

Changes to Draft EIR Text

In response to comments received, the text published in Volumes I, II, and III of the Draft EIR has been revised, where appropriate. In addition, the text has been revised, as appropriate, to clarify, amplify, and make insignificant modifications and corrections to the Draft EIR. Changes are shown in underscore and strikeout, so that the original and revised text may be compared, and are presented here by volume and sections. It should be noted that Volumes I, II, and III of the Draft EIR have not been reprinted with these changes incorporated. Therefore, this chapter must be read in conjunction with the original text of the Draft EIR.

This section is provided so that readers may readily review changes that have been made to the impact analyses since publication of the Draft EIR. Because the Campus proposes to recommend that The Regents adopt the Final Draft 2005 LRDP (Reduced Enrollment Growth Alternative), this chapter focuses on changes to the technical sections of the Draft EIR that are relevant to the analysis of environmental impacts of the Final Draft 2005 LRDP (Reduced Enrollment Growth Alternative). Volumes I, II and III of the Draft EIR have been retained in their entirety as documentation of the original analysis.

3.1 CHANGES TO VOLUME I**3.1.1 Changes to Draft EIR, Volume 1, Chapter 2.0 Summary of Environmental Impacts and Mitigation Measures**

Table 2-1 presented at the end of this chapter reflects the revisions made by the Campus to the Draft EIR mitigation measures.

3.1.2 Changes to Draft EIR, Volume I, Chapter 3.0 Project Description

The word “headcount” was inadvertently left out of the second to last sentence of the first paragraph of Section 3.4, **page 3-6**. That sentence has been revised as follows:

As of academic year 2003-04, the total headcount enrollment at UC Santa Cruz was approximately 14,400 students, and the total number of faculty and staff was 4,230 including 14,050 students on the main campus and associated leases and 3,960 faculty and staff.⁷ Approximately 1.2 million asf (1.8 million gsf) has been developed or approved for development under the 1988 LRDP, bringing the total area of developed building space on campus to 3.2 million asf (4.7 million gsf).

Footnote #7, from the above paragraph, has been revised to clarify that the 1988 LRDP student and employee totals included students and employees at the Marine Science Campus.

⁷ Note that the student enrollment and the employee totals in the 1988 LRDP included students and employees at Long Marine Lab, now part of the Marine Science Campus.

Table 3-2 on **page 3-10** has been modified as follows. These changes do not have any implications for the analysis of the environmental impacts of the Final Draft 2005 LRDP.

**Table 3-2
Existing and Projected Campus Population By Place of Residence (UC Housing Only)**

Population	2003-04	Projected 2020^(a)	Change
Students living in UC housing			
Live on campus	5,842	9,713	3,871
Live in off-campus UC housing	208	0 ^(b)	-208
Faculty and staff by residence			
Laureate Court	64	64	0
Other on-campus employee housing	188	377 418	189 230
Off-campus UC housing (UTC, UC Santa Cruz Inn)	2	0	-2
Subtotal	254234	482441	238187
Partners/Dependents in on-campus housing			
Laureate Court	92	92	0
Other employee housing	270	60 543	273
Family Student Housing	315	635	320
Subtotal	677	1,3781,270	651593

Source: Table provided in Appendix B (Volume II)

Notes: For the full suite of assumptions used to develop this table, see Table 1 in Appendix B. This table reports numbers based on data gathered by the campus and/or numbers derived based on specific assumptions. In the text, numbers rounded to the nearest ten are used.

Projections are based on goals that the campus will strive to meet but there are many factors outside the control of the University, such as the real estate market that influence where UC population lives.

CUHS may in the future elect to purchase or lease additional housing off campus. This would be subject to project-specific analysis.

The following has been added to the end of the last sentence in last paragraph on Section 3.7.1 on **page 3-12**.

Additional analysis is provided, where necessary, of the environmental effects of increased enrollment during the summer quarter (Section 4.14, *Traffic and Circulation* and Section 4.15, *Utilities*).

The following clarifying phrase has been added to first sentence in Section 3.7.2 on **page 3-12**:

Of the 4,080 UC Santa Cruz faculty and staff, in 2003-04, approximately 3,760 were located on the main campus and approximately 203 were located in off-campus leased spaces in Santa Cruz (these are headcount numbers and include both full-time and part-time employees).

The corrections to Table 3-4 on **page 3-13** reflect the addition of 12,021 gross square feet (gsf) of institutional support space inadvertently omitted from space accounting in the Draft EIR. The result of the correction is that the total existing and approved building space in the baseline is increased by about 12,000 gsf, so that the total amount of development on campus in 2020 also would be increased by 12,000 gsf. This does not affect the amount of building space added under the Draft EIR or any of the related

analysis. It also does not affect the building space added under the Final Draft 2005 LRDP and related analyses.

**Table 3-4
Existing Campus Space and Projected Space Demand**

Development Type	Existing and Approved		Projected Demand for Additional Space		Estimated Total	
	asf	gsf	asf	gsf	asf	gsf
Instruction & Research	913,817	1,522,607	778,600	1,341,000	1,692,417	2,863,607
ORA/ORU ^(a)	86,706	136,542	180,400	311,000	267,106	447,542
Academic Support	322,504	459,790	125,600	194,000	448,104	653,790
Public Services	1,434	2,422	57,000	95,000	58,434	97,422
Student Services	134,700	200,579	154,700	230,800	289,400	431,379
PE and Recreation	56,743	81,954	181,900	245,600	238,643	327,554
Institutional Support	<u>173,308</u> 164,644	<u>441,625</u> 429,604	114,400	190,700	<u>287,708</u> 279,044	<u>632,325</u> 620,340
Housing (all campus-owned) ^(b)	1,423,788	1,979,770	1,106,150	1,460,000	2,529,938	3,439,770
Other ^(c)	140,980	242,107	0	0	140,980	242,107
Totals	<u>3,253,980</u> 3,245,316	<u>5,067,396</u> 5,055,375	2,698,750	4,068,100	<u>5,952,730</u> 5,944,066	<u>9,135,496</u> 9,123,475

Source: Draft 2005 LRDP; 2300 Delaware Avenue Project Description.

Notes:

- (a) Organized Research Units/ Organized Research Activities
- (b) Does not include approximately 330,000 asf (390,000 gsf) of existing and approved employee housing. Although located on campus, this housing is not owned by the University but by faculty and staff.
- (c) ~~Includes~~ This is the building space at 2300 Delaware Avenue.

The following sentence has been added to second paragraph in Section 3.9.8 on **page 3-20** to accurately describe the types of small facilities that could possibly be developed on CASFS lands:

No changes to the Chadwick Gardens or the 33-acre upper campus SRS parcel are projected to occur within the timeframe of the 2005 LRDP. As part of the Ranch View Terrace Project, approved by The Regents under the 1988 LRDP, CASFS is projected to expand the farm activities onto another 4 acres of land that are currently undeveloped. Additional small structures to support the CASFS, such as offices and greenhouses, may be developed. No other changes at the CASFS are envisioned, and the existing agricultural operations that are focused on agroecology and organic farming would continue under the 2005 LRDP.

In order to provide a more accurate description of Campus Habitat Reserve, Section 3.9.9, *Campus Habitat Reserve* (**page 3-21**) has been replaced with the following:

~~Two areas on campus, which total approximately 25.5 acres, are designated as Campus Habitat Reserve (CHR). The larger of these two areas, a 13-acre parcel on the southwestern corner of the campus adjacent to Wilder Creek, is designated as reserve to retain high quality grassland and forest habitat on the campus for the California red-legged frog. This area will be formally established pursuant to an Implementing Agreement between the U.S. Fish & Wildlife Service and The Regents, final approval of which is expected in 2005. The second area, a 12.5-acre parcel, is located in the southern~~

~~portion of the campus near the main entrance and is proposed as a management site for Ohlone tiger beetle habitat. CHR lands are protected lands that will remain undeveloped except as permitted by the terms of the Habitat Conservation Plan (HCP) Implementing Agreement.~~

Two areas on campus, which total approximately 25.5 acres, are designated as Campus Habitat Reserve (CHR). The larger of these two areas, a 13-acre parcel on the southwestern corner of the campus adjacent to Wilder Creek, is designated as a reserve to retain high-quality grassland and forest habitat on the campus for the California red-legged frog and the Ohlone tiger beetle. This reserve was established pursuant to a 2005 Implementing Agreement between the U.S. Fish & Wildlife Service and The Regents. The second area, a 12.5-acre parcel, is located in the southern portion of the campus near the main entrance. A portion of the parcel is designated as a management site for Ohlone tiger beetle habitat with the remainder of the site managed for California red-legged frog. CHR lands are protected lands that will remain undeveloped except as permitted by the terms of the Implementing Agreement and associated Habitat Conservation Plan.

The citation in the last sentence in the first paragraph of Section 3.13.2 on **page 3-31** has been corrected as follows:

During days when school was in session (school days), the average daily flow was 288 gpm (~~ARUP 2005b~~) (McInnes 2005).

Per the above modification, the following reference has been added to **page 3-42** as follows:

~~ARUP. 2005b. *Amended Sewer Calculations for EIR*. Prepared by Grant McInnes. April.~~
McInnes, Grant. 2005. ARUP. Personal communication with Alisa Klaus. UC Santa Cruz Physical Planning and Construction. April 29.

The following reference has been modified on **page 3-42** to reflect the accurate date of the communication:

Wolfman, Steve. 2005. City of Santa Cruz Department of Public Works. Personal communication with Alisa Klaus. UC Santa Cruz Physical Planning and Construction. March 30 ~~July 22~~.

Figure 3-7 has been revised to show the proper location of the water tank. The revised figure is at the end of this section.

3.1.3 Changes to Draft EIR, Volume I, Chapter 4.0 Introduction

A footnote to explain the phrase “Residual Demand” has been added to Table 4.0-2 on **page 4-5**, as follows:

**Table 4.0-2
 Estimated Residential Distribution of New Population Associated with the 2005 LRDP**

Residence Location	Students	Employees	Student Dependents	Employee Dependents	Total
On Campus	3,390	138	320	180	4,028

City of Santa Cruz	2,253	434	203	624	3,514
Rest of the County	555	563	50	812	1,980
<i>Total in Study Area</i>	<i>6,198</i>	<i>1,135</i>	<i>573</i>	<i>1,616</i>	<i>9,522</i>
Out-of-County	417	228	-	-	645
Residual Demand ¹	335	157	-	-	492
Total New Population	6,950	1,520	573	1,616	10,659

Residual demand refers to the number of persons who would not be able to find housing within the study area at a price that they can afford based on their household income.

Two footnotes have been added to Table 4.0-3 on page 4-7.

**Table 4.0-3
Estimated Distribution of LRDP-Related Population by Residence Location**

City/Community	No. of Students	No. of Student Dependents	No. of Employees	No. of Employee Dependents	Total Number of Persons	Total 2020 Population	LRDP Population as Percent of Total Population
On Campus	3,390	320	138	180	4,028		
Outside of County	417		228				
City of Santa Cruz ²	2,253	203	434	624	3,514	59,924	5.9
Capitola	54	5	43	62	164	11,104	1.5
Scotts Valley	34	3	46	66	149	14,062	1.1
Watsonville	36	3	106	152	297	65,473	0.5
Felton	29	3	37	53	122	NA	
Live Oak	244	22	124	179	569	NA	
Soquel	39	4	50	72	165	NA	
Aptos	65	6	93	134	298	NA	
Other Unincorporated Communities	54	4	64	94	216	NA	
Residual Demand ¹	335		157				
Total	6,950	573	1,520	1,616	9,522		

¹ Residual demand refers to the number of persons who would not be able to find housing within the study area at a price that they can afford based on their household income.

² Because a substantial portion of the campus lies within the City of Santa Cruz, if the new on-campus population under the 2005 LRDP were added to the off-campus LRDP-related population that would live in the City, instead of 5.9 percent, LRDP-related populations would make up 12.6 percent of the City's 2020 population.

3.1.4 Changes to Draft EIR, Volume I, Section 4.1 Aesthetics

The following has been added to the first sentence in the last paragraph of *Campus Entries* on page 4.1-4 to accurately describe the Arboretum:

The Arboretum, which is partially surrounded by a fence, has a signed entrance off of Empire Grade Road.

The following sentence has been added to the end of the first bullet in Section 4.1.2.1 *Standards of Significance*, on page 4.1-8:

For the purposes of this EIR, the project would have a significant impact with regard to aesthetics if it would:

- Have a substantial adverse effect on a scenic vista

For this EIR, a scenic vista is defined as an expansive view of a highly valued landscape, as observable from a public accessible vantage point. Important scenic vistas for this EIR include views of the Monterey Bay as viewed from Cowell College plaza, Baskin Visual Arts Center, University House, the knoll at Porter College, Stevenson College knoll, and the field at Oakes College; and views across the campus and wooded backdrop as viewed from locations along Empire Grade Road between Western Drive and the campus west entrance, Glenn Coolidge Drive between Hagar Drive and Cowell College, and Hagar Drive between Glenn Coolidge Drive and the East Remote parking lot. Important scenic vistas for this EIR also include expansive views of the rolling hills on the University campus and Pogonip that provide a scenic backdrop as viewed from the Wharf and Highway 1 North (at the Morrissey Bridge).

The following text on **page 4.1-9** has also been revised as follows to be consistent with the above language:

The off-campus vantage points for visual simulations were selected by the Campus mainly to provide off-campus viewers a sense of the nature and magnitude of visual change that would result from campus development under the 2005 LRDP, ~~but are not identified as scenic vantage points in the City and County General Plans.~~

The last sentence of the first paragraph on Draft EIR **page 4.1-9** has been revised as follows:

...the following analysis of visual impacts considers ~~three~~ two primary issues: the natural and magnitude of anticipated visual change resulting from 2005 LRDP development, and 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.~~

The following text has been added before the last sentence in the first complete paragraph on Draft EIR **page 4.1-10**.

The general height and footprint information used in the simulations is provided in Table 4.1-1. This information is conceptual in nature and is provided for the purpose of programmatic impact assessment. It is not intended to represent the actual building height or size of future development. However, to the extent that proposed new development varies substantially from these parameters, project-specific visual analyses will be undertaken at the time that a project is proposed.

The following new table has also been added following the first complete paragraph on **page 4.1-10**.

**Table 4.1-1
General Building Height and Size Information Used in Visual Simulations**

<u>Proposed Development</u>	<u>Approximate Building Height</u>	<u>Approximate Building Footprint</u>
<u>Family Student Housing (35 new residential buildings)</u>	<u>3-4 stories^(a) 32-50 feet</u>	<u>7,000 _____ square feet/building^(a)</u>
<u>Arts Auditorium</u>	<u>4-5 stories 50-70 feet</u>	<u>36,500square feet</u>
<u>Arts Parking Facility</u>	<u>20 feet</u>	<u>135,000 square feet</u>

East Collector Parking Facility	20 feet	135,000 square feet
Event Center	40 feet	64,000 square feet

(a) See Volume III, Chapter 3 for detailed project description information for this project, which is evaluated at a project-specific level in this EIR.

The third sentence of the first complete paragraph in Section 4.1 Aesthetics (Draft EIR page 4.1-7) has been revised as follows to be consistent with the language used in Section 4.9, *Land Use* (Draft EIR Volume I, **page 4.9-10**):

The Campus has a tradition of working cooperatively with the local communities, ~~and it is University policy to seek consistency with local plans and policies, where feasible and~~ is interested in coordinating campus projects with the beneficial planning efforts of the City of Santa Cruz and the County of Santa Cruz.

An editorial change has been made to the second to last sentence in the paragraph describing *Roads and Pathways* on **page 4.1-21** as follows:

Additionally, as per ~~of~~ the Campus Standards Handbook, site lighting with non-glare, downlighting characteristics would be preferred for all areas around buildings, and forest areas would be illuminated with nondirectional fixtures.

Figure 4.1-7 has been revised to show the locations of key development sites that would be visible from public viewpoints. The revised figure is included at the end of this section.

3.1.5 Changes to Draft EIR, Volume I, Section 4.4 Biological Resources

The following text on **page 4.4-4** of the Draft EIR concerning Section 401 certification has been added:

Water Quality Certification (Section 401)

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain water quality certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

A discussion of the California Coastal Act was inadvertently left out of the section describing *State Laws and Regulations* on **page 4.4-6** and therefore has been added as follows:

California Coastal Act

The California Coastal Act is discussed in Section 4.9 (Land Use). Section 5.1.3 of the Santa Cruz County General Plan-Local Coastal Program (County of Santa Cruz 1994) designates environmentally sensitive habitat areas (ESHA) within the coastal zone as areas that meet the following criteria:

- Areas which provide habitat for Species of Special Concern as listed by the California Department of Fish and Game in the Special Animals list, Natural Diversity Database.
- Areas which provide habitat for rare or endangered species which meet the definition of Section 15380 of the California Environmental Quality Act guidelines.
- Areas which provide habitat for rare, endangered or threatened species as designated by the State Fish and Game Commission, United States Fish and Wildlife Service or California Native Plant Society.
- Nearshore reefs, rocky intertidal areas, seacaves, islets, offshore rocks, kelp beds, marine mammal hauling grounds, sandy beaches, shorebird roosting, resting and nesting areas, cliff nesting areas and marine, wildlife or educational/research reserves.
- Dune plant habitats.
- All lakes, wetlands, estuaries, lagoons, streams and rivers.
- Riparian corridors.

The following text has been modified to remove any inconsistencies and to expand the list of wildlife associated with grassland communities presented on **page 4.4-7**:

Wildlife species observed in grassland habitats during previous campus surveys (Jones & Stokes 2004) included Western meadowlark (*Sturnella neglecta*), cliff swallow (*Petrochelidon pyrrhonata*), white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), Northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*) common raven (*Corvus corax*), gopher snake (*Pituophis melanoleucus*), long-tailed weasel (*Mustela leucurus*), meadow-California meadow vole (*Microtus pennsylvanicus californicus*), California ground squirrel (*Spermophilus beecheyi*), black-tailed hare (*Lepus californicus*), brush rabbit (*Sylvilagus bachmani*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), and mule deer (*Odocoileus hemionus*). A small population of burrowing owls (*Athene cunicularia*) is also known to overwinter in the East Meadow grasslands.

Coastal prairie is also present on the campus. Coastal prairie refers to grasslands in which relative dominance of native perennial bunchgrass species is found, and in which native plant species have greater relative cover than in other grassland areas. Coastal prairie, which refers to grasslands largely dominated by native perennial bunchgrasses and having a higher proportion of native herb species, is also present on the campus. Coastal prairie areas are discussed in Section 4.4.1.6, *Sensitive Natural Communities*.⁵

The following text on **page 4.4-7** has been revised:

Common wildlife species observed in the redwood forests on campus included American robin (*Turdus migratorius*), Pacific slope flycatcher (*Empidonax difficilis*), violet-green swallow (*Tachycineta thalassina*), dark-eyed junco (*Junco hyemalis*), downy hairy woodpecker (*Picoides pubescens villosus*), and Douglas' western gray squirrel (*Tamiasciurus douglasii* *Sciurus griseus*).

⁵ *Sensitive natural communities* are natural communities that are recognized by the California Department of Fish and Game as rare, unique, or threatened in California (CNDDDB 2003). See Section 4.4.1.6.

Text in **page 4.4-9** has been revised as follows:

Additional species identified in the mixed evergreen forest included Western scrub-jay (*Aphelocoma ~~insularis-californica~~*), Wilson's warbler (*Wilsonia pusilla*), Townsend's warbler (*Dendroica townsendi*), fox squirrel (*Sciurus niger*), bobcat (*Lynx rufus*), and gray fox.

Text on **page 4.4-9** has been revised to acknowledge the presence of Shreve oak in mixed evergreen forest, as follows:

Mixed evergreen forest is present along the southern and western edges of the north and upper campus area and in the central campus (Figure 4.4-1). Although coast redwood is present in this community, the dominant tree species are coast live oak (*Quercus agrifolia*), ~~interior live~~ Shreve oak (*Q. parvula* var. *shrevei*~~wishizenii~~), California bay, madrone, and Douglas fir.

The following text has been added to **page 4.4-10**:

CDFG considers northern maritime chaparral to be a sensitive natural community (CNDDDB 2005). Northern maritime chaparral west of Empire Grade Road is located within the Coastal Zone and is considered an environmentally sensitive habitat area. This area is not proposed for development under the 2005 LRDP.

The text on **page 4.4-12** of the Draft EIR has been revised to clarify that higher relative cover of native grasses and lower relative cover of non-native was one factor in mapping coastal prairie, as follows:

On campus, native perennial grasses, especially California oat grass, are prominent in coastal prairie, and although nonnative annual grasses are still present, ~~they are in lower abundance~~ their relative proportion is lower than in other areas of grassland. On the other hand, at Marshall Field, Pacific panic grass (*Panicum acuminatum*) and other native perennial grasses are abundant.

Revisions have been made to the discussion of wildlife on **page 4.4-12** in order to expand the list of wildlife associated with coastal prairie communities and clarify the discussion as follows:

Consequently, the wildlife species composition, particularly among insect species such as noctuid moths (*Schinia* sp.) and solitary bees (families Andrenidae and Anthophoridae), observed in coastal prairie habitat is more diverse than that described for typical grassland habitat. Species that tend to occur in these areas include the Ohlone tiger beetle (*Cicindela ohlone*), Buckeye butterfly (*Precis coenia*), Western racer (*Coluber mormon*), gopher snake (*Pituophis melanoleuces*), Western meadowlark, cliff swallow, golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), red-tailed hawk, American Kestrel, ~~common raven~~, meadow vole, Botta's pocket gopher (*Thomomys bottae*), California ground squirrel, ~~black-tailed hare~~, brush rabbit, and mule deer.

Text on **page 4.4-12** has been revised as follows:

Occurrences of San Francisco popcornflower (*Plagiobothrys diffusus*) and Point Reyes horkelia (*Horkelia marinensis*), both special status plant species, have been documented in coastal prairie in Marshall Field. Marsh microseris (*Microseris paludosa*), a special status plant species, has been reported from mima mound/coastal prairie habitat in the lower campus and from Marshall Field in the upper campus, but has not been identified during recent surveys (Jones & Stokes 2004).

Text on **page 4.4-12** has been revised as follows:

...Stokes biologists conducted surveys of Jordan Gulch in June 2005 and found that the channel and adjacent areas support numerous small patches (< 1 acre) of riparian woodland beneath an overstory of mixed evergreen or redwood forest. These patches are dominated by California hazelnut, California blackberry (*Rubus ursinus*), and snowberry (*Symphoricarpos alba*), which are species typical of riparian forest. Fern species that occur in these riparian areas include giant chain fern (*Woodwardia fimbriata*), coastal wood-fern (*Dryopteris arguta*), and western swordfern (*Polystichum munitum*). Due to the small size of these patches of riparian vegetation, these riparian woodland areas are not differentiated from adjacent mixed evergreen and redwood forest on Figure 4.4-1. Similar patches of riparian woodland understory species are expected to occur in Cave Gulch and have been reported by others (Warrick 1982). High quality redwood riparian habitat occurs in Cave Gulch.

Ponds

The only pond on campus is located in the Arboretum, in the south-central portion of campus within Moore Creek. This pond, known as the Arboretum Pond, occupies approximately 0.9 acre and is a potential jurisdictional water of the U.S. The pond is actually a seasonal man-made reservoir that was formed after the construction of a dam for water storage for the Cowell Ranch in the late 1800s. The Arboretum Pond contains dense emergent riparian forest, which consists of ~~and woody vegetation such as~~ willows, cottonwoods, and bamboo. The pond dries near the end of the summer. The Arboretum Pond provides the only known breeding habitat for California red-legged frog on campus, and is also foraging habitat for special-status bats.

Text on **pages 4.4-12 and -13** has been revised as follows:

Riparian Woodland and Scrub

Approximately 4 acres of riparian woodland and scrub occurs along Moore Creek between Oakes College and the Arboretum and in a small drainage southwest of the West Remote parking lot downstream of the College Eight detention basin (Figure 4.4-1). The characteristic trees are willows (*Salix* spp.) and black cottonwood (*Populus balsamifera* ssp. *trichocarpa*). Riparian woodland and scrub on campus are largely a mixture of Central Coast Arroyo Willow Riparian Forest and Black Cottonwood Riparian Forests. Central Coast Arroyo Willow Riparian Forest is recognized by CDFG as a sensitive community (CNDDDB 2005). Black Cottonwood Riparian Forests and other willow riparian forests are identified as communities that are high priority for inventory in the CNDDDB (CDFG 2003) due to their rarity and the level of threat facing them. Although redwood forest and mixed evergreen forest also occur in riparian areas (i.e., along creeks and streams), they also occur in other settings, such as the upland terrace in the north campus. Habitat dominated by exclusively riparian plants such as willows and cottonwoods is not restricted on campus to the two areas noted above. In addition, Dashe (1982) describes riparian woodland consisting of bigleaf maples (*Acer macrophyllum*) and California hazelnut (*Corylus cornuta*) as occurring in some reaches of Cave and Jordan Gulch. Jones & Stokes biologists conducted surveys of Jordan Gulch in June 2005 and found that the channel and adjacent areas support numerous small patches (< 1 acre) of riparian woodland ~~beneath with~~ an overstory of mixed evergreen or redwood forest. These patches are dominated by California hazelnut, California blackberry (*Rubus ursinus*), and snowberry (*Symphoricarpos alba*), which are species typical of riparian forest. Fern species that occur in these riparian areas include giant chain fern

(*Woodwardia fimbriata*), coastal wood-fern (*Dryopteris arguta*), and western swordfern (*Polystichum munitum*). Due to the small size of these patches of riparian vegetation, these riparian woodland areas are not differentiated from adjacent mixed evergreen and redwood forest on Figure 4.4-1, but are recognized as riparian forest. Similar patches of riparian woodland understory species are expected to occur in Cave Gulch and have been reported by others (Warrick 1982). Redwood forests occurring along streamsides with a component of chain fern or bracken fern are recognized as a community that is high priority for inventory by the CNDDDB, due its rarity, ecological importance, and the level of threat it faces (CDFG 2003). Buck (1986) reports occurrences of California bottlebrush grass (*Elymus californicus*), a special-status plant species, from riparian woodland on campus, but specific locations of this special-status plant are not known. Jones & Stokes botanists also identified riparian stands of willow and cottonwood interspersed with bamboo around the Arboretum Pond.

Riparian woodland and scrub provides food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for many wildlife species (Mayer and Laudenslayer 1988). Wildlife species observed in riparian woodland and scrub included western toad (*Bufo boreas*), rubber boa (*Charina bottae*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), song sparrow (*Melospiza melodia gouldii*), warbling vireo (*Vireo gilvus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*) and mule deer, although a very broad range of wildlife use riparian zones for movement and foraging. Riparian stands near the Arboretum Pond also support upland habitat for the California red-legged frog (*Rana aurora draytonii*).

The text on **page 4.4-13** has been revised as follows:

The only pond on campus, apart from retention ponds, is located in the Arboretum, in the south-central portion of campus within Moore Creek. This pond, known as the Arboretum Pond, occupies approximately 0.9 acre and is a potential jurisdictional water of the U.S. The pond is actually a seasonal man-made reservoir that was formed after the construction of a dam for water storage for the Cowell Ranch in the late 1800s. The Arboretum Pond contains dense emergent and woody vegetation such as willows, cottonwoods, and bamboo. The pond dries near the end of the summer. The Arboretum Pond provides the only known breeding habitat for California red-legged frog on campus, and is also foraging habitat for special-status bats. Retention ponds on campus, such as the pond adjacent to College 8, may also be jurisdictional waters of the U.S.

The text has been added on **page 4.4-14** to explain that other areas on campus may also qualify as waters of the United States.

Local variations in topography and hydrology appear to create variations in the frequency and duration of inundation of these areas, such that some of them 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.

Text on **page 4.4-16** has been revised to clarify the meaning of CNPS List 1B status, as follows:

Santa Cruz manzanita (*Arctostaphylos andersonii*) has no state or federal listing status, but CNPS includes it on List 1B, indicating that it meets the definition of rare or

~~endangered as given in Section 15380(b) of CEQA is sufficiently rare to be considered a special status species under CEQA (CNPS 2005).~~

An editorial change has been made to the second to last sentence of the last paragraph on **page 4.4-17** as follows:

Based on the two substantial occurrences, it seems reasonable to presume that ~~that~~ the overall number of individuals in documented occurrences of this species is on the order of tens of thousands of individuals.

Additional information has been added on **page 4.4-18** regarding the occurrence of marsh microseris on the campus.

Marsh microseris (*Microseris paludosa*) has no state or federal listing status, but CNPS includes it on List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). It occurs along coastal California from Humboldt to San Luis Obispo counties. In Santa Cruz County, it is reported to occur on wet grassy slopes near the coast (Thomas 1961). It has been collected in the city of Santa Cruz near Graham Hill Road and west of the city of Santa Cruz near Swanton (CalFlora 2000). Buck (1986) observed it in coastal prairie/mima mound habitat at the south end of the campus. Randall Morgan reported an occurrence of this species in Marshall Field (CNDDDB 2005), although the exact location is unknown, and Grey Hayes reports that a population of marsh microseris is found in meadows along Chinquapin Road in Upper Campus (personal communication). The species was not encountered during the surveys conducted on the campus in 2002 (Jones & Stokes 2004). Furthermore, the area where the species was reported on campus would not be developed under the 2005 LRDP; thus, additional analysis was deemed unnecessary.

The last sentence of the third paragraph under *Amphibians* on **page 4.4-22** has been revised to reflect that the HCP was approved in 2005.

A Habitat Conservation Plan for the preserve was approved ~~is presently under consideration for approval~~ by the USFWS in 2005.

The following text has been added to **page 4.4-24**:

Cooper's Hawk. Cooper's Hawk (*Accipiter cooperii*) is a California species of special concern and is fully protected under Section 3511 of the California Fish and Game Code. This hawk most often nests in deciduous riparian or young to mid-seral stage even-aged conifer forest, usually near streams or other open water. They are usually found in patchy woodland areas with abundant habitat edges and open areas. Cooper's hawks have not been documented nesting on the UC Santa Cruz campus (CNDDDB). However, given the presence of suitable nesting and foraging habitat, Cooper's hawk could nest and/or forage at UC Santa Cruz.

The Draft EIR text on **page 4.4-25** and in Table 4.4-2 on **page 4.4-89** has been revised to acknowledge the presence of overwintering habitat for northern harriers on the campus.

Suitable nesting and overwintering habitat is present in the grasslands on the lower campus. Northern harriers were not observed during field surveys in 2002 (Jones & Stokes 2004).

Northern harrier (<i>Circus cyaneus</i>)	-/SSC	Throughout lowland California; has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover	High	Observed foraging north of the Arboretum (Jones & Stokes 2004). Suitable nesting, and foraging, and <u>overwintering</u> habitat available in the tall grasslands on the lower campus.
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Text has been added on page 4.4-26 to reflect the change in Federal status of burrowing owls, as follows:

Western Burrowing Owl. The Western burrowing owl (*Athene cunicularia hypugea*) is a federal species of concern in California and National Bird of Conservation concern. The burrowing owl is also a California species of special concern. In California, western burrowing owls occur in lowlands throughout the state, including the Central Valley, coastal areas, northeastern plateau, and southern deserts. Burrowing owls nest in ground squirrel burrows in grasslands, deserts, and agricultural areas (Zeiner et al. 1990). Pipes, culverts, concrete piles, and other artificial structures are also used for nesting.

The UC Santa Cruz western burrowing owl population is one of very few known populations in Santa Cruz County, and but consists primarily of a small overwintering population spread across several discrete grassland areas at UC Santa Cruz (Alley 1988; Biosystems Analysis 1989; Pelc 1995; Beyer 2001). Several breeding pairs of western burrowing owls were observed on campus during the 1970s, and active burrows were last observed in the grasslands south of the East Remote parking lot in 2001 (Beyer 2001). Other records indicate the presence of owls in the meadow north of the CASFS and Arboretum and also in Campus Habitat Reserve and the adjacent Campus Resource Lands west of Empire Grade Road (Pelc 1995; Beyer 2001). The majority of owl sightings were between Hagar Drive and Glenn Coolidge Drive, south of the East Remote parking lot (Alley 1988; Pelc 1995; Beyer 2001). The 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. All observations of burrowing owls on campus since 1980 are of overwintering individuals, and are the only overwintering burrowing owls presently documented in Santa Cruz County.

No western burrowing owls were identified during field surveys in 2002 (Jones & Stokes 2002), but the species is known to ~~inhabit breeding and foraging habitat~~ overwinter in the East Meadow and grasslands in the southwest corner of campus (Linthicum 2005). The overwintering population consists of less than 10 individuals that have been observed in the East Meadow during yearly Christmas surveys since 2002. The larger blocks of grassland habitat north of the Arboretum are also suitable ~~foraging and nesting habitats~~ overwintering habitat for western burrowing owls.

The following sentence has been added to the last paragraph under *Vaux's Swift* on page 4.4-28:

Vaux's swifts are regularly observed foraging on the campus, suggesting potential nearby breeding sites (Haff personal communication).

The following text has been revised in Section 4.4.1.11, *Wildlife Movement* on **page 4.4.33**:

Migration is the seasonal or periodic movement of individuals one from area to another, typically over long distances. Migration typically occurs in response to seasonal changes in abundance or distribution of food sources or available breeding habitat. Examples of migratory species include many songbirds, mammals such as mule deer and many whales, and Monarch butterflies. There is no evidence that any terrestrial-non-volant (i.e. non flying) species use UC Santa Cruz for regular migration. Migratory songbirds are common on campus, as are Monarch butterflies and other migratory invertebrates.

The following text has been added to the section *Other Mammals* on **page 4.4-33**:

American Badger

The American badger (*Taxidea taxus*) is a California State Species of Special Concern. The American badger is found in open grassland, chaparral, and oak woodland. Ground squirrels and other small rodents, such as the kangaroo rat, are common prey of the badger. The American badger is generally nocturnal, but is sometimes active in the daytime. Burrow openings of this species are elliptical and approximately 8 to 12 inches wide. Young are born in March and April.

The only known occurrence at UC Santa Cruz is the discovery of a single skull and partially attached neck tissues discovered by Kim Glinka of Ecosystems West in 2004. No living individuals have been sighted on campus. The only discovered specimen is the above-described partial corpse that may have been deposited by another animal, such as a raptor. These facts suggest that the badger is not a common resident or may not be a resident of the area at all. The only documented occurrence of a living American badger in Santa Cruz County was 4 miles northwest of Santa Cruz in 1983. Thus, it seems likely that the badger is an infrequent resident of or occasional migrant through the campus. Because of the large home range and very infrequent occurrence of American badger on campus, development under the 2005 LRDP is not expected to have any impact on the species.

The text on **page 4.4-47** has been modified to acknowledge the occurrence of marsh microseris in Marshall Field.

Proposed development under the 2005 LRDP would not affect any documented occurrences of Point Reyes horkelia, marsh microseris, or San Francisco popcornflower. Point Reyes horkelia, marsh microseris, and San Francisco popcornflower have been documented in Marshall Field. However, no development is proposed for Marshall Field under the 2005 LRDP. Marsh microseris was also ~~last~~ documented in coastal prairie habitat in the southwestern portion of the campus. No development is proposed under the LRDP for this area.

The text on **page 4.4-47** has been modified as follows:

The use of 0.1 acre and 300 linear feet of permanent impact to riparian vegetation as a threshold for significance in LRDP Mitigation BIO-4A is based on the self-mitigating nature of the proposed improvements. Much of the permanent impact to riparian vegetation will result from storm water improvements. Impacts to patches of riparian vegetation below the 0.1-acre/300 linear feet threshold will be self-mitigating, because the proposed storm drainage improvements will reduce erosion and bank destabilization, which degrade riparian vegetation. The use of a threshold of 0.2 acre and 600 linear feet for temporary impacts in LRDP Mitigation BIO-4C was developed in recognition that

riparian vegetation that is temporarily impacted is likely to recover naturally, primarily through the production of root and rhizome sprouts by riparian vegetation such as California hazel, California blackberry, and snowberry. A threshold for temporary impacts that is larger than that for permanent impacts is, therefore, appropriate.

~~It is important to note that the use of 0.1 acre and 300 linear feet of permanent impact to riparian vegetation as a threshold for significance in LRDP Mitigation BIO 4A is derived from the (ACOE) Nationwide Permit (NWP) Program. Under several NWPs, including NWP 43, Stormwater Management Facilities, the ACOE reviews all projects with impacts to waters of the U.S. over 0.1 acre or over 300 linear feet of intermittent streambed. Projects with impacts to waters of the U.S. less than 0.1 acre must still mitigate their impacts, but the project applicants do not need to submit a project notification and wait for review before proceeding. Projects that impact over 300 linear feet of intermittent streambed must obtain a written statement from the ACOE that the project's adverse environmental effects are minimal both individually and cumulatively, and that the limitation on streambed impacts is waived for the project. The use of a threshold of 0.2 acre and 600 linear feet for temporary impacts in LRDP Mitigation BIO 4C was developed in reference to the permanent impact threshold (0.1 acre and 300 linear feet). Because riparian vegetation that is temporarily impacted may eventually recover naturally, a threshold for temporary impacts that is different from that for permanent impacts is appropriate.~~

The text on **page 4.4-51** has been revised as follows:

Suitable habitat for these invertebrates may be present within subterranean caves or karst features such as fissures, cracks, and underground caverns that are present in the marble bedrock of the central campus and lower campus. These features may provide suitable microhabitats for these species, but their occupancy would depend on underground physical connections with occupied caves such as Empire Cave. Researchers in central Texas, where karst systems and karst invertebrates are common, determined that caves or voids less than 4.9 feet below the surface, less than 6.6 feet wide and 3.3 feet high, or highly dissimilar in morphology to occupied caves are unlikely to contain suitable habitat for special-status invertebrate species (Veni and Reddell 2002). These factors have been adopted by the USFWS as guidelines for identification of potential central Texas karst invertebrate habitat (USFWS 2004) and may also be applicable to the karst system at UC Santa Cruz. However, as many karst invertebrates in the area do interact at the cave surface interface, the criteria for depth to feature will be excluded.

The text on **page 4.4-52** has been revised as follows:

Geologists log closely spaced (5 to 8 feet apart) borings (which double as grout points) to avoid grouting into voids. This allows the top of the marble to be identified, and provides an understanding of the material that will be grouted. The grouting is performed relatively near the ground surface, since the foundation pressure from buildings becomes insignificant at depth. The grouting starts 3 feet into the top of the marble, and the grout injection points are gradually lifted up towards the ground surface from the top of the marble. Pressure readings are taken during the grouting procedure in order to confirm that grout is not entering into the marble but into the soil. At the main campus, grouting has never been performed at or below the water table. Grout injection is done in relatively dry (unsaturated) soils, and there is no direct introduction of grout into the groundwater. ~~While grouting could potentially occur deeper than 4.9 feet below the surface, g~~ Grouting is not performed in voids that meet the USFWS guidelines for

identification of potential central Texas karst invertebrate habitat (i.e., greater than 6.6 feet wide and 3.3 feet high). The majority of grouting occurs in loose soils, fissures, and smaller voids. Thus, grouting is not expected to adversely affect suitable habitat for special-status cave invertebrates at UC Santa Cruz.

LRDP Impact BIO-11 on **page 4.4-57** has been revised to include the Vaux's swift, western burrowing owl, and Cooper's hawk as species that utilize the campus grasslands for foraging, as follows:

LRDP Impact BIO-11: Development under the 2005 LRDP could result in the loss or abandonment of active nests for special-status raptors.

Significance: Potentially significant

LRDP Mitigation BIO-11: Prior to construction or site preparation activities, a qualified biologist shall be retained to conduct nest surveys at each site that has appropriate nesting habitat. The survey shall be required for only those projects that will be constructed during the nesting/breeding season of sharp-shinned hawk, golden eagle, northern harrier, long-eared owl, ~~or~~ white-tailed kite, and Cooper's hawk (typically February 1 through August 31).

The survey area shall include all potential nesting habitat, including the mixed evergreen forest, redwood forest, and isolated trees that are within 200 feet of the proposed project grading boundaries. The survey shall be conducted no more than 14 days prior to commencement of construction activities.

If active nests of sharp-shinned hawk, Cooper's hawk, golden eagle, northern harrier, Vaux's swift, long-eared owl, and white-tailed kite (or other species protected under the Migratory Bird Treaty Act and the California Fish and Game Code) are present in the construction zone or within 200 feet of the construction zone, a temporary fence shall be erected at a distance of 200 feet around the nest site (or less if determined to be appropriate by the biologist according to the species and site conditions). Clearing and construction within the fenced area shall be postponed until juveniles have fledged and there is no evidence of a second nesting attempt as determined by the biologist.

Residual Significance: Less than significant

Several special-status bird species, including sharp-shinned hawk, golden eagle, northern harrier, long-eared owl, ~~and Vaux's swift~~, white-tailed kite, ~~and Cooper's hawk~~ use the campus grasslands as foraging habitat during the spring and summer seasons. The proposed project involves the potential development and/or disturbance of approximately 98 acres of grassland area within which special-status birds have been observed foraging. However, the campus contains large undeveloped expanses of grassland habitat such as the Great Meadow (roughly 90 acres) and the East Meadow (roughly 80 acres), both of which would remain largely undisturbed. Therefore, the loss of foraging habitat potentially used by special-status birds would be considered a less-than-significant impact.

The ~~five-seven~~ species of special-status raptors listed above could nest in forested areas on the central campus and north campus where new development is envisioned under the 2005 LRDP. Development of the proposed project could result in the removal or disturbance of approximately 60 acres of redwood forest and 73 acres of mixed evergreen forest habitats, although the acreage could be smaller because if the north campus areas are developed in a manner similar to the existing central campus, significant numbers of trees would remain even within areas otherwise disturbed by development. Additional trees would be removed within the central campus as a result of infill development under the 2005 LRDP. Trees remaining within development footprints may be unsuitable for nesting by some species due to on-going disturbance and noise in the surrounding area. The loss of up to 120 acres of suitable nesting habitat is considered a less-than-significant impact because of the abundance of similar habitat on undeveloped portions of campus and on extensive adjacent public lands (e.g., Wilder Ranch State Park and Henry Cowell Redwoods State Park).

Construction activities (including tree removal) and construction-related noise could result in the loss or abandonment of active nests of special-status bird species, which would be a potentially significant impact.

Implementation of LRDP Mitigation BIO-11 would reduce development related impacts to nesting sharp-shinned hawk, golden eagle, northern harrier, long-eared owl, Vaux's swift, white-tailed kite, Cooper's hawk, and other protected raptors to less than significant.

Text on **page 4.4-59** has been revised as follows:

LRDP Impact BIO-12: Development under the 2005 LRDP would not ~~could potentially~~ result in a substantial adverse impact on western burrowing owl.

Significance: ~~Potentially~~ Less than significant

LRDP Mitigation BIO-12A: Prior to any ground disturbance of grassland habitats on the lower campus, a qualified biologist will conduct a preconstruction survey to identify western burrowing owls and/or potential habitat features (e.g., burrows) and to evaluate use by burrowing owls in accordance with current CDFG survey guidelines (CDFG 1995).

Surveys will be conducted within the proposed

disturbance footprint and a 500-foot radius of the disturbance boundary of each proposed project. For construction activities occurring within the western burrowing owl habitat (whether during breeding or non-breeding seasons), surveys will be conducted within 30 days prior to construction. The surveys will document whether burrowing owls are nesting on or directly adjacent to disturbance areas. Survey results will be valid only for the season during which the survey is conducted.

If western burrowing owls are found during the breeding or nonbreeding season, LRDP Mitigation BIO-12B will be implemented.

LRDP Mitigation BIO-12B: If burrowing owls are found, the Campus will avoid all burrowing owl nest sites to the extent feasible. Avoidance will include establishment of a non-disturbance buffer zone of at least 250 feet around each nest site during the breeding season. If burrowing owls are found outside the breeding season (September 1–January 31), avoidance will include the establishment of at least a 160-foot non-disturbance buffer zone around each burrow being used. In both cases, highly visible temporary construction fencing will delineate the buffer zone.

If burrowing owl nest sites cannot be avoided, the Campus will conduct passive relocation by installing one-way doors in suitable burrow entrances that are used or may be used by the owls. This measure is described in detail below.

In order to displace burrowing owls without destroying eggs, young, or adults, one-way doors will be installed on owl burrows before February 1 prior to disturbance, and each burrow will be monitored following CDFG's protocol (CDFG 1995). Suitable artificial burrows will be created nearby according to the conservation measures established for this species. The protocol includes monitoring the burrow for a 48-hour period after

the one-way doors are installed. The doors will be checked every 24 hours following installation to determine whether they are still intact. If the one-way door is still correctly installed after a continuous 48-hour period (i.e., no animals have dug up the door and rendered it useless), then the one-way door will be removed and the burrows will be excavated using hand tools and plastic tubing to maintain an escape route for any animals still inside the burrow.

Residual Significance: Not applicable ~~Less than significant~~

~~However, the future construction proposed under the 2005 LRDP does have the potential to kill or injure western burrowing owls that occupy nest at a project site. The 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 MBTA, 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 on the campus lands in the future. Impacts to individuals in occupied nests would be considered potentially significant.~~

~~Implementation LRDP Mitigations BIO-12A and BIO-12B would reduce development-related impacts to western burrowing owl to a less than significant level.~~

The following editorial correction has been made to the last sentence of the second paragraph in Section 4.4.2.6 on **page 4.4-68**:

Areas that would be subject to timberland conversion under the proposed 2005 LRDP include development areas on the central campus, where some trees could be removed to accommodate new infill development, and forested or mixed forest/chaparral areas in the north campus, where development would include the selective clearing of trees for building sites and roadways.

Table 4.4-1 on **page 4.4-83** has been modified to reflect the potential occurrence of marsh microseris, as follows:

<i>Microseris paludosa</i> marsh microseris	None	None	2-2-3 List 1B	Moist places in closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland	Apr-Jun	MEN, MNT, MRN, SCR, SFO*, SLO, SMT*, SON	Reported from lower campus in mima mound/coastal prairie <u>and from upper campus in Marshall Field.</u>
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Table 4.4-2 on page 4.4-88 has been updated to include Cooper’s hawk as follows:

Common Name (<i>Scientific Name</i>)	Federal/State/ WBWG Status ^a	California Distribution	Habitat Requirements	Potential to Occur in Study Area	Information on Occurrence in Study Area
<u>Cooper’s hawk</u> (<i>Accipiter cooperii</i>)	<u>-/SSC</u>	<u>Semi-permanent breeding resident in most wooded areas throughout California</u>	<u>Deciduous trees, usually near streams or other open water.</u>	<u>High</u>	<u>Known to nest in second growth conifer stands or in deciduous riparian areas on Campus. Also known to nest in urban areas.</u>

3.1.6 Changes to Draft EIR, Volume I, Section 4.5 Cultural Resources

The following revisions to Table 4.5-1 on page 4.5-12 have been made:

**Table 4.5-1
Archaeological Resources and Historic Features Recorded on Campus**

Resource Number	Site or Feature Type	Description/ Current Integrity	CRHR Status	LRDP Land-Use
CA-SCR-003/004 (formerly SCR-42A)	Prehistoric midden deposit	<u>Prehistoric site with two loci; S—shell midden, lithics shell beads, fire-cracked rock. Road along north edge. Some historic disturbance. Integrity fair to good; L—lithic scatters, two human burials recovered. Road runs through south edge. Some historic disturbance. Integrity fair to good.</u>	Tested in 1969. Appears to be eligible.	CRL
CA-SCR-004 (formerly SCR-42B)	Prehistoric midden deposit	Lithic scatters, two human burials recovered. Road runs through south edge. Some historic disturbance. Integrity fair to good.	Tested in 1969. Appears to be eligible.	CRL

The following modifications were made to the last two rows in Table 4.5-1 on page 4.5-14:

CA-SCR-360H UCSC-002H	Historic trash dump	Empire Grade Road trash dump, ca. 1900-1940. Integrity appears good.	Presumed eligible.	CRL
CA-SCR-361H UCSC-004H	Elf Land Kiln	Brick and limestone kiln for firing limestone, built as early as 1850s; associated dirt haul road.	Presumed eligible.	PL

The following sentence has been added to the second paragraph of *Prehistoric Archaeological Sites* on page 4.5-15:

The remaining five sites are recorded as lithic scatters (scattered chipped stone tool manufacture debris). In general, the boundaries of these sites are not well defined, it has been difficult to accurately relate these sites in subsequent surveys, and it is unclear whether the deposits have subsurface components. However, these sites are presumed to

be eligible to the CRHR, for purposes of management and preservation, until their significance can be documented through archaeological testing. The three occurrences of isolate prehistoric artifacts are assumed not eligible to be listed on the CRHR because they have the potential to provide only minimal data. However, because the presence of isolate artifacts sometimes signals an undiscovered archaeological deposit, these finds have been mapped on the campus confidential cultural resources data base map. Excavation records, field maps, reports, artifacts, and biological remains recovered from CA-SCR-003, -004, and -160 between 1969 and 1988 are stored in the Monterey Bay Archaeological Archives, Department of Anthropology, UC Santa Cruz, and are available for scientific study and examination by researchers and descendant groups.

The following revisions have been made to the section *Human Remains* on page 4.5-15:

Human Remains. No historic period burials or cemeteries are known or have been encountered on the campus. Two burials were recovered from CA-SCR-004 in the 1960s. These burials are presently curated in the archives of the UC Santa Cruz Anthropology department. The University ~~has reported~~ these burials to the National Park Service, Department of the Interior, in compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) in 1995. Moreover, with regard to compliance with California NAGPRA (passed in 2001), the MBAA and UC Santa Cruz are informed of current University of California procedures through an appointed representative to the UC Office of the President's NAGPRA Advisory Group. The University also has consulted with local Ohlone groups and will continue to consult regarding respectful treatment and potential future reinterment of the remains to the appropriate recognized group.

The following revisions have been made on page 4.5-22:

As shown in Table 4.5-1, seven identified archaeological sites that may meet CRHR eligibility criteria have been identified in areas of the campus that may be subject to development under the proposed 2005 LRDP. These include ~~CA-SCR-004~~ CA-SCR-094, a previously disturbed lithic scatter located in an area designated for employee housing; CA-SCR-180 and -181 (lithic scatters); CA-SCR-UCSC-001 (the Arboretum Reservoir complex); a portion of CA-SCR-182H (an historic railway and quarry complex), a part of which is in areas designated for Site Research and Support; CA-SCR-185H, located in an area designated for Physical Education development; and CA-SCR-198H (the Cowell Ranch Historic District and associated archaeological features), in an area designated for Campus Support.

The following reference has been added to Section 4.5.3 *References* on page 4.5-33 as follows:

Edwards, Rob and Charlotte Simpson-Smith with David R. Huelsbec, and Michael Macko. 1991. *Archaeological Excavations at CA-SCR-160, University of California, Santa Cruz, California.* Report submitted to UC Santa Cruz Planning and on file at UCSC Monterey Bay Archaeology Archives.

3.1.7 Changes to Draft EIR, Volume I, Section 4.6 Geological Resources

Impact summary of LRDP GEO-3 page 4.6-16 has been revised to reflect consistency with LRDP Impact HYD-2 as follows:

LRDP Impact GEO-3: Development under the 2005 LRDP would not result in substantial erosion of soils as a result of construction, including tree removal, and increased traffic.

Significance: Less than significant

LRDP Mitigation: Mitigation not required

Residual Significance: Not applicable

Soils at UC Santa Cruz range from slightly to very highly erodible, based on U.S. Soil Conservation Service classification. Highly to very highly erodible soils are present in some areas of central and north campus and in small portions of the lower campus. These problems and the effects of alterations to predevelopment storm water runoff patterns are discussed in more detail in Section 4.8, *Hydrology and Water Quality* (Volume II).

Construction of facilities would result in short-term soil-disturbing activities that could lead to increased erosion including cut and fill, grading, trenching, boring, and removal of trees and other vegetation. The Campus has developed a set of erosion control standards that are based substantially on Chapter 16.22 of the Santa Cruz County Code (Erosion Control Ordinance). These standards are included in the Campus Standards Handbook and incorporated by reference in the specifications for campus development projects (see *UC Santa Cruz Campus Standards Handbook* in Section 4.6.1.8, *Regulatory Setting*, for more detail). In addition, to comply with National Pollutant Discharge Elimination System (NPDES) requirements for construction site storm water discharges, projects involving construction sites that are 1 acre or more are required to prepare and implement a storm water pollution prevention plan (SWPPP). Appropriate erosion-control measures will be incorporated into each SWPPP and implemented during site preparation, grading, and construction. These measures will include but are not limited to the following: design and construction of cut and fill slopes in a manner that will minimize erosion, protection of exposed slope areas, control of surface flows over exposed soils, use of wetting or sealing agents or sedimentation ponds, limiting soil excavation in high winds, construction of beams and runoff diversion ditches, and use of sediment traps, such as hay bales. Impact related to the erosion of soils as a result of construction is thus considered less than significant. In addition, implementation of LRDP Mitigations HYD-2A and -2B with further control erosion at construction sites less than 1 acre and at sites on hillsides.

Table 4.6-1 on page 4.6-5 has been modified as follows:

**Table 4.6-1
Erosion Potential for Soils on the UC Santa Cruz Campus**

Soil Type	Erosion Potential
Nisene-Aptos Complex	Moderate High
Lompico-Felton Complex	Very High
Watsonville Loam	Slight to Moderate
Danville Loam	Slight to Moderate
Elkhorn Sandy Loam	Slight to Moderate

Table 4.6-1
Erosion Potential for Soils on the UC Santa Cruz Campus

Soil Type	Erosion Potential
Tierra-Watsonville Complex	High
Los Osos Loam	Moderate
Ben Lomond Sandy Loam	Very High
Ben Lomond-Felton Complex	Slight to Very High
Aptos Loam	Slight to Moderate

Source: SCS 1980

The following text is added to Section 4.6.1.8 on page 4.6-13 of the Draft EIR:

County of Santa Cruz. Santa Cruz County building regulations require that all new construction conform to the latest printing of the 1997 edition of the Uniform Building Code, except as specified in Santa Cruz County Code Title 12 Section 10.070. (Note that according to the University's policy described above, local seismic requirements are applicable only if they are more stringent than the CBC). The County of Santa Cruz geologic hazard policy also requires site-specific hazards assessments or liquefaction potential investigations or geologic reports for development in certain areas (designated fault zones, one-hundred year floodplains and floodways, and coastal hazard areas, Earthquake Fault Zones as designated on the state Alquist-Priolo Earthquake Fault Zoning Act maps and zones of high or very high liquefaction potential). The UC Santa Cruz campus is not in an area where any of these requirements would apply.

3.1.8 Changes to Draft EIR, Volume I, Section 4.7 Hazards and Hazardous Materials

Text has been added to the third full paragraph after the third sentence on page 4.7-29 as follows:

Implementation of LRDP Mitigations HAZ-10A through HAZ-10D would decrease the risk from wildland fires. LRDP Mitigation HAZ-10A requires the Campus to continue its practice of conducting biennial inspections of all campus buildings to minimize fire incidents. LRDP Mitigation HAZ-10B requires that prior to beginning construction in the area north of the campus core, the Campus must develop and implement a Fire Vegetation Management Plan focused on the unique character of the north campus, with particular attention given to vegetation management. Vegetation management techniques that may be investigated will include controlled burning. Because much of the north campus is in a designated State Resource Area, this plan must be reviewed and approved by the CDF.

3.2 CHANGES TO VOLUME II

3.2.1 Changes to Draft EIR, Volume II, Section 4.8 Hydrology and Water Quality

The third paragraph under Section 4.8.1.2 on page 4.8-2 has been revised as follows:

The southern two-thirds of the 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. This portion of the campus is cut by several steep-walled north-south flowing streams, but an integrated drainage system is not present because of sporadic stream capture by sinkholes and swallow holes. As a result, very little storm water is conveyed by surface streams to channels downstream of the campus. Instead, storm water is captured by the karst aquifer, stored and transmitted through a complex formation of fractures, via solution-channels and caves, some of which show connectivity to seeps and discharged in springs at lower elevations to the east, south and west of the campus.

The fifth sentence in the last paragraph under Section 4.8.1.2 on **page 4.8-3** has been revised as follows:

These are generally small systems that locally capture runoff, and convey it to detention basins from which the water is metered and then-discharged into the nearest permeable vegetated slope, creek or sinkhole.

The third paragraph under Section 4.8.1.3 on **page 4.8-3** has been revised as follows:

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. All three stream channels are aligned north-south and controlled by the major geologic fracture systems on the campus. Cave Gulch, which drains most of the northwestern portions of the campus, drains to sinkholes, some of which show connectivity to joins Wilder Creek immediately west of the campus. The Baskin Tributary and Kresge Tributary drain to sinkholes or swallow holes, some of which show connectivity (including intermittent surface connectivity) to Moore Creek. Lower 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 to sinkholes, some of which show connectivity to and continues as a springs southeast of the campus and a spring-fed channel at down Bay Street (Figure 4.8-1).

The first sentence in the first paragraph on **page 4.8-4** has been revised as follows:

As noted above, as a result of the karst geomorphology of the central and lower campus, several of the tributaries of the main campus drainages do not discharge into the main channels but instead discharge into sinkholes or in-stream swallow holes.

The first full paragraph on **page 4.8-6** has been revised as follows:

The Arboretum Dam was constructed on Moore Creek by the City between 1880 and 1890, and was used to impound water for the City's North Coast water supply. The East and West dams were constructed upstream of the Arboretum Dam, and were intended to serve as sediment catch basins above the reservoir and/or to provide additional storage capacity (Johnson 2000). The use of the Arboretum Pond for water supply was abandoned in 1948 after the City determined that up to 750,000 gallons of water per day were being lost to the subsurface due to the presence of sinkholes in the channel of Moore Creek and the West Entrance Fork (Hecht 1968). All three dams on Moore Creek are earthen embankment dams. The East and West dams do not have spillways, although a 30-inch pipe was installed in the West Dam to serve as a spillway for excess flows. Originally the Arboretum Dam did not have a spillway and the dam only released discharge through a 14-inch pipe installed through the base of the dam. In the 1990s a sleeve was installed that narrowed the diameter of the outlet pipe to 12 inches. In 2001, a 4-foot-diameter pipe was installed below the dam crest to act as a spillway (Hall 2005).

Both the 4-foot spillway pipe and the ~~14-inch~~ 12-inch outlet pipe discharge to a culvert under Empire Grade Road that carries runoff to Moore Creek.

The first paragraph under the section *Jordan Gulch Watershed* on **page 4.8-7** has been modified as follows:

~~The Jordan Gulch watershed originates in the north campus, draining to flows through the central and lower portions of the campus to end in a sinkholes and swallow holes that show connectivity to springs southeast of the Campus and a channel near the campus entrance. South of the entrance, it emerges as a surface stream in the median of Bay Street for a short stretch between Iowa and Escalona streets. The channel and then enters a culvert which eventually discharges into Neary Lagoon in the south-central portion of Santa Cruz. On campus, the upper portion of the watershed is developed but most of the lower portion is undeveloped. South of the campus, the watershed is almost entirely developed, mainly with residential uses between High Street and Mission Street (Highway 1) and mixed residential/ commercial uses south of Mission Street.~~

Text has been added at the end of the first sentence in last paragraph on **page 4.8-9** as follows:

Since 1989, UC Santa Cruz has taken several steps to control soil erosion from new development. These have included requiring all new developments to design storm water detention facilities to store and meter out flows to reduce peak flows in drainages. Detention pipes, basins and vaults have been included in new construction on campus in several locations. Table 4.8-2 below lists campus storm water detention facilities.

The second to last sentence in the first complete paragraph on **page 4.8-9** has been revised as follows:

Sedimentation from channel incision and other sources is affecting the capacity of campus sinkholes to accommodate storm water flows, with the potential for resulting in increased discharge to downstream channels from intermittent sinkhole overflows.

Text has been added to the second complete paragraph on **page 4.8-9** as follows:

(1) conveyance of storm runoff from areas of impervious surfaces to main trunk channels through culverts or lined ditches, (2) since 1989, 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) installation of discharge systems designed to enhance dispersal and infiltration on permeable vegetated slopes, and (4)-(3) in the Moore Creek drainage, the detention of excess runoff behind earthen dams near the base of campus.

Text has been added to the third bullet on **page 4.8-10** as follows:

- Sedimentation of sinkholes in some locations is limiting their capacity to convey storm water runoff to the underground karst drainage system.

Text has been added to the last bullet on **page 4.8-11** as follows:

- Channel and sinkhole sedimentation problems are most severe on the East Fork of Moore Creek watershed including the Baskin, Science Hill, and Kresge subwatersheds.

Text has been added to the first paragraph of Section 4.8.1.5 on **page 4.8-12** as follows:

As discussed above, the UC Santa Cruz campus relies on a series of natural drainage courses and sinkholes for storm drainage. Storm water drains via pipes into the natural

drainages. Most of the storm water enters the subsurface through a series of sinkholes and swallow holes, and some percolates into permeable soils. Detention basins and settling tanks serve local building clusters. While this system meets current overall capacity requirements, there are localized areas of concern. Recent analysis has documented surface flooding, in some locations on and off-campus. Areas that have experienced localized flooding from surface ponding include the area near the McLaughlin Drive sinkholes and on Moore Creek at Highview Drive south of the campus.

Revisions have been made to the first sentence of *Groundwater Flow* paragraph on **page 4.8-14** as follows:

Groundwater Flow. Within the marble is a ~~n-complex and~~ extensive underground drainage network of subterranean fractures, caverns and channels formed by the dissolution of limestone and marble by groundwater.

Revisions have been made to the fourth and fifth sentence in the second paragraph under *Groundwater Flow* on **page 4.8-14** as follows:

The distribution of these smaller fractures shows a strong correlation with the location of several on-campus sinkholes and off-campus springs. Underground connectivity is channels are inferred to be present along the alignments of these fractures.

The following text has been added to the last paragraph under *Surface Water and Groundwater Quality* on **page 4.8-21** as follows:

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) by Standard Method 8015B. The analytical results are compared against performance criteria (e.g., water quality standards, guidelines, and benchmarks) and the beneficial uses as described in Table 4.8-5, *Beneficial Uses of Surface Water Features on or Near UC Santa Cruz*, and in Tables D2-2 through D2-10 in Appendix D2. Based on an analysis of the historic analytical database, the sampled water on the UC Santa Cruz campus does not indicate an increase in urban runoff pollutants over time.

Revisions have been made to the first bullet under Section 4.8.1.9 on **page 4.8-21** as follows:

- Limits to the quantity of pollutants discharged from a point source such as pipe, ditch, or tunnel into a navigable body of water of the United States. These limits are established through a nationwide assessment of what is technologically and economically feasible with respect to pollution control for a particular industry.

Text has been added to the first paragraph on **page 4.8-22** as follows:

The primary method by which the CWA imposes pollutant control limits is the National Pollutant Discharge Elimination System (NPDES) permit program established under Section 402 of the act. Under the NPDES program, any point source discharge of a pollutant or pollutants into any waters of the United States is subject to a permit. In California, the state's Regional Water Quality Control Boards (RWQCBs) are responsible for administering the NPDES program. The NPDES program was initially established to regulate the quality of effluent discharge from wastewater treatment plants. Through the NPDES Waste Discharge Requirements (WDRs), the RWQCB sets limits on the levels of pollutants that may be discharged into navigable waters of the

United States. The limits are designed to meet the water quality objectives established in the Basin Plan. As noted below, the RWQCB may also issue WDRs limiting discharge to isolated waters and groundwater based on California's Porter-Cologne Water Quality Control Act.

Revisions have been made to the last paragraph on **page 4.8-22** as follows:

The SWRCB's general permit for construction activities requires that ~~for projects that disturb more than one acre of soil,~~ a Storm Water Pollution Prevention Plan (SWPPP) be developed and implemented for projects that disturb more than one acre of soil. The SWPPP must identify potential sources of pollution and describe Best Management Practices (BMPs) for erosion and storm water runoff controls that will be implemented both during construction and after the building is complete. The General Permit contemplates that BMPs will be maintained, adapted and supplemented, as may be necessary to respond to storm events and site requirements, during the construction project.

Revisions have been made to the text in the second and third paragraphs on **page 4.8-28** as follows:

Since 1989, the Campus has been implementing erosion control measures during the construction of every project in order to minimize erosion and sedimentation and to avoid water quality impacts. In addition, since 1990, in ~~conformity compliance~~ with NPDES Phase I regulations, the Campus has prepared and implemented storm water pollution prevention plans (SWPPP) for all construction projects five acres and more in size. Currently, contractors working on the campus prepare and implement SWPPPs for all construction sites one acre or more in size, ~~as whether or not required to do so by the~~ NPDES Phase II regulations.

In ~~conformity compliance~~ with NPDES requirements, during and following construction proposed under the 2005 LRDP, the Campus would require contractors to prepare and implement a SWPPP for all construction sites larger than one acre. The SWPPP is used to identify and control potential sources of pollutants to runoff. Some typical measures that would be used to comply with the NPDES permit include:

Text changes have been made to the second paragraph on **page 4.8-29** as follows:

The NPDES permit program does not apply where storm water does not discharge to federal jurisdictional waters. However, ~~Because the Campus is committed to developing required by law to implement~~ SWPPPs and implementing BMPs for all construction sites one acre or more in area regardless of federal jurisdiction, the potential for construction activities to cause erosion and other water quality impacts is low. However, the campus is characterized by gently to steeply sloping land, especially in the central campus, and erosive soils are present in several areas including the north campus area where new development is proposed under the 2005 LRDP. While an individual small project would not result in a significant impact, the cumulative effects of numerous small projects could be significant. Therefore, without appropriate controls, construction on small sites (under one acre), for which are not subject to the requirement ~~for~~ construction-phase SWPPPs have not been developed, could result in the release of sediment and other pollutants into surface and groundwater, and thereby could adversely affect water quality. This would constitute a significant impact.

The first complete paragraph on **page 4.8-32** has been revised as follows:

However, the erosion and sedimentation problems have continued, ~~and to~~ To address them, the Campus has implemented storm water erosion and runoff control,

detention/metering systems and infiltration enhancement measures. The Campus proposes to further implement the storm water drainage improvements included in the Infrastructure Improvements Project (see Chapter 2, Volume III). These improvements are focused on drainages with the worst erosion, i.e., Moore Creek and Jordan Gulch, and include measures to infiltrate and divert runoff and reduce storm water discharge to creek segments with erosion problems. In addition, some of the improvements would stabilize eroding beds and banks and improve the infiltration capacity of sinkholes. These improvements are expected to be implemented between 2006 and 2009, and are expected to further stabilize creek channels and reduce the potential for erosion.

Text on **page 4.8-35** has been revised as follows:

With respect to flooding in the Moore Creek watershed near Highview Drive, the increase in impervious surfaces in the Moore Creek watershed would increase runoff. However, even without mitigation, much of the flow would be detained by dams within the watershed, which would limit peak flow rates. Since the East Dam does not have an outlet, it will discharge only if it is overtopped or if seepage occurs through the dam face. The dam was overtopped for a brief period in the major storm of 1982, and has overtopped a few times since then when the sinkhole behind the dam was clogged (Hall 2005). Flow from the West Dam is limited to the flow released by the 30-inch outlet pipe. Discharge from both the East and West Dam flows to the Arboretum Pond where, in most events, it is discharged through a ~~14-inch~~ 12-inch pipe.

The third sentence in the second paragraph on **page 4.8-35** has been revised as follows:

The *Stormwater and Drainage Master Plan* identified several sinkholes that are showing signs of having limited remaining capacity, which could increase the potential for overflows ~~likelihood of spilling~~ to downstream reaches ~~and thus of flooding~~.

The first paragraph under the section *Moore Creek Watershed* on **page 4.8-44** has been revised as follows:

As described earlier, Moore Creek has its headwaters on the north campus. Baskin Tributary and Kresge Tributary drain to sinkholes and swallow holes that show some connectivity to Moore Creek. ~~It drains to the south through the central and western portions of the campus and~~ Lower Moore Creek continues south through the upper west side neighborhoods, passes under Highway 1 and then down to Antonelli Pond and Monterey Bay at Natural Bridges State Beach.

Two editorial revisions have been made to the last second sentence and the second to last sentence of the last paragraph on **page 4.8-45** as follows:

Therefore, sediment from the upper portions of Jordan Gulch would not contribute to any cumulative sediment impact.

Because both the Campus and the City of Santa Cruz would implement storm water management plans to control non-point source pollution and to comply with NPDES Phase II regulations, the quality of runoff from the watershed should improve over current conditions.

Minor revisions have been made to the first three paragraphs of the text of LRDP Impact HYD-6 on **pages 4.8-41 and -42** as follows:

Caverns are commonly encountered in karst topography. While some caverns are entirely underground, some are caves with entrances or openings in the walls of creek canyons. Similar to other karst features, these are produced by the solution action of groundwater in areas where the limestone or marble is fractured. Although no caves are known to be present in Jordan Gulch or Moore Creek at this time, several caves are present in the Cave Gulch and Wilder Creek canyons. Caves in Cave Gulch canyon include Empire Cave, which is on campus to the south-west of Kresge College, Stump and Dolloff Caves which are off campus just south of Empire Cave, and Bat Cave and IXL Cave, both of which are off campus and to the south-west of the campus's western entrance. Dolloff Cave is located on a tributary of Cave Gulch, whereas the other four are within Cave Gulch. Empire Cave is located close to about 50 feet above the base of the channel of Cave Gulch. Empire Cave and Dolloff Cave periodically flood during the rainy season as a result of flow in surface and subterranean streams. Empire Cave, Stump Cave, and Bat Cave are located on the eastern wall of the canyon whereas the other two ~~three~~ caves are on the western wall.

As discussed previously, a significant portion of storm water runoff on the UC Santa Cruz campus is captured by sinkholes, and transmitted within the subsurface karst aquifer by an extensive network of bedrock fractures. The manner in which water travels within the karst aquifer is not fully understood and therefore a direct link between a cave and any on-campus area cannot be assumed. However, based on site topography and the locations of Empire Cave, Stump Cave, and Bat Cave on the eastern wall of Cave Gulch, it is considered likely that some or all of the water that drains through these caves has its origin on the campus. Because ~~Stump~~, Dolloff, and IXL-caves are located on the western wall of Cave Gulch, these caves do not discharge water from the campus.

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 Stump ~~Bat~~ Cave.

Changes to the quality of water in the caves are a concern for cave invertebrate species that are known from the Cave Gulch caves. Santa Cruz telemid spider, Dolloff Cave spider, Empire Cave pseudoscorpion, and MacKenzie's cave amphipod are special-status insects that are known to occur in Empire Cave, and the Dolloff Cave spider is also known to occur in the nearby Dolloff Cave. As discussed above under LRDP Impacts HYD-2 and HYD-3, increased human activity on the campus could result in changes in the quality of storm water runoff. Because Dolloff Cave is to the west of Cave Gulch, groundwater from the campus development areas would not affect that cave. Campus development generally upgradient of ~~the Empire and Stump Caves~~ Empire and Stump Caves would include student and employee housing areas and the campus support area on Empire Grade Road. The campus support area is underlain by granitic rock rather than marble. Therefore, urban runoff from that site would not enter Empire and Stump ~~Caves~~ through infiltration into the karst system. However, runoff that does not infiltrate would drain to Cave Gulch and, to the extent that flows in the cave derive from surface flows in that drainage, could enter the cave. On account of the largely residential uses that would be in karst areas upgradient of Empire and Stump ~~Caves~~, the runoff that could potentially enter this cave via the karst system is unlikely to be highly polluted. Bat Cave is located high on the wall of Cave Gulch so it would not be affected by surface flows in Cave Gulch. However, this cave is on the east side of Cave Gulch, adjacent to the lower campus, so runoff from the western portion of the central campus could potentially enter this cave via the karst system.

The following sentence in the first full paragraph on **page 4.8-47** has been corrected to read:

The main source of groundwater in the Santa Cruz area is the Purisima formation, which is used by the City, other water districts, and private wells. According to its' Integrated Water Plan (IWP), the City plans to withdraw groundwater from its Live Oak wells at the rate of about 187 million gallons a year (MGY), which would be about 20 mgd higher than the average production from these wells in the last four years. The City has analyzed the effect of this pumping on groundwater overdraft, well interference, stream flow and surface water depletion, and ground subsidence and determined that the project-level impacts would be less than significant. The City has also evaluated the cumulative impact on the aquifer from withdrawal of groundwater and determined that the cumulative impact on groundwater storage and saltwater intrusion would be significant (City of Santa Cruz 2005). The Campus would not draw water from the Purisima formation ~~and would~~.

The following reference has been added to Section 4.8.3 *References*, on **page 4.8-49** as follows:

County of Santa Cruz. 2001. "San Lorenzo River Watershed Management Plan Update" County of Santa Cruz Water Resource Program. December. ~~Driscoll, Fletcher G. 1986. Groundwater and Wells—Second Edition, published by Johnson Division. St. Paul, Minnesota.~~

Hall, Brett. 2005. UC Santa Cruz Director of Horticulture and Living Collections. ~~Arboretum Manager~~. Personal communication with Jeanne Hudson, URS Corporation. June 14.

Figure 4.8-3 has been revised to show the locations of major sinkholes on the campus. The revised figure is presented at the end of this chapter.

New Figures 4.8-5a through -5e have been prepared to present storm water pollutant data. The new figures are presented at the end of this chapter.

3.2.2 Changes to Draft EIR, Volume II, Section 4.9 Land Use

New text on **page 4.9-6** has been added to the end of the first paragraph under *Santa Cruz County General Plan* as follows:

The Santa Cruz County 1994 General Plan/Local Coastal Program (LCP) outlines policies and programs to guide future growth and development in a manner consistent with the goals and quality of life desired by Santa Cruz County citizens. The County General Plan was most recently amended in 1994 and has a 20-year horizon. Although the County is not currently working on an update to the General Plan, it is currently working on an update to the plan's Housing Element (Phelps 2005). Because the proposed 2005 LRDP uses are within campus boundaries on land not subject to local land use plans and ordinances, only those policies that relate to potential environmental impacts of University activities on off-campus lands are identified.

The second complete paragraph on Draft EIR **page 4.9-10** also has been revised as follows to clarify the analysis of consistency with local plans and policies:

Although there is no local jurisdiction over the project, the University has reviewed County and City of Santa Cruz land use plans for informational purposes and because it is interested in coordinating campus projects with the beneficial planning efforts of Santa Cruz County and the City of Santa Cruz.

The typographic error in the first sentence of the last paragraph on **page 4.9-10** under LRDP Impact LU-1 has been corrected as follows:

In summary, development under the 2005 LRDP would be in compliance ~~compliances~~ with the California Coastal Act and, in addition, would generally conform to local land use plans, policies and regulations. Therefore, no significant impact would occur in regard to conflicts with applicable land use plans or policies.

The text in the second paragraph on Draft EIR **page 4.9-12** has been revised as follows:

~~Development permitted under the 2005 LRDP, especially in close proximity to the campus boundary, would include reasonable setbacks from adjacent uses. In addition, e~~
Campus lands bordering Henry Cowell Redwoods State Park and Pogonip City Park to the north and east would continue to be protected in their natural state under the Campus Natural Reserve, Protected Landscape, and Campus Resource Land designations, thereby ensuring similar and compatible uses. Likewise, the addition of the Campus Habitat Reserve area at the southwest tip of the campus would align with the compatible uses in the adjacent Wilder Ranch State Park. Campus Habitat Reserve as well as Protected Landscape and Campus Resource Lands would border privately held grazing lands southwest of the campus.

The following text has been modified on **page 4.9-12** as follows:

In compliance with LRDP Mitigation AES-5E, adequate vegetated buffers would be maintained along Empire Grade Road and buildings would be arranged on the site to ~~further~~ screen views of the campus support development from Empire Grade Road and the adjacent Santa Cruz Waldorf School ~~if necessary~~.

The vast majority of campus lands that are subject to new development under the 2005 LRDP Land Use Plan (Figure 3-5) are set back from campus boundaries and adjacent development. As noted above, open space land use categories are generally located around the periphery of the campus. A few exceptions include the main campus entrance area and the Campus Support area off of Empire Grade Road. The main campus entrance area is already developed in a manner that is compatible with existing adjacent residential, school, and commercial uses. Moreover, very little new development is planned for this area of campus under the 2005 LRDP. The other area proposed for development that is in relatively close proximity to developed areas off-campus is the Campus Support area off of Empire Grade Road. This area is described in greater detail below.

The error in the first name has been corrected in Section 4.9.3 on **page 4.9-14**.

Thomas, ~~Ken~~Kevin. 2005. City of Santa Cruz Office of Planning and Building. Personal communication with Lisa Fisher, DC&E. April 19.

3.2.3 Changes to Draft EIR, Volume II, Section 4.11 Population and Housing

A footnote has been added to Table 4.11.3 on page 4.11-8 to clarify the data presented in this table.

**Table 4.11-3
Existing UC Santa Cruz Housing and Occupancy Levels**

Housing Type	Design Capacity ^a (Fall 2004)	Occupancy (Fall 2004)
On-Campus Student Housing^b		
Residence Halls	3,745	3,486
Student Apartments	2,549	2,371
Family Student Apartments	199	189
Other	42	42
Off-Campus Student Housing^b		
Apartments	108	53
Residence Hall	248	96
Student Housing Subtotal	6,891	6,237
Faculty and Staff Housing		
Hagar Court Apartments	50	50
Laureate Court Apartments	64	64
Cardiff Terrace & Hagar Meadow	80	80
Provost Houses	7	6
Staff in Single Student Housing	40	40
Subtotal	241	240
Total	7,132	6,477

Source: Current Housing Supply (2002 through 04) Table from CUHS.

Notes:

- (a) Design capacity reflects the planned capacity at the time the facility was built. The maximum capacity may vary from the design capacity and can be temporarily increased in various ways if needed.
- (b) Reported in student bed spaces.

The text on pages 4.11-12 and -13 has been revised as follows:

The State of California requires the Department of Housing and Community Development to identify housing needs for each region in the state in response to projected growth in population and households. To address this, the Council of Government in each region distributes the housing needs allocation to each jurisdiction in its region. AMBAG oversees the Regional Housing Needs Determination (RHND) process for Monterey and Santa Cruz counties, and determines each jurisdiction’s fair share of the regional housing need. The RHND process establishes the regional housing needs for a period of only 5 years at a time. Following the allocation and assignment of RHND goals by AMBAG, the City of Santa Cruz updated the Housing Element of its General Plan in 2003 to demonstrate how it would ~~develop the~~ facilitate the development of the needed housing. Although the AMBAG-assigned RHND goal for the City was 2,851 additional housing units between 2002 and 2007, the City set a lower

goal of 2,167 for the near term, but ~~is committed to meet~~ anticipates accommodating the higher RHND goal during the General Plan Update.

Therefore, at this time, according to the City of Santa Cruz Housing Element, the City’s objective is to ~~produce~~ facilitate the development of 2,167 new housing units between 2000 and 2007. Through 2002, the City had already ~~developed~~ provided for the development of 886 units and, therefore, it would need to develop facilitate the development of another 1,964 units by 2007 to meet ~~its~~ the near term housing goal through 2007, as described in the Housing Element. The City plans to facilitate the production of ~~produce~~ an additional 584 housing units through rehabilitation, 432 housing units through conservation, and the remainder through new construction by the year 2007.

Text has been added **page 4.11-16** as follows:

Scenario 2. The second scenario assumes that 68.6 percent of the new employees would be hired from within the county and 31.4 percent of the new hires would be from out-of-county areas. These percentages are based on an analysis of 10 years of campus hiring data (academic year 1991-92 through 2003-04), which shows that between 31 and 34 percent of the new employees hired during these years were hired from outside the county and the rest were hired from within the county (UCSC 2005). This scenario is not conservative as it does not take into account the “backfilling” of some of the jobs that would be vacated when the persons holding those jobs are hired by the University.

A footnote has been added to Table 4.11.7 on **page 4.11-19**.

**Table 4.11-7
LRDP-Related Population as Percentage of Projected Population (Scenario 1)**

Community	Total 2005 LRDP-Related Population	2020 Population (AMBAG Forecast)	LRDP Population as Percent 2020 Population	AMBAG Projected Growth in Population Between 2005 and 2020	LRDP-Related Population as Percent of AMBAG Projected Growth
UC Santa Cruz	4,028	0	-	-	-
City of Santa Cruz ²	3,514	59,924	5.9%	2,971	118%
Rest of the County	1,979	243,393	0.8%	22,180	8.9%
Santa Cruz County Total	9,522	292,695	3.2%	25,151	37.8%

Note:

¹ 4,021 persons who would live on campus are not included in the City total but are included in the Santa Cruz County total.

² Because a substantial portion of the campus lies within the City of Santa Cruz, if the new on-campus population under the 2005 LRDP were added to the off-campus LRDP-related population that would live in the City, instead of 5.9 percent, LRDP-related populations would make up 12.6 percent of the City’s 2020 population.

Table 4.11.9 on page 4.11-20 has been revised as follows:

**Table 4.11-9
LRDP-Related Population as Percentage of Projected Population (Scenario 2)**

Community	Total 2005 LRDP-Related Population	2020 Population (AMBAG Forecast)	LRDP Population as Percent 2020 Population	AMBAG Projected Growth in Population Between 2005 and 2020	LRDP-Related Population as Percent of AMBAG Projected Growth
UC Santa Cruz	4,028	0	-	-	-
City of Santa Cruz ²	2,958	59,924	4.9%	2,971	99.3%
Rest of the County	835	243,393	0.3%	22,180	3.7%
Santa Cruz County Total	7,821	292,695	2.7%	25,151	31.1%

Note:

¹ 4,021 persons that would live on campus are not included in the City total but are included in the Santa Cruz County total.

² Because a substantial portion of the campus lies within the City of Santa Cruz, if the new on-campus population under the 2005 LRDP were added to the off-campus LRDP-related population that would live in the City, instead of 4.9 percent, LRDP-related populations would make up 11.9 percent of the City's 2020 population.

Table 4.11-12 on page 4.11-25 has been revised for clarification as follows:

**Table 4.11-12
Projected Cumulative Demand and Supply of Housing in the Study Area^(c)**

City/Community	Projected New Housing	LRDP Related Demand	Non-UC Demand based on Regional Population Growth	Non- UC Demand based on Regional Employment Growth	Total Demand based on Population Growth^a	Total Demand based on Employment Growth^b
Scenario 1						
City of Santa Cruz	1,684	1,146	1,220	8,123	2,366	9,269
Rest of Santa Cruz County	8,147	697	8,185	10,313	8,882	11,010
Residual Demand		255			255	255
Total	9,831	2,098	10,310	18,436	12,408	20,534
Scenario 2						
City of Santa Cruz	1,684	938	1,220	8,123	2,158	9,061
Rest of Santa Cruz County	8,147	271	8,185	10,313	8,456	10,584
Residual Demand		149			149	149
Total	9,831	1,358	9,405	18,436	10,763	19,794

Table 4.11-12

Projected Cumulative Demand and Supply of Housing in the Study Area^(c)

City/Community	Projected New Housing	LRDP Related Demand	<u>Non-UC Demand based on Regional Population Growth</u>	<u>Non- UC Demand based on Regional Employment Growth</u>	Total Demand based on Population Growth ^a	Total Demand based on Employment Growth ^b
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Notes:

(a) Sum of LRDP-related demand and non-UC demand due to regional population growth, columns 3 and 4.

(b) Sum of LRDP-related demand and non-UC demand due to regional employment growth, columns 3 and 5.

(c) All data reported in this table are in housing units.

3.2.4 Changes to Draft EIR, Volume II, Section 4.12 Public Services

Footnote 1 on Draft EIR page 4.12-3 has been deleted from the fourth sentence under Subsection 4.12.1.3, *Fire Protection*, as shown below:

The California Department of Forest 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 (UC Santa Cruz 2004).[†]

~~[†] CDF is contracted with Santa Cruz County to provide fire services to some communities in unincorporated Santa Cruz County (including Bonny Doon). Thus the CDF Bonny Doon Station #32 is commonly referred to as "Santa Cruz County Fire."~~

3.2.5 Changes to Draft EIR, Volume II, Section 4.13 Recreation

The last sentence in the Analytical Methods section, Draft EIR page 4.13-9, has been revised as follows:

Impacts that stem directly from activities on campus or from the new daytime and residential population added to the campus under the 2005 LRDP are addressed in the analysis below as project impacts (LRDP Impacts REC-1 through REC-3).

3.2.6 Changes to Draft EIR, Volume II, Section 4.14 Traffic, Circulation, and Parking

Text has been modified in the first paragraph under *Transit Programs* on page 4.14-8 as follows:

UC Santa Cruz accounts for more than one-third of the total SCMTD ridership countywide, with average daily ridership during the 2004-05 academic year exceeding 9,200 students and ~~750 staff and~~ faculty.

Table 4.14-14 on page 4.14- 39 has been corrected to indicate that Empire Grade Road/New Campus Access is Intersection # 42.

**Table 4.14-14
2020 with LRDP Project – Levels of Service at On-Campus Intersections**

#	Intersection	Type of Control	Peak Hour	Campus LOS Standard	2020 Without LRDP Project		2020 With LRDP Project	
					Delay (sec)	LOS	Delay (sec)	LOS
1	Glenn Coolidge Drive / Campus Facilities	Signal	AM PM	D	9.4 8.7	A A	19.2 13.1	B B
2	Glenn Coolidge Drive / Hagar Drive	Signal	AM PM	D	9.9 10.8	A B	11.5 14.5	B B
3	Hagar Drive / East Collector	TWSC	AM PM	D	9.2 10.7	A B	9.4 11.8	A B
4	Hagar Drive / McLaughlin Drive	AWSC	AM PM	E	11.1 19.1	B C	12.3 24.1	B C
5	Heller Drive / McLaughlin Drive	AWSC	AM PM	E	8.4 9.8	A A	8.6 10.5	A B
6	Heller Drive / Meyer Drive	AWSC	AM PM	E	9.2 10.4	A B	10.2 11.8	B B
43	Glenn Coolidge Drive / East Collector	TWSC	AM PM	D	N/A	N/A	12.3 16.4	B C
44	McLaughlin Drive / Chinquapin Drive	AWSC	AM PM	E	8.5 10.2	A B	9.1 11.4	A B
45 42	Empire Grade Road / New Campus Access	TWSC	AM PM	--	N/A	N/A	9.3 9.8	A A

Notes:

TWSC – Two-Way Stop-Controlled

AWSC – All-Way Stop-Controlled

N/A – Not Applicable. Intersections have not been constructed and do not exist under the 2020 Without LRDP Project scenario.

Text on the last two sentences of the first paragraph on **page 4.14-43** has been revised as follows:

The fourth ~~third~~ column identifies those intersections where the 2005 LRDP-related peak hour traffic would contribute more than 3 percent to the intersection traffic volumes, resulting in a significant impact at these intersections. The fifth ~~fourth~~ column indicates the percentage of increased traffic that would be attributable to growth under the proposed 2005 LRDP.

The text on **page 4.14-46** is amended as follows to reflect the recent ruling in the City of Marina lawsuit:

In this EIR, “Fair Share” is defined to mean that the University has agreed to negotiate for a contribution to the identified improvement pursuant to procedures similar to those described in Government Code Sections 54999 et seq. for contributions to utilities. In addition, in each case a fair-share payment is agreed upon, the University will pay its fair share only if the applicable jurisdiction has established and implemented a mechanism for collecting funds from any other developers and entities contributing to the identified impacts, and only if providing that the jurisdiction has committed to building ~~builds~~ the identified improvements. ~~It should be noted that because of the City of Marina versus California State University lawsuit that is currently pending in the California Supreme Court, there is uncertainty regarding whether the University can legally fund certain off-campus infrastructure improvements that are not within the~~

jurisdiction of the University. Therefore, it is possible the fair share mitigation measures proposed herein may need to be modified in response to the ultimate decision in that case.

An additional row has been added to Table 4.14-19 on page 4.14-48 to include the following text:

**Table 4.14-19
Potential Transportation Demand Management Measures**

Implementation Level 1	Implementation Level 2
	<u>Collaborate with SCMTD to identify feasible BRT service improvements and negotiate, in the context of existing contractual mechanisms, to determine the University’s appropriate contribution.</u>

3.2.7 Changes to Draft EIR, Volume II, Section 4.15 Utilities

Text in the last paragraph on page 4.15-5, Section 4.15, has been revised as follows:

The IWP identified two desalination strategies: D-1 (City-only Desalination) and D-2 (Cooperative Desalination) as the two preferred alternatives. Generally, Alternative D-1 would provide water supply to the City service area during a drought in the first phase, and would provide water to serve growth in subsequent phases to the City service area, and Alternative D-2 would also provide water to the City during droughts but would also provide water supply for its potential partner, Soquel Creek Water District, during non-drought periods. Facilities associated with the two operational alternatives would generally be the same, except that implementation of Alternative D-2 would require additional conveyance and pumping facilities. Because there were no clear advantages to either Alternative D-1 or D-2, the decision was made to defer selecting one or the other as the final preferred strategy until the completion of the EIR (EDAW 2005).

The following text has been added to Draft EIR text on page 4.15-6, after Table 4.15-1 to update the Draft EIR’s information regarding the water planning efforts of the City.

Draft 2005 Urban Water Management Plan.

The City published its Draft 2005 Urban Water Management Plan (“UWMP”), the City’s most recent document related to water supply and demand, in January 2006. The Draft UWMP was prepared by the City pursuant to the Urban Water Management Planning Act, which is a part of the California Water Code. This act requires every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare and adopt an UWMP and to update it every five years. The purpose of the UWMP is to provide the City of Santa Cruz Water Department with a framework for carrying out its long-term planning responsibilities and for reporting its strategies to meet future water challenges to both the State of California and to its water service area customers.

The Draft 2005 UWMP describes the City’s projected water supply for the period 2005 through 2030. Table 3-4 in the draft plan shows that the City expects the supply from the North Coast sources to increase over current levels by about 100 million gallons per year, mainly because the City is planning to address the loss of raw water due to leakage on the North Coast Transmission Main. The volume of water that will be available from the San Lorenzo River and Loch Lomond Reservoir is expected to remain at current

levels. The draft plan acknowledges that desalination may be another source of new water but does not identify the volume of water that would be available from that source. The draft plan finds that the total supply (without desalination) will increase from about 4.31 billion gallons per year in 2005 to about 4.39 billion gallons by 2020 and about 4.42 billion gallons by 2030 (City of Santa Cruz 2006).

The Draft 2005 UWMP notes that certain conditions could affect the City's water supply at the source. The City has commenced a federal Endangered Species Act Section 10 permit process to address the effect of water diversions from the North Coast streams on listed fish species. This may result in changes in the City's operation and management activities and the timing and use of this existing supply source, but the exact effect on supply is not known at this time. The City is also in the process of applying to the SWRCB to rectify a historical technical deficiency in the Newell Creek water rights. The current water rights allow only for diversion to storage in Loch Lomond and not for direct diversion. The City's application requests that the water rights be amended to allow for direct diversion, consistent with historic practice. This would bring the current operations into conformance with the water rights. If this deficiency is not approved by the SWRCB, this existing water supply would be unavailable as a source for the City under certain conditions (2005 UWMP). The proposed direct diversion rights are limited to the same volume of water as the existing rights.

The City also is applying for a time extension of the Felton Diversion water rights. If approved, this time extension would provide the City with an opportunity to exercise its rights to divert a larger amount of water from the San Lorenzo River at Felton than the City has historically diverted. The City expects to need the full amount of its rights from the Felton Diversion to meet water demand during operational outages, changes in operations in response to environmental concerns, and dry and drought periods, as well as to meet projected future water demand. Lastly, due to the state of the groundwater basin and potential problems of seawater intrusion, production of groundwater from the Purisima aquifer may be compromised.

Any or all of these factors could ultimately lead to a reduction in the existing and future water supplies, according to the City's Draft 2005 UWMP. For example, if the time extension of the Felton Diversion water rights is not approved, the additional water from this source under the City's existing water rights would not be available. According to the Draft 2005 UWMP, the City expects to need the full amount in the future, as it is critical to meeting the projected future demand. However, the City is actively working with the resource agencies and the SWRCB to resolve these issues related to surface water sources so that supplies are maintained.

The City is also working with the other regional users of groundwater collectively to address the groundwater problem. The City has taken competing groundwater interests and the state of the groundwater basin into account in its water supply planning. According to the IWP, the City would withdraw an additional 1 mgd from the Live Oak wells only in drought years and no water during normal years. The City obtains only a small proportion of its annual water supply from the groundwater basin, and is planning to obtain water from a desalination plant rather than groundwater under drought conditions. Therefore, whether or not the 2005 LRDP is approved, the City's future water supply will not be substantially affected by the activities of the adjacent water districts.

The Draft 2005 UWMP also notes that the Graham Hill Water Treatment Plant (GHWTP) cannot at this time operate at its original design capacity because of state and

federal drinking water quality regulations, and that new regulations (including those related to removal of cryptosporidium) will require improvements at the plant or there will be further reductions in operating capacity. The City is conducting an evaluation of alternatives to meet the water quality and service goals for the GHWTP and for the distribution and storage system.

The Draft 2005 UWMP discusses the demand forecasts prepared by Maddaus and notes that, as of 2005, the actual system-wide demand for 2005 is about 20 percent less than the level predicted in the Maddaus demand forecasts. In light of this, the plan presents two future demand scenarios for the service area through 2020. Both scenarios use the 2005 water demand levels as the baseline. The first scenario assumes that water usage by the three major user groups (single-family residential, multi-family residential, and businesses) will grow at an annual rate of about 0.8 percent and water usage at the campus will grow at the rate projected in the 2005 LRDP Draft EIR. The second scenario assumes a lower growth rate of about 0.4 percent for the three major user groups and that the campus water increase will be half that projected in the 2005 LRDP Draft EIR. Both demand estimates are then adjusted downward to account for 200 million gallons of conservation savings. The plan shows that under the lower growth scenario, the total cumulative water demand would remain steady at the current level of about 3.9 billion gallons a year and under the higher growth scenario it would increase to about 4.2 billion gallons by 2020 (City of Santa Cruz 2006).

If the projected annual demand under the higher of the two scenarios is compared to the projected available supply, the comparison shows that in normal water years, the existing water supply system is capable of meeting the community's total annual water needs through 2020 (City of Santa Cruz 2006).

Based on the City's most recent analysis of supply and demand, which is contained in the Draft 2005 UWMP, the City has concluded that the existing supply is adequate to serve the growth in the service area through 2020 in normal water years, including the growth of the campus as predicted in the Draft 2005 LRDP. Therefore, according to the City's Draft UWMP, a desalination plant is needed to provide reliability to the system during drought conditions even without campus growth, but will not be needed in normal water years through 2020. The Draft 2005 UWMP, therefore, does not include water from a desalination plant in its water supply calculations in normal water years through 2020. The desalination plant would likely be operated in normal years to supply potable water to the SqCWD.

An additional paragraph has been added to provide more information on Soquel Creek Water District (SqCWD), following the last paragraph of *Other Water Districts in the Study Area* on **page 4.15-7** in Section 4.15 (Volume II) as follows:

Both the SqCWD and the City of Santa Cruz withdraw water from the Purisima formation. About two-thirds of SqCWD's annual water production comes from this formation, whereas about 4 to 5 percent of the City's supply comes from the Purisima formation. The remainder of SqCWD's water supply comes from the Aromas aquifer. According to the Integrated Resources Plan (IRP) prepared by SqCWD, groundwater pumped by the SqCWD under current conditions from both aquifers exceeds sustainable groundwater yield by about 600 acre-feet per year. Therefore, the SqCWD is planning to secure an alternative water source so that it can not only meet the projected demand for water in its service area but can reduce current pumping to a level that would allow for the recovery of local also groundwater levels (SqCWD 2006). The SqCWD has

examined a number of options for securing more water; the development of a regional seawater desalination facility with the City of Santa Cruz is a key component of its preferred alternative under its IRP (SqCWD 2006). SqCWD and the City of Santa Cruz are working cooperatively to address water supply issues in the area. In the IWP Program EIR (PEIR), the City examined potential environmental impacts from a scenario in which the desalination plant would be operated on a more regular basis (i.e., not just under drought conditions) so that potable water from the plant could be supplied to the SqCWD in normal water years. That alternative was adopted by the City following completion of the environmental review process.

The text in the second paragraph at the end of the first sentence has been modified and text has also been added at the end of the following paragraph on **page 4.15-32** of the Draft EIR concerning as follows:

Note that in the analysis that follows, the estimated demand for water by the Campus during normal years does not include the demand for water that would be associated with 2005 LRDP-related population that would live off campus within the City Water Department's service area. The LRDP-related off-campus population within the City's service area would contribute to the need for a new water supply source. Although the off-campus LRDP-related population is not included in the latest AMBAG population forecasts for the City, the City's water demand projections are based on 1997 AMBAG population forecasts, which were higher than the 2004 forecasts by about 4,462 persons. Therefore, even if the 2005 LRDP-related population that would live off campus within the service area (about 3,500 persons) were to be considered additional to the population that is anticipated under the 2004 AMBAG forecasts, the demand associated with this off-campus population would not exceed the demand already accounted for in the City's demand forecasts. The University estimates that this off-campus population would demand approximately 94.5 million gallons of water per year in 2020 and would also contribute to the need for a new water supply source. Similarly, those LRDP-related persons who would live within the Soquel Creek Water District's service area would also create an increased demand for water and would contribute to the need for a new supply source.

Text on **page 4.15-32** in the first paragraph under heading *Impact Under Normal Conditions* has been revised as follows:

Growth under the 2005 LRDP would increase demand for domestic/fire water on campus. As previously discussed, UC Santa Cruz has a contract for water service from the City to serve the reasonable needs of the entire campus including the growth of the Campus campus under the 2005 LRDP. Thus, the Campus campus has a contractual sufficient entitlement to sufficient water to meet its needs, and there would not be a significant impact associated with securing more water for campus growth.

The last sentence in the third paragraph on **page 4.15-33** has been modified as follows:

The City has thus adequately considered UC Santa Cruz growth in its water supply planning. Thus, the City's water supply planning includes an adequate amount of water for the Campus and the Campus's growth under the 2005 LRDP, therefore, it is consistent with the City's planning efforts.

3.2.8 Changes to Draft EIR, Volume II, Chapter 5.0 Alternatives

The last bullet on page 5-4, which includes a list of significant impacts of the Draft 2005 LRDP for purposes of comparison of the impacts of the alternatives, has been revised to include the traffic impact identified in the RDEIR—Additional Traffic Analysis, as follows:

- Impacts related to traffic, including decline in the levels of service at two campus intersections to unacceptable levels (LRDP Impact TRA-1); unacceptable levels of service at 11 off-campus intersections (LRDP Impact TRA-2); demand for parking in excess of on-campus parking capacity (LRDP Impact TRA-3); impacts on the effectiveness of alternative transportation programs (LRDP Impact TRA-4); and impacts at five off-campus freeway locations (LRDP Impact TRA-6).

CULT-7 was inadvertently left out of Table 5-2 and therefore, Table 5-2 on page 5-35 has been revised as follows:

**Table 5-2
Summary Comparison of LRDP Alternatives**

LRDP Impact	LRDP Impact Statement	Proposed LRDP (Before Mitigation)	Satellite Campus	Reduced Enrollment Growth	Southerly Expansion	No Project
CULT-6	Increased population on campus as a result of implementation of the 2005 LRDP could result in damage to the scientific value of unique geologic resources.	PS	L	L	E	L
<u>CULT-7</u>	<u>Development under the 2005 LRDP could contribute to cumulative damage to and loss of the resource base of unique archaeological resources, historical resources (including archaeological sites and historic buildings and structures) and human remains in the Santa Cruz west side.</u>	<u>PS</u>	<u>L</u>	<u>L</u>	<u>E/M</u>	<u>L</u>

An editorial change has been made to Table 5-2, on page 5-37, as follows:

**Table 5-2
Summary Comparison of LRDP Alternatives**

LRDP Impact	LRDP Impact Statement	Proposed LRDP (Before Mitigation)	Satellite Campus	Reduced Enrollment Growth	Southerly Expansion	No Project
TRA-4	Campus growth under the 2005 LRDP would result in increases in circulation volumes (numbers of pedestrians, bicycles, and transit and other motor vehicles) that would conflict with and reduce the effectiveness of alternative modes of transportation, including transit, bicycle and pedestrian travel.	PS	E	L	E	L

3.2.9 Changes to Draft EIR, Volume II, Chapter 6.0 Other CEQA Considerations

Minor additions and editorial revisions have been made to Section 6.1, LRDP Impacts AIR, TRA, and UTIL on pages 6-1 and -2 as follows:

Air Quality

LRDP Impact AIR-4~~5~~: Growth associated with the 2005 LRDP would conflict with the Air Quality Management Plan.

Traffic and Circulation

LRDP Impact TRA-6: Campus growth under the 2005 LRDP would contribute to unacceptable freeway LOS operations.

Utilities

LRDP Impact UTIL-7: Development under the 2005 LRDP would require the expansion of campus cooling water and heating water generation and conveyance facilities, which would result in significant environmental impacts.

3.2.10 Changes to Draft EIR, Volume II, Appendix B

Minor revisions were made to the baseline population numbers shown in the table below during the review of the Draft EIR, to more accurately reflect campus employee classifications. The net effect of these adjustments is that the baseline number presented in the Draft EIR for total “Faculty and Staff by Workplace” is reduced by 341 persons. This reduction represents 341 employees listed in payroll records whose positions do not require a regular presence on the campus, such as emeritus faculty, additional listings for persons who hold more than one appointment, and contract employees, such as part-time music instructors. They are accounted for separately from regular faculty and staff in the revised table, which conservatively estimates that one third are present on campus on any given day. A new row,

“Contract employees/Emeritus faculty” has been added to the table to reflect this group. The 100 persons listed in this row represent the 341 employees who come to campus on an irregular, or intermittent basis.

Current and Projected Population for UCSC 2005 LRDP EIR (a) Prepared by Alisa Klaus, Physical Planning Construction 2/10/05		
	Current (2003-4)	Projected (2020-21)
Students (b)	14,052(c)	21,000 (d)
Students by residence		
Live on campus	5,842(e,f)	9713(g)
Live in off campus UC housing	208(e,f)	0
Faculty & staff by workplace (h)		
On-campus	3,736 4,077(i)	5,594(j)
2300 Delaware	0	782(k)
West side leases	200 203(i)	0
West side total	200 203	782
Downtown leases	108 114(i)	45(l)
Off-campus total	308 317	827
Faculty and staff by residence(m)		
Laureate Court	64(e)	64
Other on-campus employee housing	188(e,n)	377(p)
Off-campus UC housing (UTC, UCSC Inn)	2(e)	0
Spouses/dependents in on-campus housing		
Laureate Court	92(q)	92(q)
Other employee housing	270(q)	543(q)
Family Student Housing	315(r)	635(s)
Non-UC employees working on campus	150(t)	250(w)
Contract Employees/emergitus faculty	100	100
Construction workers	100(u)	200(x)
Visitors	200(v)	250(y)

Notes:

- (a) All numbers are three-quarter (fall-winter-spring) average head counts.
- (b) Does not include graduate students based at the Marine Science Campus or students enrolled in off-campus programs.
- (c) Kathleen Dettman, UCSC Planning and Budget, April 24, 2004, Spring 2004 Enrollment; Steve Davenport, UCSC Institute of Marine Sciences, personal communication 2/1/05.
- (d) Assumes student head count is approximately equal to three-quarter average FTE.
- (e) 2003-04 Bedspace Occupancy Statistics (received from Geri Wolff, 8/17/04).
- (f) May include some of the 35 graduate students at the Marine Science Campus.
- (g) Assumes 50 percent of undergraduates and 25 percent of graduate students are housed on campus. This number is not adjusted for students not requiring housing (e.g., high school honors students, students already living in Santa Cruz, etc.)
- (h) Excludes staff at the Marine Science Campus and at sites outside of Santa Cruz County.
- (i) ~~UCSC Planning and Budget, 5/4/06, UC Santa Cruz Student, Faculty, and Staff Head Count projections. Average of October~~

~~2003 and May 2004. Larry Pageler, TAPS, Employees by Work Site, September 27, 2004.~~

- (j) UCSC Planning and Budget, 7/12/04, UC Santa Cruz Student Faculty, and Staff Headcount Projections for Transportation. Does not include 296 employees projected for the Marine Science Campus employees with buildout of the CLRDP; CLRDP EIR Tables 4.12-7 and 4.12-10 and personal communication with Steve Davenport, 2/1/05).
- (k) Includes 300 for Buildings A&B at maximum occupancy, plus 472 in Building C as part of proposed 2300 Delaware Avenue project. Linda Flaherty, UCSC Planning and Budget, personal communication, 2/3/05.
- (l) UC Extension offices at University Town Center. Robert Kemp, University Extension, personal communication, 2/3/05.
- (m) May include some Marine Science Campus employees.
- (n) Uses two-quarter (winter-spring) average for Hagar Court, as all 50 units were vacant for renovation in the fall.
- (p) Includes Ranch View Terrace and 125 additional units (based on goal of housing 25percent of faculty and 3 percent of staff, using the projected headcounts included in this table)
- (q) Assumes 2.44 people per household, average size of household in City of Santa Cruz. US Census Bureau, 2000. Table DP-1, Santa Cruz city, California.
- (r) Geri Wolff, personal communication, 2/1/05
- (s) Assumes same ratio of students to non-student family members as existing Family Student Housing (2002-04 Bedspace Occupancy Statistics 8/17/04 and Geri Wolf, personal communication 2/1/05), with 400 students occupying the 400 planned units for the Family Student Housing Redevelopment Project.
- (t) Includes 75-100 temporary staff (Emily Tanaka-Delgado, UCSC Temporary Staffing Solutions, personal communication, 2/1/05); 23 staff of food service businesses (Pat Takeuchi, UCSC College and University Housing, personal communication, 2/2/05), consultants, and non-UC employees of research institutes.
- (u) Estimate based on two major projects under construction concurrently, with a daily average of 50 workers per project.
- (v) Daily average. Includes members of the public using recreational facilities and attending cultural and athletic events, vendors and workers servicing non-UC facilities such as cell towers and ATMs.
- (w) Assumes that temporary staff would grow in proportion to UC staff (an increase of up to 45) and that additional food service or other businesses could operate on campus.
- (x) Estimate based on up to four major projects under construction concurrently, with a daily average of 50 workers per project.
- (y) With the increase in recreational and cultural facilities on campus the number of daily visitors to campus could increase; however, this increase would not be in proportion to the growth of campus population.

3.2.11 Changes to Draft EIR, Volume II, Appendix C

The first sentence of the Introduction in Appendix C (**page 1**) has been revised as follows:

As part of the baseline study for the UC Santa Cruz 1988 Long Range Development Plan, Roy Robert Buck (1986) developed a list of “significant plant species” occurring on the UC Santa Cruz campus.

The following editorial change has also been made to the second sentence in paragraph two under *Results and Discussion* on **page 5**:

Plants of Interest do not meet the criteria under CEQA as special-status species and therefore do not need to be evaluated in an EIR.

3.3 CHANGES TO VOLUME III

3.3.1 Changes to Draft EIR, Volume III, Chapter 2.0 Infrastructure Improvements Project

The typographical error in the statement of IIP-All Impact NOIS-1 on page 2-7 has been corrected as follows:

IIP-ALL Impact NOIS-1	Construction activities associated with the Infrastructure Improvements Project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	S	IIP-ALL Mitigation NOIS-1: The Campus shall implement LRDP Mitigation NOIS-1 for all improvements that are within 100 feet of an existing campus building or sensitive receptor.	SU
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Based on refinements to the IIP (described in Chapter 2, Volume IV), the text on pages 2-8 and -9 have been revised as follows:

Improvements to the domestic and fire protection water system would take place in Phase 1. These would include installation of replacement pipe segments at several locations on central and lower campus as shown in Figure ~~2-3~~ 2-2.

Campus core heating water system improvements which would take place during Phase 2 would replace low-temperature pipe materials with higher rated components in building connections off the main distribution system at several locations. ~~Small sections of pipe near the Theater Arts Complex would be replaced and a~~ An absorption chiller at Sinsheimer Laboratories would be re-piped to receive hot water directly from the core heating water distribution loop. All of the proposed improvements would be located within campus streets or other developed areas, inside mechanical rooms, and inside the cogeneration plant and the Sinsheimer Laboratories. General locations of the proposed improvements are shown in Figure 2-5, *Campus Core Heating Water System Improvements*.

Natural gas system improvements would include ~~installation of a new vault on Heller Drive near College Eight, as well as~~ replacement of existing piping in Hagar Drive between Steinhart Way and McLaughlin Drive and work in other developed areas of the campus, as shown in Figure 2-7, *Natural Gas System Improvements*. This work would occur during Phase 2 of the proposed project.

Based on refinements to the IIP (described in Chapter 2, Volume IV), the following change has been made in Section 2.3.6.2, second paragraph on page 2-25:

Peak demand for heated water in 2003 was 43.740 Mbtuh (Rogers & Associates 2003). Although the existing system had adequate capacity to supply this demand, an evaluation in 2003 identified system deficiencies (Rogers & Associates 2003). Some components of the distribution system are not capable of accepting design temperatures and thus cannot be operated at system capacity. ~~The pipe network in the Theater Arts Complex is poorly insulated and operates inefficiently.~~ The heat rejection equipment associated with the cogeneration plant is overloaded during period of low heating demand (hot days), such that the cogeneration operation must be reduced to avoid

overheating the system, and this adversely affects the electrical output of the cogeneration system.

Based on refinements to the IIP (described in Chapter 2, Volume IV), the following changes have been made in Section 2.3.6.3, *Proposed Improvements* on **page 2-25**:

Proposed improvements to the campus core heating water system would include replacement of low-temperature-rated piping in the campus core, ~~and small sections of piping in the Theater Arts Complex.~~ In addition, modifications to the Sinsheimer Laboratories heating and cooling system would absorb excess heat from the cogeneration system and allow it to function more effectively.

Based on refinements to the IIP (described in Chapter 2, Volume IV), the following revision has been made in Section 2.3.6.3, under Phase 2 on **page 2-26**:

- ~~• Replace segments of piping to avoid heat loss in the Theater Arts Complex. Excavate and upgrade approximately 400 lf of 4 inch diameter hot water and hot water return pipe. Install two valves with risers and boxes, one expansion loop, and one concrete anchor or as an alternative, install two boilers at Theater Arts Complex in lieu of replacing pipe.~~

Based on refinements to the IIP (described in Chapter 2, Volume IV), the following changes have been made in Section 2.3.8.3, under Phase 2 on **page 2-29**:

Phase 2

~~The Campus would carry out the following improvements:~~ In Phase 2 of the proposed project, the Campus would upgrade the piping in Hagar Drive between Steinhart Way and McLaughlin Drive, which supplies core campus areas to the north, and is undersized for the current demand.

- ~~• Replace the existing below grade College Eight pressure reducing station with an above grade vault. The new College Eight vault would be located in the meadow area west of Heller Drive at or near the location of the existing below grade College 8 station. The project would include the construction of a 6 foot by 18 foot housekeeping pad surrounded by 50 lf of 6 foot to 8 foot tall fencing and installation of necessary equipment.~~
- ~~• Upgrade the piping in Hagar Drive between Steinhart Way and McLaughlin Drive, which supplies core campus areas to the north, and which is undersized for the current demand.~~

Based on refinements to the IIP (described in Chapter 2, Volume IV), the following text in Section 2.3.8.4, *Construction*, on **page 2-29** has been deleted:

~~**Pressure-Reducing Station Improvements.** A 6 foot by 18 foot concrete pad would be poured for the new College Eight pressure reducing station. This would require access to the site by a concrete truck. The new vault, likely a manufactured or modular structure, and associated fencing would be installed using a forklift, truck, fence post auger, and manual labor.~~

The following revisions have been made in the third and fourth sentence of Section 2.3.10, on **page 2-30** to reflect the change in the construction schedule of Phase 2 improvements:

The Phase 2 improvements, including storm water drainage, core heating water, electrical, and natural gas system improvements, would be implemented beginning in summer ~~2007~~ 2008. Core heating water, electrical and natural gas system improvements would be completed in March 2009, while storm water drainage improvement activities would continue through January ~~2009~~—2010. The proposed schedule for all improvements is illustrated in Figure 2-8, *Infrastructure Improvements Project Construction Schedule*. This figure is presented at the end of this chapter.

Text on **page 2-50** of the Draft EIR has been revised as follows:

IIP-SW Impact BIO-1: Construction of storm water drainage improvements could result in placement of fill in waters of the U.S. and of the State.

Significance: Potentially significant

IIP-SW Mitigation BIO-1: The Campus shall implement LRDP Mitigations BIO-3B through 3D.

Residual Significance: Less than significant

The drainage improvements would involve the construction of permanent structures within campus drainages including placement of riprap, check dams, flumes, and other structures in Jordan Gulch, Moore Creek, and their tributaries. Up to 37,000 square feet (0.85 acres) of these drainages could be permanently filled by these improvements. This would be a potentially significant impact, and the Campus would implement LRDP Mitigations BIO-3B through 3D to reduce this potential impact to waters of the United States, to a less-than-significant level.

Based on information from USFWS about burrowing owls, text on **page 2-54** has been revised as follows:

IIP-SW Impact BIO-7: Construction of storm water drainage improvements ~~would not could~~ result in ~~the~~ a substantial loss of western burrowing owl habitat and potential direct and indirect impacts to owls from construction.

Significance: ~~Potentially~~ Less than significant

IIP-SW Mitigation BIO-7: The Campus shall implement LRDP Mitigations BIO-12A and 12B.

Residual Significance: Not applicable ~~Less than significant~~

Western burrowing owls are known to ~~occur~~ overwinter on campus within the East Meadow and grasslands in the southwestern corner of the campus (~~Linthicum~~ 2005). Suitable habitat for Western burrowing owls also remains in the Great Meadow (Pelc 1995; Beyer 2001) and could be affected by storm water drainage improvements along the Great Meadow Tributary of Jordan Gulch.

The storm water drainage improvements in this area would permanently remove very limited areas (> 0.1 acre) of suitable habitat for the western burrowing owl and would temporarily impact up to 1 acre of habitat due to access route development. Because ample habitat exists on campus, the impact from habitat removal would be less than significant. ~~Construction of these projects has the potential to kill or injure western~~

~~burrowing owls that occupy nests at certain project sites (see Table 2-6). Impacts to individuals in occupied nests would be considered potentially significant. LRDP Mitigations BIO-12A (conduct pre-construction surveys for western burrowing owl) and BIO-12B (establish construction exclusion zone or passive relocation of birds for active nests that cannot be avoided) would be implemented to reduce the potential for impacts to individual western burrowing owls to a less than significant level.~~

The 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 MBTA, 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 on the campus lands in the future.

The following revisions have been made on **page 2-56**:

~~CA-SCR-259H. UCSC-001H.~~ A complex of previously-unrecorded historic water control features, including the Arboretum Reservoir and Arboretum water tower; East Dam and West Dam; the Arboretum Dam; and the associated spillway. The site appears to be a significant cultural resource.

~~UCSC-CA-261-HSCR-004H:~~ The Elf Land Kiln, a lime-processing kiln believed to date from the beginnings of the lime production industry in Santa Cruz County. The east wall of the kiln has partially collapsed and there are trees growing out of walls. The site is a significant cultural resource.

The following editorial change has also been made under Phase 2 Improvements in Table 2-7, **page 2-60**:

Improvement 94	Work around East Dam, CA-UCSC-001H <u>CA-SCR-359</u> could directly or indirectly alter the historic feature, which has moderate historic integrity.	Campus shall ensure that improvement design does not substantially alter structure or appearance of dam or cut into berms. Campus shall instruct contractor to use access road across dam only when soil is dry.
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The following editorial change has been made under Phase 2 Improvements in Table 2-7, **page 2-61**:

Improvement 110	Improvement adjacent to West Dam, <u>CA-SCR-359H</u> UCSC-001H , could directly alter the historic feature.	Campus will ensure that improvement design does not materially alter earthen dam or cut into berms, and that dam access road is used only when soils are dry.
Access Route 12	Route crosses East Dam, <u>CA-SCR-359H</u> UCSC-001H , on existing dirt road that has already altered dam; use could further alter dam.	Campus shall inform contractor to use access road only in dry weather.

	Heavy equipment use of dirt road adjacent to reported location of CA-SCR-181 could impact undiscovered portions of deposit.	Campus shall inform contractor to stay on dirt roads and shall identify appropriate access route to creek on contractor maps that will ensure avoidance of site area.
Access Route 13	Route crosses West Dam, CA-SCR-359H UCSC-004H , on existing dirt road that has already altered dam; use could further alter dam.	Campus shall inform contractor to use access road only when soils are dry.

The following editorial change has been made under Phase 2 Improvements in Table 2-7, **page 2-61**:

Access Route 20A	Route runs in vicinity of Elf Land Kiln, CA-SCR-361H UCSC-004H , which could be indirectly affected by heavy equipment.	Campus shall inform contractor to avoid use of heavy equipment on slope where the kiln is located. Campus shall ensure that kiln is fenced prior to construction.
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IIP-ALL Mitigation HYD-2 has been corrected on **page 2-67** to delete the erroneous reference to Mitigation HYD-2C, which does not exist.

IIP-ALL Impact HYD-2: Implementation of the Infrastructure Improvements Project could result in storm water runoff during construction, which could violate water quality standards.

Significance: Potentially significant

IIP-ALL Mitigation HYD-2: The Campus shall implement LRDP Mitigations HYD-2B ~~and 2C~~.

Residual Significance: Less than significant

The following editorial change has also been made to IIP-SW Mitigation HYD-3B on **page 2-67**:

IIP-SW Impact HYD-3: Implementation of the storm water drainage improvements under the Infrastructure Improvements Project would alter drainage patterns and could result in erosion and siltation.

Significance: Potentially significant

IIP-SW Mitigation HYD-3A: The Campus shall monitor dispersion manifolds for evidence of erosion on an annual basis. If there is evidence that the dispersion manifolds are causing erosion, the Campus shall repair the erosion damage and implement any repairs or alterations to the design of the manifolds necessary to prevent further erosion.

IIP-SW Mitigation HYD-3B: For improvements included in the Infrastructure Improvements Project that increase impervious surfaces (the new cooling tower ~~and the College Eight natural gas pressure reducing station~~), the

Campus shall implement LRDP Mitigations
HYD-3C and HYD-3D.

Residual Significance: Less than significant

Based on revisions to the IIP (described in Chapter 2, Volume IV), the following change has been made in Section 2.5.3.3 on **page 2-78**.

As discussed in Section 2.3.6, the campus core heating water system has several deficiencies related to distribution piping that cannot handle water heated to design temperatures in the Central Heating Plant. Other problems are related to the operation of the campus Cogeneration Plant. The proposed project would replace low temperature pipeline segments with higher-rated pipelines that can convey water that is heated to 220 degrees Fahrenheit. ~~Another improvement included in the project is the replacement of piping sections to better serve the Theater Arts Complex.~~

The alternative to this improvement would be to increase the pumping capacity of the entire hot water distribution system which would require excavating and replacing the entire concrete tunnel system throughout the campus core to replace the existing distribution mains, ~~and to add a separate boiler to serve the buildings in the Theater Arts Complex.~~ Excavating and replacing the entire tunnel system would be much more disruptive than the proposed project, prohibitively costly, and would not address the efficiency problems at the Cogeneration Plant. The alternative was therefore not carried forth for further evaluation.

Based on revisions to the IIP (described in Chapter 2, Volume IV), the following change has been made in Section 2.5.3.5 on **page 2-79**.

The proposed project includes replacement of a section of natural gas pipeline in Hagar Drive to provide more gas to a portion of the campus. ~~And the replacement of the College Eight pressure reducing station.~~

Two new [Figures 2-9 and 2-10](#) (Volume III) have been added to the Draft EIR. These figures are located at the end of this section.

3.3.2 Changes to Draft EIR, Volume III, Chapter 3.0 Family Student Housing Project

The following text in Section 3.4.8.4 *Telecommunications*, on **page 3-19** of the Draft EIR has been modified as follows:

Each housing unit would be provided with cable and/or internet-ready connections (Thompson 2005). Cable television (CATV) service is provided to the FSH complex by UC Santa Cruz ITS Media Services. Currently the cable infrastructure is served via conduits from both adjacent Porter College and ~~College Eight~~ across from Heller Drive. Although new lines would be added to accommodate the increased number of units, the point of connection would remain the same.

The text in the first paragraph of Section 3.5, *Environmental Setting, Impacts, and Mitigation Measures*, page 3-23, Volume III, has been revised as follows:

The impact evaluation that follows examines the construction-phase and long-term impacts from the redevelopment of the 25-acre FSH site. This analysis is tiered from the analysis provided in Volumes I and II of the proposed Draft 2005 LRDP EIR program. The evaluation assesses impacts from the construction of the proposed housing and EECC, as well as utility improvements needed to serve the project, and facilities for the management of storm water. Environmental effects from the potential temporary relocation of child care facilities to modular buildings off site are also assessed in this section.

Cumulative Impacts

The cumulative impacts of campus growth under the 2005 LRDP are adequately addressed under LRDP Impacts UTIL-9 and UTIL-10. As a component of campus growth under the 2005 LRDP, the proposed project would contribute to these the significant and unavoidable cumulative impacts on water supply and the less-than-significant cumulative impact on other utilities.

Text on page 3-19 has been revised as follows:

Telephone service, including infrastructure is provided by SBC. According to the PacBell/SBC wiring plans on file with the UC Santa Cruz Information Technology Services (ITS) Cable Plant group, the copper backbone cable serving the FSH complex is currently routed from a below-grade vault. The line, which may be direct-buried, runs along Empire Grade Road in a northeasterly direction and eventually terminates at a main backboard in the center of the site near the existing child care center. The exact location, installation type and capacity of the cable has not been confirmed, but will be identified during detailed project design. If the line requires replacement, the new line would meet current campus standards, including conduit duct banks and concrete caps. Service to the modular buildings would be temporarily disrupted when the child care center is demolished during Phase 1 of redevelopment, to be reconnected when the facility is reoccupied.

Each housing unit would be provided with cable and/or internet-ready connections (Thompson 2005). Cable television (CATV) service is provided to the FSH complex by UC Santa Cruz ITS Media Services. Currently the cable infrastructure is served via conduits from both adjacent Porter College and College Eight across from Heller Drive. Although new lines would be added to accommodate the increased number of units, the point of connection would remain the same.

Draft EIR text in Section 3.5.3.2 on page 3-32 has been revised as follows:

FSH Impact AIR-4: The population growth associated with the FSH Redevelopment Project is not consistent with the regional Air Quality Management Plan.

Significance: Significant

FSH Mitigation AIR-4: The Campus shall implement LRDP Mitigations AIR-4A and 4B.-5-

Residual Significance: Significant and unavoidable

Draft EIR text in Section 3.5.4.2 on **page 3-38** has been updated as follows:

FSH Impact BIO-4: Construction of the proposed project would not result in a substantial adverse impact associated with the loss of potential San Francisco dusky-footed woodrat nests.

Significance: Less than significant

FSH Mitigation BIO-4: The Campus shall implement LRDP Mitigation BIO-14.

Residual Significance: Not applicable

Suitable habitat for San Francisco dusky-footed woodrat occurs in the mixed evergreen forest habitat that occupies a portion of the proposed FSH site. However, the project biologists conducted a survey of the affected woodlands during the preparation of the Draft EIR and did not encounter any woodrat nests. Furthermore, outside of the north campus, in the surveys conducted on the campus, the only observation of a woodrat nest was within a riparian area designated as Campus Natural Reserve under the 2005 LRDP (Jones & Stokes 2004). Therefore, the likelihood that woodrat nests would be disturbed or destroyed during the construction of the FSH project is considered to be low, and the impact would be less than significant. However, the Campus cannot rule out the possibility of woodrats establishing nests within the affected area before project construction is commenced. Therefore, the Campus will implement LRDP Mitigation BIO-14 to ensure that active woodrat nests, if established in the future, are not destroyed during the clearing of woodland for project construction.

Text on **page 3-39** has been revised as follows:

FSH Impact CULT-1: Construction associated with the proposed project could result in the disturbance of previously undiscovered historic or prehistoric cultural resources, deposits, artifacts, or human remains, including buried material potentially associated with CA-SCR-142, which is located nearby.

Significance: Potentially significant

FSH Mitigation CULT-1: The Campus shall retain a qualified archaeologist to monitor initial site grading in the area of the proposed southern storm water detention basin and any grading, including utility trenching, within 50 feet of the known margin of CA-SCR-142, to determine whether intact deposits are present. If archaeological materials are exposed by grading, the Campus shall implement LRDP Mitigation CULT-1G and LRDP Mitigation CULT-4B. If human remains are exposed and the County Coroner determines them to be of Native

American origin, the Campus shall implement LRDP Mitigation CULT-4C.

Residual Significance: Less than significant

A storm water detention/retention basin for the project could be located in the vicinity of CA-SCR-142. It is possible that, if the existing telecommunications line needs to be relocated, it also could be located in this vicinity. The extensive earthmoving activities associated with the FSH redevelopment could expose undiscovered buried archaeological resources and human remains, including presently undiscovered portion of previously recorded site CA-SCR-142. Consistent with the recommendation of the qualified archaeologist, the Campus will implement FSH Mitigation CULT-1 and LRDP Mitigations CULT-1B and 1C. Under these measures, an archaeologist would monitor initial grading within 50 feet of the recorded margin of CA-SCR-142, including any excavation required for the telecommunications line, and during excavation of the possible southern storm water basin. In the event of an archaeological discovery, the Campus will ensure that excavation stops and the find is protected, and will consult with the archaeologist and project architect to identify measures that would permit preservation in place.

Draft EIR text in Section 3.5.5.2 on **page 3-40** has been updated as follows to reflect the addition of LRDP Mitigation BIO-8B:

FSH Impact CULT-2: The proposed project will result in increased population in the vicinity of Cave Gulch, which could result in increased recreational use of nearby caves that are unique geological resources.

Significance: Potentially significant

FSH Mitigation CULT-2: The Campus shall implement LRDP Mitigations BIO-8A and -8B.

Residual Significance: Less than significant

Empire Cave and other caves in the Cave Gulch area are in close proximity to the FSH redevelopment. Increased recreational use of the caves in this vicinity could result in impacts to the scientific value of these caves as the result of activities that could affect the geological features or biome of the caves. The Campus will implement LRDP Mitigation BIO-8A to educate potential visitors to the caves regarding the scientific value of the resource, and to discourage activities that could inadvertently damage the resource and LRDP Mitigation BIO-8B to install a barrier at Empire Cave. With the implementation of these measures, the impact would be less than significant.

Text on **page 3-66** has been revised as follows:

Impacts Adequately Analyzed at the LRDP Level or Not Applicable to the Project. LRDP-level analysis of impacts related to the capacity of utility systems, including storm water, fire water, wastewater, solid waste, domestic water, electricity, and telecommunications took into account the increased demand from all of the projected

development and population growth under the 2005 LRDP, including the proposed FSH Redevelopment Project. Adequate capacity is available in the utility mains that currently serve the site to handle the increased demand. Aside from minor alterations in connections, only on-site improvements to the domestic water, storm water drainage, natural gas and electric systems would be needed to serve the redeveloped complex. The telecommunications distribution facility and line may need to be upgraded and/ or slightly relocated. The exact location, installation type and capacity of the cable has not been confirmed, but will be identified during detailed project design. If the line requires replacement, the new line would meet current campus standards, including conduit duct banks and concrete caps. Environmental impacts from the development of the site, including on-site utility lines, are discussed in all the resource sections above and in all the resource sections in Volume I. If a new telecommunications line were proposed to extend off site, it is assumed that it would be located in existing utility corridors, where the potential for environmental impacts would be slight. No further analysis will be required unless it is proposed that a line extend outside an existing utility corridor. This eventuality is addressed in FSH Mitigation CULT-1.

Text on **page 3-65** has been revised as follows:

~~The cumulative impact of the 2005 LRDP, including the proposed project, on the transportation network is adequately addressed in LRDP Impacts TRA 1 and TRA 2. The LRDP-level traffic analysis took into account construction traffic that would be associated with ongoing construction on the campus over the life of the 2005 LRDP. The traffic associated with the FSH Redevelopment Project is a subset of the construction traffic that was accounted for in the LRDP-level analysis.~~

3.4 CHANGES TO VOLUME IV

3.4.1 Changes to Volume IV, Recirculated Draft EIR-Additional Traffic Analysis (Final EIR Appendix A)

Text in the first and second paragraph of Section 2.1.7.1 on **pages 2-9** has been revised as follows:

The purpose of this project is to improve merging conditions on several segments of SR 1 and SR 17 to improve both safety and operations. The extent of the improvement project is from the Pasatiempo Drive interchange on SR 17 to just north of the La Fonda overcrossing on SR 1. The project will include improvements at the SR 1/17 junction, and the Pasatiempo interchange, Emeline off-ramp, and Morrissey interchange. There will be no major modifications at the Morrissey interchange.

In the northbound direction, the project will add an auxiliary lane between the Morrissey Boulevard northbound on-ramp and the northbound ramp connector between SR 1 and SR 17. The configuration of the northbound Emeline Avenue northbound ramp will remain the same, but the ramp will be lengthened to provide greater deceleration area, in its current configuration. The northbound SR 1 to northbound SR 17 connector will be continued as an auxiliary lane to the northbound off-ramp at Pasatiempo Drive. In the southbound direction, the southbound SR 17 merge to southbound SR 1 will be eliminated. SR 1 will be widened to accommodate a third southbound lane that accommodates the southbound SR 17 traffic without merging. The third lane will be carried south past the Morrissey Boulevard interchange and merge back into the existing

two-lane section just north of the La Fonda overcrossing. The Morrissey Boulevard ramps will remain in their existing configuration. Sound walls will also be constructed along the freeway mainline and ramps as part of this project.

Text in the first paragraph under Section 2.1.7.2, on **page 2-10**, has been revised as follows:

This project consists of new auxiliary lanes southbound and northbound between the Soquel Avenue and Morrissey Boulevard interchanges. The new auxiliary lanes will reduce merging and weaving conflicts on the freeway beyond the southern end of the Highway 1/17 Merge Lanes project. In addition, the La Fonda Avenue overcrossing will be rebuilt to accommodate the construction of the auxiliary lanes and the future widening of SR 1 for HOV lanes. The overcrossing will be improved to provide wider sidewalks and bike lanes. While this project is not funded, there is \$3.67 million identified for the project in the House version of the transportation reauthorization bill, now in Congressional Conference Committee. There is \$2.9 million provided in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A legacy for Users (SAFETEA-LU) Bill.

Text in the first paragraph under Section 2.1.7.3, on **page 2-10**, has been revised as follows:

This long-term project, presently under environmental review, would widen SR 1 from a point north of Morrissey Boulevard to Larkin Valley/San Andreas Road ~~the La Fonda overcrossing to State Park Drive~~ to three lanes. The new lanes would be designated as High Occupancy Vehicle (HOV) lanes in the peak periods. This project would also add ramp metering to on-ramps. These new facilities would reduce congestion by improving ramp merge, diverge and weaving conditions as well as encourage carpooling and transit. Proposed funding through a sales tax measure was not passed by the voters in 2004, so funding for this project remains unknown.

**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
4.1 Aesthetics				
AES-1	Development under the 2005 LRDP would not significantly affect scenic vistas from key vantage points across the campus to the Monterey Bay.	LS	Mitigation not required	NA
AES-2	Development under the 2005 LRDP would not have a substantial effect on uphill scenic vistas that include the campus as viewed from vantage points on the campus and in the city of Santa Cruz.	LS	Mitigation not required	NA
AES-3	Development under the 2005 LRDP could substantially damage scenic resources on campus around the lower campus meadows.	PS	<p>AES-3A The UC Santa Cruz Design Advisory Board shall consider effects on scenic resources when reviewing projects under the 2005 LRDP to maintain scenic resources to the extent feasible. <u>For development projects around the lower campus meadows that have the potential to affect scenic resources, the Campus shall conduct visual simulations and, when necessary, shall modify project design to maintain scenic resources through measures such as changes in scale, massing, building orientation, building finish, screening or other measures to reduce the visual obtrusiveness of the construction.</u></p> <p>AES-3B For Academic Core development in and bordering meadow areas <u>the Great Meadow, the Campus shall limit the removal of natural vegetation outside building footprints, and cluster development at meadow edges to the extent feasible.</u></p> <p>AES-3C The Campus shall design the alignment and grades of the new Meyer Drive extension to be below the line of sight as viewed from Hagar Drive. If necessary, earthen berms shall be incorporated into the roadway design for purposes of screening the new roadway.</p>	LS
AES-4	Development under the 2005 LRDP could substantially damage the aesthetic quality of the Cowell Ranch Historic District as a scenic resource.	PS	AES-4 Until the final Cowell Ranch Historic District Management Plan is completed, for projects in the Cowell Ranch Historic District or within 500 feet of its boundaries, the Campus shall take the following measures into account in project design to preserve the historic visual quality of the historic	LS

¹NA: Not Applicable; NI: No impact; LS: Less than significant; PS: Potentially significant; S: Significant; SU: Significant and unavoidable; SP: Speculative

**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
AES-4 (cont)			district: <ul style="list-style-type: none"> To the greatest extent feasible, a buffer of at least 200 feet shall be maintained between the boundaries of the historic district and new building development that would be visible against the backdrop of historic buildings from significant campus viewpoints. New buildings or structures within 500 feet of the district boundaries shall be subject to review by the Design Advisory Board to ensure that design is consistent with or complementary to the historic aspect of the district and its buildings with respect to scale, massing, architectural style and materials, such that the rural historic visual character of the district is maintained. Once the Final Cowell Ranch Historic District Management Plan is adopted, all projects within adjacent areas identified in the management plan shall be evaluated for consistency with the visual design guidelines included in the Management Plan.	
AES-5	Development under the 2005 LRDP could substantially degrade the existing visual character of the campus and adjacent areas.	PS	<p>AES-5A Prior to design approval of development projects under the 2005 LRDP, the UC Santa Cruz Design Advisory Board shall review project designs for consistency with the valued elements of the visual landscape identified in the 2005 LRDP, and the character of surrounding development so that the visual character and quality of the project area are not substantially degraded.</p> <p>AES-5B For projects in redwood forest areas <u>that are visible from areas outside the forest, to the extent feasible, building heights will be designed to be no higher than below the height of the surrounding trees. If a building taller than all the surrounding trees is proposed for construction in a redwood forest area, visual simulations shall be prepared. If the proposed design is determined, in consultation between the visual consultant and the campus, to be degrading to the</u></p>	LS

¹NA: Not Applicable; NI: No impact; LS: Less than significant; PS: Potentially significant; S: Significant; SU: Significant and unavoidable; SP: Speculative

**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
AES-5 (cont)		<p><u>visual character of the campus, the design will be modified to reduce the visual obtrusiveness of the proposed project.</u></p> <p>AES-5C Campus development shall be designed and construction activities shall be undertaken in a manner that shall preserve <u>minimize removal of healthy and mature trees around new projects, except where the proximity of adjacent mature trees to new development is expected to result in a safety hazard or the ultimate decline of the trees, to the greatest extent feasible</u></p> <p>AES-5D The Campus shall continue its Site Stewardship Program <u>to maintain the wooded visual character of the central and north campus help maintain and restore natural areas on campus.</u></p> <p>AES-5E The Campus shall ensure that the site plan and design of any development in the Campus Support area on Empire Grade Road adjacent to Cave Gulch: (1) includes an <u>undeveloped visual undeveloped</u> buffer between the new structures and Empire Grade Road; (2) maintains the natural vegetation in this buffer while adequately managing the fire hazard; and (3) provides an arrangement of buildings and vegetation on the site to screen views of on-site activities from Empire Grade Road and Santa Cruz Waldorf School.</p> <p>AES-5F <u>Trees identified for removal will be evaluated for their aesthetic value as part of the environmental review process of individual projects.</u></p> <p><u>Individual construction projects that result in the removal of large oak trees or other large unique trees considered to be aesthetically valuable components of the landscape will shall replace such trees at a 1-to-1 ratio, either on site, or either elsewhere on campus, or -via a contribution to the campus's Site Stewardship program for planting replacement trees.</u></p>	

¹NA: Not Applicable; NI: No impact; LS: Less than significant; PS: Potentially significant; S: Significant; SU: Significant and unavoidable; SP: Speculative

**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
AES-6	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.	PS	<p>AES-6A Where there is a potential for reflective glare, as along meadow margins, project design shall provide for the use of non-reflective exterior surfaces, or other design measures to avoid new sources of reflected light.</p> <p>AES-6B Lighting for new development projects shall be designed to include directional lighting methods shielded to minimize light spillage and minimize atmospheric light pollution. This lighting should be compatible with the visual character of the project site and meet the UC Regents' Green Building Policies.</p> <p>AES-6C As part of the design review process, the UC Santa Cruz Design Advisory Board shall consider project-related light and glare and the Campus shall require the incorporation of measures into the project design to limit both to the extent allowed by code.</p> <p>AES-6D The Campus shall require that field lights used for the illumination of sports and recreation fields be turned off after 10<u>11</u> PM to minimize night lighting sources on campus, except when special events are scheduled.</p> <p>AES-6E As part of the design review process, UC Santa Cruz Design Advisory Board shall review outdoor lighting fixtures for roads, pathways, and parking facilities to ensure that the minimum amount of lighting needed to achieve safe routes is used, and to ensure that the proposed illumination limits adverse effect on nighttime views.</p>	LS
AES-7	Development under the 2005 LRDP, in conjunction with other regional development, would not result in significant cumulative impacts on scenic vistas of the Monterey Bay and the Santa Cruz Mountains as viewed from key vantage points.	LS	Mitigation not required	NA
AES-8	Development under the 2005 LRDP, in conjunction with other regional development, would result in cumulative visual changes, which however, would not substantially degrade the existing visual character or quality of the region.	LS	Mitigation not required	NA

¹NA: Not Applicable; NI: No impact; LS: Less than significant; PS: Potentially significant; S: Significant; SU: Significant and unavoidable; SP: Speculative

**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
AES-9	Development under the 2005 LRDP, in conjunction with other regional development, could result in increased light and glare but would not adversely affect daytime or nighttime views in the region.	LS	Mitigation not required	NA
4.2 Agricultural Resources				
AG-1	Development under the 2005 LRDP would not convert any lands on campus identified as Important Farmland under the State Farmland Mapping and Monitoring Program to nonagricultural uses	NI	Mitigation not required	NA
AG-2	Development under the 2005 LRDP would not result in changes in the existing environment, which, due to their location or nature, could result in the conversion of farmland to nonagricultural use.	NI	Mitigation not required	NA
AG-3	Growth under the 2005 LRDP, in conjunction with other growth in the region, would not result in the conversion of substantial acreages of Important Farmlands to nonagricultural uses.	LS	Mitigation not required	NA
4.3 Air Quality				
AIR-1	Construction activities under the 2005 LRDP would result in emissions of PM ₁₀ on a short-term basis.	LS	AIR-1 The Campus shall apply standard MBUAPCD -recommended mitigation measures during construction of new facilities under the 2005 LRDP, as appropriate: <ul style="list-style-type: none"> • Water all active construction areas at least twice daily. • Prohibit all grading activities during periods of high wind (over 15 mph). • Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days). • Apply non-toxic binders (e.g., latex acrylic copolymer), as appropriate, to exposed areas after cut and fill operations and hydroseed area. • Require haul trucks to maintain at least 2 feet of 	NA

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
AIR-1 (cont.)			freeboard. <ul style="list-style-type: none"> • Cover all trucks hauling dirt, sand, or loose materials. • Plant vegetative ground cover in disturbed areas as soon as possible. • Cover inactive storage piles. • Install wheel washers at the entrances to construction sites for all exiting trucks. • Pave all roads on construction sites. • Damp-sweep streets if visible soil material is carried out from the construction site. • Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with Rule 402. • To the extent feasible, Each project shall limit the area under construction at any one time. 	
AIR-2	Campus growth under the 2005 LRDP would result in daily operational emissions above the MBUAPCD thresholds, and therefore the proposed project may contribute substantially to a violation of air quality standards or hinder attainment of the regional air quality plan.	S	AIR-2A <p>The Campus shall incorporate; in each new project; consider design and construction features that reduce <u>conserve</u> natural gas dependence and/or minimize air pollutant emissions from space and water heating. Specific measures that will be considered for each project include, but are not limited to the following <u>in the design of each new project, and incorporate those measures that are feasible and that would be effective for the site, such as:</u></p> <ul style="list-style-type: none"> • Orientation of buildings to optimize solar heating and natural cooling; • Use of solar or low-emission water heaters in new buildings; <u>and/or</u> • Installation <u>of</u> best available wall and attic insulation in 	SU

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
AIR-2 (cont)			<p align="center">new buildings</p> <p>AIR-2B The Campus shall implement LRDP Mitigation TRA-24B to reduce motor vehicle trips.</p> <p>AIR-2C The Campus shall install VOC and NO_x controls on the new gas turbines to reduce emissions by 90 percent (e.g., Oxidation catalyst and SCR).</p>	
AIR-3	Traffic generated by development under the 2005 LRDP, in conjunction with traffic associated with other regional growth, would result in an increase in local CO concentrations at study area intersections.	LS	Mitigation not required	NA
AIR-4	Growth associated with the 2005 LRDP would conflict with the Air Quality Management Plan.	S	<p>AIR-4A The Campus will work with AMBAG to ensure that campus growth associated with the 2005 LRDP is accounted for in the regional population forecasts.</p> <p>AIR-4B The Campus will work with MBUAPCD to ensure that the campus growth-related emissions are accounted for in the regional emissions inventory and mitigated in future regional air quality planning efforts.</p>	SU
AIR-5	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.	S	<p>AIR-5A The Campus shall develop and implement an emergency generator maintenance testing schedule consistent with Table 4.3-22.</p> <p>AIR 5B <u>If the Campus does not replace the existing cogeneration system with a new system with lower emissions within three years of LRDP approval, the Campus shall conduct source tests for acrolein for the Central Plant emergency generator and the Delaval engine, and recalculate the hazard index for acute exposure (HIA) using the results of those tests. If the HIA is greater than 1.0 with Mitigation AIR-5A, the Campus shall reduce emissions from the emergency generator either by: (1) replacing the generator, (2) replacing the engine with a more efficient one, or (3) installing a catalytic oxidizer or other emissions controls.</u></p>	LS

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AIR-6	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.	SP Speculative	AIR-6 The Campus will minimize construction emissions by implementing measures such as those listed below: <ul style="list-style-type: none"> • Require the use of cleaner fuels (e.g., natural gas, ethanol) in construction equipment • Require that construction contractors use electrical equipment where possible • Require construction contractors to minimize the simultaneous operation of multiple pieces equipment at a construction site • Discourage Minimize idling time to a maximum of 5 minutes when — of — construction equipment — and vehicles — not in use • Schedule operations of construction equipment to minimize exposure as much as possible to emissions from construction equipment 	NA
AIR-7	Regional growth could result in an increase in toxic air contaminants but the implementation of technological improvements would reduce air toxics and associated human health risks.	LS	AIR-7 UC Santa Cruz will continue its efforts in the area of TAC emission reduction.	NA
4.4 Biological Resources				
BIO-1	Development on the main campus under the 2005 LRDP could result in a substantial adverse effect, directly and indirectly, on northern maritime chaparral, a sensitive natural community identified by CDFG, and Santa Cruz manzanita, a special-status plant that generally occurs within northern maritime chaparral areas.	PS	BIO-1A — The Campus shall avoid removal of large patches (greater than the patch size of 10 acres) of northern maritime chaparral, avoid fragmenting northern maritime chaparral, and shall establish habitat buffers between development and adjacent northern maritime chaparral where feasible. The Campus shall also avoid Santa Cruz manzanita occurrences that are large (greater than patch size of 2 acres) or of high or moderate density, when possible. — The habitat buffer will consist of at least 30 feet of natural vegetation from the edge of paved areas or buildings to the edge of the chaparral. This buffer may overlap with the 30- to 100-foot fire buffer around buildings where fuel	LS

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LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
<p>BIO-1 (cont.)</p>		<p>reduction may occur (see LRDP Mitigation HAZ-10B).</p> <p>BIO-1A <u>Avoidance.</u> The Campus shall avoid removal or fragmentation of any patch of northern maritime chaparral greater than 10 acres in size and any patch of Santa Cruz manzanita greater than 0.25 acres in size, where feasible, and shall establish a habitat buffer between development and adjacent northern maritime chaparral. The habitat buffer will consist of a band of native vegetation, at least 30-feet wide, between the chaparral patch and the adjacent development. This habitat buffer may be included within the 100-foot-wide fire buffer around buildings in cases where this buffer would be managed by fuel reduction strategies compatible with habitat management (see LRDP Mitigation HAZ-10B).</p> <p>The Campus shall document northern maritime chaparral and Santa Cruz manzanita avoidance and impact minimization efforts in project-level environmental documents. If avoidance is determined to be infeasible, the environmental document shall also explain this conclusion.</p> <p>BIO-1B — Where avoidance of large patches is not feasible, the Campus shall mitigate losses of northern maritime chaparral through the preservation and management of northern maritime chaparral habitat at a ratio of at least 1:1. Losses of Santa Cruz manzanita stands on campus (greater than patch size of 2 acres) shall be mitigated through the preservation and management of other Santa Cruz manzanita stands according to the mitigation ratios in Table 4.4-3. The Campus shall try to preserve the habitat on campus and would implement off campus preservation only if the required preservation cannot be achieved on campus. Mitigation ratios for Santa Cruz manzanita vary depending on the density of the stand affected and preserved, but are designed to ensure at least 1:1 preservation overall. For off-site preservation, if any is necessary, priority will be given to sites that are closest to UC Santa Cruz in order to protect</p>	

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BIO-1 (cont.)			<p>local genetic diversity. Preservation of northern maritime chaparral and Santa Cruz manzanita can occur at the same site as long as both required mitigation ratios are met.</p> <p>Preservation and management to mitigate the loss of northern maritime chaparral and Santa Cruz manzanita shall be in perpetuity. The goals of management for northern maritime chaparral and Santa Cruz manzanita shall be to reduce the incursion of mixed hardwood forest and non-native invasive species into these stands, encourage regeneration of chaparral species, including Santa Cruz manzanita, and maintain or increase the density of Santa Cruz manzanita.</p> <p>Protection of northern maritime chaparral and Santa Cruz manzanita shall occur prior to the loss of these resources due to development. Within one year of protecting a stand, a management and monitoring plan will be prepared that describes quantitative biological goals, management techniques, safety procedures, monitoring protocols, and schedules for that stand. The management plan will be developed in coordination with the Fire Management Plan (see LRDP Mitigation HAZ 10B) and will be consistent with safety requirements. Management plan components shall include monitoring and control of non-native invasive species and monitoring and removal of mixed hardwood forest trees.</p> <p><u>BIO-1B</u> <u>Compensatory Preservation and Management on Campus.</u> <u>Where avoidance as specified in LRDP Mitigation BIO-1A is determined not to be feasible, and a patch 10 acres or larger of northern maritime chaparral will be removed, the Campus shall designate for permanent preservation and shall manage comparable areas of existing northern maritime chaparral habitat on campus at a ratio of at least 1:1. Similarly, for any patch of Santa Cruz manzanita 0.25 acres or larger in size that will be removed, the Campus shall designate for permanent preservation and</u></p>	

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BIO-1 (cont.)		<p><u>shall manage other areas of Santa Cruz manzanita on campus. Mitigation ratios for Santa Cruz manzanita may vary depending on the density of the stands affected and preserved, as indicated in Draft EIR Table 4.4-3, but must provide preservation at a ratio of at least 1:1. Preservation of northern maritime chaparral and Santa Cruz manzanita may occur at the same site as long as both required mitigation ratios are met.</u></p> <p><u>The acreage of northern maritime chaparral to be removed, the acreage and density of Santa Cruz manzanita patches to be removed, and the density of proposed preservation patches shall be assessed based on project-specific analyses using the most detailed and reliable vegetation mapping available.</u></p> <p><u>Protection and management planning for the proposed preservation areas of northern maritime chaparral and Santa Cruz manzanita shall occur prior to the removal of these resources due to development. Management to enhance habitat and species dominance and prevent succession to hardwood or evergreen forest shall continue in perpetuity.</u></p> <p><u>Within one year of protecting a stand, the Campus shall prepare a management and monitoring plan that describes quantitative biological goals, management techniques, safety procedures, monitoring protocols, schedules and success criteria for that stand. The management plan will be developed in consultation with CDFG and in coordination with the Campus Vegetation Management Plan (see LRDP Mitigation HAZ-10B) and will be consistent with safety requirements. Management plan components shall include monitoring and control of non-native invasive species and monitoring and removal of mixed hardwood forest trees.</u></p> <p><u>The goals of management for northern maritime chaparral and Santa Cruz manzanita shall be to reduce the incursion of mixed hardwood forest and non-native invasive species into these stands, encourage regeneration of chaparral</u></p>	

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<p>BIO-1 (cont.)</p>		<p><u>species including Santa Cruz manzanita, and to maintain or increase the density of Santa Cruz manzanita in the chaparral, with the overall goal of maintaining and enhancing 1 acre of comparable or better quality chaparral habitat or Santa Cruz manzanita for every 1 acre removed.</u></p> <p><u>The effectiveness of the management plan will be reviewed at five-year intervals. If success criteria, as defined in the Management Plan, are not achieved within five years, the Campus shall review and revise the management plan. If it is determined after 10 years that the management effort was not successful at the selected site, or was successful for only a portion of the site, and is not likely to be successful, the Campus either shall designate another area of chaparral on campus for long term management; or shall implement LRDP Mitigation BIO-IC (Restoration). If management was successful in a portion of the preserved area, sufficient acreage will need to be designated in a new area only to mitigate that portion of the acreage not previously mitigated at the original site.</u></p> <p><u>Each patch successfully managed to prevent succession will be protected and managed in perpetuity either through land use designation such as HAB (Campus Habitat Reserve), through a conservation easement or deed restriction, or through a similar permanent mechanism.</u></p>	

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<p>BIO-1 (cont)</p>		<p><u>BIO-1C</u> <u>Restoration.</u> <u>If no patch of northern maritime chaparral or Santa Cruz manzanita of adequate size or suitable density can be identified for preservation and management on campus, or if mitigation is not successful or only partially successful after 10 years at a preservation site, the Campus may designate a comparable, preferably contiguous, area of chaparral-forest transition habitat on campus for preservation and restoration. Northern maritime chaparral or Santa Cruz manzanita removed through development, or any portion of the patch not previously mitigated through preservation of a comparable patch, shall be mitigated through designation of chaparral-forest transitional habitat for restoration, at a ratio of 3:1, with the management goal of successfully restoring the acreage to chaparral at a 1:1 ratio for every acre lost to development.</u></p> <p><u>Portions of the chaparral-forest transition area that are contiguous with protected northern maritime chaparral and Santa Cruz manzanita areas will be given the highest priority for restoration in order to minimize edge effects.</u></p> <p><u>Within 1 year of designation, as specified in Mitigation BIO-1B, above, a management and restoration and monitoring plan, including quantitative success criteria, shall be prepared for the restoration area. Success criteria for the restoration shall include providing equivalent or greater overall cover of native chaparral species (such as brittleleaf manzanita, Santa Cruz manzanita, sensitive manzanita, wartleaf ceanothus, blue blossom and chamise) as is found in the northern maritime chaparral that will be lost to development. Among the restoration techniques that could be used in the chaparral-forest transition areas are tree removal, monitoring and control of non-native species, and prescribed burning, where this can be conducted safely. Management of the site shall continue in perpetuity to protect the northern maritime chaparral management areas from succession to mixed evergreen forest.</u></p> <p><u>If northern maritime chaparral restoration does not meet the</u></p>	

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BIO-1 (cont.)		<p><u>success criteria after 10 years, restoration areas shall be either replanted, or restoration attempted on another, suitable site on campus. Once the management success criteria have been met, the Campus will designate the parcel for preservation in perpetuity, as described under Mitigation BIO-1B, above.</u></p> <p><u>If restoration efforts on campus are not successful, the Campus may explore options for mitigation off campus, through mechanisms such as contribution to a mitigation bank or other management effort, provided that this will ensure protection and management of chaparral at the ratio of at least 1:1 for every acre lost on campus. Should the Campus elect to participate in an off-site mitigation program, priority will be given to sites that are closest to UC Santa Cruz in order to protect local genetic diversity.</u></p>	
BIO-2	Development on the main campus under the 2005 LRDP could result in a substantial adverse impact to coastal prairie, a sensitive natural community.	<p>BIO-2A The Campus shall avoid removal of coastal prairie through redesign of proposed development areas and road alignments where possible. The design of all campus facilities shall include a buffer between development and prairie in order to reduce indirect impacts from edge effects such as increases in noxious weed species. The width of each buffer will depend on the site and the nature of adjacent development. The minimum buffer shall be 30 feet from the edge of paved areas or buildings to the edge of coastal prairie. Landscaped areas are acceptable within the <u>habitat buffer, provided that they are planted with</u> species that are not invasive in coastal prairie (i.e., no non-native grasses) and are not fire prone.</p> <p>BIO-2B The Campus shall mitigate for unavoidable losses of coastal prairie by restoring coastal prairie at a 3:1 ratio. Before impacts to coastal prairie occur, a management and monitoring plan, including quantitative success criteria, shall be prepared for the restoration site. Success criteria for the restoration shall include providing equivalent or greater overall (rather than species specific) cover of native perennial bunchgrasses (such as purple needlegrass,</p>	LS

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BIO-2 (cont)			California oatgrass, and Pacific panic grass) and native forbs (such as white hyacinth and dwarf brodiaea) as is found in the coastal prairies that will be lost to development. Management of the site shall continue for at least 15 years to protect the coastal prairie management areas from reverting to annual grassland. If coastal prairie restoration does not meet the success criteria after 5 years, restoration shall be remedied (e.g., replanting) or restoration attempted on a new, more suitable site.	
BIO-3	Development under the 2005 LRDP could result in substantial, adverse direct and indirect impacts to jurisdictional wetlands.	PS	<p>BIO-3A At the time that a specific development project is proposed, the Campus shall conduct a site reconnaissance to determine whether wetlands are present on the site. If no potential wetlands are found, no further mitigation is necessary.</p> <p>BIO-3B If potential wetlands are found, the Campus shall retain a qualified biologist to conduct a delineation of waters of the state and waters of the United States during the environmental review phase of the project to determine the location, extent, and function of wetlands within 200 feet of development footprints.</p> <p>BIO-3C Where feasible, direct Direct impacts to jurisdictional wetlands shall be avoided in the design of the project. <u>If avoidance is not feasible, the Campus shall implement LRDP Mitigation BIO-3D.</u></p> <p>BIO-3D If avoidance of wetlands is not feasible, to compensate for temporary or permanent loss of jurisdictional wetlands, the Campus shall restore or create wetland habitat to ensure no net loss of the extent and function of these communities. Prior to any work that could disturb jurisdictional or other wetland habitat within the project area, the Campus shall obtain the following permits as required:</p> <ul style="list-style-type: none"> • U.S. Army Corps of Engineers – Nationwide or individual permit as required under Clean Water Act Section 404. 	LS

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BIO-3 (cont)			<ul style="list-style-type: none"> • Central Coast Regional Water Quality Control Board – Water quality certification or waiver under Clean Water Act Section 401. • California Department of Fish and Game – Streambed Alteration Agreement. <p>Consultation with these agencies shall govern how the disturbance of wetlands will be mitigated, including the location and extent of wetland restoration or creation.</p>	
BIO-4	Construction of bridge crossings and other improvements under the 2005 LRDP could result in a substantial temporary and permanent adverse impact on riparian vegetation.	PS	<p>BIO-4A Campus construction projects shall avoid patches of riparian vegetation greater than 0.1 acre in size or longer than 300 linear stream feet. If avoidance is not feasible, LRDP Mitigation BIO-4B shall be implemented.</p> <p>BIO-4B The Campus shall compensate for the loss of patches of riparian vegetation greater than 0.1 acre in size or longer than 300 linear stream feet through onsite and/or offsite restoration and/or enhancement of riparian habitat in order to ensure that no significant loss of riparian habitat functions and values occurs. The size of the area(s) to be restored will be determined based on a 1:1 mitigation ratio. UC Santa Cruz shall retain a qualified restoration ecologist to develop a conceptual restoration and monitoring plan that describes how riparian habitat will be enhanced or restored and monitored over a minimum period of time. UC Santa Cruz shall be responsible for ensuring that the restoration and monitoring plan is implemented. The terms of the restoration and monitoring plan shall be determined in consultation with the CDFG and other permitting agencies.</p> <p>BIO-4C If more than 0.2 acre or 600 linear stream feet of riparian vegetation is temporarily disturbed or removed at UC Santa Cruz as a result of proposed storm water drainage improvements or other development under the 2005 LRDP, UC Santa Cruz shall restore riparian vegetation within the project area or in the nearest suitable upstream or downstream reach. Riparian vegetation shall be restored following the construction of each project that has a</p>	LS

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BIO-4 (cont)			temporary impact on more than 0.2 acre or 600 linear feet of riparian vegetation. UC Santa Cruz shall compensate for the loss through onsite restoration and/or enhancement of riparian habitat in order to ensure that no significant loss of riparian habitat functions and values occurs. The size of the area(s) to be restored will be determined based on a 1:1 mitigation ratio. UC Santa Cruz shall retain a qualified restoration ecologist to develop a conceptual restoration and monitoring plan that describes how riparian habitat will be enhanced or restored and monitored over a minimum period of time. UC Santa Cruz shall be responsible for ensuring that the restoration and monitoring plan is implemented. The terms of the restoration and monitoring plan shall be determined in consultation with the CDFG and other permitting agencies.	
BIO-5	Development under the 2005 LRDP would not result in an adverse impact, directly and indirectly, to special-status plant species.	LS	Mitigation not required	NA
BIO-6	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.	PS	<p>BIO-6 To avoid or minimize the introduction or spread of noxious weeds, <u>sudden oak death or pitch canker</u> into uninfested areas, UC Santa Cruz shall incorporate the following measures into the project plans and specifications for work on the north campus to be conducted under the 2005 LRDP.</p> <ul style="list-style-type: none"> • Only certified, weed-free materials shall be used for erosion control. • UC Santa Cruz shall identify appropriate best management practices to avoid the dispersal of noxious weeds, <u>sudden oak death and pitch canker</u>. The Campus shall then include appropriate practices in <u>Campus Standards for construction standards</u> to be implemented during construction in all north campus areas. Typical best management practices include the use of weed-free erosion control materials and revegetation of disturbed areas with seed mixes that include native species and exclude invasive non- 	LS

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BIO-6 (cont)			<p>natives. <u>Best management practices to avoid the spread of sudden oak death and pitch pine canker will be determined in consultation with the California Department of Forestry.</u></p> <ul style="list-style-type: none"> In uninfested areas, topsoil removed during excavation shall be stockpiled and used to refill the trench on site if it is suitable as backfill 	
BIO-7	Development under the 2005 LRDP could result in a substantial adverse impact on Ohlone tiger beetle populations on the campus from increased bicycle use on trails and obstruction of potential movement corridors by trees planted in the Arboretum.	PS	<p>BIO-7A <u>During periods of adult beetle activity or larval development (January to June), bicycles will not be allowed on trails in Marshall Field or West Marshall Field that support Ohlone tiger beetles. In addition, during periods of adult beetle activity or larval development (January to June) additional measures to prevent illegal bicycle use shall be implemented.</u></p> <p>These will include- Temporary fencing and signs that will be installed and maintained during this period at trail entry points. The information signs will advise all trail users of the need to avoid these areas. UC Santa Cruz Police or Campus Maintenance Staff <u>also</u> shall patrol these areas during this period in order to alert or issue citations to violators and help ensure compliance.</p> <p>BIO-7B Any modification of the vegetation composition and/or fencing of Arboretum lands north of the currently enclosed Arboretum <u>or the jointly-managed Campus Natural Reserve immediately northwest of the Arboretum</u> will be developed in consultation with the USFWS in order to protect and maintain potential movement corridors for the Ohlone tiger beetle.</p>	LS

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BIO-8	Development under the 2005 LRDP would not result in a substantial adverse impact (i.e., 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.	LS	<p>BIO-8A The Campus shall continue to limit visitation of caves on campus, and discourage activities by members of the public that could jeopardize the physical integrity, condition or scientific value of the caves, through appropriate signage and educational materials literature, Campus Natural Reserve website information, or other appropriate measures.</p> <p>BIO-8B <u>The Campus shall consult with U.S. Fish and Wildlife Service and California Department of Fish and Game to develop a design for a barrier for the entrance of Empire Cave that will not harm special-status species inhabiting the cave. The barrier shall be installed, if determined to be advisable by USFWS and CDFG, to prevent illegal access to the cave.</u></p>	NA
BIO-9	Development under the 2005 LRDP could result in a substantial adverse effect on breeding or important movement habitat for California red-legged frog; direct impacts to California red-legged frog populations; or indirect impacts on the species from downstream hydrological changes in the Moore Creek watershed.	PS	<p>BIO-9 <u>To minimize disturbance of breeding and dispersing California red-legged frogs, all ground-disturbing construction activity within the Moore Creek watershed, such as vegetation clearing, site leveling and grading, that occurs within designated red-legged frog habitat shall be conducted during the dry season, (after May 1 and before October 15). If ground-disturbing activities cannot be completed within the dry season, UC Santa Cruz shall contact the USFWS field office to initiate the following measures and determine whether additional mitigation measures are necessary to minimize potential impacts. UC Santa Cruz will implement the following measures to avoid impacts to the California red-legged frog:</u></p> <ul style="list-style-type: none"> <u>To prevent California red-legged frogs from moving through the construction site during the rainy season, temporary exclusion fencing shall be placed around the construction work area at least one week prior to the start of construction activities. The fence shall be made of a fine-meshed material that does not allow red-legged frogs to pass through, and the bottom shall be buried to a depth of two inches so that California red-legged frogs cannot crawl under the fence.</u> 	LS

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Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
<p>BIO-9 (cont)</p>		<ul style="list-style-type: none"> • <u>A qualified wildlife biologist shall monitor all construction activities within California red-legged frog upland habitat daily during initial ground-disturbing activities. The biological monitor shall look for red-legged frogs during grading, excavation, and vegetation removal activities. Once all initial ground-disturbing activities are completed, the biologist shall perform spot checks of the site once a week. If a red-legged frog is discovered, construction activities shall cease in the immediate vicinity of the individual until USFWS is contacted and the frog has been removed from the construction area by a qualified biologist with a permit to handle the species or by USFWS personnel, and released near a suitable burrow at least 300 feet away from the construction area.</u> • <u>Prior to the start of daily construction activities, the biological monitor shall inspect the perimeter fence to ensure that it is not ripped or has holes and that the base is still buried. The fence will also be inspected to ensure that no frogs are trapped in the fence. Any frogs found along and outside the fence will be closely monitored until they move away from the construction area.</u> <p>Initial ground disturbing activities in the Moore Creek watershed, including grading and vegetation removal, will not occur during the period when CRLF are most likely to be in or near aquatic environments and not dispersing. Therefore, construction in CRLF habitat shall be restricted to the period after May 1 and before October 15.</p> <p>□A qualified biologist shall examine the project area 24 hours before project activities begin and during any initial vegetation, woody debris, tree removal, or other initial ground disturbing activities. If a CRLF is observed at any time before or during project activities, all activities will cease. The Campus will coordinate with the appropriate agencies to develop avoidance measures before</p>	

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
BIO-9 (cont)			commencing project activities. Initial construction activities, including vegetation removal and grading, shall not occur when it is raining.	
BIO-10	Development under the 2005 LRDP would not result in a substantial adverse impact associated with the loss of potential habitat or other indirect impacts to the southwestern pond turtle or coast horned lizard.	LS	Mitigation not required	NA
BIO-11	Development under the 2005 LRDP could result in the loss or abandonment of active nests for special-status raptors.	PS	<p>BIO-11 Prior to construction or site preparation activities, a qualified biologist shall be retained to conduct nest surveys at each site that has appropriate nesting habitat. The survey shall be required for only those projects that will be constructed during the nesting/breeding season of sharp-shinned hawk, golden eagle, northern harrier, long-eared owl, or white-tailed kite (typically February 1 through August 31).</p> <p>The survey area shall include all potential nesting habitat, including mixed evergreen forest, redwood forest, and isolated trees that are within 200 feet of the proposed project grading boundaries. The survey shall be conducted no more than 14 days prior to commencement of construction activities.</p> <p>If active nests of sharp-shinned hawk, <u>Cooper's hawk</u>, golden eagle, northern harrier, <u>Vaux's swift</u>, long-eared owl, and white-tailed kite (or other species protected under the Migratory Bird Treaty Act and the California Fish and Game Code) are present in the construction zone or within 200 feet of the construction zone, a temporary fence shall be erected at a distance of 200 feet around the nest site (or less if determined to be appropriate by the biologist according to the species and site conditions). Clearing and construction within the fenced area shall be postponed until juveniles have fledged and there is no evidence of a second nesting attempt as determined by the biologist.</p>	LS

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
<p>BIO-12 Development under the 2005 LRDP could would not potentially result in a substantial adverse impact on western burrowing owl.</p>	<p><u>PSLS</u></p>	<p>BIO-12A Prior to any ground disturbance of grassland habitats on the lower campus, a qualified biologist will conduct a preconstruction survey to identify western burrowing owls and/or potential habitat features (e.g., burrows) and to evaluate use by burrowing owls in accordance with current CDFG survey guidelines (CDFG 1995).</p> <p>Surveys will be conducted within the proposed disturbance footprint and a 500-foot radius of the disturbance boundary of each proposed project. For construction activities occurring within the western burrowing owl habitat (whether during breeding or non-breeding seasons), surveys will be conducted within 30 days prior to construction. The surveys will document whether burrowing owls are nesting on or directly adjacent to disturbance areas. Survey results will be valid only for the season during which the survey is conducted.</p> <p>If western burrowing owls are found during the breeding or nonbreeding season, LRDP Mitigation BIO-12B will be implemented.</p> <p>BIO-12B If burrowing owls are found, the Campus will avoid all burrowing owl nest sites to the extent feasible. Avoidance will include establishment of a non-disturbance buffer zone of at least 250 feet around each nest site during the breeding season. If burrowing owls are found outside the breeding season (September 1–January 31), avoidance will include the establishment of at least a 160-foot non-disturbance buffer zone around each burrow being used. In both cases, highly visible temporary construction fencing will delineate the buffer zone.</p> <p>If burrowing owl nest sites cannot be avoided, the Campus will conduct passive relocation by installing one-way doors in suitable burrow entrances that are used or may be used by the owls. This measure is described in detail below.</p> <p>In order to displace burrowing owls without destroying eggs, young, or adults, one-way doors will be installed on</p>	<p><u>LSNA</u></p>

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
BIO-12 (cont)			owl burrows before February 1 prior to disturbance, and each burrow will be monitored following CDFG’s protocol (CDFG 1995). Suitable artificial burrows will be created nearby according to the conservation measures established for this species. The protocol includes monitoring the burrow for a 48-hour period after the one-way doors are installed. The doors will be checked every 24 hours following installation to determine whether they are still intact. If the one-way door is still correctly installed after a continuous 48-hour period (i.e., no animals have dug up the door and rendered it useless), then the one-way door will be removed and the burrows will be excavated using hand tools and plastic tubing to maintain an escape route for any animals still inside the burrow.	
BIO-13	Development under the 2005 LRDP could result in a substantial adverse impact associated with the disturbance of roosting sites for special-status bats.	PS	<p>BIO-13A If tree removal or grading activity commences on a project site in the north campus during the breeding season of native bat species (April 1 through August 31), a field survey shall be conducted by a qualified biologist to determine whether active roosts of special-status bats (pallid bat, Pacific Townsend’s big-eared bat, western red bat, long-eared myotis, fringed myotis, long-legged myotis, yuma myotis, or greater western mastiff bat) are present on the project site or in areas containing suitable roosting habitat within 50 feet of the project site.</p> <p>Field surveys shall be conducted in late April or early May in the season before construction begins, when bats are establishing maternity roosts but before pregnant females give birth. If no roosting bats are found, no further mitigation would be required.</p> <p>BIO-13B If roosting bats are found, disturbance of the maternity roosts shall be avoided by halting construction until either (1) the end of the breeding season or, (2) a qualified biologist removes and relocates the roosting bats in accordance with CDFG requirements.</p>	LS

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Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
BIO-14	Development under the 2005 LRDP could result in a substantial adverse impact associated with the loss of potential San Francisco dusky-footed woodrat nests.	PS	<p>BIO-14 A pre-construction/grading survey of all suitable San Francisco dusky-footed woodrat habitat within 100 feet of the proposed grading footprint shall be conducted by a qualified biologist to detect any woodrat nests.</p> <p>The survey shall be conducted no more than 14 days prior to commencement of construction activities. If active nests (stick houses) are identified within the construction zone or within 100 feet of the construction zone, a fence shall be erected around the nest site with a 100-foot minimum buffer from construction activities. At the discretion of the biologist, clearing and construction within the fenced area would be postponed or halted until juveniles have left the nest. The biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests will occur. If any woodrat is observed within the grading footprint outside of the breeding period, individuals shall be trapped and relocated to a suitable location in proximity to the project site by a qualified biologist in accordance with CDFG requirements, and the nest dismantled so it cannot be reoccupied.</p>	LS
BIO-15	Development under the 2005 LRDP could interfere substantially with the movement of wildlife species or with established native resident or migratory wildlife corridors.	PS	BIO-15 New fencing planned for installation around Arboretum plantings between Moore Creek and the Great Meadow shall be constructed to allow for the movement of mammals across or around the barrier.	LS
BIO-16	Development under the 2005 LRDP would not conflict with the approved HCP for California red-legged frog and Ohlone tiger beetle on campus.	LS	Mitigation not required	NA
BIO-17	Campus development under the 2005 LRDP, in conjunction with other regional development in northern Santa Cruz County, would not result in a substantial adverse cumulative impact on sensitive natural communities.	LS	Mitigation not required	NA

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Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
BIO-18	Development under the 2005 LRDP, in conjunction with other regional development, would not result in a substantial adverse cumulative impact on other special-status wildlife species or wildlife movement.	LS	Mitigation not required	NA
BIO-19	Campus population growth under the 2005 LRDP, in conjunction with other regional population growth, would result in a substantial adverse cumulative impact to Ohlone tiger beetle populations on campus from increased bicycle traffic on trails suitable for this species.	PS	BIO-19 The Campus shall implement LRDP Mitigations BIO-7A and BIO-7B.	LS
4.5 Cultural Resources				
CULT-1	Implementation of the 2005 LRDP could damage or destroy an archaeological resource as the result of grading, excavation, ground disturbance or other project development.	PS	<p>CULT-1A As early as possible in the project planning process, the Campus shall define the project's area of potential effects (APE) for archaeological resources. The Campus shall determine the potential for the project to result in cultural resource impacts, based on the extent of ground disturbance and site modifications anticipated for the proposed project. The Campus shall also review confidential resource records¹ to determine whether complete intensive archaeological survey has been performed on the site and whether any previously recorded cultural resources are present.</p> <p>CULT-1B Where native soils will be disturbed, the Campus shall provide and shall require contractor crews to attend an informal training session prior to the start of earth moving, regarding how to recognize archaeological sites <u>and artifacts</u>. In addition, campus employees whose work routinely involves disturbing the soil shall be informed how to recognize evidence of potential archaeological sites and artifacts. Prior to disturbing the soil, contractors shall be notified that they are required to watch for potential archaeological sites and artifacts and to notify the campus if</p>	LS

¹ Monterey Bay Archaeological Archives, Department of Anthropology, UC Santa Cruz and California Historical Resources Information System. Northwest Information Center, Sonoma State University.

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
<p>CULT-1 (cont)</p>		<p>any are found. In the event of a find, the Campus shall implement LRDP Mitigation CULT-1G, below.</p> <p>CULT-1C For project sites that have not been subject to prior complete intensive archaeological survey, the Campus shall ensure that a complete intensive surface survey is conducted by a qualified archaeologist during project planning and design and prior to soil disturbing activities. If an archaeological deposit is discovered, the archaeologist will prepare a site record and file it with the California Historical Resource Information System. In the event of a find within the area of potential effects, the Campus shall consult with a qualified archaeologist to design and conduct an archaeological subsurface investigation and/or a construction monitoring plan of the project site to ascertain the extent of the deposit relative to the project's area of potential effects, to ensure that impacts to potential buried resources are avoided.</p> <p>CULT-1D If it is determined that the resource extends into the project's area of potential effects, the Campus shall ensure that the resource is evaluated by a qualified archaeologist, who will determine whether it qualifies as a historical resource or a unique archaeological resource under the criteria of CEQA Guidelines §15064.5. This evaluation may require additional research, including subsurface testing. If the resource does not qualify, or if no resource is present within the project APE, this will be reported in the environmental document and no further mitigation will be required unless there is a discovery during construction.</p> <p>CULT-1E If a resource within the project's area of potential effects is determined to qualify as an historical resource or a unique archaeological resource (as defined by CEQA), the Campus shall consult with the qualified archaeologist to consider means of avoiding or reducing ground disturbance within the site boundaries, including minor modifications of building footprint, landscape modification, the placement of</p>	

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Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
<p>CULT-1 (cont)</p>		<p>protective fill, or other means that will permit avoidance or substantial preservation in place of the resource.</p> <p>CULT-1F If avoidance or substantial preservation in place is not possible for an archaeological site that has been determined to meet CEQA significance criteria, the Campus shall retain a qualified archaeologist who, in consultation with the Campus, shall prepare a research design, and plan and conduct archaeological data recovery and monitoring that will capture those categories of data for which the site is significant, prior to or during development of the site. The Campus shall also ensure that appropriate technical analyses are performed, and a full written report prepared and filed with the California Historical Resources Information System, and also shall provide for the permanent curation of recovered materials.</p> <p>CULT-1G If an archaeological resource is discovered during construction (whether or not an archaeologist is present), all soil disturbing work within 100 feet of the find shall cease. The Campus shall contact a qualified archaeologist to provide and implement a plan for survey, subsurface investigation as needed to define the extent of the deposit, and assessment of the remainder of the site within the project area to determine whether the resource is significant and would be affected by the project. LRDP Mitigation CULT-1F shall also be implemented.</p> <p>CULT-1H If, in the opinion of the qualified archaeologist and in light of the data available, the significance of the site is such that data recovery cannot capture the values that qualify the site for inclusion on the CRHR, the campus shall reconsider project plans in light of the high value of the resource, and implement more substantial modifications to the proposed project that would allow the site to be preserved intact, such as project redesign, placement of fill, or project relocation or abandonment. If no such measures are feasible, the Campus shall implement LRDP Mitigation CULT-3A.</p>	

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Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
CULT-2	Implementation of the proposed 2005 LRDP could damage or destroy a historic building or structure as the result of alteration of the building or of the site, or other project development.	PS	<p>CULT-2A For projects within Cowell Ranch Historic District overlay; the Campus shall implement LRDP Mitigations AES-4A and AES-4B.</p> <p>CULT-2B As early as possible in the project planning process, the Campus shall define the project's area of potential effects (APE) for historic structures. The Campus shall determine the potential for the project to result in impacts to or alteration of historic structures, based on the extent of site and building modifications anticipated for the proposed project.</p> <p>CULT-2C Before altering or otherwise affecting a building or structure 50 years old or older that has not been evaluated previously, the Campus shall retain a qualified architectural historian to record it at professional standards, and assess its significance under CEQA Guidelines Section 15064.5. The evaluation process shall include the development of appropriate historical background research as context for the assessment of the significance of the structure in the history of the University system, the campus, and the region. For historic buildings, structures or features that do not meet the CEQA criteria for historical resource, no further mitigation is required and the impact is less than significant.</p> <p>CULT-2D For a building or structure that qualifies for listing on the CRHR, the Campus shall consult with the architectural historian to consider measures that would enable the project to avoid direct or indirect impacts to the building or structure. These could include preserving a building on the margin of the project site, using it "as is," or other measures that would not alter the building.</p> <p>CULT-2E If the project cannot avoid modifications to a significant building or structure, the Campus shall ensure that documentation and treatment shall be carried out by a qualified architectural historian, as described below:</p>	SULS

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
CULT-2 (cont)		<ul style="list-style-type: none"> • If the building or structure can be preserved on site, but remodeling, renovation or other alterations are required, this work shall be conducted in compliance with the “Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings” (Weeks and Grimmer 1995). • If a significant historic building or structure is proposed for major alteration or renovation, or to be moved and/or demolished, the campus shall ensure that a qualified architectural historian thoroughly documents the building and associated landscaping and setting. Documentation shall include still and video photography and a written documentary record of the building to the standards of the Historic American Building Survey (HABS) or Historic American Engineering Record (HAER), including accurate scaled mapping, architectural descriptions, and scaled architectural plans, if available. A copy of the record shall be deposited in the McHenry Library Special Collections, and with the California Historical Resources Information System. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site specific and comparative archival research, and oral history collection as appropriate. • If preservation and reuse at the site are not feasible, the historical building shall be documented as described in item (ii) and, when physically and financially feasible, be moved and preserved or reused. <p>CULT-2F If, in the opinion of the qualified architectural historian, the nature and significance of the building is such that its demolition or destruction cannot be fully mitigated through documentation, the Campus shall reconsider project plans in</p>	

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Revised Table 2-1
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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
CULT-2 (cont)			light of the high value of the resource, and implement more substantial modifications to the proposed project that would allow the structure to be preserved intact. These could include project redesign, relocation or abandonment. If no such measures are feasible, the Campus shall implement LRDP Mitigation CULT-3B.	
CULT-3	Implementation of the LRDP could cause a substantial adverse change in the significance of a historical resource or unique archaeological resource, as defined in CEQA Guidelines 15064.5, and the values that contribute to the significance of the resource cannot be preserved through documentation and data recovery.	S	<p>CULT-3A If a significant archaeological resource cannot be preserved intact, before the property is damaged or destroyed, the Campus shall ensure that the resource is appropriately documented by implementing a program of research-directed data recovery, consistent with LRDP Mitigation CULT-1F.</p> <p>CULT-3B If a significant historic resource or unique archaeological resource cannot be preserved intact, before the property is damaged or destroyed the Campus shall ensure that the important information represented by the resource is preserved, by implementing a program of documentation as described in LRDP Mitigation CULT-2D.</p>	SU
CULT-4	Implementation of the proposed 2005 LRDP could disturb human remains, including those interred outside of formal cemeteries.	PS	<p>CULT-4A The Campus shall implement LRDP Mitigations CULT-1A through CULT-1H to minimize the potential for disturbance or destruction of human remains in an archaeological context and to preserve them in place, if feasible.</p> <p>CULT-4B The Campus shall provide a representative of the local Native American community an opportunity to monitor any excavation (including archaeological excavation) within the boundaries of a known Native American archaeological site.</p> <p>CULT-4C In the event of a discovery on campus of human bone, suspected human bone, or a burial, the Campus shall ensure that all excavation in the vicinity halts immediately and the area of the find is protected until a qualified archaeologist determines whether the bone is human. If the qualified archaeologist determines the bone is human, or if a qualified archaeologist is not present, the Campus will</p>	LS

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
CULT-4 (cont)			<p>notify the Santa Cruz County Coroner of the find and protect the find without further disturbance until the Coroner has made a finding relative to PRC 5097 procedures. If it is determined that the find is of Native American origin, the Campus will comply with the provisions of PRC §5097.98 regarding identification and involvement of the Native American Most Likely Descendant (MLD).</p> <p>CULT-4D If human remains cannot be left in place, the Campus shall ensure that the qualified archaeologist and the MLD are provided an opportunity to confer on archaeological treatment of human remains, and that appropriate studies, as identified through this consultation, are carried out. The Campus shall provide results of all such for local Native American involvement in any interpretative reporting. As required by the provisions of the California Native American Graves Protection and Repatriation Act (NAGPRA), the Campus shall ensure that human remains and associated artifacts recovered from campus projects on state lands are repatriated to the appropriate local tribal group if requested, provided that the appropriate group can be identified through California NAGPRA procedures.</p>	
CULT-5	Development under the 2005 LRDP has the potential to disturb or destroy unique paleontological resources.	PS	<p>CULT-5A During project planning, the Project Manager shall consult the most recent Campus Soils and Geology map to determine whether the proposed project is underlain by a formation that is known to be sensitive for paleontological resources.</p> <p>CULT-5B If the project site is underlain by paleontologically sensitive formations, the Campus shall retain a qualified paleontologist to determine, through assessment of results of geotechnical investigations or site inspection, whether proposed excavation or grading has the potential to encounter the members of sensitive formations that are fossiliferous, and if so, to develop a paleontological monitoring and data recovery plan and implement it during the construction period as appropriate. In addition, the</p>	LS

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
CULT-5 (cont)			<p>paleontologist shall conduct a construction crew education session regarding paleontological potential and significance, and of stop-work provisions in the event of a discovery.</p> <p>CULT-5C In the event of a discovery of a paleontological resource on campus, work within 50 feet of the find shall halt until a qualified paleontologist has examined and assessed the find and, if the resource is determined to be a unique paleontological resource, the resource is recovered. The Campus shall ensure that all finds are adequately documented, analyzed, and curated at an appropriate institution.</p> <p>CULT-5D In the event that a proposed project would result in impacts to a unique paleontological resource, the project planning team shall work together to reduce impacts to the find through design and construction modifications, to the extent feasible.</p>	
CULT-6	Increased population on campus as a result of implementation of the 2005 LRDP could result in damage to the scientific value of unique geologic resources.	PS	CULT-6 The Campus shall implement LRDP Mitigation <u>BIO-8A and -8B</u> .	LS
CULT-7	Development under the 2005 LRDP could contribute to cumulative damage to and loss of the resource base of unique archaeological resources, historical resources (including archaeological sites and historic buildings and structures) and human remains in the Santa Cruz west side.	PS	CULT-7 The Campus shall implement LRDP Mitigations CULT-1 through CULT-4.	LS
CULT-8	Development under the 2005 LRDP would not contribute to cumulative damage to and loss of the resource base of unique paleontological resources in Santa Cruz County.	LS	Mitigation not required	NA
CULT-9	Development under the 2005 LRDP would not contribute to cumulative damage to and loss of the resource base of unique geological resources in Santa Cruz County.	LS	Mitigation not required	NA

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
4.6 Geology, Soils, and Seismicity				
GEO-1	Development under the 2005 LRDP could occur on a geologic unit or soil that would become unstable as a result of the project and could result in on- or off-site landslides, lateral spreading, or liquefaction, creating potential risks to life or property.	PS	GEO-1 Where existing information is not adequate, detailed geotechnical studies shall be performed for areas that will support buildings or foundations. Recommendations of the geotechnical investigations will be incorporated into project design.	LS
GEO-2	Development under the 2005 LRDP could result in construction of campus facilities on expansive soil, but this would not create potential risks to life and property.	PS	GEO-2 The Campus shall implement LRDP Mitigation GEO-1.	LS
GEO-3	Development under the 2005 LRDP would not result in substantial erosion of soils as a result of construction, including tree removal, and increased traffic.	LS	Mitigation not required	NA
GEO-4	Development under the 2005 LRDP could result in construction of facilities on sites underlain by karst features, which could lead to settling or collapse beneath the structures.	PS	GEO-4 The Campus shall implement LRDP Mitigation GEO-1.	LS
GEO-5	Development under the 2005 LRDP would not expose people and structures on campus to potentially adverse effects associated with seismic ground shaking or seismic-related ground failure.	LS	Mitigation not required	NA
GEO-6	Cumulative development, including the development on campus under the 2005 LRDP, could expose people or structures to potential adverse effects involving seismic ground shaking.	LS	Mitigation not required	NA
4.7 Hazards and Hazardous Materials				
HAZ-1	Implementation of the 2005 LRDP would increase routine use of hazardous chemicals, radioactive materials, and/or biohazardous materials on campus by UC Santa Cruz laboratories and departments and in maintenance and support operations, which would not create significant hazards to the public or the environment.	LS	Mitigation not required	NA

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
HAZ-2	Development under the 2005 LRDP could increase routine generation of hazardous, radioactive, or biohazardous wastes on campus by UC Santa Cruz laboratories and departments and in maintenance and support operations, which would not create significant hazards to the public or the environment because hazardous waste would continue to be comprehensively managed by UC Santa Cruz pursuant to state and federal law and campus policies and procedures.	LS	HAZ-2 The Campus will enhance its hazardous waste minimization program by (1) monitoring chemical purchases and use; and (2) maintaining a hazardous waste website to provide campus waste generators with the latest information on hazardous waste requirements; recycling, treatment, and disposal options; and waste minimization techniques.	NA
HAZ-3	Development under the proposed 2005 LRDP would increase the routine transport of hazardous materials to and from the UC Santa Cruz campus, which would not create significant hazards to the public or the environment.	LS	Mitigation not required	NA
HAZ-4	Development under the 2005 LRDP would not create significant hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	LS	Mitigation not required	NA
HAZ-5	Development under the proposed 2005 LRDP would result in increased handling of hazardous or acutely hazardous materials within ¼ mile of an existing or proposed school, which would not create a significant hazard for those attending the school.	LS	Mitigation not required	NA
HAZ-6	Construction and demolition activities under the proposed 2005 LRDP would not expose construction workers and campus occupants to contaminated soil or groundwater.	LS	Mitigation not required	NA
HAZ-7	Demolition or renovation of buildings under the proposed 2005 LRDP could potentially expose construction workers and campus occupants to contaminated building materials.	LS	HAZ-7 The Campus shall survey buildings for potential contamination before any demolition or renovation work is performed. If contamination is discovered, appropriate remediation will be completed.	NA

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
HAZ-8	Hazardous materials use on campus under the proposed 2005 LRDP would not exceed emergency response capabilities.	LS	Mitigation not required	NA
HAZ-9	Campus development under the 2005 LRDP could potentially interfere physically with the campus's Emergency Operations Plan (EOP).	PS	<p>HAZ-9A The Campus shall continue to include the following requirements in its Campus Standards and implement them under the 2005 LRDP:</p> <ul style="list-style-type: none"> • Construction work shall be conducted so as to ensure the least possible obstruction to traffic. • Contractors shall notify the University's Representative at least two weeks before any road closure. • When paths, lanes, or roadways are blocked, detour signs must be installed to clearly designate an alternate route. Fire hydrants shall be kept accessible to fire fighting equipment at all times. To ensure adequate access for emergency vehicles when construction projects would result in temporary lane or roadway closures, Physical Plant and Physical Planning and Construction shall continue to require that construction and maintenance project managers notify campus police and fire departments and the campus dispatchers of the closures and alternative travel routes. <p>HAZ-9B The Campus shall test the effectiveness provisions of the <u>Emergency Operations Plan (EOP)</u> annually, and update as necessary.</p> <p>HAZ-9C Before the beginning of the construction of the north campus loop road, the Campus shall expand existing main campus EOP to cover- new development areas. In addition, the Campus will develop a site-specific EOP <u>prior to occupancy of for Building C at the facility at 2300 Delaware Avenue.</u></p> <p>HAZ-9D Any new development project on the north campus shall be provided with a secondary emergency egress route prior to occupancy of the development.</p>	LS

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
HAZ-10	Campus development under the proposed 2005 LRDP would result in increased risk from wildland fires.	PS	<p>HAZ-10A UC Santa Cruz Fire Department will continue to conduct annual inspections of all residential and laboratory buildings and biennial inspections of all other buildings.</p> <p>HAZ-10B Prior to beginning north campus construction, UC Santa Cruz will develop a new Fire-Vegetation Management Plan aimed at preventing wildland fires in the north campus. This Fire-Vegetation Management Plan will include provisions governing vegetation management and will specify pruning guidelines and provide a minimum of 30 feet of clearance between existing vegetation and buildings. The Fire Vegetation Management Plan will include a rigorous inspection schedule of the interior and exterior of buildings with particular focus on ensuring that surrounding vegetation does not endanger buildings. The Plan will ensure that fire hydrants are adequately spaced and accessible and that fire roads are maintained and accessible. The Plan will also address limiting the risk of fires in the undeveloped regions on the campus.</p> <p>HAZ-10C The Campus shall provide wildland fire prevention signage in the north and upper campus areas in conjunction with the new development.</p> <p>HAZ-10D Building component protection as prescribed in the International Uniform Wildland Interface Code (UWIC) shall be required where appropriate as determined by the Campus Fire Marshal. All building construction shall comply with the minimum requirements adopted by the State Fire Marshal's Office.</p>	LS
HAZ-11	Implementation of the proposed 2005 LRDP would increase use of hazardous materials by non-UC Santa Cruz entities on campus, which could create hazards to the public or the environment under routine and upset conditions.	PS	<p>HAZ-11 For projects proposed by non-UC Santa Cruz entities on campus that involve laboratory space, non-UC Santa Cruz entities shall be required, through contracts and agreements, to implement programs and controls that provide the same level of protection required of campus laboratories and departments. The following project-specific mitigation measures would be implemented for non-UC Santa Cruz tenants:</p>	LS

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
HAZ-11 (cont)			<ul style="list-style-type: none"> • Non-UC Santa Cruz entities shall submit the qualifications of designated laboratory directors to UC Santa Cruz EH&S prior to commencing laboratory operations. Such documentation shall be in the form of educational and professional qualifications/experience. • Non-UC entities shall submit certification of compliance with NIH biosafety principles to the UC Santa Cruz EH&S prior to commencing on-site research. Non-UC entities shall submit copies of completed medical waste management plans, biosafety management plans, inventories of infectious or genetically modified select agents, applicable permits and updates. • If hazardous material quantities are proposed to be increased above applicable threshold quantities as defined in California Code of Regulations, Title 19, Division 2, Chapter 4.5, non-UC entities shall implement a Risk Management Plan/California Accidental Release Prevention Plan (RMP/CalARP), which discusses the handling and storage of acutely hazardous materials on site. The RMP/CalARP shall be approved by the CUPA and filed with the UC Santa Cruz EH&S prior to commencing proposed operations. • Non-UC entities shall submit certification to the UC Santa Cruz EH&S to verify that applicable requirements for handling and disposal of hazardous wastes have been met prior to commencing on-site research. Non-UC entities shall submit copies of management plans for handling and disposal of hazardous wastes, and written verification of contracts with licensed waste disposal firms. • Non-UC entities shall provide to the UC Santa Cruz EH&S copies of all required environmental reports to local, state, and federal environmental and safety regulators. 	

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
HAZ-12	Development under the proposed 2005 LRDP, in conjunction with other regional development, would result in increased use and transport of hazardous materials, but the increase would not result in a significant cumulative hazard or hazardous materials impact. It is unlikely that there will be a cumulative increase in risk of hazardous materials release, risk to existing and proposed schools from handling of hazardous materials, or risk of wildland fires.	LS	Mitigation not required	NA
4.8 Hydrology and Water Quality				
HYD-1	Campus development under the 2005 LRDP would not result in wastewater that would violate wastewater discharge requirements.	LS	Mitigation not required	NA
HYD-2	Campus development under the 2005 LRDP could result in storm water runoff during construction, which could substantially degrade water quality.	PS	<p>HYD-2A For all construction projects less than one acre in area, the Campus shall continue to require the use of construction site controls and best management practices in compliance with the campus draft Storm Water Management Program, the campus Erosion Control Standards, and the Site Requirements for Erosion Control and Drainage in the Campus Standards Handbook.</p> <p>HYD-2B No grading shall be conducted on hillsides (sites with slopes greater than 10 percent) during the wet season (October 1 through May 31) unless controls that prevent sediment from leaving the site are implemented. Erosion control measures, such as erosion control blankets, seeding or other stabilizing mechanisms shall be <u>incorporated into the project erosion control plan or SWPPP and applied to graded hillside prior to predicted storm events.</u></p>	LS
HYD-3	Campus development under the 2005 LRDP would alter drainage patterns in the project area, and increase the rate or amount of surface runoff, which could result in substantial siltation or erosion on or off site, and increase the amount of urban pollutants in storm water runoff, which could affect water quality.	S	HYD-3A The Campus shall install additional signs and expand the public education program to inform and educate the campus population about the importance of staying on paved roads and approved paths to prevent vegetation disturbance and soil erosion.	SU

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LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
HYD-3 (cont)		<p>HYD-3B The Campus shall implement control measures to reduce erosion along new and existing unpaved fire roads, including but not limited to water bars to redirect flow off the road and flow dispersion of runoff from roads.</p> <p>HYD-3C Each new capital project proposed under the 2005 LRDP that creates new impervious surface shall include design measures to ensure that post-development peak flows from 2-, 5- and 10-year storms do not exceed the 2-, 5-, and 10-year pre-development peak flows and that post-development peak flows from a 25-year storm do not exceed the pre-development peak flow from a 10-year storm.</p> <p>Each new capital project shall also include design measures to avoid or minimize the increase in the volume of runoff discharged from the site to the maximum extent feasible.</p> <p>HYD-3D <u>The Campus shall require each new capital project to include design measures to minimize, to the maximum extent practicable, the increase in the volume of storm water runoff discharged from the project site to sinkholes or natural drainages. These design measures shall include features that maximize infiltration and dissipation of runoff, preferably near the area where new runoff is generated, and may include, but will not be limited to: vegetated swales, bioretention areas, infiltration trenches and basins, level spreaders, permeable pavement, minimizing directly connected impervious surfaces, storage and re-use of roof runoff, and green roofs. Within one year following approval of the 2005 LRDP, the Campus shall provide a protocol for design consultants to use in demonstrating that measures to reduce runoff are included in the project design to the maximum extent practicable.</u>The Campus shall incorporate measures into project designs under the 2005 LRDP that maximize infiltration of runoff. Infiltration shall be achieved preferably near the area where new runoff is generated.</p>	

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
HYD-3 (cont)			HYD-3E Design and planning for new pathways and bikeways shall <u>include fencing, signage and/or other design features to control pedestrian/bicycle circulation and minimize the potential for shortcuts. Bridges shall be provided where new pathways cross drainages that become inundated during the rainy season.</u>	
HYD-4	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.	LS	Mitigation not required	NA
HYD-5	Campus development under the 2005 LRDP would not deplete groundwater supplies through pumping of groundwater for beneficial use, interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, or affect groundwater quality.	LS	<p>HYD-5A The Campus shall implement LRDP Mitigation HYD-3D.</p> <p>HYD-5B For projects involving construction on karst, if: (a) groundwater is encountered beneath the building site during the geotechnical investigation, and (b) the proposed foundation type would require pressure grouting, the Campus will follow the procedures outlined below:</p> <p>Perform a dye tracing study to determine if there is a potential for pressure grouting to affect water quality in springs and seeps around the UC Santa Cruz campus. If a potential impact is indicated, alternative building foundation plans will be considered.</p> <p>As an alternative, the Campus may conduct a preliminary hydrogeological study to evaluate whether the groundwater zone encountered during the geotechnical investigation is hydraulically connected to the karst aquifer. If the hydrogeological study indicates that the groundwater zone is hydraulically independent of the karst aquifer, such that there is no potential for grout injected during construction to affect karst water quality, a dye tracing study need not be performed. If results of the hydrogeological study indicate hydraulic connectivity between the groundwater encountered beneath the site and the karst aquifer, the Campus shall conduct a dye tracing study as described</p>	LS

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	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
			above.	
HYD-5 (cont)			<p>HYD-5C If the existing or a new groundwater well is used the Campus shall perform monitoring of water levels within that well and any adjacent wells, and monitoring of those springs in the campus vicinity shown to be connected to the well with a dye tracing study or other applicable testing method for the duration of groundwater pumping to ascertain whether there is any long-term decline in water levels or spring discharge.</p> <p>If monitoring of water levels and springs indicates that campus use of groundwater is contributing to a net deficit in aquifer volume, as indicated by a substantial decrease in average water levels in any monitored wells or a substantial reduction of flows in monitored springs, the Campus will terminate or reduce its use of groundwater from the aquifer. The average water levels and flows in springs will be defined through a statistical analysis of historic data, with consideration of associated seasonal rainfall and seasonal variations in spring discharge flow rates.</p>	
HYD-6	Implementation of the 2005 LRDP would alter drainage patterns on the campus, increase the rate and amount of surface runoff, potentially affect the quality of runoff, and therefore could cause flooding and water quality impacts in caves on or off site.	PS	HYD-6 The Campus shall implement LRDP Mitigations HYD-3C and 3D.	LS
HYD-7	Campus development under the 2005 LRDP, in conjunction with other development in the region, would increase impervious surface coverage in the study area watersheds and increase storm water runoff, but would not result in substantial sources of runoff in off-campus watersheds, and therefore would not have a substantial adverse effect on receiving water quality.	LS	Mitigation not required	NA
HYD-8	Groundwater extraction by the Campus during drought periods would not contribute to a net deficit in the regional aquifer volume or a lowering of the local	LS	Mitigation not required	NA

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
	groundwater table.			
4.9 Land Use and Planning				
LU-1	Development under the 2005 LRDP would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project that was adopted for the purpose of avoiding or mitigating an environmental effect.	LS	Mitigation not required	NA
LU-2	Campus growth under the 2005 LRDP would not result in the development of land uses that are substantially incompatible with existing adjacent or planned land uses within the campus or at its periphery.	LS	Mitigation not required	NA
LU-3	Development under the 2005 LRDP would not conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan, either directly or indirectly.	LS	Mitigation not required	NA
LU-4	Development under the 2005 LRDP, together with other regional growth, would not result in the development of land uses that are substantially incompatible with existing adjacent land uses or planned uses in the northwestern portion of the city of Santa Cruz.	LS	Mitigation not required	NA
4.10 Noise				
NOIS-1	Construction of campus facilities pursuant to the 2005 LRDP could expose nearby sensitive receptors to excessive airborne noise but not to excessive groundborne vibration or groundborne noise.	PS	<p>NOIS-1 Prior to initiation of construction of a specific development project, the Campus shall approve a construction noise mitigation program that shall be implemented for each construction project. This shall include but not be limited to the following:</p> <ul style="list-style-type: none"> • Construction equipment used on campus is properly maintained and has been outfitted with feasible noise-reduction devices to minimize construction-generated noise. • Laydown and construction vehicle staging areas are <u>shall be located</u> at least 100 feet away from noise- 	SU

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	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
NOIS-1 (cont)			<p>sensitive land uses as feasible.</p> <ul style="list-style-type: none"> Stationary noise sources such as generators or pumps are <u>shall be</u> located at least 100 feet away from noise-sensitive land uses as feasible. Whenever possible, Notices of the dates and hours of anticipated construction shall be posted in academic, administrative, and residential areas <u>buildings within 100 feet of construction noise sources that will be subject to construction noise will be informed in writing</u> at least a week before the start of each construction project. Loud construction activity (i.e., construction activity such as jackhammering, concrete sawing, asphalt removal, and large-scale grading operations) within 100 feet of a residential or academic building shall not be scheduled during finals week. Loud construction activity as described above within 100 feet of an academic or residential use shall, to the extent feasible, be scheduled during holidays, Thanksgiving break, Christmas break, Spring break, or Summer break. Loud construction activity within 100 feet of a residential building shall be restricted to the hours between 7:30 AM and 7:30 PM, Monday through Saturday. Loud construction activity within 100 feet of an academic building shall be scheduled to the extent feasible on weekends. 	
NOIS-2	Campus growth under the 2005 LRDP would result in increased vehicular traffic on the city road network, which would not result in a noticeable increase in ambient noise levels at modeled locations.	LS	NOIS-2 <u>Campus Standards shall be amended to include a requirement to be imposed on all campus contracts that only City-designated truck routes shall be used for contractor truck trips accessing the campus. Mitigation not required</u>	NA
NOIS-3	Future residents on the campus would not be exposed	LS	NOIS-3 For future noise-sensitive land uses such as Family Student Housing and other housing complexes that would be	NA

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LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
NOIS-3 (cont)	to high noise levels from increased vehicular traffic on the campus road network.		constructed under the 2005 LRDP, building and area layouts shall incorporate noise control as a design feature, as feasible. Noise control features would include increased setbacks, landscaped berms or vegetation screens, and building placement to shield noise-sensitive exterior areas from direct roadway exposures. The Campus may also use other noise attenuation measures such as double-pane windows and insulation to minimize interior noise levels.	
4.11 Population and Housing				
POP-1	Development under the 2005 LRDP would directly induce substantial population growth in the study area by accommodating increased enrollment and additional employment.	S	No mitigation available	SU
POP-2	Campus growth under the 2005 LRDP would not indirectly induce substantial population growth in the area through extension of roads or other infrastructure.	LS	Mitigation not required	NA
POP-3	Growth of the campus under the 2005 LRDP, in conjunction with other regional growth, would create a demand for housing that combined with demand created by other growth in the county, would exceed the supply.	S	<p>POP-3 The Campus shall work with the City of Santa Cruz to identify means of providing additional housing in the city, including affordable housing, particularly in areas with good access to public transit.</p> <p>POP-3A <u>The Campus will continue to monitor demand for student housing on an annual basis, and will ensure that a sufficient number of students beds are available on campus, through a combination of new housing construction and temporary modification of existing housing space ("overflow housing"), to accommodate at least 50 percent of undergraduate student enrollment and 25 percent of graduate student enrollment, as demand dictates.</u></p> <p>POP-3B <u>Within one year following approval of the 2005 LRDP, the Campus will fund and carry out a study to identify ways in which the Campus can collaborate with other large employers, the City of Santa Cruz, and the County of Santa Cruz to assist in providing wider access to available</u></p>	SU

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POP-3 (cont)			<p><u>housing for UC employees and affiliates and other community members, through mechanisms such as a jointly-funded housing trust augmented by grants and other funding sources.</u></p> <p>POP-3C <u>The Campus will consult with the City and County of Santa Cruz on data needs and potential future joint projects and, within one year following approval of the 2005 LRDP, the Campus will fund and carry out a market analysis of the local housing market, including demand for housing by housing type and other demand factors, costs, vacancy, and occupancy rates, to provide data to assist the City in its planning activities related to housing needs, to assist the Campus in planning Campus housing, and to assist in the planning of potential joint projects. The Campus will update this study at no greater than five-year intervals.</u></p>	
4.12 Public Services				
PUB-1	On-campus development and on-campus population under the 2005 LRDP would not result in significant environmental impacts associated with the provision of new or altered facilities 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.	NI	Mitigation not required	NA
PUB-2	On-campus development and on-campus population under the 2005 LRDP would not result in significant environmental impacts associated with the provision of new or physically altered fire department facilities in order to maintain the response standards and service ratios.	LS	Mitigation not required	NA
PUB-3	On-campus residential population growth under the 2005 LRDP could create demand for public school facilities, but this increase could be accommodated in existing facilities. The demand would not require new facilities, the construction of which could result in	LS	Mitigation not required	NA

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	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
	significant environmental impacts.			
PUB-4	On-campus population growth under the 2005 LRDP could increase the demand for library facilities, the construction of which would not result in significant environmental impacts.	LS	Mitigation not required	NA
PUB-5	Cumulative growth in study area population, including 2005 LRDP-related off-campus population, would result in demand for new or expanded police and fire service facilities in the study area, the construction of which would not result in significant adverse environmental impacts.	LS	Mitigation not required	NA
PUB-6	Cumulative growth in study area population, including 2005 LRDP-related off-campus population, would not result in demand for new school facilities.	LS	Mitigation not required	NA
PUB-7	Cumulative growth in study area population could result in the need for new regional libraries, the construction of which could result in significant environmental impacts. The contribution of the project to this cumulative impact would not be cumulatively considerable.	LS	Mitigation not required	NA
4.13 Recreation				
REC-1	Increased on-campus population under the 2005 LRDP would result in increased demand for recreational facilities on campus and in the City of Santa Cruz, which would require the construction of new facilities, which would not result in significant environmental impacts.	LS	Mitigation not required	NA
REC-2	Increased on-campus population under the 2005 LRDP would result in increased use of recreational facilities on campus and in the city of Santa Cruz, which could result in deterioration of the facilities.	PS	REC-2A The Campus shall ensure that open space, tot lots, and similar facilities for use by families are included in all new family housing developments built on the campus under the 2005 LRDP. REC-2B The Campus shall implement LRDP Mitigations HYD-3A	LS

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			and HYD-3B.	
REC-2 (cont)			<p>REC-2C To discourage the illegal use of bicycles on trails in Pogonip City Park, the Campus shall work with the City of Santa Cruz to ensure that adequate signage is installed in Pogonip City Park(1) install signage on campus property near entrances to the park, indicating that trail users are leaving University property and that bicycles are prohibited on some trails in the park; to discourage the illegal use of bicycles on trails; (2) maintain fencing and signage on University property at the Coolidge Drive lookout as needed to discourage unauthorized access into the park from the University; (3) work with campus and other local outdoor recreation groups to undertake measures to regularly inform and educate students, faculty and staff about caretaking of the regional trail system and regional open spaces, by working with campus and other local outdoor recreation groups; and (4) revise campus bicycle maps to explicitly identify <u>the park boundary and Pogonip City Park</u> rules regarding bicycle use.</p> <p>REC-2D The Campus shall coordinate with the City of Santa Cruz's efforts in organizing an annual or semi-annual volunteer trail maintenance day, and shall assist in the recruitment of volunteers for these events from the UC Santa Cruz campus through campus advertising and education efforts.</p>	
REC-3	Development in the north campus under the 2005 LRDP would not result in the fragmentation of or other changes to the designated trails on the north campus.	LS	Mitigation not required	NA
REC-4	Cumulative growth in study area population, including 2005 LRDP-related off-campus population, could result in the development of new off-campus recreation facilities, the construction of which would not result in significant environmental impacts.	LS	REC-4 The Campus will continue to make campus recreational facilities available to the public, and will provide casual recreation amenities, such as walking paths and picnic tables, that will be available for public use.	NA
REC-5	Cumulative growth in study area population, including 2005 LRDP-related off-campus population, would	LS	REC-5 The Campus shall implement LRDP Mitigations REC-2C,	NA

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REC-5 (cont)	result in increased use of regional recreational facilities, which would not result in deterioration of most facilities. The contribution of the project to this impact would not be cumulatively considerable.		REC-2D and REC-4, above.	
4.14 Traffic, Circulation, and Parking				
TRA-1	Campus growth under the 2005 LRDP would cause an increase in on-campus traffic that could result in unacceptable levels of service at two on-campus intersections if the growth in traffic outpaces the modifications to the on-campus circulation system proposed under the 2005 LRDP.	PS	TRA-1 The Campus shall monitor the level of service at two intersections (Hagar Drive/McLaughlin Drive and Heller Drive/Meyer Drive) every three years beginning in 2007, and implement intersection improvements or signalization as needed to maintain an acceptable level of service.	LS
TRA-2	Campus growth under the 2005 LRDP would cause unacceptable levels of service at <u>10</u> +- off-campus intersections.	S	TRA-2A <u>In addition to any project- level traffic analyses required by CEQA, UC Santa Cruz shall, at intervals of no more than three years or increments of no more than 1,000 students in enrollment growth (whichever occurs first), conduct traffic counts at the identified intersections UC Santa Cruz shall review capital projects proposed under the 2005 LRDP as part of the environmental clearance process to determine if the additional traffic generated by the proposed projects campus growth or a specific project would trigger the need for the specific intersection improvements listed in Table 4.14-1718, or other improvements to achieve the City's level of service standards. If the analysis indicates that, with the project's traffic contribution of campus growth or of a specific proposed project, the levels of service would degrade to unacceptable levels, the Campus shall inform the City of this conclusion, and contribute its "fair share" (as defined below) of the cost of the needed improvements.</u> TRA-2B UC Santa Cruz shall <u>continue to implement and will expand</u> its existing Transportation Demand Management programs with the objectives of increasing sustainable transportation modes (use of modes other than single-occupant vehicles) above 55 percent during the planning horizon of the 2005 LRDP and reducing peak hour traffic volumes. Potential measures that the Campus will consider for achieving this	SU

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			objective are listed in Table 4.14-198.	
TRA-3	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, campus growth under the 2005 LRDP could generate demand for parking in excess of on-campus parking capacity.	PS	<p>TRA-3A The Campus shall implement LRDP Mitigation TRA-2B TDM measures to reduce on-campus parking demand associated with single-occupant vehicle commuters and with long-term storage of infrequently used vehicles.</p> <p>TRA-3B The Campus shall monitor on-campus parking utilization rates annually, and will construct additional parking when demand approaches capacity. The Campus will use projected average daytime utilization rate in excess of 90 percent in a given parking zone as a measure of parking capacity.</p> <p>TRA-3C The Campus shall continue to enhance existing parking management systems to maximize utilization of existing parking capacity. Parking capacity enhancements may include real-time monitoring of lot utilization, changeable message signs identifying available parking spaces, use-based parking permits, zoned parking permits, or other measures.</p>	LS
TRA-4	Campus growth under the 2005 LRDP would result in increases in circulation volumes (numbers of pedestrians, bicycles, and transit and other motor vehicles) that would conflict with and reduce the effectiveness of alternative modes of transportation, including transit, bicycle and pedestrian travel.	PS	<p>TRA-4A UC Santa Cruz shall monitor on- and off-campus <u>and Metro</u> transit service and other alternative modes of transportation on an annual basis, to assess the need for improvements in campus circulation to accommodate changes in campus-related circulation demands.</p> <p>TRA-4B Based on results of LRDP Mitigation TRA-4A, the Campus shall improve the operational efficiency and capacity of the campus transit system as needed to maintain transit cycle time, and shall work with SCMTD and other agencies to maintain and improve efficiency and capacity of the public transit system serving University facilities.</p> <p>TRA-4C <u>Based on the results of LRDP Mitigation TRA-4A, the Campus shall implement measures, including physical and operational improvements, that will ensure that transit travel times between the two most widely-separated</u></p>	LS

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Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
TRA-4 (cont)			<p><u>colleges does not exceed the time interval between class periods. These measures may include, but are not limited to; channelization of pedestrian crossings, installation of signal-controlled pedestrian crossings, and grade-separated pedestrian crossings where appropriate. Based on the results of LRDP Mitigation TRA-4A, the Campus shall implement measures that reduce transit delay associated with pedestrian crosswalks on campus roadways.</u></p> <p>TRA-4D The Campus shall coordinate implementation of needed campus roadway and circulation improvements identified in the 2005 LRDP with the pace of campus development, to the extent feasible.</p> <p>TRA-4E Based on the results of LRDP Mitigation TRA-4A, the Campus shall implement the bicycle circulation elements of the 2005 LRDP as needed to maintain and enhance the effectiveness of bicycles as a transportation mode.</p> <p>TRA-4F The Campus shall implement integrated transit, bicycle and pedestrian way-finding systems on the main campus.</p>	
TRA-5	Traffic generated by simultaneous full-capacity special events on campus would cause the off-campus intersections listed in Table 4.14-21 to operate at LOS E or F during event-related peak hours. On-campus, the special event traffic could cause congestion related to visitors searching for parking.	LS	<p>TRA-5A The Campus shall implement LRDP Mitigations TRA-2A, TRA-2B, TRA-3B, TRA-3C, and TRA-4A through -4E.</p> <p>TRA-5B The Campus shall improve parking management for special events, through appropriate expansion of on-campus parking enforcement at nights and on weekends in order to better manage parking resources to accommodate campus needs.</p> <p>TRA-5C The Campus shall provide on-line parking permit sales and way-finding information for visitors in order to reduce back-ups of vehicles at the main entrance kiosk.</p> <p>TRA-5D <u>The Campus will continue to promote use of the on-line Campus Events Calendar System to improve coordination between Campus units, and to coordinate traffic and parking management for traffic producing events. An</u></p>	NA

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
TRA-5 (cont)			<u>automatic link will be added to the Calendar System to notify TAPS of the proposed scheduling of any event of over 50 persons in size so that the potential for parking and traffic congestion can be assessed. Upon notification, TAPS will consult with event planners to endeavor, through rescheduling or schedule coordination, to minimize the number of simultaneous full-capacity events and, in particular, those that might occur during traffic peak commute hours. In addition, TAPS and the Event Coordination Committee will collaborate to formulate a Traffic Management Plan, which may include special shuttles from on- or off-campus sites, special designated temporary parking, and other parking and traffic management measures to minimize traffic and parking congestion associated with special events. The Campus shall continue to promote use of the on-line Campus Events Calendar system to improve coordination between campus units, and to coordinate traffic and parking management for traffic producing events.</u>	
TRA-6	<u>Campus growth under the 2005 LRDP would contribute to unacceptable freeway LOS operations.</u>	<u>S</u>	<p>TRA-6A The Campus shall implement LRDP Mitigation TRA-2B.</p> <p>TRA-6B UC Santa Cruz shall contribute its fair share of the local cost of the needed improvements as identified by the state at <u>the five significantly affected freeway facilities based on the cost of the needed improvements less the value of any regional, state and federal funds to be provided for each improvement.</u></p>	<u>SU</u>
4.15 Utilities				
UTIL-1	Development under the 2005 LRDP would require the expansion of campus and off-campus domestic/fire water conveyance systems, which would not cause significant environmental impacts.	LS	Mitigation not required	NA
UTIL-2	Development under the 2005 LRDP would require expansion of on- and off-campus wastewater conveyance facilities, the construction and operation of	LS	Mitigation not required	NA

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
	which would not result in significant environmental impacts.			
UTIL-3	Development under the 2005 LRDP would require the expansion of campus storm drainage conveyance and detention facilities, which would not result in significant environmental impacts.	LS	Mitigation not required	NA
UTIL-4	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.	LS	UTIL-4 The Campus will continue to improve its recycling and waste reduction programs and identify additional means of reducing waste.	NA
UTIL-5	Development under the 2005 LRDP would require the expansion of the campus electrical system, which would not result in significant environmental impacts.	LS	UTIL-5 Where feasible, new campus buildings will be added to the Campus Energy Management System and <u>h.</u> Heating and cooling will be controlled based on time of use of building and outside temperature.	NA
UTIL-6	Development under the 2005 LRDP would require the expansion of natural gas transmission systems, which would not result in significant environmental impacts.	LS	Mitigation not required	NA
UTIL-7	Development under the 2005 LRDP would require the expansion of campus cooling water and heating water generation and conveyance facilities, which would result in significant environmental impacts.	S	UTIL-7 The Campus shall implement LRDP Mitigation AIR-2A.	SU
UTIL-8	Development under the 2005 LRDP would require expansion of campus communication facilities, which would not result in significant environmental impacts.	LS	Mitigation not required	NA
UTIL-9	Development under the 2005 LRDP, in conjunction with other regional growth in the SCWD service area, would generate increased demand for water during normal and drought years, and the development of new water supplies and infrastructure to serve normal and drought year demand could result in significant environmental impacts. The contribution of the proposed project to this impact would be cumulatively considerable.	S	UTIL-9A <u>The Campus shall continue to implement and improve all current water conservation strategies to reduce demand for water, including the following:</u> <ul style="list-style-type: none"> • <u>Continue the leak detection and repair program.</u> • <u>Install an individual water meter in each new employee housing unit to encourage residential water conservation.</u> • <u>Install waterless urinals in all new buildings.</u> 	SU

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
UTIL-9 (cont)			<ul style="list-style-type: none"> • <u>Require that new contracts for washing machines in student residences be certified by the Consortium on Energy Efficiency 6 to have a water factor of 5.5 or less or meet an equivalent standard. New washing machines purchased for use in athletic facilities shall meet applicable standards for water-efficiency for institutional machines.</u> • <u>Incorporate water-efficient landscaping practices in all new landscape installations. Water-conservative landscaping practices shall include, but will not be limited to the following: use of water-efficient plants, temporary irrigation systems for plant establishment areas where mature plants will be able to survive without regular irrigation, grouping of plants according to their water requirements, design of planting areas to maximize irrigation pattern efficiency, and mulch covering in planting areas.</u> • <u>To facilitate monitoring of water usage in all new development, the Campus shall: (1) install separate meters on water lines for individual buildings and (2) install meters on irrigation lines where one point of connection irrigates 1 acre or more.</u> <p>UTIL-9A The Campus shall continue to implement water conservation strategies to reduce demand for water. Domestic water conservation strategies shall include the following or equivalent measures:</p> <p style="margin-left: 40px;"><input type="checkbox"/> Continue the leak detection and repair program.</p> <p style="margin-left: 40px;"><input type="checkbox"/> Install water meters in new employee housing developments to encourage residential water conservation.</p> <p>UTIL-9B <u>As new technologies become available, the Campus shall continue to conduct pilot programs for high-efficiency plumbing fixtures including, but not limited to, dual-flush toilets. If a piloted technology proves to be successful (i.e., the high-efficiency fixtures are effective in water savings and do not require more frequent or expensive maintenance</u></p>	

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
UTIL-9 (cont)			<p><u>than the existing standard), the Campus shall revise its standards to require use of the fixtures in all new buildings.</u></p> <p>UTIL-9B The Campus shall implement pilot programs for high-efficiency plumbing fixtures. If the programs prove to be successful, the Campus shall revise its standards to require use of the fixtures in all new buildings and in existing buildings as the existing fixtures need to be replaced.</p> <p><u>UTIL-9C</u> <u>Within one year following approval of the 2005 LRDP, the Campus shall implement a water conservation education program for campus residents. This will include but would not be limited to:</u></p> <ul style="list-style-type: none"> • <u>Distribution to residents of employee housing of educational materials covering the following topics: basic home water conservation practices, plumbing retrofits and replacements, and strategies to conserve landscape irrigation.</u> • <u>Designation of a staff member who will be responsible for developing and implementing a water conservation education and awareness program to reduce water consumption in student residences, dining halls, and student affairs facilities.</u> <p>UTIL-9C Residential use washing machines installed in student housing on campus must be certified by the Consortium on Energy Efficiency (CEE) to have a water factor (WF) of 5.5 or less or meet an equivalent standard. New washing machines purchased by UC Santa Cruz Office of Physical Education, Recreation and Sports (OPERS) shall meet applicable water efficiency standards for institutional machines. The University shall provide residents of employee housing with information on high-efficiency washing machines.</p> <p><u>UTIL-9D</u> <u>Within one year following approval of the 2005 LRDP, the Campus shall consult with the City of Santa Cruz regarding the appropriate scope of and initiate, an engineering audit of</u></p>	

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
UTIL-9 (cont)		<p><u>campus water use. The audit will assess existing campus water uses, identify options for reducing water consumption, prioritize feasible improvements based on the amount of potential water savings and cost effectiveness, and recommend top priority measures for implementation within the succeeding five years, and lower priority measures for potential subsequent implementation. The audit will include, but will not be limited to the following:</u></p> <ul style="list-style-type: none"> • <u>An inventory of plumbing fixtures in non-housing facilities on campus, which will identify the number and locations of fixtures and identify those that do not meet current campus standards for water efficiency. (Regarding retrofit of plumbing fixtures in student housing, see LRDP Mitigation UTIL-9H.)</u> • <u>An inventory of irrigation systems on the campus, including identification of systems that are not metered, the methods used to control the irrigation schedule, and potential for improvement.</u> • <u>An inventory of locations on campus where buildings and irrigation are on the same meter.</u> • <u>An analysis of potential water conservation measures for the campus cooling water system.</u> • <u>Identification of landscaped areas on campus that have plants that are high water-use.</u> <p>UTIL-9D — The Campus shall require all new landscape installations to incorporate water efficient landscaping practices. Water-conservative landscaping practices shall include but will not be limited to: use of water efficient plants, temporary irrigation systems for plant establishment for areas where mature plants will be able to survive without regular irrigation; grouping of plants according to their water requirements, design of planting areas to maximize irrigation pattern efficiency, and mulch covering in planting areas.</p>	

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
UTIL-9 (cont)		<p>UTIL-9E The Campus shall begin implementation of the top priority recommendations of the water audit conducted under UTIL-9D within one year of completion of the audit and complete implementation of the top priority recommendations within five years after completing the audit.</p> <p>UTIL-9E The Campus shall require installation of waterless urinals in new development and when replacing urinals in existing buildings.</p> <p>UTIL-9F The Campus shall, at five-year intervals during the term of the 2005 LRDP, revisit the results of the water audit conducted under LRDP Mitigation UTIL-9D, consult with the City of Santa Cruz Water Department, conduct round table discussions with representatives of relevant campus departments, and conduct additional study of new technologies as needed to identify additional feasible and effective water conservation measures for implementation on the campus during the subsequent five year period. The following are among the measures that shall be considered:</p> <ul style="list-style-type: none"> • <u>Adding existing irrigation systems to the campus's central control system.</u> • <u>Retrofitting existing water meters such that building use and irrigation are separately metered.</u> • <u>Replacing natural turf on athletic fields with artificial turf.</u> • <u>Installing timers on showers in student residences.</u> <p>UTIL-9F When campus water consumption reaches 250 million gallons per year, the Campus shall initiate a program to retrofit existing campus facilities with the current efficient campus standards for toilets, showers and sinks, and with waterless urinals.</p> <p>UTIL-9G Within two years following approval of the 2005 LRDP, the Campus shall initiate a study on feasible measures for utilization of reclaimed water (including rainwater, grey</p>	

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
UTIL-9 (cont)		<p><u>water, cooling tower blowdown water and/or recycled water) in new development. Potential uses of reclaimed water include cooling, irrigation, and toilet flushing. The study shall contain a plan to utilize reclaimed water in new development as feasible and effective in water conservation, and shall include an implementation schedule.</u></p> <p>UTIL-9G Before campus annual water consumption reaches 300 million gallons, the Campus shall conduct a study on feasible measures for utilization of reclaimed water (including rainwater, grey water and/or recycled water) in new development. Potential uses of reclaimed water include cooling, irrigation, and toilet flushing. The study shall include a plan to utilize reclaimed water in new development.</p> <p>The Campus shall implement the plan when campus annual water consumption reaches 350 million gallons.</p> <p>UTIL-9H Within five years following approval of the 2005 LRDP, the Campus shall complete the retrofit of all plumbing fixtures in student housing not meeting the efficiency standards current in 2005 (1.6 gallons per flush for toilets). The new fixtures installed under the retrofit program shall conform to the campus standard for new buildings current at the time of the retrofit.</p> <p>UTIL-9H When campus water consumption reaches 300 million gallons per year, the Campus shall implement the following water conservation measures:</p> <p><input type="checkbox"/> Explore and implement additional means to reduce residential water use. These means could include but would not be limited to installing timers on showers and use of dual-flush toilets.</p> <p><input type="checkbox"/> Add existing irrigation systems to the campus's central control system and complete the metering of all irrigation systems on the campus where the point of connection irrigates one acre or more.</p>	

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

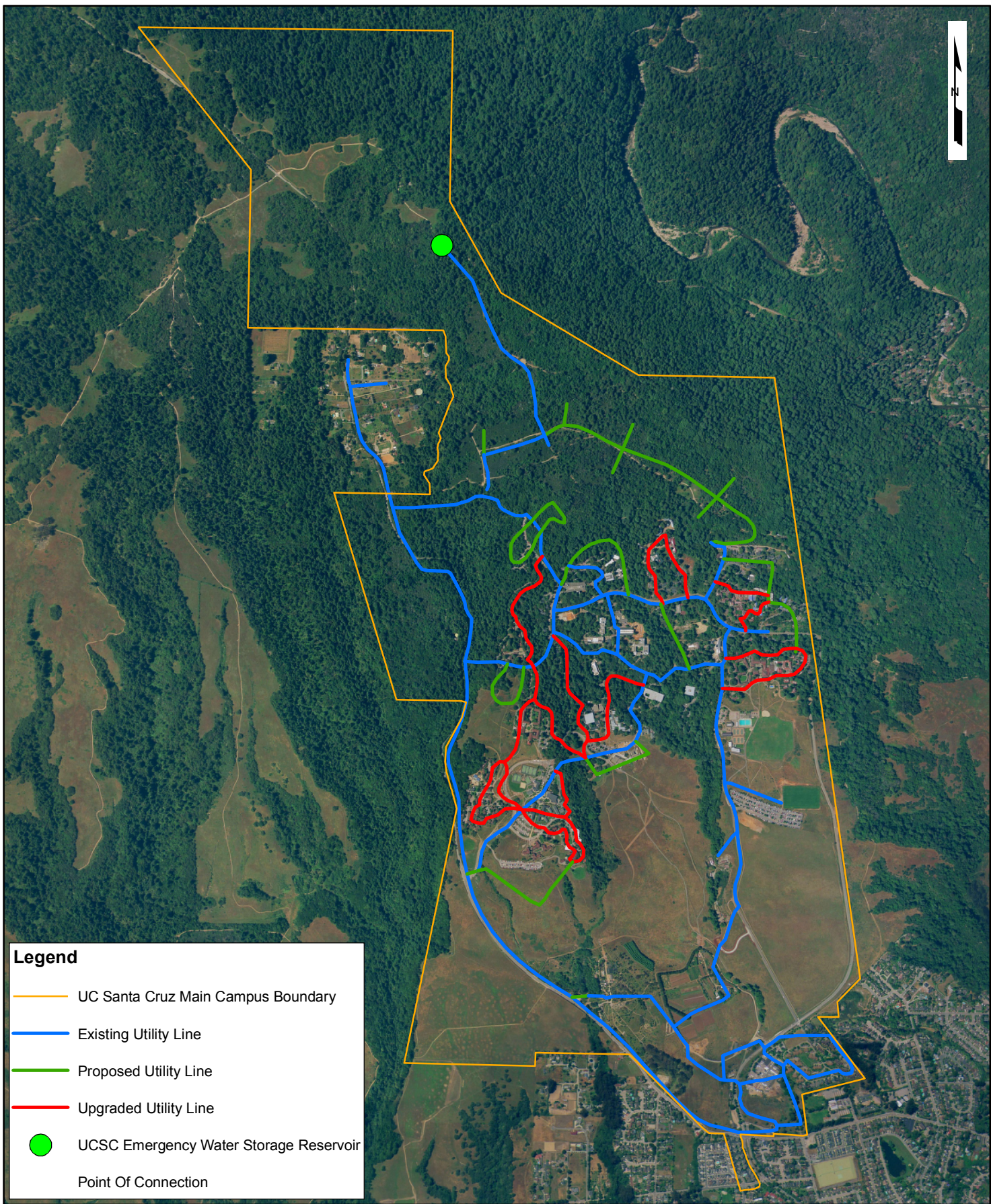
	LRDP Impact	Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
UTIL-9 (cont)			<p>□ Pursue replacement of natural turf on athletic fields with artificial turf.</p> <p>□ Initiate a water conservation education program. Examples of measures that could be included in this program are:</p> <ul style="list-style-type: none"> – Distributing pamphlets to residents of employee housing on basic home water conservation practices, plumbing retrofits and replacements and strategies to conserve landscape irrigation. – Presentations in student orientations. – Press releases and public space advertising in campus media. – Special events such as water conservation fairs. <p>UTIL-9I If and when the City implements drought emergency management measures, the University will implement the following measures for the duration of the drought emergency:</p> <ul style="list-style-type: none"> • Reduce use of potable water for irrigation on the campus landscape, the CASFS and the Arboretum in accordance with reductions required by the City for similar users. • Utilize water from the existing supply well in Jordan Gulch for non-potable uses. The Campus shall implement a program of monitoring flow at downgradient springs during the time when the well is being used. <p>Require that residential water use on campus be reduced consistent with the City’s target for multifamily residential facilities.</p>	

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**Revised Table 2-1
Summary of Impacts and Mitigation Measures in the 2005 LRDP EIR**

LRDP Impact		Level of Significance Prior to Mitigation ¹	LRDP Mitigation Measures	Level of Significance Following Mitigation ¹
UTIL-10	Development under the 2005 LRDP, in conjunction with other regional development, would generate increased demand for wastewater treatment facilities, landfills, energy, and natural gas in the region, and the expansion of associated utilities and service systems to meet this demand would not result in significant environmental impacts.	LS	Mitigation not required	NA

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Legend

- UC Santa Cruz Main Campus Boundary
- Existing Utility Line
- Proposed Utility Line
- Upgraded Utility Line
- UCSC Emergency Water Storage Reservoir
Point Of Connection

**DOMESTIC WATER
SYSTEM IMPROVEMENTS**

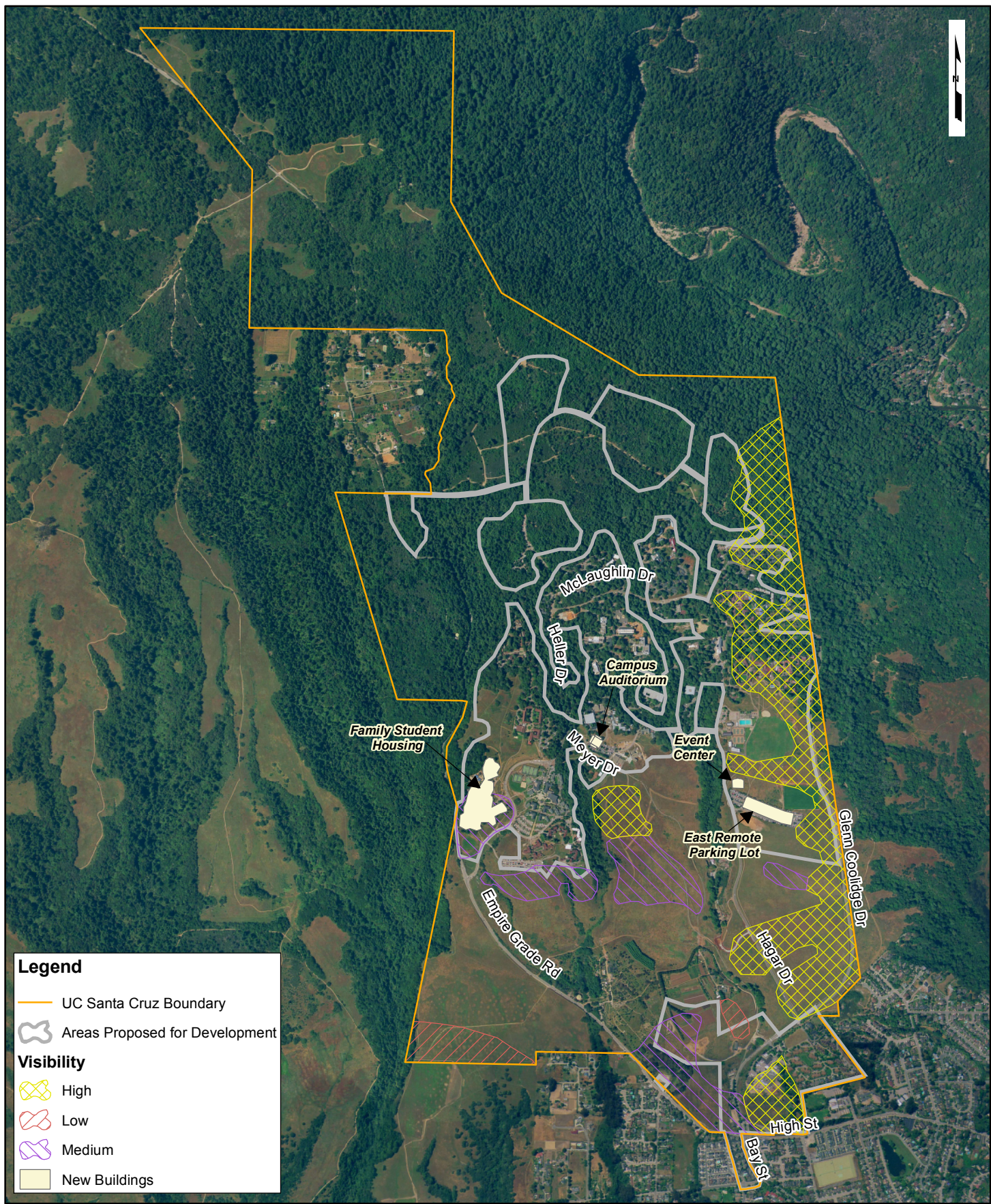
September 2006
28649607

UC Santa Cruz LRDP EIR
Santa Cruz, California

1,000 0 1,000 2,000
Feet



FIGURE 3-7



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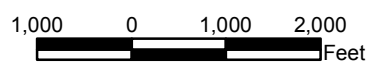
LANDS VISIBLE FROM OFF-CAMPUS VIEWPOINTS

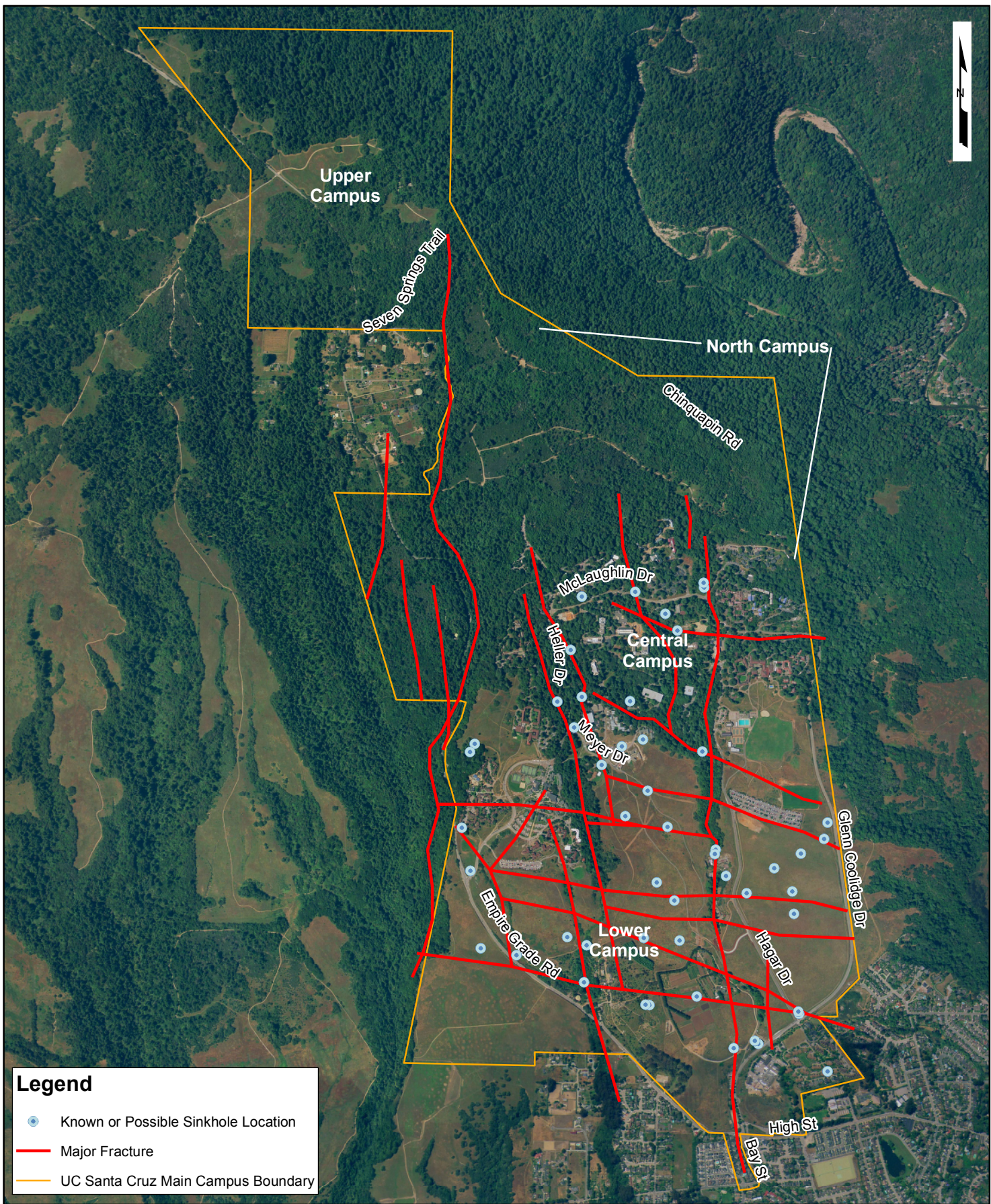
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28649607

UC Santa Cruz LRDP EIR
Santa Cruz, California



FIGURE 4.1-7





Legend

- Known or Possible Sinkhole Location
- Major Fracture
- UC Santa Cruz Main Campus Boundary

Data Source: John Gilchrist and Associates (July 1990)
 Kennedy Jenks (September 2005)
 Nolan-Zinn and Associates (May 2006)

**MAJOR FRACTURES AND SINKHOLES
 ON THE MAIN CAMPUS**

September 2006
 28649607

UC Santa Cruz LRDP EIR
 Santa Cruz, California

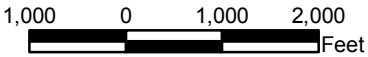
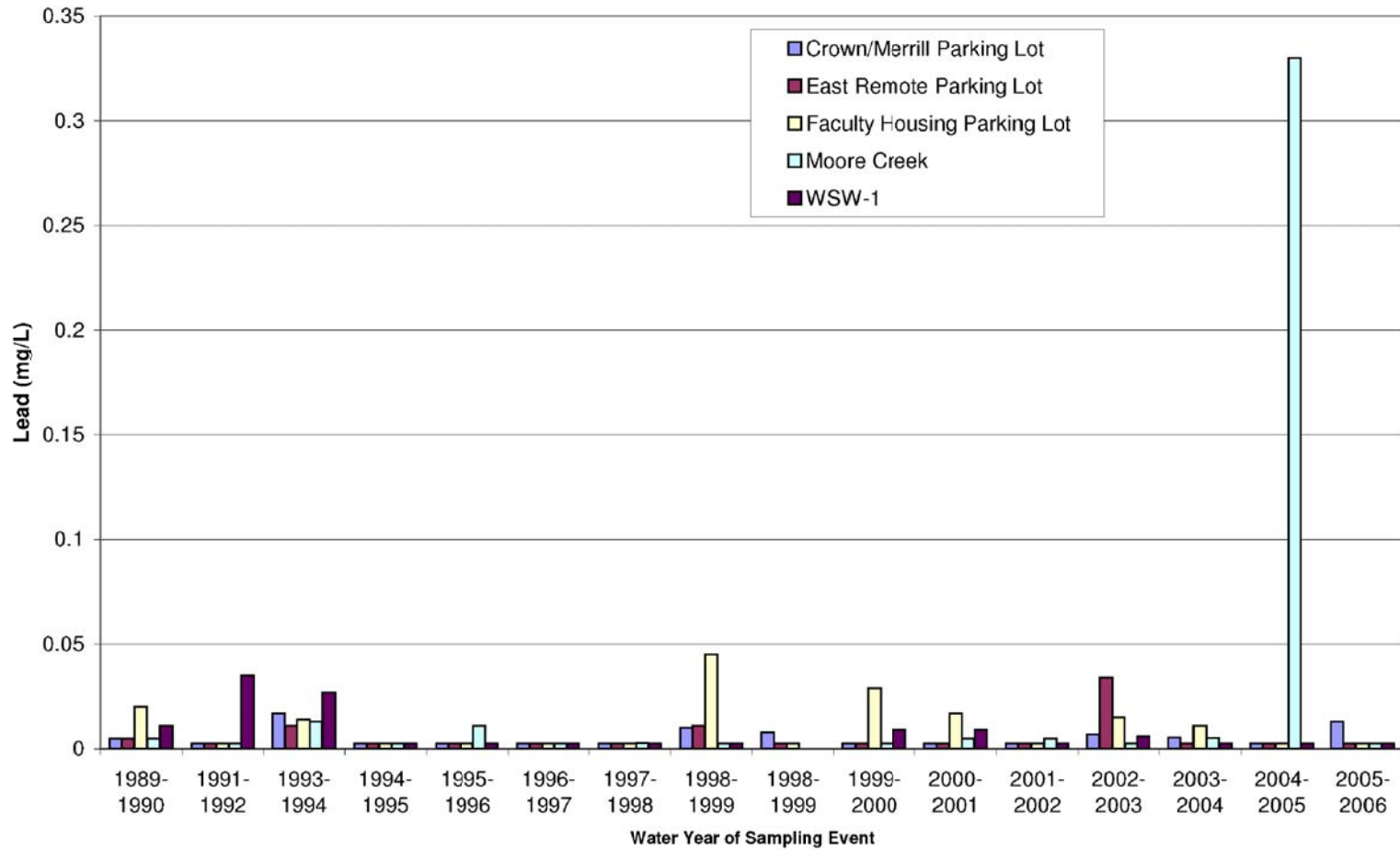


FIGURE 4.8-3

URS Corporation L:\Projects\UC_Santa_Cruz_28649607\MXD\Current Working Documents\080806\Figure_4_8-3_Major Fractures on the Main Campus.mxd Date: 8/8/2006 12:22:34 PM Name: akkele0



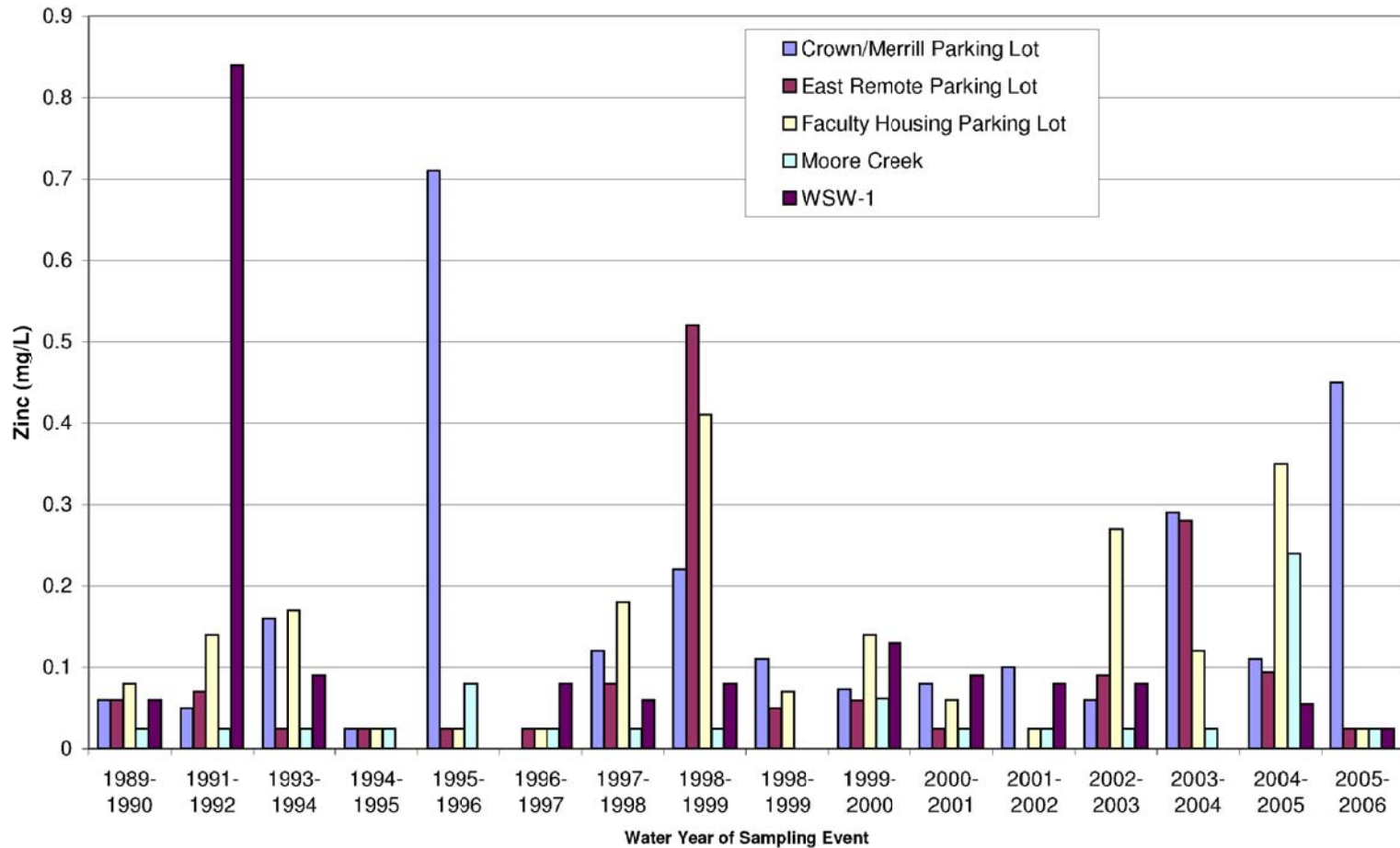
WATER QUALITY SAMPLING - LEAD

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28649607

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Santa Cruz, California



FIGURE 4.8-5a



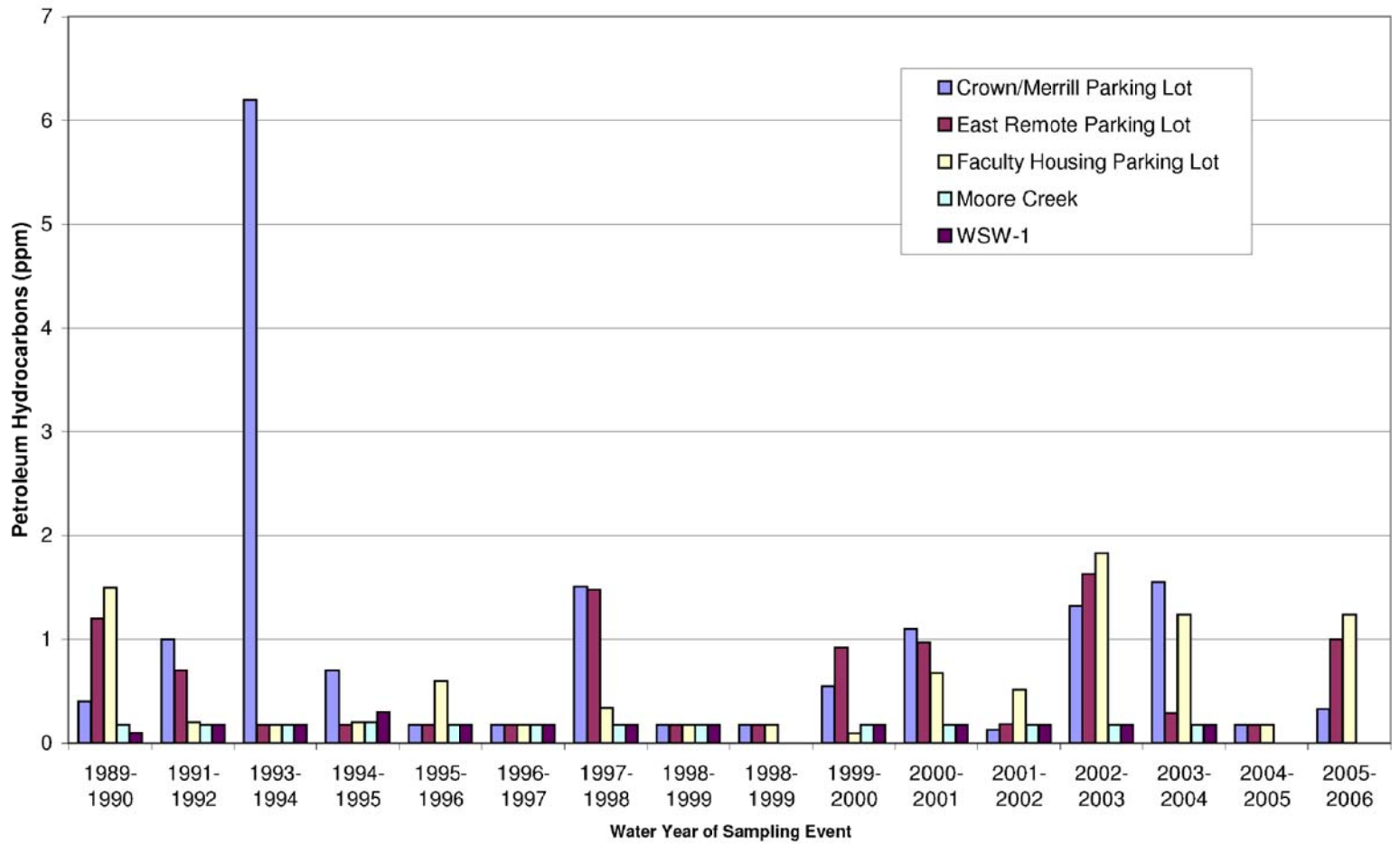
WATER QUALITY SAMPLING - ZINC

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28649607

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Santa Cruz, California



FIGURE 4.8-5b



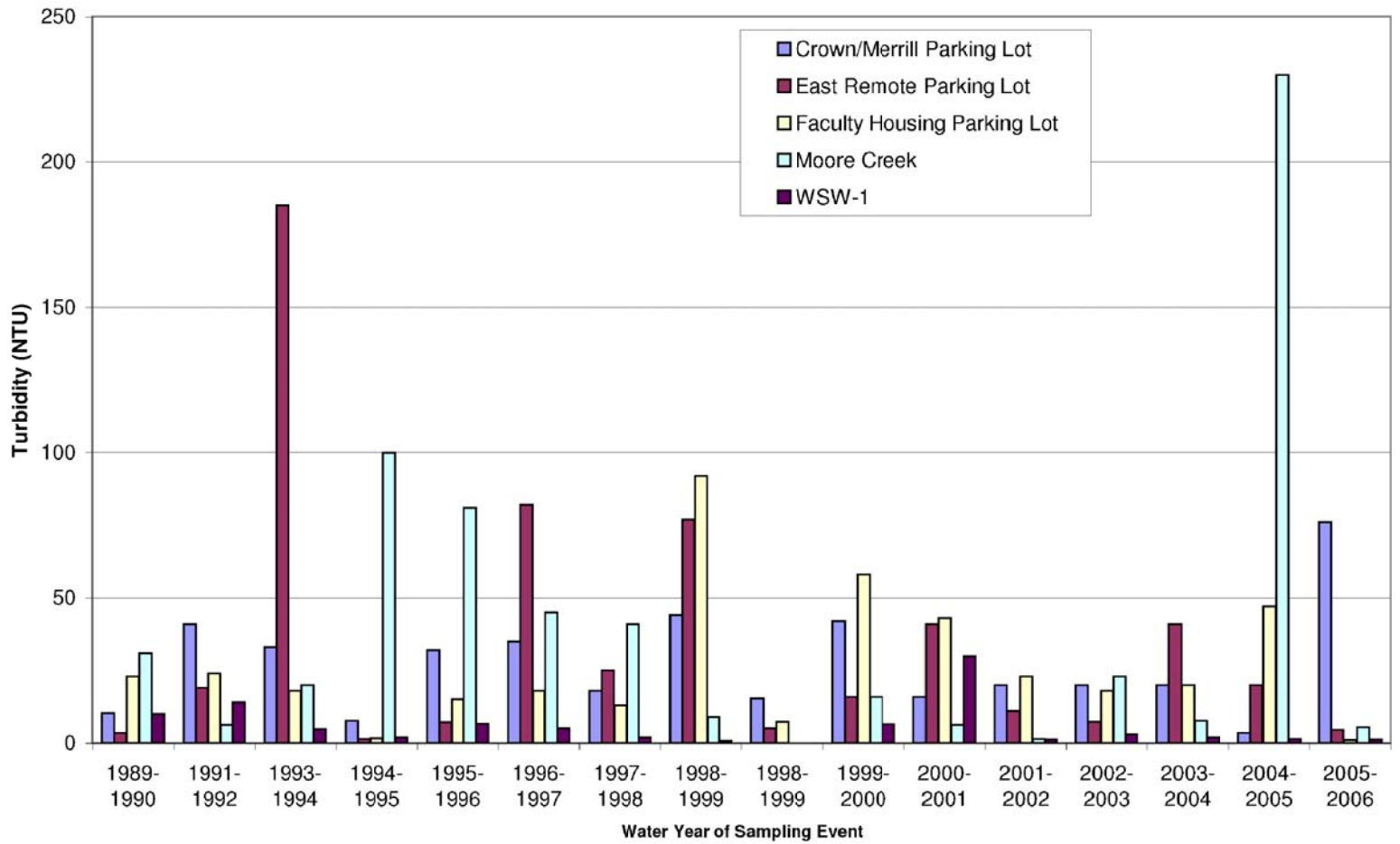
**WATER QUALITY SAMPLING -
PETROLEUM HYDROCARBONS**

September 2006
28649607

UC Santa Cruz LRDP EIR
Santa Cruz, California



FIGURE 4.8-5c



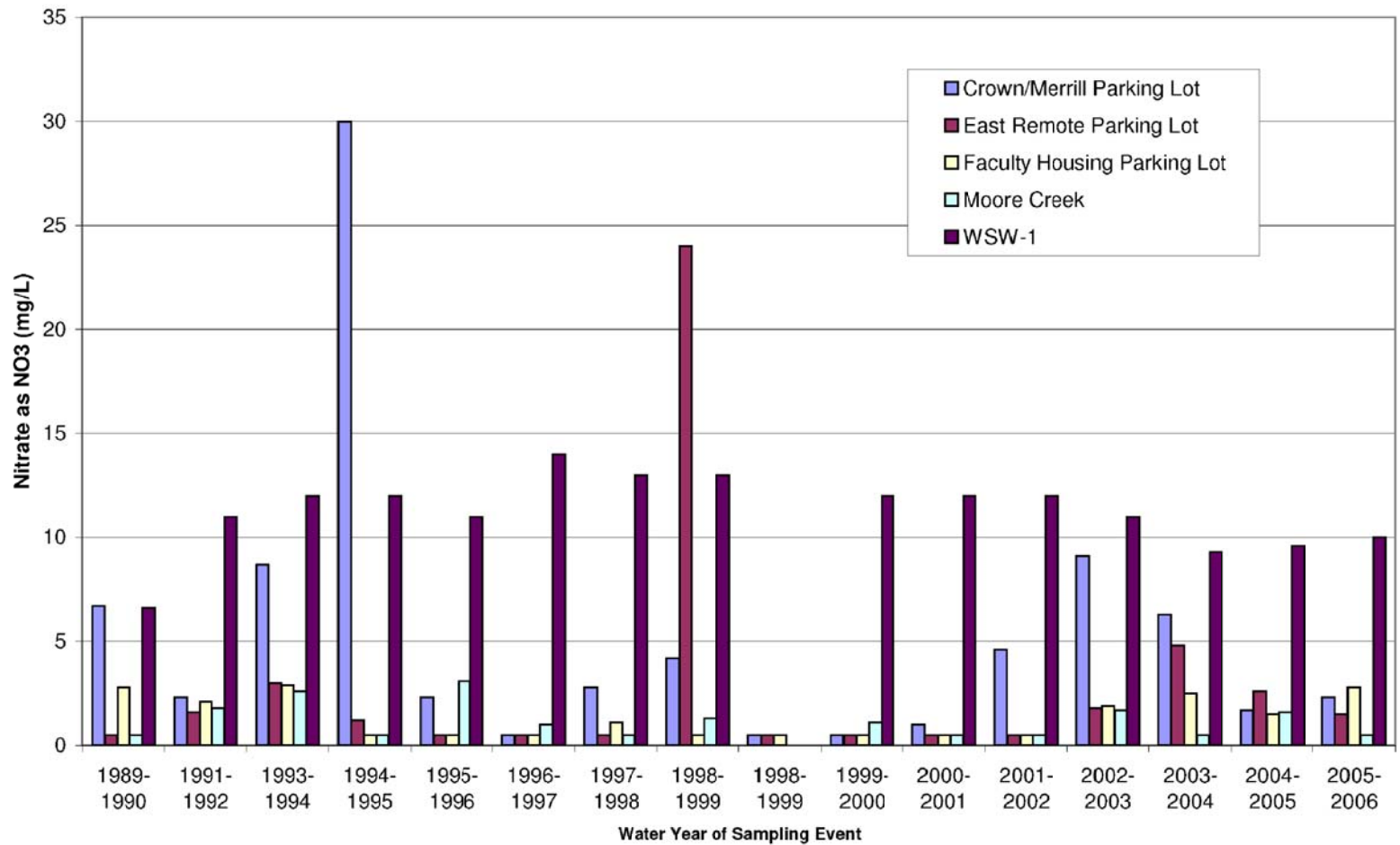
WATER QUALITY SAMPLING - TURBIDITY

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Santa Cruz, California



FIGURE 4.8-5d



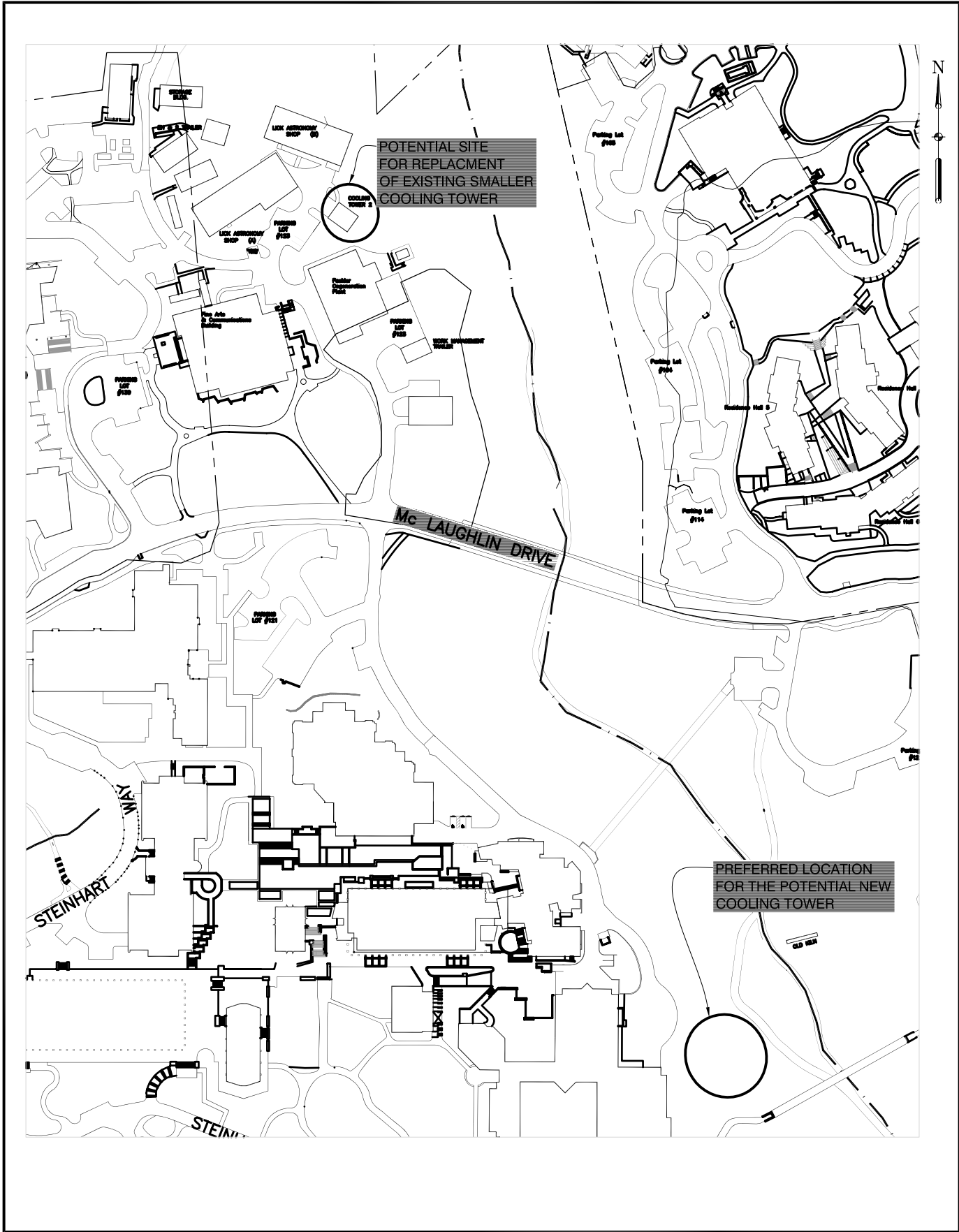
WATER QUALITY SAMPLING - NITRATE

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Santa Cruz, California



FIGURE 4.8-5e



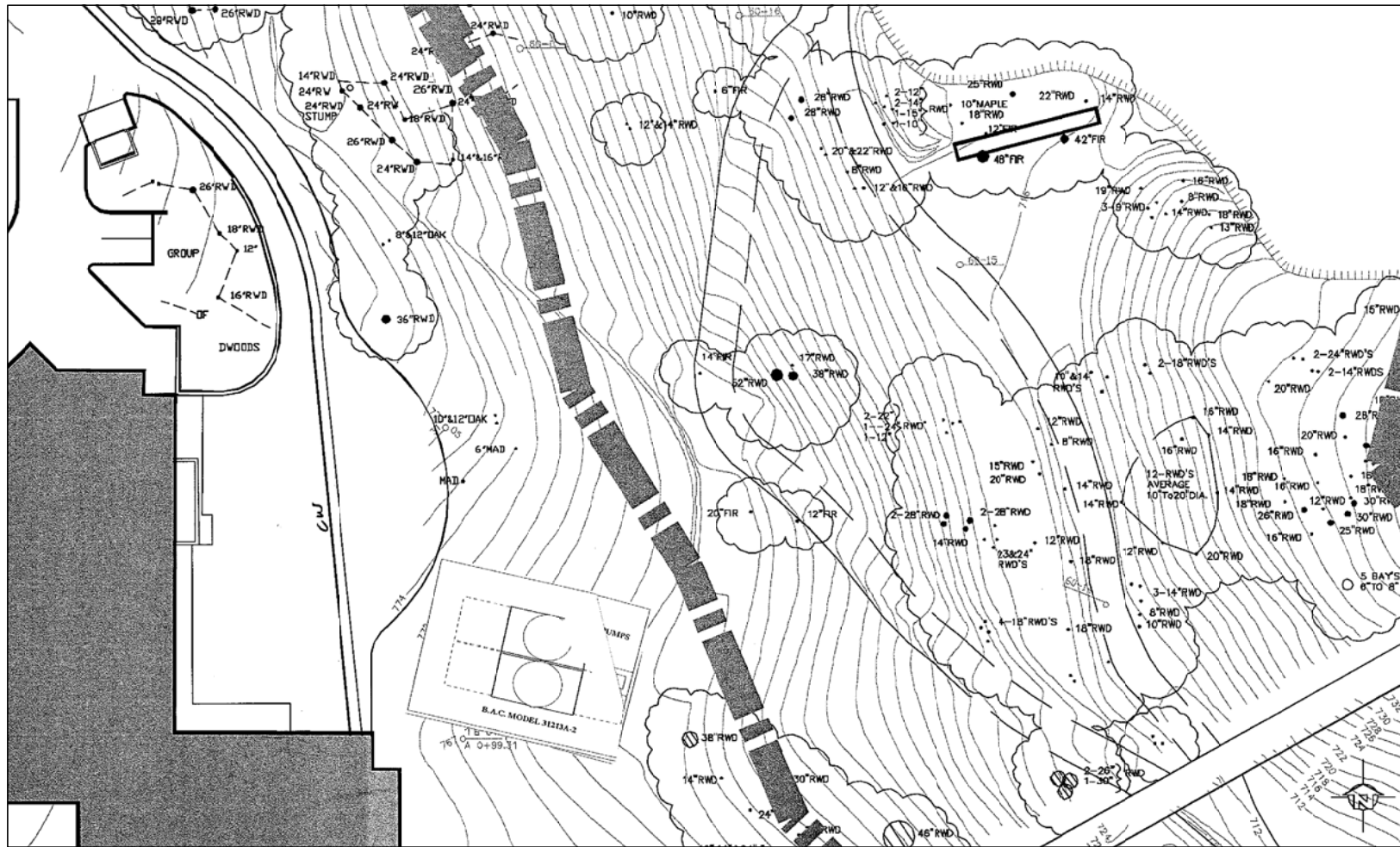
LOCATIONS OF THE NEW COOLING TOWERS

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Santa Cruz, California



FIGURE 2-9



SITE PLAN OF PROPOSED NEW COOLING TOWER

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FIGURE 2-10