance standard.~~ However, ratios of these rates indicate that the VMT growth rate is near to leveling off with the population growth rate.

As indicated by the negative spikes during 1991 and 1995, VMT is sensitive to a host of economic variables and conditions - especially fuel prices. Although non-discretionary trip making (e.g. commuting) can be somewhat insensitive to the price of fuel, discretionary trip making (e.g. tourism, recreational) is. Although causality is difficult to verify, rising fuel prices are considered a major influence on the decline in VMT growth rates in Santa Barbara County beginning in 2002. Conversely, this is somewhat offset by the draw of the County's destination resort attractions.

5.2.2 Comparative Analysis of VMT and Trip Rate Trends

A comparative analysis was completed to show how Santa Barbara County fares on VMT growth with other mid- and large-size counties in the state. Figure 5-2 shows total daily VMT (DVMT) between 2000 and 2004 for California counties that have populations greater than 250,000. As shown, Santa Barbara County has the fourth lowest VMT growth rate (2.3 percent) for the period between 2000 and 2004. Figure 5-3 shows a similar graph summarizing growth in each county's daily VMT per capita. As shown, Santa Barbara County is in the middle of the pack, with a DVMT per capita growth rate of 1.6% since 2000.

[b] VMT is considered a surrogate for vehicle trips for state Act performance standard monitoring.

Figure 5-4 summarizes a comparative analysis completed for California Metropolitan Planning Organizations (MPOs) using data found in Caltrans' Statewide Travel Survey. Since 1991, Santa Barbara has among the highest trips per household rate (8.4 trips per household in 1991 and 6.9 trips per household in 2001). However, the rate of decline between 1991 and 2001 was 18%, which was among the highest rates of decline in the state.

5.3 TRANSPORTATION CONTROL MEASURES

TCMs are programs or activities that states and localities can implement 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: improving the existing transportation system to allow motor vehicles to operate more efficiently; inducing people to change their travel behavior to less polluting modes; or, ensuring emission control technology improvements in the motor vehicle fleet are fully and expeditiously realized. TCMs address the need for the traveling public to carefully consider: 1) the implications of continued reliance on the single occupant vehicle as the major choice of commute trips; 2) the need to provide and promote alternatives to single occupant vehicle travel; and, 3) the need to consider regulating those factors which promote single occupant vehicle travel. While the greatest on-road mobile source emission reductions (over 95 percent) are attributable to motor vehicle emission controls established by federal and state laws and the natural attrition of older more polluting vehicles (i.e., fleet turnover), TCMs should be considered as an integral part of air quality plans given that they help meet multiple objectives (e.g., congestion relief, energy efficiency, etc.).

Table 5-2 summarizes the implementation characteristics of all currently adopted TCM categories in the county. Identified are: the type of TCM; the adopting agency/agencies; the agency/agencies responsible for implementing the TCM; the formal agreements between the adopting and implementing agencies; and, how TCM implementation will be monitored and by whom. All currently adopted TCMs except for T-18 (Alternative Fuels) are listed as TCMs by the U.S. EPA in Section 108(f) of the federal Act.

For state air quality planning purposes, control measures are classified as being adopted, proposed, contingency, further study, or deleted. Adopted TCMs are those projects and programs that the APCD has formally adopted and included in the federal SIP. These TCM projects/programs were developed as part ~~the 1994 CAP and 1998 CAP~~ of the 1994, 1998, 2001 and 2004 Plans and are listed in Table 5-3 ~~and Table 5-4 respectively~~. These measures meet the every feasible control measure (Health and Safety Code, Section 40914(b)) provisions of the state Act.

All TCMs evaluated as part of the last triennial update (~~2001~~ 2004 Plan) are listed below.

Currently Adopted

T-1 Trip Reduction Ordinance
T-2 Employer Based Transportation Demand Management Programs
T-3 Work Schedule Changes
T-4 Area-wide Ridesharing Incentives
T-5 Improve Commuter Public Transit Service
T-7 Traffic Flow Improvements
T-8 Parking Management

T-9 Park-and-Ride / Fringe Parking
T-10 Bicycle and Pedestrian Programs
T-13 Accelerated Retirement of Vehicles
T-17 Telecommunications
T-18 Alternative Fuels
T-19 Public Education

Proposed for Adoption
None.

Proposed For Further Study
T-6 High Occupancy Vehicle (HOV) Lanes/High Occupancy Toll (HOT) Lanes
T-14 Activity Centers (i.e., Indirect Source Review – Land use measures)
T-15 Extended Vehicle Idling
T-20 Parking Management to Reduce Non-commute Single Occupant Vehicle Use

Proposed As Contingency Measures
T-21 Enhanced Inspection and Maintenance Program

Proposed For Rejection
None.

The TCM's proposed for further study and as contingency measures under ~~federal~~ state air quality planning requirements (~~2001~~ 2004 Clean Air Plan) and projects included in the 101-In-Motion Implementation Plan will form the basis for the ~~2004~~ 2007 Plan on-road mobile source control strategy. Also included are measures that have been implemented during the reporting period 2004-2006 such as new transit routes (e.g., MTD Valley Express) and traffic flow improvements (e.g., SBCAG Freeway Service Patrol). Tables 5-4 through 5-6 list~~s~~ these measures and the process by which the implementation feasibility will be assessed.

As shown in Table 5-4, ~~The~~ the source of most of the TCMs proposed for adoption ~~measures included in Table 5-5~~ is the Highway 101 Deficiency Plan (SBCAG, June 2002) and the 101-In-Motion Implementation Plan (SBCAG, July 2006). The potential air quality impacts of the worsening Highway 101 congestion in the South Coast of Santa Barbara County ~~was raised as a major concern by the APCD's Community Advisory Council and by members of the public during the development of the 2001 CAP~~ have been outlined in previous Clean Air Plans. The worsening congestion on the 4-lane segment of Highway 101 between the Ventura-Santa Barbara County line and the City of Santa Barbara continues to have an affect on the local economy, air quality, and mobility within the South Coast area. In 2002, SBCAG joined with other agencies to prepare the Highway 101 Deficiency Plan to address the growing congestion on Highway 101 within the South Coast. The plan, adopted by local agencies and SBCAG, included short-term congestion relief improvements and committed adopting agencies to complete the 101-In-Motion Plan.

The goal of the 101-In-Motion Plan was to develop long-term solutions for addressing congestion on 101 through a process that would include a broad range of public members. A Stakeholder Advisory Committee was formed to include major employers, representatives from the business community, commuters, environmental interests, automobile advocates, alternative transportation advocates, non-

profit community organizations, and neighborhood/homeowner associations. Members of the public were invited to community meetings and many proposed solutions and provided information on what was most important to them regarding possible solutions. A "package" of solutions was identified through this extensive public outreach process and was formally approved by the SBCAG board in October 2005. The 101-In-Motion Plan was completed in July 2006, and incorporates the recommendations made through the public outreach process. The major components of the Implementation Plan include; widening Highway 101 between the Ventura County line and Milpas Street to provide HOV lanes on both sides of the freeway, commuter rail service between Ventura County and Goleta, extensive transportation demand management programs, and intelligent transportation systems (ITS) improvements. It should be noted that each of these are considered feasible transportation control measures. However, some elements are entirely dependent on the Measure D sales tax being renewed, particularly the commuter rail proposal. The long-term solutions identified in the 101-In-Motion Plan will be incorporated into the 101 Deficiency Plan and the Regional Transportation Plan for Santa Barbara County. Major elements of the 101-In-Motion Plan are also being incorporated into the 2007 Plan as transportation control measures. With the community consensus achieved through the outreach process, all of the elements of the 101 Deficiency Plan and 101-In-Motion Implementation Plan are now proposed for adoption. It should be noted that two of the measures proposed for adoption will likely be implemented beyond the horizon year of this Clean Air Plan; the construction of an HOV lane from the Ventura County line to Milpas Street and operational improvements from Milpas Street to Fairview Avenue.

As shown in Table 5-6, the enhanced commuter rail between the North and South County is proposed for rejection. Commuter rail between the north and south counties was studied as part of the 101-In-Motion process and was found to be infeasible since rail stations in the North County are distant from North County population centers and existing regional bus service offers more direct and timely alternative transportation to job centers in the South Coast.

Also proposed for rejection is the Activity Centers/Indirect Source Review measure. This measure is related to APCD's preparation of land use strategies that local agency planners can implement to address issues of air quality. The 2001 Plan contained a chapter detailing this connection between land use decisions and air quality. APCD staff also prepared a Land Use Strategies chapter for the 2004 Plan, with the support of a majority of the members of the Community Advisory Council, but the APCD board voted to not include the Land Use Strategies chapter in the 2004 Plan. Regional government involvement in land use issues is a controversial issue with our elected officials in Santa Barbara County. Recently, SBCAG staff brought forth to its board a proposal to obtain a grant through the Regional Blueprint Planning program as part of its Overall Work Program. The program would have required SBCAG to prepare a plan that would have addressed the link between transportation and land use decisions. The board voted unanimously not to pursue the grant, stating that the program might interfere with local control of land use issues. Based on these past experiences with our local elected officials, it is recommended that the Activity Centers TCM be proposed for rejection at this time.

~~The Highway 101 Deficiency Plan is a multi-jurisdictional plan prepared as a result of the growing congestion on Highway 101 within the South Coast (Ventura County Line to western city limit of Goleta). The plan, adopted by local agencies and SBCAG, includes short-term congestion relief improvements and commits the adopting agencies to complete the 101 In-Motion Plan to provide long-term solutions to the growing congestion on Highway 101 within the South Coast. The goal of the 101 In-Motion Plan is to thoroughly examine all the options that will improve mobility on the South Coast for years to come rather than revisiting the problem every funding cycle. It recognizes that no single option,~~

~~including widening Highway 101, will solve the congestion problem for the long-term. The magnitude of the problem will require a comprehensive plan with a range of both short and long term strategies to increase vehicle capacity, reduce demand, improve management of the system, expand transportation alternatives and change land use planning policies and decisions.~~

~~Exacerbating the demand for travel on Highway 101 in Santa Barbara County is the jobs-housing imbalance that exists in the South Coast (Goleta, Santa Barbara, and Carpinteria) that serves to foster long-distance commuting. The 2002 Commuter Survey funded by SBCAG was conducted in order to provide an indication of the magnitude of intercity commute activity within Santa Barbara County. This data indicates that 14 percent of the South Coast's workforce comes from Ventura County while another 11 percent drive from northern Santa Barbara County. This suggests that well over 17,000 commuters are making long-distance commutes to the South Coast each weekday. Although now over ten-years old, 1990 Census data corroborates this information. It is anticipated that these long-distance commute patterns have been exacerbated by the steep rise in housing costs in the South Coast coupled with only nominal increases in South Coast housing supply, relative to continued job growth, since 1990.~~

~~Census inter-county commuting trend data is shown in Table 5-6, Table 5-7 and Table 5-8. In 2000, the number of workers commuting into Santa Barbara County (20,000) exceeded workers commuting out of Santa Barbara County (10,500) by 9,500. Compared to the 1990 Census, there was an increase of 5,000 workers commuting into Santa Barbara County and a nominal increase of 345 workers commuting out of Santa Barbara County in 2000.~~

5.3.1 TCM Funding

Since, the passage of the Inter-modal Transportation and Efficiency Act (ISTEA) in 1991 and ~~the Transportation Efficiency Act for the 21st Century (TEA-21) in 1998~~ continuing with the reauthorization of the national transportation bill, SAFETEA-LU, in 2005, the source of funding for transportation control measures ~~has~~ primarily comes from the federal Congestion Management and Air Quality (CMAQ) program. The CMAQ program was specifically created to provide a funding source for TCMs in areas designated non-attainment or maintenance for the national ambient air quality standards (NAAQS). With the attainment classification for the federal 8-hour ozone standard and revocation of the 1-hour federal ozone standard in April 2005, annual apportionments of federal CMAQ funds ~~may cease~~ will end for Santa Barbara County. ~~beginning in June 2005. The potential loss of federal CMAQ funding combined with the state's current fiscal crisis will make progress towards implementing the 2004 CAP TCM projects difficult.~~ In April 2006, SBCAG began a joint process with the Association of Monterey Bay Area Governments (AMBAG) to create a two year CMAQ "phase-out" program that would allow SBCAG and the Monterey Bay region to receive SAFETEA-LU CMAQ funds, even though our areas are in attainment of the Federal standards. The measure is currently in legislation as Senate Bill 1587, and if passed, would provide up to approximately $ 1.9 million through the end of fiscal year 2007/08.

A local sales tax referendum approved by the voters in 1989 (Measure D) currently generates approximately $25 million per year for specific transportation improvements and roadway maintenance needs in Santa Barbara County. Measure D will sunset in ~~2009~~ March 2010. ~~An effort to renew Measure D will be initiated by SBCAG and the local agencies. As part of this effort, SBCAG will explore public and local agency support for procuring "new" Measure D funding for regional highway, transit, and other transportation measures. This renewal effort could potentially provide a new dedicated funding source for some of the TCM's listed in Table 5-5.~~ In order to continue to meet these needs, an effort to renew

Measure D was initiated by SBCAG. Working closely with local agencies and the public, staff developed a Measure D renewal transportation expenditure plan, which was unanimously approved by the SBCAG board in April 2006. The plan proposes a continuation of the existing ½ percent sales tax plus an addition of a ¼ percent to the sales tax to fund specific projects and programs. The plan is scheduled to be voted on by County residents as a bond measure, and requires a two-thirds voter approval.

Renewal of Measure D is vital to many of the TCM projects listed above and will allow them to be implemented in a timely manner. It will fund a large share of the planned South Coast U.S. 101 improvements, as well as provide a major boost for local transit operators, regional transit and other alternative transportation projects, and programs such as SBCAG Traffic Solutions. In the absence of Measure D funding, the commuter rail, interregional bus service, and carpool/vanpool programs detailed in the 101-In-Motion Plan would not be implemented. Furthermore, the timing on the delivery of the HOV lane additions south of Milpas Street, ITS improvements, and the operational improvements north of Milpas Street to Fairview Avenue would be extended well beyond the year 2030, with full delivery of these three components anticipated around 2040.

5.4 ON-ROAD MOBILE SOURCE EMISSIONS ANALYSIS

On-road mobile source emissions are estimated using the California Air Resources Board (ARB) on-road mobile source emissions inventory model, EMFAC. At this time, ARB is currently in the process of updating the EMFAC model. Given that the updated model is not scheduled for completion until November 2006, ARB has made available a preliminary "working draft" of the new EMFAC model for use by Districts to develop their on-road mobile source planning inventories. The on-road emission estimates documented in this Chapter were ~~analyzed, in aggregate,~~ developed using the working draft of ARB's new EMFAC~~2002~~ on-road emissions model. Upon the formal release of the updated emissions model in November 2006, these on-road emission estimates will be revised.

On-road mobile source emission forecasts were generated using the working draft of the new EMFAC~~2002~~ model for ~~2000~~ 2002 (baseline year), ~~2005,~~ 2010, 2015 and 2020. The transportation activity data (e.g., regional vehicle miles of travel (VMT), regional vehicle trips, and VMT by speed class distributions) generated by SBCAG's Santa Barbara Travel Model provided the basis for the on-road mobile source emission estimates contained in this plan. For the ~~2000~~ 2002 and ~~2010~~ 2015 emission forecasts, on-road activity data was interpolated from the ~~1999, 2005 and 2015~~ 2000, 2010, and 2020 model forecasts. SBCAG has modified its travel demand model and will be generating revised travel forecasts for the final 2007 Plan.

5.4.1 On-Road Activity Data Inputs

Table 5-7 lists the transportation and emissions modeling assumptions of the ~~2004~~ 2007 ~~CAP~~ Plan on-road mobile source emissions analysis.

~~Since 2001, SBCAG has been in the process of updating the Santa Barbara Travel Model using the TRANSCAD software developed by Caliper Corporation. Although SBCAG anticipates completion and of the model base year and forecasts by mid 2004, the need for a comprehensive review process of these modeling products by SBCAG, Caltrans and ARB will preclude the use of the model in time for this triennial update. In lieu of using the new travel model, past modeling performed by SBCAG using the~~

~~SYSTEM2 software was relied upon to provide the on-road activity data inputs (countywide VMT, vehicle trips, and VMT by speed class distribution (SCD)) for this 2004 CAP.~~

The countywide VMT and vehicle trips were derived from SBCAG's Transcad Travel Demand Model. The SBCAG model is fully calibrated in accordance with the federal and state guidelines and performance standards for model accuracy.

~~The last modeling products produced by the SYSTEM2 model were a 1999 (base year) and 2005, 2015, and 2020 forecasts. These modeling products were used for the transportation air quality conformity assessments of SBCAG's 2001 Regional Transportation Plan (RTP), SBCAG's 2002 Federal Transportation Improvement Programs (FTIP), and the 2001 Clean Air Plan (CAP). The coded transportation networks for each forecast scenario reflect road improvement projects identified in the 2001 RTP and 2002 FTIP. Which model year scenarios (i.e., 2005, 2015 and 2020) include particular projects was based on programmed and planned project scope and schedule information known at the time of the 2002 FTIP. Table 5-10 and Table 5-11 include all regionally significant infrastructure improvement projects currently programmed and planned in Santa Barbara County respectively. As a result of the state fiscal crises and its impact on the flow of state transportation funds – some project sponsors may have difficulty delivering projects consistent with modeling performed as part of the 2002 FTIP and 2001 RTP.~~

The most current modeling products available from the model are a 2000 (base year) and 2010 and 2020 forecasts. These products will be utilized in SBCAG's pending 2006 Regional Transportation Plan (RTP). The coded transportation networks for each forecast scenario reflect road improvements identified in the 2006 Federal Transportation Improvement Program (FTIP). The activity forecasts assume completion of all of the programmed projects (those projects for which specific funding sources have been secured) listed in the 2006 FTIP. It should be noted that some of the projects listed may not be completed until after 2010 and 2015; however, inclusion of these projects in the short-term forecasts does not have any noticeable affect on the activity data. A list of the programmed projects is provided in Table 5-8. Past Clean Air Plans have included planned projects in future forecasts; however at the time of this writing, the model forecast for the planned projects is not available. It should be noted that the TCMs listed in Table 5-4 related to the 101 In Motion and Deficiency Plans are currently given the status of "planned", pending the results of the Measure D renewal. Therefore, the activity data presented here do not account for some of the short-term improvements that are planned on the South Coast of the 101 corridor, such as ITS improvements and commuter rail. The final analysis for the 2007 Plan will utilize the activity data from planned and programmed projects in the 2010 and 2020 forecasts.

The socio-economic inputs (employment and households) that form the basis for the transportation model ~~used in the SYSTEM2 model were~~ are based on ~~the~~ SBCAG's ~~1994~~ 2002 Regional Growth Forecast (RGF). The ~~1994~~ 2002 RGF forecasts population, housing, and employment growth in Santa Barbara County out to ~~2015~~ 2030. ~~The 2002 RGF, adopted March 2002, resulted in updates to the countywide forecasts for population, housing, and employment. Table 5-12 provides a comparison for the socio-economic forecasts between the 1994 RGF and the 2002 RGF. Differences between the forecasts for population, housing and employment range between +/- one to four percent with the largest percent differences occurring in the 2015 out year. Although underestimating population and housing by four percent in 2015 is not insignificant, it well within the error limitations of network travel models. Hence, use of the 1994 RGF is considered reasonable for generating on-road activity estimates for emissions modeling.~~ Table 5-9 shows the major activity indicators from the 2002 Regional Growth Forecast. The

vehicle activity forecasts generated by the ~~Santa Barbara~~ SBCAG Travel Model are provided in Table 5-10. These forecasts reflect countywide non-commercial vehicle activity. ~~Adjustments made to reflect commercial vehicle activity (VMT and trips) and key ignition events (trip starts) are described later in this chapter.~~

~~Figures 5- incorporates the VMT information presented above with the historical population vs. VMT annual average growth rate analysis presented earlier (see Figure 5-1).~~

Figure 5-5 summarizes the 2005 through 2020 forecasted average annual VMT and trip growth rates and their relationship to population growth rates over the same period. This graph indicates that annual average VMT growth rates are forecast to fall ~~below annual average population growth rates~~ beginning in 2005 – becoming equal ~~leveling off~~ to a point about 1% higher than the population growth rate by the end of the 2020 forecast horizon of the ~~2004~~ 2007 ~~CAP~~ Plan. The growth rate in trips will also decline, to a point less than a half of a percent (0.25) higher than the population growth rate. This represents a departure of trends experienced between 1980 and 2000 and is closer to the trend seen in VMT growth between 2000 and 2004. For the ~~20~~ 15-year forecast period (~~2000~~ 2005-2020), the Santa Barbara Travel Model forecasts an annual average VMT growth rate of ~~1.00~~ 1.75 percent and an average annual trip growth rate of 1.2 percent while population is estimated to grow at an annual average growth rate of ~~1.18~~ 0.99 percent (Regional Growth Forecast, SBCAG).

The forecasted population and VMT growth rate trend is interesting but not entirely unexpected. VMT change is a product of demographic, social, and economic factors that vary over time. The 1970's through the 1980's were characterized by: post-second world war children having a baby boom; significant increases in the female labor force; and, significant increases in vehicle ownership per licensed driver. These factors dramatically impacted the demand for travel over this twenty year period. However, these factors have now reached saturation and will be less significant in the future. For example, during the 1990's the female labor force participation rate (% females 16 - 60 or so who are working) stabilized and has probably reached its peak; the post WWII baby boom generation has had their children; and, the number of vehicles per licensed driver is near or at 1.0. Hence, it has been postulated by transportation researchers that in the absence of "new" demographic and/or socio-economic changes, VMT growth in the future should track more closely with overall population growth.

Social factors emerged in the 1990's that impacted travel. Given the increase in dual income families, more vehicle trips resulted (e.g., two working parents requiring two work trips instead of one; an added trip to the day care center; a trip to the gym on the way to or from work etc.). Another potential factor in future demand is the change in ethnic composition. At this time, change in ethnic composition and its impact on travel is not well understood. The emergence of the Hispanic population can be seen in elementary school enrollment data. This ethnic age cohort will age and turn into licensed drivers, but their driving characteristics may differ from the past drivers that were dominated by the white ethnic group. At this time, travel forecasting models do not account for ethnicity and its impact on travel behavior.

Another economic trend that is impacting travel demand in Santa Barbara County is the high cost of housing in the South Coast. With median housing costs over $1 million, many workers in the South Coast are opting to buy more affordable homes in northern Santa Barbara County or Ventura County – living farther from the worksite and increasing VMT. The U.S. Census indicates that between 1990 and 2000, Santa Barbara County experienced approximately a 20 percent increase in the number of

commuters who must travel 30 minutes or more from within or to Santa Barbara County for work[c]. The resulting jobs-housing imbalance that these housing costs have fostered may be a contributing factor to VMT growth rates into the future. ~~remaining twice as high as population growth between 1980 and 2000 and more recently (2000-2002) four times higher (See Table 5-1).~~

~~As stated earlier, SBCAG will be updating the Santa Barbara Travel Model. Although the "new" travel model would not be completed in time for this triennial update – it will be available for the next State Act triennial update. Updated travel forecasts generated by the new model will replace those used for this 2004 CAP. These updated travel forecasts will result in different forecasted annual VMT growth rates than those reported in the 2004 CAP.~~

5.4.2 Emissions Modeling

Two basic quantities are required to calculate a given emission estimate, an emission factor and an activity factor. In general, the emission factor is the amount of emissions generated by a certain amount of motor vehicle activity. A countywide on-road mobile source emission estimate is calculated by summing the product between the vehicle activity (VMT and trips) presented above and the emission factors contained in the EMFAC working draft emissions model ~~EMFAC2002~~ developed by ARB. ~~A more detailed description of this modeling process is provided below.~~

~~For purposes of emissions modeling, all on-road activity data was stratified into 24 1-hour time intervals within EMFAC2002. Summer ozone temperatures for each EMFAC2002 time period were derived from the 10 worst episodic days monitored in Santa Barbara County.~~

~~EMFAC2002 computes the emissions associated with the following emitting processes:~~
~~1) Running exhaust emissions based on VMT;~~
~~2) Cold start incremental emissions and hot start incremental emissions based on the number of vehicle starts as a function of time after engine shutoff;~~
~~3) Diurnal emissions based on numbers of vehicles;~~
~~4) Hot soak emissions based on total numbers of vehicle starts;~~
~~5) Evaporative running losses based on VMT; and,~~
~~6) Resting loss emissions based on numbers of vehicles.~~

The current working draft version of EMFAC does not contain an interface to input activity data. Therefore, SBCAG provided activity data from the Transcad model to ARB staff. ARB staff was then able to calculate the on-road mobile source emissions on their end using the EMFAC working draft.

~~Depending on the activity data used,~~ The working draft of EMFAC~~2002~~ will produce two types of inventories, an annual average inventory and a planning inventory. This ~~2004~~ 2007 Plan is based on a summer ozone season (April to October) average daily emissions planning inventory. ~~The latter is based on meteorological and activity conditions that exist during peak episodic conditions for a given pollutant.~~

~~ARB distributions were used to allocate VMT and vehicle trips into 24 1-hour EMFAC2002 time periods. To compute running emissions, each time period's VMT total was stratified into 13 speed classes (0 - 65~~

[c] This estimate includes inter-county commuting into Santa Barbara County from outside counties (e.g., LA, Ventura and San Luis Obispo) and implicitly assumes that these inter-county commutes require 30 minutes or more to achieve.

~~in 5 mile increments) and by vehicle classification. Hence, for the 13 vehicle classifications modeled by EMFAC2002, there are 24 VMT by Speed Class Distributions (SCD), one for each time period.~~

~~The emissions associated with vehicle starts are accounted for in the EMFAC2002 model based on the distribution of vehicle starts by vehicle classification, vehicle technology class, and operating mode. This allows the model to compute emissions associated with vehicle starts and evaporative processes (for ROC). EMFAC2002 adds these vehicle start and evaporative emissions to running emissions to compute total on-road mobile source emissions.~~

~~As required by the EMFAC2002 model, vehicle trips were stratified into the following 13 vehicle classifications: Light Duty Auto (LDA); Light Duty Truck (LDT1 & LDT2); Medium Duty Truck (MDT); Light-Heavy Duty Truck (LHDT1 & LHDT2); Medium-Heavy Duty Truck (MHDT); Heavy-Heavy Duty Truck (HHDT); Urban Bus (UB); School Bus (SBUS); Mobile Home (MH); Motorcycle (MCY); and, Line Haul Vehicles (LHV – currently not used). The distribution of each vehicle by age (model year), operating mode (e.g., cold start, hot start), and technology class (e.g. catalytic, non-catalytic, diesel) was based on the most recent ARB distributions for Santa Barbara County. Vehicle age distributions were based on 2000-2001 vehicle registration data for Santa Barbara County.~~

~~The EMFAC2002 activity data summaries for the 2000 baseline, and the 2005, 2010, 2015 and 2020 forecasts are provided in Table 5-14 through 5-18 respectively.~~

5.5 PRELIMINARY EMISSION RESULTS

The preliminary ~~2004~~ 2007 Plan emission results are summarized below ~~(see back of Chapter for model output)~~. It should be noted that emissions benefits from the transportation control measures listed in Table 5-4 were not quantified and are therefore not accounted for in the results below. When the new EMFAC model software is made available, the full benefits of the TCMs can be quantified. Also for past mobile source air quality analyses completed by SBCAG using the EMFAC model, various activity defaults were adjusted including adjustments to vehicle population, starts and commercial vehicles. These were not made for this interim analysis due to the current status of the EMFAC model. When the new EMFAC software is released, SBCAG and APCD will conduct a full review of the EMFAC model assumptions to determine if any adjustments need to be made.

From ~~2000~~ 2002-2020, ROC on-road mobile source emissions are forecast to decrease as follows:

~~2000~~ 2002 ROC Baseline	~~16.80~~ 12.37 tons/day
~~2005 ROC Forecast~~	~~11.92 tons/day~~
2010 ROC Forecast	~~8.34~~ 8.31 tons/day
2015 ROC Forecast	~~5.93~~ 6.07 tons/day
2020 ROC Forecast	~~4.35~~ 4.60 tons/day
Total On-Road Mobile Source ROC Emission Decrease ~~2000~~ 2002 – 2020	**~~12.45~~ 7.77 tons/day**

From ~~2000~~ 2002-2020, NOx on-road mobile source emissions are forecast to decrease as follows:

~~2000~~ 2002 NOx Baseline	~~24.36~~ 18.43 tons/day
~~2005 NOx Forecast~~	~~19.60 tons/day~~
2010 NOx Forecast	~~14.45~~ 13.34 tons/day
2015 NOx Forecast	~~9.76~~ 9.36 tons/day
2020 NOx Forecast	~~6.67~~ 6.61 tons/day
Total On-Road Mobile Source NOx Emission Decrease ~~2000~~ 2002-2020	**~~17.69~~ 11.82 tons/day**

On-road mobile source emissions of ROC and NOx are forecast to decline by ~~12.45~~ 7.77 and ~~17.69~~ 11.82 tons per day respectively. This represents a ~~74~~ 63 and ~~73~~ 64 percent reduction in ROC and NOx respectively over the ~~20~~ 18 year planning horizon of the ~~2004~~ 2007 ~~CAP~~ Plan. Figure 5-6 illustrates the ROC and NOx emission inventory trends and estimated emission reductions of the ~~2004~~ 2007 ~~CAP~~ Plan. ROC emissions are forecast to decline between ~~25~~ 20-30 percent every five years. NOx emissions are forecast to decline over ~~30~~ 25 percent every five years after 2010. These ROC and NOx emission reductions will primarily result from state and federal controls on light duty vehicle and heavy-duty diesel emissions and the natural attrition of older vehicles being replaced by newer vehicles (i.e., fleet turnover). Figure ~~5-4 through~~ 5-7 illustrates how the on-road mobile source emissions are distributed among ~~the six~~ five major vehicle type categories. These figures show that light-duty vehicles will continue to be the primary source of ROC whereas heavy-duty vehicles will continue to be the primary source of NOx into the future. The relative contribution of ROC emissions will decline over time for light duty vehicles while heavy duty vehicles will increase its share of NOx emissions in the future.

~~5.6 DEPARTURES FROM EMFAC2002 DEFAULTS~~

~~ARB approved the use of EMFAC2002 for purposes of on-road mobile source emission inventory development in California in September 2002. As part of the development of the 2004 CAP, several changes were also made to the vehicle activity data default values resident in the EMFAC2002 model in order to more accurately reflect Santa Barbara County travel characteristics. For each of the 2004 Clean Air Plan emission forecasts, adjustments were made to: vehicle population, vehicle starts; and, vehicle miles of travel related to commercial vehicle activity. These adjustments were agreed to by ARB and are consistent with how on-road mobile source emissions were modeled as part of the federally approved 2001 Clean Air Plan. EMFAC2002 allows these adjustments through its WIS (what-if-scenario) user-interface module. Justification for each of these vehicle activity adjustments is provided below.~~

~~5.6.1 Vehicle Population~~

~~Vehicle population estimates in EMFAC2002 are based on an area's county specific vehicle registration data. One concern with this approach it that it effectively ignores the population of vehicles that are operated within Santa Barbara County but are registered outside the county. This is an issue for MPOs like SBCAG that have destination resort areas within its modeling domains and/or experience a greater proportion of in-coming inter-county commuters. For instance, based on 2000 U.S. Census data, Santa Barbara County experienced a daily net increase of 9,455 incoming commuters versus those leaving Santa Barbara County to go to work. Combined with the influx of tourists, relying solely on county specific~~

registration data would tend to underestimate the number of vehicles actually operating within Santa Barbara County on a given weekday – thereby underestimating the ROC and NOx emissions associated with these vehicles. Adjustments to the LDA, LDT and MDT vehicle populations were made within EMFAC2002 based on maintaining the VMT to vehicle population relationship (i.e., keeping the mileage accrual rates constant). The VMT adjustment is described section 5.6.3.

5.6.2 Vehicle Starts

Departing from its predecessors[d], the EMFAC2002 methodology for generating vehicle starts for the LDA, LDT, and MDT vehicle types is now based solely on factoring an area's county specific vehicle registration data. There are two concerns that SBCAG has with respect to this approach.

1) It effectively ignores the contribution of internal visitor trips, i.e., trip starts from vehicles that are registered outside the county. ARB is developing a county-to-county trip matrix based on instrumented vehicle data to address these trips. However, this matrix is currently not complete and will not be operational for this generation of EMFAC. This may be an issue for MPOs like SBCAG that have destination resort areas within its modeling domains.
2) It creates an analytical disconnect between regional transportation network model output and vehicle start emissions. This is especially problematic when making emission forecasts. Relying on model defaults for vehicle starts makes EMFAC2002 insensitive to present/future mode split/vehicle trip changes resulting from HOV facilities, new transit services, transit fare policy changes, market based TCMs, traditional TCMs etc.

Based on these concerns, SBCAG revised the estimate of total countywide vehicle trip starts by applying the EMFAC7G trip-end to vehicle start adjustment factors to SBCAG's travel model output for trip-ends. The revised vehicle start control totals were then input into EMFAC2002 and allocated by vehicle type based on EMFAC2002's existing activity data distribution percentages.

5.6.3 Commercial Vehicle Activity

Given that SBCAG travel model does not explicitly model commercial truck activity, a two-step process was taken to appropriately augment SBCAG's modeled VMT estimates with VMT from heavy-duty gas trucks (HDGT), heavy-duty diesel trucks (HDDT) and urban diesel buses (UBD). This task was accomplished by distributing SBCAG's modeled VMT and trip activity to only the light and medium duty vehicle classes (including motorcycles) and retaining the ARB default estimates of VMT and vehicle trips for heavy duty trucks and urban buses. The sum of SBCAG's modeled VMT and ARB's default VMT estimates for commercial truck and urban diesel bus activity yields the total countywide VMT estimate. This new countywide VMT total is then input into EMFAC2002 for emissions modeling.

d For EMFAC7F and MVEI7G, ARB accepted travel demand model activity estimates of trip ends, VMT, and VMT by speed class distributions from MPOs/RTPAs. In MVEI7G, vehicle trip ends as produced by the regional transportation planning agency network models (or statewide travel survey derived trip end estimates) were adjusted to vehicle starts. These adjustments were based on ARB instrumented vehicle surveys and appropriately allowed the estimate of vehicle emissions to capture non-destination trips (i.e., trip chaining activity) and short trips (e.g., ignition key events associated with shuffling cars at home or moving a car in a parking lot). Because the resulting trip start control totals for each vehicle type are factored from the trip end data, the nexus between vehicle start emissions with MPO travel model results was maintained.

~~The effect these default adjustments have on SBCAG's and ARB's activity estimates are shown in Table 5-15 below. These changes allow EMFAC2002 to more accurately reflect the impact that inter-county travel (e.g., commuting and tourism) and heavy-duty commercial vehicle activity have on air quality in Santa Barbara County. This information is also presented at the bottom of the ARB/SBCAG Activity Data information provided in Table 5-14.~~

~~Table 5-15 — Percentage Change from ARB Activity Data Defaults~~

~~Analysis Year~~	~~% Change in Vehicles~~	~~% Change in Starts~~	~~% Change in VMT~~
~~2000~~	~~5.25~~	~~25.37~~	~~5.14~~
~~2005~~	~~4.68~~	~~22.89~~	~~4.50~~
~~2010~~	~~5.66~~	~~21.21~~	~~5.52~~
~~2015~~	~~6.56~~	~~19.54~~	~~6.38~~
~~2020~~	~~6.50~~	~~19.29~~	~~6.32~~

Table 5-1
Santa Barbara County Annual Average Population and VMT Growth Rates

Time Period	Annual Avg. Growth Rate Population	Annual Avg. Growth Rate Vehicle Miles of Travel	Annual Avg. Growth Ratio (Pop:VMT)
1990-1999	0.63 %	1.31 %	1:2.08
2000-2004	1.06 %	1.23 %	1:1.16

Table 5-2
Santa Barbara County Transportation Control Measures

TCM	TCM Designation	Type of TCM	Adopting Agency(ies)	Implementing Agency(ies)	Commitments	Monitoring Mechanism (Agency)
T-1 T-2	Trip Reduction Program Employer-Based TDM Program	Voluntary; TDM Program; State AQAP	Tier 1: Guadalupe; Buellton; Solvang; County, SYV Tier 2: Lompoc; Santa Maria; Carpinteria; County Unincorporated Tier 3: Santa Barbara; County, Goleta	Tier 1 (County/ Cities) Tier 2 (County/Cities) Tier 3 (County/Cities)	Tiers 1 & 2: Resolution of Commitments from Affected jurisdictions; Tier 3: City and County TDM Program City of Santa Barbara and Goleta area	TDM Program (SBCAG) CMP Conformity (SBCAG)
T-3	Work Schedule Changes	Voluntary	County and Cities	County and Cities; Private Sector	Adopted Policy, County, 1988	Not Applicable (TDM)
T-4	Area Wide Ridesharing	Voluntary	County and Cities	SBCAG	Interagency Agreement	TDM Program (SBCAG)
T-5	Public Transportation	Programmed	County and Cities	SBMTD; SMAT; SBCAG; APCD; COLT; SYVT	FTIP and RTIP; SRTP, TDP	RTP List of Programmed Projects(SBCAG)
T-7	Traffic Flow Improvement	Programmed	County and Cities	County and Cities; Caltrans; SBMTD; SBCAG	FTIP and RTIP	RTP List of Programmed Projects (SBCAG)
T-8	Parking Management	Parking Ordinance	City of Santa Barbara	City of Santa Barbara	Not Applicable	City of Santa Barbara Parking Task Force
T-9	Park-and-Ride Fringe Parking	Voluntary; Programmed	County and Cities	County and Cities; Caltrans	FTIP and RTIP	Caltrans, District 5; RTP List of Programmed Projects (SBCAG)
T-10	Bicycle/Pedestrian	Programmed	County and Cities	County and Cities; Caltrans; SBCAG	FTIP and RTIP; General Bikeway Elements; Bikeway Master Plans	RTP List of Programmed Projects (SBCAG)
T-13	Accelerated Retirement of Vehicles	Voluntary	APCD	APCD	Contract APCD/Engineering	APCD
T-17	Telecommunication	Voluntary	County and Cities	County and Cities; Private Sector	Not Applicable	Not Applicable (TDM)
T-18	Alternative Fuel Program	Voluntary	APCD	APCD; County and Cities	Interagency Agreements Unnecessary	APCD
T-19	Public Education	Committal; Voluntary	County and Cities APCD; SBCAG	County and Cities APCD; SBCAG	Interagency Agreements Unnecessary	Not Applicable; CMP Conformance (SBCAG)

Table 5-3
Existing SIP TCM Commitments

TCM	Designation	Clean Air Plan Year	Project Sponsor	Project/Program Description	Implementation Status	SIP Analysis?
1-4	Travel Demand Management	1994/1998/2004	Traffic Solutions	City-County TDM Program	Program On-Going	Yes
	Areawide Ridesharing		Traffic Solutions	County Rideshare Program	Program On-Going	Yes
	Work Schedule Changes		Traffic Solutions/ Private Sector	Flexible Work Hours	Program On-Going	No
5	Public Transportation	1994	SBMTD	Isla Vista-SBCC Express Service	Service On-Going	Yes
			SBMTD	Downtown Waterfront Shuttle Expansion	Service On-Going	Yes
			APCD	Clean Air Express Expansion	Service On-Going	Yes
			City of Santa Maria	SMAT Expansion – 1 30' Bus	Service On-Going	Yes
			City of Lompoc	COLT Expansion – 2 Buses and Farebox Recovery System	Service On-Going	Yes
			City of Solvang	SYVT Expansion – 1 Van to establish fixed route service	Service On-Going	Yes
			AMTRAK	Service Expansion from 2 to 4 train stops per day	Service On-Going	Yes
		1998	City of Santa Maria	Transit Bus and expanded service to Guadalupe	Service On-Going	Yes
			County of Santa Barbara	Goleta Rail Platform – San Diegan Extension	Service On-Going	Yes
			County of Santa Barbara	Surf Rail Platform – San Diegan Extension	Service On-Going	Yes
			City of Guadalupe	Guadalupe Rail Platform – San Diegan Extension	Service On-Going	Yes
7	Traffic Flow Improvements	1994	Caltrans	Crosstown Freeway Project	Completed	Yes
			County/Caltrans	Rte. 101 / Patterson Avenue interchange	Completed	Yes
			SBCAG/Caltrans	Rte. 101 / La Cumbre Road interchange	Completed	Yes
			SBCAG/Caltrans	Rte. 101 / Storke Road interchange	Completed	Yes
			SBCAG/Caltrans	Rte. 101 / Betteravia Road interchange	Completed	Yes
			County/Caltrans	Rte. 101 / Fairview Avenue interchange	Completed	Yes
			City of Santa Maria	Rte. 135 / Betteravia Road intersection	Completed	Yes
			County of Santa Barbara	Hollister Avenue / Fairview Avenue intersection	Completed	Yes
			City of Santa Barbara	Castillo Street / Montecito Street intersection	Completed	Yes
			County of Santa Barbara	Signal Synchronization – Hollister Avenue	Completed	Yes
8	Parking Management	1994/1998/2004	City of Santa Barbara	Residential Parking Program	On-going	No
9	Park-n-Ride Lots	1998	County of Santa Barbara	Lompoc Park-n-Ride Lot – Ocean Ave./7th St.	Completed	Yes
				Santa Maria Park-n-Ride Lot – Clark Ave./Hwy. 101	Completed	Yes

TCM	Designation	Clean Air Plan Year	Project Sponsor	Project/Program Description	Implementation Status	SIP Analysis?
10	Bicycle/Pedestrian	1994	City of Santa Maria	Santa Maria Valley Railroad Bikeway	Completed	Yes
			City of Santa Maria	Battles Road Bicycle and Pedestrian Project	Completed	Yes
			City of Solvang	Alamo Pintado Creek Bikeway/Pedestrian Bridge	Pending	Yes
			City of Santa Barbara	SBCC – East Campus Bicycle and Pedestrian Project	Completed	Yes
			City of Santa Barbara	Crosstown East-West Bikelane couplet	Completed	No
			City of Santa Barbara	Shoreline Dr./Cabrillo Blvd. Bikeway	Completed	No
			County of Santa Barbara	Fairview Ave. Bike lane	Completed	Yes
			County of Santa Barbara	Bradley Road Bikeway	Completed	Yes
			County of Santa Barbara	El Capitan Ranch Bikeway	Completed	No
		1998	City of Santa Maria	1 Bike Locker	Completed	Yes
			County of Santa Barbara	Class II Bikeway in Santa Ynez – Alamo Pintado Rd.	Completed	Yes
			County of Santa Barbara	Refugio Road Class II Bikeway – Samantha Dr.-SR 246	Completed	Yes
			County of Santa Barbara	Phelps Road Class II Bikeway	Completed	Yes
			County of Santa Barbara	Via Real Class II Bikeway – Cravens Lane to Padaro	Completed	No
			County of Santa Barbara	Maria Ygnacio Creek Class I Bikeway	Completed	No
13	Old Car Buyback	1994/1998/2004	APCD	Vehicle Buyback Program (1996-1999, 2004+)	Program On-Going	Yes
18	Alternative Fuel Program	1994	APCD	ITG Program	On-going	Yes
			APCD	Clean Air Express Expansion	On-going	Yes T-5
			SBMTD	Waterfront Shuttle Service Expansion	On-going	Yes T-5
			SBMTD	Easy Lift Conversion of 5 vans to CNG	On-going	Yes
			SBMTD	Gillig bus refurbishment	On-going	Yes
			SBMTD	AMG bus refurbishment	On-going	Yes
		1998	UCSB	2 CNG Truck conversions/fuel maker	On-going	Yes
			City of Lompoc	NG Garbage Truck, roll-off bins, compactors	Project dropped	Yes T-5
			City of Santa Maria	Purchase dual fuel van	On-going	Yes T-5
			City of Santa Maria	Purchase 1 CNG bus	On-going	Yes
19	Public Education	1994/1998/2004	APCD	Overall Work Program	On-going	No
			SBCAG	Overall Work Program	On-going	No
		1998	SB Bike Coalition	Bicycle Video	On-going	No
			County of Santa Barbara	Local Regulations for Electric Vehicles	On-going	No

Table 5-4
Transportation Control Measures Proposed for Adoption

TCM	Designation	Project Sponsor	Project/Program Description	Process
2	Travel Demand Management	Traffic Solutions	Individualized Marketing	101 IM (b)
4	Areawide Ridesharing	Traffic Solutions	Carpool/Vanpool Pricing Incentives	101 IM (b)
5	Public Transportation	SBCAG/ Transit Operators	Interregional Bus Service Program (Clean Air Express, Coastal Express) (a)	101 IM (b)
		SBCAG/ Transit Operators	Local/Regional Bus Service Program	101 IM (b)
		MTD/SBCAG	Express Bus Transit Service – Carpinteria to Santa Barbara (a)	101 Def (c)
		MTD/SBCAG	Express Bus Transit Service – UCSB Line 24 Extension (a)	101 Def (c)
		SBCAG/VCTC	Enhanced Commuter Rail Service – Ventura to Carp/SB/Gol. (a)	101 IM (b)
		SMAT/COLT/SBCAG	Intercommunity Transit Service (Breeze) (a)	CMAQ/TDA
		SBCAG/ Transit Operators	Bus connections to rail stations and transit hubs	(c) 101 IM (b)
		MTD	Valley Express – Service between SY Valley and South Coast	
		MTD	Calle Real/Old Town Shuttle	N/A (c)
		SMAT	Route 24 – Service from Town Center to Hidden Pines/Preisker Park area	N/A (c) N/A (c)
		SMAT	Route 8 – Increased service to West McCoy Ln. and airport industrial area.	N/A (c)
		SMAT	Extension of Route 3 to Edwards Community Center and Pioneer Valley High School	N/A (c)
		COLT	New Route 5 between Mission Plaza and the Com. Center	N/A (c)
6	High Occupancy Vehicle (HOV)/ Toll (HOT) Lanes	Caltrans/SBCAG	HOV Lane on Rte. 101 between Ventura County line to Milpas (HOT Lane dropped by 101 IM as infeasible) (a)	101 IM (b)
7	Traffic Flow Improvements	Caltrans/SBCAG	Network Surveillance – CCTV & Loop Detectors on Rte. 101 between Ventura County line and Hollister Ave. (a)	SHOPP/ Demo
		Caltrans/SBCAG	Changeable Message Signs – Junction of Rte. 101/154 (N & S) and Junction of Route 101/1. (a)	SHOPP
		Caltrans/CHP	CT D5 Traffic Management Center expansion (SLO) – Integrated freeway and arterial control. (a)	101 Def
		MTD	Transit Operations – Vehicle tracking, passenger counts, electronic fare collection, surveillance and communications (a)	101 Def
		Caltrans/SBCAG	Operational Improvements – Milpas to Fairview Ave.: Auxiliary lanes, full lanes and/or interchange improvements.	101 IM (b)
		MTD/Local Agencies	Bus Priority Treatments – Improvements at intersections to provide extra exclusive lanes for buses, bulb-outs at bus stops, and extension of green lights at intersections.	101 IM (b)
		Caltrans/SBCAG	Smart Call Boxes on Rte. 101 between Ventura County line and Hollister Ave. (a)	101 Def (b)
		Caltrans/SBCAG	Ramp Metering – Installation of ramp meters along South Coast 101 corridor, where feasible	101 IM
		City of Santa Maria	Skyway Dr./Betteravia Rd. Signal Interconnect (10 signals)	Local
		SBCAG	Freeway Service Patrol	SBCAG
8	Parking Management	SBCAG/Cities of Goleta, Santa Barbara; County; UCSB	Variable Parking Rates by Location (voluntary)	101 IM
9	Park-n-Ride Lots	City of Buellton	Lot near south end of Avenue of the Flags	Local
13	Old Car Buyback	APCD	Vehicle Buyback Program	ITG/DMV (c)
18	Alternative Fuel Program	MTD	Purchase of 5 hybrid buses for replacement.	CMAQ/ TDA

(a) Measure augments those proposed for further study in the 2004 Clean Air Plan.
(b) Denotes TCMs for which the timing of implementation is contingent on renewal of the Measure D sales tax.
(c) Denotes projects that are currently operational.

Table 5-5
Transportation Control Measures Proposed for Further Study and Contingency Measures

TCM	Designation	Project Sponsor	Project/Program Description	Process
Proposed for Further Study				
8	Parking Management	City of Santa Barbara	Residential Parking Program	-
9	Park-n-Ride Lots	City of Carpinteria Caltrans/SBCAG	Park-n-Ride Lot – Rte. 101/Bailard Ave. interchange – Contingent on Bailard Ave. interchange improvements Countywide – SLO and Ventura County	SBCAG OWP SBCAG OWP
15	Extended Vehicle Idling	City of Santa Barbara	City Ordinance restricting extended bus idling in the vicinity of the County Courthouse continues. (scale of applicability too small)	N/A
14	Activity Centers	Local Agencies/ SBCAG	Indirect Source Review/Land Use Measures	
19	Public Education	APCD SBCAG	On-going efforts On-going efforts	APCD SBCAG
Contingency Measure				
21	Inspection and Maintenance	BAR	Enhanced I/M Program	Pending

Table 5-6
Transportation Control Measures Proposed for Rejection

TCM	Designation	Project Sponsor	Project/Program Description	Reason
5	Public Transportation	SBCAG	Enhanced Commuter Rail Service – North to South County	North County rail stations too distant from population centers; projected low ridership
14	Activity Centers	Local Agencies/ SBCAG	Indirect Source Review/ Land Use Measures	Insufficient support from local agencies at this time.

Table 5-7
2007 Plan On-Road Mobile Source Activity Modeling Assumptions

Modeling Assumptions	2007 Plan Assumptions
Socio-economic growth assumptions	2002 Regional Growth Forecast (SBCAG)
Vehicle Activity Levels (trips, VMT) (LDA, LDT, MDT, UB, MCY)	SBCAG Travel Model (2000, 2010, 2020)
Vehicle Activity Levels (trips, VMT) (SBUS)	EMFAC Working Draft (ARB) ARB Default Activity (2002, 2010, 2015, 2020)
VMT by Speed Class Distributions (LDA, LDT, MDT, HDDT, HDGT, SBUS, UB, MCY)	SBCAG Travel Model (2000, 2010, 2020)
Transportation Model Networks	SBCAG Travel Model (2000, 2010, 2020)
Infrastructure Improvements & Schedules	2006 FTIP Programmed Projects
Emission Model	EMFAC Working Draft (ARB)
Vehicle Type/Technology & Demographic Distributions	EMFAC Working Draft (ARB)
Vehicle Population	Adjusted by SBCAG
Vehicle Starts	Adjusted by SBCAG - Travel Model vehicle trip output and 7G trip start to trip end factors
HHDT & HDGT Activity	EMFAC Working Draft (ARB)

Table 5-8
Regionally Significant Programmed Projects

State Highways
Rt.135/UVP - Const. at-grade intersection
Rt.101/Hollister - Relocate interchange to join C. Oaks Extension.
Rt.101 SM Way-SLO County line - Widen to 6-lane
Rt.154, SB to Lake Cachuma, Group II Operational Improvements
101/Milpas Interchange reconstruction, const. Cacique under-crossing
Rt.101 (Rt.144 to Hot Springs SB) - Add auxiliary. lane
Rt.101 (Hot Springs - Milpas NB) - Add 3rd lane
Rt.101 Hot Springs/Cabrillo - Improve interchange
Rt.101 (Evans - Sheffield NB) - Add auxiliary lane, const. C1 bikeway
Rt.101/Linden & C Pass - Reconstruction I/C + Via Real between ICs & extension to Creek.
Via Real - Const. frontage road between ICs (part of I/C project)
Rt.101/Carrillo Blvd - Widen NB ramp to 2-ln, Ramp metering. No aux
Rt.101/UVP - Const. full diamond interchange
Rt.101/Storke - Improve I/C w/ 2 LT, 1 RT & one auxiliary lane
City of Carpinteria
Via Real Extension across Carp. Creek (part of I/C project)
County of Santa Barbara - South County
Evans Ave/Ortega Hill Rd - Improve intersection, widen 101 NB ramp
El Colegio (Camino Corto to UCSB Westgate - Widen to 4-lane
Lillie/Evan Rd. Intersection - intersection improvement
S. Fairview, Const cap modification, landscape, bike lane (in Plnd list)
City of Goleta
Hollister at Patterson Ave - Add exclusive RT on Hollister WB appr.
Calle Real (Patterson to Kellogg) - Widen to 4-lane
Fowler Rd Ext. - Const. road ext & I/S at Kellogg w/roundabout @ Pine
Ekwill Rd Ext. - Const. road ext & I/S at Kellogg w/roundabout @ Fairview
Fairview/Calle Real - Add NB LT on Fairview & EB LT on Calle Real
Hollister/Storke - Widen I/S dual LT all app, excl. RT & 3rd thru.
Hollister/L. Carneros - Add NB LT on L. Carneros, LT on WB Hollister
Calle Real (Fairview to Valdez) - Updated link from 2-4 lanes to reflect existing network.
North County
Hummel Drive Extension, connect UVP & Hobbs Ln
City of Santa Barbara
Las Positas Road/Cliff Drive Intersection Improvement
City of Santa Maria
College Dr Ext (between Battles and Betteravia)
UVP - Const. E/W 2-ln arterial from Hummel Dr to Blosser Road
Blosser Rd (Cook to north city limit) - Widen to 4-lane
Miller St. (Stowell - Cook St.) - Widen to 4-lane
Miller St. (Chapel to Alvin Ave.) - Widen to 4-lane
Betteravia / Bradley - Add Dual Left Turn Lanes
Betteravia (101-135) widen to 6 lanes, signalize (2007)

Table 5-9
2007 Plan Activity Indicators

Indicator	Units	2002*	2010	2015	2020
Population	Residents	414,000	462,000	488,000	505,000
Housing	Households	140,638	154,053	160,724	164,641
Employment	Workers	178,146	200,587	212,560	221,655

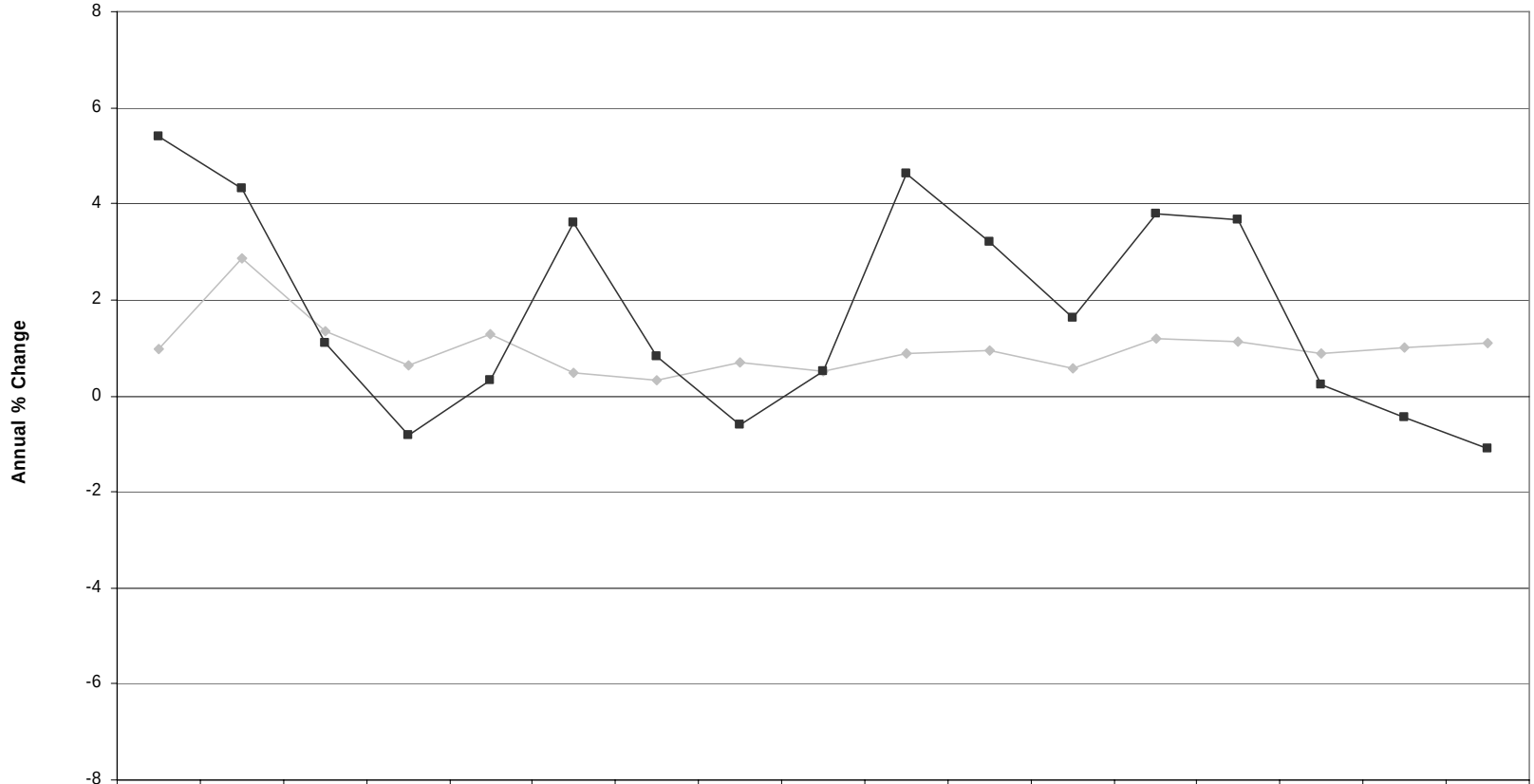
* Interpolated from the 2000 data and 2005 forecasts.
Source: SBCAG 2002 Regional Growth Forecast.

Table 5-10
Preliminary Vehicle Activity Forecasts

Activity	2002	2010	2015	2020
VMT	9,952,000	12,064,000	13,107,500	14,151,000
Trip Ends	1,317,500	1,499,500	1,577,750	1,656,000

Figure 5-1

Historical Population Growth Rate vs. Daily Vehicle Miles Traveled (DVMT) Growth Rate (1988-2004)



	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Population	0.97	2.85	1.35	0.62	1.29	0.48	0.32	0.71	0.50	0.88	0.93	0.56	1.19	1.13	0.87	1.01	1.1
DVMT	5.40	4.31	1.11	-0.82	0.32	3.59	0.81	-0.61	0.50	4.63	3.21	1.61	3.80	3.66	0.22	-0.44	-1.11

Population Source: Department of Finance
VMT Source: Caltrans HPMS/MVSTAFF Reports

Figure 5-2

Countywide VMT and VMT Growth From 2000 to 2004
For California Counties With Populations of Greater Than 250,000

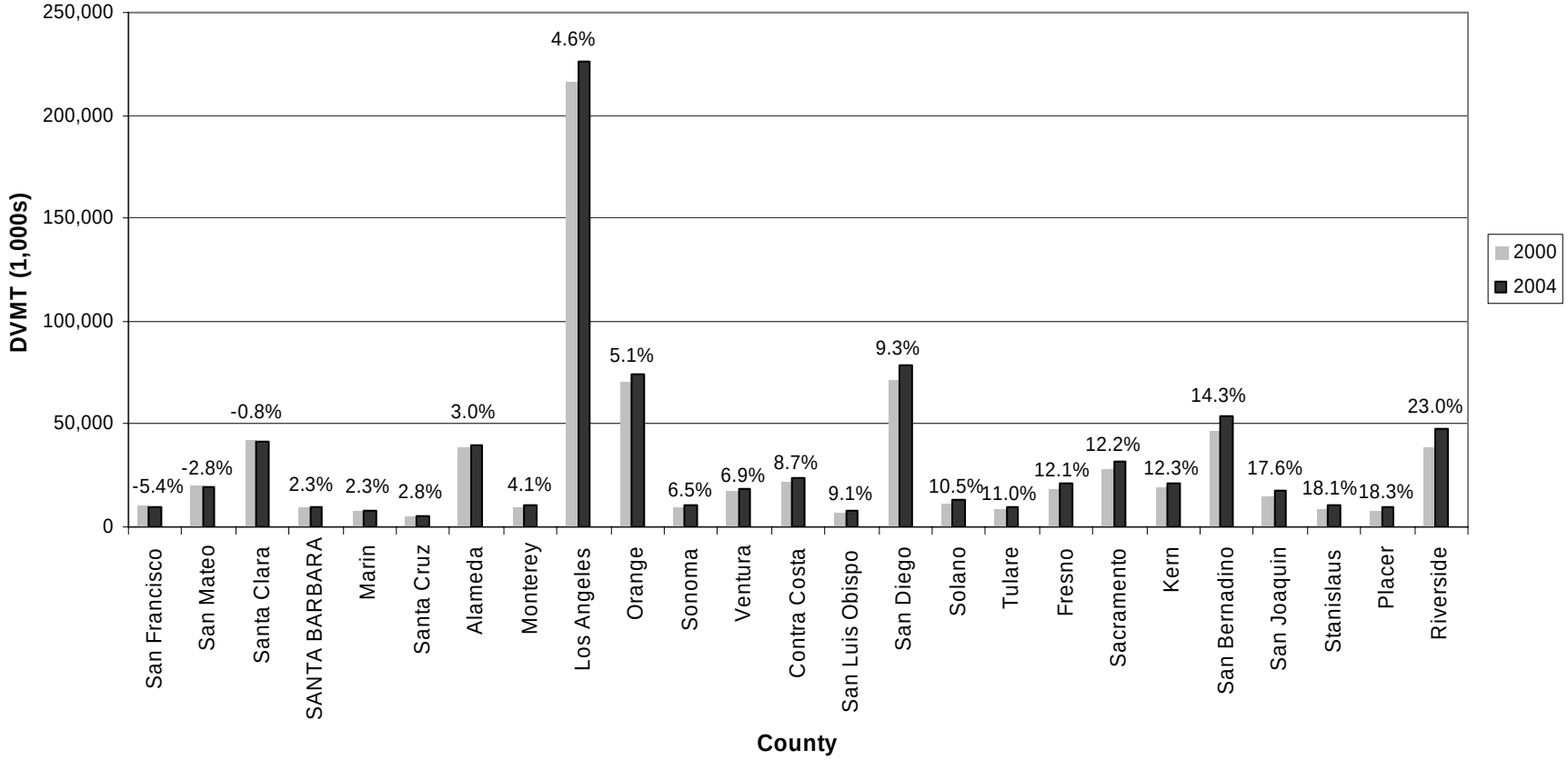


Figure 5-3
Countywide DVMT Per Capita and Growth Rates From 2000 to 2004 For California Counties With Populations Greater Than 250,000

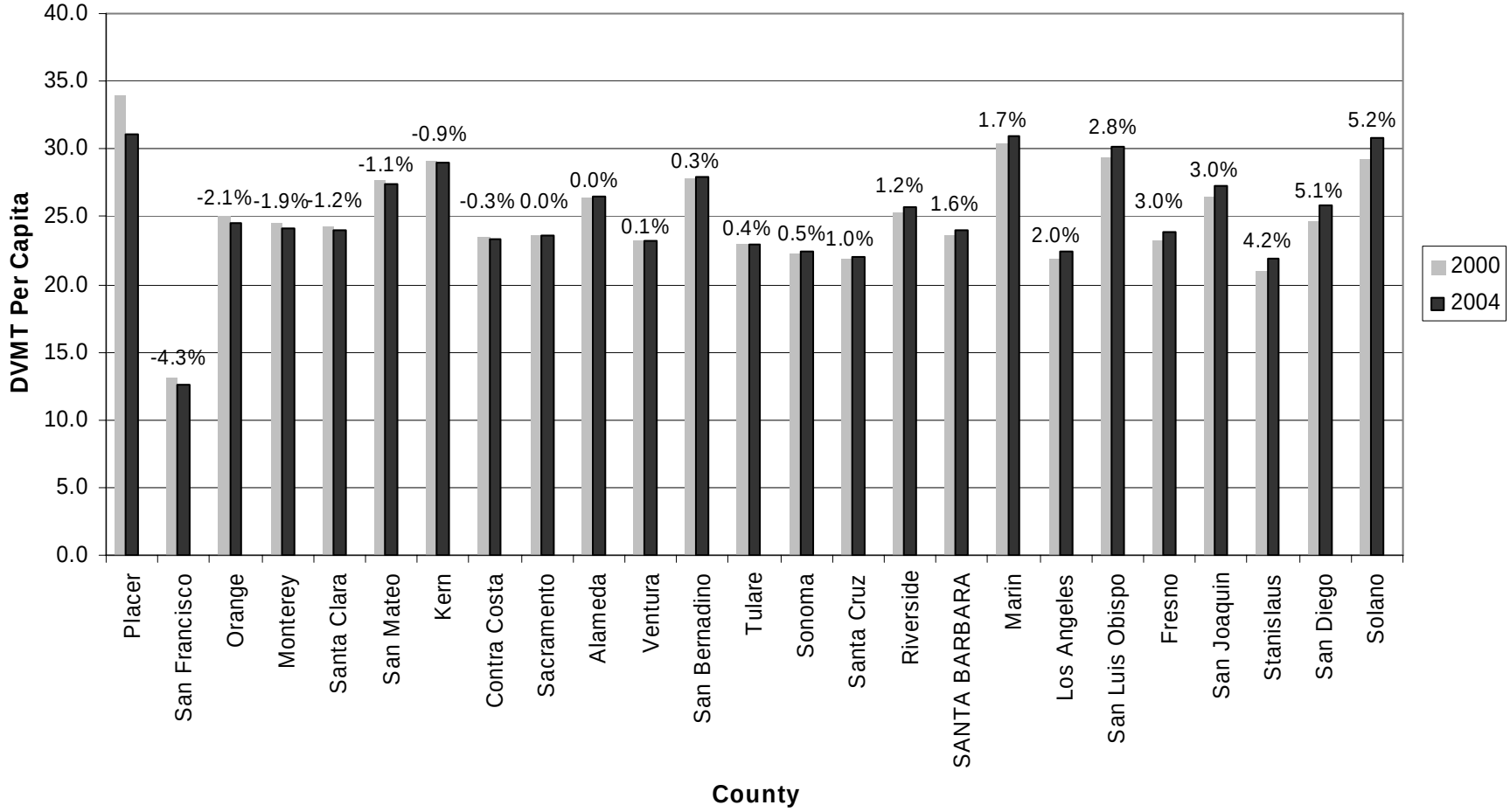


Figure 5-4
Regional Weekday Driver Trips per Household From 1991 to 2001

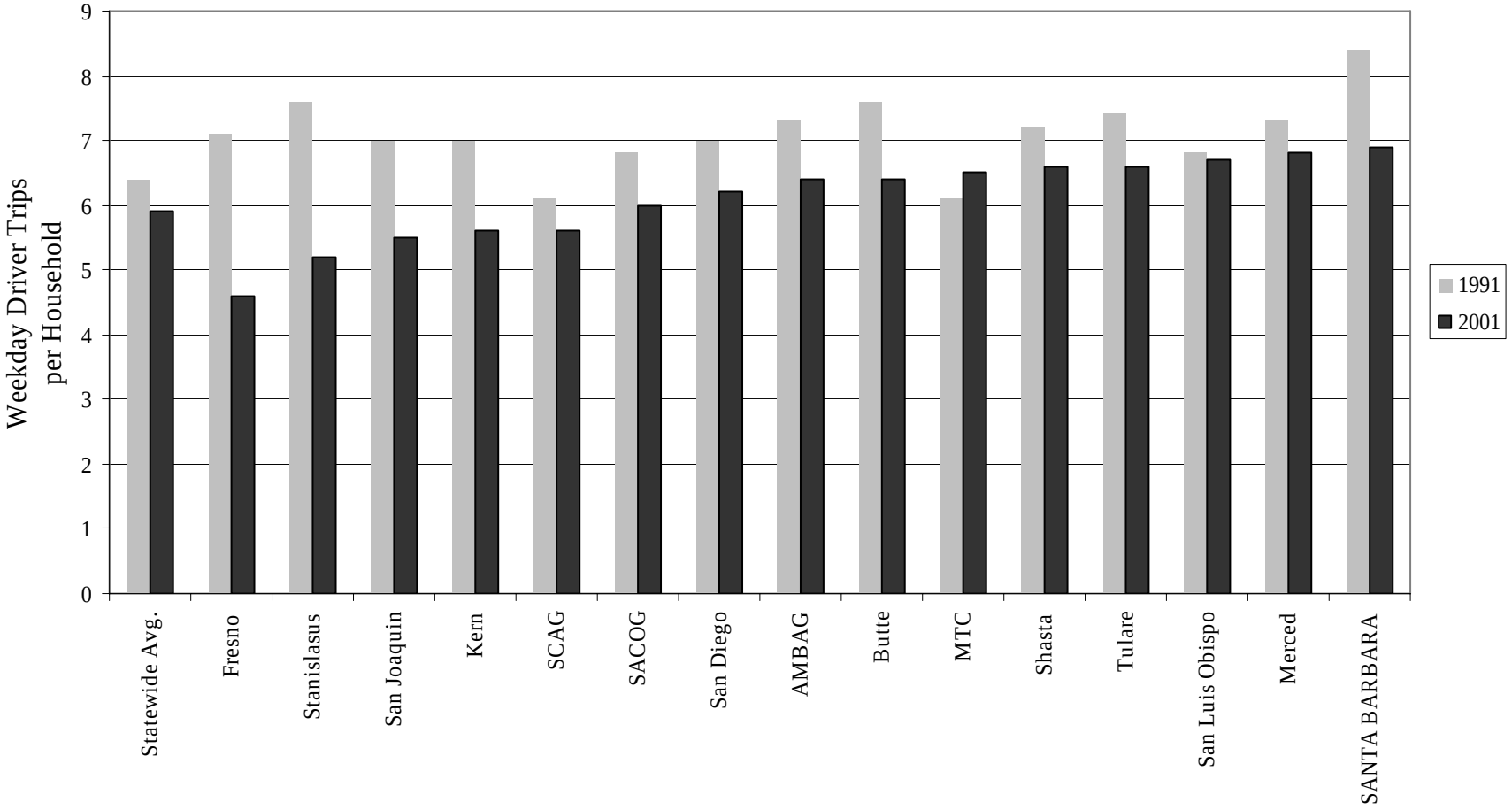
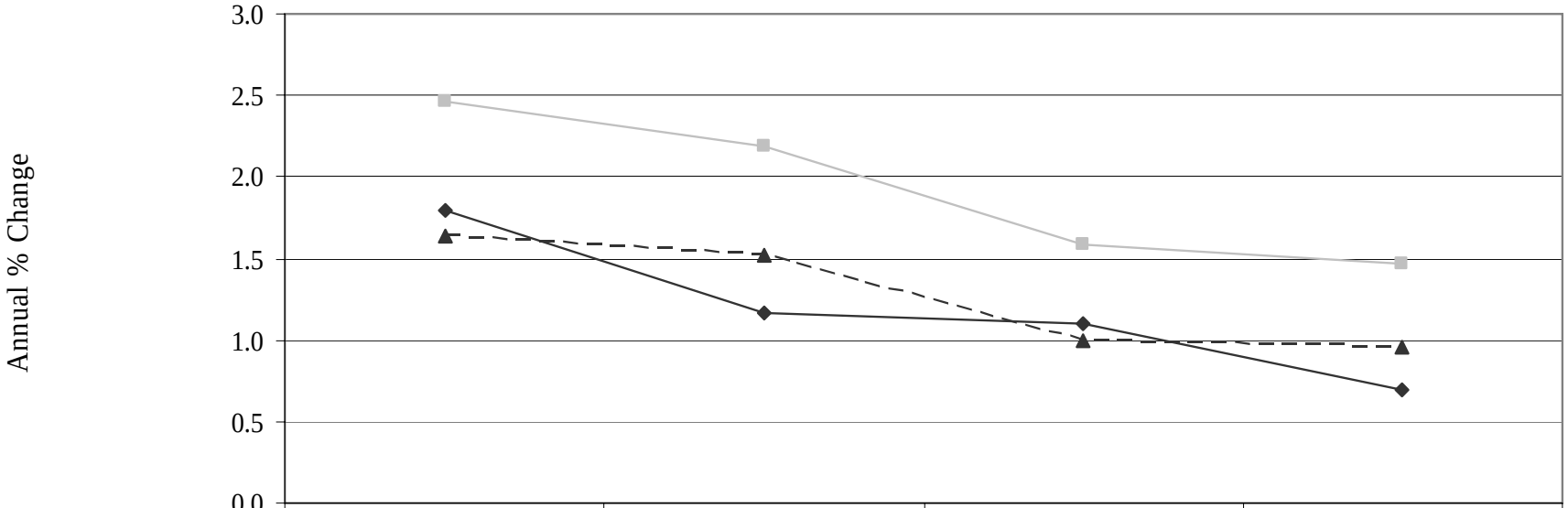
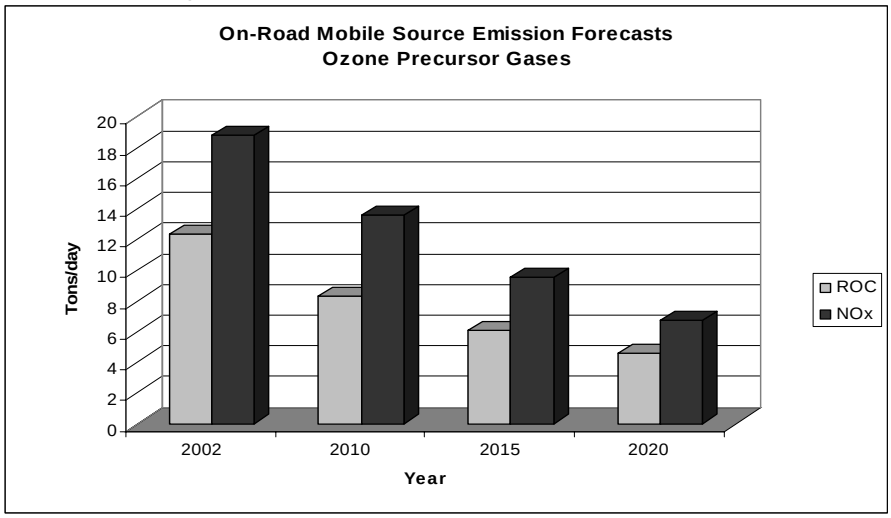


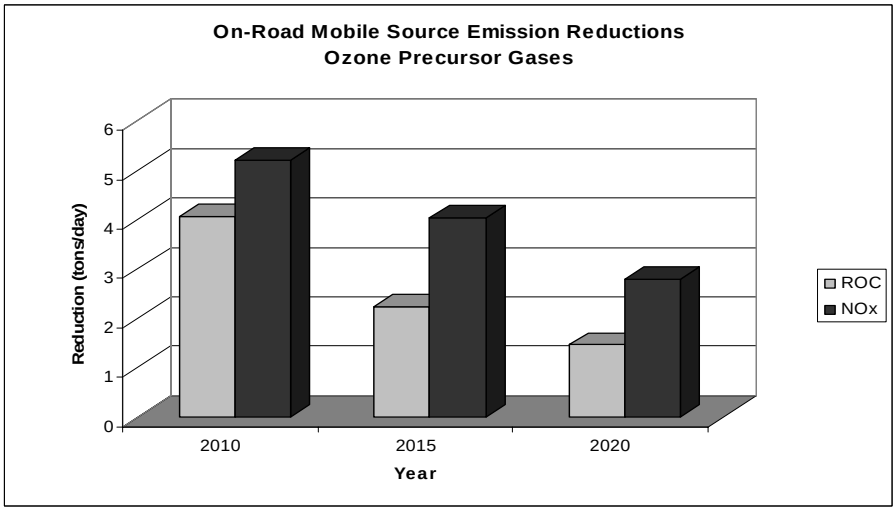
Figure 5-5
Population Growth Rate vs. Daily VMT and Trip Ends Growth Rates (5-Year Average Annual Change) Santa Barbara County (2005-2020)



	2005	2010	2015	2020
Population	1.79	1.17	1.10	0.69
DVMT	2.46	2.19	1.59	1.47
Trip Ends	1.64	1.52	0.99	0.95

Figure 5-6
Preliminary On-Road Mobile Source Emission Results





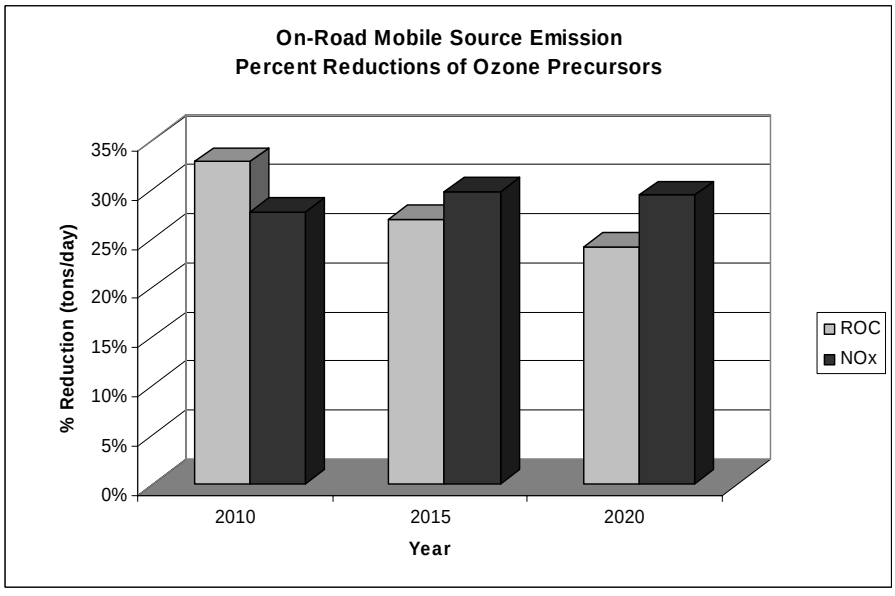


Figure 5-7
Preliminary On-Road Emission Inventory by Vehicle Type