
6.0 CEQA CONSIDERATIONS

IN THIS SECTION:

- Significant Unavoidable Impacts
- Significant Irreversible Changes
- Cumulative Impacts
- Project Alternatives

SIGNIFICANT UNAVOIDABLE IMPACTS

The State CEQA Guidelines require a description of any significant impacts, including those which can be mitigated but not reduced to a level of insignificance (section 15126.2(b)). Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.

The EIR identified one significant unavoidable project impact:

- ❑ **Impact 1-1:** The proposed project would result in future provision of water service to the North Campus portion of the UCSC campus that would support new planned development and growth to the year 2020. There are inadequate water supplies to serve the project under existing and future multiple dry year (drought) conditions.

As discussed in the WATER SUPPLY (Chapter 4.1) section of this EIR, City water supplies are currently insufficient to meet existing demand during dry years. Construction of a desalination plant, as planned by the City of Santa Cruz, will provide a sufficient supplemental water supply during drought conditions for both existing and future demand. The City has completed a pilot desalination plant and is proceeding with design and environmental review for a permanent facility.

Implementation of University adopted 2005 LRDP mitigation measures could reduce the project water demand (see pages 4.1-42 to 4.1-44 in the WATER SUPPLY (Chapter 4.1) section of this EIR. These include nine mitigation measures that were adopted by The Regents of the University of California in approving the 2005 LRDP, and are binding as part of the University's adopted Mitigation Monitoring and Reporting Program (MMRP). The adopted mitigation measures include implementation of water conservation measures, studying other potential water supplies, and utilizing an existing on-campus groundwater well for irrigation during drought conditions. Seven measures call for implementation of water conservation strategies to reduce water demand and conducting water audits to identify additional feasible

measures that can be implemented. One measure indicates that the campus will initiate a study on feasible measures for utilization of reclaimed water (including rainwater, grey water, cooling tower blowdown water and/or recycled water) in new development. Potential uses of reclaimed water include cooling, irrigation, and toilet flushing. Additionally, if and when the City implements drought emergency management measures, the University will reduce use of potable water for irrigation in accordance with reductions required by the City for similar users; will utilize water from the existing supply well in Jordan Gulch for non-potable uses, and will require that residential water use on campus be reduced consistent with the City's target for multifamily residential facilities.

Mitigation Measures 1-1 and 1-2 include provisions of the Comprehensive Settlement Agreement in which UCSC agreed to reduce and restrict its water use during any periods of restriction or moratorium imposed upon the City's water service area. Failure of UCSC to comply with the Settlement Agreement commitments is judicially enforceable, and would also result in enrollment reductions as specified in the Comprehensive Settlement Agreement. UCSC also agreed to implement identified high priority water conservation measures, which have been factored into the project water demand analysis in this EIR. The Settlement Agreement also acknowledges the City's intention to implement its Integrated Water Plan, including additional water conservation, use curtailment in droughts, and construction of a desalination plant. UCSC will contribute funds equivalent to the City's "System Development Charges" that will serve as its "fair share" contribution to finance improvements.

Despite the City's intent to pursue an additional water supply for dry-year conditions, UCSC adopted mitigation measures, and UCSC's agreement to participate in city-wide curtailments and restrictions, there are some uncertainties with these future actions. The City acknowledges the inherent uncertainty about its ability to obtain all necessary approvals for, and completion of, the planned desalination facility. Furthermore, the exact timing of implementation of UCSC conservation efforts (beyond the "high priority" measures specified in the Comprehensive Settlement Agreement for implementation within 5 years) and development of potential supplemental campus water sources, as well as the potential level of demand reduction, is not known. Therefore, a conservative conclusion is that the project impact on water supply during dry year conditions is significant and unavoidable, even with implementation of the identified mitigation measures.

SIGNIFICANT IRREVERSIBLE CHANGES

The State CEQA Guidelines require a discussion of significant irreversible environmental changes with project implementation, including uses of nonrenewable resources during the initial and continued phases of the project (section 15126.6(c)). The Guidelines indicate that use 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. Irreversible damage can also result from environmental accidents associated with the project. Section 15227 further requires this discussion only for adoption of a plan, policy or ordinance by a public agency; the adoption by a Local Agency Formation Commission (LAFCO) of a resolution making determinations; and projects which require preparation of an EIS under the National Environmental Policy Act (NEPA). Since the proposed project is subject to a decision by LAFCO, a discussion of irreversible changes is provided below.

The proposed project consists of an amendment to the City of Santa Cruz Sphere of Influence (SOI) and provision extraterritorial water and sewer services for a 374-acre portion of the UCSC North Campus as planned in the University's adopted 2005 LRDP. Thus, the direct impacts of the proposed project are associated with the City's provision of water and sewer services, both of which are currently provided to the developed portion of UCSC.¹

Direct project impacts on water and wastewater service would not result in a large commitment of non-renewable resources. Water resources are not considered nonrenewable, although during dry years, supplies may be constrained. As discussed above, the project would result in significant impacts on water supply during dry year conditions. The City is in the process of developing plans for construction of a desalination facility to provide a supplemental water source during droughts due to insufficient water supplies during droughts under existing conditions. While operation of a desalination plant may result in irreversible commitment of energy resources, the proposed project does not result in an independent need to construct the plant, which is currently needed for dry years without the project.² Nonetheless, the City is currently studying techniques to minimize energy consumption and greenhouse gas emissions.

Direct project impacts on the City's wastewater treatment facility (WWTF) were found to be less-than-signification. The WWTF is designed to handle the increase in wastewater that would be treated as a result of the project, and adequate capacity exists without the need to expand the plant or construct new improvements. The continued operation of the WWTF would not result in significant increases in fuel that could result in significant irreversible impacts.

With the provision of water and sewer services, the proposed project would indirectly accommodate additional development and growth at UCSC that is planned in the 2005 LRDP

¹ The developed portion of UCSC is located within the existing city limits of Santa Cruz, except for portions of Colleges 9/10 and the Crown Merrill Apartments that are located in the unincorporated County area as discussed in the LAND USE (Chapter 4.3) section of this EIR.

² It should also be noted that the desalination facility is jointly proposed with the Soquel Creek Water District to provide supplemental water sources to that agency in order to manage groundwater resources and avoid seawater intrusion into the aquifers.

approved by The Regents of the University of California, including future development in the North Campus. Development under the 2005 LRDP would result in the continued commitment of the UC Santa Cruz campus to institutional uses, thereby precluding any other uses for the lifespan of the campus (University of California Santa Cruz, 2005 LRDP Final EIR, September 2006, Volume II, section 6.2).

The 2005 LRDP EIR indicates that additional irreversible commitments to future uses include those related to new development on the North Campus, including conversion of forest and habitat areas to developed uses (University of California Santa Cruz, 2005 LRDP Final EIR, September 2006, Volume II, section 6.2). Such development would result in the permanent and continued consumption of water, electricity, natural gas, and fossil fuels. However, the consumption of these resources would not represent unnecessary, inefficient, or wasteful use of resources given the University's implementation of water, lighting and energy conservation measures. In addition, the Campus will continue to construct new facilities under the 2005 LRDP in accordance with specifications contained in Title 24 of the California Code of Regulations and with the UC Green Building Policy. The UCSC campus consumption of natural resources is expected increase at a lesser rate than the projected population increase due to the variety of energy and water conservation measures that the Campus has implemented and will continue to implement (Ibid.). In addition, anticipated changes in state building and energy efficiency requirements to help reduce greenhouse gas emissions and will also reduce the rate of energy consumption increases. However, future construction activities 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.

Additionally, 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 could result in irreversible environmental damage. There has never been an on-campus accident that resulted in irreversible environmental damage, indicating that current practices with respect to hazardous materials handling are adequate, and thus the potential for the 2005 LRDP to cause irreversible environmental damage from an accident or upset of hazardous materials, is less than significant (University of California Santa Cruz, September 2006, 2005 LRDP FEIR, Volume II, section 6.2).

CUMULATIVE IMPACTS

CEQA REQUIREMENTS

The State CEQA Guidelines section 15120(a) requires that an EIR discuss cumulative impacts of a project “when the project’s incremental effect is cumulatively considerable.” As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. As defined in section 15065(a)(3), “cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects.

An evaluation of cumulative impacts is required by CEQA when they are significant. When the combined cumulative impact associated with the project’s incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR.

An EIR may determine that a project’s contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant, when for example, a project funds its fair share of a mitigation measure designed to alleviate the cumulative impact. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project’s contribution to any significant cumulative effects.

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. If a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then an EIR for such a project should not further analyze that cumulative impact as provided in section 15183(j).

According to the California State CEQA Guidelines section 15130 (a)(1), there is no need to evaluate cumulative impacts to which the project does not contribute. Relevant potential cumulative impacts to which the proposed Sphere of Influence amendment project would contribute include water supply and wastewater services provided by the City of Santa Cruz. Each of these topics is addressed below.

The proposed project would result in indirect growth impacts at the UCSC campus with future provision of water and sewer services, which would result in secondary impacts related to future development in the North Campus. These impacts are summarized in the GROWTH

INDUCEMENT (Chapter 5.0) section of this EIR and fully analyzed in the 2005 LRDP EIR, which also assesses cumulative impacts. There are no other known planned or proposed cumulative projects near the North Campus area that would contribute to cumulative impacts. Additionally, the proposed project would not result in indirect growth inducement to other areas adjacent to the North Campus due to future extension of on-campus water and sewer lines as discussed in the GROWTH INDUCEMENT section of this EIR.

CUMULATIVE PROJECTS

The State CEQA Guidelines provide that cumulative impacts be addressed either based on:

- (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, OR
- (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

The proposed project is a sphere of influence amendment for the provision of extraterritorial water and sewer service to the project area to support campus growth and development as contemplated in the 2005 LRDP by the academic year 2020/2021. Given this long-term timeframe, the City determined that the most appropriate approach would be to use growth projections in an adopted plan. The City's existing General Plan/Local Coastal Plan was prepared in 1990 and is currently being updated. As such, the existing General Plan is outdated with regards to growth projections. A *Draft General Plan 2030* was released in March 2009. Preparation of an EIR is in progress and is expected to be complete and distributed for public review in early 2010.

According to the General Plan EIR Notice of Preparation (NOP), the General Plan EIR will include a review of existing land uses and existing/planned buildout projections. A general plan "buildout" projection was developed as part of the General Plan Update process that considers the potential development estimated to occur in the City Santa Cruz by the year 2030 based on land use map changes, vacant lands, sites subject to reuse or redevelopment, and underutilized parcels. The draft buildout projections estimate the following new development by the year 2030: a) 3,729 residential units; b) 1,292,289 square feet of commercial development; c) 1,318,916 square of office space; and d) 388,156 square feet of industrial development. These projections are currently being reviewed by the City Planning

and Community Development and are subject to revision as part of the General Plan EIR (Ken Thomas, personal communication, September 2009).

Because of this uncertainty, the use of draft and unadopted General Plan buildout numbers would be speculative. Since the existing General Plan is outdated and the General Plan Update has not been adopted nor has environmental review been completed, the City considered the regional population, housing and employment forecasts adopted by AMBAG in June 2008 as the most reliable basis for the long-term cumulative analyses. As discussed below, the methodology used to develop the 20-year projections in the City's "Urban Water Management Plan" were based on population projections that have been re-evaluated as part of the "Water Supply Assessment" (WSA) prepared for this EIR. These projections account for other future growth in the City's water service area.

CUMULATIVE IMPACT ANALYSIS

Water Supply

CUMULATIVE DEMAND

The geographical area for the analysis of cumulative water impacts includes the lands within the City of Santa Cruz water service boundaries. The proposed project will contribute to cumulative water demand under normal conditions in which supplies are limited, and under drought conditions in which there are existing water shortages. In recent years, annual system water demand has consistently averaged between 3,900 and 4,000 million gallons per year (MGY) (City of Santa Cruz Water Department, June 2006). In average conditions, there appears to be approximately 300-400 MGY of remaining water supply capacity with existing water sources and operations (Ibid.).

The City's existing adopted water plans (i.e., Urban Water Management Plan [UWMP]) indicate that total future water demand would exceed normal year capacity sometime between the year 2015 and 2020, and cumulative water demand would also increase during drought periods in which City supplies cannot meet water demand under existing conditions. However, as discussed in the WATER SUPPLY (Chapter 4.1) section of this EIR, a "Water Supply Assessment" (WSA) was prepared in accordance with state law, and water demands for the City's entire service area were updated as part of the WSA. As summarized below, the WSA determined that the cumulative water demand may exceed normal year supplies after the year 2025 if a high rate of growth is assumed.

The WSA-developed projections for the City's water service area were developed for two separate demand scenarios (low [0.4%] and high [0.8%] annual water demand growth rates) as set forth in the UWMP. The updated projections are based on current AMBAG population

projections (June 2008) for the City's water service area that were multiplied by the average per capita water use projected for the years 2010 through 2020. The 0.8% annual increase reflects high growth in the City's three largest customer classes (residential, business, and irrigation), which is consistent with general plans for the City's service area. The 0.4% annual increase reflects historical trends in growth. The updated and extended water demands are shown on Table 4-1.

Normal Year. The WSA estimates that total water demand in the City's water service area in the year 2030 would be between approximately 4,222 and 4,356 MGY (approximately 12,960 and 13,370 acre-feet per year [AFY]) (EKI, September 2009). During normal hydrologic years through 2030, the City expects to have a total of 4,314 MGY (approximately 13,245 AFY) of reliable water supplies based on the historical water demand rates (i.e., 0.4% annual growth). However, at the higher rate of water demand growth (i.e., 0.8% per year) projected in the general plans for the City's service area, the City's water supplies may, during a normal year, be insufficient to fully support the demands of the proposed project and the City's other existing and planned future uses after 2025. However, even under this high-end water demand growth rate, the magnitude of projected shortfall represent less than 1% of the City's total projected demand in 2030, or 42 MGY (approximately 130 AFY) during a normal year (Ibid.). If water demand increases at a lower historical rate of 0.4% per year, the City will be able to meet the demands of the proposed project and other existing and planned future uses during normal years through the year 2030 (the 20-year evaluation horizon for the WSA).

Dry Years. The WSA concludes that the City does not have sufficient water to meet current or future projected water demand during dry years, irrespective of the proposed project. This finding is consistent with the 2005 UWMP findings and the conclusions presented in the 2003 Integrated Water Plan ("IWP").

Supply reliability during a single dry year was estimated in the 2005 UWMP based on the amount of water that was available to the City in 1994, the most recent single dry year on record. Based on the 2005 UWMP's analysis, the City's cumulative water supplies are expected to be reduced from a normal year of 4,314 MGY (approximately 13,245 AFY) to approximately 3,800 MGY during a single dry year. This represents a reduction of 12% (514 MGY) from the City's normal year available supply (EKI, September 2009).

Supply deficits estimated in the WSA are projected to be the greatest during the second year of a multiple-year drought. Supply deficits projected for 2010 range from 30% (under a low growth scenario) to 31% (high growth). In 2030 this shortfall is projected to range from 36% to 38%. Thus, the maximum projected supply shortfall presented in the WSA occurs in the year 2030 under high growth rates (0.8% annually) with a total supply deficit of 1,656 MGY (approximately 5,080 AFY). Under the low growth scenario (0.4%), the projected supply shortfall in the year 20230 is 1,522 MGY (approximately 4,670 AFY) (EKI, September 2009).

**TABLE 4-1: Projected Future Water Demand for
the City of Santa Cruz Water Service Area**

Projection	Water Demand (mgd) (a)					
	2005	2010	2015	2020	2025	2030
Population Forecast						
AMBAG (2009) (b)	93,160	96,399	100,670	103,275	104,539	106,454
Water Demand Forecasts						
MWM 1998 Forecast (c)	4,867	5,029	5,094	5,157	5,240	5,323
UWMP Scenario 1 (0.8% Growth) (d)	3,900	3,962	4,154	4,345	--	--
UWMP Scenario 2 (0.4% Growth) (e)	3,900	3,866	3,963	4,058	--	--
UWMP Scenario 1 Adjustments (f)						
Extension from 2020 to 2030 (g)	--	--	--	--	4,350	4,430
UCSC adjustments (h)	--	-25	-50	-74	-74	-74
Updated UWMP Scenario 1 (i)	3,900	3,937	4,104	4,271	4,276	4,356
UWMP Scenario 2 Adjustments (f)						
Extension from 2020 to 2030 (g)	--	--	--	--	4,121	4,196
UCSC adjustments (h)	--	9	17	26	26	26
Updated UWMP Scenario 2 (i)	3,900	3,875	3,980	4,084	4,147	4,222

Abbreviations:

AMBAG - Association of Monterey Bay Area Governments

mgd - million gallons per day

UCSC - University of California at Santa Cruz

UWMP - Urban Water Management Plan

Notes:

- (a) Water demand forecasts are based on discussions with staff from the City's water and planning departments and the City's Environmental Impact Report consultant.
- (b) Population projections from AMBAG (2009) include UCSC.
- (c) Projections from the City's Water Demand Investigation were completed based on then-current information on local population and employment trends published by the Association of Monterey Bay Area Governments ("AMBAG"), and demographic data and land use information from the existing general plans (from the City of Santa Cruz, Santa Cruz County, and the City of Capitola).
- (d) The 2005 UWMP's "Scenario 1" demand projections were based on the assumption that the City's three largest customer classes (single-family residential, multi-residential and business, and irrigation) would grow at an annual rate of 0.8% (in proportion to the amount of growth envisioned in existing housing elements from general plans for the City and County of Santa Cruz and the City of Capitola), and that water use at the University would increase as predicted in the 2005 LRDP Draft EIR.
- (e) The 2005 UWMP's "Scenario 2" assumed that residential and business water use would increase at an annual rate of 0.4% (based on actual residential growth rates experienced since 1997), and that water use at the University would increase at half of what was predicted in the 2005 Long Range Development Plan ("LRDP") Draft Environmental Impact Report ("EIR").
- (f) Adjustments were made to the UWMP Scenarios 1 & 2 for two reasons (1) in order to extend the projections through the year 2030, as is required for a Water Supply Assessment ("WSA") pursuant to Water Code Section 10910, and (2) to account for reductions in the projected water demand for UCSC associated with the 2005 LRDP Final Environmental Impact Report and the Settlement Agreement. Both Updated UWMP Scenarios include the full volume of projected 2020 demand for UCSC. Therefore, Scenario 1 has been adjusted downward while Scenario 2 has been adjusted upward, to account for the full volume of updated UCSC demand.
- (g) Demands were extended from 2020 to 2030 by the City for the purpose of this report, assuming a gross per capita water use of 114 gallons per day per person ("gpd/person") for UWMP Scenario 1 and 108 gpd/person for UWMP Scenario 2.
- (h) Adjustments to the UCSC water demand projections (which include the demand for the Project) are equal to the difference between the prior projected UCSC demand growth by 2020 included in the UWMP scenarios (200 mgd for Scenario 1 and 100 mgd for Scenario 2), and the updated projected UCSC demand growth by 2020 presented in Table 1 (126 mgd for both scenarios). After 2020, demand growth by UCSC is assumed to be included in the per capita-based demand growth (Reference 1).
- (i) The Updated UWMP Scenarios 1 & 2 are used for the purpose of evaluating the sufficiency of the City's water supplies to meet the projected future demands (including the demands of the Project), as is required in a WSA. The City has chosen to include these two potential future demand scenarios as the higher and lower ranges of the City's estimated future demand. Actual future development will be planned by the appropriate land use planning agencies for the City and County of Santa Cruz and the City of Capitola.

References:

- 1 Personal communication with the Water Department and Planning Department Staff, 13 July 2009.
- 2 MWM, 1998. *Water Demand Investigation*; prepared by Maddaus Water Management.
- 3 AMBAG, 2009. *Monterey Bay Area 2008 Regional Forecast. Population, Housing Unit and Employment Projections for Monterey, San Benito and Santa Cruz Counties to the Year 2035.*

SOURCE: Erler & Kalinowski, Inc.

SUPPLEMENTAL CITY WATER SUPPLIES

As discussed in the WATER SUPPLY (Chapter 4.1) section of this EIR, the City has been actively considering possible new water supplies for nearly 20 years due to insufficient water supplies to meet existing demand during drought events (City of Santa Cruz Water Department, June 2005). Over 30 water supply options have been considered and evaluated as part of these efforts, culminating with the City adopting the *Integrated Water Plan* (IWP) in 2005 and the *2005 Urban Water Management Plan* (UWMP) in 2006.

The WATER SUPPLY (Chapter 4.1) section of this EIR fully describes the water supply options considered by the City, as well as other planning efforts and plans, and summarizes the IWP and UWMP. As indicated, the IWP and UWMP support conservation, 15% water use curtailment during a drought, and construction of a desalination plant. The City is actively implementing water conservation programs with good results³ and is pursuing construction of a desalination plant to provide a supplemental water source in drought conditions, with the potential for expansion of the desalination plant to accommodate future growth.

The City's current plans support a supplemental water supply for drought protection to be provided by a 2.5 million-gallon-per-day (mgd) desalination plant (expected to be constructed and in operation by 2015) with a potential expansion of up to a total of 4.5 mgd in increments of 1 mgd as further needed. The proposed desalination facility is a joint partnership between the City of Santa Cruz and the Soquel Creek Water District (SqCWD), which is also looking for a long-term supplemental water source to reduce its reliance on well water and avert the threat of seawater intrusion in local groundwater aquifers. The City recently completed a pilot desalination plant to gather information to establish the optimal design and operating parameter for the future construction and operation of a 2.5 mgd seawater desalination plant. Additional technical studies are currently underway, and design and engineering for a permanent facility is likely to begin in 2010, followed by environmental review. A permanent facility is expected to be constructed and in operation by the year 2015, pending completion of project-level environmental review and regulatory permit approvals, i.e. approval of a coastal development permit from the California Coastal Commission.⁴ At this time, it is not known when or if the plant would be further expanded to serve future planned growth.

The certified IWP EIR evaluates impacts of the construction of a desalination facility and associated pipelines on a programmatic level for a potential site located along the Delaware Avenue corridor in the City's Westside industrial area. Construction could have physical

³ As noted in section 4.6 of this EIR, a savings of approximately 153 MGY (approximately 470 AFY) had been achieved by 2005 from implementation of conservation programs with the plumbing fixture retrofit program producing the most water savings, totaling about 11 MGY.

⁴ Other potential permits, approvals and/or consultations for a permanent desalination plant and supporting infrastructure (i.e., intake facility and distribution pipeline) may be required from various agencies, including, but not limited to U.S. Fish and Wildlife Service, State Lands Commission, and California Department of Health Services.

environmental effects, and the EIR identified potentially significant impacts (as summarized in Chapter 4.1) that could be mitigated to a less-than-significant level, except for temporary construction noise. The IWP EIR also includes a mitigation measure to require further review of population projections and City/County land use planning documents prior to undertaking environmental review of any expansion of a desalination plant in ensure that development of an additional water supply is consistent with planned growth projections (City of Santa Cruz/EDAW, June and October 2005).

The IWP EIR also evaluated cumulative impacts related to a construction and operation of a desalination plant in combination with other known development projects, road and infrastructure projects, and regional water programs and projects. Significant cumulative impacts that were identified include the following. All other cumulative impacts were found to be less than significant or less than significant with compliance and adherence to required regulations and mitigation standards.

- ❑ *Groundwater Impacts:* Continued impacts to the groundwater basin with potential saltwater intrusion for the alternatives that did not include Soquel Creek Water District use of the desalination plant and rely on continued groundwater pumping.
- ❑ *Biological Resources:* Potential impacts to sensitive habitats and special status species as a result of project siting, construction and/or operation could be mitigated with pre-construction surveys, establishment of buffer zones and other construction controls.
- ❑ *Construction Traffic:* Potentially significant cumulative traffic impacts were identified if the desalination plant construction coincided with other major infrastructure improvements, especially the Highway 1/17 Merge Project. The EIR includes mitigation to coordinate construction schedules. However, as of the writing of this EIR, the desalination construction would occur after the completion of the Highway 1 project.

The City's adopted IWP and UWMP identified seawater desalination as the only feasible alternative for a backup supply of drinking water during a drought. Several possible options were carefully evaluated, including drilling more wells, upgrades to the north coast system, recycled water and a water transfer involving exchange of groundwater with recycled wastewater for agricultural use on State Park lands north of the City. Both the wells and groundwater exchange concept ultimately proved infeasible. The maximum yield from four combined groundwater sources was found to yield 300 MGY or less during drought conditions (Carollo Engineers, November 2000). Overall, groundwater is potentially available but in a limited quantity, but none of the potential groundwater resources can provide a significant portion of the projected drought demand shortfall (Ibid.). Additionally, there were other environmental, regulatory and/or cost issues associated with some groundwater options that would affect overall feasibility for implementation.

Three alternatives were recommended for further review: desalination, wastewater reclamation, and maximizing use of existing sources and storage in Loch Lomond Reservoir. Recycled wastewater was determined potentially feasible for irrigation, including agricultural irrigation, but would produce limited yields (approximately 230 MGY [approximately 700 AFY]) that were considered too small to meet the City's drought year needs and at a high cost. Improvements to maximize use of existing water sources and storage were identified, that collectively could provide approximately 600 MGY (approximately 1,840 AFY) during a two-year drought. The upgrades would provide additional supply during drought and non-drought years and would also improve operational reliability and flexibility, but shortfalls during multiple-dry-year scenarios would continue to occur (Carollo Engineers, November 2000).

Thus, seawater desalination was the only practicable solution available to the City to meet drought and future demands. The WATER SUPPLY (Chapter 4.1) section of this EIR also discusses other supplemental water supplies that have been evaluated over the past 20± years and found to be not viable at the present time. These include several groundwater pumping options, conjunctive use with Soquel Creek Water District, and reservoir storage at the Olympia Quarry in the San Lorenzo Valley. The City's UWMP indicates that in addition to pursuing desalination, the City remains open to exploring other water supply alternatives that would not be feasible to develop in the short-term, but may be useful to consider over a 20-year timeframe, such as water recycling, groundwater recharge, reservoir expansion, aquifer storage and recovery and off-stream storage.

In addition to the IWP programs the City is pursuing, the City provides an annual review of water use and trends, and is required to update the UWMP every five years. Through these efforts, water demand trends and needs can be effectively monitored to ensure that other water supply options can be considered and planned as may be needed.

CONCLUSION

Cumulative development and growth in the City's water service area would result in a significant cumulative water impact, as it results in additional demand in a system that does not currently have adequate water supplies to meet existing or future demands during drought conditions or adequate long-term supplies during normal years potentially at some time after the year 2025. The WSA concludes that the City's supplies are sufficient to meet the City's existing and project water demands in a normal year through the year 2030 based on historical water demand growth. However, with a higher level of water demand growth, the City could face a supply shortfall during normal years sometime after 2025. Such a short-fall would only occur if other new development occurs at a rate greater than what has historically occurred (i.e., greater than the historic 0.4% annual growth included in UWMP). The magnitude of this supply shortfall is estimated at 42 MGY (approximately 130 AFY), and

would not occur until at least 2025.⁵ Supplies are currently insufficient during a multiple-year drought, and under existing cumulative conditions with the project, the City faces of supply deficit of approximately 1,520 – 1,650 MGY (approximately 4,670 – 5,0800 AFY).

The proposed project's incremental contribution to this significant cumulative impact is 100 MGY. The City Water Department estimates that approximately 64% of service area demand occurs over an approximate 7-month period of the year, during which time water supplies would be constrained during dry years. Based on this percentage, the proposed project's water demand during the peak season in dry years is 64 MGY. The project's contribution is considered to be "cumulatively considerable" and thus significant in and of itself.

The incremental project water demand would be minimized with implementation of University-adopted mitigation measures (2005 LRDP measures as listed in WATER SUPPLY (Chapter 4.1) section of this EIR) and provisions of the Comprehensive Settlement Agreement (Mitigation Measures 1-1 and 1-2) in which UCSC has agreed to comply with water restrictions imposed within the City's water service area and/or not to increase water demand should a water connection moratorium be imposed within the service area.

Implementation of LRDP Mitigation Measure Util-9I commits UCSC during a City-declared drought to require residential water use on campus be reduced consistent with the City's target for multifamily residential facilities. The Comprehensive Settlement Agreement further commits UCSC to comply with any service area-wide water restrictions or mandatory use curtailment imposed by the City in response to a declaration of water shortage emergency condition under State Water law.

The City's UWMP Water Shortage Contingency Plan requires a 15% reduction in peak season water use during critical drought conditions. Accordingly, implementation of LRDP Util-9I will reduce UCSC demand by 9.6 MGY to 54.4 MGY during the peak season in a critically dry year applying 15% reduction on all UCSC uses as required by the Comprehensive Settlement Agreement. LRDP Util-9I further commits UCSC to (1) reduce use of potable water for irrigation on the campus landscape, the CASFS and the Arboretum in accordance with reductions required by the City for similar users; and (2) utilize water from the existing supply well in Jordan Gulch for non-potable uses. The 2005 LRDP EIR estimates that a total of 1.1 MGY (approximately 3.4 acre-feet) of water would be extracted and used for irrigation during dry years (University of California Santa Cruz, September 2006 – 2005 LRDP EIR, Volume II, section 4.8). In addition, the Comprehensive Settlement Agreement commits UCSC to contribute funds equivalent to the City's "System Development Charges" that will serve as its "fair share" contribution to finance desalination plant improvements.

⁵ The City's existing adopted IWP and UWMP predict that a shortfall during normal years could occur after the year 2015. The new finding cited in the WSA prepared in 2009 reflects an updated projection based on current AMBAG population projections, as well as reduced demand throughout the water service area that has occurred since adoption of these plans and the former projections used to develop these plans.

Mitigation measures to reduce project demand would help reduce the project's incremental contribution to cumulative impacts, but it is conservatively concluded that the project's incremental contribution remains cumulatively considerable. This is due to the size of the project demand, the fact that UCSC is the largest water customer in the service area, and the uncertainty related to timing of implementation and development of additional on-campus conservation measures (beyond the "high priority" measures specified in the Comprehensive Settlement Agreement for implementation within 5 years) and potential on-campus water supplies to offset demand. As discussed in the WATER SUPPLY (Chapter 4.1) section of this EIR, a feasibility study prepared for UCSC to implement 2005 LRDP EIR Mitigation Measure UTIL-9G studied potential utilization of reclaimed water (including rainwater, grey water, cooling tower blowdown water and/or recycled water) in new development (ARUP, March 2008). Rainwater harvesting and greywater recycling were identified as priorities for new North Campus buildings and new Family Student Housing that would result in a water savings of about 28 MGY (Ibid.). However, the study does not identify costs, nor has UCSC identified a schedule for implementation. Since the City does not have control over UCSC development and water use, these non-potable alternative water systems are not considered reasonably foreseeable City water sources for the purposes of this EIR's analysis. However, to the extent that UCSC develops a program for implementation, especially for new buildings, the SOI project water demand on City supplies would be correspondingly reduced.

The City's adopted IWP includes a supplemental supply at a new desalination plant. The facility would provide a supplemental water supply during periods of drought and could be expanded in the future to provide additional water to accommodate growth planned within the City's water service area. As indicated above, the City acknowledges some uncertainty related to the approval of and timing for the construction of the permanent desalination plant construction and operation as design plans have not been completed, as well as uncertainty as to whether the Coastal Commission would issue the necessary approvals. The project would be subject to further environmental review and permit approvals, which themselves create additional uncertainty. For these reasons, the City concludes that it cannot "confidently determine" that this source "reasonably likely," as spelled out in the guidance provided by the California Supreme Court in its decision in *Vineyard Area Citizens et al. v. City of Rancho Cordova* (2007) 40 Cal.4th 412. Nonetheless, the City has identified a desalination plant as its best, potentially feasible option to alleviate shortages in drought conditions and as a potential additional water supply to serve new growth, and therefore has committed to pursuing this option in the hope that it will obtain all necessary regulatory approvals. Thus, the future desalination facility, which is planned and being pursued, is considered to be the most likely future water source, although it nonetheless remains somewhat uncertain until design, environmental review and regulatory approvals are completed. Furthermore, to provide capacity for additional growth, the plant would eventually need to be expanded, which would require additional design and engineering, environmental review and permit approvals.

Wastewater Service

The geographical area for the analysis of cumulative water impacts includes the area served by the City's wastewater treatment facility (WWTF). This includes the city of Santa Cruz, and lands within the Santa Cruz Sanitation District (south to Seascap) and in two small county service areas. (See the WASTEWATER SERVICE [Chapter 4.2] of this EIR for a full description.) Wastewater treatment is adequate within the timeframe of the proposed project and backgrounds studies prepared as part of the City's General Plan Update process indicate that the 17 mgd WWTP capacity will be reached in approximately 30 years (City of Santa Cruz Planning and Community Development Department, April 2004). When the flow to the treatment facility reaches 13 mgd (estimated to occur in 2020) the City will conduct a study to evaluate plant capacity and possible additions if needed (Ibid.). Therefore, during the planning horizon of the proposed project (10± years), cumulative impacts related to wastewater treatment would not be considered significant.

Global Climate Change

Appendix G of the State CEQA Guidelines (Environmental Checklist) does not currently include global climate change as a topic to be addressed. However, proposed changes to the Guidelines that are expected to be adopted by January 2010 include a new checklist question to address greenhouse gas emissions, as well as other revisions to the Guidelines that make clear global climate change is an issue that must be addressed in environmental reviews conducted under CEQA. Because of the likelihood of adoption of the proposed changes (as well as other legislative enactments and executive actions regarding global climate change), a discussion is included in this EIR. The draft changes require that the significance of impacts from greenhouse gas emissions be assessed in environmental documents. The following section has been prepared for this EIR, including quantified project greenhouse gas emissions prepared by Donald Ballanti (see Appendix D).

BACKGROUND

The subject of global climate change has gained increasing statewide, national and international attention. Reports released by the State of California indicate that climate change could have profound impacts on California's water supply and usage in addition to other environmental and ecosystem effects. In the report prepared by the California Climate Change Center, "Our Changing Climate: Assessing the Risks to California" (2006), the state's top scientists consider global warming to be a very serious issue requiring changes in resource, water supply and public health management. Natural processes and human activities such as fossil fuel combustion, deforestation and other changes in land use are resulting in the accumulation of greenhouse gases in the atmosphere (GHGs), the most prevalent of which is carbon dioxide (CO₂). An increase in GHG emissions is said to result in an increase in the earth's average surface temperature, commonly referred to as global warming, which is

expected to affect weather patterns, average sea level, ocean acidification and precipitation rates.⁶

The major greenhouse gases include, but are not limited to, the following:

- ❑ Carbon Dioxide (CO₂). Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35%. Carbon dioxide is the most widely emitted greenhouse gas and is the reference gas. In 2004, 83.8 percent of California's greenhouse gas emissions were carbon dioxide.⁷ Carbon dioxide is the most widely emitted GHG and is the reference gas (Global Warming Potential [GWP] of 1) for determining GWPs for other GHGs.
- ❑ Methane (CH₄). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane come from landfills, natural gas systems, and enteric fermentation. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.
- ❑ Nitrous Oxide (N₂O). Nitrous oxide is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.
- ❑ Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum.
- ❑ Perfluorocarbons (PFCs). Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semi conductor manufacturing.
- ❑ Sulfur hexafluoride (SF₆). Sulfur hexafluoride is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity.

The most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide (California Governor's Office of Planning and Research, June

⁶ Jones & Stokes. August 2007. "Addressing Climate Change in NEPA and CEQA Documents."

⁷ California Energy Commission, Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004, December 2006, http://www.energy.ca.gov/2006publications/CEC_600_2006_013/CEC_600_2006_013_SF.PDF.

2008). The last three of the six identified GHGs are primarily emitted by industrial facilities. California is a substantial contributor of global greenhouse gases, emitting over 400 million tons of carbon dioxide (CO₂) a year.⁸ The primary contributors to GHG emissions in California are transportation (41%), electric power production (22%), industry (21%), agriculture and forestry (8%), and other sources, including commercial and residential uses (8%) (California Energy Commission, December 2006). Approximately 91% of California's emissions are carbon dioxide produced from fossil fuel combustion (Ibid.).

STATE REGULATORY SETTING AND ACTIONS

Although GHG emissions are not currently addressed in federal regulations, the State of California passed the Global Warming Solutions Act of 2006 (AB32), which seeks to reduce GHG emissions generated by California. The Governor's Executive Order S-3-05 and AB 32 (Health & Safety Code, § 38501 et seq.) both seek to achieve 1990 emissions levels by the year 2020. Executive Order S-3-05 goes even further than AB 32, and requires that by 2050 California's GHG emissions be 80% below 1990 levels. AB 32 defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrocarbons, perfluorocarbons and sulfur hexafluoride.

The California Air Resources Board (CARB) is the lead agency for implementing AB 32. CARB identified 36 "early actions to mitigate climate change in California" in April 2007 as required by AB 32. These actions relate to low carbon and other fuel standards, improved methane capture at landfills, agricultural measures, reduction of hydrocarbons and perfluorocarbons from specified industries, energy efficiency, and a variety of transportation-related actions.

In accordance with provisions of AB 32, CARB⁹ has completed a statewide Greenhouse Gas (GHG) Inventory that provides estimates of the amount of GHGs emitted to, and removed from, the atmosphere by human activities within California. The inventory includes estimates for carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons and perfluorocarbons. The emissions inventory covers seven sectors: transportation, electricity generation, industrial, residential, agriculture, commercial and forestry. The initial GHG Inventory covers years 1990 to 2004. CARB recently updated the GHG emissions inventory to include the years 2005 and 2006 (California Air Resources Board, May 2009).

Based on review of this inventory, in December 2007 CARB approved a 2020 emissions limit of 427 million metric tons, which is equivalent to the 1990 emissions level. A preliminary estimate of approximately 600 million metric tons has been estimated for 2020 without reductions. However, the preliminary numbers indicate that the difference between 1990

⁸ California Air Resources Board 1990 to 2004 State Inventory (November 2007).

⁹ In January 2007, AB 1803 transferred responsibility for developing and maintaining the state's greenhouse gas inventory from the California Energy Commission (CEC) to the CARB, which used the CEC GHG inventory as a starting point to develop 1990 GHG emissions.

emissions levels and ARB's preliminary estimate for 2020 emissions is 172 million metric tons (California Air Resources Board, November 2007).

In accordance with requirements of AB 32, a Scoping Plan was released in October 2008 and adopted by CARB in December 2008. Key elements for reducing the state's greenhouse emissions to 1990 levels by 2020 include:

- ❑ Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- ❑ Achieving a statewide renewables energy mix of 33 percent;
- ❑ Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- ❑ Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- ❑ Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- ❑ Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation (California Air Resources Board, October 2008).

The Scoping Plan identifies 18 emissions reduction measures that address cap-and-trade programs, vehicle gas standards, energy efficiency, low carbon fuel standards, renewable energy, regional transportation-related greenhouse gas targets, vehicle efficiency measures, goods movement, solar roofs program, industrial emissions, high speed rail, green building strategy, recycling, sustainable forests, water and air (California Air Resources Board, October 2008).

Final CARB regulations are not due until January 1, 2011, and will not be operative until January 1, 2012. By the former date, CARB must adopt "greenhouse gas emissions limits and emissions reductions measures ... to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions in furtherance of achieving the statewide greenhouse gas emissions limit[.]" (Health & Safety Code, § 38562(a).)

Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and effects of GHG emissions are subject to CEQA. It also directs OPR to develop draft CEQA Guidelines to address GHG emissions and directs the California Resources Agency to certify and adopt these guidelines by January 1, 2010. OPR issued draft

amendments to the Guidelines in April 2008, which are currently undergoing public review. It is expected that the Resources Agency will adopt the proposed amendments in January 2010.

Senate Bill 375 builds upon the principles set forth in AB 32 and provides a means for addressing climate change in CEQA documents. SB 375 aims to reduce greenhouse gas emissions by discouraging urban sprawl and reducing vehicle miles traveled. Among other things, SB 375 will require regional transportation plans to include a “sustainable community strategy” (SCS) to meet greenhouse gas reduction targets set by the California Air Resources Board. To encourage smart growth development, SB 375 provides streamlined review under CEQA for certain projects consistent with the SCS: transit priority projects (projects comprising at least 50% residential use, a residential density of at least 20 units per net acre and located within one half mile of a regional transit corridor) and residential or mixed use projects with a residential component requiring at least 75% of the total square footage.

LOCAL ACTIONS

City of Santa Cruz Efforts. The City of Santa Cruz has been developing emissions strategies to reduce greenhouse gas (GHG) emissions to 1990 levels. In June 2007, the City Council adopted a set of General Plan goals and policies on climate change; including reducing community-wide greenhouse gas emissions 30% by 2020, reducing 80% by 2050 (compared to 1990 levels), and for all new buildings to be emissions-neutral by 2030. In August 2008, the City completed an Emissions Inventory, which provides information regarding municipal and community-wide emissions. This document provides the data and guidance to City staff and Council to direct future program implementation. Specifically, 2005 emissions levels have been quantified for each community sector (business, residential, municipal, and transportation) and by fuel source (natural gas, electricity, petroleum, other). Benchmark emissions for 1990 have been estimated to prioritize reduction opportunities. This inventory also establishes a standard reporting procedure that can be replicated periodically to meet State requirements and demonstrate the feasibility and effectiveness of the various city programs (City of Santa Cruz, August 2008).

The City’s Emissions Inventory estimated residential emissions to be 74,769 metric tons in 2005, equaling 3.5 tons per residence. This number is below previous estimates of 4.19 metric tons per household in 2000 and 4.6 metric tons in 1996. While these numbers are estimates, the data suggests increased efficiency and conservation in Santa Cruz homes (City of Santa Cruz, August 2008).

The City of Santa Cruz is in the process of preparing Climate Action Plan based on the results of the emissions inventory. In October 2007, the County of Santa Cruz, the City of Santa Cruz and the University of California Santa Cruz partnered to create a *Climate Action Compact* (CAC). The compact signatories realized that while climate change is a global issue, the causes and effects of those changes must be addressed locally. The goal of the CAC is to achieve meaningful and measurable progress towards lowering local greenhouse gas emissions

through the implementation of cooperative programs. To that end, the CAC partners initiated a process to develop actions necessary to accomplish the goals outlined in the compact. Two of the most important goals are to develop partnerships with other local jurisdictions and to design a portfolio of potential cooperative projects to significantly lower GHG emissions and climate change impacts in the region (City of Santa Cruz, August 2008).

University of California & UCSC Efforts.

University of California. The UC Policy on Sustainable Practices was adopted by the Regents in 2006 and revised in March 2007, March 2008, and September 2009. This policy was developed to standardize campus practices and promote a more ecologically friendly and efficient use of our resources. The policy addresses: green building design, clean energy standards, climate protection practices, sustainable transportation practices, sustainable operations, recycling and waste management and environmentally preferable purchasing practices (University of California, September 2009). The policy guidelines that address these topics recommend that University operations:

- ☐ Incorporate the principles of energy efficiency and sustainability in all capital projects, renovation projects, operations and maintenance within budgetary constraints and programmatic requirements.
- ☐ 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.
- ☐ 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.
- ☐ Track, report and minimize greenhouse gas emissions on behalf of University operations
- ☐ Minimize the amount of University-generated waste sent to landfill.
- ☐ Utilize the University's purchasing power to meet its sustainability objectives.

The University of California, as a ten-institution system, has signed the American College and University Presidents Climate Commitment (ACUPCC). Each signatory commits to completing an inventory of greenhouse gas emissions within one year, and to developing, within two years, an institutional plan to achieve climate neutrality as soon as possible. The commitment also includes specific interim actions, including requiring that new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent; purchasing Energy Star appliances; offsetting greenhouse gas emissions generated by institutional air travel; encouraging and providing access to public transportation;

purchasing or producing at least 15 percent of the institution's electricity consumption from renewable sources; supporting climate and sustainability shareholder proposals at companies where the institution's endowment is invested; and adopting measures to reduce waste (University of California Santa Cruz, July 2009).

UCSC. The UC Santa Cruz Chancellor and representatives of the city and county of Santa Cruz signed a Climate Action Compact in September 2007. The partners in this compact agreed to:

- ☐ Set and present a GHG reduction goal for their organizations;
- ☐ Identify specific inter-institutional cooperative projects that reduce GHG emissions, stimulate investment in the community and foster economic development;
- ☐ Present a comprehensive GHG reduction action plan for their organization; and
- ☐ Immediately invite others from the public, private, and nonprofit sectors in the region to join in the effort (University of California Santa Cruz, July 2009).

The Chancellor's Council on Climate Change, which was created in January 2008, is currently working on a Climate Action Plan for the campus. The plan will set a target date for climate neutrality by quantifying emission sources, identifying projects to reduce those emissions, and implementing the projects (University of California Santa Cruz, July 2009).

UCSC prepared a draft "Climate Action Plan" in December 2008 to identify ways to meet the University GHG reduction goals. The Plan has not yet been adopted, but identifies a number of energy-related projects, including solar projects and shutting down the campus cogeneration plant, in order to meet GHG reduction goals. The draft Plan also considers planning guidelines for future projects and developing a greenhouse offsets policy (University of California Santa Cruz, December 2008).

The draft Climate Action plan reported the direct Campus emissions, including those from University vehicles, space and water heating, and emissions from purchased electricity, which is considered indirect. The 2006 inventory reported a total of approximately 40,000 metric tons of GHG emissions. The 2006 inventory did not include emissions from air travel, commuting and purchases. The Campus has completed a draft inventory for 2007, which includes air travel and nonfleet mobile sources such as commuters, METRO buses, delivery vehicles, but does not include emissions associated with purchased goods. The campus's estimated emissions for 2007 were 70,000 to 80,000 metric tons of CO₂ (University of California Santa Cruz, July 2009). UCSC completed its first year of third-party-certified GHG reporting for the year 2007 through the California Climate Action Registry. The Registry is a non-profit organization originally formed by the State of California, that serves as a voluntary GHG registry by organizations (online at: <https://www.climateregistry.org/CARROT/Reports/CREntityEmissionReport.aspx>).

GREENHOUSE GAS EMISSIONS CALCULATIONS

The proposed SOI amendment and provision of water and sewer services to UCSC's North Campus would not directly result in generation of greenhouse gas emissions. However, the proposed project would indirectly result in UCSC campus growth and development in the North Campus, which would result in GHG emissions.

A calculation of GHG emissions associated with North Campus development was prepared by Donald Ballanti, Certified Consulting Meteorologist, and is included in Appendix D. The level of emissions was calculated for this EIR and considered carbon dioxide, methane and nitrous oxide emissions, which according to OPR's technical advisory, are "the most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide" (California Governor's Office of Planning and Research, June 2008). The calculations discuss existing and future operational emissions in terms of CO₂e emissions from vehicular traffic, area sources, and energy consumption, including construction emissions, direct traffic emissions, and indirect emissions, including electrical use, water delivery, forest conversion, and wastewater treatment/solid waste disposal.

The total GHG emissions resulting from North Campus development is estimated as a maximum of 21,776.77 metric tons/year CO₂ equivalent (MT CO₂e), which would occur at the year of completion of new North Campus development, sometime between now and 2020. Once construction is completed, construction emissions and tree removal sources would be eliminated, and GHG emissions would be 17,005.80 MT CO₂e per year (see Appendix D).

To date, no local or state agency has adopted significance criteria for GHG emissions. As part of OPR's drafting revisions to the CEQA Guidelines regarding GHG emissions, CARB was asked to provide technical recommendations for setting thresholds of significance for GHG emissions. Draft recommendations for establishing a threshold approach were released by CARB technical staff on October 24, 2008. The recommendations set forth an approach for industrial, residential and commercial projects with a numeric threshold level recommended only for industrial uses. The recommendations have not been adopted or included in other state-adopted documents. On April 13, 2009, OPR issued draft CEQA Guidelines covering GHG emissions, but these proposed amendments to the State CEQA Guidelines do not specify significance thresholds for GHG emissions.

Several state agencies and entities have issued technical advisories, white papers and proposals with suggested methods for analyzing the impacts of GHG emissions, with and without a GHG emissions significance threshold. The California Air Pollution Control Officers Association (CAPCOA) prepared a white paper on CEQA and climate change in January 2008 (CAPCOA 2008). The white paper is intended to be used as a resource by lead agencies when considering policy options and not as a guidance document. Specifically, the white paper discusses three possible approaches to evaluating the significance of GHG emissions and possible mitigation measures; however, CAPCOA does not endorse any particular approach.

The three alternative significance approaches are: (1) determining significance without establishing a significance threshold for GHG emissions; (2) setting the GHG emission threshold at zero; and (3) setting the GHG emission threshold at some nonzero level.

The proposed State CEQA Guidelines' amendments add a new question regarding GHG emissions, asking whether a project would a) generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or b) conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The proposed revisions also indicate that an adopted plan may be used to determine whether a project's incremental contribution is cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program (section 15183.5b). The Guidelines further indicate that such a plan may include:

- ☐ Quantification of GHG emissions;
- ☐ Establishment of a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;
- ☐ Identification and analysis of GHG emissions from specific actions or categories of actions anticipated within the geographic area;
- ☐ Identify 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;
- ☐ Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

CONCLUSION

Global climate change impacts are a result of cumulative emissions from human activities in the region, the state and the world. Cumulative development and growth in the area would contribute primarily indirect emissions of GHGs that in conjunction with other global emissions, would contribute to global climate change. Given international concerns and the state of California's recent laws and indication of the serious nature of this issue, cumulative impacts related to global climate change are considered significant.

Estimated GHG emissions from potential future North Campus development would increase campus emissions by approximately 27% over year 2007 levels of 79,726 MT CO₂e estimated in UCSC's draft Climate Action Plan (December 2008). This represents a substantial increase over existing levels and is considered by the City to be a cumulatively considerable contribution to cumulative GHG emissions and global climate change.

The proposed revisions to the State CEQA Guidelines (section 15126.4(c)) indicate that potential project mitigation measures include:

- ☐ Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
- ☐ Reductions in emissions resulting from a project through implementation of project features,
- ☐ Project design, or other measures, such as those described in Appendix F of the State CEQA Guidelines and generally relate to energy conservation;
- ☐ Off-site measures, including offsets, to mitigate a project's emissions;
- ☐ Measures that sequester greenhouse gases; and
- ☐ In the case of the adoption of a plan, such as a general plan, long range development plan, or greenhouse gas reduction plan, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

Currently, the draft UCSC Climate Action Plan has not been adopted, and the City does not have jurisdiction to impose mitigation measures on the University. However, the City finds that indirect GHG emissions generated by the proposed project would be offset by implementation of UC-adopted 2005 LRDP mitigation measures; continued implementation of the University of California's "Policy on Sustainable Practices"; and potentially further by the ultimate implementation of the UCSC Climate Action Plan. These measures and programs address key elements to be implemented by local governments as identified in the State Scoping Plan, including green building designs, energy efficiency, sustainable operations, transportation management, and recycling and waste management. UCSC's efforts to date have resulted in the following milestones of progress toward improved climate protection and campus sustainability:¹⁰

- ☐ Energy efficiency projects completed since 2004 have lowered annual campus CO₂ emissions by approximately 1,600 metric tons.
- ☐ Trip-reduction programs have resulted in nearly six in ten people traveling regularly to and from the campus (vs. three in ten throughout the Santa Cruz community) using alternatives to single-occupancy vehicles.
- ☐ The campus has reduced per capita water consumption by 40% since the 1980s, and has conservation plans under development to reduce total annual use by another 20 to 30 million gallons.
- ☐ UCSC has set aside 55% of its nearly 2,000-acre campus as natural habitat.

¹⁰ "2008 UCSC Sustainability Update." Online at: <http://sustainability.ucsc.edu/images/docs/ucsc-sustainability-update-10.2008finalcolor.pdf> and included in Appendix E.

The University's Sustainable Practices Policy (see Appendix E) requires new buildings to be designed to minimum LEED-certified levels, and renovated buildings will be designed to exceed Title 24 energy efficiency standards by 20%. Several of the mitigation measures adopted by the Regents for the 2005 LRDP require incorporation of measures to reduce energy use and subsequent emissions, such as project building orientation and incorporation of solar water heaters (AIR-2A).

UCSC's existing Transportation Demand Management programs (LRDP Mitigation TRA-2B) have the objective of increasing sustainable transportation modes above 55% during the 2005 LRDP planning horizon. Other transportation-related measures include reducing on-campus parking demand associated with single-occupant commuters (TRA-3A), improving on-campus shuttle efficiency and operations (TRA-4B), and implementing bicycle circulation improvements (TRA-4E & 4F). Traffic reduction is partially reflected in the GHG emissions estimate prepared for this EIR due to the daily traffic limit imposed by the Comprehensive Settlement Agreement (3,900 ADT). This represents about a 40% reduction in daily trips and associated emissions that have already been factored into the GHG emissions calculations at full buildout. Additionally, the campus provides on-campus student and employee housing, which will be increased as a result of the Comprehensive Settlement Agreement and should further reduce the percentage of students and employees traveling regularly by car to campus.

A number of other 2005 LRDP mitigation measures address other means to reduce emissions. LRDP Mitigation AIR-2C requires the UCSC campus to install VOX and NO_x controls on new gas turbines to reduce emissions by 90%. LRDP Mitigation AIR-6 identifies measures to reduce construction emissions. LRDP Mitigation UTIL-4 calls for the campus to continue to improve its recycling and waste reduction programs and identify additional means of reducing waste.

The University's sustainability policy and UCSC's implementation of 2005 LRDP mitigation measures and other ongoing sustainable practices serve to implement many of the State Scoping Plan recommendations regarding: energy efficiency, provision of on-campus housing, transportation demand reduction measures, green building designs, recycling reduction, and implementation of water conservation measures. They represent the most effective and practicable measures to reduce indirect GHG emissions. The measures are also consistent with OPR's guidelines for mitigation of GHG emissions, which include: encouraging jobs/housing proximity; encouraging walking, bicycling, and public transit use; and applying management strategies to improve operational efficiency of transportation systems (June 2008). As a result, future University growth would not be considered an impediment to the emissions reduction targets developed by the State Scoping Plan pursuant to AB 32. However, while the above measures may be effective in reducing the project's incremental effect to a less-than-cumulatively considerable level, there is no current data indicating in quantifiable terms the amount of reductions these measures could achieve. Nor is there an adopted UCSC Climate Action Plan that specifies levels of GHG reduction associated with implementation of

different measures.¹¹ Thus, the City cannot be definitely determine whether the 27% increase could be reduced to level that is less than cumulatively considered as would be specified in an adopted greenhouse reduction plan. Therefore, the City conservatively concludes that the project's incremental effect on GHG emissions and global climate change would be cumulatively considerable.

PROJECT ALTERNATIVES

CEQA REQUIREMENTS

According to the State CEQA Guidelines (section 15126.6), an EIR shall describe a range of reasonable alternatives to the project or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of potentially feasible project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

Because an EIR must identify ways to mitigate or avoid the significant effects that the project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. An agency may evaluate on-site alternatives, off-site alternatives or both. (*Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477, 489.) However, neither the CEQA statute nor the Guidelines require analysis of off-site alternatives in every case. An agency should consider whether any previous documents sufficiently analyzed alternative locations. If a previous document has evaluated a range of reasonable alternatives for a project with the same basic purpose, the EIR may rely on that document if relevant circumstances have not changed. Thus, the City considers it appropriate to review the University's LRDP EIR and its alternatives analysis in determining whether there is a need to evaluate an off-site alternative (in this case, an alternative SOI boundary amendment) for this project.

¹¹ Although the proposed State CEQA Guidelines' revisions that propose use of adopted plans to evaluate cumulative impacts have not yet been adopted, they are the most current state-directive on cumulative impact evaluation, and therefore are appropriate to consider in this EIR. Adoption is expected by January 1010.

The range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those potentially feasible alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

It is important to understand that the EIR’s analysis of alternatives constitutes the City staff’s and consultants’ advice and suggestions to the agency’s ultimate decision-makers, here, the City Council. The ultimate determination of the actual feasibility of any of the alternatives considered in the EIR is left to the City Council, which may consider a broad range of factors in making its determination. (CEQA Guidelines, § 15091(a)(3).) These factors may include “specific economic, legal, social, technological, or other considerations.” (Pub. Resources Code, § 21081(a)(3); see also *City of Marina v. Bd. of Trustees of the California State University* (2006) 39 Cal.4th 341, 369 [; *City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 401, 417 [“the concept of ‘feasibility’ under CEQA encompasses ‘desirability’ to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, and technological factors”].)

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

This section evaluates alternatives to the proposed project as required by CEQA. The State CEQA Guidelines (Section 15126.6) requires that an EIR describe and evaluate the comparative merits of a range of reasonable alternatives to the project, or to the location of the project, which could feasibly attain most of the basic objectives of the project. The guidelines further require that the discussion focus on alternatives capable of eliminating significant adverse impacts of the project, or reducing them to a level of insignificance even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. The alternatives analysis should also identify any significant effects that may result from a given alternative.

SUMMARY OF SIGNIFICANT IMPACTS & PROJECT OBJECTIVES

Significant Project Impacts

This EIR identified one direct significant project impact and two significant cumulative impacts:

- ❑ **Impact 1-1:** The proposed project would result in future provision of water service to the North Campus portion of the UCSC campus that would support new planned development and growth to the year 2020. There are adequate supplies to serve the project in normal years, but there are inadequate water supplies to serve the project under existing and future multiple dry year (drought) conditions.
- ❑ **Cumulative Water Supply Impacts:** City water supplies are currently inadequate for existing and future growth during multiple dry year (drought) conditions and potentially insufficient for future normal year conditions after the year 2025. The proposed project's incremental effect on significant cumulative water demand/supply impacts under both normal and dry years is considered cumulatively considerable, and thus, significant.
- ❑ **Cumulative Global Climate Change Impacts:** Estimated GHG emissions from potential future North Campus development that would indirectly result from the proposed project would increase campus emissions by approximately 27% over year 2007 levels. This represents a substantial increase over existing levels and is considered by the City to be a cumulatively considerable contribution to cumulative GHG emissions and global climate change.

The proposed project would not directly induce growth as no new development, housing or employment is proposed as part of the project. The proposed project would indirectly support planned growth and development on the UCSC campus with amendment of the city's Sphere of Influence (SOI) and ultimate provision of water and sewer service to the North Campus area of UCSC. However, the proposed project will accommodate planned growth, but will not induce new or additional UCSC growth beyond what is planned in the 2005 LRDP. The secondary impacts of development and growth in the North Campus area of UCSC include significant impacts that can be mitigated to a less-than significant level related to:

- ❑ Aesthetics (degradation of visual quality);
- ❑ Biological Resources (sensitive habitats, wetlands, riparian habitat, special status plant species, special status wildlife species, interference with wildlife movement);
- ❑ Cultural Resources (disturbance to unknown archaeological and paleontological resources);
- ❑ Geology and Soils (geologic hazards, expansive soils);
- ❑ Public Services (recreation); and

- ❑ Transportation and Traffic (on-campus traffic generation, parking, alternative transportation modes effectiveness, and off-campus traffic as modified by provisions of the Settlement Agreement that contain additional traffic mitigation).

Significant unavoidable impacts related to future UCSC growth and development include:

- ❑ Air quality (violation of NOx standards);
- ❑ Cultural Resources (historic or archaeological resources where resource cannot be preserved, although the potential for such resources to exist in the undeveloped North Campus area is low);
- ❑ Hydrology and Water Quality (potential erosion and water quality degradation depending on future site-specific development designs);
- ❑ Noise (construction noise) near sensitive receptors;
- ❑ Transportation and Traffic (unacceptable freeway operations); and
- ❑ Utilities (expansion of cooling and heating water facilities).

Project Objectives

The objective of the project is to implement City of Santa Cruz obligations set forth in the Comprehensive Settlement Agreement with regard to provision of water and sewer services to the UCSC North Campus area, and specifically to amend the City's Sphere of Influence boundaries to include this area to provide such services. The Settlement Agreement was entered as a final judgment of the Santa Cruz Superior Court. Pursuant to this stipulated judgment, the City agreed to continue to provide water service to the campus through its existing water connections to assist UCSC with achieving its on-campus housing commitment set forth in the Settlement Agreement. Furthermore, the City agreed to submit an application to LAFCO to amend its Sphere of Influence to include the project area of the UCSC Campus concurrent with UCSC submitting its own application request to LAFCO for provision of extraterritorial water and sewer service to the North Campus for development of up to 3,175,000 gross square feet of building space in this area as set forth in the 2005 LRDP.

ALTERNATIVES CONSIDERED

Section 15126.6(c) of the State CEQA Guidelines indicates that the range of potential alternatives shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible and briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

- ☐ failure to meet most of the basic project objectives,
- ☐ infeasibility, or
- ☐ inability to avoid significant environmental impacts.

The primary objective of the proposed project is to implement City of Santa Cruz legal obligations to provide water and sewer service to the North Campus of UCSC set forth in the Comprehensive Settlement Agreement. There are no known alternatives to the City provision of these services to the project area, as the City is the sole provider of urban services to the existing developed UCSC campus and surrounding areas within city limits. Any alternatives that alter the provisions of the Comprehensive Settlement Agreement were not considered feasible as they would violate a legal judgment and would require the cooperation of, and negotiation with, numerous agencies and individuals who signed the Agreement, which is not in the City's control, and which the City considers unlikely to occur.

A number of alternatives were suggested in NOP comment letters and scoping meeting, but were eliminated from further consideration for the reasons discussed below.

- ☐ **Revised Project to Provide Alternative Sewage Disposal Systems.** Under this suggested alternative, only water would be provided by the City and wastewater would be provided by onsite alternative sewage disposal systems. Specifically, the "Living Machine" system was suggested and described as being in use at various educational facilities in the United States (Oberlin College in Ohio, and the Marine Environmental Research and Training Station campus in Oregon). A cursory online investigation indicates that water would be required at some level to create wetlands or other holding facilities in which plants are grown and used to break down bacteria. The use of such systems, while a potentially viable alternative in some situations, was eliminated from further consideration for several reasons. As the alternative would require use of water to grow plants, it would not reduce (and could increase) project dry-year and cumulative water supply impacts. This alternative would violate the Settlement Agreement clauses regarding City provision of extraterritorial sewer services and would not be feasible for the City to implement as it is not a system utilized by the City nor does the City have jurisdiction over land use/development decisions made by the University of California. The project area could potentially be annexed to the City in the future with approval of the Sphere of Influence amendment, and the use of alternative sewage disposal systems would be inconsistent with Chapter 6.20 of the Santa Cruz Municipal Code, which requires that all wastewater be discharged to a public sewer.
- ☐ **Develop On-Campus Water Supplies.** This alternative suggests development of on-campus water resources to provide for the increased demand resulting from UCSC growth. The possibilities that are recommended include: a) rainfall water

capture, storage, treatment to offset additional water demand; b) development of greywater management and treatment; and c) instituting more water conservation on the UCSC campus. This alternative was eliminated from further consideration primarily because development of these options is not a water supply option for the City of Santa Cruz Water Department as the City does not have jurisdiction over the University or its potential water sources. Furthermore, the recommended measures are already included as adopted 2005 LRDP mitigation measures.

As discussed in the WATER SUPPLY (Chapter 4.1) section of this EIR, a feasibility study prepared for UCSC to implement 2005 LRDP EIR Mitigation Measure UTIL-9G studied potential utilization of reclaimed water (including rainwater, grey water, cooling tower blowdown water and/or recycled water) in new development (ARUP, March 2008). Rainwater harvesting and greywater recycling were identified as priorities for new North Campus buildings and new Family Student Housing, that would result in a water savings of about 28 MGY (Ibid.). However, the study does not identify costs, nor has UCSC identified a schedule for implementation.

The City understands that while the University may have begun to develop the technical and feasibility analyses of one or more of the components of this alternative, the bulk of the details required to flesh out this alternative for substantive analysis remain speculative at this time. Since the City does not have control over UCSC development and water use, these non-potable alternative water systems are not considered reasonably foreseeable City water sources for the purposes of this EIR's analysis. However, to the extent that UCSC develops a program for implementation, especially for new buildings, the SOI project water demand on City supplies would be correspondingly reduced.

It is also noted that the rainfall capture and storage systems typically require large areas to store enough water captured during rainy seasons to save until needed in dry seasons, the creation of which could result in potential significant impacts. Additionally, the 2005 LRDP Final EIR mitigation measure HYD-5A (via implementation of Mitigation Measure HYD-3D) requires that runoff from new impervious areas in the north campus be allowed to infiltrate and thereby recharge the local groundwater system. This would ensure that north campus springs, as well as springs that discharge in Wilder Creek, Cave Gulch, and Tunnel Gulch on the east and north, and seeps that discharge to the east into drainages of the San Lorenzo River would not be affected. Because of these uncertainties about whether these components could be implemented and actually reduce or avoid the impacts associated with the City's water supply challenges, this alternative is considered infeasible.

- ❑ **Relocate North Campus Development to the Main Campus.** This suggested alternative would relocate potential project area development to the central and lower campus through increased density and infill within the existing developed campus and/or expansion into open areas. This would eliminate future development in the North Campus. The central and lower campus areas (see Figure 4¹²) are located within existing city limits. Therefore, this alternative would not eliminate the significant unavoidable project and cumulative water and global climate change impacts as the new development would be located within the City, and thus, the City would automatically provide water and sewer service pursuant to its existing service obligations. This alternative also does not meet the primary project objective of fulfilling the City's legal obligations under the Comprehensive Settlement Agreement.

Increased density and infill on the existing campus was considered as a potential alternative in the 2005 LRDP EIR (University of California Santa Cruz, September 2006, 2005 LRDP FEIR, Volume II), but was rejected for further analysis because the University indicated there is not enough in-fill space within the core to accommodate all the needed academic space without development of buildings extending above the treetops, resulting in greater visual impacts. Furthermore, this option would require expansion between building clusters, and result in the loss of all the intervening space that defines each of the clusters within the campus core. The 2005 LRDP EIR did consider an alternative that expands the campus to the south of existing development (LRDP Alternative 3).

Although the City does not consider this to be a potentially feasible alternative to the project, this potential alternative could be a result of a "No Project" alternative and is discussed further below under the "No Project Alternative."

- ❑ **Redirect Student Enrollment to Other Campuses or Construct New Campuses.** This suggested alternative does not meet the primary project objective of fulfilling the City's legal obligations under the Comprehensive Settlement Agreement. It is not considered feasible as the City has no jurisdiction over enrollment or development decisions of The University of California. Furthermore, the 2005 LRDP EIR considered this proposal as an alternative to the 2005 LRDP and determined that it would not eliminate impacts (University of California Santa Cruz, September 2006, 2005 LRDP EIR, Volume V, Master Response 5.2.18). For example expansion to accommodate projected enrollment growth would be difficult at some campuses such as UC Davis that is situated on prime farmland. UCLA and UC Berkeley that have limited physical space for expansion and accommodating new development and population. The new tenth UC campus in

¹² All EIR figures are included in Chapter 8.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

Merced offers new opportunities and will accommodate a portion of the currently projected increases in enrollment (an estimated 13,500 by 2024-25), but this new campus cannot grow quickly enough to accept all of the growth, nor would it be reasonable to expect that all of the program and research growth could occur at a single campus. The University of California does not have plans to open an eleventh campus at this time (Ibid.). The 2005 LRDP EIR concluded that for these reasons, while it is possible that additional UC campuses may be built in the future, entirely or even substantially accommodating the immediate and near term demand for UC education at a new campus site is not a feasible alternative to growth at UC Santa Cruz. Further, because any future campus site is likely to present its own set of environmental issues, development at another site likely would not eliminate significant environmental impacts, but would simply trade one set of impacts for another, or result in similar impacts at another location.

The 2005 LRDP EIR also considered satellite campuses at Moffett Field in Santa Clara County and at the former Fort Ord in Monterey County (University of California Santa Cruz, September 2006, 2005 LRDP EIR, Volume II). Under the Moffett Field alternative, approximately 2,000 students and 460 associated faculty and staff could be accommodated in facilities to be developed at the Silicon Valley Center at the former Naval Air Station Moffett Field. A reuse plan adopted by NASA for Moffett Field establishes a Research Park, including a 40-acre University Reserve for education, research facilities and housing dedicated to higher education partners, including UC Santa Cruz, Carnegie Mellon University, San Jose State University, and Foothill-DeAnza Community College. The University of California has a letter of intent that would allow it to develop a facility on 25 acres. Given the distance of the NRP from the UC Santa Cruz campus, the impediments to physical development of the site, including infrastructure and transportation constraints, and the early state of development of academic programs, which cannot serve significant numbers of undergraduates, development of a satellite campus at Moffett Field was not considered a viable alternative to growth on the main UCSC campus.

A satellite campus in Monterey County on UC-owned land at the former Fort Ord (UC MBEST) would accommodate about 2,200 students and 480 employees and about 1.3 million gross square feet of the proposed building space. Most of the site contains protected reserve lands, and water allocation is limited to the first phases of development envisioned under the Master Plan prepared by the University for the site. The primary goal of the UC MBEST is to develop alliances among businesses, government, and educational and research institutions to address economic opportunities, especially in agriculture and industry. Programs would be designed to facilitate knowledge transfer between businesses, government, and educational institutions via research relationships and training/teaching programs. The existing MBEST Master Plan would need to be revised to accommodate a

satellite campus for UCSC campus growth and would require administrative, research, teaching, and housing facilities to function as a relatively independent campus. Under this alternative, the uses and programs planned and envisioned under the UC MBEST Master Plan would not be accommodated and would have to be abandoned or the planned uses would have to be developed would require additional land development at MBEST. The latter might not be feasible due to water allocation and land use constraints (University of California Santa Cruz, September 2006, 2005 LRDP EIR, Volume II). The alternative was found to result in a reduction or elimination of some significant impacts, but would also result in new significant impacts due to new development. Additionally, this alternative would not meet some of the key objectives of the LRDP and would require the abandonment of the University's plans for UC MBEST (Ibid.).

For these reasons, redirecting student enrollment to other campuses or sites was eliminated from further consideration. However, in accordance with provisions of the Comprehensive Settlement Agreement, the University has agreed to include a comprehensive analysis of potentially feasible alternative locations to accommodate enrollment as part of the next LRDP amendment.

PROJECT ALTERNATIVES EVALUATION

ALTERNATIVE 1: No Project

Section 15126.6(e) of the State CEQA Guidelines requires that the impacts of a "no project" alternative be evaluated in comparison to the proposed project. The Guidelines indicate that the EIR should discuss the existing conditions at the time the notice of preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

The "No Project" Alternative assumes that the proposed Sphere of Influence amendment and request for provision of extraterritorial water and sewer service to the project area of UCSC would be denied or an approval would be overturned by legal action. This may result in UCSC halting development and/or student enrollment if these services cannot be provided to the project area for planned development under the approved 2005 LRDP. Under this situation, UCSC-related water demand and sewer service demand would not increase and none of the impacts identified in the EIR related to provision of water and sewer service would occur. However, as discussed below, this alternative could result in redirecting development to the main campus that is within the City's existing service area, in which case water and sewer service demands may remain unchanged

CEQA Guidelines section 15126.6(e)(3)(B) further indicates that if disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this “no project” consequence should be discussed. In certain instances, the no project alternative means “no build” wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project’s non-approval on the physical environment. After defining the no project alternative using one of these approaches, the lead agency should proceed to analyze the impacts of the no project alternative by projecting what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

Pursuant to the above section, should the proposed Sphere of Influence amendment (and provision of services) be denied or an approval legally overturned, under provisions of the Comprehensive Settlement Agreement, UCSC is excused from the housing commitment in the Settlement Agreement (additional on-campus housing) and the lower 2005 LRDP on-campus housing commitment will be reinstated (section 2.8e). Additionally, a reduced daily traffic commitment that is specified in the Settlement Agreement will be excused in the event that the City fails to amend its Sphere of Influence, although UCSC would pay traffic impact fees for the resulting increased traffic (section 4.1a). Additionally, UCSC retains its right to assert any and all rights or legal positions regarding its ability to develop the project area, including, but not limited to, the applicability of an exemption or immunity from LAFCO’s jurisdiction (section 2.8b), and all parties retain the right to assert any and all legal claims or positions regarding any LAFCO decision or UCSC’s ability to develop the North Campus (section 2.8b).

Thus, the No Project Alternative could foreseeably result in the University pursuing other options to develop the project area or cause the University to shift development elsewhere on campus, such as to infill of the existing developed campus with southerly expansion in several areas. Infill was considered in the 2005 LREP EIR and was determined to result in new or greater impacts than the University-approved 2005 LRDP (University of California Santa Cruz, September 2006, 2005 LRDP EIR, Volume II (section 5.3) and Volume V (Master Response 5.2.22).

IMPACTS

If the proposed Sphere of Influence amendment (and future provision of water and sewer services) is not approved, the No Project Alternative may result in North Campus development if UCSC successfully asserts other legal actions to develop this area and/or development may intensify and expand in other existing campus areas. The University may direct development on the Main (Central) Campus that is within existing City limits. In either case, the significant project water and cumulative impacts identified in this EIR would not be eliminated as water demand and wastewater generation would remain unchanged. The No Project Alternative would result in excusing the University from meeting its additional on-campus housing commitment specified in the Settlement Agreement, and the lesser level of

on-campus housing (as set forth in the 2005 LRDP FEIR) would be reinstated. This would have the effect of increasing traffic impacts as the Agreement would allow an increase in daily traffic of 1,300 daily trips, although UCSC would have to pay traffic impact fees on the increased trips to mitigate the additional traffic contribution within the City. Thus, the project's incremental contribution to significant cumulative global climate change impacts could increase.

The secondary impacts of growth and development would not change if the University is successful in asserting legal or other claims regarding development of the North Campus. If campus development is expanded in other areas of the main and lower campus (such as described in the 2005 LRDP EIR¹³), secondary impacts of growth would be mostly the same and in a few instances less than what was identified for the North Campus. However, in addition to increased traffic that would occur as a result of the Settlement Agreement provisions described above, infill and expansion would result in more severe significant impacts related to aesthetics (especially scenic resources), biological resources (special status species [California red-legged frog, burrowing owls] and wildlife movement), cultural resources, geology and soils (hazards associated with development on karst formations), and drainage (University of California Santa Cruz, September 2006, 2005 LRDP FEIR, Volume II and Volume V).

MEETING PROJECT OBJECTIVES

This alternative would not meet the basic project objectives to implement the City's obligations set forth in the Comprehensive Settlement Agreement to provide water service to the project area of UCSC to assist UCSC with achieving its on-campus housing commitment.

ALTERNATIVE 2: Modified Sphere of Influence Amendment Area

This alternative would exclude some resource lands (as designated in the 2005 LRDP) from inclusion within the Sphere of Influence amendment area. This would serve to tighten the line to include those areas designated for future development (and limited intervening lands designated for Natural Reserve), and thus, provision of services. Some lands designated as "Protected Landscape" and "Campus Natural Reserve" would be excluded Figure 18 provides a general concept of the modified SOI area. Since the amount of development that could occur in the North Campus under the 2005 LRDP is specified in the Settlement Agreement, reducing future potential development is not feasible for reasons previously described associated with changing the Settlement Agreement.

IMPACTS

¹³ University of California Santa Cruz, September 2006. 2005 LRDP Final EIR, Volume II, section 5.4.3).

This alternative would not eliminate areas proposed for development or change the amount of the development that could occur, and water demand would remain unchanged. Thus, the significant project and cumulative water and [elimiateclimate](#) change impacts identified in this EIR would not be reduced or avoided, and secondary impacts of growth and development in the North Campus would remain unchanged. However, no new significant impacts would result from this alternative. Additionally, the alternative could provide strengthened protection of campus the “resource lands.” Although development is not proposed in the 2005 LRDP, elimination from the SOI amendment area would require seeking another SOI amendment in the future if development of the excluded area were ever re-considered.

MEETING PROJECT OBJECTIVES

This alternative would meet the basic project objectives to implement the City’s obligations set forth in the Comprehensive Settlement Agreement to provide water service the North Campus area of UCSC to assist UCSC with achieving its on-campus housing commitment.

Environmentally Superior Alternative

According to CEQA Guidelines section 15126.6(e), if the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Furthermore, Sections 21002 and 21081 of CEQA require lead agencies to adopt feasible mitigation measures or feasible alternatives in order to substantially lessen or avoid otherwise significant adverse environmental effects, unless specific social or other conditions make such mitigation measures or alternatives infeasible. Where the environmentally superior alternative also is the no project alternative, CEQA Guidelines in Section 15126(d)(4) requires the EIR to identify an environmentally superior alternative from among the other alternatives.

In the present case, Alternative 1 – No Project Alternative, would not eliminate or reduce the identified significant impacts and could result in additional significant impacts without attaining the basic project objectives. Alternative 2 – Modified SOI Amendment Area, is considered the environmentally superior alternative of the alternatives considered. Although it would not reduce or eliminate significant impacts, it would not result in additional significant impacts. As discussed above, the alternative could provide better protection of designated campus “resource lands” as elimination from the SOI amendment area would require seeking another SOI amendment in the future if development of the excluded area were ever reconsidered.