5.0 GROWTH INDUCEMENT

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INTRODUCTION

CEQA requires that any growth-inducing aspect of a project be discussed in an EIR. Pursuant to the State CEQA Guidelines section 15126.2(d), this discussion should include ways in which the project could directly or indirectly foster economic or population growth or construction of new housing in the surrounding area. Projects which could remove obstacles to population growth (such as major public service expansion) must also be considered in this discussion as well as characteristics of the project that that may encourage and facilitate other activities that could result in significant impacts. According to CEQA, it must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment.

GROWTH INDUCEMENT

EXISTING POPULATION AND PROJECTIONS

Regional Population

The City of Santa Cruz is the largest city within Santa Cruz County in terms of population, followed by Watsonville, Scotts Valley and Capitola. The City's current population represents approximately 22% of the total County population (266,519), and the City also accommodates approximately 22% of the County's total housing stock (California Department of Finance, May 2008). According to AMBAG data, the City provides 20% of the jobs found within the County (AMBAG, June 11, 2008a).

As of January 1, 2008, the City of Santa Cruz had a reported population of 58,125 (California Department of Finance, May 2008).[1] This is an increase of 8,414 City residents over the City's 1990 population of 49,711 residents. Overall, the City's population increased at an average annual growth rate of approximately 1% (0.9) since 1990. The average household size in the

[1] California CEQA Guidelines section 15125(a) requires that existing environmental conditions be described as they exist at the time the Notice of Preparation (NOP) is published. The NOP for this EIR was published in November 2008. At this time regional population figures were available from the State as reported by January 1, 2008.

city of Santa Cruz was approximately 2.4 in 2008 (California Department of Finance, May 2008).

As of January 1, 2008, Santa Cruz County had a reported total population of 266,519 (California Department of Finance, May 2008). Reported population for other cities in Santa Cruz County is: Capitola – 10,105; Scotts Valley – 11,697; and Watsonville – 51,703. Existing County population is shown on Table 3-1.

UCSC Population

In 2007-2008[2], UC Santa Cruz main campus three-quarter average enrollment[3] totaled 15,000 full-time equivalent (FTE) on-campus students (University of California Santa Cruz, October 14, 2008) and 3,436 FTE employees.[4] Approximately 19% of the employees were faculty and 81% were staff. For the 2007/2008 academic school year, the University-related campus population also included 490 on-campus dependents (University of California Santa Cruz, July 2009).

In 2207-08, UCSC supported a total population of 7,779 people residing in on-campus housing units, including students, faculty and dependents (University of Santa Cruz, California, July 2009). As discussed in the LAND USE (Chapter 4.3) section of this EIR, a small portion of UCSC's Colleges 9/10 and almost two-thirds of the Crown Merrill Apartment complex are located within the SOI project (North Campus) area with an estimated population of approximately 380 students that live in these facilities, and thus, are within the unincorporated area of Santa Cruz County.

[2] California CEQA Guidelines section 15125(a) requires that existing environmental conditions be described as they exist at the time the Notice of Preparation (NOP) is published. The NOP for this EIR was published in November 2008. At this time, campus population and employment figures were available for the 2007-08 academic school year.

[3] Enrollment at UC Santa Cruz varies each quarter. The Campus uses an average of the student enrollment levels in the three primary quarters (fall, winter and spring) to track changes in enrollment from one year to another. That average is referred to as the three-quarter average enrollment.

[4] Based on "full-time equivalency" (FTE) per UCSC data (University of California Santa Cruz, July 2009, "East Campus Infill Housing Project Final EIR"). Since preparation of the 2005 LRDP FEIR, UCSC now counts employees according to "full-time equivalency" (FTE) instead of headcount as estimated in the LRDP FEIR as it believes it is more accurate than the "headcount" approach that includes people who only teach one class per year or other employees with limited presence on campus. According to campus data, 4,093 people were employed at the University in 2007-2008 based on the headcount approach headcount and excluding student employees ("UCSC Personnel Profile by Status and Gender from the Payroll Activity Record as of October 2007.)

AMBAG Population Projections

AMBAG prepares and regularly updates population, housing and employment projections for the cities and counties in its region. The forecasts are made in five-year increments. The current forecast, which was adopted by AMBAG in June 2008, covers the years from 2005 to 2035. These population projections are outlined in Table 3-1 for the City and other jurisdictions within Santa Cruz County.

Population in the City of Santa Cruz is projected to increase to 63,265 in 2020 according to AMBAG (2008). This represents an increase of 5,140 people between 2008 and 2020. The City's existing population (58,125) is slightly less than what was previously forecast by AMBAG (and included in the City's existing General Plan) for both the years 2005 (59,700 total population) and 2010 (60,800 total population). AMBAG population projections for the City of Santa Cruz reflect an average annual increase of about 0.8% between 2005 and 2020, which is slightly less than the actual rate of growth (0.9%) the City experienced between 1990 and 2008. It should be noted that the 2008 AMBAG forecast includes population increases at UCSC based on the amount of housing that will be provided on the campus (Deshazo, AMBAG, personal communication, August 2009).

TABLE 3-1:
Existing Population and Population Forecasts for Santa Cruz County

Jurisdiction	Existing Population [1]	AMBAG Forecasts [2]			Increase 2008-2020	Long-Term Forecasts [2]	
		2010	2015	2020		2025	2030
City of Santa Cruz	58,125	58,919	62.480	63,265	5,140	64,649	65,884
Capitola	10,015	10,124	10,222	10,693	678	10,862	11,090
Scotts Valley	11,697	11,923	12,126	12,311	614	12,427	12,688
Watsonville	51,703	51,903	54,857	56,544	4,841	58,975	61,245
Unincorporated County	134,979	135,173	135,297	137,681	2,702	138.822	139,690
COUNTY TOTAL	266,519	268,041	273,983	280,493	13,975	285,735	290,597

[1] Population as of January 1, 2008 per California Department of Finance (May 2008).
[2] AMBAG, June 2008.

Total population in the County of Santa Cruz is projected to increase by 13,975 persons between 2008 and 2020. AMBAG population projections for Santa Cruz County as a whole reflect an average annual increase of about 0.5% between 2005 and 2020.

GROWTH INDUCEMENT POTENTIAL

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 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. Implementation of the proposed project would support UCSC in moving forward with plans to develop the North Campus as set forth in its adopted *2005 Long Range Development Plan* (2005 LRDP) and the Comprehensive Settlement Agreement to accommodate a campus enrollment of 19,500 students and associated staff increases by the year 2020 and to provide additional on-campus housing. Maximum new development square footage under the 2005 LRDP is estimated to be 3,175,000 square feet, and as provided in the Settlement Agreement, this additional development may occur within the project SOI Amendment area. Thus, the growth that may be accommodated by amending the City's SOI and providing extraterritorial water and sewer service to the North Campus area may include all the additional new campus growth envisioned in the 2005 LRDP, except developments approved or proposed on the main campus since adoption of the 2005 LRDP.

Thus, the proposed SOI amendment would indirectly facilitate on-campus development and growth, including new residents and employees. The project would also indirectly result in secondary population growth off campus as related to the increased enrollment and employment planned in the 2005 LRDP. However, the proposed SOI amendment and future provision of extraterritorial water and sewer service to the North Campus would not result in service to other areas located outside of the North Campus.

The following growth inducement analysis provides a review of indirect population and employment growth on the UCSC campus as a result of the proposed project, as well as secondary population growth off campus. The review is based on existing population estimates, current population projections that were not available when the 2005 LRDP FEIR was prepared, and the terms of the Comprehensive Settlement Agreement related to provision of on-campus student housing.

Campus Population and Employee Growth

Under the final, adopted 2005 LRDP, future development of the campus would accommodate a three-quarter average enrollment of 19,500 full-time equivalent (FTE) students by the academic year 2020-21. This represents an increase of about 4,500 students over the 2007-2008 enrollment level of 15,000 students. Additionally, a total of 4,463[5] faculty and staff are anticipated by 2020-21, which represents an increase of approximately 1,027 new employees between the 2007-08 and 2020-21 academic years.

[5] Based on "full-time equivalency" (FTE) per UCSC data (University of California Santa Cruz, July 2009, "East Campus Infill Housing Project Final EIR") as discussed in the previous footnote.

Some of the new student and employee population would have dependents, such as spouses, partners, children or parents that would also result in additional population. The number of dependents of students was based on the projected increase in student dependents at the on-campus Family Student Housing site. Dependents of employees was based on an average 2.38 person per household size, which is the average household size in the City of Santa Cruz, where the majority of new UCSC-related population is expected to reside as further discussed below.

Table 3-2 summarizes the estimated UCSC year-2020 campus population with dependents. Approximately 6,000 (6,035) persons could be added to the daily campus population by 2020-21 under the University's adopted 2005 LRDP, including student and employee dependents living on campus. Additionally, the 2005 LRDP Final EIR anticipates about 200 non-UC employees and daily visitors to the campus.

TABLE 3-2: Summary of UCSC Campus Population & Housing Growth

	2007-2008 Total	2020 Total per 2005 LRDP FEIR	Net Increase
On-Campus Student Enrollment	15,000	19,500	4,500
Campus Employees [1]	3,436	4,463	1,027
On-Campus Dependents [2]	490	998	508
TOTAL ON-CAMPUS POPULATION	**18,926**	**24,961**	**6,035**
On-campus Student Housing	7,385	10,125	2,740
On-campus Employee Housing	238	443	205

[1] As previously mentioned, since preparation of the 2005 LRDP FEIR, UCSC now counts employees according to "full-time equivalency" (FTE) instead of headcount as estimated in the LRDP FEIR. This results in 4,463 campus employees in the year 2020, (University of California, July 2009), which is approximately 611 fewer employees than estimated in the LRDP FEIR (5,074). Under the headcount method, total employees in the year 2020 was estimated at 5,074 in the 2005 LRDP FEIR with 4,093 employees in the 2007/08 academic year (per UCSC Personnel Profile as of October 2007), resulting in a net increase of 981 new employees. The FTE approach results in a slightly higher level of employee growth, which is used in this EIR analysis.

[2] Includes student and employee dependents living on campus. SOURCE: University of California Santa Cruz. July 2009. "East Campus Infill Housing Final EIR" (Table 3.11- 3).

UCSC On-Campus Residential Growth

Some of the new students and employees would be housed on campus. The total on-campus student housing has been modified to reflect provisions of the Comprehensive Settlement Agreement that increases the amount of housing that will be provided on campus from what was evaluated in the 2005 LRDP EIR. The Comprehensive Settlement Agreement indicates that 10,125 student beds will be provided on campus. As shown on Table 3-2, approximately

2,740 new student beds and 205 new employee housing units would be added on the UCSC campus by the year 2020, which may be located in the Central (Main) or North Campus areas.

Since adoption of the 2005 LRDP, several student and one employee housing projects have been approved in the Central-Main Campus area of UCSC outside of the project SOI amendment area. These include three approved student housing projects (Porter A [177 beds], Porter B [120 beds], and East Campus Infill Project [594 beds]; one employee housing project under construction (Ranch View Terrace [84 units]); and planned expansion of the Student Housing Project (201 new units). Therefore, approximately 1,092 new student beds (out of 2,740 new beds) and 84 new employee housing units (out of 205 new units) would be located on the existing developed campus within existing City limits and outside the SOI project area.

Table 3-3 summarizes the total new on-campus residential population related to UCSC development and growth under the 2005 LRDP. Approximately 3,340 new residents would be living on the UCSC campus by the year 2020, of which approximately 1,570 residents would be living in the Main Campus area outside of the SOI project area. The remaining 1,770 residents may be expected to reside in the North Campus project area, and thus, will need water and wastewater service. Therefore, the project would indirectly accommodate approximately 1,780 new on-campus residents. Currently the project area is in the unincorporated area of Santa Cruz County. The new on-campus residential population would be within the unincorporated area of Santa Cruz County until such time that the SOI area may be annexed to the City. However, there are no current or currently foreseeable plans to annex the SOI area to the City, and the application sought by the City is for approval of a Sphere of Influence amendment for provision of extraterritorial services, not the expansion of municipal boundaries.

Secondary Off-Campus Population Growth

The residency of off-campus students and employees (including commuters from out of County) was estimated based on the most recent UCSC data on residency (University of California Santa Cruz, July 2009). Based on this data and planned on-campus housing, the future UCSC-related population would be expected to reside in the County as follows:

- **Students:** 50% on-campus[6] — 34% off-campus in City of Santa Cruz[7]
  10% off-campus out of City — 6% commuters from out of County
- **Faculty & Staff:** 10% on-campus[8] — 46% off-campus in City of Santa Cruz[8]
  31% off-campus out of City — 13% commuters from out of County

[6] 10,125 on-campus student beds are required under the Comprehensive Settlement Agreement, which represents about 52% of the total future enrollment of 19,500 students. UCSC assumes a 95% occupancy rate (University of California Santa Cruz, July 2009), which lowers the percentage to 50%.

[7] Off-campus residency provided by UCSC (July 2009).

[8] Based on 1.1 employees per unit and housing unit counts provided in University of California Santa Cruz, July 2009, "East Campus Infill Housing Final EIR".

TABLE 3-3: UCSC On-campus Residential Growth, 2008-2020

	Total Net Increase 2008-2020	Total On-Campus
New Student and Employee Residential Population		
Total New Students	4,500	
Commuters [1]	270	
Net Increase	4,230	
Total New Employees	1,027	
Commuters [1]	133	
Net Increase	894	
Total New Students & Employees	5,124	
New On-campus Student and Employee Residential Population		
On-Campus Student Residents [2]		2,603
Student Dependents [3]		*301*
On-Campus Employee Residents [4]		226
Employee Dependents [5]		*207*
Subtotal New Student & Employee On-Campus Residential Population (Including Dependents)		**3,337**
Residents Living in Existing Developed Central Campus		
▪ Students [6]		1,092
▪ Student Dependents [3]		301
▪ Employees [7]		92
▪ Employee Dependents [5]		84
Subtotal – Total Residents Living on Main Campus (Including Dependents)		**1,569**
REMAINDER – Total Residents Living in SOI (North Campus) Project Area (Including Dependents)		**1,768**

[1] Based on UCSC data with 6% of students and 13% of employees commuting from out of County (University of California Santa Cruz, July 2009).
[2] Based on the net increase of student beds projected for 2020/21 (2,740) with a 95% occupancy rate per University data (University of California Santa Cruz, July 2009).
[3] On-campus student families would reside in the Student Family Housing project; Future residency and number of dependents are estimated in the 2005 LRDP EIR (University of California Santa Cruz, September 2005, Volume III, section 3.4.4.)
[4] Based on net increase in employee housing (205) and household size of 1.1 employee per unit per UCSC data (University of California Santa Cruz, July 2009).
[5] On-campus employee dependents are estimated to increase by 207 by 2020 as provided by UCSC staff (Klaus, personal communication, August 2009) based on data in University of California Santa Cruz, July 2009, "East Campus Infill Housing Final EIR".
[6] Porter A [177 beds], Porter B [120 beds], East Campus Infill Project [594 beds]and planned expansion of the Student Housing Project (201 new units).
[7] Ranch View Terrace [84 units].

Table 3-4 summarizes the total new residential population related to UCSC development and growth under the 2005 LRDP that would be indirectly accommodated by the proposed project based on the residency percentages identified above.[9] Out-of-county commuters are excluded as they would not generate new population growth within the County. Some student and employee families would have dependents. The growth summarized in Table 3-4 assumes that all new students enrolled at UCSC would be new to the area (except for commuters) as described in the 2005 LRDP EIR. The 2005 LRDP EIR also analyzed two employee scenarios: 1) all new employees would move the County from other areas outside the County; and 2) consistent with existing trends, approximately 68% of employees already reside in Santa Cruz County at the time they are hired and the remaining 32% would move from outside the county. These two scenarios are also reflected in Table 3-4.

TABLE 3-4: Summary of UCSC-Related Residential Population Growth, 2008-2020

New Campus Population	All New Residents			All New Students & 32% New Staff		
	New to County	Reside in City	Reside Elsewhere in County	New to County	Reside in City	Reside Elsewhere in County
Students [1]	4,230			4,230		
On-Campus [2]		1,393	1,511 [3]		1,393	1,511 [3]
Off-Campus [4]		1,253	374		1,253	374
Dependents [Off-Campus] [5]		113	34		113	34
Subtotal		2,759	1,919		2,759	1,919
Employees [1]	894			286		
On-Campus [2]		176	257 [3]		176	257 [3]
Off-Campus [6]		401	267		36	24
Dependents [Off-Campus] [7]		467	311		42	28
Subtotal		1,044	835		254	309
TOTAL	**5,124**	**3,803**	**2,754**	**4,516**	**3,013**	**2,228**
TOTAL NEW RESIDENTS		**6,557**			**5,241**	

[1] Less commuters.
[2] On-campus residents (students or employees and associated dependents) as cited in Table 3-3.
[3] Portion of new on-campus student residents that may reside within the SOI project area that is within the unincorporated area of the county, but could at some time annex to the City.
[4] 1,627 students are estimated to live off-campus based on on-campus residency cited in Table 3-3, and off-campus residency is based on historical residency patterns: 34% live in city of Santa Cruz and 10% live elsewhere in county.
[5] From 2005 LRDP Draft EIR, based on proportion of on-campus students with dependents (9%).
[6] Based on historical residency patterns: 46% live in city of Santa Cruz and 31% live elsewhere in county, and 1.1employees per unit per UCSC data (July 2009); see [7] for other employee household members.
[7] Based on average household size of 2.38 with 1.1 employees and 1.28 dependents.

[9] Based on on-campus residency of 2,603 students and 226 employees as shown on Table 3-3, the remaining new students and employees (1,627 and 668, respectively, less commuters) would be expected to reside off-campus.

As summarized on Table 3-4, it is estimated that total indirect growth that could result from the proposed project (including students, employees and their dependents) would be approximately 6,557 new residents if all of the increased campus population moved to Santa Cruz County, and approximately 5,240 new residents if existing residency patterns continue, in which approximately 68% of all employees are hired locally. Of these new residents, approximately 3,010 to 3,800 people are estimated to live in the City of Santa Cruz, with approximately 1,570 persons living on campus. The remaining 2,230 – 2,755 new residents are projected to live elsewhere in the county, including approximately 1,770 living on campus in the unincorporated project area.

The projections in Table 3-4 count new on-campus housing in the SOI project area (North Campus) as being outside the city as this area currently is within the unincorporated area of Santa Cruz County. However, with inclusion in the project area into the city's sphere of influence, the site could ultimately be annexed to the City. The North Campus would remain within the county until such time that an annexation request were submitted to and approved by LAFCO. An annexation application may be submitted to LAFCO in the future by UCSC or the City, although there are no current, known plans to do so, nor is it known exactly when or if such application may be submitted in the future. If the area is ultimately annexed to the City, total residential population in the City could increase by a total of approximately 4,780 - 5,570, of which the majority (approximately 3,340) would be housed on campus. Residential population increases in the remainder of the county would be commensurately smaller in this event with an increase by approximately 460-985 people.

Conclusion

The proposed project would not directly induce growth as no new development, housing or employment is proposed. The proposed SOI amendment would indirectly facilitate on-campus development and growth, including new residents and employees. The project would also indirectly result in secondary population growth off campus as related to the increased enrollment and employment. The project would not induce growth in other areas than the project SOI-North Campus area.

- **Indirect Campus Population & Employee Growth:** The proposed SOI amendment would indirectly facilitate planned development and growth on the UCSC main campus, including 4,500 potential new students and 1,027 new employees, of which approximately 1,770 are estimated to be on-campus residents in the project area. Currently the project area is in the unincorporated area of Santa Cruz County. Thus, the new population would be within the County until such time that the SOI area may be annexed to the City, which as previously indicated, there are no current or currently foreseeable plans to annex the SOI area to the City.

- **Indirect Off-Campus Residential Population Growth:** A total of approximately 5,240-6,560 new on- and off-campus residents are estimated as a result of the 2005 LRDP growth. Of these new residents, approximately 3,010 to 3,800 people are estimated to live in the City of Santa Cruz with approximately 1,570 persons living within the city limits on campus. The remaining 2,230-2,755 new residents are projected to live elsewhere in the county with approximately 1,770 living on campus within the unincorporated area of Santa Cruz County. If the SOI project area is ultimately annexed to the City, residential population in the City could increase by a total of approximately 4,780-5,570, of which the majority (3,340) would be housed on campus. Residential population increases in the remainder of the county would then be commensurately reduced, and would total approximately 460 to 985 people.

  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 proposed project will not serve areas other than the specified North Campus area of UCSC. The 2005 LRDP EIR (LRDP Impact POP-1) concluded that the increment of population that would be added to the study area as a result of campus growth under the 2005 LRDP would be substantial compared to the projected population growth in the City and the rest of Santa Cruz County. The 2005 LRDP EIR concluded that this impact was significant and unavoidable.

  Although the project would indirectly result in increased population due to serving UCSC planned development and growth, the project would not have a new net growth-inducing effect on the campus or on other properties because the proposed project would support already-planned and conceptually approved development as set forth in the 2005 LRDP and Comprehensive Settlement Agreement. The potential increase of 3,010-5,570 residents in the City of Santa Cruz (of which approximately 60% would be on-campus residents) is within or would slightly exceed AMBAG population projections for the year 2020, but would be within the projections for the year 2025, assuming that the project area would ultimately annex to the City of Santa Cruz. The population served by the proposed project would only slightly exceed the AMBAG population projections for the City of Santa Cruz in the year 2020 if all of the project area annexes to the City and all new employees move to the area from outside Santa Cruz County.

- **Growth in Other Areas Due to Extension of Services:** The proposed SOI amendment and future provision of extraterritorial water and sewer service does not include extension of water and sewer lines. Service to future development would be provided via existing campus connections that would be extended by the University to serve new development at the time specific sites for such development are proposed. At this time, there are no University-proposed site-specific plans to extend infrastructure into this area. The 2005 LRDP includes conceptual plans to extend water and sewer lines to the project area primarily within a new planned

roadway in the North Campus area. A schematic for utility line extension is included in the UCSC's application to LAFCO for provision of extraterritorial services and is shown on Figure 13. The 2005 LRDP includes a conceptual plan to extend water to the project area w as shown on Figure 12. Future specific plans for the on-campus extension of water and sewer lines will undergo their own site-specific environmental review at the time they are proposed. Additionally, no area other than the North Campus would be served by the project.

Because the project would not result in extension of water or service lines outside of the project area, the potential for offsite growth inducement as a result of the project is low. The 2005 LRDP EIR (LRDP Impact POP-2) considered whether campus growth under the 2005 LRDP would indirectly induce substantial population growth in the area through extension of roads or other infrastructure and concluded that it would not. Utilities and other infrastructure on the campus would be extended to serve planned growth on the campus under the 2005 LRDP. Growth in off-campus areas would not be triggered by the utility extensions serving the campus, as most of the surrounding neighborhoods are built out, and the undeveloped lands adjacent to the campus are within city or state parks and are protected from development. The UCSC campus is generally surrounded by public open space and park lands (Pogonip, Henry Cowell Redwoods State Park, and Wilder Ranch State Park). The Cave Gulch neighborhood, located in unincorporated Santa Cruz County to the west side of the project site, is currently within the County's Residential Agricultural (RA) zone district. This designation allows limited residential development in non-urban areas outside of the Urban or Rural Service Lines if the land has adequate water and septic system suitability; small-scale agriculture is permitted while maintaining a residential priority. The Cave Gulch neighborhood is currently developed with residential uses and is not anticipated to intensify in use. According to UCSC communications with the County Planning Department, the County has no plans to change the general plan land use designations or zoning of unincorporated areas near the campus. Therefore, extension of utilities to serve development under the 2005 LRDP would not be expected to result in indirect growth pressures that would induce substantial population growth off campus.

SECONDARY EFFECTS OF CAMPUS GROWTH

The following section reviews secondary, indirect impacts of development and growth in the North Campus area of UCSC as a result of amending the City's Sphere of Influence to provide extraterritorial water and sewer service to this area. Development on the UC campus is controlled by the University of California, which as a state agency is not subject to local ordinances. Development in the North Campus was evaluated in the 2005 LRDP EIR. UCSC is

responsible for implementation of mitigation measures identified in the certified 2005 LRDP EIR for significant impacts.

The 2005 LRDP EIR was legally challenged, and the Superior Court of Santa Cruz County determined that the EIR's water supply analysis was deficient, two traffic mitigation measures were not considered feasible or enforceable, and the population and housing analysis was deficient as it did not identify probable locations of off-campus housing necessary to serve the LRDP. Other claims challenging the 2005 LRDP EIR were rejected (Superior Court for the State of California, County of Santa Cruz, December 17, 2007). Thus, except for the three above issues (water supply, traffic mitigation and off-campus housing), the 2005 LRDP EIR analyses regarding impacts on the campus and in the North Campus in particular have already been completed and are deemed adequate by operation of law. It is, therefore, reasonable to use these existing analyses to address the secondary, indirect impacts of the proposed SOI amendment and provision of extraterritorial water and sewer service to the North Campus.

Unless otherwise noted, the summaries below are drawn from the 2005 LRDP Final EIR [FEIR], Volumes I through VI (University of California Santa Cruz, September 2006, "University of California Santa Cruz 2005-2020 Long-Range Development Plan Environmental Impact Report-SCH#2005012113). The following summaries note the FEIR Volume and section from which summaries are derived. The 2005 LRDP Final EIR is hereby "incorporated by reference" pursuant to the State CEQA Guidelines section 15150. The documents are on file and may be reviewed at the City of Santa Cruz Planning Department, 809 Center Street, Room 106, Santa Cruz, CA during normal business hours: Monday through Thursday, 8 AM – 12 PM and 1 PM to 5 PM. The documents are also available online at: http://lrdp.ucsc.edu/final-eir.shtml

For some topics, updated analyses have been provided where data is available. For example, this EIR includes a review of global climate change as this topic was not included in the 2005 LRDP EIR. Additionally, this EIR provides updates to other analyses, where noted, based on the availability of new studies that have become available since the 2005 LRDP EIR was certified by The Regents of the University of California include, but are not limited to:

- Adopted AMBAG population forecasts (June 2008),
- Updated Air Quality Management Plan (Monterey Bay Unified Air Pollution Control District, August 2008),
- State of California laws and studies regarding global climate change, and
- UCSC documents (Stormwater Management Plan [October 2008], Approval of NPDES Permit for UCSC by the California Regional Water Quality Control Board [April 2009], University of California Policy on Sustainable Practices [March 2007], a UCSC Draft Climate Action Plan [December 2008], and East Campus Infill EIR [July 2009]).

This EIR addresses the secondary effects of water supply and wastewater services in previous sections of this EIR, Chapters 4.1 and 4.2, respectively. The following topics related to secondary impacts of indirect growth inducement and development of the North Campus as a result of the proposed project are addressed below:

- **Land Use and Development:** Land Use; Housing; Aesthetics
- **Public Facilities, Services and Utilities:** Transportation & Traffic; Public Services; Utilities
- **Resources and Hazards:** Agricultural, Mineral and Forest Lands; Biological Resources; Cultural Resources; Geology and Soils; Hydrology and Water Quality; Air Quality; Noise; Hazards & Hazardous Materials

LAND USE & DEVELOPMENT

Land Use

Implementation of the proposed project would enable UCSC to move forward with plans to develop the North Campus as set forth in its adopted 2005 LRDP and as contemplated by the Comprehensive Settlement Agreement to accommodate a campus enrollment of 19,500 students by the year 2020. UCSC's Long Range Development Plan 2005-2020 (2005 LRDP) designates the proposed sphere of influence amendment area for a mix of academic, housing, physical education and protected landscape/resource land uses. Maximum new development square footage under the 2005 LRDP is estimated to be 3,175,000 square feet, which may occur within the project area as set forth in the Settlement Agreement. Implementation of the 2005 LRDP contemplates that incremental development of the sphere of influence amendment area will be needed to support the enrollment growth and will occur throughout the 2005 LRDP planning horizon based on space demand. The area proposed for inclusion in the City's Sphere of Influence is in the exclusive control of the University of California, and all development and infrastructure facilities necessary to accommodate future development will be approved, designed and constructed by the University. The LAND USE (Chapter 4.3) section of this EIR further describes existing and planned land uses and consistency with relevant local land use plans, policies and ordinances.

Housing

The on-campus housing summary below is drawn from the 2005 LRDP Final EIR, Volume II, Section 4.11, as updated by project changes described in Volume IV, Chapter 3, Section 3.2.3 , (*Changes to Draft EIR, Volume II, Section 4.11 Population & Housing*).

The off-campus housing summary below is based on a review of current on- and off-campus housing unit counts developed annually by the California Department of Finance and population projections adopted by AMBAG in 2008 for the years 2010 to 2035.

ENVIRONMENTAL SETTING

On-Campus Housing. In the 2007/2008 academic school year, UC Santa Cruz had a total of 7,385 student beds, including about 277 student beds in off-campus housing leased by the University in the City of Santa Cruz (Morgan, University of California, personal communication, November 2009). Thus, UCSC had 7,108 on-campus student beds with 7,009 students residing on campus. In addition, the campus had 238 employee housing units, which were occupied by 280 UCSC employees for an average of 1.15 employees per household (Ibid.).

On-campus housing is projected to increase to 10,125 student beds in the year 2020. This includes 935 additional beds than accounted for in the 2005 LRDP as a result of provisions of the Comprehensive Settlement Agreement. Total employee housing is estimated to increase to 443 units.

About 47% percent of students and 8% of employees lived on campus; about 6 % of students and 13% of employees commuted to the campus from outside of Santa Cruz County (University of California Santa Cruz, July 2009). Of the off-campus residents, approximately 35% of students and 47% of employees lived in the City of Santa Cruz, and about 12% of students and 32% of employees resided elsewhere in Santa Cruz County (Ibid.).

Off-campus student household size averaged about 3 students. For employees, approximately 1.1 employees reside per unit, both on and off campus in addition to non-employee dependents (University of California Santa Cruz, July 2009).

Off-Campus Housing. As of January 1, 2008, the City of Santa Cruz had a total of 23,379 housing units within city limits (California Department of Finance, 2008). The City's housing stock increased by 4,015 units from 19,364 units in 1990. This represents an average annual increase in housing units of approximately 1.2% between 1990 and 2008 or approximately 223 units per year.

As of January 1, 2008, Santa Cruz County had a reported total of 104,479 housing units (California Department of Finance, May 2008). Reported total housing units for other cities in Santa Cruz County are: 5,412 units for Capitola, 4,646 units for Scotts Valley, and 14,066 units for Watsonville.

AMBAG's long-term forecasts estimate that approximately 24,794 total housing units would be accommodated in the City in the year 2020 as summarized on Table 3-5 (AMBAG, June 2008). This represents an increase of 1,415 housing units between 2008 and 2020, which reflects an average annual growth rate of 0.5% or approximately 118 units per year. Overall, the total number of housing units in Santa Cruz County would increase by 5,664 units by the year 2020 as shown on Table 3-4, which represents an average annual growth rate of 0.5%.

Table 3-5:
Existing Santa Cruz County Housing Units and AMBAG Housing Forecasts

Jurisdiction	Existing Housing Units[1]	AMBAG Forecasts [2]			Increase 2008-2020	Long-Term Forecasts [2]	
		2010	2015	2020		2025	2030
City of Santa Cruz	23,379	23,633	24,133	24,794	1,415	64,649	65,884
Capitola	5,412	5,500	5,601	5,763	351	5,859	5,966
Scotts Valley	4,646	4,784	4,848	4,919	273	4,965	5,071
Watsonville	14,066	14,093	14,838	15,347	1,281	16,018	16,628
Unincorporated County	56,976	57,498	58,075	59,321	2,345	59,808	60,257
COUNTY TOTAL	104,479	105,509	107,496	110,143	5,665	112,040	113,865

[1] Population as of January 1, 2008 per California Department of Finance (May 2008).
[2] AMBAG, June 2008.

IMPACTS AND MITIGATION MEASURES

On-Campus Housing. The 2005 LRDP Final EIR (University of California Santa Cruz, September 2006, Volume II) concluded that implementation of the 2005 LRDP would not displace a substantial number of existing housing units. The Family Student Housing Redevelopment Project would temporarily (for about 2 years) remove about 100 units on the campus. However, this housing would be replaced with twice the number of housing units over a period of about two years (Chapter 3 in Volume III of the 2005 LRDP Final EIR). Because the affected housing would be replaced, there would be no long-term impact relative to displacement of housing. Construction of the new colleges may require the removal of the Campus Trailer Park, which currently provides 42 student beds. The potential removal of this housing was taken into account in planning additional student housing that would be provided on the campus under the 2005 LRDP. Therefore, no impact would occur, and no additional analysis is required. Note that even without increased population on campus, the Campus might elect to construct additional housing in order to meet on-campus housing demand for certain types of housing.

Off-Campus Housing. Based on the growth analysis in the previous section and estimated residential population shown above in Tables 3-3 and 3-4, it is estimated that approximately 1,290 to 1,654 new students and employees (excluding dependents) would reside off campus in the City of Santa Cruz and approximately 400 to 650 new students and employees would reside off campus in other areas of Santa Cruz County.[10] The off-campus UCSC-related

[10] As indicated in the previous section, the 2005 LRDP EIR assumed that except for commuters (based on historical data), all new students would be new to the area and two employee scenarios were evaluated: one in which all new employees are new to the area and a second in which approximately 32% of the new employees would move to the area consistent with historical trends. Thus, he lower number reflects the scenario

housing unit demand is summarized in Table 3-6. As shown, the UCSC-related off-campus population is estimated to result in a housing unit demand of approximately 525 to 860 units in the City of Santa Cruz and approximately 170 to 390 units within other areas in Santa Cruz County. UCSC residency data for existing students and employees indicates that after the City of Santa Cruz, primary areas of residence for students are Live Oak (4.5%), Capitola (1.3%), Aptos (1.1%) and Watsonville (1%), and primary areas of residence for employees are Live Oak (7%), Watsonville (6%), Aptos (5%), and Scotts Valley (3%) (University of California Santa Cruz, July 2009).

TABLE 3-6: UCSC Off-Campus Housing Unit Demand to Year 2020

	City of Santa Cruz		Elsewhere in Santa Cruz County	
	Total Residents	**New Households**	**Total Residents**	**New Households**
Students	1,253		374	
▪ Households with Dependents [1]		113		34
▪ Other Households[2]		380		113
Employees [3]	36-401	33-365	24-267	22-243
Total Households & New Housing Unit Demand		**526-858**		**169-390**

[1] It is conservatively assumed that each student dependent constitutes a separate student household and housing unit demand. The rate for off-campus student dependents is from the 2005 LRDP Draft EIR, which is based on the proportion of on-campus students with dependents (see Table 3-4).
[2] Assumes a student household size of 3.0 students per unit.
[3] Assumes 1.1 employees per household . The low range assumes existing hiring trends in which approximately 32% of new employees move to the county; the high range assumes all new employees move to the county.

The potential housing demand in the City of Santa Cruz (526-858 units) is within AMBAG's projected increase of 1,415 new housing units in the City of Santa Cruz by the year 2020. Similarly, the potential new housing demand elsewhere in the County (169-390 units) is well within AMBAG's projected increase of 4,250 units elsewhere in the County.

In summary, it is expected that sufficient housing will be provided to accommodate potential off-campus UCSC-related housing demand based on AMBAG's projections. Since AMBAG's projections are made in part to satisfy state requirements to determine regional housing needs for local jurisdictions to use in developing their state-mandated Housing Elements, it is presumed that the identified housing projections (needs) in local jurisdictions will be met.

in which most new employees already live in Santa Cruz County and the higher number reflects the scenario in which all move to the area.

It should also be noted that currently there are approximately 610 residential units in the City of Santa Cruz that are under construction, approved or proposed throughout the City.[11] All of these units have undergone or will undergo site-specific environmental review as part of the development application review process. Furthermore, the City's draft Housing Element (for the years 2007-2014) indicates that approximately 325 housing units could be constructed on residentially-designated sites, on underutilized parcels along major transportation corridors, and in an area south of Laurel Street. This includes vacant lands for which projects have not been approved or proposed in the above list and an identified site on Laurel Street. The draft Housing Element addresses the housing need until the year 2014 and is scheduled to be presented to the City Council for adoption in November or December 2009. Taken together, known or potential development totals nearly 950 dwelling units, which exceeds the potential additional indirect housing demand of 525-860 units to the year 2020.

Aesthetics

The synopsis below is drawn from the 2005 LRDP Final EIR, Volume I, Section 4.1, as updated by project changes described in Volume IV, Chapter 3, Section 3.1.4 (*Changes to Draft EIR, Volume I, Section 4.1 Aesthetics*).

ENVIRONMENTAL SETTING

The campus is on the south-facing slope of the Santa Cruz Mountains, which act as a scenic backdrop to the city of Santa Cruz and adjacent areas. The mountains are visible from most areas of the city of Santa Cruz. Some locations in the city and on the campus provide panoramic views of the Monterey Bay. Much of the North Campus area is forested in mixed second growth conifer and redwood forest, with some stands of oak woodland and chaparral and occasional grassy openings.

No prominent long-range scenic views from the north campus were identified in the 2005 LRDP EIR. Short-range views through forested areas of ravines and pathways are available in some areas of the north campus. The lower campus grasslands and forest canopy of the upper campus are visible from various points throughout the city of Santa Cruz, including the wharf, the Boardwalk and Highway 1. The north campus forms a forested backdrop in some distant views from the City and the lower campus, but is not itself considered a scenic resource. Most campus development is not visually prominent from off campus locations due to location within the forested central campus. Nighttime lighting from some central campus

[11] Based on the City Planning Department's "Cumulative Project List" (October 2009) that is maintained and regularly updated by the City of Santa Cruz Planning and Community Development Department. This does not include units that are being occupied, but includes other housing units throughout the City that are under construction, approved or pending development applications, including residential units at the approved Delaware Mixed Use Project that would developed over an approximately 15-year period and could result in addition of 161-248 housing units.

facilities and roads are visible from off-campus locations and there is some night sky glow from campus, particularly in fog.

The Santa Cruz County General Plan designates Empire Grade Road, which runs along the western margin of the north campus, as a scenic road. The City of Santa Cruz General Plan describes the foothills of the Santa Cruz Mountains, including the UC Santa Cruz campus, as a scenic resource (City of Santa Cruz 1994: Map CD-3).

Campus development is subject to design review by the Design Advisory Board, a board of architects and design professionals. Campus Standards that are applied to project designs address lighting design and minimization of off-site light pollution; careful siting of a project within its setting; avoidance of tree removal; and sustainable design. Development under the 2005 LRDP also is guided by Physical Planning Principles and Guidelines that focus on preservation of open space, maintaining continuity of wildlife habitat, and integration of new facilities with the natural environment. These guidelines reduce the potential for campus development to result in visual impacts.

IMPACTS AND MITIGATION MEASURES

Three primary issues were considered in the 2005 LRDP EIR aesthetics analysis: the nature and magnitude of anticipated visual change resulting from 2005 LRDP development; the number of public vantage points from which this change would be visible; and the number of viewers who would be affected by this change.

Scenic Vistas. The 2005 LRDP EIR concluded that new development in the North Campus would not be expected to affect scenic vistas to the Monterey Bay since views to the ocean are blocked by the existing forest (Impact AES-1), and the impact therefore would be less than significant. It was also determined that development would not have a substantial adverse effect on uphill scenic vistas of the upper campus as viewed from the lower campus or the City of Santa Cruz (Impact AES-2) as most of the new North Campus development would be screened by the surrounding forest. Therefore, development in the North Campus would not substantially change existing views, and impacts to scenic views would be less than significant.

Scenic Resources. The 2005 LRDP EIR did not identify any scenic resources in the North Campus, and thus no impacts to scenic resource would result from future development in the north campus area. The 2005 LRDP EIR did identify the meadows on the lower campus, and the historic buildings and rock exposures in the Cowell Ranch Historic District, as scenic resources. LRDP Impact AES-3 (potential impacts to scenic resources around lower campus meadows) and LRDP Impact AES-4 (impacts to the scenic visual character of the Cowell Lime Works Historic District) are not relevant to development in the North Campus.

Visual Character and Quality. Under the policies of the 2005 LRDP, new development in the North Campus would be sited sensitively in order to maintain the campus pattern of clustered development surrounded by undeveloped landscape and protection of distinctive physical forms. Additionally, development areas within the north campus area are generally surrounded by areas designated as "Protected Landscape" and "Campus Natural Reserve" which would provide a buffer between future campus development and adjoining properties, such as the Cave Gulch neighborhood, and Empire Grade Road.

The 2005 LRDP EIR determined that development under the 2005 LRDP, nonetheless, could substantially degrade the visual character of the campus and adjacent areas. The 2005 LRDP EIR identified mitigations that would preserve the valued visual elements of the landscape. These include LRDP Mitigation AES-5A, which requires Design Advisory Board review of new development; AES-5B, which requires that new development in the redwood forest to the extent feasible be designed to be below the height of the surrounding trees; AES-5C, which requires that design and construction preserve mature healthy trees to the greatest extent feasible; and AES-5D, which stipulates that the campus will continue its site stewardship program to maintain the wooded visual character of the central and North Campus. These measures will reduce potential impacts to the wooded visual character of the campus by helping to maintain the visual continuity of forested areas; ensuring that, from off-campus locations and from vantage points in the lower campus area, the forest areas would not appear substantially changed as a result of development under 2005 LRDP. Thus, with mitigation, the impact to the visual character of the campus and adjacent areas would be less than significant.

Concerns were expressed by members of the public regarding the visual impact from development of a corporation yard off of Empire Grade Road near Cave Gulch (in an area designated "Campus Support"), which was envisioned in the 2005 LRDP. As part of the August 2008 "Comprehensive Settlement Agreement" resolving litigation involving the 2005 LRDP (Santa Cruz County Superior Court in *City of Santa Cruz et al. v. Regents of the University of California et al.* (CV 155571, consolidated with Case No. CV155583), the campus agreed not to develop a corporation yard at the above-described location. LRDP Mitigation AES-5E would ensure that the site plan and design of any development in this Campus Support area would include visual buffers and structural site design to screen buildings from view along Empire Grade Road and at the Santa Cruz Waldorf School. This mitigation would mitigate the potential degradation of visual character of the Cave Gulch area to a less-than-significant level.

Light and Glare. Development under the 2005 LRDP could create new sources of substantial light or glare on campus that could adversely affect daytime or nighttime views in the area, a potentially significant impact. In the forested setting of the North Campus there is relatively little potential for reflective glare; however, LRDP Mitigation AES-6A calls for use of non-reflective exterior surfaces or other design measures to avoid new sources of reflective light. AES-6B requires that new development lighting will include directional lighting methods to

minimize light spillage and pollution. AES-6C and -6E require Design Advisory Board review of projects to require incorporation of measures to limit project-related light and glare and to ensure, with respect to outdoor lighting, that only the minimum amount of lighting needed for safety is included in each project. LRDP Mitigation AES-6D requires that lighting on outdoor sports and recreation fields be turned off by 10 PM. These measures would ensure that light and glare impacts of new development is reduced to less-than-significant levels.

PUBLIC FACILITIES AND SERVICES

As previously indicated, this EIR addresses the project impacts on water supply and wastewater services in previous sections of this EIR (Chapters 4.1 and 4.2, respectively).

Transportation and Traffic

The synopsis below is drawn from the 2005 LRDP Final EIR, Volume II, Section 4.14, as updated by additional analysis (Volume VI, Appendix A, Recirculated Draft EIR – Additional Traffic Analysis), project changes described in Volume IV, Chapter 2 (Project Refinements) and Chapter 3, Section 3.2.6 (Changes to Draft EIR, Volume II, Section 4.14 Traffic, Circulation and Parking) and revisions to mitigation measures presented in FEIR Volume IV, Table 1-1. In addition, the August 2008 Comprehensive Settlement Agreement, resolving litigation involving the 2005 LRDP, specifies how the campus' fair share of off-campus traffic mitigations will be calculated and paid to the City of Santa Cruz.

The following discussion also includes some updated traffic volume and intersection level of service data based on new information provided in UCSC's "East Campus Infill Housing EIR" (University of California Santa Cruz, July 2009) and updated traffic counts conducted by the city of Santa Cruz in late 2006-2007.

ENVIRONMENTAL SETTING

The main campus is served by two roadway entrances: the main entrance at the Bay and High Street intersection and the west entrance at Empire Grade Road and Heller Drive. In 2007-08, UCSC conducted on Campus roadways and at the main and west gates of the main campus. Two weeks of traffic counts were collected at the two campus entrances during fall 2007 and again during spring 2008. The updated gate counts recorded 21,900 average daily vehicle trips traveling into and out of the campus on an average weekday. This represents a decrease of almost 2,900 average daily trips to the campus since the 2005 LRDP baseline reporting year of 2003-04, despite a campus population increase since that time of more than 1,100 persons (University of California Santa Cruz. July 2009).

Planned improvements in the vicinity of North Campus include installation of a traffic signal at the Empire Grade Road/Heller Drive intersection is planned. Within the North Campus area, a new loop road is proposed in the LRDP with a new entrance on Empire Grade Road.

The 2005 LRDP EIR traffic analyses indicated that on-campus intersections operated at acceptable levels, but 5 off-campus intersections (as noted below) operated at unacceptable levels at the time the traffic analysis was conducted (in 2003).

- Empire Grade/Western Drive (LOS F in PM peak hour)
- Bay Street/Escalona Drive (LOS F in AM and PM peak hours)
- Mission Street/Bay Street (LOS E in PM peak hour)
- Mission Street/King Street-Union Street (LOS F in AM peak hour and LOS E in PM)
- High Street/Highland Avenue (LOS F in PM peak hour)

Intersection traffic counts were collected during the weekday PM peak hour (4:00 – 6:00 PM) at the 73 intersections throughout the City in May 2006, November 2006 and February 2007 as part of the City's General Plan update. Unacceptable levels of service were identified during the PM peak hour at the following additional intersections that are in the vicinity of UCSC or along a major regional corridor that provides access to UCSC:

- Highway 1 / Highway 9-River Street (E)
- Ocean Street / San Lorenzo Blvd. -East Cliff Drive (E)
- Morrissey Boulevard / Water Street-Soquel Avenue (E)
- Bay Street / California Street (F)
- Mission Street / Miramar Avenue (F)
- Highway 1 / Shaffer Road (F)

Transportation Demand Management (TDM) emphasizes the movement of people and goods rather than motor vehicles, and gives priority to public transit, ridesharing, and non-motorized travel, particularly under congested traffic conditions. UCSC has identified TDM as an important strategy to change travel behavior and sustain the City's and the Campus's transportation system over the long term. Campus TDM goals include: reduction of peak hour trips; shift of trips to non-peak times; increase in vehicle occupancy by promoting carpooling, vanpooling, ride sharing and transit; and increase the percentage of people bicycling, walking, ride sharing, or using transit (University of California Santa Cruz, July 2009).

IMPACTS AND MITIGATION MEASURES

The 2005 LRDP FEIR indicates that the total campus population would generate 6,678 average daily trips (ADT), including 351 AM peak hour trips and 459 PM peak hour trips (University of California Santa Cruz, September 2006, Volume IV). However, pursuant to the stipulated judgment set forth in the Comprehensive Settlement Agreement, UCSC agreed to a maximum traffic increase of 3,900 average daily trips (ADT) to the main campus (for a total of 28,700 ADT) with implementation of a monitoring program to insure compliance. The 2005 LRDP proposes a new loop road in the North Campus to connect to the existing Hagar and Heller Roads with an extension to create a new access point at Empire Grade. (Potential impacts of new road construction were evaluated in the 2005 LRDP as with other new development as discussed in other sections.)

On-Campus Intersection LOS. The 2005 LRDP EIR considered the potential for campus population growth under the 2005 LRDP to cause an increase in on-campus traffic that could result in unacceptable levels of service at on-campus intersections (LRDP Impact TRA-1). It concluded that potentially significant level-of-service (LOS) impacts will be experienced at two on-campus intersections (Hagar Drive/McLaughlin Drive and Heller Drive/Meyer Drive) if the growth in traffic outpaces the modifications to the on-campus circulation system proposed under the 2005 LRDP. LRDP Mitigation TRA-1 requires the campus to monitor LOS at the Hagar Drive/McLaughlin Drive and Heller Drive/Meyer Drive intersections every three years and implement improvements as needed to maintain an acceptable level of service. The implementation of this mitigation ensures this potential impact will be less than significant.

Off-campus Intersection LOS. The 2005 LRDP EIR concluded that campus growth under the 2005 LRDP would cause unacceptable levels of service at 10 off-campus intersections in the City of Santa Cruz (LRDP Impact TRA-2). To reduce the significance of this impact, the campus is required to implement LRDP Mitigation TRA-2B, to expand its transportation demand management programs to increase the use of sustainable transportation modes above 55% by 2020 to reduce peak hour traffic volumes. The LRDP identifies a list of measures that will be considered for the TDM program. The implementation of this measure would reduce the severity of the anticipated impact. In addition, LRDP Mitigation TRA-2A requires the campus to pay its fair share of the cost of off-campus intersection improvements needed to maintain acceptable levels of service at the 10 identified intersections. The 2005 LRDP EIR concluded that the impact of campus growth on off-campus intersections would remain significant and unavoidable, even with mitigation, since the timing of implementation of improvements at the affected off-campus intersections was beyond the control of the University. However, based on the provisions of the August 2008 Comprehensive Settlement Agreement, the University has contributed its proportional share of funds to the City for implementation of the intersection improvements,[12] and the City has committed to implement

[12] According to City staff, UCSC has paid all of the traffic fees due at this time to include: the TIF for the Main Campus and 2300 Delaware buildings A and B existing use ($1,427,400 and $418,868.70),

the traffic improvements in a timely manner. The Settlement Agreement also identifies other former "University Assistance Measures" that the UCSC will continue to fund regarding specified traffic improvements. The Settlement Agreement also acknowledges that the Santa Cruz Superior Court decision did not invalidate the LRDP EIR's traffic analysis and that the Court's decision regarding the adequacy of traffic mitigation is resolved by the Settlement Agreement.

Additionally, the August 2008 Comprehensive Settlement Agreement requires UC Santa Cruz to manage average daily trips (ADT) growth and includes specific actions and thresholds. Pursuant to the Settlement Agreement, traffic increases are limited to a specified total with 3,900 new ADT, and if this level is exceeded, UCSC will reduce ADT by one or more of the following: adjusting enrollment, adjusting on-campus workforce or through implementation of ADT reducing measures. The total traffic increase specified in the Settlement Agreement will be increased by 1,300 ADT in the event UCSC is prohibited from developing the North Campus area or the City fails to amend its Sphere of Influence (section 4.1a). Furthermore, the parties agreed that UCSC's ability to meet applicable traffic commitments requires the City, County and Santa Cruz Metropolitan Transit District to continue existing services and provide transportation enhancements (section 4.1), but the City and UCSC will continue to work cooperatively on measures to reduce peak hour trips (section 4.6).

Freeway Operations. The 2005 LRDP EIR concluded that full implementation of the 2005 LRDP would contribute to significant LOS impacts at five on-ramps or off-ramps (LRDP Impact TRA-6). The campus is required to implement transportation demand management improvements, under TRA-2B, that will reduce the campus' contribution to off-campus traffic. In addition, the campus is required by LRDP Mitigation TRA-6B to contribute fair share funds towards improvements identified by the state at the five affected freeway facilities. Implementation of the types of improvements identified in the 2005 LRDP EIR (*Recirculated Draft EIR – Additional Traffic Analysis - Chapter 2)* would ensure acceptable operations at the five significantly affected freeway facilities. However, implementation of the improvements is not within the jurisdiction or control of the University or the City, and the responsible agency (Caltrans) may elect not to implement the facilities identified in the LRDP EIR. As a result, the feasibility and/or implementation of LRDP Mitigation TRA-6B cannot be guaranteed and the 2005 LRDP EIR concluded that this impact would be significant and unavoidable.

Parking. The 2005 LRDP EIR determined that campus growth under the 2005 LRDP could generate demand for parking in excess of on-campus parking capacity if the development of planned parking does not keep pace with other growth on campus, or if parking supply is reduced as a result of development on existing parking lots (LRDP Impact TRA-3). This potentially significant impact was determined to be reduced to less-than-significant levels through implementation of LRDP Mitigation TRA-2B, which requires the campus to continue

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Mission Street Widening payment ($107,500), and their share of the Bay Street paving (514,145.55). That is all of the traffic fees that are due at this time.

implementation of, and making improvements to, TDM measures to reduce traffic to (and parking on) campus; TRA-3B, requiring monitoring of campus parking utilization rates and construction of new parking when demand in a parking zone exceeds 90 percent; and TRA-3C, requiring continued enhancement of existing parking management systems to maximize utilization of existing parking capacity.

Conflict with Effectiveness of Alternative Transportation. The 2005 LRDP EIR determined that campus growth would result in increases in pedestrian, bicycle, motor vehicle and transit traffic circulation volumes that could conflict with and reduce the effectiveness of alternative modes of transportation, including transit, bicycle and pedestrian travel (LRDP Impact TRA-4). This potentially significant impact is reduced to a less-than significant level through the University's implementation of LRDP Mitigation TRA-4A through -4F, under which the campus will monitor on- and off-campus transit service annually to assess the need for improvements in campus circulation and use the results of this monitoring to improve the operational efficiency and capacity of on-campus transit and work with SCMTD on the efficiency and capacity of off-campus transit; implement measures to reduce transit delay associated with pedestrian crosswalks on campus roadways; coordinate implementation of roadway and circulation improvements with the pace of campus development; implements bicycle circulation improvements to maintain effectiveness of bicycles as a transportation mode; and implement integrated transit, bicycle and pedestrian way-finding systems on the main campus.

Potential hazards regarding installation of a new intersection and signal along Empire Grade were evaluated in the 2005 LRDP Final EIR, which concluded that the new intersection would not increase traffic hazards along Empire Grade (see Volume V, section 5.2.13-Master Response TRAFFIC-2. Impacts on Empire Grade Road). A minimal amount of traffic would be added to the roadway as a result of development in the North Campus, which would not change existing conditions for bicyclists. It is also expected that with existing and future campus bike routes, bicycle travel through the campus would be preferable to Empire Grade as a bicycle route.

Special Events Traffic. The 2005 LRDP EIR determined (LRDP Impact TRA-5) that traffic generated by simultaneous full-capacity special events on campus would cause 10 off-campus intersections to operate at LOS E or F during event-related peak hours, and cause congestion on campus related to visitors searching for parking. Because the impact of special event traffic with respect to intersection LOS would be relatively infrequent and of short duration, the impact was considered less than significant. The impact would be further reduced through implementation of LRDP Mitigations TRA-5A through -5D, which include implementation of other traffic congestion mitigations cited above, improved parking management for special events, including expansion of on-campus night and weekend parking enforcement to better manage parking resources; on-line parking permit sales and way-finding information, to reduce visitor back-up at the campus main entry kiosk; and promotion of the on-line Campus Events calendar to coordinate traffic producing events and related parking management.

Emergency Access. The 2005 LRDP Draft EIR presents a summary description of the Campus Emergency Response Plan (ERP), and the EIR addresses the effect of North Campus development on Empire Grade Road during an emergency requiring evacuation (Impact HAZ-9). The Final EIR indicated that in the case of most emergencies involving evacuation, the north loop road to Empire Grade Road would not be the primary evacuation route because it is not the most direct way to exit from most parts of the campus. The north entrance and connector road to Empire Grade Road would be needed mainly to provide an evacuation route for the residents of the envisioned north campus development in the event that there is a fire that would prevent travel between the north campus and the west entrance. Because only those persons who would live in the northwestern portion of the campus would likely exit via the north entrance, the traffic associated with this population would not interfere substantially with evacuation of Cave Gulch and Bonny Doon residents. It is unlikely that both the entire Campus and Cave Gulch/Bonny Doon would all be subject to any single emergency evacuation. Additionally, the north loop road would provide an alternate evacuation route for Cave Gulch and Bonny Doon residents in the event of closure of Empire Grade Road between the north and west entrances to campus. The north loop road would also facilitate emergency response to Cave Gulch and Bonny Doon in such cases. One major reason that the north loop road is planned as a loop was explicitly to provide one or more alternative routes should one route be blocked, and to allow traffic to disperse via multiple routes.

Public Services & Utilities

The 2005 LRDP EIR analyzed impacts to public services in Volume I, Section 4.12 and Volume IV, Sections 2.2.2 and 3.2.4, while impacts related to recreation are addressed in Volume II, Section 4.13, and Volume IV, Sections 2.2.2 and 3.2.5. Impacts to solid waste disposal are addressed in Volume II, Section 4.15..

Fire Protection

ENVIRONMENTAL SETTING

The UC Santa Cruz Fire Department provides first response for all emergencies on University property. Under a mutual aid agreement, the City of Santa Cruz Fire Department (SCFD) is also responsible for providing fire suppression services to the campus at the same level of service as it provides to the city at large, and typically assists the UC Santa Cruz Fire Department with structural fires. The California Department of Forestry and Fire Protection (CDF) responds to all wildfires in unincorporated areas of Santa Cruz County, including the portion of the UC Santa Cruz campus that is in unincorporated Santa Cruz County.

IMPACTS AND MITIGATION MEASURES

The 2005 LRDP EIR analyzed whether on-campus development and on-campus population under the 2005 LRDP would result in significant environmental impacts associated with the provision of new or altered fire department facilities in order to maintain the response standards and service ratios (LRDP Impact PUB-2). The EIR concluded that, although expansion of the UC Santa Cruz Fire Department facility would be required to serve the additional development and population, the environmental impacts of this expansion would be less than significant.

Police Protection

ENVIRONMENTAL SETTING

The UC Santa Cruz Police Department is the sole provider of police protection services on campus. When required, the UC Santa Cruz Police Department and City of Santa Cruz Police Department (SCPD) provide mutual support, as stipulated in a memorandum of understanding between the two agencies signed in 1971. The County of Santa Cruz Sheriff's Office provides services to County residents including off-campus students, faculty and staff living in unincorporated areas of the County, and assists the UC Santa Cruz Police Department on campus upon request.

IMPACTS AND MITIGATION MEASURES

The 2005 LRDP EIR analyzed the potential environmental impacts that could result from the provision of new or altered facilities required for the UC Santa Cruz Police Department or the City of Santa Cruz's Police Department in order to maintain each department's applicable service objectives (LRDP Impact PUB-1). The EIR concluded that no environmental impacts would be associated with facility expansions needed to maintain service levels in response to growth under the 2005 LRDP at either the UC Santa Cruz or the City of Santa Cruz Police Department.

Parks and Recreation

ENVIRONMENTAL SETTING

There is extensive public open space in the Santa Cruz area, including several state and regional parks and public beaches. The City and County of Santa Cruz also maintain city and regional recreational facilities. These facilities are available to UCSC students and employees, including both those who live on campus and those who reside in the community. UCSC recreational facilities, including hiking and biking trails, open space, and recreational facilities, also are available to community members.

IMPACTS AND MITIGATION MEASURES

The 2005 LRDP EIR analyzed whether increased on-campus population under the 2005 LRDP would increase demand for recreational facilities on campus and in the City of Santa Cruz thereby resulting in deterioration of existing recreational facilities (LRDP Impact REC-2) or the need to construct new facilities that could result in significant environmental impacts (LRDP Impact REC-1). The EIR concluded that growth in on-campus daytime and residential population would not trigger the construction of new city parks and recreational facilities (REC-1) because the 2005 LRDP provides for new campus recreational facilities to serve the increased population, and the City of Santa Cruz indicated that it does not intend to develop substantial new recreation acreage. The impact was therefore determined to be less than significant. The EIR concluded that cumulatively, this impact would also be less than significant, but identified LRDP Mitigation REC-4 to ensure that UCSC recreational facilities continue to be available to the public, to further reduce the potential impact to recreational facilities in the City of Santa Cruz.

The EIR concluded that implementation of LRDP Mitigations REC-2A through REC-2D, which require inclusion of children's recreational facilities in all new on-campus family housing developments, implementation of storm water control measures to minimize erosion associated with increased use of facilities, and collaboration with the City regarding Pogonip, would reduce to a less-than-significant level the potential for campus population increases to result in deterioration of existing recreational facilities (REC-2). The EIR further concluded that some of the State beaches and parks in the area could experience deterioration related to overuse. However, the 2005 LRDP-related population would represent a very small portion of the overall population expected to use the state parks and beaches; therefore the contribution of LRDP-related development to the cumulative impact would not be cumulatively considerable and the impact was determined to be less than significant. Mandatory implementation by the campus of LRDP Mitigations REC-2 and REC-4, discussed above, would further reduce the LRDP's less-than-significant contribution to this impact.

Because of the proximity of the campus to Pogonip City Park and because of the presence of trail connections between the campus and the park, the use of the Pogonip trails would be expected to increase due to campus growth. This could result in physical deterioration of due to potential use of off-road bicycles on and off trails that could lead to increased erosion and deterioration of the vegetation cover. Bikes are prohibited in the park, with the exception of the Cowell Wilder Regional Trail connection, but the illicit use of bicycles on park trails, to which UC Santa Cruz students, faculty, staff and affiliates may contribute, is a long-standing issue. This problem could be exacerbated by population growth associated with the 2005 LRDP. This would be a potentially significant impact. To reduce the impact on the Pogonip City Park trails to a less-than-significant level, the Campus shall implement LRDP Mitigation REC-2C and will work with the City to ensure that Pogonip has adequate signage to inform users that bicycling is prohibited; will notate campus maps to indicate the bicycle use policies in the park; and will work with campus outdoor activity groups to encourage trail

stewardship. The potential impact to Pogonip and other city parks would also be reduced through implementation of LRDP Mitigation REC-2D, under which the Campus would coordinate with City efforts in recruiting volunteers for an annual or semi-annual trail maintenance day. These measures would reduce the impact to a less-than-significant level.

The LRDP EIR also analyzed whether development in the North Campus would result in the fragmentation of or other changes to the designated trails (LRDP Impact REC-3). The impact of LRDP-related population living off campus in the study area communities was also analyzed, primarily, although not solely, in the communities in which these persons would reside. The impact of this population growth on the need to develop new recreational facilities (LRDP Impact REC-4) and on the potential to deteriorate existing recreational facilities (LRDP Impact REC-5) was analyzed as part of the cumulative impact analysis.

The EIR also concluded that while some of the undesignated trails on the North Campus would be removed by new development and not replaced or relocated (REC-3), because the use of these undesignated trails by recreational users is unauthorized, the loss or impairment of these undesignated trails is not considered a significant impact. Further, while North Campus development could cut off the Cowell Wilder Regional Trail, proposes to relocate the affected portion of the trail to the north prior to development in this area. Therefore, this impact was determined to be less than significant.

Schools

ENVIRONMENTAL SETTING

Dependents of UCSC students or employees who reside on campus or in the community may attend school in the community. Currently, all Santa Cruz schools are operating below capacity, and school age population is projected to decline in the next decade.

IMPACTS AND MITIGATION MEASURES

The 2005 LRDP EIR analyzed whether on-campus residential population growth under the 2005 LRDP could create demand for public school facilities in the Soquel, Live Oak, Scotts Valley, Pajaro Valley and San Lorenzo school districts, the construction of which could result in significant environmental impacts (LRDP Impact PUB-3). The EIR concluded that, based on current capacities, it does not appear as though new facilities would be needed to serve the projected growth in enrollment, including that resulting from campus growth under the 2005 LRDP. Therefore, there would be no significant environmental effects from the construction of new school facilities.

Solid Waste Disposal

ENVIRONMENTAL SETTING

The City of Santa Cruz owns and operates a municipal landfill, located three miles west of the city limits, that serves the entire incorporated city, including UCSC. The landfill has a total capacity of 10,484,325 cubic yards (cy) with an estimated remaining capacity of 6,029,272 cy (58%). The LRDP EIR indicates that the City has not plans for a new landfill as the existing facility is not expected to reach capacity until 2037.

In 2004, the City landfill accepted 56,100 tons of solid waste. The campus generated about 2,450 tons per year or 6.7 tons of solid waste per day in 2003. That amounts to 251 pounds of solid waste per person per year.

The City had a waste diversion rate of 48%. The UCSC campus disposed directly of about 2,450 tons of solid waste in the City landfill in 2003, which represents about 4% of the total waste disposed at the landfill. UCSC implements a recycling program that collects materials throughout the campus, including cardboard; mixed paper; clear and colored glass; aluminum, tin, and steel cans; plastic; green-waste; and e-waste.

IMPACTS AND MITIGATION MEASURES

Development under the 2005 LRDP would increase the volume of municipal solid waste that would require disposal, but would not require an expansion of the city landfill (UTIL-4), and the impact was considered less-than-significant. Under the 2005 LRDP, the campus waste disposal to the landfill was estimated to increase to about 3,473 tons of solid waste per year. Although not considered a significant impact, the will implement mitigation measure UTIL-4 in which the Campus will continue to improve its recycling and waste reduction programs and identify additional means of reducing waste.

Electricity and Natural Gas

ENVIRONMENTAL SETTING

Pacific Gas and Electric (PG&E) provides gas and electric services to the UC Santa Cruz campus. In addition, the campus' Central Heating Plant, which provides heating to the campus core, includes a cogeneration system that produces electricity. The cogeneration system has the capability of operating independently of the PG&E grid and provides back-up power for the campus core area labs and facilities that have critical power needs. The cogeneration system provides approximately 2.6 megawatts (MW) of power. However, it operates at 2.3 MW due to restrictions imposed by the Monterey Bay Area Unified Air Pollution Control District. On average, the cogeneration plant provides about one-third of the main campus electricity.

UC Santa Cruz's electricity distribution network is campus-owned and mostly underground. Electrical system peak total demand in 2003 was approximately 9.49 megavolt-amperes (MVA),4 for which the campus electrical system had adequate capacity and back-up capacity.

IMPACTS AND MITIGATION MEASURES

With campus development under the 2005 LRDP, campus use of electricity would increase to an anticipated peak electricity demand of approximately 21.01 MVA. In 2003, the campus' electrical system maximum demand was 9.49 MVA. Development under the 2005 LRDP would require the expansion of the campus electrical system, which would not result in significant environmental impacts (UTIL-5) and was considered a less-than-significant impact. Additionally, development would require the expansion of natural gas transmission systems, which would not result in significant environmental impacts (UTIL-6).

One of the principles of the 2005 LRDP is sustainability and environmental stewardship. This principle emphasizes promoting and exploring sustainable practices including energy conservation. Furthermore, in July 2003, The Regents approved a systemwide Green Building Policy, which includes a commitment to the principles of energy efficiency and sustainability for all capital projects within budgetary constraints and regulatory and programmatic requirements. The policy requires new buildings to exceed the requirements of Title 24 by at least 20 percent. The continued implementation of these policies would help minimize on-campus energy use as the campus population grows under the 2005 LRDP. To further reduce energy use, the Campus will implement LRDP Mitigation UTIL-5 that requires that the heating and cooling of new campus buildings added to the Campus Energy Management System be controlled.

Future campus growth would increase demands on the campus electrical infrastructure and require localized upgrades and line extensions, particularly to the north campus area. Extensions to serve development in the North Campus would be placed within the area of disturbance of the north campus loop road, the impacts of which are addressed in other sections in the 2005 LRDP EIR, i.e., biotic resources.

RESOURCES AND HAZARDS

Agricultural, Mineral and Forest Resources

AGRICULTURAL RESOURCES

The 2005 LRDP EIR analyzed agricultural resources in Volume 1, Section 4.2. Based on the California Department of Conservation Farmland Mapping and Monitoring Program, no part of the UCSC campus has been designated as Prime Farmland or Farmland of Statewide Importance developed by the California Department of Conservation. The Center for

Agroecology and Sustainable Food Systems, which is located in the central campus outside of the north campus, is designated Unique Farmland. No conversion of agricultural lands would occur with future development in the north campus area nor would development under the 2005 LRDP lead to conversion of farmland to non-agricultural uses as there are no agricultural lands adjacent to the UCSC campus in general, and to the North Campus, in particular.

MINERAL RESOURCES

The Initial Study prepared for the 2005 LRDP EIR (Volume II, Appendix A) indicated that the UCSC campus is situated in an designated as a Mineral Resource Zone due to the presence of subsurface limestone marble, and the area is classified as Zone 3 – an area where mineral resources are known to exist but where insufficient information is available to determine the value of the resources. The State Division of Mines and Geology has indicated to UCSC that development within Class 3 Zones is not considered to result in a significant impact.

FOREST RESOURCES

Appendix G of the State CEQA Guidelines (Environmental Checklist) does not currently include forest lands. However, proposed changes to the Guidelines that are expected to be in effect in January 2010 include consideration of forest lands as part of the agricultural resources question. The proposed changes include new checklist questions as to whether a proposed project would conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526) or whether the project would result in the loss of forest land or conversion of forest land to non-forest use. Because of the proposed changes, a discussion is included in this EIR. The synopsis below is drawn from the 2005 LRDP Final EIR, Volume I, Section 4.4.2.6.

"Forest land" under Public Resources Code section 12220(g) is defined as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The definition is part of the California Forest Legacy Program Act of 2007 that encourages the long-term conservation of productive forest lands by providing an incentive to owners of private forest lands to prevent future conversions of forest land and forest resources. The focus is on acquiring easements for conservation of forest resources.

The Z'berg-Nejedly Forest Practice Act (Public Resources Code Section 4526) defines "timberland" as "land……which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products…." None of the UCSC campus lands are zoned Timberland Protection Zone (TPZ). However, the 2005 LRDP EIR assumed that all of the land in the north campus mapped as redwood forest, mixed evergreen forest, dwarf redwood forest, chaparral, chaparral-forest transition, and dwarf-

redwood mixed-chaparral transition is, or might be considered, timberland, as well as lands in the central campus.

Development under the proposed 2005 LRDP would result in the conversion of about 120 acres of land that could be considered "forest land" (under the Public Resources Code section noted above) or classified as timberland to other developed uses. Timberland conversion is defined in the California Forest Practice Rules (Article 7, 1100 (g)) as "transforming timberland to a non-timber growing use through timber operations." Development under the proposed 2005 LRDP would require removal of trees from some areas that would be considered to be timberland, under the definition above, and this clearing would be considered to be timberland conversion.

Approximately 73 acres of timberland in the north campus would be converted based on past campus practices of developing clusters of buildings interspersed with forest. Thus, the 2005 LRDP EIR assumed that approximately half of the timberland in each of the proposed north campus development areas would be removed, except in the north campus area designated for Physical Education and Recreation, where nearly all of the trees would be removed to allow for the development of athletic fields. Trees would be removed only in connection with approved projects on individual project sites, during the initial stages of project development.

Redwoods are widespread throughout the Santa Cruz Mountains, occurring on most of the more than 150,000 acres of conifer and mixed evergreen timberland reported in the timber inventory prepared for the Santa Cruz County Planning Department in 1979. The removal of 73 acres of forest land would not be substantial in comparison to the acres remaining on campus, in the County and throughout the state. Furthermore, large-scale commercial logging is not compatible with the existing and proposed uses of the campus, so the existing timberland is not, in practice, available for such logging.

The California Forest Practice Rules (14 CCR Section 895-1110), which implement the Forest Practice Act, are enforced by the California Department of Forestry and Fire Protection (CDF). These rules require that an owner of land that meets the definition of timberland prepare a Timber Harvesting Plan (THP) and obtain a Timberland Conversion Permit (TCP) from CDF before removing trees or other forest products. In addition, a Timber Harvesting Plan (THP) must be filed and must be approved by CDF before timber operations (removal of trees) may begin. The THP process has been certified as a CEQA-equivalent process pursuant to PRC Section 21080.5, and THPs must include feasible mitigation measures or alternatives that would substantially lessen or avoid significant adverse impacts that the activity may have on the environment. This would be required for future development in forested campus areas, including the north campus.

Biological Resources

The synopsis below is drawn from the 2005 LRDP Final EIR, Volume I, Section 4.4, as updated by Volume IV, Chapter 3, Section 3.1.5 (*Changes to Draft EIR, Volume I, Section 4.4 Biological Resources*), revisions to mitigation measures presented in FEIR Volume IV, and responses to comments presented in FEIR Volume V. Although some of the species, habitat or resources that are considered for the campus as a whole may not occur in the North Campus area, all potential biological resources impacts of 2005 LRDP development are summarized in this section, but emphasis is placed on the North Campus when resources are known.

ENVIRONMENTAL SETTING

Natural communities in the UCSC campus include grasslands, coastal prairie, dwarf redwood forest, redwood forest, mixed evergreen forest, coyote brush scrub, riparian, and chaparral. In the North Campus, coastal prairie is confined to a small meadow north of the Crown/Merrill Apartments. Redwood forest occurs in much of the North Campus, where it intergrades with mixed evergreen forest. All of the redwood forest on the campus, including dwarf redwood forest, is second-growth, having been logged at least once between 1860 and 1960. Mixed evergreen forest is present along the southern and western edges of the North Campus area. Northern maritime chaparral and mixed forest chaparral occur also on the North Campus. Coyote brush scrub represents a very small part of the vegetative cover on the campus.

Sensitive Natural Communities. Sensitive natural communities identified on the campus include: northern maritime chaparral, coastal prairie, riparian woodland and scrub, and wetlands are sensitive natural communities that occur on the campus. The general distribution of on-campus vegetation communities and habitat types is shown on 16.[13]

Northern maritime chaparral (NMC), considered to be a sensitive natural community by DFG (Holland 1986) covers approximately 48 acres of the UCSC Cruz campus and represents about two percent of the total campus area. NMC within the north campus mostly occurs on the level to gently sloping uplands and is largely associated with outcrops of Santa Margarita sandstone, although it also occurs on schist and possibly on quartz diorite. The dominant shrub in NMC stands is brittleleaf manzanita. Santa Cruz (heartleaf) manzanita (*Arctostaphylos andersonii*), a special-status species, is locally dominant in some patches of chaparral. The community tends to succeed to other vegetation types in the absence of wildfire or controlled burns.

Coastal prairie, a relatively rare native grassland type, is found on campus in three locations (including a portion of North Campus) and totals 111 acres, of which approximately 1.5 acres is located within the SOI project area. Coastal prairie throughout its range has been found to

[13] 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.

support 30 species of special status plant and animal species and is currently protected by the County of Santa Cruz and the Coastal Commission who recognize the rarity of the habitat.

On campus, native perennial grasses, especially California oat grass, are prominent in coastal prairie, and although nonnative annual grasses are still present, their relative proportion is lower than in other areas of grassland. Three special status plant species have been identified on the UCSC campus outside of the north campus area (San Francisco popcornflower [*Plagiobothrys diffusus*], Point Reyes horkelia [*Horkelia marinensis*], and microseris [*Microseris paludosa*]).

Riparian Woodland and Scrub. Central coast arroyo willow riparian forest is recognized by the California Department of Fish and Game (CDFG) as a sensitive community. Riparian woodland and scrub on campus are largely a mixture of Central Coast Arroyo Willow Riparian Forest and Black Cottonwood Riparian Forests. Approximately 4 acres of riparian woodland and scrub (recognized by CDFG as a sensitive community [CNDDB 2005]) occurs on the lower campus along lower Moore Creek. Patches of riparian woodland understory species also occur in Jordan Gulch and high quality redwood riparian habitat occurs in Cave Gulch.

Wetlands. Jurisdictional wetlands are defined as areas regularly saturated by surface water or groundwater and dominated by vegetation that is adapted for saturated-soil conditions. Any wetland that meets the state or federal definition of jurisdictional wetland is considered a sensitive natural community. Seeps, springs and depressional wetlands that may qualify as jurisdictional wetlands occur in the North Campus area, usually in small patches (less than 500 square feet). Drainages associated with seeps and springs occur as narrow linear features in forest or along road margins.

The mixed evergreen forest in the North Campus contains depressional areas underlain by a subsurface clay layer (EcoSystems West 2004a). These depressional areas contain variable densities of hydrophytic plant species (EcoSystems West 2004a). Due to local variations in the frequency and duration of inundation of these areas, some may meet the regulatory definition of waters of the United States and/or waters of the state, while others probably do not. In addition, mesic grassland areas in coastal prairie and grassland areas may meet the regulatory definition of waters of the U.S. and/or of the state.

Special-Status Species. Special-status species are defined as plants and animals that are protected under the California or federal Endangered Species Acts or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing.

Plant Species. Special-status plants that are known to occur or have the potential to occur on the campus are listed in Table 4.4-1 (located at the end of this section). Four special-status plants are known or suspected to occur on campus: Santa Cruz manzanita, Point Reyes

horkleia, marsh microseris, and San Francisco popcorn flower. Of these species, Santa Cruz manzanita occurs primarily in the chaparral of the north campus, but the other species have been observed/reported in other portions of the UCSC campus.

Wildlife Species. Forty special-status wildlife species were identified as having the potential to occur in northern Santa Cruz County. Of these, the following 30 species were identified as occurring on the campus or as having a moderate to high potential to occur on the campus.

- **Seven invertebrate species:** Ohlone tiger beetle (*Cicindela ohlone)*, San Francisco lacewing (*Nothochrysa californica*), Monarch butterfly (*Danaus plexippus*), and cave species: Santa Cruz telemid spider (*Telemid* sp.), Dolloff Cave spider (*Meta dolloff*), Empire Cave pseudoscorpion (*Microcraegris imperialis*), and MacKenzie's cave amphipod (*Stygobromus mackenzei*) (the latter four associated with karst caverns);
- **One amphibian species:** California red-legged frog;
- **Two reptile species:** southwestern pond turtle (*Clemmys marmorata pallida*) and Coast horned lizard (*Phrynosoma coronatum frontale*) (neither of which is likely to occur in habitats present in the North Campus area);
- **Eight bat species:** pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), western red bat (*Lasiurus blossevillii*), long-eared myotis (*Myotis evotis*), fringed myotis (*Myotis thysanodes*), long-legged myotis (*Myotis volans*), yuma myotis (*Myotis yumanensis*), and greater western mastiff bat (*Eumops perotis californicus*); and
- **Two other mammal species:** San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) and American badger (*Taxidea taxus*); and
- **Ten birds species:** Cooper's hawk (*Accipiter cooperii);* Sharp-shinned hawk (*Accipiter striatus*), Golden eagle (*Aquila chrysaetos*), Northern harrier (*Circus cyaneus*), White-tailed kite (*Elanus caerules*), Cooper's Hawk (*Accipiter cooperii*), Long-eared owl (*Asio otis*), Western burrowing owl (*Athene cunicularia hypugea*), Vaux's swift (*Chaetura vauxi*), Yellow-breasted chat (*Icteria virens*), and California yellow warbler (*Dendroica petechia brewsteri*).

It should be noted that the North Campus area does not include habitat for all of the species listed, and many of these species have not been observed in the North Campus area or on the campus as a whole in recent years. None of the invertebrate, amphibian or reptile species have been detected/recorded in the North Campus area. However, most bat species have been detected in the north campus area, and the north campus supports potential habitat for the San Francisco dusky-footed woodrat and nesting habitat for the sharp-shinned hawk, golden eagle, white-tailed kite, and long-eared owl.

Wildlife Movement. The CEQA Guidelines state that a project would have a significant impact if it would "interfere substantially with the movement of any native resident or migratory fish

or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites." The campus currently provides important habitat linkages and wildlife corridors between several adjacent large tracts of open space. Wildlife with large home ranges, such as black-tailed deer, gray foxes, and bobcats, are expected to travel through the forested areas of the North Campus when moving between Henry Cowell Redwoods State Park and Wilder Ranch State Park.

Many birds and mammals (e.g., bats, black-tailed deer, raccoon, gray foxes, and bobcat) that forage in the grassland of the lower campus seek both water and forest shelter (nest sites, roosts, and cover) within the North Campus, upper campus and adjacent parklands. The Moore Creek drainage and the Jordan Gulch drainage are the two corridors that likely provide consistent access between the central campus, where many species forage, and the North Campus.

There is no evidence that any terrestrial species use UC Santa Cruz for regular migration. Migratory songbirds are common on campus, as are Monarch butterflies and other migratory invertebrates.

Some common wildlife species with larger home ranges that would potentially bring them into contact with new LRDP development are present on the campus. Raccoons (*Procyon lotor*) are found in all types of habitats and acclimate well to living near humans. They likely occupy both the Moore Creek and Jordan Gulch drainages and limit their ranges to the respective watersheds. Coyotes (*Canis latrans*) are often sighted in the campus meadows and grasslands. Coyotes at UC Santa Cruz likely are acclimated to humans and use existing riparian corridors to reach the Great Meadow. Similar to coyotes, bobcats (*Lynx rufus*) are seen regularly hunting in the afternoons in the meadows. Individuals seen on the campus likely move down through the riparian corridors to reach grasslands in lower campus from forested areas to the north. Mountain lions (*Felis concolor*) can have a home range of up to 100 square miles. Lions are shy and elusive. They excellent jumpers and can leap distances of 20 feet, so fences do not pose a barrier to lion movement. The black-tailed deer (*Odocoileus hemionus* ssp. *columbianus*) are very common and move freely on the campus, frequently around buildings and across roads.

Habitat Conservation Plans/Natural Community Conservation Plans. Pursuant to an Implementing Agreement and Habitat Conservation Plan executed by the University in conjunction with an application for an Incidental Take Permit issued by the U.S. Fish and Wildlife Service, the UC Regents has committed to protect 13.0 acres in the southwestern corner of the campus in perpetuity as habitat for the California red-legged frog (*Rana aurora draytonii*) and Ohlone tiger beetle (*Cicendela ohlone*), and 12.5 acres, for the duration of the permit, south of the Ranch View Terrace Housing Project on the lower campus as habitat for the California red-legged frog and as potential habitat for the Ohlone tiger beetle. Long-term management and monitoring is provided on both sites under this agreement. The North Campus area is not subject to an HCP/NCCP.

IMPACTS AND MITIGATION MEASURES

Campus growth through 2020 will be guided by the 2005 LRDP, including the following goals and principles for the protection of biological resources: Respect major landscape and vegetation features; maintain continuity of wildlife habitats; and maintain natural surface drainage flows as much as possible. In addition to these principles, biological resources on the campus are protected by four land use designations in the 2005 LRDP that allow only minor or incidental new development (such as interpretive signs, paths and/or service roads). These include Campus Natural Reserve, Protected Landscape, Campus Resource Land, and Campus Habitat Reserve, which together comprise approximately 1,068 acres of the 2,020-acre main campus.

Sensitive Natural Communities. Development under the 2005 LRDP could result in direct and indirect impacts to northern maritime chaparral and coastal prairie habitats that recognized as being sensitive.

Northern maritime chaparral (NMC), which supports Santa Cruz manzanita, a special-status plant (that is addressed further below), generally occurs in the North Campus area and would be directly or indirectly affected by future campus development (LRDP Impact BIO-1). The LRDP EIR estimates that approximately 12 acres of northern maritime chaparral could be removed with development in addition to other scattered, smaller and marginal patches of this habitat. Up to 20 acres that are transitional between chaparral and mixed hardwood forests and up to 17.5 acres of dwarf redwoods mixed with chaparral could be removed by proposed north campus development. Although these transitional communities are not considered sensitive by CDFG, they contain components of the northern maritime chaparral community. The loss represents approximately 0.4 percent of the area of northern maritime chaparral in California documented in the CNDDB, and 0.6 percent of northern maritime chaparral in Santa Cruz County documented in the California Natural Diversity Data Base (CNDDB). Indirect impacts could occur with development that leads to fragmentation of habitat. Development area north of the Colleges and Student Housing area could fragment a large patch of northern maritime chaparral, and remove a portion of a large patch of chaparral near the intersection of Chinquapin, West, and Red Hill Roads.

Development is not proposed for the areas in which the other identified special status plants occur. Santa Cruz manzanita occurs on campus primarily as a dominant or common species within northern maritime chaparral, so impacts to this special-status species usually overlap with impacts to northern maritime chaparral. Santa Cruz manzanita in the north campus would be removed by c construction within proposed development areas, and as a result of the construction of the north campus loop road and the road connecting Empire Grade Road with the north campus loop road. Up to 14.6 acres of Santa Cruz manzanita stands (of high, moderate, and low density), representing up to 40 percent of the extent of Santa Cruz manzanita stands on campus, could be removed by proposed development. Out of the 19 distinct patches of Santa Cruz manzanita mapped, up to nine of these patches (47 percent)

could be completely or partially removed by development under the 2005 LRDP. Two of these nine stands of Santa Cruz manzanita are of high density.

This potentially significant impact would be reduced to a less-than-significant level with implementation of LRDP Mitigation BIO-1A through 1C, which call for avoidance, compensatory long-term preservation, management and monitoring of comparable stands on campus and, if management of existing stands is not successful, for restoration of chaparral/forest transition stands and long term monitoring and management.

Coastal Prairie. Development also could result in impacts to the coastal prairie sensitive natural community (LRDP BIO-2). Up to 1.5 acres of coastal prairie, representing about 1.3 percent of the overall coastal prairie area on the campus, could be lost to campus development under the 2005 LRDP, primarily in the north campus area. This potentially significant impact similarly would be reduced to a less-than-significant level through implementation of LRDP Mitigations BIO-2A and -2B. These measures require the design of the project to avoid the coastal prairie habitat, or, if it is not avoidable, restoration at a 3:1 ratio. A management and monitoring plan with success criteria is required prior to losses of the habitat.

Wetlands. Development could result in direct and indirect impacts to jurisdictional wetlands, a potentially significant impact (LRDP Impact BIO-3). Construction of new campus facilities in the proposed SOI project area located south of Chinquapin Road and east of Red Hill Road, as well as construction of the North Campus loop road, could result in the loss of isolated wetlands. Depressional wetlands are located in mixed evergreen forest in portions of these areas. In addition, direct and indirect impact to forest springs and seeps may occur. LRDP Mitigations BIO-3A through -3D require site wetlands reconnaissance, delineation, avoidance and, if jurisdictional wetlands cannot be avoided, wetlands restoration or creation based on permitting consultation with regulatory agencies. Implementation of these mitigations would reduce the potential impact to a less-than-significant level. Changes in hydrologic regime that may result from development, due to increased runoff or reduced groundwater supplies, may result in the degradation of seeps and springs.

Comments received on the 2005 LRDP DEIR requested further analysis of wetland resources and impacts, including preparation of a jurisdictional wetlands delineation. Several similar comments were presented on the Notice of Preparation of this EIR (see Appendix A). As indicated in the LRDP FEIR (Section 5.1.1, Master Response Bio-2 Wetlands), a formal delineation of wetland and aquatic resources was not conducted because these resources are dynamic and their precise boundaries are likely to change over the 15-year term of the 2005 LRDP. Due to the dynamic nature of aquatic resources, delineations of waters of the U.S. are considered valid to meet requirements under the Clean Water Act for only three to five years from the date of their verification. Therefore, as discussed in the LRDP FEIR, the University has elected to formally delineate aquatic resources within individual project areas at the time that detailed environmental analyses are conducted for each project. As discussed in the LRDP EIR, direct or indirect impacts to jurisdictional aquatic resources will require permits

from the responsible agencies, which may include the U.S. Army Corps of Engineers (ACOE), Central Coast Regional Water Quality Control Board (CCRWQCB), and California Department of Fish and Game (CDFG).

However, in response to comments related to wetlands, additional analysis was conducted as part of the LRDP FEIR to develop an estimate of potential wetland acreage that is present within areas that would be developed, general descriptions of the locations and types of wetland resources that could be affected by development under the 2005 LRDP, and a strategy for avoiding, minimizing and mitigating those impacts. The analysis for North Campus showed that out of about 4.7 acres of potential wetlands, about 1.6 acres could be lost as a result of development proposed under the 2005 LRDP and would require mitigation as identified above.

Direct impacts to wetland resources are not anticipated in any watersheds outside the mapped aquatic resource areas described above. Indirect impacts to wetland resources outside the mapping area are discussed in Volume II of the Draft EIR on pages 4-8-29 through 4.8-48, and in Volume III on page 2-68 (LRDP Impacts HYD-3, HYD-4, HYD-6, and IIP-SW Impact HYD-3). Available information on the location and nature of aquatic resources outside the mapping area, collected as part of biological and hydrologic studies to support the 2005 LRDP and the Infrastructure Improvements Project, is adequate to analyze indirect impacts to these resources.

Riparian Habitat. Construction of bridge crossings and other improvements under the 2005 LRDP could result in a substantial temporary and permanent adverse impact on riparian vegetation, a potentially significant impact (LRDP Impact BIO-4). The proposed bridges over Cave Gulch and over two branches of Jordan Gulch Creek may remove or degrade riparian vegetation in these drainages. Construction in the proposed Colleges and Student Housing development area on the north campus and storm drainage improvements could also result in direct or indirect impacts to riparian vegetation in Cave Gulch. No bridge footings or other permanent structures would be constructed in the creeks. The extent of riparian vegetation present in the area and the amount of vegetation affected will be determined on a project-by-project basis. The maximum permanent riparian habitat impact from bridge projects and storm drainage improvements is estimated to be 0.7 acres.

The potential impact would be reduced to a less-than-significant level through implementation of LRDP mitigations BIO-4A through -4D, which require avoidance, and/ or restoration and enhancement at the impact site and/or compensatory restoration and monitoring at a nearby site.

Special Status Species.

Special Status Plants. The 2005 LRDP EIR concluded that the implementation of the LRDP would not result in impacts to special status plants (LRDP Impact BIO-5), except for Santa

Cruz manzanita, which is addressed under Impact BIO-1 (as described above under the "Sensitive Natural Communities" impact discussion).

Development under the 2005 LRDP has the potential to introduce or cause the spread of noxious weeds, which could reduce the abundance of native plants and sensitive communities (LRDP Impact BIO-6), a potentially significant impact. Mitigation measure LRDP Mitigation BIO-6 specifies practices to be incorporated in construction contract specifications to ensure that earth and vegetation moving do not result in the spread of noxious weeds, sudden oak death or pitch pine canker. With the implementation of these measures, the impact would be less than significant.

Special Status Wildlife. Development in the north campus under the 2005 LRDP could result in impacts to special status bat species and nesting birds. Though, Ohlone tiger beetle and California red-legged frog are not expected in the proposed Sphere of Influence amendment project area, these species are addressed below. Indirect impacts to invertebrate cave species could occur due to drainage impacts, which also is discussed below.

The 2005 LRDP EIR assessed the potential for development to result in substantial adverse impact associated with the loss of potential habitat or other indirect impacts to the *southwestern pond turtle or coast horned lizard* (LRDP Impact BIO-10) and concluded that the potential habitat for these species on campus is apparently not occupied at present and that, further, the project would not result in significant changes to that habitat. The potential impact therefore is less than significant and no mitigation is needed.

Ohlone tiger beetle (OTB). Development under the 2005 LRDP could result in a substantial adverse impact on *Ohlone tiger beetle (OTB)* populations on the campus from increased bicycle use on trails and obstruction of potential movement corridors by trees planted in the Arboretum (LRDP Impact BIO-7), a potentially significant impact. However, the OTB has not been observed in surveys in the North Campus area. The beetle is known to occur on the upper campus and on the lower campus west of Empire Grade Road, and no 2005 LRDP-related development is planned in these areas. Most occurrences of the Ohlone tiger beetle on campus are within or adjacent to active recreational trails in the upper campus. LRDP Mitigation BIO-7A and BIO-7B provide measures that would reduce these impacts to a less-than-significant level by prohibiting bicycles on trails that support Ohlone tiger beetles, installing temporary fencing an signs at trail entries during periods of beetle activity, and consultation with the U.S. Fish and Wildlife Service regarding any vegetation modification near the Arboretum (outside project SOI) area.

California red-legged frog (CRLF). Development under the 2005 LRDP could result in a substantial adverse effect on breeding or important movement habitat for *California red-legged frog (CRLF)*; direct impacts to California red-legged frog populations; or indirect impacts on the species from downstream hydrological changes in the Moore Creek watershed, a potentially significant impact (LRDP Impact BIO-9). The closest observation of CRLF to the

North Campus area was approximately 0.4 miles northwest of the campus, at Adams Creek, a tributary of Wilder creek. No CRLF have been observed on the North Campus. Implementation of LRDP Mitigation BIO-9, which applies to development in the Moore Creek watershed, requires avoidance of construction during rain periods, biological surveys and biological monitoring, and would reduce the potential impact to a less-than-significant level.

As indicated in the 2005 LRDP Final EIR (University of California Santa Cruz, September 2006, Volume V - Response to Comment FA-1-4), UCSC Cruz has prepared a habitat conservation plan for the Ohlone tiger beetle and California red-legged frog in conjunction with the Ranch View Terrace project. The U.S. Fish and Wildlife Service certified that HCP in 2005. HCPs are prepared to mitigate the impacts of proposed activities that might incidentally result in harm or "take" of wildlife species that are listed as threatened or endangered, or to the habitat of these species. It is not anticipated that the proposed 2005 LRDP would result in take of threatened or endangered species or their habitat in other areas of the campus. If such impacts were to be identified in the future when site-specific development proposals are reviewed, site specific habitat and species surveys would be prepared and additional HCPs or appropriate consultation would be undertaken as required by USFWS regulations. One comment received on the NOP for this EIR requested that "protocol" species surveys be conducted for the California red-legged frog and Ohlone tiger beetle. However, these would be conducted at the time site-specific development is proposed, but as indicated above, to date no California red-legged frogs or Ohlone tiger beetles have been observed on the North Campus. At this time UC Santa Cruz has no plans to develop a Campus Wide Habitat Conservation Plan.

Special Status Bat Species. Eight special-status bat species have been observed foraging throughout all areas of the campus. Forested areas within the central campus and the north campus contain features suitable for bat foraging that could be removed or degraded by future development proposed under the 2005 LRDP (estimated to be up to 100 acres of potential habitat removal). Most of the high-quality roosting sites are also located within riparian zones or forested areas designated as Campus Resource Lands or Campus Natural Reserve and would not be disturbed by development under the LRDP. Bats roosting in the north campus may be more sensitive to disturbance because of the lack of development and relatively low level of human activity in that area. LRDP Mitigations BIO-13A and BIO-13B will be implemented in conjunction with north campus projects in order to reduce the potential for impacts to bat roosting sites. Implementation of LRDP Mitigations BIO-13A and BIO-13B, when necessary, would reduce development-related impacts to roosting special-status bat species to a less-than-significant level.

Cave Invertebrates. The 2005 LRDP analyzed whether development and increased campus population under the 2005 LRDP would result in loss or degradation of habitat for *cave invertebrates*, including the Santa Cruz telemid spider, Dollof Cave spider, Empire Cave pseudoscorpion, or Mackenzie's Cave amphipod and concluded that the impact would be less than significant. An increase in surface runoff due to increased impervious surfaces could increase the quantity of water that drains into sinkholes and enters the karst system, and

result in indirect adverse effects due to flooding. However, the Campus would implement LRDP Mitigation HYD-3C, which would ensure that post-development peak flows do not exceed pre-development peak flows, and LRDP Mitigation HYD-3D would maximize infiltration. As a result, peak flows would generally remain at the same levels as under existing conditions, and the general pattern of infiltration would not be significantly affected. To the extent that there is periodic flooding and water levels in the caves are somewhat higher than under existing conditions, this would not adversely affect the special-status invertebrates, as it would be within the range of the natural fluctuation in water levels that results from large storms. The University would implement LRDP Mitigation BIO-8A and -8B, to discourage uses of campus caves that could jeopardize special species habitat, and to consult with regulators on installation of a gate on Empire Cave, to further minimize this impact.

Steelhead. Comments received on the NOP raised questions regarding impacts of the 2005 LRDP planned development on steelhead in Wilder Creek as Cave Gulch is a tributary to Wilder Creek. The California Natural Diversity Data Base has recorded steelhead in Wilder Creek (Bill Davilla, EcoSystems West Consulting Group, personal communication, August 2009). Part the Cave Gulch watershed/drainage (see Figure 17) is designated for academic uses in the 2005 LRDP. However, as further discussed under "Hydrology," with implementation of Mitigation HYD-3D, peak stormwater flows would not exceed pre-development levels. Thus, drainage patterns are not expected to be changed in this area to the extent that downstream flows would be reduced or steelhead habitat otherwise indirectly affected.

Interference with Breeding Success. Development under the 2005 LRDP could result in the loss or abandonment of active nests for special-status raptors (LRDP Impact BIO-11), a potentially significant impact. The impact would be reduced to a less-than-significant level by the implementation of mitigation BIO-11, which required preconstruction surveys during nesting season and implementation of measures to avoid identified nests of special status birds and migratory birds.

The 2005 LRDP EIR analyzed the potential for development under the 2005 LRDP to result in a substantial adverse impact on western burrowing owl (LRDP Impact BIO-12). USFWS has officially recognized that no burrowing owl breeding occurs in Santa Cruz County. No western burrowing owl breeding pairs have been documented on campus since the early 1980s. While individuals and nest sites are protected under the Migratory Birds Treaty Act, wintering habitat is not. Thus, all potential impacts to burrowing owl due to future construction proposed under the 2005 LRDP are considered less than significant, and no mitigation is required. However, LRDP Mitigations BIO-12A and BIO-12B are included to further reduce this less-than-significant impact in the event that burrowing owls establish nests in the future in suitable habitat present on the campus lands.

Development under the 2005 LRDP could result in a substantial adverse impact associated with the disturbance of roosting sites for special-status bats (LRDP Impact BIO-13), a

potentially significant impact. LRDP Mitigations BIO-13A and -13B, which require bat surveys for projects that would remove trees during bat breeding season, avoidance of maternity roosts, or bat relocation in accordance with CDFG requirements, ensures that the impact will be reduced to a less-than-significant level.

Development under the 2005 LRDP could result in a substantial adverse impact associated with the loss of potential San Francisco dusky-footed woodrat nests (LRDP Impact BIO-14), a potentially significant impact. Implementation of LRDP Mitigation BIO-14, which requires preconstruction survey of suitable woodrat habitat to detect woodrat nests, construction buffers, or nest relocation, ensures the impact will be reduced to a less-than-significant level.

Wildlife Corridors. Development under the 2005 LRDP could interfere substantially with the movement of wildlife species or with established native resident or migratory wildlife corridors (LRDP Impact BIO-15), a potentially significant impact. Under the 2005 LRDP, Moore Creek and Jordan Gulch drainages, which have been identified as wildlife movement routes between the lower campus and the North Campus, would be maintained through the campus core and between the new colleges proposed under the 2005 LRDP. This will help maintain the riparian connectivity between the meadows and the adjacent open space areas of upper campus, Wilder Ranch State Park, Pogonip City Park, and Henry Cowell Redwoods State Park.

The North Campus currently provides important wildlife movement routes between several adjacent tracts of large open space. The North Campus is located immediately between the upper meadows of Wilder Ranch State Park on the northwest and the meadows of Pogonip City Park and the forest of Henry Cowell Redwoods State Park on the east. One developed area, the Cave Gulch neighborhood, lies directly to the west. Wildlife with large home ranges are expected to travel through the North Campus when moving between these environments. Potential development of the North Campus consistent with the 2005 LRDP would shift the urban-wildland interface (i.e., the boundary between campus development and large blocks of open space) northward, maintain open space between development areas, and will not interfere substantially with the movement routes through the North Campus that were identified previously (EcoSystems West 2004a). These routes allow for a northern corridor between the campus core riparian corridors and a corridor along the northern rim of the campus to adjacent parklands. The connectivity between these two corridors would be slightly impaired by development of the North Campus loop road, but would not be eliminated. Migration across this new loop can occur through forested areas between developments. A secondary route between east and middle development areas of approximately 300 feet is adequate to maintain most wildlife movement because of the densely forested vegetation that will still provide significant cover and visual buffering. For these reasons, impact to wildlife movement from the developments in the North Campus is considered to be less than significant.

Cultural Resources

The synopsis below is drawn from the 2005 LRDP Final EIR, Volume I, Section 4.5, as amended by Volume IV, Chapter 3, Section 3.1.6 (*Changes to Draft EIR, Volume I, Section 4.5, Cultural Resources*) and revisions to mitigation measures presented in FEIR Volume IV, Table 1-1.

ENVIRONMENTAL SETTING

UC Santa Cruz has identified historic buildings and structures, historic features, and prehistoric and historic archaeological sites on the main campus. About 40 percent of the north campus area was surveyed in 2005 (Pacific Legacy 2005), with emphasis on known site vicinities, open areas, and areas around seeps and springs. Much of the area that has not been intensively surveyed lies within steep drainages, is heavily forested or vegetated in brush or other vegetation too dense to allow passage or ground visibility. The only significant cultural resource identified in archaeological survey on the North Campus is one prehistoric archaeological site, CA-SCR-160. The Cowell Lime Works National Register Historic District, on the lower campus, would not be affected in any way by development in the north campus area. The only human burials encountered on the campus were associated with a prehistoric archaeological site that is not located in the north campus development area. No historic human burial have been encountered.

There are three potentially fossil-bearing formations on the main campus: the Santa Margarita sandstones, doline fill deposits in area underlain by marble, and Quaternary marine or non-marine terrace deposits. Doline fill deposits in area underlain by marble, and Quaternary marine or non-marine terrace deposits do not appear to be present on the North Campus. Further, no fossil finds have been documented in doline fill deposits and Quaternary marine terrace sediments in the region, nor have any fossil finds been made on campus, despite extensive development in areas underlain by doline and Quaternary marine and on-marine terrace deposits. Limestone caves -- of particular scientific interest -- are present in Cave Gulch, but none is known in any North Campus area proposed for development under the 2005 LRDP.

Santa Margarita sandstones in the Santa Cruz region have yielded significant marine vertebrate fossils. Although no such finds have been made in Santa Margarita formation sandstones on campus, this may be because there has been no development in these areas. Santa Margarita sandstone formations occur in the North Campus area and are thus considered to have high potential to include significant fossils.

IMPACTS AND MITIGATION MEASURES

Archaeological Resources. The only known archaeological resource in the North Campus area (CA-SCR-160) is in a protected area that will not be subject to development. However, it is

possible that other undiscovered archaeological resources would be discovered and adversely affected in the course of future development. The LRDP EIR includes a suite of mitigation measures, CULT-1A through -1G, that require archaeological records search, survey, contractor awareness training, significance assessment, avoidance and preservation in place where possible, and/or appropriate data recovery. These measures, in most cases, would mitigate the impact to a less-than-significant level.

Historic Resources. Since there are no historic buildings or structures in the North Campus, this impact does not apply. Similarly, highly significant historical resources have not been identified in the North Campus. However, in the event such a resource is identified in the course of North Campus development, the 2005 LRDP EIR determined that implementation of LRDP Mitigations CULT-3A and -3B would avoid damage and preserve significant information about the site. Nonetheless, if such an impact did occur, the impact would be significant and unavoidable.

Human Remains. The 2005 LRDP EIR assessed the potential for implementation of the proposed 2005 LRDP to disturb human remains (LRDP Impact CULT-4) and determined that the impact was potentially significant. The implementation of LRDP Mitigation CULT-4A through -4D will ensure that human remains in archaeological and isolated contexts will be protected from destruction that might result from development, through identification, Native American consultation, preservation in place or recovery, respectful treatment and study, and appropriate disposition. The implementation of the identified measures would reduce the impact to a less-than-significant level.

Paleontological Resources. The 2005 LRDP EIR considered the potential for development under the 2005 LRDP to disturb or destroy unique paleontological resources and determined that the impact could be potentially significant (LRDP Impact CULT-5). LRDP Mitigations CULT-5A through -5C would reduce the potential impact to less-than-significant level by ensuring that the potential to encounter sensitive formations is assessed during the project planning process; paleontological monitoring and data recovery are carried out as appropriate; and discoveries during construction are protected and assessed; and impacts minimized through feasible design and construction modifications.

Unique Geological Resources. The 2005 LRDP EIR considered the potential for increased population on campus, under the 2005 LRDP, to result in damage to the scientific and cultural value of unique geologic resources (LRDP Impact CULT-6), and determined that the impact would be potentially significant. Specifically, increased recreational use of the limestone caverns in the Campus Natural Reserve could result in impacts to the cave habitat of special status insect species. The impact would be reduced to a less-than-significant level through implementation of LRDP Mitigations BIO-8A and -8B, under which the Campus will continue to limit activity in the vicinity of the caves in the Campus Natural Reserve, and will post appropriate signs and website information informing visitors of the values represented by the caves and informing visitors of prohibitions against, fire, littering or removal of materials.

Geology and Soils

The 2005 LRDP EIR analyzed impacts associated with geology, soils and seismicity in Volume 1, Section 4.6, and Volume 4, Sections 2.2.2 and 3.1.7.

ENVIRONMENTAL SETTING

Beneath the surface soils and sedimentary rocks on campus, the geologic complex consists of two major rock types: a marble/schist substrate and a granitic substrate. The marble/schist substrate underlies most of the campus, including the central, lower, and north campus. Granitic rock underlies the upper campus, the north campus west of Cave Gulch and the northern edge of the north campus, and also forms intrusions into the marble in the central and lower campus. In the north and upper campus (generally, all areas north of McLaughlin Drive) the schist and granitic rocks are overlain in some areas by thin (5- to 30-foot) eroded remnants of the Santa Margarita sandstone and marine terrace deposits.

The U.S. Soil Conservation Service has mapped 12 different soil types and complexes on the campus. Most of the soil on campus is loam, a mixture of clay, silt, sand, and organic matter. The predominant soil types in the North Campus and upper campus are the Watsonville loam, Lompico-Felton complex, and the Aptos loam. The dominant soil type in the central campus is the Nicene-Aptos complex and the predominant soil types in the lower campus are Elkhorn sandy loam, Los Osos loam, Ben Lomond-Felton complex, and Watsonville loam. Soils on large portions of the North Campus have a slight to moderate erosion potential; significant areas of soils with a high to very high erosion potential are present in the upper, central, and lower areas of the campus.

IMPACTS AND MITIGATION MEASURES

CEQA Checklist items regarding rupture of a known fault and septic tanks or alternative wastewater disposal systems were focused out in the Initial Study for the 2005 LRDP EIR and were not analyzed further in the EIR. The UC Santa Cruz campus and the surrounding area are not located within an Alquist-Priolo Earthquake Fault Zone and there are no known active faults on the campus. The campus does not have septic tanks or alternative wastewater systems and none would be developed under the 2005 LRDP.

Seismic Shaking. No active or potentially active faults have been identified on campus but the campus could experience significant ground shaking associated with a seismic event on active faults in the region, which could expose people and property to the risk from unstable ground conditions. The 2005 LRDP EIR concluded that the hazards associated with seismic ground shaking would be less than significant because compliance with the University of California Policy on Seismic Safety and emergency preparedness and health-and-safety policies and programs would be adequate to address the hazards to people and structures.

Landslides, Lateral Spreading, Liquefaction and Expansive Soils. North Campus development consistent with the 2005 LRDP contemplates the construction of bridges, some of which could cross areas with landslide potential. There are also some limited areas within the North Campus where soils may be susceptible to liquefaction. Expansive soils are present on parts of the campus, including the North Campus. Although these can cause heaving and cracking of concrete slabs, pavement, and structures founded on shallow foundations, engineering solutions are available to address these hazards, and the California Building Code includes requirements for construction on expansive soils. New construction in areas with potential for landslides, liquefaction and expansive soils could expose people and property to risk from unstable ground conditions (LRDP Impact GEO-1). However, when implementing 2005 LRDP the campus is required to comply with LRDP Mitigation GEO-1, which requires that detailed geotechnical studies be conducted to guide project engineering on sites that are not well-characterized, would reduce these risks to a less-than-significant level.

Development on Karst. Karst features (including ravines, sinkholes, closed depressions, swallow holes, underground streams, and caverns) are present in areas of the campus that are underlain by marble and may result in settling or collapse beneath a structure. Development on karst could expose people and property to the risk from unstable ground conditions, a potentially significant impact. The 2005 LRDP EIR concluded that implementation of LRDP Mitigation GEO-1 would reduce this impact to a less-than-significant level. The North Campus is underlain by schist and sandstone; therefore, the potential for encountering karst hazards is low.

Soil Erosion. The 2005 LRDP EIR analyzed the potential for soil erosion to result from soil disturbance during construction, and from development and use of the envisioned North Campus loop road (LRDP Impact GEO-2). The EIR concluded that the impacts would be less than significant because of the erosion and sedimentation controls required of all construction projects to comply with Campus Standards and the National Pollutant Discharge Elimination System (NPDES) requirements for construction site storm water discharges. The potential for erosion resulting from alterations to predevelopment storm water runoff patterns are discussed under *Hydrology and Water Quality*.

Hydrology and Water Quality

The 2005 LRDP EIR analyzed hydrology and water quality impacts in Volume II, Section 4.8, Volume IV, Sections 2.2.2 and 3.2.1, and Volume V (Master Response HYRDO-1, LRDP Impact HYD-3).

ENVIRONMENTAL SETTING

The geology of the North Campus and upper campus consists of weathered schist and granitic rocks, which are overlain in some areas by thin (5- to 30-feet thick) eroded remnants of Santa

Margarita sandstone and marine terrace deposits. In this area, surface flow is dispersed, which encourages percolation of rainwater, and recharge of a shallow groundwater system, which in turn feeds springs and seeps located along the southern and eastern edge of the North Campus.

Bedrock beneath the central and lower campus consists of marble and schist bedrock overlain by deposits of residual soils and colluvium, where karst topography has developed as a result of the dissolution of marble. As a result, very little storm water runoff from the central or lower campus is conveyed by surface streams to channels downstream of the campus. Instead, storm water is captured by the karst aquifer, stored and transmitted via solution channels and caves, and discharged in springs at lower elevations to the east, south and west of the campus.

Stormwater Drainage. The campus is drained through both surface and subsurface drainages by watersheds that originate within the campus boundaries. Three watersheds – Cave Gulch, Moore Creek and Jordan Gulch, drain approximately 1,100 acres in the central portion of the approximately 2,020-acre campus (see Figure 17). Cave Gulch, which drains most of the northwestern portions of the campus, joins Wilder Creek immediately west of the campus. Moore Creek, which drains the central portions of the campus, flows in a southwesterly direction and discharges into Antonelli Pond near the coast. Jordan Gulch drains the central and eastern portions of the campus and continues as a spring-fed channel down Bay Street.

The majority of North Campus area drains to the Cave Gulch, but the central and eastern portions also drain to the Moore Creek, Jordan Gulch, and Pogonip (San Lorenzo River) watersheds. In general, campus lands that presently discharge into the Cave Gulch drainage system are largely undeveloped and contain only a few service roads used for recreation and emergency vehicles access and a 1-million gallon water tank. The few developed areas within the watershed are a portion of the Campus Trailer Park, the western half of Kresge and Porter Colleges, and a portion of Family Student Housing complex.

The existing campus drainage system mainly involves: (1) conveyance of storm runoff from areas of impervious surfaces to main trunk channels through culverts or lined ditches, (2) construction of detention and sediment filtration facilities to detain excess runoff and slowly release it downstream in order to avoid increasing peak flows and to remove suspended sediment, and (3) in the Moore Creek drainage, the detention of excess runoff behind earthen dams near the base of campus. These practices have helped reduce slope erosion and the release of peak runoff to off-campus areas; however, detention systems do not address runoff from development constructed before 1989 and unprotected trunk channels have been adversely affected by erosion and sedimentation. As noted above, gullying has occurred on off-campus lands adjacent to the eastern campus boundary. The Campus has developed and has been implementing a set of erosion control standards that are based substantially on Chapter 16.22 of the County Code (Erosion Control Ordinance). These standards are part of a Campus Standards Handbook (UCSC 2001). Based on the recommendation in the *Stormwater and Drainage Master Plan*, the Campus is proposing to implement a storm water drainage

improvement project to address the existing erosion conditions in drainages throughout the campus.

Water Quality. Since 1989, water quality sampling has been conducted at six groundwater well, spring and surface water locations. The samples are analyzed for a complete California Administrative Code Title 22 suite (general mineral, physical and inorganic) and semi- to non-volatile range hydrocarbons (diesel-kerosene-motor oil range).

UCSC construction and industrial activities are currently subject to the Phase I NPDES storm water requirements in accordance with requirements of the federal Clean Water Act through California Regional Water Quality Control Boards (RWQCB). Under Phase II of the NPDES program, SWRCB has issued three general permits: (1) Municipal permits – required for operators of small municipal separate storm sewer systems (MS4s), including universities, (2) Construction permits – required for projects involving one acre or more of construction activity, and (3) Industrial permits. The municipal permit requires development and implementation of a Storm Water Management Program (SWMP). The purpose of the SWMP is: (1) to identify pollutant sources potentially affecting the quality and quantity of storm water discharges; (2) to provide Best Management Practices (BMPs) for municipal and small construction activities implemented by University staff and contractors; and (3) to provide measurable goals for the implementation of the SWMP to reduce the discharge of the identified pollutants into the storm drain system and associated water ways. The goal of the SWMP is to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP), as defined by the EPA. "Minimum Control Measures" (MCMs) is the term used by the EPA for the six MS4 program elements aimed at achieving improved water quality through NPDES Phase II requirements. UCSC campus received approval of its NPDES Permit for storm drainage requirements in April 2009, which includes MCMs and BMPs to protect water quality.

Groundwater. The UCSC campus is roughly divided into two hydrogeologic systems: upper/north campus system and central/lower campus system. At this time, groundwater is not extracted on the campus for any purpose, and the Campus depends on the City's domestic water supply for both domestic and irrigation water.

Groundwater studies conducted by UCSC in 2000 (Nolan Associates) in the North Campus area indicated that the North Campus has a relatively uniform shallow groundwater system; depths to groundwater throughout the main portion of the North Campus ranged from about 2 to 16 feet below ground surface. Due to the shallow groundwater and the moderate permeability of the near-surface materials, the North Campus area has a high density of springs and seeps. Due to its limited thickness and extent, and moderate permeabilities, the upper/north campus groundwater system is not considered a viable source for long-term groundwater supply for the campus. Previous groundwater studies conducted for the University in 1985 (Nick Johnson) indicate that while there are some domestic wells adjacent

to the upper campus area, the yields (typically from 5 to 25 gallons per minute) are not adequate to meet campus water supply needs.

The southern two-thirds of the campus is underlain almost entirely by marble and schist that are characterized by a relative absence of surface streams and drainage channels with most precipitation discharging to the subsurface through fractures, and the presence of sinkholes, closed depressions, and swallow holes. It is estimated that approximately 40% of the surface runoff on the campus is intercepted by the marble aquifer system.
Four exploratory wells have been drilled on the campus in the past, all of which have been in the lower campus. Three test wells were installed in January and December 1988, one adjacent to the upper quarry (Well #2) and two in Jordan Gulch (Well #1 and Well #3) below the lower quarry. In each well, the depth to groundwater was about 100 feet below ground surface. A fourth test well (MW-1B) was installed in August 1989, with a static depth to groundwater of about 58 feet below ground surface. In 1989, a 7-day pumping test conducted at Well #3 by University consultants[14], indicated that the well could produce 100 gallons per minute (gpm). To date, Well #3 has not been used for any purpose other than to periodically monitor groundwater levels and groundwater quality.

IMPACTS AND MITIGATION MEASURES

CEQA Checklist items regarding placement of housing or other structures in flood hazard areas, flooding as a result of failure of a levee or dam, and inundation by seiche, tsunami or mudflow were focused out in the Initial Study for the 2005 LRDP EIR and were not analyzed further in the EIR. Areas proposed for housing on campus are not within a 100-year flood hazard area or within the inundation hazard area that could be affected by a failure of levees or dams, including Newell Creek Dam, and the campus is not in an area subject to inundation by seiche, tsunami, or mudflow.

Wastewater Discharge Requirements. Although the volume of wastewater discharged by the campus would increase, in general, the types of activities and uses on the campus would remain unchanged, so there is no reason to expect the quality of wastewater that is discharged to the City's sewer system would change. Therefore, the 2005 LRDP EIR concluded that campus development under the 2005 LRDP would not result in wastewater that would violate wastewater discharge requirements.

Drainage. The 2005 LRDP provides information on general areas of the campus where future buildings, facilities and infrastructure would be built, but the site-specific siting and details of future projects are not yet know. For purposes of the program-level analysis in 2005 LRDP EIR, the hydrologic analysis is based on the conservative assumption that 70% of each proposed new development area under the 2005 LRDP would be impervious. In areas where

[14] Weber and Associates and Johnson, Nicholas M. March1989. "Evaluation of Groundwater Resources at the University of California, Santa Cruz, Parts I and II." Prepared for Campus Facilities, UCSC.

the future development would be infill development, impervious areas would increase from 60 to 70%. The EIR estimates the increased runoff that would result from increases in impervious surfaces within each of the major campus watersheds for a 2-year storm and a 25-year storm.

The EIR concluded that campus development under the 2005 LRDP could alter drainage patterns in the project area and would increase the rate or amount of surface runoff, which could exceed the capacity of storm water drainage systems, resulting in flooding on or off site (HYD-4). (Flooding impacts are discussed below.) Implementation of LRDP Mitigation HYD-3C would avoid any increases in peak flows and would also avoid or minimize an increase in the volume of runoff that is discharged off site. Future development would require expansion of the campus storm drainage conveyance system and detention facilities, especially in the North Campus area, but such construction would not result in significant physical impacts (UTIL-3).

The Draft EIR concludes that increased runoff from the addition of impervious surfaces within some of the watersheds, including the Cave Gulch watershed, could add to existing erosion problems that are present in those watersheds (HYD-3). Accordingly, the Draft EIR proposes mitigation measures (revised LRDP Mitigations HYD-3A through -3E), which would reduce the impact to a less-than-significant level if they could be implemented for all future development projects under all conditions. Where conditions at the project site allow for it (gentle slopes, permeable soil, etc.), pursuant to LRDP Mitigation HYD-3D, natural and engineered infiltration and storage techniques would be used to ensure that the volume of storm water runoff does not exceed pre-project conditions. The mitigation measures would be implemented close to where the runoff is generated whenever possible. In addition, if project-specific review indicates that the project could increase runoff volumes in an impacted watershed, the Campus would consider diverting some or all of the runoff generated at a project site from one watershed to another. Any such diversion would be implemented only after a detailed evaluation showed that the receiving drainage could accommodate the diverted flows without increasing the potential for flooding or erosion.

The EIR concludes that the impact could be significant and unavoidable despite implementation of these mitigation measures because project-specific data are not available at this time for all future projects and it cannot be determined whether, for all future projects in the affected watersheds, feasible design measures will be available that would decrease the volume of flow to the extent needed to avoid all increases in erosion. Some of the site constraints that could limit the feasibility of such measures are impermeable soils, insufficient space on or near the project site for infiltration of runoff, and the potential for infiltrated water to affect the stability of soils in some areas underlain by karst. Project-specific environmental review of individual projects will address specific control measures and their feasibility. According to LRDP Mitigation HYD-3C, each project developed under the 2005 LRDP will include design measures to control peak flows in order to maintain post-development peak flows for the 2-, 5-, and 10-year events at pre-development levels, and to reduce the peak flow

from a 25-year event to the pre-project 10-year flow. Note that this mitigation measure continues an existing campus standard. Revised LRDP Mitigation HYD-3D requires that future projects maximize infiltration and reduce the volume of new runoff to the maximum extent practicable.

In the Cave Gulch watershed, an estimated 54 acres of impervious surfaces would be added through development under the 2005 LRDP, which would increase the total impervious area in this watershed to 61 acres. The Pump Station Tributary in the Cave Gulch watershed would be affected by the increased impervious surfaces associated with the connector road to Empire Grade Road. This channel contains existing erosion problems and certain improvements to control erosion in this tributary are included in the Infrastructure Improvements Project, which may stabilize this channel. These improvements are expected to be in place long before the connector road or the campus support development in Cave Gulch would be built. Therefore, it is possible that an increase in volume of runoff due to new impervious surfaces may not trigger substantial erosion in this channel. However, because the grades in this area are steep and the soils are erosive, the Campus will implement LRDP Mitigation HYD-3B in conjunction with the construction of the new road, and LRDP Mitigations HYD-3C and HYD-3D for other development to avoid potential substantial erosion. While it would be possible to design and incorporate facilities to avoid an increase in peak flows from project sites in this watershed, it is uncertain whether the storm water management facilities could be included in the design of each project in this watershed to avoid or adequately minimize an increase in the volume of runoff discharged from the sites of new development. Therefore, significant new flows could be added to the drainages in the watershed which could result in substantial erosion. This EIR therefore conservatively concludes that even with mitigation, the impact would be significant.

Flooding. The 2005 LRDP EIR concluded that while an increase in the rate or amount of surface runoff could exceed the capacity of storm water drainage systems, increased runoff from new development under the 2005 LRDP would not increase the potential for flooding (LRDP Impact HYD-4). There are no facilities in the areas near identified areas that could be adversely affected by this flooding, the impact would be less than significant. Furthermore, by implementing LRDP Mitigation HYD-3C, the Campus would avoid any increases in peak flows and would also avoid or minimize an increase in the volume of runoff that is discharged off site. This will prevent flooding from occurring more frequently than under existing conditions.

Water Quality. The 2005 LRDP EIR impact HYD-3 also identified potentially significant impacts on water quality that could result from the increased runoff associated with new impervious surface, and from the increase urban pollutants in storm water runoff resulting from human activity, including vehicle use and use of undesignated trails by pedestrians and bicyclists. The EIR identified LRDP Mitigation Measures HYD-3A through HYD-3D to reduce these impacts but as indicated above, concluded even with this mitigation, the impact related to erosion and sedimentation due to new development on the campus would be significant.

The 2005 LRDP EIR concluded that campus development under the 2005 LRDP could result in significant storm water runoff during construction, which could substantially degrade water quality (LRDP Impact HYD-2), but that the impact would be reduced to a less-than-significant level by implementation of LRDP Mitigation Measures HYD-2A and HYD-2B, which require construction site controls for projects that disturb less than one acre and erosion control measures for grading on steep slopes. These mitigations apply to all areas of the campus, including the north campus.

Implementation of the control measures in the University's NPDES Permit also will mitigate water quality impacts associated with increased runoff and storm drainage system improvements. Campus water quality monitoring data shows that campus development has not resulted in an increase in urban runoff pollutants, and with the Phase II NPDES requirements, the Campus will be required to implement a rigorous program to avoid water quality impacts.

Cave Flooding and Water Quality. Caverns are commonly encountered in karst topography. Several caves, with entrances or openings in the walls of the creek canyons, are present in the Cave Gulch and Wilder Creek canyons, both on and off the campus. The 2005 LRDP EIR concluded that the potential for campus development to alter drainage patterns, increase the rate and amount of surface runoff, affect the quality of runoff, and cause flooding and water quality impacts in caves on or off site (LRDP Impact HYD-6) is potentially significant. Some runoff from the North Campus is within the Wilder and Cave Gulch watersheds; therefore, development on the North Campus could contribute to this impact. An increase in surface runoff due to increased impervious surfaces could increase the quantity of water that drains into sinkholes and enters the karst system, and therefore could potentially cause flooding of Empire and Bat Caves.[15]

However, campus implementation of LRDP Mitigation Measures HYD-3C through HYD-3D, requiring the campus to minimize increases in the volume of runoff and to protect the water quality of storm water runoff, this impact is reduced to a less-than-significant level. These measures would ensure that post-development peak flows do not exceed pre-development peak flows from a 25-year storm, and LRDP Mitigation Measure HYD-3D which would maximize infiltration. As a result, peak flows would generally remain at the same levels as under existing conditions, and because infiltration of runoff would occur adjacent to the new impervious surfaces, the general pattern of infiltration would not be significantly affected. In light of these measures, water levels in these caves may not increase. To the extent that there is periodic flooding and water levels in the caves are somewhat higher than under existing

[15] Note that even under existing conditions, most of the rain that falls on the campus ends up in the karst aquifer; however, there is some water that is lost via evapotranspiration. If more areas are placed under impervious surfaces, the rain that falls on these impervious surfaces would become runoff that will end up as additional discharge in the karst aquifer.

conditions, this would not adversely affect the caves. The caves are not used for any purpose other than by students for recreation and by some campus scientists to study cave invertebrates and salamanders. The recreational use of caves by students is not appropriate and is discouraged by the Campus. The periodic flooding of the caves would not substantially reduce the opportunities for scientists to study the caves. As discussed above, the caves are occupied by certain special-status insects. However, the periodic flooding would be within the range of the natural fluctuation in water levels that results from large storms.

Changes to the quality of water in the caves are a concern for cave invertebrate species that are known from the Cave Gulch caves. As indicated above, with implementation of 2005 LRDP mitigation measures and increased stormwater management efforts, the quality of runoff that drains through these caves should not degrade, and the impact would be less than significant.

Groundwater. The 2005 LRDP EIR concluded that the potential for LRDP development to impact groundwater quality, groundwater supplies through pumping, or interfere with groundwater recharge through the increase in impervious surface resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (LRDP Impact HYD-5) was less than significant. Potential impacts on groundwater that could result under the 2005 LRDP include reduced spring flows and lowering of water levels in adjacent wells as a result of a reduction in recharge due to increased impervious surfaces, and as a result of groundwater extraction under drought conditions, in the event that LRDP Mitigation UTIL-9I is implemented to reduce demand for water from the City's water supply. Under this measure the campus would operate an existing well (WSW #1 also known as Well #3) located in Jordan Gulch during a drought to draw water for non-potable uses, principally irrigation. The 2005 LRDP EIR estimates that a total of 1.1 million gallons (approximately 3.4 acre-feet) of water would be extracted (based on irrigation estimates at the time) and used for irrigation of the UCSC Arboretum and Center for Agroecology and Sustainable Food Systems during dry years. Implementation of LRDP Mitigation HYD-5C requires water level monitoring of wells and springs if an existing or new campus well is utilized, with termination or reduction in pumping if average water levels and spring flows show a substantial reduction.

No groundwater extraction is proposed on the North Campus or upper campus. Since no groundwater extraction is planned for these areas, there would be no groundwater extraction-related effects (i.e., might result in drawdown of springs, seeps or wells) on the upper/north campus seeps and springs or on seeps, springs, and domestic water supply wells in the Cave Gulch and Bonny Doon area. Although no mitigation was required, the approved 2005 LRDP requires the campus to implement LRDP Mitigation Measures HYD-5A through HYD-5C to further reduce this less-than-significant impact. Implementation of LRDP Mitigation HYD-5A (via implementation of Mitigation Measure HYD-3D) requires that runoff from new impervious areas in the north campus would still 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.

There are approximately 13 domestic wells in the Cave Gulch area that draw water from the weathered granitic mantle or deeper fractures in the granitic bedrock. However, most of the campus development would be cross-gradient (and not up-gradient) from the Cave Gulch wells and would be separated from the Cave Gulch neighborhood by Cave Gulch, a deep channel that likely serves to separate the shallow aquifer in the granitic area from the shallow aquifer in the schist/sandstone area. Furthermore, with the implementation of LRDP Mitigation HYD-5A, infiltration of runoff on the north campus would be maximized, which would minimize potential impact on groundwater recharge. Therefore, existing Cave Gulch wells would not be adversely affected.

LRDP Mitigation Measures HYD-5B and HYD-5C require that the Campus follow certain procedures to ensure that pressure grouting does not affect groundwater quality, and that the Campus monitor spring flows and groundwater levels if the it pumps groundwater from the karst aquifer in the central campus and terminate or reduce pumping if monitoring indicates that campus use of groundwater is contributing to a net deficit in aquifer volume. It is not likely that LRDP Mitigation Measure HYD-5C, which would reduce the potential impacts of pressure grouting for construction on karst, would apply to development on the North Campus, which is underlain by schist and sandstone.

Air Quality

The 2005 LRDP EIR analyzed impacts to Air Quality in Volume 1, Section 4.2, and Volume 4, Section 2.2.2. The Monterey Bay Unified Air Pollution Control District (MBUAPCD) updated the *Air Quality Management Plan* and *CEQA Air Quality Guidelines* in 2008. Thus, the summaries below are updated as relevant to reflect current data and conditions.

ENVIRONMENTAL SETTING

The UC Santa Cruz campus is located in the city and county of Santa Cruz, which is within the North Central Coast Air Basin (NCCAB or Basin). The Basin includes Santa Cruz, Monterey, and San Benito counties. The 2005 LRDP EIR analyzed both emissions of criteria pollutants, which are regulated at the federal level by the U.S. Environmental Protection Agency (U.S. EPA) and at the state level by the California Air Resources Board (CARB); and toxic air contaminants, which are airborne pollutants for which there are no air quality standards but that are known to have adverse human health effects.

The NCCAB is currently in attainment for the federal PM_{10} (particulate less than 10 microns in diameter) standards and state and federal nitrogen dioxide, sulfur dioxide and carbon monoxide standards. The basin is considered attainment or unclassified for other national

standards and non-attainment for the 1-hour State ozone standard and for the State PM_{10} standard.

Sensitive receptors considered in the LRDP EIR analysis included two childcare centers on campus, West Lake Elementary School and the Santa Cruz Waldorf School. The 2005 LRDP EIR used significance thresholds recommended by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) in its 2004 CEQA Guidelines.

IMPACTS AND MITIGATION MEASURES

The CEQA Checklist question related to objectionable odors was not analyzed in the 2005 LRDP EIR, as none of the new facilities that would be built on campus under the 2005 LRDP would involve a source of objectionable odors.

Operational Emissions of Criteria Pollutants. The 2005 LRDP EIR analyzed the potential for daily emissions from campus operations to exceed MBUAPCD significance thresholds and therefore contribute substantially to a violation of air quality standards or hinder attainment of the regional air quality plan (LRDP Impact AIR-2). The focus was on criteria pollutants from campus operations, including space and water heating, emergency generators, the campus cogeneration system, and vehicle travel, thus covering stationary and mobile sources. The EIR concluded that emissions of nitrous oxides (NOx) resulting from campus growth would exceed the MBUAPCD significance threshold.

The 2005 LRDP EIR identified three mitigations that would reduce emissions. These include LRDP Mitigation Measure AIR-2A, which requires consideration of design and construction features in new development that would reduce emissions such as orientation of buildings to optimize solar hearing, use of solar or low-emission water heaters, and installation of best available insulation; AIR-2B, which requires that the campus to implement Mitigation Measure TRA-1B to reduce motor vehicle trips; and AIR-2C, which requires the campus to install to install emission controls on new gas turbines to reduce emission. However, the LRDP EIR concluded that implementation of these mitigations would not reduce NOx emissions to a less-than-significant level. Thus, the impact is considered significant and unavoidable.

Local Carbon Monoxide Concentrations. The 2005 LRDP EIR analyzed the potential that traffic generated by development under the 2005 LRDP, in conjunction with traffic associated with other regional growth, would result in an increase in local carbon monoxide (CO) concentrations at study area intersections (LRDP Impact AIR-3). Based on the results of modeling of CO emissions at six selected intersections using the modeling program CALINE4, the EIR concluded that predicted CO concentrations would be less than state and federal standards at all six intersections analyzed, and thus the impact would be less than significant. Since the intersections analyzed had either the highest delay or the highest traffic volumes, the

other intersections not analyzed are expected to experience even smaller, less-than-significant impacts related to CO concentrations.

Conflict With Air Quality Management Plan. Air Quality Management Plans (AQMPs) are developed for regions that do not meet ambient air quality standards. The MBUAPCD considers any project that is not consistent with the AQMP to make a cumulatively considerable contribution to a significant cumulative impact. A consistency determination performed as part of the LRDP EIR determined that campus growth was not accounted for in AMBAG's 2004 population forecasts that were in effect at the time, and therefore, the 2005 LRDP was not considered to be consistent with the AQMP (LRDP Impact AIR-4), and a significant impact was identified. The 2005 LRDP EIR concluded that even with implementation of LRDP Mitigation Measures AIR-4A and AIR-4B (working with AMBAG and MBUAPCD to ensure that campus growth is included in regional forecasts), the increase in emissions from campus growth under the 2005 LRDP may hinder the region's attainment of air quality standards; the impact was considered significant and unavoidable.

In June 2008, AMBAG updated its regional population forecasts, and the MBUAPCD updated the Air Quality Management Plan in August 2008. To implement LRDP Mitigation Measures AIR-4A and AIR-4B, the Campus worked with AMBAG to ensure that campus growth associated with the 2005 LRDP was accounted for in the 2008 regional population forecasts, the updated regional population forecasts included UCSC LRDP-related growth. In April 2009, AMBAG re-evaluated consistency of the 2005 LRDP with the Air Quality Management Plan and determined that the LRDP is consistent with the 2008 regional forecasts and the Air Quality Management Plan (AMBAG, April 13, 2009). Thus, the significant, unavoidable impact identified in the 2005 LRDP FEIR has been eliminated.

Operational Emissions of Toxic Air Contaminants. UC Santa Cruz conducted a Health Risk Assessment (HRA) to identify potential human health risks from toxic air contaminant (TAC) emissions associated with routine operations anticipated to occur under the 2005 LRDP (laboratory operations; natural gas and diesel fired stationary combustion sources such as boilers, the cogeneration system, and emergency generators; diesel-fueled vehicles on campus roadways; and painting operations). The results of this HRA indicated that campus operations under the 2005 LRDP would not result in a substantial human health risk to campus occupants and other populations in the vicinity of the campus from long-term exposures to TACs, but would result in a substantial health risk to campus occupants at certain on-campus locations from short-term exposures to TACs (LRDP Impact AIR-5). This would be a potentially significant impact. The EIR concluded that implementation of LRDP Mitigations AIR-5A and AIR-5B would reduce this impact to a less-than-significant level. These measures include testing program for emergency generators and a schedule for testing and replacing the existing cogeneration system with a new system with lower emissions within three years of LRDP approval.

Construction Emissions. The 2005 LRDP EIR analyzed the potential that construction activities under the 2005 LRDP could result in emissions of respirable particulate matter (PM_{10}) exceeding the MBUAPCD significance threshold LRDP Impact AIR-1). The EIR concluded that the emissions would not exceed the threshold and the impact would be less than significant. However, the EIR identified LRDP Mitigation Measure AIR-1, which requires implementation of specified dust-control measures during construction, consistent with standard MBUAPCD recommendations. This would further reduce this less-than-significant impact. In conjunction with the environmental review of all future land disturbing construction projects, the Campus use the MBUAPCD guidance to evaluate the construction emissions from future projects.

At the request of the MBUAPCD, the HRA for the 2005 LRDP EIR evaluated potential health risks associated with emissions of TACs from potential construction projects. The 2005 LRDP EIR concluded that construction activities under the 2005 LRDP could potentially result in a substantial health risk to campus occupants at certain on-campus locations from short-term exposures to TACs (LRDP Impact AIR-6), a potentially significant impact. The EIR identified LRDP Mitigation Measure AIR-6 to reduce the impact to the extent feasible, which would include implementation of measures to minimize construction emissions such as use of cleaner fuels and electrical equipment. However, the EIR concluded that because of uncertainties inherent in the analysis, it was not possible determine the significance of the impact.

Global Climate Change

The subject of global climate change was not addressed in the 2005 LRDP. 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. Greenhouse gas emissions and global climate change are discussed in the "Cumulative Impacts" subsection of the CEQA CONSIDERATIONS (Chapter 6.0) section of this EIR. A brief summary is provided below

ENVIRONMENTAL SETTING

The major greenhouse gases include, but are not limited to, the following: carbon dioxide, methane, nitrous oxide, hydrofluorocarbos, perfluorocarbons, and sulfur hexafluoride. 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 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 (CO_2) a year.[16] The primary contributors to GHG emissions in California are transportation, electric power production, and industry.

The State of California recently passed the Global Warming Solutions Act of 2006 (AB32)and the Governor's Executive Order S-3-05 and AB 32 both seek to achieve 1990 emissions levels by the year 2020. Executive Order S-3-05 also requires that by 2050 California's GHG emissions be 80% below 1990 levels. The California Air Resources Board (CARB) is the lead agency for implementing AB 32, and in accordance with provisions of AB 32, prepared a statewide GHG Inventory and a Scoping Plan with identified measures to meet reduction targets.

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 standard, climate protection practices, sustainable transportation practices, sustainable operations, recycling and waste management and environmentally preferable purchasing practices (University of California, September 2009).

The UC Santa Cruz Chancellor and representatives of the city and county of Santa Cruz signed a Climate Action Compact in September 2007. 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 campus's estimated emissions for 2007 were 70,000 to 80,000 metric tons of CO2 (University of California Santa Cruz, July 2009).

IMPACTS AND MITIGATION MEASURES

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 and growth and development in

[16] California Air Resources Board 1990 to 2004 State Inventory (November 2007).

the North Campus, which would result in GHG emissions. Based on a calculation of GHG emissions associated with North Campus development that was prepared as part of this EIR, it was concluded that the project's indirect incremental contribution to greenhouse gas emissions and global climate change as a result of North Campus development would be cumulatively considerable. See the "Cumulative Impacts" subsection of the CEQA CONSIDERATIONS (Chapter 6.0) section of this EIR for a full discussion.

Noise

The 2005 LRDP EIR analyzed impacts associated with Noise in Volume 2, Section 4.10, and Volume 4, Section 2.2.2.

ENVIRONMENTAL SETTING

The 2005 LRDP EIR defined the study area for evaluating noise impacts to include all of the main campus, residences or schools within 1,000 feet of the campus boundary, 2300 Delaware Avenue property and residences/parks within 1,000 feet of the property boundary, and major city streets leading to the main campus or 2300 Delaware Avenue including Bay, High, Mission, and Swift Streets, Delaware Avenue, and Western Drive. Noise-sensitive receptors considered in the EIR include residences, daycare centers, schools, hospitals and parks.

An ambient noise survey was conducted at selected sites on the main campus, not including the North Campus, in February and April, 2005, to evaluate the baseline noise levels for the EIR analysis. Potential increases in noise levels from vehicular traffic were estimated using the Federal Highway Administration Traffic Noise Model (FHWA-TNM), Version 2.0, based on existing and projected traffic volumes and speeds. For purposes of evaluating noise impacts from traffic and other permanent noise sources, noise standards consistent with State guidelines and the City of Santa Cruz General Plan were used. Noise measures taken near campus (along Empire Grade near Waldorf School) reported ambient levels within acceptable standards for residences and schools.

IMPACTS AND MITIGATION MEASURES

The two checklist items under Appendix G of the CEQA Guidelines related to airport noise were not analyzed in the 2005 LRDP EIR because the main campus is not located near a public airport or private airstrip.

Noise Exposure. The 2005 LRDP EIR analyzed the potential for residents of housing that would be developed under the 2005 LRDP to be exposed to high noise levels from increased vehicular traffic on the campus road network associated with LRDP development (LRDP Impact NOIS-3). The EIR concluded that the impact would be less than significant without mitigation, but identified LRDP Mitigation Measure NOIS-3 to further reduce this impact.

This measure calls for the inclusion of noise attenuation features in the design of housing constructed under the 2005 LRDP.

Permanent Noise Increases. As a result of regional population and employment growth as well as campus growth under the 2005 LRDP, traffic on city streets is expected to increase relative to current conditions. The 2005 LRDP EIR analyzed the potential for this increase to result in a noticeable increase in ambient noise levels (i.e., whether: (1) future noise levels would exceed the applicable ambient noise standards; or (2) the modeled increase in noise would be substantial (LRDP Impact NOIS-2). The EIR concluded that the impact would be less than significant and no mitigation is required.

Construction Noise. The 2005 LRDP EIR concluded that with implementation of LRDP Mitigation Measure NOIS-1, construction noise at sensitive receptors on campus (housing, academic buildings and childcare centers) located at distances of 100 feet or more from the construction equipment would be below the significance threshold. However, construction could occur at distances less than 100 feet from existing and future sensitive receptors on the north campus, and would result in noise levels that exceed the criteria at these nearby receptors (LRDP Impact NOIS-1). Therefore, the 2005 LRDP EIR considered the exposure or nearby sensitive receptors to excessive construction noise to be a significant and unavoidable impact.

Hazards and Hazardous Materials

The 2005 LRDP EIR analyzed impacts related to hazards and hazardous materials in Volume 1, Section 4.7, and Volume 4, Sections 2.2.2 and 3.1.7.

ENVIRONMENTAL SETTING

Hazardous chemicals are currently stored, used, and disposed of by three broad groups on the campus: science research and teaching laboratories, other academic and administrative units, and Physical Plant, which uses hazardous materials in building and ground maintenance. UC Santa Cruz Environmental Health and Safety facilitates and monitors Campus compliance with health and safety regulations and of coordinates the management of hazardous materials on campus. UC Santa Cruz maintains and routinely tests an Emergency Response Plan that sets forth standard operating procedures adopted by UC Santa Cruz for handling emergencies resulting from fires, floods, storms, earthquakes, hazardous material incidents and other potential disasters.

IMPACTS AND MITIGATION MEASURES

Hazardous Materials. Campus growth under the 2005 LRDP would involve an increase in the number of laboratories and the expansion of other facilities, such as building and vehicle

maintenance, which would increase the use, storage and transportation of hazardous chemicals, radioactive materials, and/or biohazardous materials on campus, as well as a potential increase in the potential for accident or upset to result in releases of hazardous materials into the environment (LRDP Impacts HAZ-1, HAZ-2, HAZ-3, HAZ-4). The 2005 LRDP EIR concluded that this increase would not create significant hazards to the public or the environment because the Campus complies with federal and state regulations and guidelines for the storage, handling, disposal and transport of hazardous materials, as well as Campus health and safety policies and procedures. Therefore, the increase in the use, storage and transportation of hazardous materials would not result in a significant hazard to the public or the environment. To further reduce the less-than-significant impact associated with increased generation of hazardous waste, the Campus will implement LRDP Mitigation Measure HAZ-2.

Several schools and childcare centers are located within ¼ miles of the campus, including two childcare facilities on campus, as well as private and public schools near the campus. The Waldorf School in the Cave Gulch area is within ¼ mile of the north campus area. Although hazardous materials and waste use within ¼ mile of one or more of these facilities would likely increase as a result of campus growth under the proposed 2005 LRDP (LRDP Impact HAZ-5), these materials would not exist in quantities sufficient to result in an accidental release whose effects would extend beyond the laboratory or support building where the release occurs, and the impact would be less than significant. Therefore, the increased use of hazardous materials would not pose a risk to occupants of the school or campus community.

Under the 2005 LRDP, the use of hazardous material by non-UC entities would increase, which could pose a risk to the campus or the public through routine use or in upset conditions if the practices of non-UC entities on campus do not provide the same level of environmental protection required of campus laboratories and department, a potentially significant impact. Under LRDP Mitigation Measure HAZ-11, non-UC Santa Cruz entities operating on campus would be subject to the same laws, regulations and campus policies that apply to campus laboratories, which would reduce this impact to a less-than-significant level.

Contaminated Soil and Groundwater. There are no known sites with soil or groundwater contamination on the main campus – including the North Campus; the past uses of the campus are well known and are not likely to have resulted in soil or groundwater contamination. Therefore, the 2005 LRDP EIR concluded that the potential that construction activities under the 2005 LRDP would expose construction workers and campus occupants to contaminated soil or ground water (LRDP Impact HAZ-6) is a less than significant impact.

Contaminated Building Materials. The LRDP EIR concluded that demolition or renovation of buildings under the proposed 2005 LRDP could potentially expose construction workers and campus occupants to contaminated building materials, including asbestos and lead-based paints (LRDP Impact HAZ-7). Compliance with federal and state regulations and Campus policies and procedures ensures that the potential for exposure of workers to contaminated

building materials or other contamination inside structures would be less than significant. Although mitigation was not required, the 2005 LRDP EIR identified LRDP Mitigation Measure HAZ-7 to further reduce this less-than-significant impact. This impact and mitigation, however, are not applicable to development on the North Campus, where there is no existing development.

Emergency Response. The 2005 LRDP EIR concluded that hazardous materials use on campus under the proposed 2005 LRDP would not exceed the existing emergency response capabilities (LRDP Impact HAZ-8), and this impact therefore would be less than significant.

Campus development under the 2005 LRDP could result in construction-related road closures that could interfere physically with the campus's Emergency Operations Plan (EOP) (LRDP Impact HAZ-9), which would be a potentially significant impact. The 2005 LRDP EIR concluded that implementation of LRDP Mitigation Measures HAZ-9A through HAZ-9D, which stipulate campus standards regarding potential road closures; annual testing of the campus' Emergency Operations Plan (EOP); expansion of the EOP for applicability to the north campus; and provision of a secondary egress route for the north campus prior to any new development there, would reduce the impact on emergency response to a less-than-significant level.

The 2005 LRDP EIR analyzed the potential that evacuation of the North Campus by way of a north entrance on Empire Grade would not interfere substantially with evacuation by residents of the Cave Gulch neighborhood and Bonny Doon. In fact, with the provision of the north entrance on Empire Grade Road, it would be possible for the residents of Cave Gulch neighborhood and Bonny Doon to use campus roads to exit the area in an emergency affecting Empire Grade Road.

Wildland Fires. Campus expansion to the North Campus would result in increased risk from wildland fire (LRDP Impact HAZ-10), as the chaparral and chaparral-forest transitional vegetation found in some areas on the north campus are more prone to fire than the redwood forest that surrounds the existing central campus development. This would be a potentially significant impact. Implementation of LRDP Mitigation Measures HAZ-10A through HAZ-10D, which require annual fire inspections of all campus buildings; development of a fire management plan prior to north campus development; wildfire caution signage on the north campus; and compliance with the International Uniform Wildland Interface Code, would decrease the risk from wildland fires to a less-than-significant level.