4.6 GREENHOUSE GAS EMISSIONS

This chapter evaluates the potential for land use changes within the Environmental Assessment (EA) Study Area associated with the adoption and implementation of the proposed Housing Element Update, General Plan Consistency Update, and the Zoning Code Amendment, together referred to as "the Plan Components" to cumulatively contribute to greenhouse gas (GHG) emissions impacts. Because individually no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, global warming impacts of a project are considered on a cumulative basis.

The analysis is in this section is based on the Association of Bay Area Governments (ABAG) population and employment projections anticipated within the City and the City's Sphere of Influence (SOI) (i.e. the EA Study Area) at the General Plan 2035 horizon year, which includes growth accommodated by the future development (see Chapter 4.11, Population and Employment). The transportation sector is based on vehicle miles traveled (VMT) provided by TJKM Transportation Consultants, as modeled using the City/County Association of Governments of San Mateo County (C/CAG) model run by the Santa Clara Valley Transportation Authority (VTA) for the City of Menlo Park.

The section also evaluates consistency of the Plan Components with the strategies outlined in the California Air Resources Board's (CARB) Scoping Plan in accordance with the GHG reduction goals of Assembly Bill 32 (AB 32), and strategies proposed by the Metropolitan Transportation Commission (MTC) to reduce VMT in the region, in accordance with Senate Bill 375 (SB 375).

A. Environmental Setting

1. Greenhouse Gases and Climate Change

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[12] The major GHG are briefly de-

[1] Intergovernmental Panel on Climate Change (IPCC), 2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press.

scribed below. Table 4.6-1 lists the GHG applicable to the Plan Components and their relative global warming potentials (GWP) compared to CO_2.

- *Carbon dioxide* (CO_2) enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- *Methane* (CH_4) is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- *Nitrous oxide* (N_2O) is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- *Fluorinated gases* are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as High GWP gases.
- *Chlorofluorocarbons* (CFCs) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.
- *Perfluorocarbons (PFCs)* are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.
- *Sulfur Hexafluoride (SF$_6$)* is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

[2] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant.

TABLE 4.6-1 **GREENHOUSE GASES AND THEIR RELATIVE GLOBAL WARMING POTENTIAL COMPARED TO CO_2**

GHGs	Atmospheric Lifetime (Years)	Global Warming Potential Relative to CO_2[a]
Carbon Dioxide (CO_2)	50 to 200	1
Methane (CH_4)[b]	12 (±3)	21
Nitrous Oxide (N_2O)	120	310

[a] Based on 100-Year Time Horizon of the Global Warming Potential (GWP) of the air pollutant relative to CO_2. Intergovernmental Panel on Climate Change (IPCC). 2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press.
[b] The methane GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

- *Hydrochlorofluorocarbons (HCFCs)* contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.
- *Hydrofluorocarbons (HFCs)* contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.[3,4,5]

2. California's Greenhouse Gas Sources and Relative Contribution

California is the second largest emitter of GHG in the United States, only surpassed by Texas, and the tenth largest GHG emitter in the world.[6] However, California also has over 12 million more people than the state of Texas. Because of more stringent air emission regulations, in 2001 California ranked fourth lowest

[3] United States Environmental Protection Agency (USEPA), 2012. Greenhouse Gas Emissions. http://www.epa.gov/climatechange/emissions/index.html.

[4] Intergovernmental Panel on Climate Change (IPCC), 2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press.

[5] Intergovernmental Panel on Climate Change (IPCC), 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

[6] California Energy Commission (CEC), 2005. Climate Change Emissions Estimates from Bemis, Gerry and Jennifer Allen, Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2002 Update. California Energy Commission Staff Paper CEC-600-2005-025. Sacramento, California.

in carbon emissions per capita and fifth lowest among states in CO_2 emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services).[7]

CARB's latest update to the statewide GHG emissions inventory was conducted in 2012 for year 2009 emissions.[8] In 2009, California produced 457 million metric tons of CO_2-equivalent ($MMTCO_2e$) GHG emissions. California's transportation sector is the single largest generator of GHG emissions, producing 37.9 percent of the State's total emissions. Electricity consumption is the second largest source, comprising 22.7 percent. Industrial activities are California's third largest source of GHG emissions, comprising 17.8 percent of the state's total emissions. Other major sectors of GHG emissions include commercial and residential, recycling and waste, high global warming potential GHGs, agriculture, and forestry.[9,10]

3. Human Influence on GHG Emissions

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate change pollutants that are attributable to human activities. The amount of CO_2 has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million (ppm) per year since 1960, mainly due to combustion of fossil fuels and deforestation.[11] These recent changes in atmospheric pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of atmospheric pollutants.[12]

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[7] California Energy Commission (CEC), 2006. Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004. Report CEC-600-2006-013-SF.

[8] Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (AB 32) (2006).

[9] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

[10] California Air Resources Board (CARB), 2012l. California Greenhouse Gas Inventory for 2000—2009. By Category as Defined by the Scoping Plan.

[11] Intergovernmental Panel on Climate Change (IPCC), 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

[12] California Climate Action Team (CAT), 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

Climate-change scenarios are affected by varying degrees of uncertainty. IPCC's 2007 IPCC Fourth Assessment Report projects that the global mean temperature increase from 1990 to 2100, under different climate-change scenarios, will range from 1.4 to 5.8 degrees Celsius (°C) (2.5 to 10.4 degrees Fahrenheit (°F)). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with GHGs no longer occur in a geologic timeframe but within a human lifetime.[13]

4. Potential Climate Change Impacts for California

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures, 2) a smaller fraction of precipitation is falling as snow, 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones, 4) an advance snowmelt of 5 to 30 days earlier in the springs, and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms.[14] According to the California Climate Action Team (CAT), even if actions could be taken to immediately curtail GHG emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 4.6-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. GHG emission risks to California are shown in Table 4.6-2 and include public health impacts, water resources impacts, agricultural impacts, coastal sea level impacts, forest and biological resource impacts, and energy impacts. Specific GHG emission impacts that could affect the Plan Components include health impacts from a reduction in air quality, water resources impacts from a reduction in water supply, and increased energy demand.

[13] Intergovernmental Panel on Climate Change (IPCC), 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

[14] California Climate Action Team (CAT), 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

TABLE 4.6-2 **SUMMARY OF GHG EMISSION RISKS TO CALIFORNIA**

Impact Category	Potential Risk
Public Health Impacts	Poor air quality made worse More severe heat
Water Resources Impacts	Decreasing Sierra Nevada snow pack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: California Energy Commission (CEC), 2006. Our Changing Climate, Assessing the Risks to California, 2006 Biennial Report, California Climate Change Center, CEC-500-2006-077; California Energy Commission (CEC), 2008. The Future Is Now, An Update on Climate Change Science, Impacts, and Response Options for California, CEC-500-2008-0077.

B. Regulatory Framework

1. Federal Laws and Regulations

The U.S. Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The U.S. EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements, but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.[15]

The U.S. EPA's endangerment finding covers emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the U.S. and around the world (the first three are applicable to the Plan Components).

In response to the endangerment finding, the U.S. EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 metric tons ($MTCO_2e$) or more per year are required to submit an annual report.

2. State Laws and Regulations

a. AB 32, the Global Warming Solutions Act

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32, the Global Warming Solutions Act, and Executive Order S-03-05.

AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-3-05, signed June 1, 2005. Executive Order S-03-05 set the following GHG reduction targets for the State:

[15] United States Environmental Protection Agency (EPA), 2009. EPA: Greenhouse Gases Threaten Public Health and the Environment. Science overwhelmingly shows greenhouse gas concentrations at unprecedented levels due to human activity. December. http://yosemite.epa.gov/opa/admpress.nsf/7ebdf4d0b217978b852573590040443a/08d11a451131bca585257685005bf252!OpenDocument, accessed on September 27, 2012.

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

AB 32 directed CARB to adopt discrete early action measures to reduce GHG emissions and outline additional reduction measures to meet the 2020 target. Based on the GHG emissions inventory conducted for the Scoping Plan by CARB, GHG emissions in California by 2020 are anticipated to be approximately 596 $MMTCO_2e$. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the State. The 2020 target requires a total emissions reduction of 169 $MMTCO_2e$, 28.5 percent from the projected emissions of the business-as-usual (BAU) scenario for the year 2020 (i.e. 28.5 percent of 596 $MMTCO_2e$).[16,17]

Since release of the 2008 Scoping Plan, CARB has updated the statewide GHG emissions inventory to reflect GHG emissions in light of the economic downturn and measures not previously considered within the 2008 Scoping Plan baseline inventory. The updated forecast predicts emissions to be 507 $MMTCO_2e$ by 2020. The new inventory identifies that an estimated 80 $MMTCO_2e$ of reductions are necessary to achieve the statewide emissions reduction of AB 32 by 2020, 15.7 percent of the projected emissions compared to BAU in year 2020 (i.e. 15.7 percent of 507 $MMTCO_2e$).[18]

In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MTCO2e per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012. The Climate Action Registry Reporting Online Tool was established through the Climate Action Registry to track GHG emissions. The final Scoping Plan was adopted by CARB on December 11, 2008. Key elements of CARB's GHG reduction plan that may be applicable to the Plan Components include:

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[16] California Air Resources Board (CARB), 2008. Climate Change Scoping Plan, a Framework for Change.

[17] CARB defines BAU in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

[18] California Air Resources Board (CARB), 2012. Status of Scoping Plan Recommended Measures. http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf.

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards (adopted and cycle updates in progress);
- Achieving a mix of 33 percent for energy generation from renewable sources (anticipated by 2020);
- A California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources (adopted 2011);
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets (several Sustainable Communities Strategies have been adopted);
- Adopting and implementing measures pursuant to State laws and policies, including California's clean car standards (amendments to the Pavley Standards adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (LCFS)(adopted 2009);[19]
- Creating target fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation (in progress).

While local government operations were not accounted for in achieving the 2020 emissions reduction, CARB estimates that land use changes implemented by local governments that integrate jobs, housing, and services result in a reduction of 5 $MMTCO_2e$, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments play in the successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of today's levels by 2020 to ensure that municipal and community-wide emissions match the State's reduction target.[20] Pursuant to the Scoping Plan Appendix C, "The Role of Local Government," and Table C, local governments are encouraged to

[19] On December 29, 2011, the U.S. District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the court's rulings preliminarily enjoins the CARB from enforcing the regulation during the pendency of the litigation. In January 2012, CARB appealed the decision and on April 23, 2012, the Ninth Circuit Court granted CARB's motion for a stay of the injunction while it continues to consider CARB's appeal of the lower court's decision.

[20] While the Scoping Plan references a goal for local governments to reduce community GHG emissions by 15 percent from current (interpreted as 2008) levels by 2020, the Scoping Plan does not rely on local GHG reduction targets established by local governments to meet the State's GHG reduction target of AB 32. Table 5.6-3 lists the recommended reduction measures, which do not include additional reductions from local measures.

take a number of potential actions to reduce local GHG emissions, which include shifts in land use patterns to emphasize compact, low-impact growth over development in greenfields, resulting in fewer VMT.[21]

Since the Scoping Plan was adopted, CARB implemented and continues to implement reduction measures. The legislature has also passed legislation implementing the reduction measures. For example, the cap-and-trade regulations became effective January 2, 2012, and the compliance obligation for GHG emissions begins on January 1, 2013. The legislature also passed Senate Bill X1-2 (SBX1-2) in 2011, increasing the amount of electricity generated from eligible renewable energy resources to at least 33 percent per year by December 31, 2020.

b. Energy Conservation Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and most recently revised in 2008 (Title 24, Part 6, of the California Code of Regulations [CCR]).[22] Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 31, 2012, the CEC adopted the 2013 Building and Energy Efficiency Standards, which go into effect on January 1, 2014. Buildings that are constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (non-residential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. While these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states and they reduce GHG emissions by reducing energy demand.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part

[21] California Air Resources Board (CARB), 2008. *Climate Change Scoping Plan, a Framework for Change.*

[22] Although new building energy efficiency standards were adopted in April 2008, these standards did not go into effect until 2009.

of the California Building Standards Code (Title 24, California Code of Regulations). The green building standards that became mandatory in the 2010 edition of the code established voluntary standards on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011.

c. Renewable Power Requirements

A major component of California's Renewable Energy Program is the renewable portfolio standard (RPS), established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. CARB has now approved an even higher goal of 33 percent by 2020. In 2011, the state legislature adopted this higher standard in SBX1-2. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

d. Vehicle Emission Standards/Improved Fuel Economy

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I) and the Low Carbon Fuel Standards. Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA.[23] In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020.

3. Regulation of GHG Emissions on a Regional Level

In 2008, Senate Bill 375 (SB 375), the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT

[23] California's Pavley I fuel economy and GHG emissions standards for light-duty vehicle standards are more efficient than those adopted by the EPA in 2010 for model years 2012 through 2016.

and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 17 regions in California managed by a metropolitan planning organization (MPO). MTC is the MPO for the nine-county San Francisco Bay Area region. MTC's targets are a 7 percent per capita reduction from 2005 by 2020, and 15 percent per capita reduction from 2005 by 2035.[24]

a. Plan Bay Area, Strategy for a Sustainable Region

MTC's Draft Plan Bay Area is the Bay Area region's Regional Transportation Plan (RTP)/Sustainable Community Strategy (SCS). The Draft Plan Bay Area was released on March 21, 2013 and is anticipated to be adopted by June 2013. The SCS sets forth a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by CARB. According to Plan Bay Area, the Plan meets a 16 percent per capita reduction of GHG emissions by 2035 and a 10 percent per capita reduction by 2020 from 2005 conditions.

In 2008, MTC and ABAG initiated a regional effort (FOCUS) to link local planned development with regional land use and transportation planning objectives. Through this initiative, local governments identified Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs). PDAs and PCAs form the implementing framework for Plan Bay Area.

- PDAs are transit-oriented, infill development opportunity areas within existing communities that are expected to host the majority of future development.
- PCAs are regionally significant open spaces for which there exists broad consensus for long-term protection but nearer-term development pressure.

Overall, well over two-thirds of all regional growth by 2040 is allocated within PDAs. PDAs are expected to accommodate 80 percent (or over 525,570 units) of new housing and 66 percent (or 744,230) of new jobs.[25]

[24] California Air Resources Board (CARB), 2010. *Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.* August.

[25] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). 2013, March. Draft Plan Bay Area, Strategy for a Sustainable Region.

The following potential PDA in Menlo Park identified in Plan Bay Area:

- El Camino Real Corridor and Downtown PDA.[26]

Per the One Bay Area Grant (OBAG) requirements, Congestion Management Agencies (CMAs) will develop a PDA Investment and Growth Strategy for their respective counties; this will be used to guide future transportation investments that are supportive of PDA-focused development.

4. Local Regulations and Policies

The City maintains several environmental programs under the City's Public Works Department. The City's environmental programs promote sustainable environmental practices and policies Citywide and within City-owned facilities and open space areas. The City has an approved Climate Action Plan (CAP) to reduce municipal and community GHG emissions. The most recent CAP is the City's 2011 CAP Assessment Report, which is described in more detail below.

The City's Public Works Department is also responsible for developing a more functional and efficient roadway network for the effective movement of people and goods. The division promotes the use of public transit, ride sharing, bicycles, and walking as commuting alternatives to single-occupant automobiles. The City operates a trip reduction program and was the first City on the Peninsula to establish a shuttle program. The City manages two Caltrain shuttles bus routes, the Willow and Marsh shuttles, which operate during the AM and PM peak hours taking passengers from Caltrain to their workplaces, schools, shopping, or appointments. According to C/CAG's Congestion Management Program (CMP), the Willow and Marsh bus routes carried 51,000 passengers in 2010. The City also manages a Midday shuttle service, a community service route open to the general public but focusing on the senior community. In 2010, the midday shuttle carried 29,000 passengers. For residents who do not live within an easy walking distance of a SamTrans stop or the Midday shuttle service stop, Menlo Park offers a twice weekly shopper's shuttle service that picks up passengers at their homes and provides rides to specific shopping areas.[27]

[26] Association of Bay Area Governments, 2012, *Jobs-Housing Connection Strategy: Visions for Priority Development Areas*, http://www.onebayarea.org/pdf/JHCS/PDA_Narratives.pdf, pages 36 and 37, accessed on October 29, 2012.

[27] City/County Association of Governments of San Mateo (C/CAG), 2011. Final San Mateo County Congestion Management Program (CMP), http://www.ccag.ca.gov/pdf/Studies/Final%202011%20CMP_Nov11.pdf.

a. City of Menlo Park Climate Action Plan[28]

The City has prepared and updated its community-wide GHG emissions inventory several times since the release of the City's *2005 Greenhouse Gas Emissions Analysis*, which was prepared by the City with assistance from ICLEI in 2007. In 2009, the City prepared and approved the City's *Climate Change Action Plan*. The 2009 CAP included GHG emissions inventories and strategies to reduce GHG emissions within the City. The latest update to the City's Climate Change Action Plan was conducted in 2011, *Climate Action Plan Assessment Report*. The 2011 CAP replaces the strategies identified within the 2009 Report. The 2011 *Climate Action Plan Assessment Report* recommends implementing the community GHG reduction strategies under the categories of energy efficiency, transportation, and other.[29]

C. Existing Conditions

In 2012, the EA Study Area had 36,740 people and 33,960 employees. The existing, 2012, community-wide GHG emissions inventory generated by land uses within the City is summarized in Table 4.6-3.

D. Standards of Significance

1. CEQA Appendix G Thresholds

According to the CEQA Appendix G thresholds, the Plan Components would have a significant GHG emissions impact if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

[28] City of Menlo Park, 2011. *Climate Action Plan Assessment Report*, http://www.menlopark.org/departments/env/Menlo_CAP_Assessment_Report_2010_12_14_draft_final_final6.pdf, accessed on September 27, 2012.

[29] City of Menlo Park, 2011. *Climate Action Plan Assessment Report*, http://www.menlopark.org/departments/env/Menlo_CAP_Assessment_Report_2010_12_14_draft_final_final6.pdf, accessed on September 27, 2012.

TABLE 4.6-3 **2012 COMMUNITY-WIDE GHG EMISSIONS INVENTORY FOR THE EA STUDY AREA**

	2012, Existing Community-Wide Emissions ($MTCO_2e$/Year)	
Pollutant	$MTCO_2e$	Percent
Transportation[a]	331,010	55%
Energy – Residential[b]	72,293	12%
Energy – Non-Residential[b]	177,349	29%
Waste[c]	6,808	1%
Water/Wastewater[d]	3,187	1%
Other – Off-Road Equipment[e]	16,606	3%
Total Community Emissions	607,253	100%
$MTCO_2e$/Service Population (SP)[f]	8.6	NA
Marsh Road Landfill	28,350	NA
Total Community Emissions with Marsh Road Landfill	635,603	NA
$MTCO_2e$/Service Population (SP) with Marsh Road Landfill	9.0	NA

Notes: The Community GHG Total excludes waste-in-place emissions from the closed Marsh Road Landfill. While they are included in the City's Climate Action Plan, the Marsh Road Landfill emissions are not associated with the existing or future land uses in the City of Menlo Park (but past disposal from within and outside of the City), and are therefore excluded for the purpose of this environmental assessment (e.g. not associated with the Plan Components' land uses). The City's Community GHG Inventory with emissions from the Marsh Hill Landfill are provided for informational purposes only. Emissions may not total to 100% due to rounding.

[a] Transportation. VMT is based on data provided by TJKM using the C/CAG model run by VTA and modeled using EMFAC2011 and 2012 emission rates.[30,31] The VMT provided by VTA is adjusted based on the Population and Employment used in the C/CAG model compared to the population and employment estimated identified within the EA Study Area for 2012, assuming the same VMT per capita. Adjusted daily VMT multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

[30] TJKM Transportation Consultants, January 14, 2013, Administrative Draft Report, Traffic Study of updated Housing Element in the City of Menlo Park.

[31] California Air Resources Board (CARB), 2011. EMFAC2011.

TABLE 4.6-3 **2012 COMMUNITY-WIDE GHG EMISSIONS INVENTORY FOR THE EA STUDY AREA (CONT.)**

Notes (Continued):
[b] Energy. Based on three-year average (2010-2008) of energy use provided by PG&E.[32] The non-residential sector includes City facilities, direct access customers, county facilities, and other district facilities within the City boundaries. PG&E energy based on PG&E's carbon intensity. Direct access energy based on the eGrid carbon intensity.
[c] Water/Wastewater. Includes fugitive emissions from wastewater processing and energy associated with water/wastewater treatment and conveyance. Water use is estimated based on demand rates included in the WSA for the Housing Element Update and target per capita SBx7-7 for MPMWD of 210 gpcd. Assumes wastewater is 45 percent of total water use.
[d] Waste. Based on the WARM2012 and waste generation identified for Menlo Park by CalRecycle. Waste generation emissions are based on waste commitment method. Assumes 75 percent of fugitive GHG emissions are captured within the landfill's Landfill Gas Capture System with a landfill gas capture efficiency of 75 percent. The Landfill gas capture efficiency is based on the CARB's Local Government Operations Protocol, Version 1.1.
[e] Other – Off-road Emissions. Generated using OFFROAD2007. Landscaping and light commercial equipment and estimated based on population (Landscaping) and employment (Light Commercial Equipment) for Menlo Park as a percentage of San Mateo County.[33,34] Excludes BAAQMD permitted sources. Does not include emissions from wood-burning fireplaces.
[d] Construction equipment use estimated based on housing permit data for Menlo Park from the ABAG.[35,36] Daily off-road construction emissions multiplied by 347 days/year to account for reduced/limited construction activity on weekends and holidays. Excludes fugitive emissions from construction sites.
[f] Based on a service population of 70,700 people (36,740 residents and 33,960 employees).

[32] Pacific Gas & Electric Company (PG&E), 2012. Communitywide GHG Inventory Report for Menlo Park 2005 to 2010. Provided by John Joseph.

[33] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[34] Association of Bay Area Governments (ABAG), 2009. Subregional Study Area Population, Housing, Employment Forecasts.

[35] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[36] Association of Bay Area Governments (ABAG), 2010. San Francisco Bay Area Housing Data. http://www.abag.ca.gov/pdfs/2009_Housing_Data.pdf.

2. BAAQMD Plan-Level Thresholds[37]

The BAAQMD adopted CEQA Guidelines in June 2010, which were revised in May 2011.[38] The Guidelines include methodology and thresholds for Plan-Level and Project-Level GHG analyses. The Plan Components qualify as a Plan-Level project under BAAQMD's criteria.

a. General Plan-Level GHG Criteria

BAAQMD Guidelines include methodology and thresholds for GHG impacts for General Plan analyses that are consistent with the GHG reduction goals of AB 32. As such, the impact of a project is deemed less than significant if it:

- Complies with a qualified GHG emissions reduction strategy, or
- Results in emissions less than 6.6 $MTCO_2e$ per service population, per year, where service population is the total number of employees and residents within the town.[39]

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[37] These Guidelines were revised again in 2012 after a Court ruling. On March 5, 2012, the court issued a ruling in *California Building Industry Association v. Bay Area Air Quality Management District* (Superior Court Case No. RG10548693). Pursuant to the ruling, the court found that the adoption of the BAAQMD's CEQA Guidelines is a "project" requiring CEQA review. No CEQA review was conducted for the CEQA Guidelines prior to their adoption. Therefore, the court set aside adoption of the BAAQMD CEQA Guidelines for determining the significance of air quality and greenhouse gas emissions. The court also ordered BAAQMD to take no further action to disseminate those standards before performing CEQA review related to issuing the standards. While adoption of the thresholds was set aside until an environmental evaluation is conducted, the BAAQMD's GHG significance criteria, as outlined in their CEQA Guidelines, are supported by extensive studies and analysis (see http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx). Accordingly, pursuant to its discretion under CEQA Guidelines section 15064 (b) ("lead agencies may exercise their discretion on what criteria to use"), and the recent holding in *Citizen for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal.App.4th 327, 335-336, ("[t]he determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data."), the City has decided to apply the BAAQMD CEQA thresholds to the Plan Components.

[38] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

[39] The efficiency target is based on the AB 32 goal and therefore is the 2020 target for the City. Based on the long-term GHG reduction target for 2050 extrapolated from Executive Order S-03-05, the 2035 target would be 4.0 $MTCO_2e$ per service population for the City.

i. Consistency with a Qualified GHG Reduction Plan

BAAQMD, in accordance with the updated CEQA Guidelines, allows cities to tier off plans to mitigate the effects of GHG emissions on a city/town-level, consistent with AB 32 goals. An AB 32 consistency determination is considered equivalent to a qualified GHG reduction strategy, so long as it achieves one of the following GHG emissions reduction goals within its jurisdiction:

- Reduce emissions to 1990 GHG emission levels by 2020
- Reduce emissions 15 percent below 2008 or earlier emission levels by 2020
- Meet the plan efficiency threshold of 6.6 $MTCO_2e$ per service population (SP) per year

The City of Menlo Park has prepared a Climate Action Plan. However, it is not considered a "qualified" GHG reduction plan for the purpose of this analysis. Pursuant to the CEQA Guidelines Section 15185.5, *Tiering and Streamlining the Analysis of Greenhouse Gas Emissions*, at a minimum a plan for the reduction of GHG emissions would need to include:

a) *An inventory of GHG emissions from both existing and projected over a specified time period.* The City's CAP includes an inventory for existing and 2020 conditions. However, the emissions inventory excludes emissions from water and wastewater use because the City's Municipal Water District only serves one third of the community's population. Data would be needed from Cal Water and West Bay Sanitary District in order to complete the inventory, and would delay the City's annual reporting process. In addition, it would be difficult for the City to create policies and/or programs that would impact water users belonging to a private water company, which would negatively affect monitoring reduction efforts from actions taken by the City.

b) *A target level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable*. The City's CAP includes various potential reduction targets to provide the groundwork for identifying a GHG reduction target for the City but does not commit the City to one target.

c) *Identify and analyze the GHG emissions resulting from specific actions or categories within the geographic area.* As identified above, The City's CAP does not include indirect emissions from water and wastewater use, which are a required part of the inventory under BAAQMD's Guidelines.

d) *Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.* The City's CAP includes a list of GHG reduction measures. However, individual and/or groups of measures have not been quantified that show reductions from the BAU scenario. In addition, a GHG reduction target for Menlo Park has not been identified.

e) *Be adopted in a public process following environmental review.* This was not conducted for the current CAP.

ii. Plan-Level GHG Significance Threshold

For general plan level analyses, BAAQMD CEQA Guidelines recommend that GHG emissions from direct and indirect community-wide emission sources be quantified for the baseline year, the year 2020, and the projected year of buildout. Direct sources of emissions include on-site combustion of energy such as natural gas used for heating and cooking, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced off-site from energy production and water conveyance due to a project's energy use and water consumption. Biogenic CO_2 emissions are not included in the quantification of a project's GHG emissions because biogenic CO_2 is derived from living biomass (e.g. organic matter present in wood, paper, vegetable oils, animal fat, food, animal, and yard waste) as opposed to fossil fuels. Total emissions are then compared to the following targets:

- 2020 GHG target of 6.6 $MTCO_2e$ per service population, per year
- 2035 GHG target of 4.0 $MTCO_2e$ per service population, per year[40]

iii. Project-Level GHG Significance Threshold

In the absence of an applicable qualified GHG reduction strategy, BAAQMD has adopted screening criteria and significance criteria for development projects that would be applicable for the Plan Components. If a project exceeds the GHG screening-level sizes (in BAAQMD's CEQA Guidelines), the Project would be required to conduct a full GHG analysis using the following BAAQMD's significance criteria:

- 1,100 $MTCO_2e$ per year
- 4.6 $MTCO_2e$ per service population[41]

BAAQMD does not have thresholds of significance for construction-related GHG emissions.

3. Methodology

The City's community-wide GHG emissions inventory for the Plan Components follows BAAQMD's GHG Plan Level Guidance[42] and includes the following sectors:

[40] The efficiency target is based on the AB 32 goal and therefore is the 2020 target for the City. Based on the long-term GHG reduction target for 2050 extrapolated from Executive Order S-03-05, the 2035 target would be 4.0 $MTCO_2e$ per service population for the City.

[41] BAAQMD defines service population as residents and employees generated by the project.

Transportation: Transportation emissions forecasts were modeled using CARB's EMFAC2011.[43] Model runs were based on daily per capita VMT data provided by TJKM using the C/CAG model run by VTA using 2012, 2020, and 2035 emission rates.[44] Modeling was conducted for both a BAU scenario, which does not include GHG emissions reduction from the Pavley Fuel Efficiency Standard and LCFS and for the Adjusted BAU (ABAU) scenario, which includes these statewide regulations that were adopted for the purpose of reducing GHG emissions. Fleet mix for the City was also based on the passenger vehicle and truck VMT provided by TJKM using the C/CAG model run by VTA. The VMT provided in the model includes the full trip length for land uses in the City (origin-destination approach). The date was adjusted for per capita VMT identified in the model compared to the service population (population and employment) identified within the EA Study Area and does not include a 50 percent reduction in VMT for external-internal/internal-external trips. Adjusted daily VMT was multiplied by 347 days per year to account for reduced traffic on weekends and holidays to account for annual emissions. This assumption is consistent with CARB's methodology within the Climate Change Scoping Plan Measure Documentation Supplement.[45]

Residential: Purchased electricity and natural gas use for residential land uses in the City were modeled using ICLEI's Clean Air and Climate Protection (CACP) software.[46] For energy use, ICLEI's CACP software identifies CO_2 emissions from energy sources. Off-model adjustments were made to the CACP output to account for methane and nitrous oxide emissions from these sources.[47] Residential energy use was provided by PG&E.[48] Per BAAQMD's Guidelines, residential natural gas and electricity use are based on a three-year average (2010, 2009, and 2008) to account for fluctuation in annual energy

[42] Bay Area Air Quality Management District (BAAQMD), 2012. GHG Plan Level Guidance. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/GHG%20Quantification%20Guidance%20May%202012.ashx?la=en

[43] California Air Resources Board (CARB), 2011. EMFAC2011.

[44] TJKM Transportation Consultants, 2013. Administrative Draft Report, Traffic Study of updated Housing Element in the City of Menlo Park.

[45] California Air Resources Board (CARB), 2008. Climate Change Proposed Scoping Plan, a Framework for Change.

[46] ICLEI – Local Governments for Sustainability (ICLEI), 2009. Clean Air and Climate Protection (CACP) Software, Version 3.0.

[47] California Air Resources Board (CARB), 2010. Local Government Operations Protocol (LGOP), Version 1.1.

[48] Pacific Gas & Electric Company (PG&E), 2012. Communitywide GHG Inventory Report for Menlo Park 2005 to 2010. Provided by John Joseph.

use as a result of natural variations in climate in the City.[49] Forecasts are adjusted for increases in population in the City. The carbon intensity of PG&E's purchased electricity is also adjusted off-model to account for the average carbon intensity of their electricity supply (2010, 2009, and 2008). The ABAU scenario for residential electricity use includes a reduction in carbon intensity of PG&E's energy supply identified by PG&E, which includes 33% Renewable Portfolio Standard (RPS), Cap-and-Trade, and other regulatory reductions for High GWP gases such as reductions of SF_6.[50]

Non-Residential: PG&E. Purchased electricity and natural gas use for non-residential land uses in the City were modeled using ICLEI's CACP software. For energy use, ICLEI's CACP software identifies CO_2 emissions from energy sources. Off-model adjustments were made to the CACP output to account for methane and nitrous oxide emissions from these sources. Non-residential energy use was provided by PG&E and includes direct access energy.[51] Per BAAQMD's Guidelines, non-residential natural gas and electricity use are based on a three-year average (2010, 2009, and 2008) to account for fluctuation in annual energy use as a result of natural variations in climate in the City.[52] The carbon intensity of PG&E's purchased electricity is also adjusted off-model to account for the average carbon intensity of their electricity supply (2010, 2009, and 2008). The carbon intensity of direct access electricity is also adjusted off-model to account for the average carbon intensity of their electricity supply (2010, 2009, and 2008). Forecasts are adjusted for increases in employment in the City. The ABAU scenario for non-residential electricity use includes a reduction in carbon intensity of PG&E's energy supply identified by PG&E, which includes 33 percent RPS, Cap-and-Trade, and other regulatory reductions for High GWP gases such as reductions of SF_6.[53] The ABAU scenario for direct access electricity use

[49] Bay Area Air Quality Management District (BAAQMD), 2012. GHG Plan Level Guidance. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/GHG%20Quantification%20Guidance%20May%202012.ashx?la=en.

[50] Pacific Gas & Electric Company (PG&E), 2011. Greenhouse Gas Emission Factors Info Sheet. http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf.

[51] Pacific Gas & Electric Company (PG&E), 2012. Communitywide GHG Inventory Report for Menlo Park 2005 to 2010. Provided by John Joseph.

[52] Bay Area Air Quality Management District (BAAQMD), 2012. GHG Plan Level Guidance. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/GHG%20Quantification%20Guidance%20May%202012.ashx?la=en.

[53] Pacific Gas & Electric Company (PG&E), 2011. Greenhouse Gas Emission Factors Info Sheet. http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

includes a reduction in carbon intensity of grid energy supply to account for a 33 percent RPS for grid electricity.

Water/Wastewater: The CACP software does not estimate emissions from water conveyance, treatment, distribution, and wastewater. GHG emissions from water and wastewater include indirect GHG emissions from the embodied energy of water and wastewater. Total water generation in the City is based on the 2010 residential and non-residential demand calculations in the Water Supply Assessment (WSA) (see Appendix D), which includes water use in the MPMWD and the Bear Gulch District of the California Water Company. Forecasts are adjusted for increases in population and employment and are based on the target per capita SBx7-7 for MPMWD of 210 gallons per capita per day (gpcd), which is calculated for only on the City's residential population. Consequently, the per capita rate in the WSA is adjusted for the percent of the allocation for residential and non-residential, which is calculated to be 130.2 gpcd per resident and 79.8 gpcd per employee. Wastewater is assumed to be 45 percent of total water use, which is based on information provided by the City from the wastewater treatment plant in the 2005 CAP.[54] Energy use from water use and wastewater treatment is estimated using energy rates identified by the CEC[55] and PG&E's carbon intensity of energy.[56] In addition to the indirect emissions associated with the embodied energy of water use and wastewater treatment, wastewater treatment also results in fugitive GHG emissions from wastewater processing. Fugitive emissions from wastewater treatment in the City were calculated using the emission factor's in CARB's Local Government Operations Protocol (LGOP), Version 1.1. Forecasts are adjusted for increases in population and employment in the City.

Waste Disposal. While ICLEI's CACP software includes the US EPA WARM model, since the 2009 CACP software was released, the WARM model was updated in February 2012 (WARM, version 12). Consequently, modeling of waste disposed of by residents and employees in the City is based on the waste commitment method using WARM, version 12, based on waste disposal (municipal solid waste

[54] City of Menlo Park, 2007. *2005 Greenhouse Gas Emissions Analysis.*

[55] California Energy Commission (CEC), 2006. December. Refining Estimates of Water-Related Energy Use in California. CEC-500-2006-118. Prepared by Navigant Consulting, Inc. Based on the electricity use for Northern California.

[56] Pacific Gas & Electric Company (PG&E), 2011. Greenhouse Gas Emission Factors Info Sheet. http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf.

and alternative daily cover) and waste characterization data from CalRecycle.[57,58] Because the landfill gas captured is not under the jurisdiction of Menlo Park, the landfill gas emissions from the capture system are not included in Menlo Park's inventory. Only fugitive sources of GHG emissions from landfill are included. Modeling assumes a 75 percent reduction in fugitive GHG emissions from the landfill's Landfill Gas Capture System. The Landfill gas capture efficiency is based on CARB's LGOP, Version 1.1. Forecasts are adjusted for increases in population and employment in the City.

Other – Off-Road Equipment. OFFROAD2007 was used to estimate GHG emissions from landscaping equipment, light commercial equipment, and construction equipment in the City.[59] OFFROAD2007 is a database of equipment use and associated emissions for each county compiled by CARB. Annual emissions were compiled using OFFROAD2007 for the County of San Mateo for year 2012. In order to proportion the percentage of emissions attributable to the City of Menlo Park, landscaping and light commercial equipment is estimated based on population (landscaping) and employment (light commercial equipment) for Menlo Park as a percentage of San Mateo County, while construction equipment use estimated based on housing permit data for Menlo Park from ABAG.[60,61] Daily off-road construction emissions multiplied by 347 days per year to account for reduced/limited construction activity on weekends and holidays.[62] Forecasts are adjusted for increases in population and employment in the City.

Marsh Road Landfill. The March Road Landfill is located within the corporate boundaries of Menlo Park but ceased operations in 1984. CO_2 emissions generated from waste-in-place (WIP) disposal at the

[57] California Department of Resources Recycling and Recovery (CalRecycle), 2009. California 2008 Statewide Waste Characterization Study.

[58] California Department of Resources Recycling and Recovery (CalRecycle), Disposal Reporting System, 2008. Menlo Park Jurisdiction Disposal By Facility with Reported Alternative Daily Cover (ADC) and Alternative Intermediate Cover (AIC). http://www.calrecycle.ca.gov/LGCentral/Reports/DRS/Destination/JurDspFa.aspx, accessed 2013.

[59] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[60] Association of Bay Area Governments (ABAG), 2009. Subregional Study Area Population, Housing, Employment Forecasts.

[61] Association of Bay Area Governments (ABAG), 2010. San Francisco Bay Area Housing Data. http://www.abag.ca.gov/pdfs/2009_Housing_Data.pdf.

[62] California Air Resources Board (CARB), 2008. Climate Change Proposed Scoping Plan, a Framework for Change, Measure Documentation Supplement.

Marsh Hill Landfill are biogenic in nature and not included. Methane emissions from WIP are identified in the 2005 CAP. Landfill gas in 2005 was based on a landfill gas capture rate of 65.20 percent and 5 million metric tons of WIP. Per the 2005 CAP, in 2020 there will be less waste in place (4.7 million metric tons) and emissions would decrease 6 percent from baseline.[63] The methane rate was revised in the 2011 update to the CAP based on data available from Fortistar (operator). An approximation of total methane for 2005 and 2008 is based on the Bayfront Park Landfill Emissions Table on page 41 of the CAP Assessment Report. 2012 methane emissions are assumed to be the same as 2008, and 2020 and 2035 are forecasted based on the anticipated 6 percent decrease in WIP from 2008. Methane emissions are multiplied by its GWP.[64]

Life cycle emissions are not included in this analysis because not enough information is available for the proposed project, and therefore life cycle GHG emissions would be speculative.[65]

E. Impact Discussion

1. GHG Emissions (Appendix G Threshold 1)

The General Plan is a regulatory document that sets forth the framework for future growth and development. A General Plan does not directly result in development in and of itself. Before any development can occur in the City, all such development is required to be analyzed for conformance with the General Plan, zoning requirements, and other applicable local and state requirements; comply with the requirements of CEQA; and obtain all necessary clearances and permits.

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[63] City of Menlo Park, 2007. *2005 Greenhouse Gas Emissions Analysis.*

[64] City of Menlo Park, 2011. *Climate Action Plan Assessment Report*, http://www.menlopark.org/departments/env/Menlo_CAP_Assessment_Report_2010_12_14_draft_final_final6.pdf, accessed on September 27, 2012.

[65] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted.

Development under the Plan Components would contribute to global climate change through direct and indirect emissions of GHG from transportation sources, energy (natural gas and purchased energy), water/wastewater use, waste generation, and other off-road equipment (e.g. landscape equipment, construction activities).

a. Community-wide GHG Emissions – 2020 AB 32 Target Year

BAAQMD has adopted a 2020 per capita GHG threshold for operation-related GHG emissions of 6.6 $MTCO_2e$ per service population per year ($MTCO_2e$/Service Population/Year) for General Plans. The community-wide GHG BAU and Adjusted BAU (ABAU) emissions inventory for the City compared to existing conditions is included in Table 4.6-4. The ABAU inventory includes reductions from federal and state measures identified in CARB's Scoping Plan, including the Pavley fuel efficiency standards, LCFS for fuel use (transportation and off-road), and a reduction in carbon intensity from electricity use (see the discussion of the inventory methodology). For 2020, the Scoping Plan measures account for a reduction of 153,260 $MTCO_2e$ compared to BAU.

As shown in this table, community-wide GHG emissions in the EA Study Area at 2020 would meet the 6.6 $MTCO_2e$ threshold, which is consistent with the GHG reduction target of AB 32. Impacts would be *less than significant* for short-term growth anticipated under the Plan Components.

b. Community-wide GHG Emissions – General Plan Horizon Year

BAAQMD has not adopted a 2035 per capita GHG threshold for operation-related GHG emissions. However, a 2035 efficiency target was derived for the Plan Components based on the long-term GHG reduction target for 2050 extrapolated from Executive Order S-03-05. The 2035 target would be 4.0 $MTCO_2e$ per service population for the City. The community-wide GHG emissions inventory for the City compared to existing conditions is included in Table 4.6-5.

As shown in this table, in year 2035 community-wide GHG emissions would not achieve the proposed per capita efficiency threshold based on the long-term targets of Executive Order S-03-05. Therefore, GHG emissions are considered to be substantial enough to result in a *significant* impact relative to GHG emissions.

TABLE 4.6-4 **2020 COMMUNITY-WIDE GHG EMISSIONS INVENTORY FOR THE EA STUDY AREA**

	2020 Operational Emissions ($MTCO_2e$/Year)			
Pollutant	2012 $MTCO_2e$	2020 BAU $MTCO_2e$	2020 ABAU $MTCO_2e$	Change from 2012 $MTCO_2e$
Transportation[a]	331,010	350,582	260,539	-70,471
Energy - Residential[b]	72,293	77,330	64,148	-8,145
Energy – Non-Residential[b]	177,349	186,503	139,754	-37,595
Waste[c]	6,808	7,242	7,242	434
Water/Wastewater[d]	3,187	3,411	1,883	-1,304
Other – Off-road Equipment[e]	16,606	17,585	15,826	-708
Total Community Emissions	607,253	642,652	489,392	-117,861
$MTCO_2e$/Service Population (SP)[f]	8.3	8.5	6.5	NA
2020 Per Capita Threshold	NA	6.6 $MTCO_2e$/SP	6.6 $MTCO_2e$/SP	NA
Exceeds 2020 Per Capita Threshold	NA	Yes	No	NA
Marsh Road Landfill	28,350	26,649	26,649	-1,701
Total Community Emissions with Marsh Road Landfill	635,603	669,301	516,041	-119,562
$MTCO_2e$/SP with Marsh Road Landfill	9.0	8.9	6.9	NA

Notes: The Community GHG Total excludes waste-in-place emissions from the closed Marsh Road Landfill. While it is included in the City's Climate Action Plan, the Marsh Road Landfill emissions are not associated with the existing or future land uses in the City of Menlo Park (but past disposal from within and outside of the City), and are therefore excluded for the purpose of this environmental assessment (e.g. not associated with the Plan Components' land uses). The City's Community GHG Inventory with emissions from the Marsh Hill Landfill are provided for informational purposes only.

Emissions forecast based on changes in population (residential energy), employment (non-residential energy), or service population (city energy, waste, water/wastewater, transportation)

Adjusted BAU includes reductions identified in the Scoping Plan associated with Transportation (Pavley+LCFS), Energy & Water/Wastewater (improvements in the carbon intensity of electricity identified by PG&E), and Other (LCFS). The current inventory does not account for reductions in building energy use from Title 24 cycle updates.

Emissions may not total to 100% due to rounding.

TABLE 4.6-4 **2020 COMMUNITY-WIDE GHG EMISSIONS INVENTORY FOR THE EA STUDY AREA (CONT.)**

Notes (Continued):

[a] Transportation. VMT is based on data provided by TJKM using the C/CAG model run by VTA and modeled using EMFAC2011 and 2020 emission rates.[66,67] The VMT provided by VTA is adjusted based on the Population and Employment used in the C/CAG model compared to the population and employment estimated identified within the EA Study Area for 2020. Adjusted Daily VMT is multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

[b] Energy. Based on a three-year average (2010 to 2008) of energy use provided by PG&E.[68] The non-residential sector includes direct access customers, county facilities, and other district facilities within the City boundaries. PG&E energy based on PG&E's carbon intensity. Direct access energy based on the eGrid carbon intensity.

[c] Water/Wastewater. Includes fugitive emissions from wastewater processing and energy associated with water/wastewater treatment and conveyance. Water use is estimated based on demand rates included in the Water Supply Assessment for the Housing Element Update and assumes wastewater is 45 percent of total water use.

[d] Waste. Based on the WARM2012 and waste generation identified for Menlo Park by CalRecycle. Waste generation emissions are based on waste commitment method.

[e] Other – Off-Road Emissions. Generated using OFFROAD2007. Landscaping and light commercial equipment and estimated based on population (Landscaping) and employment (Light Commercial Equipment) for Menlo Park as a percentage of San Mateo County.[69, 70] Excludes BAAQMD permitted sources. Does not include emissions from wood-burning fireplaces.

[e] Construction equipment use estimated based on housing permit data for Menlo Park from the ABAG.[71,72] Daily off-road construction emissions multiplied by 347 days/year to account for reduced/limited construction activity on weekends and holidays. Excludes fugitive emissions from construction sites.

[f] Based on a service population of 75,211 people (39,300 residents and 35,911 employees).

[66] TJKM Transportation Consultants, 2013. Administrative Draft Report, Traffic Study of updated Housing Element in the City of Menlo Park.

[67] California Air Resources Board (CARB), 2011. EMFAC2011.

[68] Pacific Gas & Electric Company (PG&E), 2012. Communitywide GHG Inventory Report for Menlo Park 2005 to 2010. Provided by John Joseph.

[69] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[70] Association of Bay Area Governments (ABAG), 2009. Subregional Study Area Population, Housing, Employment Forecasts.

[71] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[72] Association of Bay Area Governments (ABAG), 2010. San Francisco Bay Area Housing Data. http://www.abag.ca.gov/pdfs/2009_Housing_Data.pdf.

TABLE 4.6-5 **2035 COMMUNITY-WIDE GHG EMISSIONS INVENTORY FOR THE EA STUDY AREA**

	2035 Operational Emissions ($MTCO_2e$/Year)			
Pollutant	2012 $MTCO_2e$	2035 BAU $MTCO_2e$	2035 ABAU $MTCO_2e$	Change from 2012 $MTCO_2e$
Transportation[a]	331,010	366,934	240,082	-90,918
Energy - Residential[b]	72,293	85,397	70,840	-1,453
Energy – Non-Residential[b]	177,349	205,506	153,994	23,355
Waste[c]	6,808	7,989	7,989	1,181
Water/Wastewater[d]	3,187	3,790	2,092	-1,095
Other – Off-road Equipment[e]	16,606	19,382	17,443	837
Total Community Emissions	607,253	688,998	492,451	-114,803
$MTCO_2e$/Service Population (SP)[f]	8.6	8.3	5.9	NA
2035 Per Capita Threshold	NA	4.0 $MTCO_2e$/SP	4.0 $MTCO_2e$/SP	NA
Exceeds 2035 Per Capita Threshold	NA	Yes	Yes	NA
Marsh Road Landfill	28,350	26,649	26,649	-1,701
Total Community Emissions with Marsh Road Landfill	635,603	715,647	519,100	-116,504
$MTCO_2e$/SP with Marsh Road Landfill	8.9	8.5	6.1	NA

Notes: The Community GHG Total excludes waste-in-place emissions from the closed Marsh Road Landfill. While it is included in the City's Climate Action Plan, the Marsh Road Landfill emissions are not associated with the existing or future land uses in the City of Menlo Park (but past disposal from within and outside of the City), and are therefore excluded for the purpose of this environmental assessment (e.g. not associated with the Plan Components' land uses). The City's Community GHG Inventory with emissions from the Marsh Hill Landfill are provided for informational purposes only.

TABLE 4.6-5 **2035 COMMUNITY-WIDE GHG EMISSIONS INVENTORY FOR THE EA STUDY AREA (CONT.)**

Notes (Continued):
Emissions forecast based on changes in population (residential energy), employment (non-residential energy), or service population (city energy, waste, water/wastewater, transportation).
Adjusted BAU includes reductions identified in the Scoping Plan associated with Transportation (Pavley+LCFS), Energy & Water/Wastewater (improvements in the carbon intensity of electricity identified by PG&E), and Other (LCFS). The current inventory does not account for reductions in building energy use from Title 24 cycle updates.
Emissions may not total to 100% due to rounding.
[a] Transportation. VMT is based on data provided by TJKM using the C/CAG model run by VTA and modeled using EMFAC2011 and 2035 emission rates.[73, 74] The VMT provided by VTA is adjusted based on the Population and Employment used in the C/CAG model compared to the population and employment estimated identified within the EA Study Area for 2035. Adjusted Daily VMT is multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.
[b] Energy. Based on a three-year average (2010 to 2008) of energy use provided by PG&E.[75] The non-residential sector includes direct access customers, county facilities, and other district facilities within the City boundaries. PG&E energy based on PG&E's carbon intensity. Direct access energy based on the eGrid carbon intensity.
[c] Water/Wastewater. Includes fugitive emissions from wastewater processing and energy associated with water/wastewater treatment and conveyance. Water use is estimated based on demand rates included in the Water Supply Assessment for the Housing Element Update and assumes wastewater is 45 percent of total water use.
[d] Waste. Based on the WARM2012 and waste generation identified for Menlo Park by CalRecycle. Waste generation emissions are based on waste commitment method.
[e] Other – Off-Road Emissions. Generated using OFFROAD2007. Landscaping and light commercial equipment and estimated based on population (Landscaping) and employment (Light Commercial Equipment) for Menlo Park as a percentage of San Mateo County.[76,77] Excludes BAAQMD permitted sources. Does not include emissions from wood-burning fireplaces. [d] Construction equipment use estimated based on housing permit data for Menlo Park from the Association of Bay Area Governments (ABAG).[78,79] Daily off-road construction emissions multiplied by 347 days/year to account for reduced/limited construction activity on weekends and holidays. Excludes fugitive emissions from construction sites.
[f] Based on a service population of 82,970 people (43,400 residents and 39,570 employees).

[73] TJKM Transportation Consultants, 2013. Administrative Draft Report, Traffic Study of updated Housing Element in the City of Menlo Park.

[74] California Air Resources Board (CARB), 2011. EMFAC2011.

[75] Pacific Gas & Electric Company (PG&E), 2012. Communitywide GHG Inventory Report for Menlo Park 2005 to 2010. Provided by John Joseph.

[76] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[77] Association of Bay Area Governments (ABAG), 2009. Subregional Study Area Population, Housing, Employment Forecasts.

[78] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[79] Association of Bay Area Governments (ABAG), 2010. San Francisco Bay Area Housing Data. http://www.abag.ca.gov/pdfs/2009_Housing_Data.pdf.

c. Future Residential Development

BAAQMD has adopted a 2020 per capita GHG threshold for operation-related GHG emissions of 4.6 $MTCO_2e$/Service Population/Year for Project-Level analyses. While the potential future residential development associated with the five housing sites is part overall Plan Components, the community-wide GHG emissions inventory for the future housing is provided separately in Table 4.6-6 and compared to BAAQMD's Project-Level thresholds. This is based on the assumption that the buildout at maximum density shown in Table 3-2 in Chapter 3, Project Description, would occur, which is not foreseen under the Plan Components, but rather represents the most conservative scenario.

As shown in this table, GHG emissions generated by the future residential development has the potential to result in a substantial increase in GHG emission because they would not achieve the proposed per capita efficiency threshold (Project Level). Therefore, GHG emissions are considered to be substantial enough to result in a *significant* impact relative to GHG emissions.

2. Consistency with GHG Reduction Plans (Appendix G Threshold 2)

a. Statewide and Regional GHG Reduction Plans

In accordance with AB 32, CARB developed the Scoping Plan to outline the State's strategy to achieve 1990 level emissions by year 2020. To estimate the reductions necessary, CARB projected statewide 2020 BAU GHG emissions (i.e. GHG emissions in the absence of statewide emission reduction measures). CARB identified that the State as a whole would be required to reduce GHG emissions by 28.5 percent from year 2020 BAU to achieve the targets of AB 32.[80] The revised BAU 2020 forecast shows that the state would have to reduce GHG emissions by 21.6 percent from BAU without Pavley and the 33 percent RPS or 15.7 percent from the adjusted baseline (i.e. with Pavley and 33 percent RPS).[81]

[80] California Air Resources Board (CARB), 2008. Climate Change Scoping Plan, a Framework for Change.

[81] California Air Resources Board (CARB), 2012. Status of Scoping Plan Recommended Measures. http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf.

TABLE 4.6-6 **PLAN COMPONENTS CRITERIA AIR POLLUTANT EMISSIONS INVENTORY**

	2020 Operational Emissions	
Pollutant	2020 BAU $MTCO_2e$	2020 ABAU $MTCO_2e$
Transportation[a]	16,495	12,259
Energy[b]	6,613	5,486
Water/Wastewater[c]	152	84
Waste[d]	324	324
Area Sources (Landscaping)[e]	65	58
Total	23,650	18,211
Total without Waste[f]	23,326	17,887
Service Population	3,361	3,361
$MTCO_2e$/Service Population (SP)	6.9	5.3
$MTCO_2e$/Service Population (SP) without Waste[f]	6.9	5.3
Project-Level Threshold	4.6 $MTCO_2e$/SP	4.6 $MTCO_2e$/SP
Exceeds Per Capita Threshold	Yes	Yes

Notes: 2020 Emission Rates. Estimate derived from the Community-wide GHG Inventory for the EA Study Area.

[a] Transportation. VMT/Person is based on data provided by TJKM using the C/CAG model run by VTA and modeled using EMFAC2011 and 2020 emission rates.[82,83] Adjusted Daily VMT multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the CARB's methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

[b] Energy. Based on PG&E energy/person.[84]

[c] Water/Wastewater. Based on per capita (includes employees + residents) water/wastewater use for Menlo Park.

[d] Waste. WARM2012 and CalRecycle. Based on per capita disposal rates.

[e] Area Sources. Generated using OFFROAD2007 and estimated based on population (Landscaping) for Menlo Park as a percentage of San Mateo County.[85,86]

[f] Waste emissions are not included in the per capita emissions computation. BAAQMD did not include solid waste emissions when developing the per capita significance thresholds.

[82] TJKM Transportation Consultants, 2013. Administrative Draft Report, Traffic Study of updated Housing Element in the City of Menlo Park

[83] California Air Resources Board (CARB), 2011. EMFAC2011.

[84] Pacific Gas & Electric Company (PG&E), 2012. Communitywide GHG Inventory Report for Menlo Park 2005 to 2010. Provided by John Joseph

[85] California Air Resources Board (CARB), 2007. OFFROAD2007 Computer Model, Version 2.0.1.2.

[86] Association of Bay Area Governments (ABAG), 2009. Subregional Study Area Population, Housing, Employment Forecasts.

MTC's Draft Plan Bay Area includes the El Camino Real Corridor and Downtown PDA in the City of Menlo Park. MTC anticipates a 36 percent increase in employment growth by 2040 within this PDA. MTC's plan identifies development of new mixed-use projects along El Camino Real close to transit. Growth accommodated by the Plan Components would be consistent with land use concept plan for Menlo Park identified in the Draft Plan Bay Area.

Statewide strategies to reduce GHG emissions include the Low Carbon Fuel Standard, California Appliance Energy Efficiency regulations; California Building Standards (i.e. CALGreen and the 2008 Building and Energy Efficiency Standards); California Renewable Energy Portfolio standard (33 percent RPS); changes in the corporate average fuel economy standards (e.g. Pavley I and Pavley II); and other measures that would ensure the State is on target to achieve the GHG emissions reduction goals of AB 32. Statewide GHG emissions reduction measures that are being implemented over the next seven years would reduce the City's GHG emissions. As shown in Table 4.6-4, the City would achieve the 2020 target of AB 32 for cities within the San Francisco Bay Area Air Basin (SFBAAB). New residential and non-residential construction in the City would achieve the current building and energy efficiency standards. The new buildings would be constructed in conformance with CALGreen, which requires high-efficiency water fixtures for indoor plumbing and water efficient irrigation systems. Therefore, impacts would be *less than significant*.

b. Local GHG Reduction Plans

The City of Menlo Park has prepared and updated its community-wide GHG emissions inventory several times since the release of the City's *2005 Greenhouse Gas Emissions Analysis*, which was prepared by the City with assistance from ICLEI in 2007. The latest update to the City's Climate Change Action Plan was conducted in 2011, *Climate Action Plan Assessment Report*.[87] The policies identified in the 2011, *Climate Action Plan Assessment Report* represent the City's actions to achieve the GHG reduction targets of AB 32.

The Plan Components would include the following current and amended General Plan policies and programs. Consequently, with implementation and adoption of the Plan Components, impacts related to consistency with the City's CAP would be *less than significant*.

[87] City of Menlo Park, 2011. *Climate Action Plan Assessment Report*, http://www.menlopark.org/departments/env/Menlo_CAP_Assessment_Report_2010_12_14_draft_final_final6.pdf, accessed on September 27, 2012.

i. Amended General Plan Safety Element: Sea Level Rise

a) Sea Level Rise

¨ Policy S-1.28: Sea Level Rise. Consider sea level rise in siting new facilities or residences within potentially affected areas.

ii. Current General Plan Land Use and Circulation Element

a) Energy and Water

¨ Policy I-G-10: Extensive landscaping should be included in public and private development, including greater landscaping in large parking areas. Where appropriate, the City shall encourage placement of a portion of the required parking in landscape reserve until such time as the parking is needed. Plant material selection and landscape and irrigation design shall adhere to the City's Water Efficient Landscaping Ordinance.

¨ Policy I-H-3: Plant material selection and land-scape and irrigation design for City parks and other public facilities and in private developments shall adhere to the City's Water Efficient Landscaping Ordinance.

¨ Policy I-A-3: Quality design and usable open space shall be encouraged in the design of all new residential developments.

¨ Policy I-H-2: Use of water-conserving plumbing fixtures in all new public and private development shall be required.

¨ Policy I-H-4: The efforts of the Bay Area Water Users Association to secure adequate water supplies for the Peninsula shall be supported to the extent that these efforts are in conformance with other City policies.

¨ Policy I-H-7: Use of reclaimed water for landscaping and any other feasible uses shall be encouraged.

iii. Amended General Plan Open Space and Conservation Element

a) Energy and Water

¨ Goal OSC-4: Promote Sustainability and Climate Action Planning. Promote a sustainable energy supply and implement City’s Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and promotion of recycling, reduction and reuse programs.

- Policy OSC-4.2: Sustainable Building. Promote and/or establish environmentally sustainable building practices or standards in new development that would conserve water and energy, prevent stormwater pollution, reduce landfilled waste, and reduce fossil fuel consumption from transportation and energy activities.
- Policy OSC-4.3: Renewable Energy. Promote the installation of renewable energy technology, such as, on residences and businesses through education, social marketing methods, establishing standards and/or providing incentives.
- Policy OSC-2.7: Conservation of Resources at City Facilities. Reduce consumption of water, energy, landfilled waste, and fossil fuels in the construction, operations and maintenance of City owned and/or operated facilities.
- Policy OSC-4.9: Climate Action Planning. Undertake annual review and updates, as needed, to the City's Climate Action Plan (CAP).

iv. *Current General Plan Land Use and Circulation Element*

a) Transit (Rail and Bus Service)

- Policy II-B-1: The City shall consider transit modes in the design of transportation improvements and the review and approval of development projects.
- Policy II-B-2: As many activities as possible should be located within easy walking distance of transit stops, and transit stops should be convenient and close to as many activities as possible.
- Policy II-B-3: The City shall promote improved public transit service and increased transit ridership, especially to office and industrial areas and schools.
- Policy II-B-4: The capacity and attractiveness of the commuter railroad service should be increased and rights-of-ways for future transit service should be protected.
- Policy II-B-5: The City shall work with appropriate agencies to agree on long-term peninsula transit service that reflects Menlo Park's desires and is not disruptive to the city.
- Policy II-B-6: The City shall support extension of CalTrain to the Market Street area in San Francisco.

b) Pedestrian and Bicycle Facilities

- Policy I-G-11: Well-designed pedestrian facilities should be included in areas of intensive pedestrian activity.

- Goal II-D: The City shall promote the safe use of bicycles as a commute alternative and for recreation.
- Policy II-D-2: The City shall, within available funding, work to complete a system of bikeways within Menlo Park.
- Policy II-D-3: The design of streets within Menlo Park shall consider the impact of street cross section, intersection geometries, and traffic control devices on bicyclists.
- Policy II-D-4: The City shall require new commercial and industrial development to pro-vide secure bicycle storage facilities on-site.
- Policy II-D-5: The City shall encourage transit providers within San Mateo County to provide improved bicycle access to transit including secure storage at transit stations and on-board storage where feasible.
- Goal II-E: To promote walking as a commute alternative and for short trips.
- Policy II-E-1: The City shall require all new development to incorporate safe and attractive pedestrian facilities on-site.
- Policy II-E-2: The City shall endeavor to maintain safe sidewalks and walkways where existing within the public right of way.
- Policy II-E-3: Appropriate traffic control shall be provided for pedestrians at intersections.
- Policy II-E-4: The City shall incorporate appropriate pedestrian facilities, traffic control, and street lighting within street improvement projects to maintain or improve pedestrian safety.
- Policy II-E-5: The City shall support full pedestrian access across all legs of an intersection at all signalized intersections which are City-controlled and at the signalized intersections along El Camino Real.

v. Amended General Plan Open Space and Conservation Element

a) Commute Trip Reduction Programs

- Policy OSC-1.1: Landscaping and Plazas. Include landscaping and plazas on public and private lands, and well-designed pedestrian and bicycle facilities in areas of intensive non-vehicular activity. Require landscaping for shade, surface runoff, or to obscure parked cars in extensive parking areas.
- Policy OSC-2.6: Pedestrian and Bicycle Paths. Develop pedestrian and bicycle paths consistent with the recommendations of local and regional trail and bicycle route projects, including the Bay Trail.

vi. Current General Plan Land Use and Circulation Element

a) Commute Trip Reduction Programs

- Policy II-C-1: The City shall work with all Menlo Park employers to encourage employees to use alternatives to the single occupant automobile in their commute to work.
- Policy II-C-5: The City shall identify potential funding sources, including the Bay Area Air Quality Management District, to supplement City and private monies to sup-port transportation demand management activities of the City and local employers.
- Policy II-C-6: The City shall, to the degree feasible, assist Menlo Park employers in meeting the Average Vehicle Ridership (AVR) targets established by the Bay Area Air Quality Management District.
- Policy II-C-7: The commuter shuttle service between the industrial work centers and the Down-town Transportation Center should be maintained and improved, within fiscal constraints. The City shall encourage SamTrans and other agencies to provide funding to support shuttle services.

vii. Amended General Plan Open Space and Conservation Element

a) Land Use and Transportation

- Policy OSC-4.1: Sustainable Approach to Land Use Planning to Reduce Resource Consumption. Encourage, to the extent feasible, (1) a balance and match between jobs and housing, (2) higher density residential and mixed-use development to be located adjacent to commercial centers and transit corridors, and (3) retail and office areas to be located within walking and biking distance of transit or existing and proposed residential developments.
- Goal OSC-4: Promote Sustainability and Climate Action Planning. Promote a sustainable energy supply and implement City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and promotion of recycling, reduction and reuse programs.

viii. Current General Plan Land Use and Circulation Element

a) Land Use and Transportation

- Policy I-I-1: The City shall cooperate with the appropriate agencies to help assure a coordinated land use pattern in Menlo Park and the surrounding area.

- Policy I-I-2: The regional land use planning structure should be integrated within a larger transportation network built around transit rather than freeways and the City shall influence transit development so that it coordinates with Menlo Park's land use planning structure.
- Policy II-C-4: The City shall coordinate its transportation demand management efforts with other agencies providing similar services within San Mateo County.

b) School Programs

- Policy II-C-3 states the City will consider working with the school districts to encourage alternatives to single occupancy vehicle use, such as carpools and vanpools, for trips being generated by local schools.
- Policy II-E-6 states that the City shall prepare a safe school route program to enhance the safety of school children who walk to school.
- Program II-11 states that the City shall continue to develop a comprehensive safe school route program that documents current conditions, identifies design and standards deficiencies, and proposes an action plan detailing steps to implement the program.

ix. Amended General Plan Open Space and Conservation Element

a) Waste

- Goal OSC-4: Promote Sustainability and Climate Action Planning. Promote a sustainable energy supply and implement City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and promotion of recycling, reduction and reuse programs.
- Policy OSC-4.7: Waste Management Collaboration. Continue to support and participate in efforts such as the South Bayside Waste Management Authority, which provides waste reduction, recycling, and solid waste programs and solutions.
- Policy OSC-4.6: Waste Reduction Target. Strive to meet the California State Integrated Waste Management Board per person target of waste generation per person per day through their source reduction, reuse, and recycling programs.

x. Current General Plan Land Use and Circulation Element

a) Waste

¨ Policy I-H-1 states that the community design should help conserve resources and minimize waste.

3. Cumulative Impacts

As described above, GHG emissions related to the ongoing activities in the EA Study Area and the Plan Components are not confined to a particular air basin but are dispersed worldwide. The global increase in GHG emissions that has occurred and will occur in the future is the result of the actions and choices of individuals, businesses, local governments, states, and nations. Therefore, the analysis in Section E.1, Impact Discussion, addresses cumulative impacts.

F. Impacts and Mitigation Measures

Impact GHG-1: Ongoing activities in the City would conflict with Executive Order S-03-05's goal to reduce GHG emissions by 80 percent below 1990 levels by 2050. The majority of the reductions needed to reach the 2050 target will likely come from State measures (e.g. additional vehicle emissions standards), but the City does not have authority over such measures. The State has not identified plans to reduce emissions beyond 2020. As stated above, implementation of the Plan Components would reduce community-wide GHG emissions and all feasible measures have been included. No additional mitigating policies are available, and the impact is considered s*ignificant and unavoidable.*

Impact GHG-2: The future residential development would conflict with Executive Order S-03-05's goal to reduce GHG emissions by 80 percent below 1990 levels by 2050. The Plan Components do not consist of one or more actual development projects involving the physical construction of dwelling units, but rather provides policies and implementing programs under which new housing development would be allowed. Accordingly, new residential development in the EA Study Area, it would be subject to the policies identified in the General Plan, which would reduce community-wide GHG emissions. However, as with the community-wide GHG emissions discussed under Impact GHG-1, no additional mitigating policies are available and the impact is considered s*ignificant and unavoidable.*