CHAPTER 5.0
OTHER CEQA CONSIDERATIONS

California Environmental Quality Act (CEQA) Guidelines Section 15128 requires that an Environmental Impact Report (EIR) contain a brief statement disclosing the reasons why various possible significant effects of a proposed project were found not to be significant and, therefore, would not be discussed in detail in the EIR. UCI reviewed the 2007 LRDP against the potential environmental issues contained in the Initial Study Checklist. Environmental issue areas found to have potentially significant impacts are addressed in Chapter 4 of this EIR. Chapter 4 also discusses related issues that were found to have no potential for a significant impact under the sections titled CEQA Checklist Items Adequately Addressed in Initial Study. However, some issues that were found to have no potential for a significant impact did not fall under the topics analyzed in Chapter 4 and, therefore, these issues are discussed below in Section 5.1.

Section 15126 of the CEQA Guidelines requires that all aspects of a project be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must identify the following three components, which are also addressed in this chapter:

- Growth-inducing impacts of the proposed project (addressed below in Section 5.2);
- Significant environmental effects that cannot be avoided if the proposed project is implemented (addressed below in Section 5.3); and
- Significant irreversible environmental effects that would be involved in the proposed project should it be implemented (addressed below in Section 5.4).

5.1 OTHER EFFECTS FOUND NOT TO BE SIGNIFICANT

The 2007 LRDP Initial Study indicated that implementation of the 2007 LRDP did not have the potential to result in significant impacts related to the following checklist items and, therefore, further analysis in the EIR is not necessary. The analyses conducted for the Initial Study for Agricultural Resources and Mineral Resources are restated below.

5.1.1 AGRICULTURE RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the *California Agricultural Land Evaluation and Site Assessment Model* (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.

Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Many soil types have been mapped on the UCI campus by the U.S. Department of Agriculture (1978). Based on the soils types mapped during this survey, approximately 30 percent of the campus is considered to contain soils which are classified as Prime Farmland or Farmland of Statewide Importance as classified by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP). However, much of the area containing these soils has been developed with buildings and parking lots. Further, according to an updated FMMP map of Orange County Important Farmlands (2002), the UCI campus is classified as a mix of "Other Land" and "Urban and Built-up Land." The "Other Lands" classification is used for lands which do not fall into any other category and the "Urban and Built-Up Land" classification is used for land which is occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Common examples include residential, commercial, industrial, and institutional facilities, among others. Because the soils once considered to be important farmland have been replaced with construction fill throughout the developed portions of the campus, the FMMP has been updated to reflect the existing condition of the area. Therefore, no impacts to agricultural resources would occur as a result of implementation pursuant to the 2007 LRDP and no further analysis is required.

Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The University of California is constitutionally exempt from local zoning and land use plan/element requirements, and no portion of the campus is under a Williamson Act contract. Due to the specific tax-exempt status of the University of California, land owned by the University of California is not subject to Williamson Act land use/tax contracts. Accordingly, the 2007 LRDP would not conflict with existing zoning or with Williamson Act contracts. No impact would occur and no further analysis is required.

Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

Implementation of the proposed 2007 LRDP would not convert agricultural lands to non-agricultural uses. Refer to the previous discussions, above.

5.1.2 MINERAL RESOURCES

Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Mineral resources do not occur on UCI property. The predominant formational materials that underlie the UCI campus are the Topanga formation. This formation consists of sandstone, breccia, volcanic flows, and siltstone. The Topanga formation does not contain mineral resources; therefore, the loss of known

mineral resources valuable locally or regionally would not occur as a result of development of the 2007 LRDP and no further analysis is required.

Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

As discussed above, development under the 2007 LRDP would not result in the loss of a locally important mineral resource recovery site. No impact would occur and no further analysis is required.

5.2 GROWTH INDUCEMENT

As required by the CEQA Guidelines, an EIR must include a discussion of the ways in which the proposed project could directly or indirectly foster economic development or population growth, or the construction of additional housing and how that growth would, in turn, affect the surrounding environment (CEQA Guidelines Section 15126.2[d]). Growth can be induced in a number of ways, including the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval. According to CEQA Guidelines Section 15126.2(d), "it must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

The 2007 LRDP would contribute to the UC's ability to serve the growing population in the State of California and, therefore, on a statewide scale is not considered growth inducing but rather responds to the demand of an increased population. More specifically, the 2007 LRDP accommodates the necessary facilities and infrastructure to serve increased demand on educational and research services related to an overall population increase in California. This growth is considered within regional projections and plans and is desirable because of its contributions to the state's higher education program, the local job market, and local economy.

Implementation of the 2007 LRDP would directly influence the campus's population by providing facilities so that regular academic year student population would increase from approximately 24,500 in 2005-06 to as much as 37,000 in 2025-26. Implementation would also increase UCI faculty/researcher and staff employment on the campus from approximately 7,500 in 2005-06 to as much as 11,500 in 2025-26. In addition, the 2007 LRDP would support increased employment and population in the region through the expenditures made by the campus, and the campus population. However, while the growth anticipated under the 2007 LRDP would be in response to projected statewide population growth, is within regional projections, and is planned for in the region, the project would increase demand for housing stock in the area immediately surrounding the campus and elsewhere in the commute shed. It may also induce growth for other supporting residential land uses, such as service commercial and retail. The 2007 LRDP would also contribute to the state's higher education program, the local job market, and local economy. These direct and indirect growth inducement impacts are discussed further in the following sections.

The 2007 LRDP does not meet other criteria for being considered growth inducing because the 2007 LRDP would not remove obstacles to growth or encourage growth through the provision of new and essential public services or access opportunities. Nor would it result in urbanization of land in a remote location, resulting in "leapfrog" development. The UCI campus is located in an urbanized area that is served by an extensive existing network of electricity, water, sewer, storm drain, communications, roadways, and other infrastructure sized to accommodate or allow existing and planned future growth.

5.2.1 DIRECT POPULATION AND EMPLOYMENT GROWTH

Direct effects on growth from implementation of the 2007 LRDP are discussed under Issue 1 of Section 4.10, Population and Housing. As explained in that section, the 2007 LRDP would contribute to the UC's ability to serve the growing population in the State of California and, therefore, on a statewide scale is not considered growth inducing but rather responding to the demand of an increased growth. On a local level, implementation of the 2007 LRDP would result in direct growth on the campus because it assumes an increase in the numbers of students, faculty/researchers and staff. It is also expected that implementation of the 2007 LRDP would support planned and projected growth in the surrounding region. Due to the educational, research, and economic benefits that UCI provides, the 2007 LRDP is not anticipated to result in direct inducement of growth that is considered adverse. However, the adverse environmental effects associated with the growth of the campus such as those resulting from increased traffic and increased demands on services and utilities have been analyzed in their respective sections in this EIR and may be significant. This EIR identifies the potential adverse regional and local environmental effects of the expected growth such as increased traffic and increased demands on services and utilities in the appropriate issue sections.

5.2.2 INDIRECT ECONOMIC GROWTH

In addition to direct growth, additional growth could occur as campus-serving and related businesses and institutions establish or expand in response to the increased demand for goods and services or due to the synergies that result between technical specialties on campus and related industries. Apart from the direct jobs on the campus, the operation of the campus under the 2007 LRDP would likely result in the creation of new indirect and induced jobs. Indirect jobs are those that are created or sustained when the campus purchases goods and services from businesses in the region, and induced jobs are created or sustained when wage incomes of those employed in direct and indirect jobs are spent on the purchase of goods and services in the region. Indirect jobs would be created in various communities in Orange County to the extent that the campus purchases goods and services from these communities. Induced jobs would be created or sustained in those communities where campus-related income is spent. It should be assumed that the emergence of these businesses would have environmental impacts; however, campus growth is indirectly responsible. Further, any development projects occurring in the region would undergo environmental analysis to address their potential environmental effects.

5.2.3 INDIRECT POPULATION GROWTH

Indirect population growth occurs when jobs and related population are created as a result of the direct growth induced by a proposed project. This means population growth can sometimes occur to fill jobs in businesses that support the population increase associated with a proposed project. The indirect and induced employment that would result from implementation of the 2007 LRDP could support some of the population growth projected for the region. A small portion of the indirect and induced jobs can be assumed to be filled by new members to the regional population. A large influx of non-local population into the region in response to the indirect and induced jobs would not be expected. Many of the indirect and induced jobs would be in retail or service sectors and would not require special skills; therefore, it would be reasonable to assume that these jobs would be filled by persons already living in Orange County who are unemployed, or by college students, or by dependents and spouses of the persons who move to Orange County in response to the new jobs on the UCI campus. However, the growth at UCI could indirectly cause population growth because the more specialized industries that establish or expand as a result of UCI have a greater potential to draw employees from distant locations.

5.2.4 PROVISION OF INFRASTRUCTURE

Growth can be triggered if the infrastructure to serve a proposed project is constructed with excess capacity, or if the lack of infrastructure is an obstacle to growth, and that obstacle is removed by the project. As described in Issue 2 of Section 4.10, Population and Housing, existing and future campus utilities would not serve off-campus areas and, therefore, utility extensions and expansions under the 2007 LRDP would only directly enable growth of the UCI campus population and would not lead to urban growth outside the boundary of the campus. Growth outside of the campus would not be triggered by provision of infrastructure under the 2007 LRDP.

5.3 CLIMATE CHANGE

The enactment of the California Global Warming Solutions Act has no direct regulatory effect on the 2007 LRDP, and the State of California has not issued guidance about evaluating climate change in CEQA documents. No thresholds have been established to determine whether greenhouse gas emissions from a given project would be significant. However, in response to the importance of this environmental issue and anticipating future enactment of such regulations by the State, UCI has included a discussion of the potential contributions of the 2007 LRDP to global climate change.

5.3.1 BACKGROUND

Global climate change is currently an important and controversial environmental, economic, and political issue. It is a recorded change in the average weather of the earth, measured by wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred in the past, such as during previous ice ages. Recent scientific research indicates that the rate and magnitude of current global temperature changes are attributable to anthropogenic (human caused) sources.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. IPCC concluded that a stabilization of greenhouse gases at 400-450 parts per million (ppm) carbon dioxide-equivalent concentration is required to keep global mean warming below two degrees Celsius, which is assumed to be necessary to avoid dangerous climate change (IPCC 2001, as cited in Hendrix et al., 2007).

5.3.1.1 GREENHOUSE GASES

Gases that trap heat in the atmosphere are often called greenhouse gases, analogous to a greenhouse. Greenhouse gases are emitted by natural processes and human activities. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature. Without these natural greenhouse gases, the Earth's surface would be about 61°F cooler (CA 2006, as cited in Hendrix et al., 2007). Emissions from human activities such as electricity production and vehicles have elevated the concentration of these gases in the atmosphere.

Greenhouse gases have varying global warming potential. The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radioactive forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (EPA 2006a, as cited by Hendrix et al., 2007). The reference gas for GWP is carbon dioxide; carbon dioxide has a GWP of one. For example, methane has a GWP of 21, which means that it has a greater global warming effect than carbon dioxide on a molecule per molecule basis. One teragram of carbon dioxide equivalent (Tg CO2 Eq.) is the emissions of the gas multiplied by the GWP. One teragram is equal to one million metric tons.

The carbon dioxide equivalent is a good way to assess emissions because it gives weight to the GWP of the gas.

Below is a list of the most common greenhouse gases The atmospheric lifetime and GWP of selected greenhouse gases are summarized in Table 5-1. As shown in the table, GWP ranges from 1 (carbon dioxide) to 23,900 (sulfur hexafluoride).

Table 5-1. Global Warming Potentials and Atmospheric Lifetimes

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide (CO_2)	50 – 200	1
Methane	12 ± 3	21
Nitrous Oxide (N_2O)	120	310
HFC-134a	48.3	3,800
Perfluorocarbons (PFCs)		
Tetrafluoromethane (CF_4)	50,000	6,500
Hexafluoroethane (C_2F_6)	10,000	9,200
Sulfur Hexafluoride (SF_6)	3,200	23,900

Source: USEPAb, 2007.

Water vapor is the most abundant, important, and variable greenhouse gas in the atmosphere. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (change from solid to gas, without passing the liquid state) from ice and snow, and transpiration from plant leaves.

Carbon dioxide (CO_2) is an odorless, colorless natural greenhouse gas. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of carbon dioxide are burning coal, oil, natural gas, and wood. Average global atmospheric CO_2 concentrations are currently around 370 ppm; concentrations may increase to 540 ppm by 2100 as a direct result of anthropogenic sources, which could result in an average global temperature rise of at least two degrees Celsius (IPCC 2001, as cited in Hendrix et al., 2007). The primary anthropogenic source of carbon dioxide from UCI is vehicles powered by fossil fuels. Vegetation on campus is also a source of carbon dioxide.

Methane is a flammable gas and is the main component of natural gas. When one molecule of methane is burned in the presence of oxygen, one molecule of carbon dioxide and two molecules of water are released. There are no health effects from methane. A natural source of methane is from the anaerobic decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.

Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Higher concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. Like other nitrogen oxides (NO_x), nitrous oxide can be produced from burning fuels such as gasoline, diesel, and coal. Vehicles powered by fossil fuels are a source of nitrous oxide from UCI.

Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), and Hydrofluorocarbons (HFCs) are synthetic chemicals used as air conditioners and refrigerants. CFC use and production is limited by the Montreal Protocol because CFCs destroy stratospheric ozone. HCFCs have been utilized as alternative refrigerants to CFCs. However, HCFCs also deplete stratospheric ozone, although to a much lesser extent than CFCs; therefore, they are also being phased out due to an amendment to the Montreal Protocol. The Montreal Protocol as amended is carried out in the United States through the Clean Air Act, which is implemented by the EPA and enforced at UCI through the campus Environmental Health and Safety (EH&S) program. HFCs are a viable replacement for CFCs and HCFCs and do not deplete the ozone layer. UCI currently uses HCFCs as refrigerants in maintenance and operation of existing refrigeration systems.

Perfluorocarbons (PFCs) have stable molecular structures and do not break down though the chemical processes in the lower atmosphere. However, high-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. Concentrations of tetrafluoromethane in the atmosphere are over 70 parts per trillion (ppt) (EPA 2006d). The two main sources of PFCs are primary aluminum production and semiconductor manufacture. Small quantities of PFCs are used at UCI for specific academic research activities, and emissions generated from the research are filtered through an air pollution control system.

Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas that has a high global warming potential (GWP), as shown in Table 5-1. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, the magnesium industry, semiconductor manufacturing, and as a tracer gas for leak detection. UCI uses small quantities of sulfur hexafluoride for leak detection and specific academic research activities.

Ozone (O_3) is a greenhouse gas that is relatively short-lived in the troposphere and therefore is not considered global in nature. Ozone is a product of the photochemical process involving the energy from sunlight and ozone precursors, primarily nitrogen oxide (NO_x) and volatile organic compounds (VOCs). South Coast Air Quality Management District (SCAQMD) regulates ozone under its current 2003 Air Quality Management Plan (AQMP) and its draft 2007 AQMP. According to the California Air Resources Board (CARB), it is difficult to make an accurate determination of the contribution of ozone precursors (NOx and VOCs) to global warming (CARB 2004b, as cited by Hendrix et al., 2007). Vehicles powered by fossil fuels are a source of ozone emissions from UCI.

Aerosols are gases emitted naturally (e.g., in volcanic eruptions) and as the result of human activities (e.g., by burning fossil fuels).[1] Aerosols can warm the atmosphere by absorbing and emitting heat, cool the atmosphere by reflecting light, and affect cloud formation. Sulfate aerosols are emitted when fuel with sulfur in it is burned. Black carbon (or soot) is emitted during incomplete combustion of fossil fuels. Particulate matter regulation – such as that instituted in the vicinity of UCI by SCAQMD – has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

5.3.1.2 ENVIRONMENTAL EFFECTS OF CLIMATE CHANGE

Potential environmental effects from global climate change include increased temperature and a resultant rise in sea level, increased incidences of extreme weather events, and worsened air quality. Health effects for people living in warmer climates could include more stress and heat-related problems such as heat

[1] There is no connection between particulate aerosols and pressurized consumer products also called aerosols (USEPAc, 2007).

rash and heat stroke. Diseases such as malaria, dengue fever, yellow fever, and encephalitis, which are spread by mosquitoes and other insects whose populations are affected by climate patterns, may also increase. Extreme weather events such as flooding and hurricanes may displace people and agriculture. Droughts may increase in some areas, decreasing water supply and food availability. Global climate change may also contribute to air quality problems from increased frequency of smog and particulate air pollution (EPA, 2006c, as cited in Hendrix et al, 2007).

5.3.2 REGULATORY FRAMEWORK

California Governor Arnold Schwarzenegger announced on June 1, 2005 through Executive Order S-3-05 greenhouse gas emission reduction targets. These targets are a reduction of greenhouse gas emissions to 2000 levels by 2010; a reduction of greenhouse gas emissions to 1990 levels by 2020; and a reduction of greenhouse gas emissions to 80 percent below 1990 levels by 2050 (CA, 2005). Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020 (Hendrix et al, 2007).

In 2006, the California State Legislature adopted the California Global Warming Solutions Act (AB 32). The law requires CARB to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020. On or before June 30, 2007, CARB is required to publish a list of discrete greenhouse gas emission reduction measures for early implementation. Emission reductions shall include carbon sequestration projects and best management practices that are technologically feasible and cost-effective. Greenhouse gases as defined under the California Global Warming Solutions Act include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

The California Global Warming Solutions Act also requires that CARB determine by January 1, 2008 what the statewide greenhouse gas emissions level was in 1990, and approve a statewide greenhouse gas emissions limit that is equivalent to that level to be achieved by 2020. While the level of 1990 greenhouse gas emissions has not yet been approved, other publications indicate that levels varied from 425 to 468 teragrams of carbon dioxide equivalents (Tg CO2 Eq.) (CEC 2006, as cited in Hendrix et al, 2007). In 2004, the emissions were estimated at 492 Tg CO2 Eq. (CEC 2006, as cited in Hendrix et al, 2007). Using the range of 1990 emissions, a reduction of between 5 and 13 percent would be needed to reduce 2004 levels to 1990 levels.

Executive Order S-01-07 was enacted by the Governor on January 18, 2007, which mandates that: 1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) a Low Carbon Fuel Standard for transportation fuels be established for California.

5.3.3 GREENHOUSE GAS EMISSIONS FROM THE 2007 LRDP

The 2007 LRDP could result in a maximum total campus population increase of 23,327 faculty, staff, and students, as well as 5,067,000 new square feet of academic and support space, 6,815 new beds for students, and 232 to 682 new housing units for faculty and staff. Implementation of the 2007 LRDP would increase greenhouse gas emissions associated with campus construction and operation, particularly from vehicle operations. Greenhouse gases emitted as a result of expanded campus operations would include carbon dioxide, nitrous oxide, hydrofluorocarbons, ozone, and aerosols. Implementation of the 2007 LRDP may also result in additional greenhouse gas emissions from perfluorocarbons and sulfur hexafluoride used on the campus for specific academic research purposes.

Despite these additional greenhouse gases emissions, implementation of the LRDP is not expected to generate enough greenhouse gas emissions to individually influence global climate change. However, climate change is a cumulative environmental effect to which the project would contribute. When combined with all other sources of greenhouse gases, implementation of the 2007 LRDP would incrementally contribute to global climate change resulting from the production of greenhouse gas emissions.

To counteract their contributions to greenhouse emissions and global climate change, UCI implements greenhouse gas emission reduction strategies through existing campus programs, and compliance with the UC Policy on Sustainable Practices and State regulations pertaining to greenhouse gas emissions reduction. UCI would also adhere to State of California greenhouse gas emission reduction strategies.

5.3.3.1 UCI EMISSION REDUCTION STRATEGIES

The existing UCI programs described below contribute to greenhouse gas emission reduction and would expect to continue under the 2007 LRDP.

i. Alternative Fuel Use – UCI National Fuel Cell Research Center's Hydrogen Fuel Station, Biodiesel fuel in campus fleet vehicles, electric vehicle programs, and other alternative fuel pilot programs

ii. Green Building Programs – UCI is working in collaboration with the US Green Building Council to establish the first campuswide LEED green building design and certification program in the US.

iii. Sustainable Landscaping - Green and Gold program promotes the use of native and drought tolerant landscaping on campus including on-campus native plant nursery in collaboration with Irvine Ranch Water District.

iv. ASUCI Shuttle Program – One of largest privately operated shuttle systems in Orange County, only shuttle system to operate on 100% biodiesel including catalytic conversion to reduce NO_X emissions.

v. Transportation Demand Management Program – UCI's TDM program provides a comprehensive system of alternative transportation modes, incentives, and parking and transportation policy to reduce single vehicle occupant use and reduce miles traveled.

vi. On-campus Housing – UCI provides on-campus housing to a large percentage of students and faculty (47 percent of students and 21 percent of faculty housed on campus) to reduce commuter trips to campus.

vii. Waste Prevention and Recycling Program which aims to:

- Reduce waste at the source;
- Encourage the purchase and use of durable and reusable products;
- Encourage the purchase of high post-consumer content recycled products;
- Increase the total volume of waste materials diverted from landfills to recycling processes;
- Ensure the long term viability of campus recycling operations through appropriate educational programs, coordination, management and oversight; and
- Remain in compliance with Federal and state mandates.

5.3.3.2 UC EMISSION REDUCTION STRATEGIES

Projects under the 2007 LRDP would implement greenhouse gas emission reduction strategies through compliance with the UC Policy on Sustainable Practices and guidelines for its implementation. Emission

reduction strategies instituted under this policy include practices related to green building design, clean energy, climate protection, transportation, operations, recycling and waste management, and environmentally preferable procurement. Representative *excerpts* from the UC Policy on Sustainable Practices are listed below.[2]

I. Green Building Design

Incorporate the principles of energy efficiency and sustainability in all capital projects, renovation projects, operations and maintenance within budgetary constraints and programmatic requirements.

New Buildings

- All new building projects, other than acute-care facilities, to outperform the required provisions of the California Energy Code (Title 24) energy-efficiency standards by at least 20 percent.
- The University of California will design and build all new buildings, except for laboratory and acute care facilities, to a minimum standard equivalent to a LEED™ 2.1 "Certified" rating.
- Campuses will strive to achieve a standard equivalent to a LEED™ "Silver" rating or higher, whenever possible within the constraints of program needs and standard budget parameters.
- The University of California will design and build all new laboratory buildings to a minimum standard equivalent to a LEED™ 2.1 "Certified" rating and the Laboratories for the 21st Century (Labs21) Environmental Performance Criteria (EPC), as appropriate.

Building Renovations

- Any significant renovation projects involving existing buildings will also apply sustainability principles to the systems, components and portions of the building being renovated.
- Renovation of buildings that require 100 percent replacement of mechanical, electrical and plumbing systems and replacement of over 50 percent of all non-shell areas (interior walls, doors, floor coverings and ceiling systems) should at a minimum comply with a UC equivalent to a LEED-NC 2.1 or the most current version of the LEED NC program certified rating.

II. Clean Energy Standard

Minimize the use of non-renewable energy sources on behalf of the University's built environment by creating a portfolio approach to energy use, including the use of local renewable energy and purchase of green power from the grid, as well as conservation measures that reduce energy consumption.

- The University will implement a system-wide portfolio approach to reduce consumption of non-renewable energy. The portfolio will include a combination of energy efficiency projects, the incorporation of local renewable power measures for existing and new facilities, green power purchases from the electrical grid, and other energy measures with equivalent demonstrable effect on the environment and reduction in fossil fuel usage.

[2] The UC Policy on Sustainable Practices is periodically updated and expanded. In anticipation of future modifications during the life of this EIR only excerpts of the policy are presented. The full text of the UC Policy on Sustainable Practices can be viewed online at http://www.ucop.edu/ucophome/coordrev/policy/PP032207ltr.pdf or obtained through Universitywide Policy Office, Office of the President, 1111 Franklin Street, 12th Floor, Oakland, CA 94607.

- The University will strive to achieve a level of grid-provided electricity purchases from renewable sources equaling 20 percent of its electricity needs from renewable sources by 2010.
- The University will develop a strategic plan for siting renewable power projects in existing and new facilities with a goal of providing up to 10 megawatts of local renewable power by 2014.
- The University will develop a strategic plan for implementing energy efficiency projects for existing buildings and infrastructure to include operational changes and the integration of best practices.

III. Climate Protection Practices

- The University will develop a long term strategy for voluntarily meeting the State of California's goal, pursuant to the "California Global Warming Solutions Act of 2006" that is: by 2020, to reduce greenhouse gas emissions to 1990 levels.
- Each UC campus will pursue individual membership with the California Climate Action Registry.

IV. Sustainable Transportation Practices

Incorporate alternative means of transportation to/from and within the campus to improve the quality of life on campus and in the surrounding community. The campuses will continue their strong commitment to provide affordable on-campus housing, in order to reduce the volume of commutes to and from campus. These housing goals are detailed in the campuses' Long Range Development Plans.

V. Sustainable Operations

Track, report and minimize greenhouse gas emissions on behalf of University operations.

VI. Recycling and Waste Management

Minimize the amount of University generated waste sent to landfills by adopting the following waste diversion goals.

- 50% by June 30, 2008
- 75% by June 30, 2012
- Ultimate goal of zero waste by 2020

VII. Environmentally Preferable Purchasing Practices

Utilize the University's purchasing power to meet its sustainability objectives related to:

- Green Seal certified products
- Reduction of hazardous electronic waste
- Environmentally responsible packaging
- Effective recycling and manufacturer take-backs
- Supply chain environmental responsibility
- Evaluating environmental claims
- Training and annual plan and report

5.3.3.3 STATE OF CALIFORNIA EMISSION REDUCTION STRATEGIES

Implementation of the 2007 LRDP would also adhere to the greenhouse gas emission strategies currently set by the State of California, as well as regulations likely to be developed in the future. Categories of the State's current strategies for reducing greenhouse gas emissions include the following:

- Reduce emissions generated by vehicles
- Reduce emissions by reducing diesel vehicle idling
- Reduce hydroflurocarbons
- Promote alternative fuels with lower emissions
- Promote hydrogen as alternative fuel
- Increase recycling
- Plant trees
- Build energy efficient buildings
- Purchase energy efficient appliances
- Promote jobs/housing balance to reduce commute length
- Purchase renewable energy

5.3.4 SUMMARY

Implementation of the 2007 LRDP would result in increased greenhouse gas emissions associated with campus construction and operation,. However, the campus would institute emission reduction strategies through continuation of existing programs that reduce greenhouse gas emissions, compliance with the UC Policy on Sustainable Practices, and compliance with existing and future emission reduction strategies set forth by the State of California. Together, these emission reduction practices would substantially lessen UCI's contribution to global climate change.

5.4 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

Pursuant to Section 15126.2(b) of the CEQA Guidelines, this section identifies significant impacts that would not be avoided, even with the implementation of feasible mitigation measures. The final determination of significance of impacts and of the feasibility of mitigation measures will be made by The Regents of the University of California as part of their certification action for the EIR. Sections 4.1 through 4.14 of this EIR provide a comprehensive identification of the 2007 LRDP's potentially significant adverse environmental effects and any necessary mitigation measures, as well as the level of significance both before and after mitigation. A summary of the environmental impacts and mitigation measures is contained in Section 2.0 of this EIR.

The estimated air pollutant emissions for CO, VOCs, NO_x, PM_{10}, and $PM_{2.5}$ from future projects that implement the 2007 LRDP may result in a cumulatively considerable contribution to significant cumulative air quality impacts in the Basin. Implementation of mitigation measures Air-2A, Air-2B and Air-2C would reduce the LRDP's cumulatively considerable contribution to these impacts to a level of Less than Significant. In accordance with Section 15130(a)(3) of the CEQA Guidelines, these mitigation measures are consistent with the 2007 AQMP strategies that are designed to alleviate Basin-wide air quality impacts by controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. In addition, the projected air pollutant emissions associated with LRDP implementation would represent an incremental portion of the SIP budgets for the county-wide

emissions inventory in 2010 (Table 4.2-7), relative to short-term construction emissions, and in 2020 (Table 4.2-9), relative to long-term operational emissions.

5.5 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

Section 15126.2(c) of the CEQA Guidelines requires a discussion of any significant irreversible environmental changes that would be caused by the proposed project. Specifically, Section 15126.2(c) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if:

- The primary and secondary impacts would generally commit future generations to similar uses;
- The project would involve a large commitment of nonrenewable resources;
- The project involves uses in which irreversible damage would result from any potential environmental accidents associated with the project; or
- The proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

Development under the 2007 LRDP would result in the continued commitment of the UCI campus to campus-related uses, thereby precluding any other uses for the lifespan of the campus. UCI's ownership of the campus represents a long-term commitment of the University to academic and associated uses. Restoration of the campus to pre-developed conditions would not be feasible given the degree of disturbance, the urbanization of the area, and the level of capital investment.

Resources that would be permanently and continually consumed by implementation of the 2007 LRDP include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. In fact, the growth in student enrollment and the associated growth in the campus population is responsive to growth that has already occurred in the state as the children of the "baby boom" generation mature to college age; therefore, natural resources are currently being consumed by this demographic group. Nonetheless, construction activities related to the 2007 LRDP, though previously analyzed, would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline for automobiles and construction equipment.

With respect to operational activities on campus, compliance with all applicable building codes, as well as 2007 LRDP mitigation measures, and standard campus conservation features, would ensure that all natural resources are conserved to the maximum extent practicable. It is also possible that new

technologies or systems would emerge, or would become more cost-effective or user-friendly, to further reduce the campus reliance upon nonrenewable energy resources. Overall, the consumption of natural resources would increase at a lesser rate than the projected population increase due to the variety of energy conservation measures that the campus has and would continue to provide.

Further, UC has a Green Building Policy which requires all UC campuses to incorporate the Leadership in Energy and Environmental Design (LEED) application guidelines and Green Building Rating System into projects. The Green Building Policy also includes measures to reduce consumption of non-renewable energy and incorporate alternative means of transportation to/from and within the campus. To assist campus level implementation of UC's Policy on Green Building Design, Clean Energy Standards and Sustainable Transportation, UCI created a Chancellor's Committee on Sustainability.

Sustainable design or building "green" is an opportunity to use resources efficiently while creating healthier buildings. It provides cost savings through improved human health and productivity, lower building operational costs, and resource efficiency. Specifically, by using less energy, water, and materials, sustainable buildings save California's natural resources. Sustainable design also provides a healthier work environment with more natural light and cleaner air, which contributes to employee well being and increased productivity. Sustainable buildings are also cost-effective, saving taxpayer money by reducing operations and maintenance costs and lowering utility bills.

The CEQA Guidelines also require a discussion of the potential for irreversible environmental damage caused by an accident associated with the proposed project. While the campus uses, transports, stores, and disposes of hazardous wastes, as described in Section 4.6, Hazards and Hazardous Materials, the campus complies with all applicable state and federal laws and existing campus programs, practices, and procedures related to hazardous materials, which reduces the likelihood and severity of accidents that would result in irreversible environmental damage. In fact, over the campus history, there has never been an accident that resulted in significant irreversible environmental damage, indicating that current practices with respect to hazardous materials handling are adequate, therefore the potential for the 2007 LRDP to cause significant irreversible environmental damage from an accident or upset of hazardous materials is less than significant.

As previously discussed, the campus has instituted lighting and other energy conservation measures and has been replacing in-building lighting systems with up-to-date energy-saving equipment. Lighting conservation efforts in new construction include installation of occupancy sensors to automatically turn off lights when not in use, lighting reflectors, electronic ballasts, and energy-efficient lamps. Conservation efforts are also expected to involve improved HVAC systems with microprocessor-controlled energy management systems. In addition, the campus shall continue to implement all new development under the 2007 LRDP in accordance with specifications contained in Title 24 of the CCR.

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