

5. Environmental Analysis

5.5 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the CollegeTown Specific Plan (proposed project) to cumulatively contribute to greenhouse gas (GHG) emissions impacts. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis. This chapter is based on the methodology recommended by the South Coast Air Quality Management District (SCAQMD). The transportation sector is based on average daily vehicle trips provided by Fehr and Peers (see Appendix L of the DEIR). GHG emissions are modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2. GHG emissions modeling for construction and operational phases of the project is included in Appendix D of this DEIR.

5.5.1 Environmental Setting

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 (CO₂), methane (CH₄), and ozone (O₃)—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 (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).^{1,2} The major GHG are briefly described below.

- **Carbon dioxide (CO₂)** 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 (CH₄)** 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 (N₂O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

¹ Water vapor (H₂O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant.

² Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2013).

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- **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 global-warming-potential (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 [CF₄] and perfluoroethane [C₂F₆]) 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 used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.
 - **Sulfur Hexafluoride (SF₆)** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF₆ is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.
 - **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 (IPCC 2001; EPA 2012).

Table 5.5-1 lists the GHG applicable to the proposed project and their GWPs compared to CO₂.

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Table 5.5-1 GHG Emissions and their Relative Global Warming Potential Compared to CO₂

GHGs	Atmospheric Lifetime (Years)	Global Warming Potential Relative to CO ₂
Carbon Dioxide (CO ₂)	50 to 200	1
Methane ² (CH ₄)	12 (±3)	21
Nitrous Oxide (N ₂ O)	120	310
Hydrofluorocarbons:		
HFC-23	264	11,700
HFC-32	5.6	650
HFC-125	32.6	2,800
HFC-134a	14.6	1,300
HFC-143a	48.3	3,800
HFC-152a	1.5	140
HFC-227ea	36.5	2,900
HFC-236fa	209	6,300
HFC-4310mee	17.1	1,300
Perfluoromethane: CF ₄	50,000	6,500
Perfluoroethane: C ₂ F ₆	10,000	9,200
Perfluorobutane: C ₄ F ₁₀	2,600	7,000
Perfluoro-2-methylpentane: C ₆ F ₁₄	3,200	7,400
Sulfur Hexafluoride (SF ₆)	3,200	23,900

Source: IPCC 2001.

¹ Based on 100-year time horizon of the GWP of the air pollutant relative to CO₂ (IPCC 2001).

² The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO₂ is not included.

California's Greenhouse Gas Sources and Relative Contribution

California is the second largest emitter of GHG in the United States, surpassed only by Texas, and the tenth largest GHG emitter in the world (CEC 2005). 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 in carbon emissions per capita and fifth lowest among states in CO₂ emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services)(CEC 2006a).

CARB's latest update to the statewide GHG emissions inventory was conducted in 2012 for year 2009 emissions.³ In 2009, California produced 457 million metric tons (MMT) of CO₂-equivalent (CO₂e) 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

³ 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).

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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 (CARB 2012).⁴

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHG in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and climate change pollutants that is attributable to human activities. The amount of CO₂ 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 (IPCC 2007). These recent changes in climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is rising 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 climate change pollutants (CAT 2006).

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°C (2.5 to 10.4°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 climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

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 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 (CAT 2006). According to the California Climate Action Team, even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.5-1), 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. Global climate change risks to California are shown in Table 5.5-2 and include public health impacts, water resources impacts, agricultural impacts, coastal sea level impacts, forest and biological resource impacts, and energy impacts. Specific climate change impacts that could affect the project include health impacts from a deterioration in air quality, water resources impacts from a reduction in water supply, and increased energy demand.

⁴ CO₂-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.

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Table 5.5-2 Summary of GHG Emissions 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: CEC 2006b; CEC 2008.

5.5.1.1 REGULATORY BACKGROUND

Federal Laws

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 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 (EPA 2009).

The EPA’s endangerment finding covers emissions of six key GHGs—CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world (the first three are applicable to the proposed project).

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In response to the endangerment finding, the 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 (MT) or more of CO₂ per year are required to submit an annual report.

State Laws

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-03-05, Assembly Bill 32 (AB 32), and Senate Bill 375 (SB 375).

Executive Order S-03-05

Executive Order S-3-05, signed June 1, 2005. Executive Order S-03-05 set the following GHG reduction targets for the state:

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

Assembly Bill 32, The Global Warming Solutions Act (2006)

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

AB 32 directed the California Resources Board (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}) (CARB 2008).⁵

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 MT of CO₂ 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.

⁵ 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.

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CARB 2008 Scoping Plan

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 proposed project include:

- 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).⁶
- Creating target fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation (in progress).

Table 5.5.-3, *Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target*, shows the proposed reductions from regulations and programs outlined in the 2008 Scoping Plan. Though 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.⁷ Measures that local governments take to support shifts in land use patterns are anticipated to emphasize compact, low-impact growth over development in greenfields, resulting in fewer vehicle miles travelled (VMT) (CARB 2008).

⁶ 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 enjoined 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 continued to consider CARB's appeal of the lower court's decision. On July 15, 2013, the State of California Court of Appeals held that the LCFS would remain in effect and that CARB can continue to implement and enforce the 2013 regulatory standards while it corrects certain aspects of the procedures by which the LCFS was adopted. Accordingly, CARB is continuing to implement and enforce the LCFS while addressing the court's concerns.

⁷ 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, but it does not rely on local GHG reduction targets established by local governments to meet the state's GHG reduction target of AB 32.

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Table 5.5-3 Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target

Recommended Reduction Measures	Reductions Counted toward 2020 Target of 169 MMT CO ₂ e	Percentage of Statewide 2020 Target
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets ¹	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	146.7	87%
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	27.3	16%
Total Reductions Counted toward 2020 Target	174	100%
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations ²	To Be Determined	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	42.8	NA

Source: CARB 2008.

Notes: The percentages in the right-hand column add up to more than 100 percent because the emissions reduction goal is 169 MMTCO₂e and the Scoping Plan identifies 174 MTCO₂e of emissions reductions strategies.

MMTCO₂e: million metric tons of CO₂e

¹ Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.

² According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO₂e (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 target.

Update to the 2008 Scoping Plan

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 of measures not previously considered in the 2008 Scoping Plan baseline inventory. The updated forecast predicts emissions to be 507 MMTCO₂e by 2020. The

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new inventory identifies that an estimated 80 MMTCO₂e 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 MMTCO₂e) (CARB 2012).

CARB is in the process of completing a five-year update to the 2008 Scoping Plan, as required by AB 32. A discussion draft of the 2013 Scoping Plan was released on October 1, 2013. The 2013 Scoping Plan update defines CARB's climate change priorities for the next five years and lays the groundwork to reach post-2020 goals in Executive Orders S-3-05 and B-16-2012. The update includes the latest scientific findings related to climate change and its impacts, including short-lived climate pollutants. The GHG target identified in the 2008 Scoping Plan is based on IPCC's GWPs identified in the Second and Third Assessment Reports (see Table 5.5-1). IPCC's Fourth Assessment Report identified more recent GWP values based on the latest available science. CARB recalculated the 1990 GHG emission levels with these updated GWPs, and the 427 MMTCO₂e 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher, at 431 MMTCO₂e (CARB 2013).

The 2013 update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008 Scoping Plan. As identified in the 2013 Scoping Plan update, California is on track to meeting the goals of AB 32. However, the 2013 Scoping Plan also addresses the state's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the state to adopt a midterm target. According to the 2013 Scoping Plan update, reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit (CARB 2013).

Senate Bill 375

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 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). Southern California Association of Governments (SCAG) is the MPO for the southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010).

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The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's existing transportation network. The proposed targets would result in 3 MMTCO_{2e} of reductions by 2020 and 15 MMTCO_{2e} of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

SCAG's 2012 RTP/SCS

SB 375 requires the MPOs to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan. For the SCAG region, the 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted in April 2012 (SCAG 2012). The SCS outlines 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). The SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets. However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency for governments and developers.

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). 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. 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.

Executive Order S-01-07

On January 18, 2007, the state set a new low carbon fuel standard (LCFS) for transportation fuels sold within the state. Executive Order S-1-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. 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. The standard applies to refiners, blenders, producers, and importers of transportation fuels and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the CEC, the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-

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emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

Senate Bills 1078 and 107, and Executive Order S-14-08

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. Executive Order S-14-08 was signed in November 2008, which expands the state's Renewable Energy Standard to 33 percent renewable power by 2020. 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.

California Building Code

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission [CEC]) in June 1977 and most recently revised in 2008 (Title 24, Part 6, of the California Code of Regulations [CCR]). 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 (nonresidential) 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.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") was adopted as part of the California Building Standards Code (Title 24, CCR). CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.⁸ The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the CEC 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. Though 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.

⁸ The green building standards became mandatory in the 2010 edition of the code.

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Local Regulations and Policies

Fullerton Climate Action Plan

The City of Fullerton prepared a Climate Action Plan as part of the General Plan to summarize the City of Fullerton's GHG emissions and actions taken to mitigate those emissions. The Fullerton Climate Action Plan identifies a reduction target for the City to reduce GHG emissions to 15 percent below 2009 levels by 2020.

5.5.1.2 EXISTING CONDITIONS

Existing Greenhouse Gas Emissions Inventory

Table 5.5-4 provides an estimate of the GHG emissions generated by the existing land uses within the CollegeTown Specific Plan.

Table 5.5-4 Existing CollegeTown GHG Emissions

Category	Existing 2013 GHG Emissions	
	MTCO ₂ e/Year	Percent of Total
Transportation	16	<1%
Energy	5,397	12%
Area Sources	38,218	85%
Water	885	2%
Solid Waste	538	1%
Total	45,054	100%
Service Population (SP) ¹	3,254	NA
MTCO ₂ e/SP	13.8	NA

Source: CalEEMod 2013.2.2. Based on 2013 emission rates.

¹ Based on a service population of 1,817 residents and 1,437 employees.

5.5.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

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

South Coast Air Quality Management District

SCAQMD has adopted a significance threshold of 10,000 MTCO₂e per year for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last

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Working Group meeting, held in September 2010 (Meeting No. 15), SCAQMD has proposed a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- Tier 1. If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- Tier 2. If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD has proposed a “bright-line” screening-level threshold of 3,000 MTCO_{2e} annually for all land use types or the following land-use-specific thresholds: 1,400 MTCO_{2e} for commercial projects, 3,500 MTCO_{2e} for residential projects, or 3,000 MTCO_{2e} for mixed-use projects. This bright-line threshold is based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

- Tier 3. If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.
- Tier 4. If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

SCAQMD has proposed an efficiency target for projects that exceed the screening threshold. The current recommended approach is per capita efficiency targets. SCAQMD is not recommending use of a percent emissions reduction target. Instead, SCAQMD proposes a 2020 efficiency target of 4.8 MTCO_{2e}/year/SP for project-level analyses and 6.6 MTCO_{2e}/year/SP for plan level projects (e.g., program-level projects such as general plans). The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.⁹

The City of Fullerton has prepared a Climate Action Plan as part of The Fullerton Plan. For the purpose of this analysis, this plan is not considered a “qualified” GHG reduction plan and is not applicable because the buildout horizon year of the project goes beyond the 2020 target year identified in the climate action plan

⁹ SCAQMD took the 2020 statewide GHG reduction target for land-use-only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

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(CAP).¹⁰ However, the City's CAP reflects the City's GHG reduction strategies; therefore, the project is evaluated for consistency with the GHG reduction measures in these planning documents. Because the proposed project is a Specific Plan and future projects may tier off this EIR, project emissions are compared to the SCAQMD's project-level efficiency threshold of 4.8 MTCO₂e/year/SP, for year 2020. If projects exceed this per capita efficiency target, GHG emissions would be considered potentially significant in the absence of mitigation measures.

5.5.3 Environmental Impacts

Methodology

GHG emissions modeling was conducted using emission factors and methodologies in the CalEEMod Version 2013.2.2 and CalEEMod user's guide (SCAQMD 2013).

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.5-1: The CollegeTown Specific Plan would generate an increase in GHG but would meet the South Coast Air Quality Management District's proposed efficiency threshold. [Threshold GHG-1]

Impact Analysis: A project does not generate enough GHG emissions on its own to influence global climate change; therefore, the GHG chapter measures a project's contribution to the cumulative environmental impact.

CollegeTown GHG Emissions Inventory

The development contemplated by the proposed project would contribute to global climate change through direct emissions of GHG from onsite area sources and vehicle trips generated by the project, and indirectly through offsite energy production required for onsite activities, water use, and waste disposal. Annual GHG emissions were calculated for construction and operation of the project. Construction emissions (total and amortized over a 30-year duration) are provided for informational purposes. The total and net increases in GHG emissions associated with the CollegeTown Specific Plan are shown in Table 5.5-5.

¹⁰ CEQA Guidelines Section 15185.5, Tiering and Streamlining the Analysis of Greenhouse Gas Emissions, states that at a minimum, a plan for the reduction of GHG emissions would need to include: "1) An inventory of GHG emissions from both existing and projected over a specified time period; 2) 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; 3) To identify and analyze the GHG emissions resulting from specific actions or categories within the geographic area; 4) To 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; and 5) Be adopted in a public process following environmental review." The measures in the City's CAP are primarily voluntary measures that may or may not be implemented. Because of the uncertainty of accounting for reductions associated with voluntary measures, GHG emissions are compared to the SCAQMD thresholds to determine significance for CEQA. In addition, the buildout year for the proposed project is 2030, which goes beyond the 2020 target identified in the City's CAP.

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Table 5.5-5 CollegeTown Specific Plan GHG Emissions

Category	GHG Emissions MTCO ₂ e/Year			
	Existing 2013	Project 2030	Net Increase from Existing	Percent Change
Area	16	75	58	360%
Energy	5,397	16,825	11,427	212%
Mobile	38,218	55,976	17,758	46%
Waste	885	2,825	1,940	219%
Water	538	1,864	1,326	247%
Amortized Construction ¹	0	542	542	NA
Total	45,054	78,106	33,052	73%
Bright Line Screening Threshold	—	—	3,000 MTCO ₂ e	—
Exceeds Bright Line Screening Threshold	—	—	Yes	—
Project Efficiency Analysis				
Service Population (SP) ²	3,254	16,991	13,734	422%
MTCO ₂ e/SP	13.8 MTCO ₂ e/SP	4.6 MTCO ₂ e/SP	-9.2 MTCO ₂ e/SP	-67%
SCAQMD Efficiency Metric	—	4.8 MTCO ₂ e/SP	—	—
Exceeds Efficiency Metric	—	No	—	—

Source: CalEEMod 2013.2.2.

¹ Construction emissions generated by the proposed project are an estimate only because information regarding the phasing, construction schedule, and preliminary list of construction equipment is not available.

² Based on a service population of existing: 1,817 residents and 1,437 employees; project: 13,888 residents and 3,103 employees.

GHG emissions of the CollegeTown Specific Plan are compared to SCAQMD’s proposed GHG thresholds because buildout of the CollegeTown Specific Plan would occur past the 2020 target year of the City’s CAP, and the CAP does not identify an interim GHG reduction target that achieves the long-term GHG reduction goals of Executive Order S-03-05 (80 percent below 1990 levels by 2050). As shown in this table, the net increase GHG emissions generated by the proposed project would be substantial, and they would exceed the bright-line significance criteria of 3,000 MTCO₂e.

Although the CollegeTown Specific Plan would represent a substantial increase in GHG emissions in the City, the proposed project would substantially improve the efficiency of the site. As shown in Table 5.5-5, the project would result in a substantial reduction in GHG emissions per person (67 percent reduction in emissions per service population) even though the number of people who live or work within CollegeTown would increase by 422 percent. The new structures would be significantly more energy efficient than the current buildings onsite, many of which were constructed prior to modern building and energy efficiency standards. Likewise, plumbing fixtures and landscaping installed as part of the proposed project would result in a decrease in per capita water use. Although transportation emissions would still be by far the greatest source of GHG emissions associated with the proposed project (72 percent of emissions), the MXD analysis¹¹ identifies that the proposed project would increase the number of trips that would be “captured” within the vicinity of the CollegeTown site. In other words, the mixed-use project would result in a reduction

¹¹ The mixed-use traffic analysis is explained in more detail in Section 5.13, *Transportation and Traffic*.

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in external trips because more students and faculty of CSUF and HIU would live within the Specific Plan area and would not have to commute from outside it to attend classes.

Because emissions would exceed the bright-line threshold, GHG emissions associated with operation of the CollegeTown Specific Plan were compared to the proposed efficiency metric of 4.8 MTCO₂e/SP/yr. New projects that generate a substantial increase in emissions are compared to the efficiency metric to determine whether they achieve the efficiency standards and are in line with policies to reduce GHG emissions per capita (e.g., high density/mixed-use, reduced VMT, energy efficient, and water efficient). The proposed project would generate 4.6 MTCO₂e/SP/yr. With the increased density, and therefore efficiency of the project, GHG emissions would achieve SCAQMD's proposed efficiency metric and impacts would be less than significant.

Impact 5.5-2: The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. [Threshold GHG-2]

Impact Analysis: Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan, SCAG's 2012 RTP/SCS, and the City of Fullerton's Climate Action Plan. A consistency analysis with these plans is presented below.

CARB Scoping Plan

In accordance with AB 32, CARB developed the 2008 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 (CARB 2008). 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) (CARB 2012).

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 six years would reduce the project's GHG emissions. According to the 2013 update to the Scoping Plan, the state is on track to achieving the 2020 targets of AB 32 (CARB 2013).

As identified above, the proposed project would substantially improve the efficiency of the site (67 percent reduction in GHG emissions per service population) even though the number of people who live or work within CollegeTown would increase by 422 percent. The new structures would be significantly more energy efficient than the current buildings onsite, many of which were constructed prior to modern building and energy efficiency standards. Likewise, plumbing fixtures and landscaping installed as part of the proposed

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project would result in a decrease in water use on a per capita basis. Although overall trips would be higher with the project, the mixed-use project would reduce external trips by housing students and faculty of CSUF and HIU onsite, which reduces the need for them to commute from farther away. The proposed project would not conflict with statewide programs adopted for the purpose of reducing GHG emissions. Impacts would be less than significant.

2012 RTP/SCS

SCAG's 2012 RTP/SCS was adopted on April 4, 2012. SCAG's RTP/SCS is a regional growth management strategy that targets per capita GHG reduction from passenger vehicles and light duty trucks in the Southern California region. The 2012 RTP/SCS incorporates local land use projections and circulation networks in the cities' and counties' general plans. The projected regional development pattern, including location of land uses and residential densities included in local general plans, when integrated with the proposed regional transportation network in the 2012 RTP/SCS, would reduce per capita vehicular travel-related GHG emissions and achieve the subregional GHG reduction per capita targets for the SCAG region. Key strategies identified in the Orange County subregional SCS that were incorporated into the 2012 RTP/SCS are listed below, along with an assessment of applicability to the CollegeTown Specific Plan and a determination of consistency, if applicable. For the most part, these broad regional strategies do not apply to relatively small-scale individual land use projects, particularly those in areas that are not near or along transportation routes that do or could support viable transit services, and cannot feasibly be developed with a range of mixed uses that could result in some trip reduction benefits:

- **Support transit-oriented development.** The CollegeTown Specific Plan is a mixed-use project that is consistent with the goals of the 2012 RTP/SCS regarding transit-oriented development. A proposed transit hub would be accommodated onsite to increase the use of transit for students attending HIU and CSUF. As identified in the MXD analysis (see Section 5.13, *Transportation and Traffic*), the proposed project would result in an increase in the percentage of trips that are captured as a result of increasing the residential and nonresidential intensities within CollegeTown (an additional 9 percent of daily trips are captured). The mixed-use project would reduce external trips by housing students and faculty of CSUF and HIU onsite, which reduces the need for them to commute from farther distances.
- **Support infill housing development and redevelopment.** The proposed project would result in a substantial increase in both residential and nonresidential densities in an existing, developed area near SR-57.
- **Support mixed-use development and thereby improve walkability of communities.** The proposed project is a mixed use project. Several improvements in the circulation of the site are proposed to increase the walkability of the site and connectivity within CollegeTown and to CSUF.
- **Increase regional accessibility in order to reduce vehicle miles traveled.** The proposed project would result in partial closure of Nutwood Avenue from Titan Drive to Folino Drive. The project would not close the existing Nutwood Avenue and SR-57 ramps (e.g., trips to CSUF would continue to use the Nutwood exit, and trips to the east would not be affected), and improvements to Chapman Avenue would be required to ensure that regional accessibility for west-bound, non-college trips is maintained. As

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identified in the MXD analysis (see Section 5.13, *Transportation and Traffic*), the proposed project would result in an increase in the percentage of trips that are captured as a result of increasing the residential and nonresidential intensities within CollegeTown. The mixed-use project would reduce external trips by housing students and faculty of CSUF and HIU onsite, which reduces the need for them to commute from farther distances.

- **Improve jobs-to-housing ratio.** In comparison to the Orange County jobs-housing ratio, the City of Fullerton is jobs-rich because of the higher number of jobs compared to dwelling units. The project would result in a slight reduction in the jobs to housing ratio. However, even with this slight reduction due to project development, the City would continue to be jobs-rich (see Section 5.10, *Population and Housing*). Consequently, the proposed project would be consistent with this policy.
- **Promote land use patterns that encourage the use of alternatives to single-occupant automobile use.** As identified above, the proposed project is a mixed-use project designed to improve connectivity of the CollegeTown site with HIU and CSUF. The project includes implementation of a parking management district (PMD) to encourage the use of shared-parking based on studies that show the reduction in use of single-occupancy vehicles for mixed-use projects that implement a PMD. The Specific Plan would also require bicycle parking to encourage bicycle use as means of travel offsite to CSUF and within the CollegeTown Specific Plan.
- **Support retention and/or development of affordable housing.** The proposed project is a mixed-use, residential project that would accommodate high-density residential housing. Higher densities are typically required to accommodate construction affordable to lower income levels. The proposed project has residential densities that are well over 30 units per acre and therefore could accommodate affordable housing.
- **Eliminate bottlenecks and reduce delay on freeways, toll roads, and arterials.** Improvements associated with Caltrans facilities, including widening of the bridge under SR-57 and Chapman are within the control of Caltrans and not the City of Fullerton. Therefore, improvements to Caltrans facilities to reduce bottlenecks and reduce delay on freeways are not applicable to the project. Likewise, student growth anticipated by CSUF is also not part of the proposed project. The proposed project would result in removal of a portion of Nutwood and Commonwealth Avenue from the Orange County Transportation Authority's (OCTA) Master Plan of Arterial Highways (MPAH), resulting in the redistribution of traffic under with-project conditions. Mitigation measures are incorporated into the proposed project to ensure project and cumulative traffic impacts are mitigated, to the extent feasible.
- **Apply Transportation System Management and Complete Street practices to arterials and freeways to maximize efficiency.** The proposed streets would be designed to encourage alternative transportation onsite. Roundabouts would be installed at several locations to improve safety and reduce pedestrian conflicts. Furthermore, the multimodal evaluation identified in Section 5.13, *Transportation and Traffic*, provides for a more balanced complete street evaluation.

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- **Improve modes through enhanced service, frequency, convenience, and choices.** The proposed project would not alter the frequency of service provided by OCTA. OCTA has coordinated with the City regarding partial closure of Nutwood Avenue. The proposed project would accommodate a transit hub within the Specific Plan to accommodate the potential demand for transit. The proposed transit hub would accommodate potential bus service, potential street car service, and a Bike-N-Ride facility.
- **Expand and enhance Transportation Demand Management practices to reduce barriers to alternative travel modes and attract commuters away from single-occupant vehicle travel.** As described above and in Chapter 3, *Project Description*, several mobility improvements are proposed to increase the walkability/bikeability of the site and connectivity of CollegeTown to CSUF. Bicycle circulation is provided on streets where feasible with designated Class 1 Bike Paths or Class 2 Bike Lanes. All other public streets within CollegeTown would be Class 3 Bike Routes. Detailed standards for sidewalks and bicycle lanes as part of public street right-of-ways are shown in the Specific Plan.
- **Continue existing, and explore expansion of, highway pricing strategies.** This is a regional transportation management strategy that is not applicable to the CollegeTown Specific Plan or other individual land use projects.
- **Implement near-term (Transportation Improvement Program and Measure M2 Early Capital Action Plan) and long-term (Long Range Transportation Plan 2035 Preferred Plan) transportation improvements to provide mobility choices and sustainable transportation options.** This is a regional transportation management strategy that is not applicable to the CollegeTown Specific Plan or other individual land use projects.
- **Acknowledge current sustainability strategies practices by Orange County jurisdictions and continue to implement strategies that will result in or support the reduction of GHG emissions.** This is a regional strategy that is not applicable at the individual project level.

Table 5.8-2 in Section 5.8, *Land Use and Planning*, also provides an assessment of the project to the applicable goals in SCAG's 2012 RTP/SCS. As identified above and in Table 5.8-2, the proposed project would not conflict with regional programs adopted for the purpose of reducing GHG emissions. Impacts would be less than significant.

Fullerton Climate Action Plan

The City of Fullerton prepared a CAP as part of The Fullerton Plan to summarize the City of Fullerton's GHG emissions and actions taken to mitigate those emissions. The measures identified in the CAP represent the City's actions to achieve the GHG reduction targets of AB 32 for year 2020. The following steps were taken to evaluate whether the project is consistent with the CAP.

- **Step 1:** Consider the consistency of the discretionary project (magnitude and location of growth) with The Fullerton Plan's year 2030 growth projections, which are the basis of the GHG emissions inventory

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projects. If the project is consistent with The Fullerton Plan projections, the project is consistent with the CAP.

The proposed project would require a general plan amendment and would result in more growth than was analyzed in The Fullerton Plan (see Section 5.10, *Population and Housing*). The proposed land uses are substantially more dense than those evaluated in the CAP. The ability for a jurisdiction to achieve the 2020 targets of AB 32 is predominantly determined by how much growth it anticipates between the baseline year in the CAP and the 2020 target year of AB 32. This is because the measures identified in the 2008 Scoping Plan affect both existing and new emissions. If new emissions outweigh the decrease in emissions from the measures outlined in the Scoping Plan, there is potential that additional local measures (City-wide) would be required to offset the anticipated increase in emissions from growth that was not anticipated in The Fullerton Plan. Consequently, growth within the CollegeTown Specific Plan, which is beyond what was anticipated in The Fullerton Plan, has the potential to be inconsistent with the reductions identified in the CAP. Therefore, Steps 2 through 4 are conducted in accordance with the recommendations of the CAP.

- **Step 2: Consider the extent to which the project supports or includes applicable strategies and measures, or advances the action identified in the Climate Action Plan:**

A consistency analysis of the proposed project with the measures and strategies outlines in the CAP is outlined in Table 5.5-6. As shown in this table, the proposed project would not conflict with local programs adopted for the purpose of reducing GHG emissions.

Table 5.5-6 Climate Action Plan Consistency

Climate Action Plan Reduction Measures and Strategies		Consistency with Reduction Measures and Strategies
Transportation and Mobility Reduction Measures		
T-1	<p>Reduction of Single Occupant Vehicle Trips. Support regional and sub-regional efforts to increase alternatives to and infrastructure supporting a reduction of single occupant vehicle trips.</p> <ul style="list-style-type: none"> Conduct a travel/commute survey to determine the infrastructure necessary to encourage alternative transit modes that support a reduction of single occupant vehicle trips. Work with employers within the City to develop a Commute Trip Reduction Program (CTR) to encourage employees to carpool/rideshare. The program should also encourage employers to provide preferential carpool parking, flexible work schedules for carpools, vanpool assistance, and bicycle end-trip facilities. Upgrade transit access and expand transit network. Implement the planned development within The Fullerton Plan Focus Areas, which concentrate development and promote smart growth principles. 	<p>Consistent: The proposed project is a mixed-use project. As identified in the MXD model, implementation of the CollegeTown Specific Plan would result in a 9 percent increase in the number of daily trips that are captured in the vicinity of the project because of the increased residential and nonresidential intensity onsite. The proposed project would also support infrastructure for alternative transportation, including a transit hub, and would require new development to accommodate bicycle parking onsite.</p>
T-2	<p>Inter-Jurisdiction Connections. Support efforts to maintain, expand and create new connections between the Fullerton bicycle network and the bicycle networks of adjacent cities, Orange County, and the region.</p> <ul style="list-style-type: none"> Work with OCTA and OC COG to identify Fullerton's existing and planned bicycle networks that have the potential to connect to adjacent cities and regional trails. 	<p>Consistent: The proposed project would accommodate bicycle transportation onsite and would improve bicycle connections offsite.</p>

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Table 5.5-6 Climate Action Plan Consistency

	Climate Action Plan Reduction Measures and Strategies	Consistency with Reduction Measures and Strategies
T-3	<p>Bicycle Transportation Plan. Support projects, programs, and policies to maintain and update as necessary a Bicycle Transportation Plan prepared and approved pursuant to the California Streets and Highways Code to maintain eligibility for funding for State Bicycle Transportation Account funds.</p> <ul style="list-style-type: none"> Actively implement short-term projects such as those identified in the Fullerton Bicycle Master Plan through the City of Fullerton's 5-Year Capital Improvement Program. Specific projects are to be determined by the Bicycle Users Subcommittee and approved by City Council. Implement medium- and long-term bicycle infrastructure improvements such as those identified in the Fullerton Bicycle Master Plan. Specific projects are to be determined by the Bicycle Users Subcommittee and approved by City Council. 	<p>Consistent: The proposed project would accommodate bicycle transportation onsite and would improve bicycle connections offsite. As described above and in Chapter 3, <i>Project Description</i>, several mobility improvements are proposed to increase the walkability/bikeability of the site and connectivity of CollegeTown to CSUF. Bicycle circulation is provided on streets where feasible with designated Class 1 Bike Path or Class 2 Bike Lane. All other public streets within CollegeTown would be Class 3 Bike Routes. Detailed standards for sidewalks and bicycle lanes as part of public street right-of-ways are shown in the Specific Plan document.</p>
T-4	<p>Bicycle Use on All Streets. Support projects, programs, policies and regulations to recognize that every street in Fullerton is a street that a bicyclist can use.</p> <ul style="list-style-type: none"> Prioritize the improvements in the Fullerton Bicycle Master Plan that focus on improving signage and adding bicycle lanes. 	<p>Consistent: The proposed project would accommodate bicycle transportation onsite and would improve bicycle connections offsite. Detailed standards for sidewalks and bicycle lanes as part of public street rights-of-way are shown in the Specific Plan.</p>
T-5	<p>Bicycling Safety and Convenience. Support efforts to maintain, expand and create new connections between the Fullerton bicycle network and the bicycle networks of adjacent cities, Orange County, and the region.</p> <ul style="list-style-type: none"> Amend the zoning ordinance to require shower facilities and dressing areas for significant new or redevelopment nonresidential uses. Create a bicycle sharing program. 	<p>Consistent: The proposed project would accommodate bicycle transportation onsite and would improve bicycle connections offsite. Detailed standards for sidewalks and bicycle lanes as part of public street rights-of-way are shown in the Specific Plan. Furthermore, Mitigation Measure 2-6 would require that large nonresidential land uses implement an employee commute trip reduction program, which could include end-of-trip facilities for bicyclists.</p>
T-6	<p>Circulation Between Cities. Support regional and sub-regional efforts to implement programs that coordinate the multi-modal transportation needs and requirements across jurisdictions, including but not limited to the Master Plan of Arterial Highways, the Commuter Bikeways Strategic Plan, the Signal Synchronization Master Plan, the Orange County Congestion Management Plan, and the Growth Management Plan</p> <ul style="list-style-type: none"> Work with OCTA to establish Bus Rapid Transit (BRT) within the City. The Orange County SCS has prioritized one of the first three BRT projects to occur along Harbor Boulevard between Fullerton and Costa Mesa. Provide feedback to OCTA for their Transit System Study which is being conducted to determine where and how to increase public transportation service oriented to existing and future land use and maximizing ridership. 	<p>Consistent: The proposed project would support regional efforts to coordinate multimodal transportation needs. The proposed project would accommodate a transit hub within the Specific Plan to accommodate the potential demand for transit. The proposed transit hub would accommodate potential bus service, potential street car service, and a Bike-N-Ride facility.</p>
T-7	<p>Infrastructure for Low and Zero Emission Vehicles. Support projects, programs, policies, and regulations to encourage the development of private and/or public infrastructure facilitating the use of alternative fuel vehicles bicyclist can use.</p>	<p>Consistent: The proposed project would support use of alternative fueled vehicles and alternative modes of transportation. Mitigation Measure 2-1 would require level</p>

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Table 5.5-6 Climate Action Plan Consistency

	Climate Action Plan Reduction Measures and Strategies	Consistency with Reduction Measures and Strategies
	<ul style="list-style-type: none"> ▪ Establish alternative fuel stations within the City for public use. ▪ Continue to procure fuel-efficient and alternative fuel vehicles for municipal vehicle fleet. ▪ Collaborate with regional, state, and federal agencies to promote the use of alternative fuels and increased vehicle fuel efficiency standards. 	2 (240 volt) charging stations to support California's need for electric vehicle charging infrastructure.
T-8	<p>Rail and Rapid Transit. Participate in the planning efforts for regional and inter-state rail and rapid transit projects to represent the interests of the City.</p> <ul style="list-style-type: none"> ▪ Work with OCTA and Metrolink to expand parking facilities at the Fullerton Metrolink Station. ▪ Work with OCTA and Metrolink to facilitate the Metrolink Service Expansion Program (MSEP) and the M2 Go Local Program to increase the frequency of rail service through Orange County. 	Consistent: The proposed project would support regional efforts to coordinate multimodal transportation needs. The proposed project would accommodate a transit hub within the Specific Plan to accommodate the potential demand for transit. The proposed transit hub would accommodate potential bus service, potential street car service, and a Bike-N-Ride facility.
T-9	<p>Car Sharing Pilot Program. Explore the potential for a car sharing pilot program to be implemented in one or more of the City's Focus Areas.</p> <ul style="list-style-type: none"> ▪ Conduct a study to determine the optimal locations for a car sharing program. ▪ Implement the car sharing program in at least one Focus Area. 	Consistent: The proposed project would not conflict with citywide policies and programs regarding car sharing. Furthermore, Mitigation Measure 2-6 would require that large nonresidential land uses implement an employee commute trip reduction program, which could include car sharing programs.
Energy Use and Conservation Strategies		
E-1	<p>GHG Emissions from Electrical Generation. Support regional and sub-regional efforts to reduce greenhouse gas emissions associated with electrical generation through energy conservation strategies and alternative/renewable energy programs.</p> <ul style="list-style-type: none"> ▪ Develop a group of required improvements that achieves a 15 percent improvement in efficiency. Such improvements can include: <ul style="list-style-type: none"> ○ Energy efficiency upgrades (require properties to meet code when sold or transferred). ○ Use of cool roofs or any roof used to shade or cover parking have a Solar Reflectance Index (SRI) of at least 29. ○ Require outdoor lighting fixtures to be energy efficient. ○ Encourage* participation in the California Energy Commission's New Solar Homes Partnership. ○ Encourage* that new projects or rehabilitations of commercial, office, or industrial development incorporate solar or other renewable energy generation to provide 15 percent or more of the project's energy needs. ▪ Work with Southern California Edison and the California Public Utilities Commission to develop an incentive program for solar installation on new and retrofitted industrial, commercial, and retail buildings. 	Consistent: The new structures would be significantly more energy efficient than the current buildings onsite, many of which were constructed prior to modern building and energy efficiency standards. Likewise, plumbing fixtures and landscaping installed as part of the proposed project would result in a decrease in water use on a per capita basis. Pursuant to the Specific Plan, new mixed-use buildings would be required to be constructed to achieve Leadership in Energy Efficiency and Environmental Design (LEED) standards.
E-2	<p>Energy- and Resource-Efficient Design. Support projects, programs, policies and regulations to encourage energy and resource efficient practices in site and building design for private and public projects.</p> <ul style="list-style-type: none"> ▪ Adopt an Energy Conservation Ordinance to ensure that new 	Consistent: The new structures would be significantly more energy efficient than the current buildings onsite, many of which were constructed prior to modern building

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Table 5.5-6 Climate Action Plan Consistency

	Climate Action Plan Reduction Measures and Strategies	Consistency with Reduction Measures and Strategies
	residential and commercial buildings implement energy efficient features such as cool roofs, efficient framing techniques, low emissivity windows, energy efficient appliances, and renewable energy systems including the voluntary measures in the 2010 California Green Building Standards Code.	and energy efficiency standards. Likewise, plumbing fixtures and landscaping installed as part of the proposed project would result in a decrease in water use on a per capita basis. Pursuant to the Specific Plan, new mixed-use buildings would be required to be constructed to achieve LEED standards.
E-3	<p>Energy Efficient Retrofits. Prepare guidance to homeowners on energy efficient retrofits of existing dwellings.</p> <ul style="list-style-type: none"> ▪ Update the City's website to include the latest web links to energy efficiency rebates, incentives, and case studies. ▪ Work with Southern California Edison and community organizations to develop energy efficiency outreach programs for homes and businesses. The outreach programs should target such programs as smart grid integration, and incentives for voluntary inefficient appliance replacement. ▪ Planning of future City projects should include cost effective solutions for energy efficiency retrofits. 	<p>Consistent: This measure is not directly applicable to the proposed project. However, as identified above, new buildings would be energy efficient and would achieve the energy-efficiency targets for the City.</p>
E-4	<p>Efficient Use of Energy Resources in Residential Development. The City shall encourage housing developers to maximize energy conservation through proactive site, building and building systems design, materials, and equipment. The City's goal is to provide the development community the opportunity to exceed the provisions of Title 24 of the California Building Code. The City shall continue to support energy conservation through encouraging the use of Energy Star-rated appliances, other energy-saving technologies and conservation. To enhance the efficient use of energy resources, the City shall review the potential of offering incentives or other strategies that encourage energy conservation.</p> <ul style="list-style-type: none"> ▪ Adopt an Energy Conservation Ordinance to ensure that new residential and commercial buildings implement energy efficient features such as cool roofs, efficient framing techniques, low emissivity windows, energy efficient appliances, and renewable energy systems including the voluntary measures in the 2010 California Green Building Standards Code. 	<p>Consistent: The new structures would be significantly more energy efficient than the current buildings onsite, many of which were constructed prior to modern building and energy efficiency standards. Likewise, plumbing fixtures and landscaping installed as part of the proposed project would result in a decrease in water use on a per capita basis. Pursuant to the Specific Plan, new mixed-use buildings would be required to be constructed to achieve LEED standards.</p>
E-5	<p>Sustainable Regional Revitalization Efforts. Support regional and sub-regional efforts pertaining to community revitalization that are rooted in sustainable development principles.</p> <ul style="list-style-type: none"> ▪ Continue to implement the goals and policies within the Fullerton Transportation Center Specific Plan to guide sustainable revitalization and transit oriented development. As identified in the subregional OC SCS, the transit oriented development policies implemented in downtown Fullerton provide a foundation for increasing public transportation service throughout the County. 	<p>Consistent: The CollegeTown Specific Plan is a mixed-use project that is consistent with the goals of the 2012 RTP/SCS regarding transit-oriented development. A proposed transit hub would be accommodated onsite to increase the use of transit for students attending HIU and CSUF. As identified in the MXD analysis (see Section 5.13, <i>Transportation and Traffic</i>), the proposed project would result in an increase in the percentage of trips that are captured as a result of increasing the residential and nonresidential intensities within CollegeTown (an additional 9 percent of daily trips are captured). The mixed-use project would reduce external trips by housing students and faculty of CSUF and HIU onsite, which reduces the need for them to commute from farther distances.</p>

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Table 5.5-6 Climate Action Plan Consistency

Climate Action Plan Reduction Measures and Strategies		Consistency with Reduction Measures and Strategies
Water Use and Efficiency Strategies		
W-1	<p>Conservation Efforts. Support regional and subregional efforts to promote water efficiency and conservation.</p> <ul style="list-style-type: none"> Adopt a water conservation strategy for new development that would reduce water consumption consistent with the Tier 1 voluntary standards* in the 2010 California Green Building Standards Code (CALGreen). 	<p>Consistent. Pursuant to the California Building Code and CALGreen requirements, new indoor and outdoor plumbing/irrigation would be more water efficient than existing fixtures onsite. Under CALGreen, indoor water fixtures are required to be 20 percent more water efficient. Outdoor landscaping is required to be 50 percent more efficient under the Water Efficient Landscape Ordinance. Renovations within the CollegeTown Specific Plan would improve the water efficiency onsite, including use of water-efficient plants and fixtures.</p>
W-2	<p>Sustainable Water Practices in New Development. Support projects, programs, policies, and regulations to encourage water efficient practices in site and building design for private and public projects.</p> <ul style="list-style-type: none"> Develop urban water use targets to help meet the 20 percent statewide water reduction goal by 2020 and the interim 10 percent goal by 2015. 	<p>Consistent. Pursuant to the California Building Code and CALGreen requirements, new indoor and outdoor plumbing/irrigation would be more water efficient than existing fixtures onsite. Under CALGreen, indoor water fixtures are required to be 20 percent more water efficient. Outdoor landscaping is required to be 50 percent more efficient under the Water Efficient Landscape Ordinance. Renovations within the CollegeTown Specific Plan would improve the water efficiency onsite, including use of water-efficient plants and fixtures.</p>
W-3	<p>GHG Emissions from Water Conveyance. Support regional and subregional efforts to reduce greenhouse gas emissions associated with water conveyance through water conservation strategies and alternative supply programs.</p> <ul style="list-style-type: none"> Work with the Metropolitan Water District of Southern California (MWD), the Orange County Water District (OCWD), and the Municipal Water District of Orange County (MWDOC) to establish recycled water infrastructure throughout the City. 	<p>Consistent. Pursuant to the California Building Code and CALGreen requirements, new indoor and outdoor plumbing/irrigation would be more water efficient than existing fixtures onsite. Under CALGreen, indoor water fixtures are required to be 20 percent more water efficient. Outdoor landscaping is required to be 50 percent more efficient under the Water Efficient Landscape Ordinance. Renovations within the CollegeTown Specific Plan would improve the water efficiency onsite, including use of water-efficient plants and fixtures.</p>
Solid Waste Reduction and Recycling Strategies		
SW-1	<p>Regional Waste Management. Support regional and sub-regional efforts on recycling, waste reduction, and product reuse.</p> <ul style="list-style-type: none"> Form a committee for Solid Waste Reduction including staff from the Engineering and Community Development departments. Include any local volunteers to implement the programs within the solid waste strategy of this Climate Action Plan. Continue to make information easily accessible on the City's website 	<p>Consistent. According to CalRecycle, commercial land uses within the state generate 75 percent of the solid waste in California. Assembly Bill 341 (AB 341) (2011), which is identified in CARB's 2008 Scoping Plan, requires mandatory commercial recycling to meet the waste diversion goals. Senate Bill 1018 (SB 1018)</p>

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Table 5.5-6 Climate Action Plan Consistency

	Climate Action Plan Reduction Measures and Strategies	Consistency with Reduction Measures and Strategies
	<p>regarding waste reduction and recycling.</p> <ul style="list-style-type: none"> ▪ Provide the public with outreach materials informing residents and businesses/ institutions about waste reduction and recycling efforts in the City. ▪ Provide the public with outreach materials informing residents and businesses/ institutions about the benefits of using compost in their yards (e.g., soil health, water conservation, plant health). 	<p>(2012) also requires that business that generate 4 cubic yards or more of commercial solid waste per week arrange for recycling service. Retail and office (including institutional offices) tenants within the CollegeTown Specific Plan are required to implement a commercial recycling program.</p> <p>The City's ordinance is consistent with the CALGreen requirements for mandatory construction and demolition recycling. To ensure compliance with this ordinance, the City requires preparation and implementation of a plan for compliance as a condition of the building permit. In addition, documentation of compliance with this ordinance must be submitted prior to issuance of a building or demolition permit.</p>
SW-2	<p>Waste Reduction and Diversion. Support projects, programs, policies, and regulations to promote practices to reduce the amount of waste disposed in landfills.</p> <ul style="list-style-type: none"> ▪ Prepare and implement a strategic plan with the goal of achieving zero waste by 2030. ▪ Designate an environmental programs coordinator to implement these programs within the City. 	<p>Consistent. As identified above, the proposed project would comply with existing state and local regulations pertaining to waste diversion to achieve statewide and local waste diversion goals.</p>
SW-3	<p>Waste Stream Separation and Recycling. Support projects, programs, policies and regulations to expand source separation and recycling opportunities to all households (including multi-family housing), businesses, and City operations.</p> <ul style="list-style-type: none"> ▪ Implement a pay-as-you throw waste program to incentivize reducing waste and increasing diversion. Smaller trash bins cost less than larger bins. ▪ Provide recycling bags (e.g., Multi Bag, Inc.) for residents in multifamily housing for convenient collection of recyclables. http://multibag.com/recycling-bags/. ▪ Implement programs within all City operations to reduce waste, reuse items, and increase diversion through recycling (e.g., recycle bins at every desk and less/smaller trash cans; double sided printing, discourage single use plates/cutlery/cups) 	<p>Consistent. As identified above, the proposed project would comply with existing state and local regulations pertaining to waste diversion to achieve statewide and local waste diversion goals.</p>
SW-4	<p>Food-Waste Processing Facility. Explore the feasibility of a food-waste processing facility to serve the City's food-service and food-processing businesses and large institutions.</p> <ul style="list-style-type: none"> ▪ Work with local waste haulers/landfills or private businesses to develop a food waste/organics composting program to process organics from restaurants and large organizations (hospitals, schools, etc.). ▪ Continue to partner with companies like the City's solid waste collection contractor to host compost give-away events. 	<p>Consistent. This measure is not applicable to the project. However, as identified above, the proposed project would comply with existing state and local regulations pertaining to waste diversion to achieve statewide and local waste diversion goals.</p>
SW-5	<p>GHG Emissions from Waste. Support projects, programs, policies, and regulations to reduce greenhouse gas emissions from waste through improved management of waste handling and reductions in waste generation.</p>	<p>Consistent. This measure is not applicable to the project. However, as identified above, the proposed project would comply with</p>

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Table 5.5-6 Climate Action Plan Consistency

	Climate Action Plan Reduction Measures and Strategies	Consistency with Reduction Measures and Strategies
	<ul style="list-style-type: none"> ▪ Streamline waste collections to be able to send more loads to a materials recovery facility (MRF) (e.g., create collection routes that can collect from offices, institutions). ▪ Ensure the use of green trucks for waste collection by phasing out older trucks. ▪ Work with local businesses to reduce packaging. 	<p>existing state and local regulations pertaining to waste diversion to achieve statewide and local waste diversion goals.</p>

Source: Fullerton 2012

- **Step 3: Consider the consistency of the project with the emission reduction targets set by the Climate Action Plan.**

The City of Fullerton has adopted a goal to achieve a 15 percent reduction from existing (2009) GHG emissions levels by 2020 citywide. Table 5.5-7 compares the GHG emissions reduction targets of the City’s CAP to the emissions inventory of the CollegeTown Specific Plan based on 2020 emission rates. The purpose of this comparison is to identify whether implementation of the Specific Plan could affect the ability of The Fullerton Plan to achieve the citywide GHG reduction target for 2020. It should be noted that the CollegeTown Specific Plan represents only a small proportion of land use in the City. Growth within the CollegeTown Specific Plan would occur over a longer development time (horizon 2030) than the target year identified in The Fullerton Plan (2020). Consequently, the proposed project includes 10 years of additional growth that were not considered in the CAP target setting. The Fullerton Plan considers some growth for the CollegeTown Specific Plan site. However, the amount of growth anticipated onsite from the project is higher than forecast in The Fullerton Plan due to the intensification of the land uses onsite. Furthermore, although the CAP includes GHG emissions from The Fullerton Plan buildout in 2030, it does not identify a GHG reduction target for The Fullerton Plan 2030 scenario. Consequently, the analysis in this section is conservative because much of the development within the CollegeTown Specific Plan is likely to occur post-2020, and therefore would not affect the ability of the City to achieve the 2020 target in the CAP.

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Table 5.5-7 Comparison of the GHG Reduction Target for the City of Fullerton and the GHG Inventory for the CollegeTown Site

	City of Fullerton Climate Action Plan MTCO ₂ e/Year	CollegeTown MTCO ₂ e/Year GHG Emissions MTCO ₂ e/Year
Total Existing Emissions ¹	1,757,359	45,054
Total Future Emissions ²	1,875,462	81,824
2020 Target ³	1,493,755	33,791
Reductions Needed	381,707	48,033
Reduction from CAP Measures ⁴	628,290	NA
CAP Reserve ⁵	246,583	NA

Source: CalEEMod 2013.2.2.

¹ Baseline emissions for CollegeTown are based on year 2013 emissions rates. Baseline GHG emissions for the City's CAP are based on 2009 emissions rates.

² Future emissions are based on 2020 emissions rates for the CAP and the CollegeTown Specific Plan in order to provide a direct comparison to the CAP. Therefore, project inventory from Table 5.5-5 does not directly correspond to the CollegeTown inventory in this table.

³ Based on a 15 percent reduction from existing emissions.

⁴ Based on Table 3-3, Summary of GHG Reduction Measure Performance, in the City's CAP, which identifies that measure achieve a 35.7 percent reduction from existing conditions.

⁵ The reserve is extra reductions identified in the CAP that would occur with implementation of federal, state, and local GHG reduction measures but are not necessary to achieve the City's GHG reduction target.

Table 5.5-7 shows that the increase in GHG emissions from new development would outweigh GHG reduction measures implemented at the state and federal level. If you isolated the CollegeTown Specific Plan site and applied a 15 percent reduction based on existing emissions within the CollegeTown site, the local GHG reduction target would not be achieved for the site due to the growth anticipated within the Specific Plan. However, the target for 2020 should not be applied on a project level because it is meant to be citywide. As stated previously, GHG reduction measures affect both existing and new land uses. Table 5.5-7 shows that through implementation of the CAP, the City would surpass the GHG reduction target by 246,583 MTCO₂e. The amount of reductions achieved citywide would outweigh the increase in GHG emissions forecast to occur within the Specific Plan site. Therefore, the CAP accounts for scenarios by planning for additional reduction strategies to achieve the City's target. It should also be noted that on a per capita basis, the proposed project would result in a substantial improvement in the efficiency of the site, because emissions per service population are currently 13.8 MTCO₂e/SP and would decrease to 4.6 MTCO₂e/SP in 2030 with the project (see Table 5.5-5).

- **Step 4: Consider the extent to which the project would not interfere with the implementation of Climate Action Plan strategies, objectives, measures or actions.**

The CollegeTown Specific Plan would further the GHG reduction strategies, objectives, and measures/actions of the CAP. The proposed project is a mixed-use project on an infill site. New structures would be significantly more energy efficient than the current buildings onsite, many of which were constructed prior to modern building and energy efficiency standards. In addition, although overall trips would be higher with the project, the mixed-use project would also reduce external trips by housing students and faculty of CSUF and HIU onsite, which reduces the need for them to commute from farther distances. As identified in Table 5.5-6, the proposed project would support the CAP strategies, objectives, and measures/actions. Consequently, the project would not interfere with the City's CAP.

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Summary

In Impact GHG-1, GHG emissions of the CollegeTown Specific Plan are compared to SCAQMD's proposed GHG thresholds because buildout of the CollegeTown Specific Plan would occur past the 2020 target year of the CAP, and the CAP does not identify an interim GHG reduction target that achieves the long-term GHG reduction goals of Executive Order S-03-05 (80 percent below 1990 levels by 2050). This analysis in Impact GHG-2 focuses on consistency of the project with the City's GHG reduction goal for 2020 and measures in the City's CAP. As identified in Steps 1 through 4 above, the proposed project would not prohibit the City from achieving the City's 2020 target identified in the CAP and would be consistent with the measures/actions to reduce GHG emissions. Impacts would be less than significant.

5.5.4 Cumulative Impacts

As described above, GHG emissions related to the proposed project 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 above addresses cumulative impacts. Impact GHG-1 identifies that the proposed project would represent a substantial increase in GHG emissions but would achieve the GHG efficiency target of 4.8 MTCO_{2e}/SP. Impacts would be less than significant.

5.5.5 Existing Regulations and Standard Conditions

CollegeTown Specific Plan

- Green Building Design: The following standards and guidelines are provided here to emphasize the incorporation of sustainable development practices and best management practices in an effort to establish the CollegeTown Specific Plan as a leader in sustainability.
 - Whenever possible, building articulation and form should be expressive of and driven by environmental and site conditions such as solar orientation, views, noise, prevailing winds, and local climate.
 - The use of sustainable design features, such as solar panels, light shelves, overhangs, reflective rooftop materials, and use of the water district's reclaimed water system.
 - Energy efficiency, achieved through building design or orientation, materials, window overhangs, arcades or loggia, solar hot water heating, proper placement of shade trees, advanced heating and cooling systems, or other conservation measures, is encouraged.
- Leadership in Energy Efficiency and Environmental Design (LEED) Checklist. The LEED Checklist is required for new construction of Mixed- Use A, Mixed-Use B, Mixed-Use C buildings (see Section 4.4 of the CollegeTown Specific Plan), and Additional Building Types (see section 4.4.2 of the CollegeTown Specific Plan). It is not required for renovations, modifications, and alterations to existing structures and historic buildings. The Preliminary LEED Checklist shall document how the project will meet the LEED Equivalency Standard.

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- **Building Placement, Orientation, and Access:** Buildings are required to front directly onto and be oriented to public streets, pedestrian pathways, and/or common open space in order to ensure that entrances are easily accessible.
- **Parking:** Surface parking lots are prohibited directly adjacent to a public street. Parking lots should be located to take advantage of building shade to reduce heat buildup during hot afternoons. In addition, the CollegeTown Specific Plan requires that surface parking lots be landscaped with large canopy trees to provide shade for vehicles and cool surfaces. Landscaping and design of parking lots and structures should also incorporate sustainable design features, such as permeable paving, bioswales, and native landscaping where feasible, to prevent water runoff, reduce solar heat gain, and minimize the need for extensive maintenance.
- **Open Space:** The Specific Plan identifies that open spaces should be designed appropriate to its context taking into consideration solar and shade orientation, inclement weather, public access, safety and security, ease of maintenance, usability, and aesthetic quality.
- **Building Form and Massing:** Massing of buildings should consider solar and wind orientation, particularly to allow for maximum exposure of sunlight to open space areas and dwelling units.
- **Plant Material:** Pursuant to the CollegeTown Specific Plan, the selection of planting species shall prioritize drought tolerant and low maintenance plant species.
- **Furnishings:** Bicycle parking is also required through the Specific Plan (see also the bicycle parking standards in Section 5.13, *Transportation and Traffic*). In addition to onsite, bicycle parking is also required to be provided in common areas along bicycle routes near intersections and within 50 feet of main entrances. Bicycle parking is required to be placed in plainly visible and lit areas with ample space provided per bike and adequate pedestrian clearance. The Specific Plan also identifies that transit stops within the Specific Plan should provide shelter from natural elements, seating, lighting and signage. The Specific Plan requires seating at strategic locations throughout the Specific Plan area. Seating is required to be placed in areas with shade, trees, and lighting to provide a place of rest for pedestrians. Street furnishings and fixtures shall be made of materials that have long life spans and are able to withstand constant use and exposure to the elements. Higher grade materials and/or recycled materials are recommended to reduce long-term maintenance and replacement costs. The use of solar powered receptacles and compactors is encouraged.
- **Lighting:** All light sources shall provide a warm light and should utilize energy-efficient technology such as low-voltage fixtures and energy-efficient bulbs to the extent possible. The use of solar-powered lighting is encouraged. Landscape lighting shall be automated with photoelectric or time switch controls and shall utilize low-voltage landscape lighting.
- **Accommodations for Electric Vehicles:** Parking garages shall accommodate level 2 electric vehicle charging stations for 10 percent of all parking spaces. The location of the electrical outlets shall be

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specified on building plans, and proper installation shall be verified by the Building Division prior to issuance of a Certificate of Occupancy.

- **Energy Star Appliances:** Applicant-provided appliances shall be Energy Star appliances (dishwashers, refrigerators, clothes washers, and dryers). Installation of Energy Star appliances shall be verified by the Building Division during plan check.
- **Employee Commute Trip Reduction Program:** Applicants for nonresidential projects within the CollegeTown Specific Plan, or applicable designee (e.g., building manager), that employ 20 or more people—which is equivalent to 8,000 square feet of retail space, 6,000 square feet of office space, or 20,000 square feet of institutional space—shall implement an employee commute trip reduction (CTR) program. The CTR program shall identify alternative modes of transportation to the project, including transit schedules, bike and pedestrian routes, and carpool/vanpool availability. Information regarding these programs shall be readily available to employees and clients. Applicants shall submit evidence to the Community Development Department of compliance with this measure prior to issuance of occupancy permits. The project applicant or designee shall consider the following incentives for commuters as part of the CTR program:
 - Ride-matching assistance (e.g., subsidized public transit passes)
 - Vanpool assistance or employer-provided vanpool/shuttle
 - Car-sharing program (e.g., Zipcar)
 - Bicycle end-trip facilities, including bike parking and lockers.

Federal, State, and Local Regulations

- Executive Order S-3-05: Greenhouse Gas Emission Reduction Targets
- AB 32: California Global Warming Solutions Act
- SB 375: Sustainable Communities Strategies
- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations: Appliance Energy Efficiency Standards
- Title 17 California Code of Regulations: Low Carbon Fuel Standard
- AB 1881: California Water Conservation in Landscaping Act of 2006
- SB 1368: Statewide Retail Provider Emissions Performance Standards
- SB 1078: Renewable Portfolio Standards
- Title 24, Part 6, California Code of Regulations: Building and Energy Efficiency Standards
- Title 24, Part 11, California Code of Regulations: Green Building Standards Code

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5.5.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.5-1 and 5.5-2.

5.5.7 Mitigation Measures

Section 5.2, *Air Quality*, identifies mitigation measures that would reduce both criteria air pollutant and GHG emissions associated with the proposed project. However, no significant project-level or cumulative GHG emissions impacts were identified and therefore no mitigation measures are warranted.

5.5.8 Level of Significance After Mitigation

The proposed project would achieve SCAQMD's efficiency metric and would not conflict with plans adopted for the purpose of reducing GHG emissions. Therefore, no significant unavoidable adverse impacts relating to GHG have been identified.

5.5.9 References

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