

CHAPTER 9 — ENERGY AND GLOBAL CLIMATE CHANGE

INTRODUCTION

This section describes the existing energy resources and consumption patterns in the MTP Plan Area, and analyzes the effects on energy that would result from implementing the proposed MTP 2035 projects. This chapter considers the potential impacts to global climate change as a result of the proposed MTP 2035. This chapter also presents the federal, state, and local policies and regulations that determine mitigation requirements, and identifies impacts to energy consumption and global climate change that may result from implementation of the proposed MTP 2035 projects, and mitigation measures to reduce these impacts where necessary.

The study area consists of transportation routes, including highways, rail alignments, bicycle trails, state routes, roads, and Caltrans right-of-way in the MTP Plan Area. The information presented in this chapter is based on a review of existing and available information and is regional in scope. Data provided in this section should be considered preliminary and appropriate for general policy planning and tiering of subsequent environmental documents. Site-specific evaluations will be necessary to determine future project-level environmental effects and appropriate mitigation.

SETTING

Environmental Setting

Transportation improvements require energy to construct, operate, and maintain. Energy for the operation of transportation systems is primarily consumed by vehicles, but also includes energy to operate facilities. Energy consumed in construction is referred to as *indirect energy*. Energy consumed during long-term operation is referred to as *direct energy*. Over the life of a transportation project, direct energy consumption is usually the largest component of total energy use.

The study area is comprised of highways, railways, bicycle trails, state routes, roads, and Caltrans rights-of-way in the MTP Plan Area. This analysis assumes that automobiles, trucks, transit buses, and light rail would continue to operate within the transportation system in 2035 and use a variety of energy forms, including gasoline, compressed natural gas, diesel, and electricity. This analysis considers the supply and demand for both electricity and fossil fuels.

Electricity Consumption

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 78% of the electrical power needed to meet California's demand is produced in the state. Approximately 22% of its electricity demand is imported from the Pacific Northwest and the Southwest (California Energy Commission 2007a). In 2006, California's electricity was derived from natural gas (41.5%), large hydroelectric resources (19.0%), coal (15.7%), nuclear sources (12.9%), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (10.9%) (California Energy Commission 2007b).

According to the California Energy Commission (CEC), total statewide electricity consumption grew from 166,979 gigawatt-hours (GWh) in 1980 to 228,038 GWh in 1990, which is an estimated annual growth rate of 3.66%. The statewide electricity consumption in 1997 was 246,225 GWh, reflecting an annual growth rate of 1.14% between 1990 and 1997. Statewide consumption is expected to be

approximately 291,473 GWh in 2007, a growth rate of 1.84% from 1997 (California Energy Commission 1998).

Peak electricity demand, expressed in megawatts (MW), measures the largest electric power requirement during a specified period, usually integrated over one hour. A single MW is enough power to meet the expected electricity needs of 1,000 typical California homes (California Energy Commission 2003). Peak demand is important in evaluating system reliability, determining congestion points on the electrical grid, and identifying potential areas where additional transmission, distribution, and generation facilities may be needed. California's peak demand typically occurs in August between 3:00 p.m. and 5:00 p.m. High temperatures lead to increased use of air conditioning, which in combination with industrial loads, commercial lighting, and office equipment comprise the major demand for electricity consumption in the peak demand period in the state (California Energy Commission 2000). In 2008, peak electricity demand for California is predicted to be about 60,014 MW (California Energy Commission 2007c).

Fossil Fuel Consumption

Oil

The primary energy source for the United States is oil, which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily in the last several decades. As of 2005, world consumption of oil had reached 84 million barrels per day (GAO 2007). The United States, with approximately 5 percent of the world's population, accounts for approximately 25 percent of world oil consumption, or approximately 21 million barrels per day (EIA 2007). The transportation sector relies heavily on oil. In California, petroleum based fuels currently provide approximately 96% of the state's transportation energy needs (State of California 2007).

California is currently ranked fourth in the nation among oil producing states. Crude oil production in California averaged 731,150 barrels per day in 2004, a decline of 4.7% from 2003. In 2005, the total receipts to refineries of roughly 674 million barrels came from in-state oil production (39.4%), combined with oil from Alaska (20.1%), and foreign sources (40.4%) (California Energy Commission 2007d).

California's refineries, located in the San Francisco Bay Area, the Los Angeles area, and the Central Valley, produce approximately two million barrels of petroleum per day. Refiners that produce the largest amount of crude oil in California are British Petroleum West Coast Products LLC's Carson Refinery and Chevron U.S.A., Inc.'s El Segundo and Richmond refineries, which produce over 240,000 barrels per day (California Energy Commission 2006). Imported oil is received by tanker, barge, pipeline, rail, or truck at nearly 100 terminals. Most of those are marine terminals. Crude oil is then sent to refineries by pipeline for processing (California Energy Commission 2006).

Natural Gas

Natural gas supplies are derived from underground sources and brought to the surface at gas wells. Once it is extracted, gas is purified and the odorant that allows gas leaks to be detected is added to the normally odorless gas. Natural gas suppliers, such as Pacific Gas & Electric Company (PG&E), then send the gas into transmission pipelines, which are usually buried underground. Compressors propel the gas through the pipeline system, which delivers it to homes and businesses.

The state produces approximately 15% of its natural gas, while obtaining 23% from Canada and 62% from the Rockies and the Southwest (California Department of Conservation 2007). In 2006, California produced 325.6 billion cubic feet of natural gas (California Department of Conservation 2007).

PG&E is the largest publicly-owned utility in California and is the electricity and natural gas provider for residential, industrial, and agency consumers within the SACOG project area. PG&E buys power from a diverse mix of generating sources, including fossil-fueled plants, hydroelectric powerhouses, wind farms, and nuclear power plants. Both PG&E and the Sacramento Municipal Utility District (SMUD) provide electricity and natural gas in the MTP Plan Area.

Energy and Global Climate Change

According to the State CEQA Guidelines Section 15002(a)(1), one of the basic purposes of CEQA is to “(i) inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.” Furthermore, the CEQA statutes “require a finding that the project may have a ‘significant effect on the environment’ if one or more of the following conditions exist:

1. A proposed project has the potential to degrade the quality of the environment, curtail the range of the environment, or to achieve short-term, to the disadvantage of long-term, environmental goals.
2. The possible effects of a project are individually limited but cumulatively considerable. As used in this paragraph, ‘cumulatively considerable’ means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
3. The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.” (Public Resources Code §21083(b).)

Although a discussion of global warming (also referred to herein as “climate change” or “global climate change”) impacts is not currently required by the CEQA statutes or Guidelines, it is the view of the State Legislature (as expressed in its adoption of AB 32, The California Climate Solutions Act of 2006) and the Governor (through the issuance of Executive Order #S-3-05) that global warming poses significant adverse effects to the environment of California and the entire world, and that mitigation measures are needed to limit these impacts. In addition, the global scientific community has expressed very high confidence (i.e., at least 90 percent) that global warming is anthropogenic (i.e., caused by humans) and that global warming will lead to adverse climate change effects around the globe (IPCC 2007). The opinion of the California Attorney General is that SACOG has an obligation under CEQA to evaluate the potential global warming impacts of the proposed MTP 2035 (Appendix B). Therefore, this section evaluates the potential direct and cumulative global warming impacts of development under the proposed MTP 2035 for potential significance under CEQA.

The consumption of nonrenewable energy (primarily gasoline and diesel fuel) associated with construction activities and the operation of passenger, public transit, and commercial vehicles results in GHG emissions that ultimately result in global climate change. Alternative fuels such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also result in GHG emissions and contribute to global climate change. An overview of global climate change, the anticipated impacts of climate change to California, and the climate change impacts of the proposed MTP 2035 are provided in the following sections.

An Overview of Global Climate Change

Atmospheric greenhouse gases (GHGs) and clouds within the Earth's atmosphere influence the Earth's temperature by absorbing most of the infrared radiation rising from the Earth's sun-warmed surface that would otherwise escape into space. This process is commonly known as the Greenhouse Effect. GHGs and clouds, in turn, radiate some heat back to the Earth's surface and some out to space. The resulting balance between incoming solar radiation and outgoing radiation from both the Earth's surface and atmosphere keeps the planet habitable.

However, anthropogenic emissions of GHGs into the atmosphere enhance the Greenhouse Effect by absorbing additional radiation that would otherwise escape to space, thereby trapping more radiation in the atmosphere and causing temperatures to increase. The human-produced GHGs responsible for increasing the Greenhouse Effect and their relative contribution to global warming (based on their relative ability to trap heat in the atmosphere) are carbon dioxide (CO₂) (53 percent); methane (CH₄) (17 percent); near-surface ozone (O₃) (13 percent); nitrous oxide (N₂O) (12 percent); and chlorofluorocarbons (CFCs) (5 percent).

The most common anthropogenic GHG is CO₂, which constitutes approximately 84 percent of all GHG emissions in California (California Energy Commission, 2006b). Worldwide, California ranks as the 12th to 16th largest emitter of CO₂ (the most prevalent GHG) and is responsible for approximately 2 percent of the world's CO₂ emissions (California Energy Commission 2006b).

The increasing emissions of these GHGs—primarily associated with the burning of fossil fuels (during motorized transport, electricity generation, consumption of natural gas, industrial activity, manufacturing, etc.) and deforestation, as well as agricultural activity and the decomposition of solid waste—have led to a trend of anthropogenic warming of the Earth's average temperature, which is causing changes in the Earth's climate. This increasing temperature phenomenon is known as global warming and the climatic effect is known as climate change or global climate change.

The State Legislature adopted the public policy position that global warming is “a serious threat to the economic well-being, public health, natural resources, and the environment of California” (Health and Safety Code § 38501). Further, the State Legislature has determined that “the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snow pack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems,” and that “(g)lobal warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (and)...will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the State” (Health and Safety Code § 38501).

Regulatory Setting

Federal Regulations

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States (U.S.). Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation

(USDOT), is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the U.S. Environmental Protection Agency (EPA), was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992 (EPAct)

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for a clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Intermodal Surface Transportation Efficiency Act

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of intermodal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that metropolitan planning organizations (MPOs), such as SACOG, were to address in developing transportation plans and programs, including some energy-related factors. To meet the ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process was then to address these policies. Another requirement was to consider the consistency of transportation planning with federal, state, and local energy goals. Through this requirement, energy consumption was expected to become a criterion, along with cost and other values that determine the best transportation solution.

Transportation Equity Act for the 21st Century

On June 9, 1998, the Transportation Equity Act for the 21st Century or TEA-21 was signed into law. TEA-21 built on the work that originated under the ISTEA, which expired on September 30, 1997. TEA-21 continued most of ISTEA's programs and policies and maintained ISTEA's emphasis on local involvement in transportation decision-making. TEA-21 was a 6-year, \$217 billion authorization of federal highway, bridge, and transit programs for the period of October 1, 1997, through September 30, 2003. TEA-21 has made available nearly \$218 billion in federal funds for highway, highway safety, and transit programs over 6 years. TEA-21 authorized a 42 percent increase in highway funds and a 31 percent increase in transit funds from ISTEA levels. TEA-21 guaranteed minimum funding of about \$198 billion for federal highway, highway safety, and transit programs. Prior to TEA-21, funding for

surface transportation programs was one priority among many competing for federal budget dollars. In particular, transit funding was guaranteed at fixed amounts over the 6 years for eligible projects. TEA-21 programs were funded in part through the Highway Trust Fund (HTF), which was established in 1956 and supported by fees levied on highway users, including fuel, tire, truck, and use taxes. TEA-21 ensured that each state receives a minimum return on the amount of gas taxes it contributes to the HTF.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

TEA-21 expired on September 30, 2003. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), enacted August 10, 2005, renews the TEA-21 through FY 2009. SAFETEA-LU authorizes the federal surface transportation programs for highways, highway safety, and transit. SAFETEA-LU addresses the many challenges facing our transportation system today—challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment—as well as laying the groundwork for addressing future challenges. SAFETEA-LU promotes more efficient and effective federal surface transportation programs by focusing on transportation issues of national significance, while giving state and local transportation decision makers more flexibility to solve transportation problems in their communities.

Federal Climate Change Policy

According to the EPA, “the United States government has established a comprehensive policy to address climate change” that includes slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation. To implement this policy, “the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science.” The federal government’s goal is to reduce the greenhouse gas (GHG) intensity (a measurement of GHG emissions per unit of economic activity) of the American economy by 18 percent over the 10-year period from 2002 to 2012. In addition, the EPA administers multiple programs that encourage voluntary GHG reductions, including “ENERGY STAR”, “Climate Leaders”, and Methane Voluntary Programs. However, as of this writing, there are no adopted federal plans, policies, regulations, or laws directly regulating GHG emissions.

State Regulations

Assembly Bill 32, the California Climate Solutions Act of 2006 (Health and Safety Code § 38500 et seq.)

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB 32), the California Climate Solutions Act of 2006, into law. AB 32 was intended to effectively end the scientific debate in California over the existence and consequences of global warming. In order to be effective, measures to reduce GHG will have to occur in connection with similar reductions by other states and countries. Through AB 32, California is attempting to take on a leadership role in the abatement of climate change and offer a model for other states and countries to reduce GHG emissions. In general, AB 32 directs the California Air Resources Board (CARB) to do the following:

- On or before June 30, 2007, CARB shall publicly make available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit;
- By January 1, 2008, determine the statewide levels of GHG emissions in 1990, and adopt a statewide GHG emissions limit that is equivalent to the 1990 level (an approximately 25 percent reduction in existing statewide GHG emissions);

- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures;
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources as the Air Resources Board finds necessary to achieve the statewide GHG emissions limit; and
- The Air Resources Board shall monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

AB 32 also takes into account the relative contribution of each source or source category to protect adverse impacts on small businesses and others by requiring the Air Resources Board to recommend a minimum threshold of GHG emissions below which emissions reduction requirements would not apply. AB 32 also allows the Governor to adjust the deadlines mentioned above for individual regulations or the entire state to the earliest feasible date in the event of extraordinary circumstances, catastrophic events, or threat of significant economic harm.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. Similarly, the CEC was tasked with establishing a similar standard for local publicly-owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The bill further requires that all electricity provided to California, including imported electricity, be generated from plants that meet the standards set by the PUC and the CEC. In January 2007, the PUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for baseload generation entered into by investor-owned utilities have emissions no greater than a combined cycle gas turbine plant (i.e., 1,100 pounds of CO₂ per megawatt-hour). A “new long-term commitment” refers to new plant investments (new construction), new or renewal contracts with a term of 5 years or more, or major investments by the utility in its existing baseload power plants. In May 2007, the CEC approved regulations that prohibit the state’s publicly-owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by the PUC of 1,100 pounds of CO₂ per megawatt hour.

Senate Bill 1078

SB 1078 establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 107 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. This legislation will impact regional transportation powered by electricity.

Assembly Bill 1493

In 2002, then Governor Gray Davis signed AB 1493. AB 1493 required the CARB to develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state.” To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR)

adding GHG emission standards to California’s existing motor vehicle emission standards in 2004. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961), and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. Emission requirements adopted as part of CCR 13 1961.1 are shown in Table 9-1. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than the during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufactures filed suit against the CARB to prevent enforcement of CCR 13 1900 and CCR 13 1961 as amended by AB 1493 and CCR 13 1961.1 (Central Valley Chrysler-Jeep et al., v. Catherine E. Witherspoon, in her official capacity as Executive Director of the California Air Resources Board et al.). The suit, being heard in the U.S. District Court for the Eastern District of California, contends that California’s implementation of regulations that in effect regulate vehicle fuel economy violates various federal laws, regulations, and policies. To date, the suit has not been settled, and the judge has issued an injunction stating CARB cannot enforce the regulations in question before receiving appropriate authorization from the EPA.

Table 9 – 1. Fleet Average GHG Exhaust Emission Requirements Included in CCR 13 1961.1 Fleet Average GHG Emissions (grams per mile CO₂ equivalents)

Fleet Average GHG Emissions (grams per mile CO₂ equivalents)		
Vehicle Model Year	All Passenger Cars; Light-Duty Trucks 0-3,750 lbs loaded vehicle weight (LVW)¹	Light-Duty Trucks 3,751 lbs LVW to 8,500 lbs gross vehicle weight (GVW); Medium-Duty Passenger Vehicles¹
2009	323	439
2010	301	420
2011	267	390
2012	233	361
2013	227	355
2014	222	350
2015	213	341
2016	205	332

NOTE: ¹ Specific Characteristics of Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles are provided in CCR 13 1900 as amended to comply with AB 1493.

In January 2007, the judge hearing the case accepted a request from the State Attorney General’s office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court Case, *Massachusetts vs. EPA*, the primary issue is whether the federal Clean Air Act (CAA) provides authority for the EPA to regulate CO₂ emissions. In April 2007,

the U.S. Supreme Court ruled in Massachusetts' favor, holding that GHGs are air pollutants under the CAA. In May 2007, the EPA held two public hearings on CARB's request for EPA authorization to implement the GHG reductions measure for motor vehicles required by AB 1493. As of this writing, the *Central Valley Chrysler-Jeep* case is still pending before the U.S. District Court in Eastern California and the EPA has not made a decision on CARB's request for authorization to implement the GHG reduction measure for motor vehicles.

Executive Order #S-3-05

Executive Order #S-3-05, signed by Governor Arnold Schwarzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80 percent reduction in GHG emissions to below 1990 levels by 2050. Executive Order #S-3-05 also calls for the California Environmental Protection Agency (CalEPA) to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy. The first of these reports, *Scenarios of Climate Change in California: An Overview* (Climate Scenarios report), was published in February 2006 (California Climate Change Center 2006).

The Climate Scenarios report uses a range of emissions scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century: lower warming range (3.0-5.5oF); medium warming range (5.5-8.0oF); and higher warming range (8.0-10.5oF). The Climate Scenarios report then presents analysis of future climate in California under each warming range.

As shown above, each emissions scenario would result in substantial temperature increases for California. According to the report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California associated with a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. Under the emissions scenarios of the Climate Scenarios report (California Climate Change Center 2006), the impacts of global warming in California are anticipated to include, but are not limited to, the following.

Public Health

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation are projected to increase from 25 to 35 percent under the lower warming range, to 75 to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snow pack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snow pack, increasing the risk of summer water shortages.

The state's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta, a major state fresh water supply. Global warming is also projected to seriously affect agricultural areas, with California farmers projected to lose as much as 25 percent of the water supply they need; decrease the potential for hydropower production within the state (although the effects on hydropower are uncertain); and seriously harm winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as 1 month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snow pack by as much as 70 to 90 percent. Under the lower warming scenario, snow pack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range. How much snow pack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snow pack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

Agriculture

Increased GHG emissions are expected to cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global warming is expected to intensify this threat by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. For example, if precipitation increases as temperatures rise, wildfires in southern California are expected to increase by approximately 30 percent toward the end of the century. In contrast, precipitation decreases could increase wildfires in northern California by up to 90 percent.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Under the higher warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

In addition to issuing Executive Order #S-3-05, Governor Schwarzenegger also has "worked to forge agreements with other states, regions and nations, including the United Kingdom (UK); Manitoba, Canada; and the Northeast/Mid-Atlantic states on reducing GHG and promoting low carbon technology. California, UK, and Manitoba commit to share experiences, find new solutions and take more aggressive action to address climate change and promote energy diversity" (Climate Action Program at Caltrans, December 2006).

State of California Integrated Energy Policy Report

In 2002, the Legislature reconstituted the State's responsibility to develop an integrated energy plan for electricity, natural gas, and transportation fuels. The CEC adopts and transmits to the Governor and Legislature a report of findings every 2 years. At a Special Business Meeting on November 12, 2003, the CEC adopted the *2003 Integrated Energy Policy Report*. The *2004 Update to the Integrated Energy Policy Report* was adopted by the CEC on November 3, 2004. The *2005 Integrated Energy Policy Report* was adopted by the CEC on November 21, 2005. These reports make recommendations to increase California's energy supplies, reduce energy demand, broaden the range of alternatives to conventional energy sources, and improve the State's energy delivery infrastructure.

In January 2007, the CEC published the *2006 Integrated Energy Policy Report Update*, which was created after input from stakeholders and federal, state, and local agencies. The report contains a review of two areas: "Renewable Portfolio Standard activities and the potential relationship between sustainable land use planning, also called 'smart growth,' and energy saving opportunities." The report also discusses California's "minimal progress to date in meeting Renewable Portfolio Standard goals, identifies challenges the state faces in achieving those goals, and offers recommendations." Further, the report "details the lack of relationship between land use planning activities and energy concerns and offer recommendations for taking advantage of potential energy efficiencies that smart growth would offer." (California Energy Commission, 2006 Integrated Energy Policy Report Update, January 2007.)

In the report, the CEC notes that California's population is expected to grow by 20 million people between 2000 and 2050 and that this growth will strain California's energy and infrastructure system. The CEC concludes that land use decisions have a profound effect on every aspect of energy, which necessitates a shift in approaches to land use and development in light of the coming growth in California. The recommendations in the report are based on the conclusion that California "needs to investigate approaches that go beyond decreasing transportation fuel use and relieving congestion to approaches that can serve as a nexus for developing distributed renewable generation and efficient transportation in communities to help California meet its statewide energy and climate change goals." The report notes that the best opportunity for meeting this goal is to emphasize the principles of smart growth, which uses resources prudently and creates low-impact communities.

California Strategy to Reduce Petroleum Dependence (AB 2076)

AB 2076 (Chapter 936, Statutes of 2000) requires the CEC and the ARB to develop and submit to the Legislature a strategy to reduce petroleum dependence in California. The statute requires the strategy to include goals for reducing the rate of growth in the demand for petroleum fuels. In addition, the strategy is required to include recommendations to increase transportation energy efficiency as well as the use of non-petroleum fuels and advanced transportation technologies including alternative fuel vehicles, hybrid vehicles, and high-fuel efficiency vehicles.

The strategy, *Reducing California's Petroleum Dependence*, was adopted by the CEC and CARB in 2003. The strategy recommends that California reduce inroad gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles (SUVs); and increase the use of non-petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

Alternative Fuels Plan Assembly Bill 1007

AB 1007 requires the CEC to prepare a state plan to increase the use of alternative fuels in California. The MTP 2035 shall include an evaluation of alternative fuels for emissions or criteria air pollutants, air toxics, GHGs, water pollutants, and other harmful substances, and their impacts on petroleum consumption. The MTP 2035 shall set goals for increased alternative fuel use in the state for the years 2012, 2017, and 2022 and recommend policies to ensure the alternative fuel goals are attained, including standards on transportation fuels and vehicle and policy mechanisms to ensure vehicles operating on alternative fuels use those fuels to the maximum extent feasible. The MTP 2035 is expected to be sent to the Governor and Legislature in September 2007.

Bioenergy Action Plan – Executive Order #S-06-06

Executive Order #S-06-06 establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The executive order also calls for the state to meet a target for use of biomass electricity.

Governor's Low Carbon Fuel Standard (Executive Order #S-01-07)

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard shall be incorporated into the State Alternative Fuels Plan required by AB 1007 and is one of the proposed discrete early action GHG reduction measures identified by CARB pursuant to AB 32.

Senate Bill 97 (SB 97)

Senate Bill 97 was signed by the Governor on August 24, 2007. This bill would provide that in an environmental impact report, negative declaration, mitigated negative declaration, or other document required by CEQA for either transportation projects funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006, the failure to analyze adequately the effects of greenhouse gas emissions otherwise required to be reduced pursuant to regulations adopted under the Global Warming Solutions Act of 2006 does not create a cause of action for a violation of CEQA. The bill would provide that this provision shall apply retroactively for any of the above documents that are not final and shall be repealed on January 1, 2010.

The bill would require the Office of Planning and Research (OPR), by July 1, 2009, to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption. The Resources Agency would be required to certify and adopt those guidelines by January 1, 2010. The OPR would be required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to the California Global Warming Solutions Act of 2006.

Climate Action Program at Caltrans

In December 2006, the California Department of Transportation, Business, Transportation, and Housing Agency, issued a Climate Action Program. The goal of the Climate Action Program is to promote clean and energy efficient transportation, and provide guidance for mainstreaming energy and climate change issues into business operations. The overall approach to lower fuel consumption and CO₂ from transportation is twofold: (1) reduce congestion and improve efficiency of transportation systems through smart land use, operational improvements, and Intelligent Transportation Systems; and (2) institutionalize energy efficiency and GHG emission reduction measures and technology into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings, and equipment.

The reasoning underlying the Climate Action Program is the conclusion that “the most effective approach to addressing GHG reduction, in the short-to-medium term, is strong technology policy and market mechanisms to encourage innovations. Rapid development and availability of alternative fuels and vehicles, increased efficiency in new cars and trucks (light and heavy duty), and super clean fuels are the most direct approach to reducing GHG emissions from motor vehicles (emission performance standards and fuel or carbon performance standards).” Caltrans asserts that the state must maintain a consistent GHG reduction policy across all agencies to create a coordinated climate change program.

In the Climate Change Action Program, Caltrans recognizes the importance of regional planning in GHG emissions and notes that SACOG’s Blueprint plan “would result in lowering 246,000 gallons of fuel each day.”

Local Regulations

County and City General Plans

Many of SACOG’s member agencies have general plans that do not specifically include energy elements or policies. However, several agencies have general plan elements and policies that specifically address energy use and conservation. Those energy conservation measures outlined in the various County and City General Plans of the MTP Plan Area contain goals, objectives, and policies aimed at reducing energy consumption. Proponents of specific projects in the MTP Plan Area would be required to consult

the applicable General Plans and design the projects consistent with the guidelines of those General Plans in which the projects are located.

Sacramento Metropolitan Air Quality Management District

On September 6, 2007, the Sacramento Air Quality Management District issued a letter entitled “Addressing Climate Change in CEQA Documents.” The purpose of the letter “is to provide interim recommendations for local agencies to use in analyzing and mitigating global warming impacts pending development of guidelines by the Office of Planning and Research as directed by SB 97.”

The Air District recognizes that local agencies “have the discretion to determine, based on a variety of factors, whether a particular impact is significant.” In its recommendations, the Air District stated that environmental documents should include a discussion of GHG emissions during both construction and operation of the proposed project. In order to aid local agencies in their discussions of GHG emissions in environmental documents, the Air District also included a summary of current actions by courts and other agencies related to global warming and attached a list of proposed mitigation measures prepared by the Attorney General’s office.

IMPACTS AND MITIGATION MEASURES

Methods and Assumptions

Energy Consumption

This section explains the methodology used to evaluate the impacts of the MTP 2035 on energy consumption. The analysis estimates the total amount of energy expected to be consumed under the MTP 2035 and compares it to existing conditions and the No Project Alternative by considering both operational and construction-related energy impacts. The operational energy impacts were assessed quantitatively, using the following methodology.

Direct energy consumption involves energy used by the operation of vehicles within the region. In assessing the direct energy impacts, consideration was given to the following factors:

- annual vehicle miles traveled (VMT) for on-road vehicles (automobiles, trucks, buses);
- commuter rail miles for rail travel; and
- variation of energy consumption rates by vehicle type.

The operational energy analysis was based on projected regional traffic volumes and total VMT. The projected daily traffic volumes for the region were an output of the traffic model. Daily traffic and train volumes are projected for a typical weekday. Traffic volumes were annualized using a factor of 320 days per year, which allows for differences in traffic levels and levels of service for transit during weekdays and holidays.

Construction-related energy impacts were assessed qualitatively, with attention given to the efficiency with which construction materials and machinery are produced and the choices made with respect to the construction procedures and type of equipment.

Global Climate Change

The Air Resources Board vehicle emissions model, EMFAC2007, was used in the analysis of CO₂ and fuel consumption impacts from on-road travel. This model assumes vehicle standards that have been implemented by state and Federal agencies, but does not assume standards that have been proposed but not implemented. Thus, the GHG emission standards are not included in the model's assumptions. The model assumes a relatively constant average miles per gallon through all forecast years.

The implementation of AB 32 through the work of the state's Climate Action Team (CAT) has produced a set of CO₂ "savings," expressed in million metric tons of CO₂ equivalent (MMTCO₂E) per year, assigned to various sectors. (Savings means a reduced level of future greenhouse gas emissions compared to what would have occurred under a "Baseline," or business-as-usual trendline) Among the sectors identified is "regional transportation/smart growth land use measures." The report "Climate Action Team Proposed Early Actions to Mitigate Climate Change in California, Draft for Public Review" (CalEPA, April 2007), assigned an annual reduction of about 18 MMTCO₂E by 2020 to this sector. Of that allocation, the SACOG region was assigned approximately 1 MMTCO₂E.

The analysis that produced the SACOG share primarily is based on the California Energy Commission's Report and "Effect of Land Use Choices on Transportation Fuel Demand" (CEC, May 2005), submitted in support of the *2005 Integrated Energy Policy Report*. In the report, SACOG's Blueprint study is cited as an example of a good smart growth planning process. The report compares a Baseline scenario to the Preferred Blueprint Scenario. Table 9-2 summarizes the comparison of the scenarios in the CEC report.

Table 9 – 2. Regional Total Fuel Consumption Comparison

	Households (000)	VMT (000)	Gas (000 gal)	Diesel (000 gal)	Total Fuel (000 gal)
Baseline	1,494	92,624	4,552.99	613.99	5,166.98
Smart Growth	1,504	86,784	4,273.79	583.17	4,856.96
Percent Difference	0.7%	-6.3%	-6.1%	-5.0%	-6.0%
Difference-Savings	10	-5,840	-279.20	-30.82	-310.02

Source: California Energy Commission, 2007.

The difference in fuel consumption can then be converted to identify the amount of MMTCO₂E, as shown in Table 9 – 3.

Table 9 - 3. Conversion of Fuel Consumption to Carbon Dioxide Savings

	Fuel Source		
	Gas	Diesel	Total
Daily Fuel Gallons Saved (000)	279.20	30.82	310.02
CO ₂ per gallon	19.564	22.384	
Daily CO ₂ reduction (000 lbs)	5,462,269	689,875	6,152,144
Daily CO ₂ reduction (Tons)	2,731	345	3,076
Daily CO ₂ reduction (Metric Tons)	2,478	313	2,791
Annual CO ₂ reduction (Metric Tons)	350 equivalent days/year		976,699

Source: SACOG, 2007.

The conversion methodology set forth above was verified by the CAT. While the exact calculations were not available, the CAT confirmed that SACOG’s calculations match the CAT’s assignment of approximately 1 MMTCO₂E annual savings to the SACOG region by the year 2020.

The goal of 1 MMTCO₂E in annual savings for the SACOG region with the implementation of the proposed MTP 2035, results in a target of 310,000 fewer daily gallons of fuel and 3,076 fewer tons of CO₂ per day by year 2020.

Criteria for Determining Significance

Energy Consumption

There are no applicable energy thresholds of significance suggested by CEQA. However, Appendix F of the State CEQA Guidelines states that CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing the inefficient, wasteful, and unnecessary consumption of energy. The CEQA Guidelines also state that the goal of conserving energy implies the wise and efficient use of energy, and identifies the means of achieving this goal, which include:

- decreasing overall per capita energy consumption,
- decreasing reliance on natural gas and oil, and
- increasing reliance on renewable energy sources.

Appendix F further suggests that environmental impacts related to energy conservation may derive from the following:

1. The project’s energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project’s life cycle including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.

2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

For the purposes of this analysis, a determination of significance will be based upon whether the proposed project employs the means of achieving the goal of reducing the inefficient, wasteful, unnecessary consumption of energy, as noted above, and whether the proposed project will result in any of the environmental impacts related to energy conservation, also noted above.

Global Climate Change

As described previously, the State Legislature and the global scientific community have found that global climate change poses significant adverse effects to the environment of California and the entire world. To mitigate these adverse effects, the State Legislature, through AB 32, has required statewide GHG reductions of 25 percent, to 1990 levels, by 2020. As noted previously in this chapter, based on current GHG emission reporting guidelines, the transportation sector directly accounted for approximately 27 percent of total U.S. GHG emissions in 2003. Transportation is the fastest-growing source of U.S. GHGs and the largest end-use source of CO₂, which is the most prevalent GHG.

The CAT inventory of GHG for the period 1990-2004 is being developed to set the 1990 baseline. A draft inventory is available online at <http://www.arb.ca.gov/cc/ccei/emsinv/emsinv.htm>. In this inventory, road transportation accounts for 29% of the 1990 emissions and 57% of the growth in emissions from 1990 to 2004.

In light of the substantial GHG emission reductions established by the State Legislature to mitigate the significant adverse environmental effects of global climate change, the following global climate change significance threshold is used for this analysis. This threshold has been identified for the purposes of the MTP 2035 EIR only.

- The project's incremental contribution to global climate change would be considered cumulatively significant if the GHG emissions generated by the proposed project are not consistent with California's achievement of the reductions required by AB 32.

Background: Relationship Between Land Use Pattern of Proposed MTP 2035 and Blueprint Land Use Principles

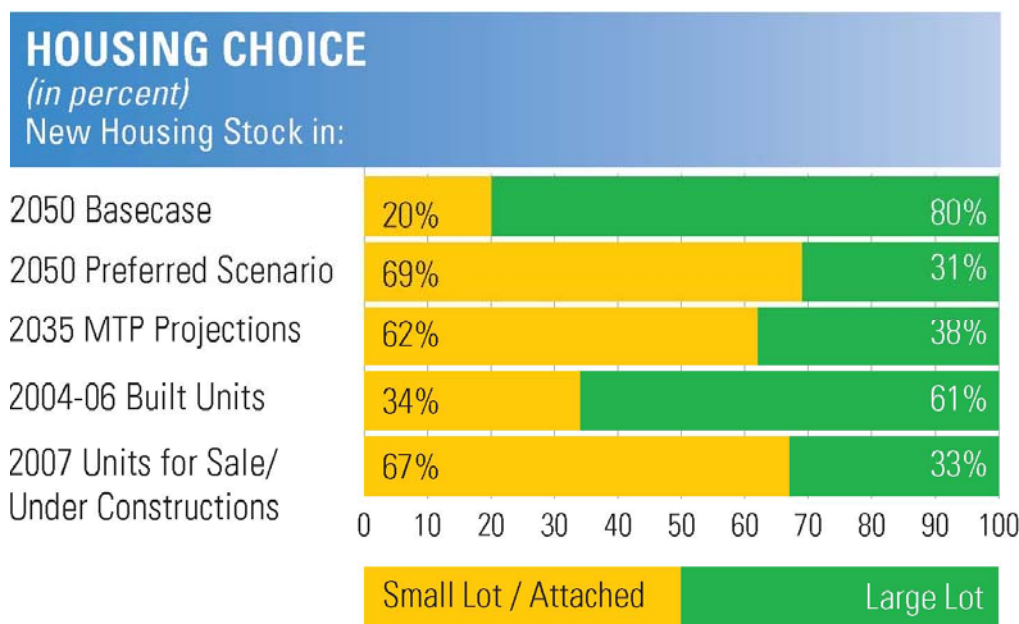
The following background is helpful to an understanding of the formulation of the proposed MTP 2035 project and how it attempts to address environmental impacts, including impacts on energy and climate change.

The federal code requires that MTPs include a land use allocation that represents the most likely to occur growth pattern in the region, taking into account a variety of variables such as local, state and federal policies and market forces. As discussed elsewhere in this document, the SACOG Board has made an extensive commitment over the last several years to understanding how land use patterns influence travel behavior and air quality, and in December 2004 unanimously adopted the Blueprint, a 50-year growth strategy that includes a conceptual map of the region in 2050 and seven growth principles. The Board encourages local governments to seriously consider the Blueprint as they make land use decisions and has committed significant resources to incentivize and assist its members to successfully accomplish this.

The success of the SACOG region in implementing its voluntary growth vision is widely seen around the state and country as being unmatched. The land use allocation for the proposed project reflects the strong commitment of most SACOG member governments to guiding growth in their communities in a manner that is consistent with the Blueprint principles.

“Providing a range of housing choices” is one of the Blueprint principles that has a particularly strong influence on the overall growth pattern, and resultant travel patterns and air emissions. Study a typical General Plan map and the large majority of land area for urban uses is always devoted to housing. Figure 9-1 tells a compelling story. The Base Case growth pattern in the Blueprint projects a continuation of development patterns typical in the late 1990’s and early 2000’s. The strong majority of housing products being built, 80%, were a large lot detached single family product. Only 20% were either small lot single family or either rental or for sale attached products. The 2050 Blueprint called for a major change, with 69% of all new housing products built through 2050 to be small lot single or attached. The 2035 land use allocation for the MTP 2035 shows strong progress towards that goal, with 62% of all new housing products either small lot single family or attached. It is to be expected that the years between 2035 and 2050 would contain the highest percentages of these higher densities products; the fact that the 2035 figure (62%) is moving so strongly in the direction of the 2050 figure (69%) is very encouraging. Even more encouraging is how quickly the combination of local land use policies and decisions, and market forces, have already moved in the direction of these products. Between 2004 and 2006 the market share of these products grew from 20% to 34%, and by 2007 it had risen to 67%.

Figure 9 – 1. Blueprint Principle: Housing Choice



How the Transportation Investments in the Proposed MTP 2035 Are Integrated with the Land Use Pattern

The MTP 2035 land use allocation leads to more compact communities built around mixed use community activity centers, applying to existing suburban communities, new mixed-use communities around the present urban edge, and rural communities; a better balance of jobs and housing in communities, with a variety of housing types and prices in all communities to match an evolving market; and gives attention to the siting of commercial and industrial businesses that require significant truck traffic.

In tandem with the Blueprint growth principles, which focus on urban growth patterns, the region will continue to explore of the needs of the rural areas, including identifying areas with high natural resource values to be preserved and economic development opportunities. Blueprint principles, a forthcoming rural initiative and the MTP together move this region significantly toward environmental sustainability by reducing air pollution and greenhouse gas emissions; conserving energy, water, and open space; and balancing urban and rural economic viability.

Policies & Investments to Support Blueprint Implementation

The MTP 2035 transportation system has been custom designed to match the land use pattern that underpins it. In fact, about 75 percent of the improved performance that comes from The MTP 2035 is derived from the strong presence of land uses that match Blueprint growth principles in many portions of the SACOG region. The MTP 2035 is the first MTP to explicitly propose a range of policies and associated strategies specifically designed to integrate with a Blueprint-influenced land use pattern. Detailed strategies in support of the policies identified below are found in Chapter Two of the Draft MTP 2035:

- Draft Policy: SACOG intends to promote and support local governments that have chosen to grow consistent with Blueprint principles.
- Draft Policy: SACOG intends to educate and provide information to policymakers and the public about the mutually supportive relationship between smart growth development and transportation.
- Draft Policy: SACOG will encourage local jurisdictions in developing community activity centers well-suited for high capacity transit service.
- Draft Policy: SACOG encourages every local jurisdiction to pursue housing in all price ranges, to meet the housing needs of the local workforce and population, and forestall pressure for long external commuting.
- Draft Policy: SACOG should seek to develop and inform local governments and businesses about a regional strategy for siting industry and warehousing that needs good freight access.
- Draft Policy: SACOG encourages cities and counties to direct greenfields developments to areas immediately adjacent to the existing urban edge.
- Draft Policy: SACOG intends to develop a strategy for ensuring good urban-rural connections and promoting the economic viability of rural lands while also protecting open space resources to expand and support the implementation of the Blueprint growth strategy and the MTP.

- Draft Policy: SACOG intends to support and invest in strategies to reduce vehicle emissions that can be shown as cost effective to help attain and maintain clean air and better public health
- Draft Policy: SACOG intends to use the best information available to implement strategies and projects that lead to reduced greenhouse gas (GHG) emissions.

MTP Investment Approach

The MTP 2035 investments support local governments that have chosen to implement the Blueprint growth principles in various ways. Overall, the investment strategy supports more compact urban design and mixed land uses that favor more travel choices, including transit, as the cost in dollars and congestion make driving alone less attractive and affordable. In larger and more compact urban areas, the roadway and parking space needed for autos becomes a limiting factor for auto use, because of congested conditions and cost. This development future also yields shorter commutes overall, more local trips within communities for which walk, bicycle, and transit become attractive options to driving, lower VMT, lessened growth in congestion, and more transit service and use.

Conserving the Existing Transportation System and Better Optimizing Performance

Supporting smarter land uses and resource conservation begins with an investment emphasis on good repair and operation of the current system. An extension of good maintenance is essential for a land use pattern that strives to place more growth in and around existing developed areas. Optimizing the existing system makes it possible to squeeze more efficiency out of the existing bicycle, pedestrian, road and transit systems.

Road Maintenance & Safety

In support of improved conservation of the existing road network, the MTP 2035 includes an investment of \$12.4 billion towards road maintenance, rehabilitation and safety projects, providing an increase of 17 percent from 2006 MTP levels.

The MTP 2035 also supports improving roads and intersections to accommodate all types of travel more safely. These investments are particularly important to avoid friction between more travel modes as the region. There will be more bicycle and pedestrian activity along corridors that were once just for auto and truck traffic. The 17% increase in funding from The MTP 2035 allows more investment in areas that include:

- Safer rail grade crossings and street safety measures such as left-turn lanes at intersections, improved lighting and signage, special paving, and median strips, particularly where there are high numbers of automobile or pedestrian accidents;
- Guardrails and improved shoulders along critical sections of freeways and highways, along with special paving (e.g. diamond grooving, reflectors, skid-reducing material) and lighting along specific road segments.

Programs and Planning

Supportive transportation programs also help conserve and optimize the existing system to support more compact, mixed-use land uses that generate shorter trips. In support of this, the MTP 2035 provides \$2.3 billion in funding for supplementary programs and planning efforts, an increase of 35 percent from the 2006 MTP levels. Investment areas include the following:

- Community Design: Seed funding to encourage smart-growth development projects complementary to The MTP 2035 that may otherwise not happen. The program has been expanded to allow greater regional coverage and support for projects from the MTP 2035ning phase through implementation. The increased funding can also go towards supporting investments that improve the quality of life for infill areas. Increased funding will allow for more transportation-related investments, including soundwalls, traffic calming, and streetscaping features that can make a corridor or intersection more attractive while also improving its safety and operation.
- Air Quality Improvement Programs: Funding includes extension of the SECAT program for replacing or retrofitting diesel engines and trucks, and Spare the Air programs to reduce vehicle-miles-traveled on bad air days.
- Intelligent Transportation System (ITS): Funding reserved for implementation of the regional ITS Strategic Deployment Plan, which includes automated message signs, crosswalk signals with pedestrian countdown timers, real-time transit message signs, and transit signal priority for buses. These investments also include Smart Corridors, including Sunrise and Hazel Avenues in Sacramento, where near-term ITS strategies are planned by local agencies, and expansion of Traffic Operations Centers.
- Travel Demand Management: Increased initiatives to help people find travel alternatives to driving alone.

System Expansion & Smart Land Uses

Though the MTP 2035, priority is on conserving and optimizing the existing transportation system, strategic transportation system expansions are also necessary for the region to serve the smarter land uses and accommodate the projected 1.2 million increase in population by 2035. Expanding travel choices so that future residents have alternatives to driving alone is a primary focus.

Bicycle and Pedestrian Investments

The Plan increases the investment in bicycle and pedestrian facilities by 56 percent. In addition to the \$1.4 billion in direct investments for bicycle and pedestrian facilities, 27 percent of all road investments in the project list include bicycle and pedestrian components. Policies and investments that support smarter land uses include:

- Support for “Complete Streets” concept, where the right-of-way is designed for many types of user’s modes of travel together, including pedestrian, bicyclists and transit as well as automobiles.
- Sidewalk network extensions in urban neighborhoods with segments widened where needed along with complementary pedestrian bridges and pedestrian intersection improvements that include Americans with Disabilities Act (ADA)-compatible ramps, bulb-outs and special crossing signals.
- Bike lanes on more neighborhood and major streets and multi-use bike/pedestrian trails (off-street, grade-separated) the offer residents the opportunity to make utilitarian and leisure trips separated from vehicular traffic.
- Bike facilities (racks, lockers, bathrooms) at major transit stops/hubs [light rail, bus rapid transit (BRT), etc.] and at key activity centers (downtown Sacramento, shopping malls, large office complexes, etc.)

Public Transit Investments

The MTP 2035 provides \$14.3 billion in transit capital and operating investment, a 21 percent higher investment in transit than the 2006 MTP contained. The MTP 2035 proposes to invest the maximum feasible share of the region's flexible capital funding into transit expansion, commensurate with funding to operate and need for road capacity for transit to run on. This investment approximately triples the amount of transit available in 2035 compared to today; there are no funds available to operate more service beyond that level, and as noted above, some flexible funds must be invested in road improvements so that transit can move effectively through areas of congested traffic.

The increase in transit funding allows more widespread and frequent bus service on arterial streets along with new services and strategic rail investments. The investments include:

- More buses running on alternative fuels;
- Increased transit options in local areas to better match transit type to the density of development and related demand for service. Options range from increasing the amount of service on existing fixed route and express bus lines, to introducing new services including BRT and neighborhood shuttles.
- More frequent transit service with greater regional coverage, with 15-minute or less service on many corridors. The MTP 2035 calls for 21 percent of all transit services (bus and rail) to operate 15 minute or better service by 2035, versus 6 percent of services today.
- Operational improvements to improve rail service frequencies and strategic expansion of rail where it can be cost effective, considering surrounding housing and employment densities, and introduction of streetcars in Rancho Cordova and between downtown Sacramento and West Sacramento where projected infill development will be great enough to support rail investments.

Road Capacity Investments

At 2%, the increase in the MTP 2035's investment towards road capacity is the smallest increase of all categories. The result of this funding shift away from roads is more investment in alternative forms of transportation to serve the shorter trips from Blueprint land uses. This includes increases in transit, bicycling, pedestrian and supportive programs.

The focus of the road capacity investments is to provide good access to infill development areas, support bus transit, and confine congestion to peak commute hours (a standard condition for robust urban economies nationwide). The MTP 2035 assumes that the Sacramento region is unlikely to support significant freeway widening or new freeways, so it must conserve a portion of existing freeway capacity for trucking and interregional travel by providing alternatives for regional and local travel.

It is important to note that road capacity investments also support the transit investments previously described. Most transit service is negatively, not positively, affected by road congestion. Congestion hurts the attractiveness of driving, but not in relation to taking the bus. If the region wants bus service to work, then the buses are going to require functional roadways.

The MTP 2035 invests \$11 billion in roads to accommodate projected growth. The investment emphasis is on grids of new and improved arterial streets with pedestrian features rather than extensive freeway expansions.

- The vast majority (89 percent) of new roadway lane miles in MTP2035 are on surface streets, not freeways. The road expansions are within the urbanized footprint and include focused investments along certain corridors designed to provide optimum amounts of needed capacity (i.e. not too much capacity), including the Elk Grove-Rancho Cordova-El Dorado Connector (Grant Line Road) in southeast Sacramento County and the Placer Parkway in Placer County.
- Added freeway lane miles account for only 11 percent of the total in new roadway capacity. Of the added freeway lane miles, 75 percent of these lanes are carpool, auxiliary lanes, new ramps or widened ramps. Only 25 percent are added mainline, mixed-flow lanes.
- The MTP 2035 adds carpool lanes and auxiliary lanes in many interior areas of the freeway system, particularly serving suburban job centers, where it will take time to build up employment densities to the point that transit becomes a serious option for commuting. The MTP2035 includes carpool lanes only as far east as Enterprise Boulevard on Interstate 80/U.S. Highway 50 in Yolo County, as far north as State Route 99/70 on Interstate 5, as far north as Elkhorn Boulevard on State Route 99/70, as far north as Blue Oaks Boulevard on State Route 65, and as far east as Shingle Springs Rancheria on U.S. Highway 50, with some auxiliary lanes beyond those limits, based on funding availability and cost effective performance. Increased frequency of express bus services along these corridors is included to maximize the capacity of the carpool lanes and to give transit a travel-time advantage.
- The MTP 2035 also focuses on accommodating trucks on the highway system, to the greatest extent possible. Reducing overall congestion is important to trucks, as they represent the equivalent of 2 to 4 automobiles in stop-and-go traffic. Goods movement is most benefited by the MTP's strategic investments in new freeway lanes, new roadways connecting activity centers and geometrically improved interchanges, since most trucking prefers to use freeways whenever reasonable.
- Unspecified Operations Funding – With the recognition that there are challenges for circulation of autos, transit, trucks, and pedestrians, the MTP2035 provides lump-sum funding for critical areas that include the Capital City Freeway near Cal Expo, traffic on State Routes 70 and 20 through Marysville, and downtown Sacramento.

River Crossing Investments

The MTP 2035 includes over \$500 million in investments for the development of more road and transit capacity across the American, Sacramento, and Feather rivers, with local cross-river transit routes and a minimum number of new bridges. The bridges included in the MTP 2035 are in the existing urbanized area versus on the urban edge where they might facilitate outward growth. The MTP 2035 investments include:

- Improved river access across the American and Sacramento rivers into downtown Sacramento – New bridges at Truxel Road across the American River and at Broadway across the Sacramento River to provide access into downtown Sacramento where there will be a large increase in jobs and residents by 2035.
- Feather River crossing at Yuba City – Two 6-lane bridges, at 5th Street and 10th Street, with redesigned approaches and distribution on both ends, to link Yuba City and Marysville effectively and avoid the high cost of a third bridge in a “greenfields” location.

Phasing of Transportation Investments

Implementation of a long-range MTP is carried out gradually through shorter-term decisions, which assign state or federal funds to specific projects, in periodic funding or programming cycles. The MTP 2035 must spread projects through all 28 years covered by the MTP 2035, to match the flow of revenues. The schedule for the draft project list was completed to meet the following objectives:

- Balance revenues and expenditures over the 28 year planning period – Projects must be scheduled to match the pace at which revenues are available to pay for them, proportionally over 28 years, which limits the number of projects that can be planned for any given year and forces decisions about relative priority; this test is called financial constraint;
- Phases projects to relate to development phasing – The project list is scheduled to be linked to be in line with the location and pace of growth, both infill investments in the urban core and “greenfields” developments that are more focused on compact, mixed-use development than before the MTP2035; and
- Support attainment of air quality standards – The projects in the early years of the MTP 2035, before 2018, were selected in significant part to make as much progress towards attaining federal clean air act standards as soon as feasible.

Environmental Impacts of the Proposed Project

This section describes potential impacts on energy and global climate change that could result from the MTP 2035. Some projects in the MTP 2035 could significantly affect energy and global climate change issues. However, prior to final approval of each project considered in the MTP 2035, the implementing agency will conduct the appropriate project-specific environmental review.

Impact ENE - 1: Construction Effects on Regional Energy Usage

Under the MTP 2035, new projects would be built and existing transportation systems would be modified. Construction of the transportation improvements programmed in the proposed MTP 2035 would increase energy consumption due to the operation of construction equipment and vehicles. As many of the improvements programmed in the MTP 2035 are large-scale, the increase in energy consumption due to construction activities would be substantial. Construction activities would typically use vehicles powered by nonrenewable fuels.

Based upon the general planning nature of the MTP 2035, development of detailed, site-specific information on this impact at the program level is not feasible. As a result, SACOG does not have sufficient reliable data to permit preparation of a meaningful and accurate report on the impact at the project level. The implementing agency will conduct appropriate project-level environmental review and will be responsible for consideration of mitigation measures for significant effects on the environment.

The construction of transportation infrastructure identified in the proposed MTP 2035 would involve the use of construction equipment and vehicles, which are generally dependent upon nonrenewable petroleum-based fuels, on a large scale. However, it is not feasible to estimate energy consumption associated with future construction of the projects in the proposed MTP 2035 at this program level of analysis. Further, multiple factors beyond the control of SACOG and outside the scope of the proposed MTP 2035 may influence future construction-related energy consumption under the proposed MTP 2035, including but not limited to state and federal regulatory actions; technological improvements; the price of oil, gasoline, diesel, electricity and other fuels; the availability of alternative fuel vehicles in the marketplace; the amount of oil imported by the U.S.; and others. Nevertheless, the large scale of construction activities that would be required to implement the proposed MTP 2035 would result in an additional amount of additional energy consumption associated with the proposed MTP 2035.

Although construction equipment and vehicles would be operated in accordance with all applicable rules and regulations, the substantial increase in energy consumption associated with the construction equipment and vehicles primarily powered by nonrenewable fuels, combined with factors beyond the control of SACOG, result in a finding that this impact is considered significant.

The following mitigation measures shall be implemented by SACOG to reduce the significant construction-related energy impacts of the proposed MTP 2035 to the extent feasible. Notwithstanding the implementation of these mitigation measures, this impact is considered significant and unavoidable:

Mitigation Measure ENE – 1: Incentives for Energy Conservation Practices

When it has the authority to do so, SACOG will condition the programming of federal and state funds to only local agency recipients that include energy conservation criteria in their selection process for construction contractors. These criteria, to be established by the local agencies responsible for plan implementation, should, at a minimum, include the following incentives for energy conservation practices in the construction bids they solicit:

- Construction equipment that meets the current emission standards criteria for new vehicles.
- Construction equipment that uses alternative fuels.
- Local services and materials that minimize energy consumption from transportation freight that requires long-distance travel.
- Renewable energy sources whenever feasible.
- Use the lowest feasible emitting construction equipment and fuels.
- Avoid unnecessary idling of construction equipment.
- Consolidate material delivery as much as possible to ensure efficient vehicle utilization.

- Schedule delivery of materials during non-rush hours to maximize vehicle fuel efficiency.
- Encourage construction workers to carpool.
- Maintain equipment and machinery, especially those using gasoline and diesel, in good working condition.

These conditions will not apply where the local agencies responsible for plan implementation already are subject to regulatory measures to control and/or mitigate the energy-related impacts of the construction projects.

Impact ENE - 2: Effects of Operation on Overall Regional Energy Usage

In 2005, approximately 123,800 billion British Thermal Units (BTUs) were consumed in the SACOG region from fossil fuels used in the transportation sector (primarily from gasoline and diesel fuel use) as shown in Table 9 - 4. With the implementation of the MTP, the transportation sector would consume approximately 188,000 billion BTUs from fossil fuel combustion in 2035.

Although this is a significant growth in fuel consumption, the investment strategies of the MTP included measures to reduce VMT and congestion, better optimize performance of the transportation network, and support smart land uses. In addition, the MTP 2035 incorporates Mitigation Measures ENE – 6, ENE – 7, ENE – 8, ENE – 9, ENE – 10, ENE – 11, ENE – 12, ENE – 13, ENE – 14, ENE – 15, ENE – 16, AG – 1, and LU – 2. Among other things, these measures significantly reduce fuel consumption. Under the 2035 No Project Alternative, the transportation sector in the SACOG region would consume approximately 201,300 billion BTUs from fossil fuel combustion. Therefore, the investment strategies and measures in The MTP 2035 result in savings of approximately 13, 300 billion BTUs annually by 2035.

In addition, as noted above in Tables 9-2 and 9-3, the 1 MMTCO₂E target for 2020 correlates to savings of 310,000 gallons of fuel per day by 2020. As established below in connection with the Impact ENE – 4, the MTP 2035 achieves those fuel target savings by 2020.

In light of the performance of the MTP 2035, including the reduction in reducing overall fuel consumption when compared to the No Project Alternative and maintaining consistency with California’s achievement of the goals for AB 32, The MTP 2035 employs the means to reduce the inefficient, wasteful, and unnecessary consumption of energy to the extent possible and the energy impacts of the project are considered to be less than significant.

Impact ENE - 3: Effects on Electricity Demand

The proposed MTP 2035 would expand the region's transit system and provide more frequent service. The transit system is more energy efficient than single-passenger vehicles and increased operation and use of the transit system would have positive energy impacts to the extent that the system accommodates trips that would otherwise be completed in less efficient modes of travel, such as passenger vehicles. However, expanding the transit system would increase energy consumption through transportation activities, as well as new lighting required for stations, parking structures, and other energy-consuming components of transportation improvements. Table 9 – 4 shows the transit energy use for electric and natural gas powered buses.

In 2005, the light rail system consumed approximately 170 billion BTUs of electricity, while natural gas buses consumed approximately 800 billion BTUs. Under the proposed MTP 2035 project, light rail is anticipated to consume approximately 500 billion BTUs of electricity per year, while natural gas buses would consume 2,500 billion BTUs. Although the MTP 2035 thus would require additional electricity for light rail and natural gas fuel for buses as compared to existing conditions, the increase in electricity and natural gas energy use would be more than outweighed by the decrease in energy from reduced gasoline and diesel consumption. As Table 9 – 4 shows, under the 2035 MTP, total transportation-related energy use would decrease by 12,400 billion BTUs, when compared to the No Project Alternative. Also, the increase in electricity would be relatively minor and would easily be supplied by existing energy capacity in the region. Consequently, the MTP 2035's impacts on electricity demand would be less than significant. No mitigation is required.

Impact ENE - 4: Effects on Climate Change and Global Warming

As shown in Table 9 – 4, implementation of the proposed MTP 2035 would substantially increase the levels of gasoline, diesel, and electricity consumed during operation of the region's transportation network in 2035 relative to existing conditions. As a result, the proposed MTP 2035 also would result in increased GHG emission from the transportation network in 2035. GHG emissions result from the carbon dioxide, methane, and nitrous oxide that are released during the combustion of gasoline and diesel fuel in construction equipment, vehicles, buses, trucks, and trains; the burning of fossil fuels to produce electricity that powers the trolley; and the use of natural gas to power transit buses and other vehicles. As discussed previously, historical and current global GHG emissions are known by the State and the global scientific community to be causing global climate change, and future increases in GHG emissions associated with the proposed MTP 2035 could exacerbate climate change and contribute to the significant adverse environmental effects described previously. Furthermore, increased GHG emissions associated with the proposed MTP 2035 could impact implementation of the State's mandatory requirement under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020.

The regulatory and technological environment to implement the AB 32 reductions is in flux – no final implementing regulations for AB 32 have been adopted and thresholds of significance are not established. In this environment, SACOG has used the best available information to determine whether the proposed MTP 2035 is consistent with the State's achievement of the AB 32 GHG emission reductions. Nevertheless, in light of the uncertainty in the regulatory and technological environment, and because AB 32 establishes no 2035 reduction requirements, the MTP 2035 incorporates all feasible mitigation measures, as set forth below, to reduce the impacts of the proposed project on global climate change.

With respect to the SACOG region's share of the reductions necessary for the State to meet the AB 32 targets, all available data indicates that the region must achieve "savings" of 1 MMTCO₂E in "regional transportation/smart growth land use measures" by 2020. As noted above, "savings" means a reduced level of future GHG emissions compared to what would have occurred under a "Baseline," or business-as-usual trend line.

Table 9 - 4. SACOG Regional Transportation Energy Use

Summary	2005	2035 No Project	2035 Draft MTP	2035 Draft MTP minus 2035 No Project
On-Road Non Transit VMT - Weekday	55,266,812	90,272,463	85,063,390	(5,209,073)
On-Road Non Transit VMT - Annual	17,685,379,840	28,887,188,160	27,220,284,800	(1,666,903,360)
Gasoline (billion BTUs)	114,140	186,612	175,843	(10,769)
Diesel (billion BTUs)	9,359	13,766	12,971	(794)
Total Gas + Diesel (billion BTUs)	123,499	200,378	188,815	(11,563)
Transit Electricity Revenue Miles – Annual	1,777,915	3,189,005	5,216,945	2,027,940
Transit Diesel Revenue Miles - Annual	20,016,600	42,705,365	58,586,880	15,881,515
Transit Electricity (billion BTUs)	169	303	496	193
Transit Diesel (billion BTUs)	722	1,540	2,112	573
Transit Total (elect + diesel, billion BTUs)	891	1,843	2,608	765
Totals (billion BTUs)	124,389	202,220	191,423	(10,798)

Notes:

On-road vehicle miles traveled per day and transit electricity and diesel revenue miles based on SACOG travel demand model. Annual VMT based on weekday multiplied by 320.

VMT converted to VMT per vehicle type and fuel type (gasoline versus diesel) based on EMFAC fleet mix and technology (catalyst, non-catalyst, diesel) percentages for 2005 and 2035.

Gallons of gasoline and diesel fuel estimated using VMT per vehicle type and gallons per mile from EMFAC data for 2005 and 2035.

Total gasoline BTUs based on 130,000 BTUs per gallon. Total diesel BTUs based on 137,000 BTUs per gallon (U.S. EPA AP-42 Appendix A Miscellaneous Data and Conversion Factors.)

Electricity use assumes 95,000 BTUs needed per transit revenue mile and includes light rail and conventional streetcar.

Transit diesel assumes diesel buses achieve an average fuel efficiency of 3.8 miles per gallon and 137,000 BTUs per gallon (includes express bus, BRT, fixed route bus, and shuttle).

As discussed above in connection with the Blueprint Land Use Principles and the policies and investments of the proposed MTP, the proposed project has been designed to, among other things, reduce VMT and congestion, optimize the performance of the transportation network, and support smart land uses. While providing other benefits – for air quality, land use, and other resource areas – these measures reduce GHG emissions. The following analysis demonstrates that the MTP, with the incorporated mitigation measures, is consistent with the State’s achievement of the AB 32 reductions because the proposed project achieves the 1 MMTCO₂E savings in the regional transportation/land use sector by 2020.

Because the MTP 2035 does not have a distinct travel forecast for 2020, forecast numbers for year 2020 were estimated from existing data for year 2005 current conditions, years 2018 and 2035 for the proposed project, and a No Project 2035 forecast. The 2018 forecast is required for the air quality conformity analysis of the MTP with the regional ozone SIP’s emissions budget.

The VMT for 2018 and 2035 under the Project, and under the No Project Alternative are summarized in the Tables 9 – 5, 9 – 6, and 9 – 7, and Figure 9 - 2. The 1995 historic data is provided to help inform the No Project trend line (since there is no interim year 2018 model run for this alternative and to highlight the extent of change due to the proposed project and the new land use growth projections).

Tables 9 – 5 and 9 – 6 show that the VMT growth rate was higher than the dwelling unit growth rate in the past (1995-2005), is about the same under the MTP 2035 until 2018, and then is lower from 2018 to 2035. The No Project VMT, as shown in Table 9 – 7, continues the trend of VMT growing faster than dwelling units. Figure 9 - 2 depicts these two scenarios. Table 9 – 8 shows the energy and CO₂ comparison of the alternatives in 2035.

Table 9 – 5. MTP Weekday VMT (000) by Year¹

	1995	2005	2018	2035
El Dorado ²	3,186	3,987	4,934	5,581
Placer ²	6,614	9,343	12,507	15,996
Sacramento	25,226	32,145	40,446	48,162
Sutter	1,937	2,374	3,092	3,635
Yolo	4,630	5,683	7,020	8,261
Yuba	1,519	1,849	2,563	3,244
SACOG Region Total	43,112	55,381	70,562	84,879
SACOG Region Dwelling Units ³	683,204	828,885	1,042,054	1,324,252

Notes:

¹1995 and 2005 data from California Department of Transportation based on HPMS reports. 2018 and 2035 are from SACOG forecasts of travel demand in the SACOG region.

²Excludes Tahoe Basin. Adjustments to county totals by SACOG.

³1995 and 2005 population from California Department of Finance, adjusted by SACOG to exclude Tahoe Basin. 2018 and 2035 population from SACOG projections, adjusted to include Tahoe Basin.

Source: SACOG, October 2007.

Table 9 – 6. VMT Average Annual Growth Rates

County	'95-'05 (Actual)	'05-'18 (w/ MTP)	'18-'35 (w/ MTP)	'05-'35 (w/ MTP)
El Dorado ¹	2.3%	1.7%	0.7%	1.1%
Placer ¹	3.5%	2.3%	1.5%	1.8%
Sacramento	2.5%	1.8%	1.1%	1.4%
Sutter	2.1%	2.1%	1.0%	1.4%
Yolo	2.1%	1.6%	1.0%	1.3%
Yuba	2.0%	2.5%	1.4%	1.9%
SACOG Region Total	2.5%	1.9%	1.1%	1.4%
SACOG Region Dwelling Units²	2.0%	1.8%	1.4%	1.6%

Notes:

¹Excludes Tahoe Basin. Adjustments to county totals by SACOG.

²1995 and 2005 population from California Department of Finance, adjusted by SACOG to exclude Tahoe Basin. 2018 and 2035 population from SACOG projections, adjusted to include Tahoe Basin.

Source: SACOG, October 2007.

Table 9 – 7. Weekday No Project VMT

County	2035	'05-'35 Growth Rate ¹
El Dorado ²	5,961	1.3%
Placer ²	17,087	2.0%
Sacramento	51,444	1.6%
Sutter	3,883	1.7%
Yolo	8,824	1.5%
Yuba	3,465	2.1%
SACOG Region Total	90,664	1.7%
SACOG Region Dwelling Units³	1,351,598	1.6%

Notes:

¹"No Project" = 2006 MTP Projects + Pre-Blueprint Land Use Growth Allocation

²Excludes Tahoe Basin. Adjustments to county totals by SACOG.

³ 1995 and 2005 population from California Department of Finance, adjusted by SACOG to exclude Tahoe Basin 2018 and 2035 population from SACOG projections, adjusted to include Tahoe Basin.

Source: SACOG, October 2007.

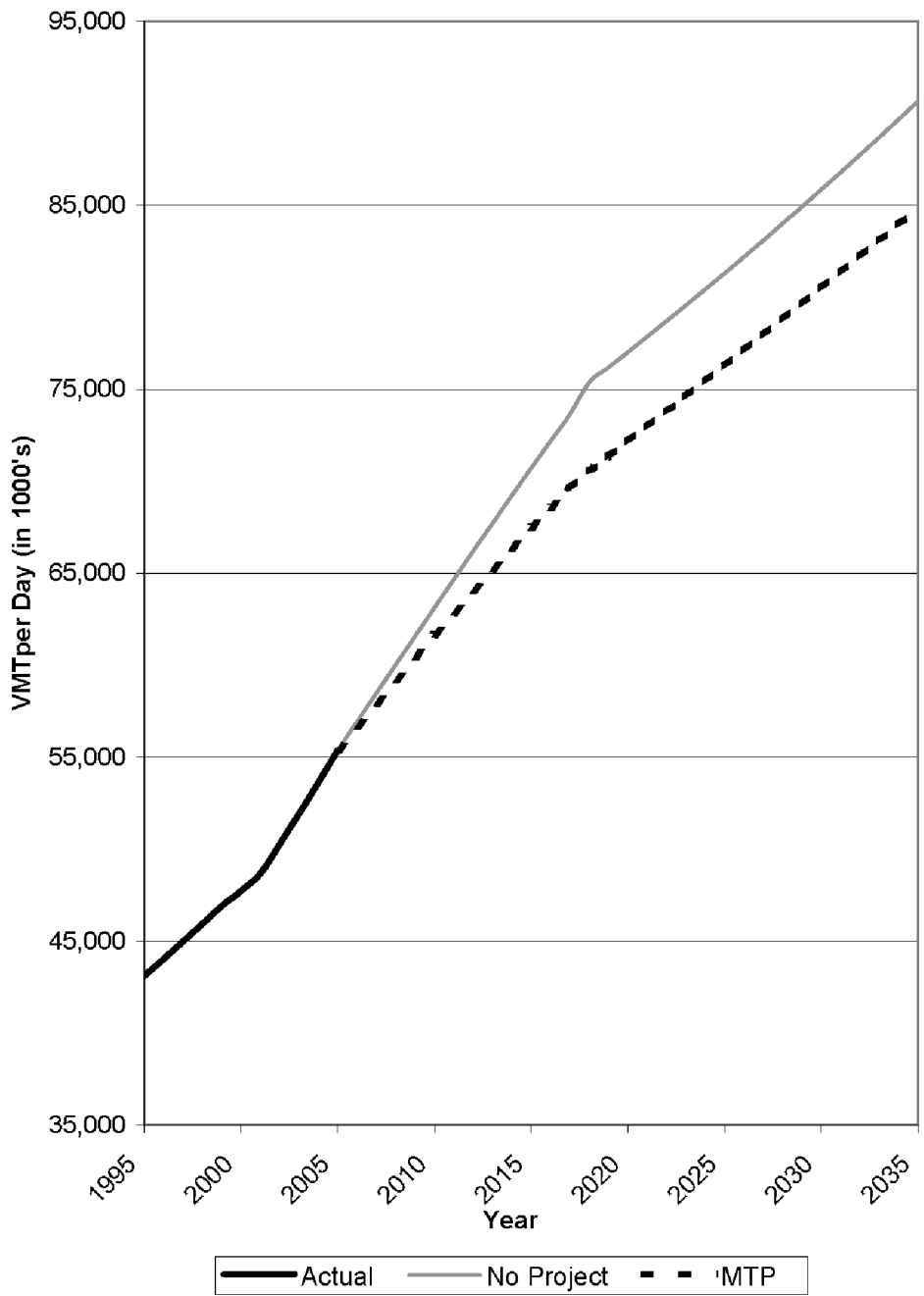


Figure 9-2: Daily Vehicle Miles of Travel in the SACOG Region, Forecasted to 2035

Table 9 – 8. Weekday Energy and CO₂ Impacts in 2035

Alternative	Weekday VMT (000)	Daily Gas + Diesel (Gal.)	Daily CO₂ (Tons)
MTP	84,879	5,053,000	50,200
No Project	90,664	5,564,000	55,280
Savings Due to MTP	5,785	511,000	5,080

Source: SACOG, October 2007.

The year 2020 VMT estimates for the MTP 2035 and the No Project Alternative were estimated in a series of scenarios that bracketed several important assumptions in the analysis. First, SACOG has 2 regional travel models. The SACMET model is the traditional state-of-the-practice 4-step model modified by a “4Ds” post-processor that helps to better estimate the impacts of smart growth land use variables on travel behavior. The SACSIM model is a state of the art simulation, or tour-based, model recently developed and implemented for the first time in this MTP process.

The second important assumption is the trend of VMT growth from 2005 to the 2035 horizon year. This assumption is important for estimating 2020 impacts. Each alternative can have different growth curves depending on where population and job growth and transportation investments would occur during the early years. Two methods were used to estimate these trends. One method, which we label Aggregate Trend, developed a yearly growth rate for total VMT in the region. Figure 9-1 shows the trend lines for both alternatives. The other method, which we label Household Trend, uses the VMT per Household results from the model, the growth in Households from our demographic forecast, and the share of VMT due to commercial vehicles and through traffic to estimate total VMT. The VMT per Household declines in the MTP scenarios reflecting the Blueprint, while the No Project Alternative shows an increasing VMT per Household into the future. Thus we developed the following four scenarios for 2020:

- the SACSIM model with Aggregate Trend;
- the SACSIM model with Household Trend;
- the SACMET model with Aggregate Trend; and
- the SACMET model with Household Trend.

The VMT from these scenarios were applied to the EMFAC 2007 emissions model to produce calculations of CO₂ emissions and fuel consumption.

While VMT is important relative to CO₂ emissions, another critical factor to consider is the vehicle speed. The speed profiles (i.e., the percent of total VMT in 5-mph ranges from 0-5 mph to 75+ mph) were taken from similar travel model runs. For the analysis, the “MTP 2018” scenario was used as the proxy for the “MTP 2020” alternatives. For the No Project 2020 scenarios, the speed profiles were taken from the year 2020 travel model run done for the 2006 MTP (air quality conformity analysis May 2006). The travel, fuel and CO₂ results are shown in Table 9-9.

Table 9 – 9: Year 2020 Daily Savings in VMT, Fuel, and CO2

Scenario	Weekday VMT (000)	Daily Gas + Diesel (Gal.)	Daily CO₂ (Tons)
SACSIM, Aggregate	4,855	403,000	4,010
SACSIM, Household	3,521	320,000	3,150
SACMET Aggregate	10,472	698,000	6,970
SACMET, Household	5,543	393,000	3,980

Source: SACOG, 2007.

While the fuel consumption and CO₂ levels will rise as compared to existing conditions, the results show that the proposed project meets or exceeds the fuel and CO₂ reduction goal set by the CAT Early Action report in all four scenarios. The gasoline plus diesel daily savings range from 320,000 gallons to 698,000 gallons per day, compared to the CAT goal of 310,000 gallons per day. The daily CO₂ savings range from 3,150 tons to 6,970 tons per day, compared to the CAT goal of 3,076 tons per day in 2020. The 1 MMTCO₂E standard is an annual number that is equivalent to 3,076 tons per day.

The difference between the proposed project and the No Project Alternative (i.e., savings) continues to grow in 2035 and stays well above the CAT standards. The 2035 analysis used the SACSIM travel model, so the comparison of 2020 and 2035 will use the SACSIM scenarios. The 2020 metrics in Table 9 – 9 are compared with the 2035 metrics in Table 9 – 8. The fuel savings increase from the range of 320,000 to 403,000 gallons in 2020 to 511,000 gallons per day in 2035. The CO₂ savings increase from the range of 3,150 to 4,010 tons in 2020 to 5,080 tons per day in 2035.

The impact of the MTP 2035 upon CO₂ emissions therefore meets or exceeds the projected savings targets for 2020. Even though there is an increase over existing conditions, because the emissions meet or exceed the projected savings targets for 2020, the impact is less than significant. As noted, however, in order to further reduce CO₂ emissions and corresponding environment effects, the MTP 2035 incorporates Mitigation Measures ENE – 6, ENE – 7, ENE – 8, ENE – 9, ENE – 10, ENE – 11, ENE – 12, ENE – 13, ENE – 14, ENE – 15, ENE – 16, AG – 1, and LU – 2.

Mitigation Measure ENE – 6: Develop Regional Climate Change Action Plan

Within 3 years of adoption of the proposed MTP 2035, SACOG shall, through a public process, establish a Regional Climate Change Action Plan that includes at a minimum the following components:

- General discussion of the potential impacts that global climate change poses to the Sacramento region, with particular focus on potential impacts to MTP facilities, to the extent that such research is available;
- A baseline inventory of total GHG (at minimum, CO₂, CH₄, and N₂O) emissions directly and indirectly associated with MTP activities (MTP GHG emissions) for the year 2005;

- Calculated total MTP GHG emissions per capita in 2005 using the total MTP GHG emissions figure calculated above and the total regional population figure for 2005;
- Total MTP GHG emissions per capita as a measure of the transportation system's GHG emissions. This measure shall be used to compare the global climate change impacts of future MTP alternatives with each other and existing conditions; and
- Development of enforceable, feasible GHG emissions reduction measures to achieve reductions in total MTP GHG emissions per capita. Such reduction measures may include construction of new transportation projects, modification of existing facilities or services, incentive or funding programs, pricing strategies, regulations or any other actions that reduce GHG emissions associated with MTP activities, including mitigation measures ENE-7 through ENE-16, AG-1 and LU-2 below.

Under federal and state law, SACOG must adopt an MTP and update it at least every four years if the region is to receive federal or state transportation dollars. The MTP 2035 will succeed the 2006 MTP. The next MTP is expected to be adopted in 2011. SACOG intends to develop the Climate Change Action Plan so that it may be incorporated into the next MTP.

Mitigation Measure ENE - 7: Create Alternative Fuel Vehicle and Infrastructure Toolkit for Local Governments

SACOG shall develop an Alternative Fuel Vehicle (AFV) and Infrastructure Toolkit for member agencies that will contain best practices related to ordinances, analytical tools, financing opportunities, codes, and standards related to saving energy and reducing GHG emissions. SACOG shall identify the alternative fuel vehicle(s) (e.g. neighborhood electric vehicles) and alternative fuel infrastructure with the potential to result in the greatest GHG emission reductions. SACOG shall conduct a public education program for local governments and other public agencies, as appropriate to encourage the use of alternative fuel vehicles and infrastructure.

SACOG shall work with its member agencies to increase the number of AFVs (i.e., vehicles not powered strictly by gasoline or diesel fuel) both in municipally owned vehicles, as well as those owned by franchisees of these cities, such as trash haulers, green waste haulers, street sweepers, and curbside recyclable haulers. Such AFVs shall have GHG emissions at least 10 percent lower than comparable gasoline- or diesel-powered vehicles. The Alternative Fuel Vehicle and Infrastructure Toolkit described above will include best practices strategies to aid in the transformation of municipally owned or contracted fleets, including vehicle fleets operated and/or funded, at least in part, by SACOG.

Mitigation Measure ENE – 8: Adopt Transportation Pricing Policy

SACOG shall prepare an analysis on the impacts and viability of using pricing policies with the transit system and selected portions of the road network to encourage people to drive less and use transit, walking and bicycling modes more. This study will identify strategies to reduce GHG emissions that will include, but are not limited to, free or reduced transit fares during “spare the air” days; fare-free zones on the transit system; transit vouchers; days on which transit is free; congestion pricing options for portions of

the road system, such as tolls on freeways and highways; and congestion-pricing to enter certain high-traffic areas served by public transit (e.g., downtown Sacramento). SACOG shall adopt a transportation pricing policy based upon these strategies, and shall conduct seminars with local government staff, planning commissioners and elected officials and members of the private development, planning, engineering and design communities to disseminate these strategies.

Mitigation Measure ENE - 9: Create Public Education Program on Individual Transportation Behavior and Climate Change

In conjunction with key partners such as local air districts, public utility providers, area chambers of commerce and others, SACOG shall create a public information program to educate the public about the connection between individual transportation behavior and global climate change, including transportation behavior modifications the public can make to reduce their GHG emissions over time. SACOG shall include information on its website (www.sacog.org) that is focused on global climate change. The website shall identify actions the public can take to reduce their carbon footprint, and provide web links to sources of information on SACOG's Regional Ridesharing Program, which is designed to promote alternative mode use (carpools, vanpools, public transit, bicycling, walking, telecommuting) and other travel demand management strategies.

Mitigation Measure ENE - 10: Provide Funding for Workshop on Global Climate Change for Local Government Officials and Create GHG Emissions Reduction Strategies Toolkit

SACOG shall provide funding for a workshop on global climate change for local government officials that will focus on practical techniques that local governments can implement to reduce greenhouse gas emissions at the city and county level. Workshop topics shall include, but are not limited to the following:

- The basic science behind climate change and its effects on the Sacramento Region.
- Addressing the California Environmental Quality Act (CEQA) and the effects of AB 32.
- What cities and counties are doing to address climate change and CEQA.
- Cost effective actions cities can take to reduce greenhouse emissions.
- Actions being taken in the Sacramento region to advance and support innovative "green" business.

SACOG, in conjunction with other key partners, shall produce a toolkit for local governments to use to take effective actions to reduce greenhouse gas emissions over time. The toolkit will incorporate recommendations by the workshop participants to identify which issues are important for the region and the tools and resources they would like to have available to reduce greenhouse emissions.

Mitigation Measure ENE – 11: Adopt Regional Parking Regulation Policy to Provide Incentives for Use of Alternative Modes

SACOG shall prepare an analysis and perform travel modeling and air emissions analysis to identify a range of alternatives for local governments to use to modify current parking regulations to create incentives for people to use available transit, walking and biking options. The analysis shall address impacts of parking maximum and minimum requirements, shared parking systems, and parking pricing on travel behavior and air emissions. The study will also include the potential for application of alternative energy technologies, such as solar shading and power generation, at both structured and surface parking facilities. The I-PLACE³S energy module (see Mitigation Measure ENE – 13) will be used to support this research. This study will be conducted cooperatively with key partners such as the air districts and local governments within the region. At the conclusion of the study, SACOG shall adopt a parking policy based upon the study results, and shall work with local governments to modify local parking regulations.

Mitigation Measure ENE – 12: Adopt Safe Routes to School Policy and Implement Pilot Program and Conduct Workshop with Cities, Counties and School Districts to Identify other Opportunities for Collaboration that may reduce Greenhouse Emissions

Within 3 years from the adoption of the MTP 2035, SACOG shall adopt a Safe Routes to Schools (SRTS) policy to promote the practice of safe bicycling and walking to and from schools throughout the MTP Plan Area in order to reduce traffic congestion, improve air quality, and enhance neighborhood safety. There are both federal and state funding programs for SRTS. As a regional agency, SACOG is an eligible applicant under the federal program for both infrastructure and non-infrastructure projects. Under the state program, only cities and counties are eligible applicants for infrastructure projects only. (Caltrans, 2007) With the passage of the Safe Routes to School bill (AB 1475), a “one-third” distribution formula for federal safety funds to be allocated in equal amounts to: state highways, local roads, and Safe Routes to School (SRTS) construction program was established.

The federal Safe Routes to School program (SRTS) was authorized by Section 1404 of the *SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users)*. SACOG shall also obtain federal funds from the Federal Highway Administration through Caltrans to implement at least one SRTS pilot program within the MTP Plan Area.

The State-legislated Safe Routes to School program (SR2S) is contained in Streets & Highways Code Section 2330-2334. SACOG shall encourage its member agencies to apply for funds available through the State Highway Safety Improvement fund for eligible infrastructure projects in order to improve bicycle and pedestrian safety for school children.

SACOG shall also join the Safe Routes to School National Partnership, a network of more than 300 nonprofit organizations, government agencies, schools, and professionals working together to advance the Safe Routes to School movement in the United States.

In addition, SACOG will host a regional workshop for all cities, counties, school districts and transit operators within the region to identify other potential opportunities

for collaboration that would reduce greenhouse gas impacts. At a minimum, the issues discussed will include the findings from the Safe Routes to School activities described above, opportunities to increase the number of students with bus or other transit options to get to and from school, and integrating school siting practices with goals of promoting walkable neighborhoods with a wide range of easily accessible services. This workshop will be patterned after the “Stretching Community Dollars Guidebook” and workshop series that the SACOG Executive Director wrote for the California City, County, Schools (CCS) Partnership (a non-profit organization of the League of California Cities, California State Association of Counties and California School Boards Association). That workshop series is specifically designed to help these three local government entities to take maximum advantage of opportunities for collaboration. SACOG will ask the CCS Partnership to co-host the event, and offer to make the materials prepared for the event available to the CCS Partnership for use in its on-going workshop series around the state.

Mitigation Measure ENE – 13: Enhance I-PLACE³S Model to Assess Greenhouse Gas Impacts and Opportunities for Small-Scale Power Generation

SACOG will enhance its I-PLACE³S sketch planning land use and travel model to assess the greenhouse gas impacts of land use and transportation alternatives. SACOG will make this model available to all of its member cities and counties and provide on-going training and technical assistance to help them use it for general plans, community and development plans, corridor studies, and development proposals. SACOG shall participate in the State of California’s Blueprint Learning Network to provide peer exchanges with other regional agencies in the state to share how it uses I-PLACE³S. For project applicants to its Community Design Funding Program, SACOG shall require the applicant to submit an I-PLACE³S analysis in order to create different land use development alternatives, as part of the application process.

Over the past few years SACOG has worked with the California Energy Commission in the development of an energy module to add to the I-PLACE³S software. This module provides an efficient way to conduct a state-of-the-art analysis of the feasibility of various forms of small-scale, distributed power generation with different land use patterns. Technologies that can be analyzed include twenty-three varieties in total of solar photovoltaics, wind, fuel cells, natural gas cogeneration, and natural gas microturbine technologies. Land use characteristics that are assessed as part of the analysis include roof (building and parking structure) and site area (open space or parking lot) available for the various technologies. Performance metrics that are reported include overall energy use by fuel source, amount of usable waste heat, installed cost, operation and maintenance cost, criteria air pollution and carbon dioxide emissions, net energy metering feasibility to allow energy to be sold back to the utility, and composite rankings for both cost effectiveness and environmental suitability for the project. The module is currently being reviewed in beta form by the California Energy Commission (CEC). When the CEC releases the software (expected in late December) for use, SACOG will find at least one pilot test site with the region, participate in the pilot test, and then make the results and capability available to all of its members. There have been preliminary discussions with the Sacramento Municipal Utility District (SMUD), City of Sacramento and the developers of the downtown Sacramento rail yards about pilot testing the I-PLACE³S energy module on that development. SACOG will also coordinate these activities with the San Diego Association of Governments

(SANDAG), which is actively interested in applying the tool through its Regional Energy Office.

Mitigation Measure ENE – 14: Establish a baseline for SACOG’s own GHG Impacts

Starting in calendar year 2007, SACOG shall measure and record the GHG emissions associated with its own operations in an accurate manner and in a format consistent with the California Climate Action Registry’s own reporting protocol in order to establish a baseline against which any future GHG reductions may be applied. The report shall be independently audited by a State and Registry approved certifier. The report shall include the following elements:

- Indirect emissions from electricity and natural gas use
- Direct emissions from mobile source combustion (agency vehicles)
- Indirect emissions from business-related employee air travel
- Direct and Indirect emissions from employee commuting
- Indirect emissions associated with SACOG purchasing practices

SACOG shall continue to report on its own GHG emissions consistent with this format in subsequent years and track its progress in reducing emissions. Emissions reductions in future years will comply with the goals set in the Regional Climate Change Action Plan.

Mitigation Measure ENE – 15: Adopt a “Complete Streets” Policy

SACOG shall adopt a “Complete Streets” policy to require that applicants for SACOG regional funding programs demonstrate that the planning, design, construction and maintenance of roadway and transit facilities include the needs of all transportation users – pedestrians, bicyclists, the disabled, transit users, and motorists. Examples include facilities (sidewalks, bike lanes, etc.) that allow for safe walking, biking and wheelchair access along roadways. Through its Complete Streets policy, SACOG shall require that applicants for local funding programs administered by SACOG demonstrate that their project is multi-modal and will consider the needs of bicyclists, pedestrians and disabled travelers. SACOG’s policy shall be consistent with current, adopted regional and local plans, and in accordance with locally adopted policies such as Sacramento County’s Measure A program that earmarks funds for multi-modal improvements (highway, street, and road construction; highway, street, and road maintenance; bus and light rail capital and operations; improved transportation services for elderly and handicapped persons; and transportation-related air quality programs). In the absence of such plans, federal, state, and local standards and guidelines should be used to determine appropriate accommodations for pedestrians, bicyclists, and disabled travelers.

The policy shall also require applicants for State funding programs to ensure that projects are consistent with *Caltrans Directive 64*, which states that the California Department of Transportation, "fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products." The policy shall also require that applicants for federal funding programs

ensure that projects are consistent with the United States Department of Transportation Policy Statement on “Accommodating Bicyclists and Pedestrians in Transportation Projects”.

Mitigation Measure ENE – 16: Recommend Draft Transportation Control Measures to Comply with the Federal Clean Act in order to Reduce GHG Emissions

Although there are no adopted federal plans, policies, regulations, or laws directly regulating GHG emissions, including the Clean Air Act (CAA), carbon dioxide and nitrous oxide are the two GHGs released in greatest quantities from mobile sources burning gasoline and diesel fuel. Based on current GHG emission reporting guidelines, the transportation sector directly accounted for approximately 27 percent of total U.S. GHG emissions in 2003. Transportation is the fastest-growing source of U.S. GHGs and the largest end-use source of CO², which is the most prevalent GHG. In the absence of federal plans, policies, regulations, or laws directly regulating GHG emissions, SACOG shall recommend that the Sacramento Metropolitan Air Quality Management District include the following MTP 2035 projects as draft Transportation Control Measures (TCMs) in the State Implementation Plan for air quality attainment, as required by the CAA. The draft TCMs are shown in Table 9 – 10 , and are being recommended to address the criteria pollutants regulated by the CAA, as well as to reduce GHG emissions. For further information regarding the Research and Policy Development Programs included in the draft TCMs, see Appendix E.

Mitigation Measure AG - 1: Develop Rural-Urban Connections Strategy and Create Best Practices Toolkit

Within 3 years of adoption of the MTP 2035, SACOG shall develop a Rural-Urban Connections Strategy, to expand on and help to support implementation of, the Blueprint growth strategy and the MTP. The Rural-Urban Connections Strategy will utilize state-of-the-practice data collection, modeling, research and participation practices to develop a toolkit of best practices to promote land use practices in rural areas that are economically viable for land owners and local governments and environmentally sustainable. Issues to be addressed include, but are not limited, to: agricultural practices, natural resource protection, development practices that support agricultural and natural resource values, infrastructure needs in rural areas, energy production, and methods to promote jobs-housing balance (with a specific emphasis on effective jobs-generating practices in appropriate areas.) The toolkit of best practices will include assessment of vehicle miles traveled and air emissions, including greenhouse gases. Building on local conservation efforts, the strategy will identify areas where mitigation for development should be directed to maximize the benefit of such acquisitions. Another important outcome will be the identification of environmental services, such as flood control, groundwater recharge, and carbon sequestration, which are enhanced through a comprehensive approach to urban and rural planning. It is anticipated that the Rural-Urban Connections Strategy effort will be completed within 3 years.

Table 9 – 10. Draft Transportation Control Measures

MTP 2035 Projects
<i>Implemented Projects</i>
El Dorado Cambridge Park and Ride Facility
Yolo Causeway Second Main Track (Union Pacific Railroad)
Construct Auburn Intermodal Facility
Park & Ride Lot at Loomis Multimodal Center
Rocklin Rail Station
Roseville Corporation Yard CNG Fueling Facility Upgrade
I-80 Davis Mace Boulevard Park and Ride Lot
Placer County Commuter Service Demonstration Project: Colfax-Sacramento
I-5 Traffic Operation System from Pocket Road to I-80
I-80 Traffic Operations System from Yolo County Line to Longview
Downtown Sacramento Depot Acquisition
Downtown Sacramento Depot Improvements
Watt Avenue “Smart Corridor” Phases 1 & 2
Phase 1 ITS Project YCTD, Unitrans and Davis Community Transit
4 th Avenue Wayne Hultgren Light Rail Station
Amtrak – Folsom Light Rail Corridor
South Line Phase 1 Light Rail Corridor
<i>Research and Policy Development</i>
Blueprint Implementation & Planning Technical Assistance
Develop Rural-Urban Connection Strategy & Best Practices Toolkit
Adopt a Transportation Pricing Policy
Provide Incentives for Use of Alternative Modes
Develop and Implement a Construction Energy Conservation Plan
Adopt a Complete Streets Policy
Adopt a Safe Routes to School Policy and Implement Pilot Program
<i>Other Projects</i>
Upgrade City of Roseville Vehicle Maintenance Facility (\$2.9 million; completion in 2009)
Light Rail Grade Separation at Watt Avenue and Folsom Boulevard (\$25 million; completion in 2009)
<i>Intelligent Transportation Systems (ITS) Projects</i>
Arden Way “Smart Corridor” from Del Paso to Watt (\$2.6 million; completion in 2009)
Sacramento Traffic Operations Center (\$1.2 million; completion in 2009)
Watt Avenue Phase 3 Smart Corridor (\$2.7 million; completion in 2009)
STARNET Implementation (\$4 million; completion in 2010)

Transit Vehicle Acquisitions

Various Agencies: purchase replacement buses (\$250 million total through 2018)

Park and Ride Lots/Transit Centers

El Dorado Central Park and Ride Facility (\$550,000; completion in 2009)

Improvements to Loomis Multimodal Center (\$660,000; completion in 2011)

13th and 16th Street Light Rail Station Improvements (\$1 million; completion in 2013)

Freeway Service Patrol \$1.4 million per year through 2018

Spare the Air (funded from the Air Quality Regional Funding Program listed below)

SECAT***Regional Funding Programs***

Community Design (\$6 million per year through 2018)

Bike & Pedestrian (\$2.5 million per year through 2018)

Air Quality (\$1.5 million per year through 2018)

Transportation Demand Management (\$1 million per year through 2018)

Transit Operations – Maintain transit operations at existing funding levels \$160 million per year through 2018

Source: Metropolitan Transportation Plan for 2035, SACOG, 2007.

Mitigation Measure LU - 2: Initiate a “Complete Streets” Technical Assistance Program

To implement the Complete Streets policy, SACOG shall review and analyze the practices of local governments within the SACOG region and around the nation to identify appropriate “Best Practices” for complete street design within the SACOG region. “Complete Streets” means design of the right-of-way for all relevant modes of travel, including pedestrian, bicyclists and transit as well as automobiles. The best practices will address the functional needs of different types of streets, including arterials, major and minor collectors, and local streets. SACOG shall develop a curriculum, conduct educational seminars/workshops to disseminate the best practices information and provide technical assistance for local governments (public works and planning staff, planning commissioners and elected officials) and members of the private land use development, planning, engineering and design communities to assist the design and construction of “Complete Streets” throughout the MTP Plan Area. SACOG shall also provide technical assistance to local governments on a case by case basis, as requested, to help them to successfully implement this concept.