5.0 LONG TERM IMPACTS

Section 15126(g) of the *State CEQA Guidelines* requires a discussion of a proposed project's potential to foster economic or population growth, including ways in which a project could remove obstacles to growth. Growth does not in itself necessarily cause substantial adverse changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant environmental effects. A proposed project's growth inducing potential is considered significant if it could result in substantial population or economic growth that is not currently planned for a region, or because of the location, type, or magnitude of growth that can reasonably be associated with a project, such growth is likely to result in unavoidable significant effects in one or more environmental issue areas.

5.1 ECONOMIC GROWTH

The proposed facilities projects primarily involve the development of facilities projects found within the 1998 and 2000 Master Plans and the 2004 Master Plan Amendment. The development of these projects would facilitate buildout of the facilities planned to serve ultimate 15,000 full time equivalent students (FTES) envisioned under the Campus Master Plan. The proposed projects involving development of the new access road area and ultimately maintaining and operating the potential future open space conveyance area would not generate additional employees, other than temporary employment opportunities associated with construction activities.

5.2 POPULATION GROWTH

The proposed facilities projects would not increase the planned student enrollment or add any new on-campus student housing. Projects proposed would include transportation, utility, and recreational facilities for the campus. The total number of FTES (15,000) would remain the same as was proposed originally in 1998 under the Campus Master Plan building out incrementally through 2025. Therefore, the proposed facilities would not directly generate any population growth beyond that already planned for the CSUCI campus.

The temporary construction employment associated with the proposed facilities project would be filled by existing contractors. As a result, no relocation to the Ventura County job market from outside the area, nor any indirect population growth impacts are anticipated.

5.3 REMOVAL of OBSTACLES to GROWTH

The proposed facilities projects do not involve the construction of major new infrastructure that would accommodate increased growth. The infrastructure improvements that are proposed (access roads, parking lots, levees, sub-station, sports fields) are intended to serve the university buildout as envisioned under the Master Plan. The planned improvements would be sized specifically to meet the university's needs and would not remove any obstacle to growth in adjacent areas.

CSUCI proposes to preserve an improve the site into a multi-use regional educational and recreation area, consistent with the previous intended use of the site. As noted in Section 2.0, *Project Description*, the university would preserve portions of the site as open space and wildlife habitat while providing community access and education programs. General program development components under consideration include a Native Habitat Program, trailhead and hiking trails, and open space. Some minor structures are anticipated to be constructed, such as a greenhouse or washroom facilities equipped with sewer, water, and power, which would be constructed in support of the passive activities on site. The greenhouse would be located on an existing slab where a former dairy building stood. Other improvements would include repairing existing roads and construction of facilities for ADA accessibility. However, the maintenance and operation of the potential future open space conveyance area is not anticipated to result in any growth beyond serving the 15,000 FTES, or the existing use of the Camarillo Regional Park.

5.4 GLOBAL CLIMATE CHANGE

Climate change refers to any significant change in measures of climate (such as temperature, precipitation or wind) lasting for an extended period (decades or longer) (EPA, 2008). The term climate change is often used interchangeably with the term global warming; however, the phrase 'climate change' is preferred as it helps convey that there are [other] changes in addition to rising temperatures (NAS, 2008).

5.4.1 The Greenhouse Effect and Greenhouse Gases

Gases that trap heat in the atmosphere are often called greenhouse gases. Principal GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and water vapor (H_2O). Some greenhouse gases, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as hydro fluorocarbons (HFCs), per fluorocarbons (PFC), and sulfur hexafluoride (SF_6), which are byproducts of certain industrial processes. (Cal EPA, 2006b).

The greenhouse effect is a natural process that contributes to regulating the earth's temperature. Without it, the average surface temperature of the Earth would be around zero degrees F (-18°C) instead of its present 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect (NCDC, NCOA, 2007).

It is generally agreed that human activity has been increasing the concentration of greenhouse gases in the atmosphere (mostly carbon dioxide from combustion of coal, oil, and gas, and a few other trace gases) (USEPA 2000). Pre-industrial levels of carbon dioxide (prior to the start of the Industrial Revolution) were about 280 parts per million by volume (ppmv), and current levels are about 370 ppmv. The concentration of CO_2 in our atmosphere today has not been exceeded

in the last 420,000 years, and likely not in the last 20 million years. Based on current rates of increase, carbon dioxide concentrations could reach between 490 and 1260 ppm by the end of the 21st century, 75% to 350% above the pre-industrial concentration (IPCC 2007, SRES 2007, NCDC 2007, and NCOA 2007).

In 2004, the United States emitted approximately 8 billion tons of carbon-dioxide equivalents (CO_2e) or about 25 tons/year/person. Of the four major sectors nationwide, residential, commercial, industrial, and transportation, transportation accounts for the highest fraction of GHG emissions (approximately 35% to 40%). These emissions are entirely generated from direct fossil fuel combustion (US EPA, 2007).

The most common GHG, CO_2, constitutes approximately 84% of all GHG emissions in California. Worldwide, the state of California ranks as the 12th to 16th largest emitter of CO_2 and is responsible for approximately 2% of the world's CO_2 emissions (CEC, 2006). This large number is due primarily to the sheer size of California compared to other states. By contrast, California has one of the lowest per capita GHG emission rates in the country, due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have been otherwise (CEC, 2007). Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states (less fuel is consumed for heating homes and businesses).

According to the California EPA Climate Action Team report (CalEPA, 2006), fossil fuel combustion accounted for 81% of California's gross CO_2 emissions, while CH_4 and NO_2 accounted for approximately 6.4% and 6.8%, respectively of gross 2002 climate change emissions in California (CO_2e).

5.4.2 Greenhouse Gas Sources

Greenhouse gases come from a wide range of sources which include auto, electrical power, natural gas, and other emission producing sources. The mentioned sources are identified below.

Auto Emissions. The United Sates Bureau of Transportation Statistics suggests that an average United States "trip" is approximately 11.4 miles. The amount of gasoline consumed per year can be estimated by multiplying the total miles traveled per project trip by the United States fuel economy average of 25 miles per gallon. Combustion of one gallon of gasoline produces about 19 pounds of carbon dioxide (The Climate Trust, 2007 RFP Conversion Metrics, 2007).

Electrical Power Emissions. Electrical power greenhouse gas emissions are a function of total project demand. Approximately 343 tons of carbon dioxide is produced for each megawatt hour of power generated by California Electrical suppliers (California Energy Commission, Inventory of California Greenhouse Gas Emissions and Sinks, 1990-2004).

Natural Gas Emissions. Greenhouse gas emissions associated with the combustion of natural gas are a function of natural gas use at buildout and carbon dioxide emissions produced when a

unit of natural gas is combusted. Natural gas produces approximately 0.05467 tons of carbon dioxide per 1,000 cubic feet combusted (The Climate Trust, 2007).

Other Natural Gas Emissions. Emissions not included above include methane emissions from sources such as wastewater treatment plants, solid waste that is landfilled, and potentially other non-carbon dioxide greenhouse gas emissions that occur as a result of a project. Landfill emissions are separately regulated and methane gas recovery is a required element of that regulatory program.

5.4.3 Regulatory Framework

Climate change has had a relatively recent record in the adoption of regulations on local, state, national and worldwide scales.

Worldwide regulations started in 1992, when the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change agreement with the goal of controlling greenhouse gas emissions. As a result, the Climate Change Action Plan was developed to address the reduction of greenhouse gases in the United States. The Climate Change Action Plan consists of more than 50 voluntary programs. Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere (i.e., chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform) were to be phased out by year 2000.

More recent regulations were established statewide in California with Executive Order #S-3-05 on June 1, 2005. Executive Order #S-3-05 calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80% reduction in GHG emissions below 1990 levels by 2050. Additionally, it requires the California Environmental Protection Agency (CalEPA) to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy. The first of these reports, "Scenarios of Climate Change in California: An Overview," was published in February 2006. These reports use a range of emissions scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) to project a series of potential warming ranges that may occur in California during the 21st century (low, medium, and high warming ranges).

The California Legislature, in addition to Executive Order #S-3-05, passed Assembly Bill 32 (Global Warming Solutions Act) on August 31, 2006. It requires the State's global warming emissions to be reduced to 1990 levels by 2020. The reduction would be accomplished through an enforceable Statewide cap on global warming emissions that would be phased in starting in 2012. Emission reductions shall include carbon sequestration projects and best management practices that are technologically feasible and cost-effective. Currently, AB 32 does not provide thresholds or methodologies for analyzing a project's impacts regarding global climate change. However, AB 32 requires that on or before January 1, 2010, regulations be adopted to implement early action GHG emission reduction measures. Additionally, on or before January 1, 2010, California will adopt quantifiable, verifiable and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. Further, the Air Resources Board shall monitor

compliance with and enforce any emission reduction measure adopted pursuant to Assembly Bill 32.

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

5.4.4 Facilities Projects Impacts

Climate change is, by definition, a cumulative environmental impact and the impacts of climate change on California human and natural systems could be substantial; however, there currently is no agreed-upon methodology to adequately identify, under CEQA, when project-level GHG emissions contribute considerably to this cumulative impact. Thus, at this time, it would be speculative to determine if the potential GHG emissions associated with the construction of the proposed facilities projects would or would not contribute considerably to this cumulative impact.

CEQA requires an agency to engage in forecasting *"to the extent that an activity could reasonably be expected under the circumstances. An agency cannot be expected to predict the future course of governmental regulation or exactly what information scientific advances may ultimately reveal."* (*CEQA Guidelines* Section 15144, Office of Planning Research commentary, citing the California Supreme Court decision in *Laurel Heights Improvement Association v. Regents of the University of California* [1988] 47 Cal. 3d 376). *CEQA* does not require an agency to evaluate an impact that is "too speculative" provided that the agency identifies the impact, engages in a "thorough investigation" but is "unable to resolve an issue," and then discloses its conclusion that the impact is too speculative for evaluation. (*CEQA Guidelines* Section 15145, Office of Planning and Research commentary). Additionally, *CEQA* requires that impacts be evaluated at a level that is *"specific enough to permit informed decision making and public participation"* with the "production of information sufficient to understand the environmental impacts of the proposed project and to permit a reasonable choice of alternatives so far as environmental aspects are concerned." (*CEQA Guidelines* Section 15146, Office of Planning and Research commentary).

As indicated in Section 2.0, *Project Description*, the proposed facilities include an electrical substation, new roadways, levee, additional sports fields and associated structures, lights for the existing Potrero soccer fields, and potential future conveyance of land to the north of the campus. All of these facilities would require some element of construction, which would emit GHGs. On an operational level, the only facilities that would require electricity would be the Potrero soccer field lights and any maintenance lighting for the substation and potential future conveyance area structures. Electricity use would result in indirect emissions for GHGs. Construction and operational impacts are discussed further below.

Construction Emissions. The proposed facilities projects would emit greenhouse gases from upstream emission sources (the manufacture of building materials such as cement) and

direct sources (combustion of fuels from employee vehicles and construction equipment). Emissions from the combustion of fuel from construction equipment and associated employee vehicles were estimated using URBEMIS 2007 v.9.2.4. Carbon dioxide emissions during construction phases emitted 35,636 lbs per day, which translates to 16.04 metric tons per day CDE (35,636 lbs X 0.00045 metric tons/pound X 1(GWP)). Methane and nitrous oxide emissions would be negligible in this instance due to the construction period. Construction would be a temporary one-time occurrence and would not contribute to the daily operational GHG emissions scenario.

There is no adopted Greenhouse Gas Reduction Plan or applicable strategy in the jurisdiction of the project. Therefore, this assessment looks at whether or not the project would hinder or delay California's ability to meet the reduction targets contained in AB 32. Construction of the proposed project would occur prior to the year 2020 and would not hinder or delay the implementation of AB 32 since AB 32 assesses the emissions (not the concentration) in the year 2020.

Operational Emissions. Implementation of the above mentioned facilities projects would introduce additional development to the CSUCI Campus. However, the proposed facilities would not result in direct GHG-emitting sources. The lights proposed on the Potrero soccer fields, lights for locker rooms and potential future conveyance area structures would represent an indirect energy source that would require the use of electricity that is generated through sources that emit GHGs. The proposed lights would not be turned on every night and would occur only during sporting events or nighttime practices. This would represent an incremental increase of energy use.

Other proposed facilities would not result in direct or indirect GHG emissions. The roadway, levee, additional sports fields, and electrical substation would not require direct energy consumption. It should be noted that the roadway does not constitute an emitting source, as it is the vehicles that use it which are the source. The proposed facilities do not increase the FTES planned for the Campus and thus would not increase trips to and from the campus. Indirect energy would be required for periodic maintenance. The energy sources of such could emit GHGs into the atmosphere. However, the amounts that would be emitted would be a temporary occurrence and would not contribute to the daily operational GHG emissions scenario.

Significant uncertainty is involved in making predictions about the extent of which the project operations would have on greenhouse gas emissions and global climate change occurs with implementation of the proposed project. Therefore, a conclusion on the significance of the environmental impact of climate change cannot be reached. Section 15145 of the *CEQA Guidelines* provides that, if after a thorough investigation a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impacts.